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February 19, 2010

Dear Council Member,

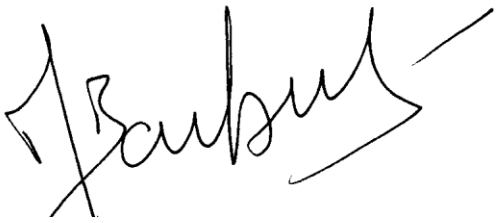
The World Bank as the Implementing Agency for the project entitled*:* ***Egypt: Alexandria Coastal Zone Management Project (ACZM)*** *under the Regional: World Bank-GEF Investment Fund for the Mediterranean Sea Large Marine Ecosystem Partnership, Tranche 1, 1st Allocation,* has submitted the attached proposed project document for CEO endorsement prior to final Agency approval of the project document in accordance with the World Bank procedures.

The Secretariat has reviewed the project document. It is consistent with the project concept approved by the Council in August 2006 and the proposed project remains consistent with the Instrument and GEF policies and procedures. The attached explanation prepared by the World Bank satisfactorily details how Council's comments and those of the STAP have been addressed.

We have today posted the proposed project document on the GEF website at www.TheGEF.org for your information. We would welcome any comments you may wish to provide by March 19, 2010 before I endorse the project. You may send your comments to gcoordination@TheGEF.org .

If you do not have access to the Web, you may request the local field office of UNDP or the World Bank to download the document for you. Alternatively, you may request a copy of the document from the Secretariat. If you make such a request, please confirm for us your current mailing address.

Sincerely,



Attachment: Project Document
Copy to: Country Operational Focal Point, GEF Agencies, STAP, Trustee

REQUEST FOR CEO ENDORSEMENT/APPROVAL

PROJECT TYPE: Full-sized Project
THE **GEF TRUST FUND**

Submission Date: December 1, 2009

PART I: PROJECT INFORMATION

GEFSEC PROJECT ID: 2602
GEF AGENCY PROJECT ID: 95925
COUNTRY(IES): Egypt
PROJECT TITLE: Alexandria Coastal Zone Management
GEF AGENCY(IES): World Bank,
OTHER EXECUTING PARTNER(S): EEAA, Egypt
GEF FOCAL AREA(s): International Waters
GEF-4 STRATEGIC PROGRAM(s): IW-SP2 - Reducing nutrient over-enrichment and oxygen depletion form land-based pollution of coastal waters in LMEs consistent with the GPA
NAME OF PARENT PROGRAM/UMBRELLA PROJECT: INVESTMENT FUND FOR THE MEDITERRANEAN SEA LME PARTNERSHIP

Expected Calendar (mm/dd/yy)	
Milestones	**Dates**
Work Program (for FSPs only)	06/26/2009
Agency Approval date	04/29/10
Implementation Start	02/01/2010
Mid-term Evaluation (if planned)	08/01/2012
Project Closing Date	02/01/2015

A. PROJECT FRAMEWORK

Project Objective: Improve the institutional mechanisms for sustainable coastal zone management in Alexandria in particular to reduce land-based pollution to the Mediterranean Sea.

Project Components	**Indicate whether Investment, TA, or STA[2]**	**Expected Outcomes**	**Expected Outputs**	**GEF Financing[1]**		**Co-Financing[1]**		**Total ($)** c=a+ b
				($) a	%	($) b	%	
1. Planning, Institutional Capacity and Monitoring *	TA, STA, Investment	Increased capacity by the relevant entities to monitor and manage the coastal zones in and around Alexandria in a sustainable manner	Commitment by relevant agencies towards sustainable coastal zone management reflected in medium term plans Major new investments decisions taken during the lifetime of the project by relevant agencies utilize sustainable coastal zone management principles according to the CZM plan	1,982,000	64	1,100,000	36	3,082,000

			At least 3 public consultations on the preparation and adoption of the CZM plan for Alexandria are held by 2015 (process)					
2. Pollution Reduction	TA, STA, Invstment	(i) Improvement in the water quality of Lake Mariout and subsequently the water quality of the Mediterranean Sea hot spot of El-Mex Bay (ii) Efficiency of pollution reduction measures	15% reduction of BOD within the area of influence of the project[1] Increase in percentage of surveyed population noticing an improvement in daily lives (in terms of improved water quality, fishing quantity, and quality)	4,625,000	1	645,211,111	99	649,836,111
3. Project Management and Monitoring & Evaluation	TA, STA	(i) Completion and systematic use of water monitoring network (ii) Evaluation and replication strategy of the project results	A water quality monitoring network measuring project impacts fully operational and integrated with the EEAA database by 2011 (process) Report on "Lake	543,000	42	692,182	58	1,235,182

[1] The baseline for BOD level in the area of influence of the project, and the reduction target will be confirmed in light of the results of the feasibility study.

			Mariout: Results and Lessons Learned" published and disseminated by 2015 (process). Participation in IW learning activities Project's details and results published on the website of EEAA, in line with the IW Learn template Replication strategy prepared and adopted by 2015 (process)					
*4. Project management***				*180,000*		*692,182*		*872,182*
Total Project Costs				7,150,000		647,003,293		654,153,293

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

* The Monitoring function under component 3 applies to all project interventions including evaluation and reporting whereas the Monitoring function in component 1 is only intended to monitor the water quality of Lake Mariout and the Mediterranean Sea. In addition, the monitoring equipments are different for each component and require a different set of skills for their operation

** Project management costs are embedded in Component 3, and therefore the estimated PM costs shown are inclusive and should not be added on top of the total cost.

B. SOURCES OF CONFIRMED **CO-FINANCING FOR THE PROJECT** (expand the table line items as necessary)

Name of Co-financier (source)	*Classification*	*Type*	*Project*	*%**
Government Contribution	National Government	In-kind + budget	611,903,293	94.5
IBRD	Multilateral Agency	Soft loan	2,449,689	0.3
Multilaterals	Multilateral Agencies	Soft loan	7,614,161	1.1
Bilaterals	Bilateral Agencies	Soft loan	10,656,149	1.6
Egyptian industries	Private Sector	(select)	14,380,000	2.2
Total Co-financing			B647,003,293	100%

* Percentage of each co-financier's contribution at CEO endorsement to total co-financing.

C. FINANCING PLAN SUMMARY FOR THE PROJECT ($)

	Project Preparation	**Project**	**Total**
GEF	350,000	7,150,000	7,500,000
Co-financing	20,000	647,003,293	647,023,293
Total	370,000	654,153,293	654,523,293

D. **CONSULTANTS WORKING FOR TECHNICAL ASSISTANCE COMPONENTS:**

Component	*Estimated person weeks*	*GEF amount($)*	*Co-financing ($)*	*Project total ($)*
Local consultants*	60	105,000	0	105,000
International consultants*	26.5	80,000	0	80,000
Total	86.5	185,000	0	185,000

* Details to be provided in Annex C.

E. PROJECT MANAGEMENT BUDGET/COST

Cost Items	*Total Estimated person weeks/months*	*GEF amount ($)*	*Co-financing ($)*	*Project total ($)*
Local consultants*	51 person week	**88,000**	**0**	**88,000**
International consultants*	**51.5 person week**	**155,000**	**0**	**155,000**
Office facilities, equipment, vehicles and communications*		**200,000**	**692,182**	**892,182**
Travel*		**50,000**	**0**	**50,000**
Others** (meetings, workshops)		**50,000**	**0**	**50,000**
Total		**543,000**	**692,182**	**1,235,182**

* Details to be provided in Annex C. ** For others, it has to clearly specify what type of expenses here in a footnote.

F. DOES THE PROJECT INCLUDE A "NON-GRANT" INSTRUMENT? yes ☐ no ☒
(If non-grant instruments are used, provide in Annex E an indicative calendar of expected reflows to your agency and to the GEF Trust Fund).

G. DESCRIBE THE BUDGETED M &E PLAN: EEAA will be responsible for monitoring the progress of the Project, in collaboration with the Alexandria EEAA Regional Branch Office (RBO). The detailed arrangements for M&E[2] including indicators are included in the Project Appraisal Document in Annex 3and in the Operations Manual of the project management unit. EEAA will report to the Bank in quarterly and annual progress reports.

A M&E specialist will be responsible for preparing the periodic Project progress reports, including reporting progress on general implementation and progress against agreed indicators (mid-term review & completion report). The M&E specialist will be assisted by an M&E consultant, to be contracted and paid under the project funds as part of component (3) activities.

PART II: PROJECT JUSTIFICATION: In addition to the following questions, please ensure that the project design incorporates key GEF operational principles, including sustainability of global environmental benefits, institutional continuity and replicability, keeping in mind that these principles will be monitored rigorously in the annual Project Implementation Review and other Review stages.

A. STATE THE ISSUE, HOW THE PROJECT SEEKS TO ADDRESS IT, AND THE EXPECTED GLOBAL ENVIRONMENTAL BENEFITS TO BE DELIVERED: Background: Degradation of water quality due to land-based pollution is a major problem in the Mediterranean coastal areas. The Strategic Action Plan for the Mediterranean[3] has identified several "hot spots and sensitive areas" on the northern coast of Egypt, which for several decades have been experiencing a continuous increase in population, development, and environmental degradation. Two of these "hot spots" are located in Alexandria, namely El-Mex Bay and Abu-Qir Bay. Please see attached map.

Lake Mariout is one of the major sources of conveyance of land based pollution to the El-Mex Bay. According to the Transboundary Diagnostic Analysis (TDA) for the Mediterranean Sea, the pollution load reaching the Mediterranean Sea via the two hot spots in the Alexandria area are significant with more than a third of the total Biochemical Oxygen Demand and Chemical Oxygen Demand discharges in the area.

Today, the Lake Mariout receives polluted water from three major sources:

(a) Industrial effluents: Various industries discharge directly their effluents into the lake or El Mex Bay. The pollutants brought by the industries include high COD and heavy metals.

(b) Domestic effluents: Two wastewater treatment plants discharge their primary treated effluents into the Lake Mariout. The total discharge of primary treated sewage is about 916,000m3/day. The East Waste Water Treatment Plant releases effluents into Dayer-El-Matar drain which then empties into the Lake. Additionally, Lake Mariout receives effluent that is discharged directly from the West Waste Water Treatment Plant.

(c) Drainage water from agriculture: The Lake receives an important part of agricultural drainage water coming from secondary drains and agricultural activities upstream, bringing pesticides, nutrients (phosphate, nitrogen compounds, sulphate, etc) along with organic matter from animal farming and domestic wastewater of nearby villages.

Eutrophication in the basins of the Lake and open sea has been reported. Today, 60% of the Lake basins are covered by plants and aquatic weeds causing the Lake to lose its attraction as a recreational resort. More significantly,

[2] The Monitoring function under component 3 applies to all project interventions including evaluation and reporting whereas the Monitoring function in component 1 is only intended to monitor the water quality of Lake Mariout and the Mediterranean Sea. In addition, the monitoring equipments are different for each component and require a different set of skills for their operation

[3] The Mediterranean countries have also worked together to set priorities related to these transboundary problems and have jointly agreed on what interventions are needed to address such priorities through two Strategic Action Programs (SAPs): (a) The Strategic Action Program to Address Pollution from Land-Based Activities (SAP MED); and (b) The Strategic Action Program for the Conservation of Mediterranean Marine and Coastal Biological Diversity (SAP BIO). The two Strategic Action Programs are aimed at: (i) reducing land-based sources of marine pollution (SAP-MED) and (ii) protecting the biodiversity and living resources of the Mediterranean, as well as their habitats (SAP-BIO).

however, eutrophication negatively affects the livelihoods of the local population including marginalized groups like the fishermen who are highly dependent on the fish catch from the Lake basins for their income.

Project Objective: The project's environment hypothesis is that in order to reduce the land-based sources of pollution in the hot spots of El-Mex Bay and Alexandria, including Lake Mariout, all stakeholders and agencies at local, regional and national levels need to be empowered and work together to ensure the sustainable management and protection of the Egyptian coastal zones around the Mediterranean Sea. Efforts are already underway with the on-going preparation of a national strategy for Coastal Zone Management (CZM), the existence of a Lake Mariout management committee under the responsibility of the Ministry of Agriculture and the re-instatement of the National Committee for CZM.

The project will support these initiatives and create synergies among them not only with the preparation and adoption of a master plan on CZM for Alexandria, including Lake Mariout, but also with the piloting of innovative and low-cost technologies and measures for pollution reduction originating from agricultural drainage water and rural domestic wastewater, partially responsible for the severe eutrophication problem in the Lake basins. The project complements conventional infrastructure-based treatment plants which receive concentrated effluent from urban and industrial areas. It proposes innovative integrated and natural process based options such as wetlands which are used as nutrient traps to treat more diffuse pollution load coming from upper parts of the water catchment.

To treat the more diffuse land-based sources of pollution entering Lake Mariout, the project proposes to use in-stream treatment (i.e. bio-films), which introduces a dynamic, mobile and easily manageable technique mechanism. The in-stream treatment, although relatively new in Egypt, has been used successfully by the MWRI as a pilot and has been recommended for broader application elsewhere in the country by other agencies. During project preparation, a pre-feasibility analysis of the pollution reduction measures was conducted and found that the implementation of a number of small interventions (in stream bio-films and in-stream aeration, pilot in-lake wetland, and weed removal) could significantly improve the average water quality of entering Lake Mariout and subsequently the Mediterranean Sea.

The main package to be considered will thus be composed of the biofilm with needed, or additional, aeration and the in-lake wetland. Because the Qalaa drain (where the project interventions will take place) is currently anaerobic (less than 0.5 mg/l dissolved oxygen), aeration is needed to provide the adequate aerobic conditions. The high running costs of aeration if not coupled with a serious cost recovery component might put the whole investment at risk of reverting to the substantially lower efficiency of operation under anaerobic conditions. Therefore, the high potential for income generation represented by the duckweed crop is integrated within a larger package. By integrating the biofilm, the aeration and the in-lake wetland techniques better results are expected. The synergetic effect of the in-stream bio-film and the in-stream aeration will give the in-lake engineered wetland a medium water quality permitting the latter to initiate its own ecological cycle that will permit the cultivation of duckweeds. The duckweeds will in turn absorb the nutritive salts and oxygenate the effluent. Feasibility studies and detailed design will be done in the course of Project implementation, following detailed field surveys and investigations, for which provisions have been made under the Project. Due diligence will be carried out before a decision is made on specifics of the final interventions. With regards to selection of aquatic plant for the in-lake wetland, it will be chosen so that maximum economic benefits (as feed for fish, poultry, etc.) can be obtained, without compromising on human or animal health impact (bio-concentration of heavy metals). The final feasibility study will therefore evaluate the level of heavy metal in both reeds and aquatic plants (duckweed or water hyacinth) for the optimal use of these resources, without being a threat to human or animal health. The study will also recommend various alternative options for use of harvested aquatic plants (e.g. handicrafts).

Expected Global Environmental Benefits: The project is expected to yield global environment benefits through the following key outcomes: (i) Reduction, albeit marginal, in the load of land-based sources of pollution from water nutrients entering the Mediterranean Sea hot spots through Lake Mariout; (ii) Improvement in the ecosystem health of the Mediterranean Sea hot spots and Lake Mariout including in the fish production and bio-diversity; (iii) Pollution reduction measures are scaled up in Alexandria and replicated in other coastal lakes in Egypt and surrounding Mediterranean countries. Although the reduction of land-based sources of pollution entering the Mediterranean Sea from this project will be small, its impact, collectively with the other pollution reduction interventions originating from industrial and domestic urban wastewater, will be significant. This project is one of

others project to be implemented under the International Water program, which -collectively- would reduce the pollution load entering the Mediterranean Sea.

B. DESCRIBE THE CONSISTENCY OF THE PROJECT WITH NATIONAL AND/OR REGIONAL PRIORITIES/PLANS: The proposed GEF project which includes the drafting and adoption of a Master Plan on CZM for Alexandria including Lake Mariout is directly consistent with the on-going preparation of the National Strategy for CZM in Egypt. The National Strategy is prepared under the leadership of the Egyptian Environmental Affairs Agency (EEAA). The project will also complement efforts underway by the Government of Egypt to upgrade the Eastern and Western primary treatment plants, as part of the Alexandria City Development Strategy. Finally, the master plan on CZM and the related public consultations will facilitate and serve as input for the preparation by the Ministry of Housing, Utilities, and Urban Development (MHUUD) of the urban development plan for Alexandria, including Lake Mariout.

DESCRIBE THE CONSISTENCY OF THE PROJECT WITH GEF STRATEGIES AND STRATEGIC PROGRAMS: The activities under the proposed project are aligned with the International Waters Focal Area Strategic Programs for GEF-4, approved by the GEF Council in September 2007, and are contributing to the GEF4 Strategic Objective #2 of the IW focal area. In particular, originally designed in conformity with Operational Program #2 and Operational Program #8 under GEF-3, the project is equally aligned and being developed within the framework of the "Reducing nutrient-enrichment and oxygen depletion from land-based pollution of coastal waters in LMEs" of the International Waters Focal Area Strategic Program #2 of GEF-4. The project will demonstrate how a heavily degraded lake can be rehabilitated using low cost ecological technologies and through policy and institutional reforms as well as innovative partnerships and community participation. The project is directly in line with the implementation of the Strategic Program #2 expected outcomes: political commitments to nutrient and other pollution reduction and Integrated Coastal Management (ICM); institutions and reforms to catalyze implementation of policies for coastal pollution reduction and ICM; and multi-agency partnerships to catalyze innovative investments for nutrient reduction. Specifically, the results framework of the project is aligned with the indicators of the SP #2, i.e. national inter-ministerial committee on ICM; adoption of ICM master plan for Alexandria and policy, legal and institutional reforms; and monitoring of reduced levels of nutrient releases at demonstration sites.

The project is also consistent with the objectives of the Investment Fund for the Mediterranean Sea Large Marine Ecosystem Partnership (World Bank) to accelerate the implementation of transboundary pollution reduction and biodiversity conservation measures in priority hotspots and sensitive areas of selected countries of the Mediterranean basin that would help achieve the SAP MED and SAP BIO targets. The expected results of the Investment Fund are in line with the project's anticipated results such as increased capacity of countries to implement policies and strategies that address SAP priorities, promotion of most innovative project and technologies, development of replication strategies at national and international level, and monitoring of stress reduction measures at water body level.

As part of the dissemination and replication strategy under component 3, close linkages and synergies will be established with the GEF's International Waters Learning Exchange and Resource Network (IW LEARN) programs, including development of a website consistent with IW-Learn, production of experience notes, and participation in IW-conferences. In addition, the project impacts will be monitored on an annual basis using the GEF IW Tracking Tool including process and stress indicators which are reflected in the Results Framework. The monitoring of indicators and assessments will guide the preparation of the annual work plan by the PMU in consultation with the stakeholders.

Finally, the proposed GEF project is in conformity with the GEF's Operational Program # 2 "Coastal, marine and freshwater eco-systems" and Operational Program # 8 "Water based operational program" by addressing land based pollution as a transboundary environmental concern and addressing specific impairments to a waterbody.

The project is consistent with the eligibility criteria of the Investment Fund for the LME as shown by Table below.

Eligibility Criteria of the Investment Fund	**Elements of Consistency with the Alexandria Coastal Zone Management Project**
The project focuses on hotspots and sensitive areas and responds to priorities identified by the Mediterranean Sea TDA and SAP BIO and SAP MED.	The SAP for the Mediterranean and the TDA has identified El-Mex Bay in Alexandria as a hot spot of significant relevance in the context of the Mediterranean Sea. Lake Mariout is one of the major sources of conveyance of land based pollution to the El-Mex Bay through the El-Mex pumping station.
The project responds to the priorities identified in the National Action Plan or equivalent strategic documents endorsed by the requesting country.	The National Environmental Action Plan (2002-2017) identified a program on marine coastal zones management with a series of interventions including monitoring and pilot projects. The proposed GEF project will support the NEAP priorities through (a) the development of a water monitoring system integrated with the EEAA database and (b) the implementation of a package of small scale innovative pollution reduction measures on a pilot basis.
The project has secured adequate co-financing for non-incremental components.	The GEF contribution complements (i) the Government on-going large scale infrastructure program to upgrade the treatment capacity of municipal wastewater treatment plants in Alexandria and (ii) the Government program to reduce industrial pollution in Alexandria and greater Cairo under the EPAP II.
The project adheres to the principles of the GEF International Waters Strategies, Operational Programs, and Strategic Priorities and is formally endorsed by the country's GEF Focal Point(s).	The project fully conforms to the GEF4 IW Strategic Objectives and Programs and has been endorsed by the GEF Operational Focal Point.
The project includes piloting and testing alternative methodologies and approaches that are innovative in the country context.	The project includes a pilot project to demonstrate how low cost technologies can reduce nutrients and pollution from agricultural drainage water and rural waste water. The pilot project will also improve water circulation in the drains and in the Lake which combined with the other measures can be replicated in rural areas in the Delta.
The project can demonstrate on-the-ground impact and includes provisions and adequate financial resources for monitoring and evaluation activities, and specific indicators consistent with International Waters and Biodiversity frameworks.	The project will have an impact on the reduction of nitrogen, phosphorous, BOD and COD both within the drains and in El-Mex bay. M&E is a key component of the project and has received adequate financial resources. Specific stress reduction indicators have been identified and will be monitored during project implementation.
The project demonstrates high potential for replication within the country and the Mediterranean basin	The in-stream treatments constitute potential replicable experiments in northern villages in the Delta and the small scale engineered wetland could be considered for other coastal Lakes in Egypt and elsewhere in the Mediterranean basin. The project will cooperate with the UNEP Regional Component of the Partnership to enhance awareness and replication.

C. JUSTIFY THE TYPE OF FINANCING SUPPORT PROVIDED WITH THE GEF RESOURCES. The financing support provided will be in the form of a grant. The GEF project is critical as it adds to a significant mass of investments from the GoE by treating more diffuse pollution coming from agricultural drainage water and rural domestic wastewater through innovative and natural processes in an effort to develop an integrated approach to coastal zone management in Egypt.

D. OUTLINE THE COORDINATION WITH OTHER RELATED INITIATIVES: The proposed GEF project will build on the existing structures, investments and linkages established by other projects financed by the Bank and by other donors to reduce pollution loads entering Lake Mariout. Specifically, it should be emphasized that the proposed project is complimentary to other on-going projects, each addressing a different source of pollution. The other set of interventions include the EPAPII sub-projects and the Government upgrade of the East and West Waste Water Treatment Plants.

- EPAPII: The GEF project is partially blended with the Second Egypt Pollution Abatement Project[4] (EPAP 2), currently under implementation. The original EPAP 2 loan amount is $165 million, of which the World Bank contribution is $20 million. The Second Pollution Abatement Project (EPAP 2) provides attractive loans to financially viable industrial enterprises for pollution reduction measures. The EPAP 2 investment targets pollution abatement in factories in Alexandria and in Greater Cairo, to reduce water and air pollution in these two hot spots. The specific investment relevant to the proposed GEF project are those sub-projects that directly reduce polluted effluent to Lake Mariout, namely:: (i) the Amria petroleum refining public company with a proposal to use NMP solvent instead of Phenol, (ii) the national paper private company with a proposal to supply and install second stage biological wastewater treatment plant, and (iii) the Wael Tex company with a proposal for rehabilitation of the industrial wastewater. The total contribution from the World Bank, multi- and bi-lateral development agencies for these three sub-projects amounts to $19.7 million. The Egyptian industries contribution in the three sub-projects is $14.3 million. The GEF project will use the same project management unit (PMU) as that of EPAP2 in order to maximize impact and reduce transaction costs. In particular, the Director of the PMU for EPAP II will serve as the PMU Director for the proposed GEF project thereby facilitating synergy and cross-fertilization; (iii) A procurement specialist will be hired to ensure that the GEF project PMU can continue to oversee the project implementation even after the EPAP 2 closure date of 2012.
- Government interventions: The Government of Egypt (GOE), through the Ministry of Housing, is implementing a large scale program to increase sanitation coverage in urban and rural communities throughout Egypt. Of this program, the GoE is planning to increase the capacity of the East and West Waster Water Treatment Plants in Alexandria, and to upgrade the treatment from primary to secondary level. Currently the primary treated effluent from the West Treatment Plant discharges directly to Lake Mariout, while the effluent from the East Treatment Plant reaches the Lake indirectly through Dayer-El-Matar Drain. Therefore, the GoE's plan of upgrading these two plants to secondary treatment levels contributes directly to the development objectives of the proposed GEF project. A total budget of $611.9 million has been earmarked by the GoE for the activities of capacity expansion and upgrade of the two treatment plants. Currently, consultancy work is underway for the design of the East treatment plan upgrade, and construction is expected to start later in the year. For the West treatment plant, the tender process for the consultancy work would start mid 2009. The East and West treatment plants are expected to be operational in 2011 and 2012, respectively.

The GEF project would treat more diffuse pollution coming from agricultural drainage water and rural domestic wastewater; support the development of sustainable and integrated coastal zone management, and use reliable biotechnology such as engineered wetlands.

[4] The GEF financing for the Alexandria Integrated Coastal Zone Management Project is explicitly listed in the Loan Agreement of the Second Pollution Abatement Project dated May 8, 2006, to support EPAP II and Egypt's five year plan to reduce pollution generated by the industrial sector (Article 1, Section 1.02 (f)). Therefore, the GEF financing was initially fully-blended with the EPAPII but as a result of operational delays is now defined as partially blended.

The project will also build on the Alexandria Lake Mariout Integrated Management project (ALAMIM) funded under the EU SMAP III (Short and Medium term priority environmental Action Programme) and implemented by CEDARE which aims to promote the integrated development of the Lake Mariout. The activities of the ALAMIM project, expected to be completed in mid-2009, will be used during the GEF funded project.

Therefore, the proposed GEF project together with other interventions provides a critical mass of investments to promote higher political visibility of the pollution reduction measures and benefits.

E. DISCUSS THE VALUE-ADDED OF GEF INVOLVEMENT IN THE PROJECT DEMONSTRATED THROUGH INCREMENTAL REASONING : In the absence of GEF involvement under the baseline scenario, the planning and use of coastal zones in Egypt would be addressed without particular attention to (i) an eco-system and integrated approach to coastal zone management and protection of downstream water bodies or (ii) to innovative collaborative models to reduce more diffuse land-based sources of pollution entering the Mediterranean Sea. Rather, coastal zone management would be dealt with in an ad-hoc manner with no consideration of the linkages between development and sustainable management of natural resources, policy and institutional reforms and with no strategy for up-scaling or replication.

Implementation of the Baseline scenario would result in:

- Development of a new national strategy for CZM with limited concrete implementation measures for Alexandria area and limited mainstreaming of coastal zones management considerations in urban planning at local level. Continued fragmented approach to coastal zone management in and around Alexandria area;
- A Coastal Zone Management Strategy being developed but incorporation of biodiversity conservation and ecosystem issues with consideration for downstream pollution is limited;
- On-going infrastructure investments mainly target industrial and municipal wastewater through conventional treatment plants. Very limited investments specifically targeting more diffuse upstream agricultural drainage water and rural domestic wastewater;
- Monitoring and evaluation systems established that do not incorporate indicators of biodiversity conservation (fisheries, etc…);
- Capacity to monitor water quality in and around Alexandria on a regular basis area is limited; and
- Limited involvement and participation of local communities and relevant stakeholders in addressing coastal zone management.

Total expenditures under the Baseline scenario are estimated at US$647,003,293 million with contributions from the Government of Egypt, the World Bank, the EU, the EIB, the AFD, and Egyptian industries located in Alexandria. Specifically, the baseline scenario includes (i) the upgrading of the West and East urban and municipal wastewater treatment plants by the GoE in the cost of US$611,111,111, (ii) the EPAP2 project which addresses industrial pollution in the amount of US$19,720,000 and (iii) the financing by Egyptian industries of their effluent treatment costs of up to US$14,380,000.

With support from the GEF, an expanded program would focus on mobilizing and empowering relevant stakeholders at national and local levels to develop and adopt a sustainable institutional and policy framework for coastal zone management in Egypt and test innovative management and financing approach to reduce coastal degradation in Lake Mariout and surrounding areas. The GEF alternative would build a coalition of support among various entities around coastal zone management, support the mainstreaming of environment protection including CZM into land use planning for the city of Alexandria, including Lake Mariout, through policy and institutional reforms, and mobilize support for innovative and collaborative financing mechanisms of pollution reduction measures. In spite of various abuses, Lake Mariout still proves today to be of first importance for the environmental balance of the whole region and provides significant pollution abatement before discharging into the El Mex bay. The Project is expected to yield local environmental benefits through the polishing of the water discharged into the Lake thereby restoring the Lake self-cleaning capacity as well as regional and global environment benefits through the reduction of trans-boundary pollution entering the Mediterranean in the El Mex Bay and Alexandria region.

Under the GEF *Alternative Scenario*, Egypt will be able to improve the management and conservation of coastal zones areas through targeted low-cost investments, strengthening planning, decision-making process and institutions at national and local levels with the mainstreaming of integrated coastal zone management considerations in development plans and the use of effective water quality monitoring instruments. The GEF alternative to treat more diffuse and up-stream sources of pollution (i.e. agricultural and rural wastewater) through low-cost and innovative interventions is estimated to be US$654,153,293.

Therefore, the incremental cost for the project is estimated at US$7,150,000 to develop a sustainable and integrated approach to the protection of the coastal zones in El-Mex Bay and Alexandria including Lake Mariout.

F. INDICATE RISKS, INCLUDING CLIMATE CHANGE RISKS, THAT MIGHT PREVENT THE PROJECT OBJECTIVE(S) FROM BEING ACHIEVED AND OUTLINE RISK MANAGEMENT MEASURES:

RISKS	MITIGATION MEASURES
Risk that the institutional complexities with regards to the environment management of coastal zones in Egypt will negatively impact project implementation.	-The ACZM plan will discuss and specify the institutional arrangements and role of the different stakeholders in coastal zone management and the Lake Mariout in particular. -The project will build on the existing structures, investments and linkages established by other projects financed by the Bank and other donors.
Risk that the relatively weak regulatory and enforcement capacity on environmental pollution control will limit the project impact.	-The project will organize several consultations and training workshops to raise awareness and build capacity on environmental protection in coastal areas; -Data on pollution will be regularly collected, monitored and publicly disclosed.
Risk that the traditionally weak cost recovery practices in wastewater sector will negatively impact the project sustainability.	-The project will support the identification of innovative cost recovery mechanisms by engaging broad consultations during project preparation and implementation.
Risk that the continuous discharges of various types of pollution will make it difficult to measure water quality improvements.	-The Coastal Zone Management Plan for Alexandria will provide a framework for land use planning on Alexandria including minimum requirements for wastewater discharges. -Clear baseline and good selection of monitoring sites will be put in place to adequately assess the impacts of the GEF project interventions.
Risk that the pollution reduction measures to be implemented by the agencies may constitute an added burden on their activities and therefore negatively impact project implementation.	- The pollution reduction measures to be undertaken are part of the roles and responsibilities of the agencies so these measures do not constitute an added burden or foreign activity to them. In addition, the management (and assets) of the investment component will be transferred from the EEAA to the relevant agency/ministry after project completion to ensure long-term sustainability. To that effect, an inter-agency agreement was prepared and signed between EEAA and MWRI on October 26, 2009 and between EEAA and the GAFRD on November 2, 2009, respectively, as a condition for negotiations.
Risk that a rise in the sea level and climate change will negatively impact the project, given that Alexandria is a coastal city and that the Lake Mariout is two meters below sea level.	-The risk will be tackled by the inclusion of an intersectorial analysis focusing on climate change as part of the Coastal Zone Management Plan for Alexandria and the requirement to address this issue in future urban development plans of the city of Alexandria.

G. EXPLAIN HOW COST-EFFECTIVENESS IS REFLECTED IN THE PROJECT DESIGN: The design of the project is considered the most cost-effective in comparison to the following alternatives:

(a) A wastewater treatment for the tanneries complex in El-Mex bay has been considered. Although the treatment plant would reduce the load of chromium, TSS and COD which enters El-Mex Bay, this alternative was discounted because it does not address the removal of nutrients, source of the eutrophication problem in the Lake and the Mediterranean Sea. On the contrary, the engineered wetland is the only project allowing the removal of nutrients.

(b) The option of diverting part of the primary wastewater from the West Treatment Plant currently being discharged to the basin, through reusing the water for landscaping, has also been considered. Although this would significantly reduce the load of urban domestic waste pollution that enters the Lake, it will not address the removal of nutrients, essentially originating from agricultural drainage water as well as rural wastewater.

PART III: EXPLAIN THE ALIGNMENT OF PROJECT DESIGN WITH THE ORIGINAL PIF: The project design remains fully consistent with the original PIF.

PART IV: AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF policies and procedures and meets the GEF criteria for CEO Endorsement.

Agency Coordinator, Agency name	Signature	Date *(Month, day, year)*	Project Contact Person	Telephone	Email Address
Steve Gorman GEF Executive Coordinator The World Bank		December 17, 2009	Kanta Kumari Rigaud	202 473 4269	kkumari@worldbank.org

ANNEX A: PROJECT RESULTS FRAMEWORK

The project will adopt monitoring indicators consistent with the Investment Fund for the Mediterranean Sea Large Marine Ecosystem; and will comply with the GEF Waters requirements for monitoring project progress and results (the International Waters Tracking Tool).

PDO	Project Outcome Indicators	Use of Project Outcome Information
The objective of the project is to improve the institutional mechanisms for sustainable coastal zone management in Alexandria in particular to reduce land-based pollution to the Mediterranean Sea.	The ICZM plan is officially adopted and the institutional mechanisms for implementation are successfully in operation; The pollution load entering the Mediterranean Sea through Lake Mariout is reduced by at least 5%.	Adjust scheduling and targeting of activities if needed during implementation to meet PDO. Replicability of inter-agency coordination and conflict resolution mechanisms. Evaluate success and challenges of project and dissemination of lessons learned through GEF IW-LEARN. Potential up-scaling of successful pilot activities for pollution reduction within Egypt and beyond.
Intermediate Outcome	**Intermediate Outcome Indicators**	**Use of Intermediate Outcome Monitoring**
Increased capacity by the various relevant entities to manage the coastal zones in and around Alexandria in a sustainable manner.	Adoption of the National Integrated Coastal Zone Management Strategy by the National CZM Committee Commitment by relevant agencies towards sustainable coastal zone management reflected in medium term plans Major new investments decisions by relevant agencies taken during lifetime of the project utilize sustainable coastal zone management principles according to the CZM plan At least 3 public consultations on the preparation and adoption of the CZM plan for Alexandria are held by 2015 (process)	Use of information/data and collaboration among various agencies and stakeholders to identify bottlenecks and address them Provide inputs into master plan for CZM in Alexandria Assure ownership and sustainability of the pilots
Improvement in the water quality of Lake Mariout and subsequently the water quality of the Mediterranean Sea hot spot of El-Mex Bay Efficiency of pollution reduction measures	15% reduction of BOD within the area of influence of the project[5] Increase in percentage of surveyed population noticing an improvement in daily lives (in terms of improved water quality, fishing quantity, and quality)	Evaluate performance in the management of innovative pollution reduction measures

[5] The baseline for BOD level in the area of influence of the project, and the reduction target will be confirmed in light of the results of the feasibility study.

Completion and systematic use of water monitoring network Evaluation and replication strategy of the project results	A water quality monitoring network measuring project impacts fully operational and integrated with the EEAA database by 2011 (process) Report on "Lake Mariout: Results and Lessons Learned" published and disseminated by 2015 (process). Participation in IW learning activities Project's details and results published on the website of EEAA, in line with the IW Learn template. Replication strategy prepared and adopted by 2015 (process)	Adjust performance of the pollution reduction interventions during implementation if needed Draw lessons from project for dissemination and potential replication

ANNEX B: RESPONSES TO PROJECT REVIEWS (from GEF Secretariat and GEF Agencies, and Responses to Comments from Council at work program inclusion and the Convention Secretariat and STAP at PIF)

Introduction

The STAP reviewer comments are generally highly supportive of the project objectives and design and note that the project overall is scientifically and technically sound. The reviewer draws attention primarily to issues of conflict resolution mechanisms between the fishermen community and proponents of land-based activities around the Lake. The STAP reviewer report has been received by the Bank in February 2009. Following is a summary of the key comments and the team's replies. The PAD has been revised to address the comments, as needed.

Key Issues

Key Issue 1: Scientific and technical soundness of the project

1. *Comment:* The project proposes to develop monitoring and evaluation instruments that should help to ensure that the results of the project are implemented in a sustainable manner. While focused on the project-related elements, a practicable monitoring system should be expanded in scope to ensure timely and appropriate feedback to regulatory authorities tasked with ensuring compliance with the environmental quality standards and requirements adopted by the various governmental units having jurisdiction in the coastal zone. Ensuring that communities, the private sector, and governmental bodies participate in this monitoring process will be critical to ensuring sustainability.

Response: A participatory monitoring and evaluation mechanism has been developed and is reflected in project design. A social specialist will be hired by the EEAA to ensure a participatory approach to M&E and to monitor the implementation of the social mitigation measures as part of the site-specific ESMP. Regular consultations with stakeholders will take place including for the preparation of the ICZM Plan and data on water quality collected through the M&E system will be publicly disclosed following the example of the PROPER approach under the EPAP II,

2. *Comment:* Box 1 of Annex 9 and Figure A9-1 suggest a complicated relationship between fish catches over time. Catches appear to be highly variable and therefore there is a need to clarify the linkages between fish catch and the many factors that can modify fish catch. Such knowledge would be fundamental to the choice of water quality management measures considered for implementation. For example, there is a need to develop an understanding of the relationship between nutrient load and fish catch and fish species composition, between fishing effort and fishing gear types and fish catch and between a decrease in lake surface level and fish catch.

Response. It is clear that identifying the causes of the decline in the fish catch is important for the choice of water quality management measures. However, the available data do not allow to carry out this type of analysis. We can only assume that sufficient improvements in water quality through the reduction of COD, BOD, nutrient load, and heavy metals would increase both the fish catch and its quality for consumption. With regards to heavy metals, duckweed is proposed to be used as the flora medium for the in-lake wetland in the main basin of Lake mariout and is known to bio-concentrate heavy metals. However, the potential removal of heavy metals could not be ascertained until a final design of this component is completed during project implementation.

3. *Comment:* Notwithstanding, the issue of elevated heavy metals levels in the fish catches is clearly linked to human activities, and is a cause for concern. These discharges should be addressed through the complementary industrial pollution control measures being implemented in the tributary area under the associated investment programs.

Response: The proposed project is partially blended with the EPAP II which targets pollution abatement in factories in Alexandria and in Greater Cairo, to reduce water and air pollution in these two hot spots. The specific investment relevant to the proposed GEF project are those sub-projects that directly reduce polluted effluent to Lake Mariout, namely:(i) the Amria petroleum refining public company with a proposal to use NMP solvent instead of Phenol, (ii) the national paper private company with a proposal to supply and install second stage biological wastewater treatment plant, and (iii) the Wael Tex company with a proposal for rehabilitation of the industrial wastewater.

4. Comment: The PAD documents a conflict between the fishing community and other sectors of the community desirous of implementing land-based developments, and hints at the loss of surface area of Lake Mariout as a direct consequence of development of land-based activities in this coastal zone. The project, as currently conceived, does not seem to offer a mechanism to address this particular conflict. The institutional and implementation arrangements explicitly include the fishing community and government, but do not necessarily include the other sectors, including agriculture, that appear to be contributing a substantial portion of the contaminant loads and occupying the surrounding landscape.

Response: The team recognizes that the added value of the GEF project essentially resides in the fact that it offers a platform where different and competing interests can be brought together and reconciled either through the preparation of a CZM plan or through small scale pilot pollution reduction measures. Several steps to address conflict resolution issues will be taken and include regular multi-stakeholder consultations, the review and monitoring of the social and environmental safeguards of the project and a communication strategy to raise awareness and provide feedback on project implementation. In addition, participation of the Lake Mariout Committee, a sort of fishermen committee, in the Project Steering Committee will ensure that the interests of the fishermen are adequately represented. With regards to agriculture, linkages and synergies between the GEF project and the Bank's Integrated Sanitation and Sewerage Infrastructure Project will be established through sharing of information during the design of the pollution reduction interventions and dissemination of results and lessons learned in particular for the in-drain treatments.

Key issue 2. Identification of global environmental benefits and/or drawbacks of the project, and consistency with the goals of the GEF.

5. *Comment*: The threat of ongoing degradation of the aquatic environment as the result of wastewater discharges from urban, industrial, and agricultural development includes both water quality degradation and public health impacts related to the spread of waterborne diseases. Waterborne diseases remain the single greatest cause of infant mortality, despite significant improvements in water supply and sanitation. If unchecked, discharges from these human land-based activities will continue to threaten the globally significant ecosystems of the Mediterranean Sea. Consequently, true global benefit is presumed as a result of the ultimate connection of the Mediterranean Sea to the Atlantic Ocean.

The project is consistent with the goals and objectives of OP 10,6 contributing to the global effort to address priority environmental concerns arising from land use practices and land-based activities, in this case focusing on the management of pollution from metropolitan areas, coastal industries, and

[6] Operational Program 10 (OP 10) includes as indicative activities, *inter alia*, global projects which are designed to "demonstrate ways of overcoming barriers to the use of best practices for limiting releases of contaminants..., and to involve the private sector in utilizing technological advances for resolving these transboundary priority concerns." Priority transboundary concerns include "land-based activities..., contaminants released from ships, persistent toxic substances such as persistent organic pollutants (POPs), and targeted regional or global projects useful in setting priorities for possible GEF interventions, meeting the technical needs of projects in this focal area, or distilling lessons learned from experience." This Operational Program is intended to include "projects that help demonstrate ways of overcoming barriers to the adoption of best practices that limit contamination of the International Waters environment."

watershed-based agricultural activities. The project complements related initiatives being conducted under the auspices of the GEF Strategic Partnerships for the Mediterranean Sea Large Marine Ecosystem Program and the World Bank Second Egypt Pollution Abatement Project.

In this regard, the participation of the relevant governmental organizations with responsibility for land use management, wastewater treatment, and agriculture is an important element in ensuring the implementation of the project outcomes. This participation is provided through the relevant national, governorate, and municipal government agencies, including the Egyptian Environmental Affairs Agency, Ministry of Housing, Utilities and Urban Development, General Organization of Physical Planning, and relevant local governments. Establishment of a functional operational strategy between and amongst these multiple agencies, as proposed in the project document, will contribute to achieving this objective. It also is important to note that the inclusion of industry and other nongovernmental organizations (NGOs) in the project steering committee. This latter involvement is crucial to the sustainability of remedial measures.

Response: The GEF project value added is based on the promotion of a strong participatory process in the adoption of sound ICZM practices. In that respect, representatives of NGOs and industries will be invited to participate in public consultations during the preparation of the ICZM plan. Although coastal industries are not directly part of the Project Steering Committee given that the project intends to address non-point source of pollution coming from agriculture and rural wastewater, the EPAP II will provide a basis for their involvement as the two projects are partially blended. In particular, following the example of the PROPER pilot approach (Program for Pollution Control, Evaluation and Rating) in the EPAP II, the public disclosure of water quality data as a result of the GEF project interventions will provide a strong incentive for these industries and others to comply with environmental regulations.

Key issue 3. Regional context

6. *Comment:* While the project is centered on the Lake Mariout, the connection of these waters to the Mediterranean Sea and, ultimately to the Atlantic Ocean argues that adequate and appropriate consideration has been given to the regional context of the project. Actions proposed to better integrate the national regulatory initiatives within a regional program are fully consistent with the development of a sustainable regional approach to managing these waters. To this end, the Mediterranean Sea Regional Seas Program and the associated GEF-WB-United Nations Environment Programme (UNEP) Strategic Partnership for the Mediterranean Sea Large Marine Ecosystem provides an important context for this project, as well as a vehicle for disseminating best practices more widely within the region. This Partnership and related investment programs documented in the PAD ensure a coherent and appropriate regional context for this project. Further, actions are proposed within the project to strengthen the national regulatory programs and institutions. This will encourage and facilitate replication of the project outcomes elsewhere in Egypt. The proposal clearly indicates an intention to disseminate information and results on both a regional and global basis.

Response: Consultations and participatory in dissemination activities from project interventions and results have been included in the project design, in particular participation in the GEF IW-LEARN programs and conferences, preparation of experience notes and the set-up of a website capturing project outcomes and main achievements according to the GEF IW-LEARN standards.

7. *Comment:* It is noted that the project area contributes more than one-third of the measured biochemical oxygen demand (BOD) and chemical oxygen demand (COD) in the area. Although it is not clear from this statement whether the area referred to is the entirety of the Mediterranean Sea of the Alexandria coastal zone, any efforts to mitigate the discharge of oxygen consuming substances into the Alexandria coastal zone should have significant benefit for the coastal marine ecosystem, and ultimately for the Mediterranean Sea as a whole.

Response: The pollution emptying in the El-Mex Bay and originating from the Lake Mariout contributes more than one-third of the measured BOD and COD in the Alexandria area. Although the primary impact of the land-based pollution is in El-Mex Bay, the mixing process would also result in a positive impact on the adjacent Mediterranean water.

Key Issue 4. Replicability

8. *Comment:* The implementation of the project clearly contributes to the potential for replication of beneficial practices and techniques—including engineering practices for the management of instream water quality and intergovernmental coordination measures. Further, the inclusion of mechanisms for disseminating information and results achieved fosters replication of effective and successful measures throughout the Mediterranean region.

Response: A Replication Strategy will be developed and will rely on data provided by the water monitoring system which will be put in place as part of the project interventions. Other communications tools will also be used to disseminate results such as a website and publications. A Communications Specialist will be recruited as part of the Project technical assistance and a report capturing outcomes and "lessons learned" will be prepared and published at the end of the project.

Key issue 5. Sustainability of the project.

9. *Comment:* The PAD indicates that a significant element of the sustainability of the project rests upon the ability of the project team to overcome barriers relating to competing economic activities, especially between land-based and fisheries-based activities; a weak regulatory regime and institutional structure; and, low levels of community awareness and involvement, exacerbating the sectoral competition for land and water resources. Even with respect to the aquatic resources, the PAD documents weak coalitions. For example, the shared interests of lake front property owners, recreational users, and fishers would seem to form the basis for joint action to promote good water quality and a healthy lake ecosystem; however, such coalitions do not seem to exist. The closest approximation to such a coalition would appear to be the provision of assistance by the Friends of the Environment to the fishing community in seeking enforcement of pollution control regulations (directed toward halting reclamation of shorelands). In other respects, there seems to be significant divergence of goals, with the momentum on the side of the argument for continued lake degradation to benefit land-based activities. This particular barrier will have to be addressed within the project, if the project is to have any chance of successfully reducing water pollution and sustaining the coastal fishery.

Response: A strategic plan for the city of Alexandria will be prepared by the General Organization for Physical Planning (GOPP) under the Ministry of Housing during project implementation and will address issues related to land-based activities. In that context, a strategic environment assessment (SEA) for the development of the land around the Lake and Wadi (Valley) Mariout will be developed. Furthermore, the drafting of the Alexandria CZM plan as part of the GEF project will be closely coordinated with the preparation of the Strategic Plan for Alexandria by the GOPP.

10. *Comment:* The commitment of the Government of Egypt to support the project activities provides some assurance that the project results will be continued beyond the immediate period of project implementation with GEF support. However, the demise of the National Committee for Coastal Zone Management, noted as having been "reinstated" pursuant to Prime Ministerial Decree No. 266 of 2007, does indicate a significant degree of risk.

Response: Significant steps have been taken by EEAA since 2007 testifying to the continued commitment of the Government of Egypt towards sustainable coastal zone management. The revisions

of Law 4/1994 for the environment (as amended by Law 9 for the year 2009[7]), include articles defining the coastal zones (Art.39) and the Integrated coastal zone management (Art.40 & Art.48), and articles that assign to EEAA the role of preparing a National Strategy for ICZM (Art.5) to ensure sustainable development of coastal area. The revised law also assigned to the Minister of State for Environment, the role of coordination with the relevant agencies/stakeholders to achieve the [water protection] objectives, as well as the objectives of the integrated coastal zone management. In early 2009, a series of workshops have been held to discuss the main components of a Draft National Strategy for Integrated Coastal Zone Management (Vision, Objectives and Priorities) under the auspices of the National Committee for ICZM. In addition, the executive regulations of the revised law (pending) are expected to establish a Governorate level Coastal Zone Management (CZM) Committee.

11. *Comment:* The project proposes to address a key element of sustainability through the strengthening of appropriate governmental units. The development of a trained cadre of individuals, the establishment of coordination mechanisms among the appropriate institutions, and the promulgation of the necessary enabling legislation are essential elements of the proposed project. To this end, the constitution of the project management unit (PMU) will be a critical element in ensuring the sustainability of the project outcomes. The composition of the project steering committee (PSC), likewise, will be a crucial element in ensuring dissemination of the project outputs and implementation/replication of project outcomes elsewhere in the coastal zone. It will be vitally important that inter-governmental coordinating mechanisms established for the project (under the auspices of the PSC?) be continued beyond the conclusion of the GEF-funded interventions in order to avoid a return to the sectoral conflicts and environmental degradation that has led to this project.

Response: Drawing from the experience of other GEF projects on CZM, special attention has been paid to participatory and monitoring aspects in the project design with the hiring of a communications, social and M&E specialists as part of the project TA. An institutional structure under the leadership of the EEAA will be put in place towards the end of the project to implement and monitor the implementation of the ICZM plans.

12. *Comment:* The implementation arrangements and institutional responsibilities (Annex 6) and procurement arrangements (Annex 8) provide some degree of assurance of effective project execution, although the financial management and disbursement arrangements remained to be completed at the time of the STAP review. These measures, combined with the monitoring and evaluation protocols adopted for the project set forth in Annexes 3, 10 and 11, would seem to adequately address these concerns, although the project supervision arrangements were not articulated to any degree in Annex 11. These areas should be addressed prior to project initiation.

Response: Arrangements on procurement, implementation and M&E have been developed in close collaboration with the EEAA during project preparation.

Key issue 6. Targeted Research Projects.

13. *Comment:* Targeted technical demonstration and capacity building projects are key features envisioned within the GEF International Waters Contaminant-based Operational Program. While not specifically articulated in the PAD, the development and pilot scale implementation of biofilm and instream wetland technologies are included as major elements of this proposed project (Annex 4). To this end, it is important that the demonstration projects be monitored and the results reported, using the information dissemination mechanisms previously identified, beyond the project period. Such continuity is totally consistent with the catalytic nature of the GEF, and an essential element to the sustainability of the project. Capacity building and institutional strengthening, envisioned in the PAD,

[7] The relevant amendment text in English is available from the project files.

thus become the basic building blocks upon which this project will succeed or fail, both from the point of view of its sustainability and from its scientific and technical integrity.

Response: Capacity-building and institutional strengthening activities have been built in project design and will be launched as soon as the project is initiated, including training on CZM practices, stakeholder consultations and coalition-building, participatory M&E system, study tour, and participation of the National Committee on ICZM as a scientific and advisory body.

Secondary Issues

Secondary issue 1. Linkage to other focal areas.

14. *Comment:* This project is formulated as an International Waters project under OP 10 of the GEF *Operational Strategy*. No specific cross-cutting areas have been identified, although land degradation and hazardous waste management (POPs) are identified as key environmental issues faced by Egypt. The in-stream remedial measures to be implemented as pilot demonstration projects will address elements of the latter issue, while the strategies developed for inclusion in the coastal zone management plan must take the former into account if they are to be truly effective in moderating the current state of affairs.

Response: As part of the CZM master plan, a series of plans will be developed, addressing challenges related to shoreline management; land use; water quality monitoring and climate change/hazardous impact assessment. The issues of land degradation and hazardous waste management (POPs) will be reviewed during the preparation of the plans.

Secondary issue 2. Linkages to other proposals.

15. *Comment:* The project recognizes the complementarities between the management of Lake Mariout coastal zone, under the auspices of the Mediterranean Sea Large Marine Ecosystem Project, and other ongoing initiatives, including the WB Egypt Pollution Abatement Projects and other bilateral and multilateral initiatives. The inclusion of the GEF-financed activities within the implementation arrangements under the Strategic Partnership for the Mediterranean Sea Large Marine Ecosystem Program provides specific linkages with regional seas projects and related environmental and economic development projects being conducted in the Egyptian coast zone (as enumerated in section III.A. of the PAD).

In addition, it is recommended that the project make use of IW-LEARN and related mechanisms for dissemination of the project outcomes and outputs. Such an overt linkage provides a high degree of sustainability and connectivity to this project, and contributes to the likelihood that lessons learned can and will be transferred beyond the project boundaries to other, similar situations and locations within the Mediterranean Sea region and beyond.

Response: The project will build on the experiences accumulated by the National Water Resources Center (NWRC), and its Drainage Research Institute about the use and replication of low-cost mechanisms to improve water quality in the agriculture drains. Options to extend the technology for treatment of domestic sewage in the villages located on the fringes of the Delta where land is more readily available will be assessed. Please see response to comment 6 above about dissemination of the project outcomes.

Secondary issue 3. Other beneficial or damaging environmental effects.

16. *Comment*: The project has no known or obvious damaging environmental impacts associated with the activities proposed to be executed. The beneficial impacts of the project have been articulated

and include the implementation of targeted interventions that address diffuse land-based sources of pollution of the aquatic environment. The provision of trained staff and institutional capacities needed to enforce and enhance existing environmental protection regulations, and the dissemination of successful management measures further contribute to the benefit of this region. Nevertheless, the creation of specific mechanisms to address cross-sectoral resource conflicts—associated with land-based developments, shore land reclamation, and loss of aquatic habitat—has not been fully articulated and remains a significant risk, as indicated in the critical risks matrix.

Response: Please see response above to comment 4.

Secondary issue 4. Degree of involvement of stakeholders in the project.

17. *Comment:* The project involves some of the stakeholders, including fishermen and governmental agencies. The project explicitly indicates support for capacity building and institutional strengthening with respect to governmental organizations. Unfortunately, a mechanism for including proponents of land-based activities, that affect the shoreward areas of the coastal zone and contribute to the filling of Lake Mariout, are not stated, and introduce a significant risk into the project as has been noted in the critical risks matrix. The involvement of all stakeholders in the development of a strategy for the management of the coastal zone and its resources is critical to the sustainability of the project.

Response: Although the project is expected to have positive impact on the livelihood of the fishermen community on the long-run, pollution from industries located close to the Lake and pressures from proponents of land-based activities will remain a challenge. To address this, a comprehensive strategy for stakeholders' involvement will be elaborated including regular consultations and development of a communication strategy. In addition, encouraging synergies with other Bank projects in Egypt such as the Integrated Sanitation and Sewerage Infrastructure Project (ISSIP) and building relationships with the NOPWASD will create an opportunity to leverage government support and participation of all stakeholders in the project.

Secondary issue 5. Capacity building aspects.

18. *Comment:* Capacity building is a critical element of the proposed project. Creation and strengthening of the appropriate institutions, conduct of the demonstration projects, and the training of agency staff form the core of the GEF-financed elements of the Project. Annex 4 briefly introduces these issues as part of the proposed stakeholder involvement process and monitoring and evaluation (M&E) process. Further elaboration of these mechanisms is noted to be an element to be completed during project appraisal. As noted above, this element should be implemented in conjunction with the best practices data base of IW-LEARN to enable wider dissemination of practices that have positive effects beyond the project area. Such knowledge is an essential element in building capacity and strengthening institutions in the region and beyond.

Response: Beyond a technically focused team, special expertise in the field of communications, stakeholder outreach, community development and institutional strengthening will be hired under the project technical assistance building on lessons learned from other GEF projects in Egypt, including the Lake Manzala UNDP-GEF project. A communications specialist and M&E specialist will be hired by the project to raise public awareness and generate consensus on sustainable coastal zone management and project interventions if broader social and institutional goals are to be achieved.

Secondary issue 6. Innovativeness.

19. *Comment:* Development of appropriate practices for the management of coastal lakes and the coastal zone is a critical element for the protection of the marine environment, within the context of an

integrated land- and water-based management program. By creating and strengthening the appropriate human resources and institutions, creating inter-institutional coordination and cooperation mechanisms, and developing appropriate remedial technologies, such as the in-stream biofilm reactors, the proposed program will complement other pollution abatement practices being implemented by the basin governments and stakeholders. In particular, the development of the biofilm reactors under the rigorous conditions present in the Lake Mariout area will provide an important new tool for replication in other drainage areas where diffuse source pollution is a major concern and where site-specific remedies are not practicable. The proposed actions and approaches reflect state-of-the-art practices. Their application to Lake Mariout, and the near shore areas of the Mediterranean Sea, will significantly advance current environmental management practices in the Metropolitan Alexandria region, as well as within the Mediterranean Sea region as a whole. In this manner, the project promotes innovation and development of regionally applicable remedial practices and experiences.

Response: To treat the more diffuse land-based sources of pollution entering Lake Mariout, the project proposes to use in-stream treatment (for example bio-films), which introduces a dynamic, modular and easily manageable technique mechanism. The in-stream treatment, although relatively new in Egypt, has been used successfully by the MWRI as a pilot and has been recommended for broader application elsewhere in the country by other agencies. As part of the package proposal, the synergetic effect of the in-stream bio-film and the in-stream aeration will give the in-lake engineered wetland a medium water quality permitting the latter to initiate its own ecological cycle that will permit the cultivation of duckweeds. The duckweeds will in turn absorb the nutritive salts and oxygenate the effluent and the sale of the duckweeds will cover the running cost of the aeration. The project thus proposes innovative integrated and natural process based options such as wetlands which are used as nutrient traps to treat more diffuse pollution load coming from upper parts of the water catchment where conventional treatment solutions are not feasible. Feasibility studies and detailed design will be done in the course of Project implementation, following detailed field surveys and investigations, for which provisions have been made under the Project.

ANNEX C: CONSULTANTS TO BE HIRED FOR THE PROJECT USING GEF RESOURCES

Position Titles	*$/ person week**	*Estimated person weeks***	*Tasks to be performed*
For Project Management			
Local			
Procurement specialist (2)	1750	5	Oversee all aspects of procurement process for contracts financed by the project
Social Specialist (2)	1750	5	Monitor implementation of social mitigation measures
M&E Specialist (2)	1750	8	Prepare progress reports against agreed indicators
Communications Specialist (2)	1750	33	Draft communication and replication strategy and dissemination materials
International			
Procurement specialist 1	3000	7	Provide support to the PMU
Social Specialist 1	3000	6.5	Provide support to the PMU
M&E Specialist 1	3000	6.5	Provide support to the PMU
Communications Specialist 1	3000	31.5	Provide support to the PMU
Justification for Travel, if any: The procurement specialist will attend a procurement skills building workshop in the region (estimated $6000 for 2 weeks).			
For Technical Assistance			
Local			
Facilitator/Trainer (3)	1750	40	Facilitate public consultations on CZM plan; train staff of public agencies
Technical Specialist for feasibility studies (2)	1750	20	Conduct feasibility studies for small scale & innovative investments of component 2
International			
Facilitator/Trainer (3)	3000	13	Provide technical support to local trainer/facilitator
Technical Specialist for feasibility studies (2)	3000	13.5	Provide technical support/reviews to feasibility studies
Justification for Travel, if any:			

* Provide dollar rate per person week. ** Total person weeks needed to carry out the tasks.

ANNEX D: STATUS OF IMPLEMENTATION OF PROJECT PREPARATION ACTIVITIES AND THE USE OF FUNDS

A. EXPLAIN IF THE PPG OBJECTIVE HAS BEEN ACHIEVED THROUGH THE PPG ACTIVITIES UNDERTAKEN. YES

B. DESCRIBE FINDINGS THAT MIGHT AFFECT THE PROJECT DESIGN OR ANY CONCERNS ON PROJECT IMPLEMENTATION, IF ANY: N/A

C. PROVIDE DETAILED FUNDING AMOUNT OF THE PPG ACTIVITIES AND THEIR IMPLEMENTATION STATUS IN THE TABLE BELOW:

Project Preparation Activities Approved	*Implementation Status*	*GEF Amount (€)*				*Co-financing ($)*
		Amount Approved	*Amount Spent Todate*	*Amount Committed*	*Uncommitted Amount**	
Inception Report	Completed	37050 €	37050 €	37050 €		
Strategic Environmental Assessment for the Alexandria Coastal/Lake Zone and Environmental Improvement Master Plan	Completed	49499€	49499€	49499€		
Pre-feasibility Studies for Demonstration Projects.	Completed	49499€	49499€	49499€		
•Report on the Baseline conditions in the Lake, •Proposal for a Water Monitoring Network, •Specifications for Preliminary El Mex Bay and Lake Mariout Circulation model	Completed	49499€	49499€	49499€		
•Monitoring & Evaluation Plan, including indicators for the full project •Co-financing strategy for the full GEF project •GEF Project Document suitable for GEF and World Bank appraisal	Completed	61750 €	61750 €	61750 €		
Environmental and Social Impact Assessment Framework (ESIAF) and a Resettlement Policy Framework (RPF) of Alexandria Integrated Coastal Zone Management Project	Completed					20000
EGYPTIAN CONTRIBUTION FOR AICZM PROJECT (In-kind), including Staff costs , Office space and Maintenance and consumables/utilities, furniture, and computers	Completed					63207
Total		247000€	247000€	247000€		83207

* Any uncommitted amounts should be returned to the GEF Trust Fund. This is not a physical transfer of money, but achieved through reporting and netting out from disbursement request to Trustee. Please indicate expected date of refund transaction to Trustee.

Document of
The World Bank

Report No:

PROJECT DOCUMENT

ON A

PROPOSED GRANT FROM THE
GLOBAL ENVIRONMENT FACILITY TRUST FUND

IN THE AMOUNT OF USD {7.15} MILLION

TO THE

GOVERNMENT OF EGYPT

FOR THE

ALEXANDRIA COASTAL ZONE MANAGEMENT PROJECT (UNDER THE INVESTMENT FUND FOR THE MEDITERRANEAN SEA LARGE MARINE ECOSYSTEM) PROJECT

{PROJECT DATE}

CURRENCY EQUIVALENTS

(Exchange Rate Effective {Date})

Currency Unit	=	
	=	US$1
US$	=	SDR 1

FISCAL YEAR

January 1 – December 31

ABBREVIATIONS AND ACRONYMS

ACZMC	Alexandria Coastal Zone Management Committee
ACZM	Alexandria Coastal Zone Management
ADP	Alexandria Development Project
ADSCO	Alexandria Sanitary Drainage Company
AFD	French Development Agency
ALAMIM	Alexandria Lake Mariout Integrated Management
BOD	Biological Oxygen Demand
CAS	Country Assistance Strategy
CEDARE	The Center for Environment and Development for the Arab Region and Europe
COD	Chemical Oxygen Demand
CZM	Coastal Zone Management
DRI	Drainage Research Institute
EC	European Commission
EEAA	Egyptian Environmental Affairs Agency
ESIA	Environmental and Social Impact Assessment
EIB	European Investment Bank
EPADP	Egyptian Public Agency for Drainage Projects
ESA	Environmental and Social Assessment
ESMP	Environmental and Social Management Plan
EWATEC	Environmental and Water Engineering Consultants
FM	Financial Management
FMR	Financial Monitoring Report
GAFRD	General Authority for Fish Resources Development
GOE	Government of Egypt
GOF	Government of Finland
GOPP	General Organization for Physical Planning
ICB	International Competitive Bidding
ICR	Implementation Completion and Results
ICZM	Integrated Coastal Zone Management
ISSIP	Integrated Sewerage and Sanitation Infrastructure Project
JBIC	Japan Bank for International Cooperation
LMDC	Lake Mariout Development Committee
M&E	Monitoring and Evaluation
MALR	Ministry of Agriculture and Land Reclamation

MHUUD	Ministry of Housing, Utilities, and Urban Development
MOIC	Ministry of International Cooperation
MSEA	Ministry of State for Environmental Affairs
MWRI	Ministry of Water Resources and Irrigation
NBE	National Bank of Egypt
NEAP	National Environment Action Plan
NOPWASD	National Organization for Potable Water and Sanitary Drainage
NCICZM	National Committee for Integrated Coastal Zone Management
O&M	Operation and Maintenance
PMU	Project Management Unit
PROPER	Program for Pollution Control, Evaluation and Rating
PSC	Project Steering Committee
PWG	Project Working Group
RBO	Regional Branch Office (of the Egyptian Environmental Affairs Agency)
TA	Technical Assistance
TDA	Transboundary Diagnostic Analysis
TSS	Total suspended solids

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EGYPT, ARAB REPUBLIC OF
Alexandria Coastal Zone Management Project (Under the Investment Fund for the Mediterranean Sea Large Marine Ecosystem)

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D A T A S H E E T

H E R E

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I. STRATEGIC CONTEXT AND RATIONALE

A. Country and sector issues

1. General

Egypt's population increased from 36 million in 1973 to 66.4 million in 2002 and is expected to reach 86 million in 2020. The rapid population growth coupled with ambitious development and industrialization policies have put a heavy pressure on Egypt's natural resources in the form of severe air, water, and soil pollution. As elaborated in the *Country Environment Analysis* (2005) and conservatively estimated in the Bank sector note - *Cost Assessment of Environmental Degradation* (2002), the cost of environmental degradation in Egypt has been found to be, on average, in the order of 4.8% of GDP (LE14.5 billion) for year 1999, with an add on damage costs on global environment in the order of 0.6% of the GDP (LE 1.9 billion).

The main environmental issues faced by Egypt are:

- ***Acute water scarcity:*** Per capita water availability is expected to fall from the current $900m^3$ for all purposes, to about $670m^3$ in the year 2017. The causes are due to the use of 85% water from the Nile River for irrigation, high network losses in potable water, and poor water coverage in rural areas.
- ***Decline in water quality:*** Water quality in the Nile River and its canals deteriorates as one heads in a northward direction due to the disposal of municipal and industrial effluents, agricultural drainage, and the decreasing flow. Drainage canals are heavily polluted and, as a result, public health is seriously affected. Waterborne diseases are major causes of deaths. This also results in the pollution of the northern lakes, such as Lake Mariout, which ultimately impact the Mediterranean Sea.
- ***Land degradation:*** Annual loss of agricultural land due to urban encroachment is estimated between 15,000 and 30,000 acres. The major causes of land degradation are poor irrigation drainage, soil salinization, inadequate crop rotation and selection, fragmented land tenure, and soil erosion. Approximately 35% of agricultural land suffers from salinity, resulting in the inability to meet rising food demand.
- ***Increase in pollution and untreated urban and hazardous waste disposal:*** The causes of outdoor pollution are hazardous air emissions and water discharges from the heavy metallurgical industries, refineries, cements and power plants, as well as from an aging transport sector. In addition, 15.3 million tons of municipal solid waste is generated annually, of which almost 2.5 million tons remain uncollected, and no appropriate sanitary landfills exist for their disposal. Air pollution and water pollution are sources of respiratory and allergic ailments especially among children.
- ***Poorly protected cultural and natural heritage:*** Air pollution, wastewater, uncontrolled urban encroachment, and the large influx of tourists are the major causes of the poorly preserved cultural and historical monuments.

To protect the environment, a series of reforms have been taken by the Government of Egypt (GOE) since the early 1980s, with some significant achievements. The endorsement in 1992 of the first National Environmental Action Plan (NEAP) marked a turning point. The NEAP

(updated in 2002 with UNDP funding) was the first policy instrument that facilitated mobilization efforts and investments of both the Government and international donors towards addressing major environmental issues of the country. As a result, an Environment Protection Law was enacted in 1994, and a Minister of State for Environmental Affairs (MSEA) was appointed in 1997. The Egyptian Environmental Affairs Agency (EEAA), established shortly thereafter the enactment of the Environmental Protection Law, has gradually expanded its functions and responsibilities in all fields of environmental management. Furthermore, an Environmental Protection Fund (EPF) was established, as a direct outcome of the enactment of the Environmental Protection Law, with the objective "*to stimulate environmental investments and support the environmental, social and economic policies in the pursuit of sustainable development*".

2. Environmental Protection

Responsibilities for environmental protection in Egypt are dispersed among a number of Ministries and Governorates and can be classified in the following three categories: (a) the national environmental organization represented by the MSEA, the Egyptian Environmental Affairs Agency (EEAA) and its eight Regional Branch Offices (RBOs) which are charged with overall monitoring and regulatory coordination; (b) institutions with specific operational functions which are performed by environment units in line ministries, and by Environmental Management Units (EMUs) in the Governorates; and (c) institutions with environment support role (mostly universities and research institutes). One of the functions of the EEAA Alexandria RBO is to monitor wastes from inland Nile fleets and coastal waters.

Water quality legislation in Egypt is governed by two main Laws: *Law No. 48/1982 for protection of the river Nile and waterways from pollution; and Law 4/1994 on Environmental Protection.* The Law No. 48/1982 regulates the discharge of wastewater into the River Nile and other waterways whereas the Law No. 4 of 1994 on the protection of the environment constitutes the main legislative body in the field of environment to formulate the general policy and prepare the necessary plans for the protection and promotion of the environment. The Law No. 4 of 1994 provides for the use of environmental management mechanisms, which include command and control measures such as the setting of appropriate standards, the application of the polluter pays principle (through the implementation of penalties and fines) and the use of environmental impact assessments (EIAs).

Although EEAA is responsible for the environment countrywide, Law 4/1994 retained most of the enforcing authority for inland waters with the Ministry of Water Resources and Irrigation (MWRI) and the Ministry of Interior. As EEAA is responsible for inspections regarding compliance with environmental and occupational health and safety regulations, it has to manage water quality in coordination with the MWRI and the Ministry of Health and Population.

On a more local level, MWRI is responsible for controlling the water level in the lake Mariout through a balancing of the El-Mex pumping station with the influents to the lake. On the other hand, the General Authority for Fish Resources Development (GAFRD), under the Ministry of Agriculture and Land Reclamation (MALR), is responsible for the management of fish resources in the lake including aquaculture.

The Government of Egypt's program and policy on environmental management is based on:

- A strong commitment towards controlling industrial discharges, and stricter monitoring of all that may influence the quality of drinking water.
- Air pollution abatement and consistent monitoring of air pollution levels in large cities.
- Environmental impact assessment studies for all projects, and prohibition of any project that may negatively impact the environment, especially near tourism development areas and coastal zones.
- Rapid implementation and monitoring of programs, environmental laws, regulations and international environmental protection protocols and conventions.
- A program for the management of national marine coastal zones as part of the Second National Environmental Action Plan developed in 2002 and covering the period 2002-2017.
- The preparation of a national strategy on sustainable development by the National Committee on Sustainable Development established in 2006.
- The preparation of a solid waste management master plan in 2007 that estimated the cost of upgrading the current solid waste management systems, and proposed a detailed governorate-by-governorate assessment.

3. Coastal Zone Management in Egypt

With the passing of Law No. 4/1994 for the Environment, the EEAA was given responsibility to initiate and coordinate national integrated coastal zone management activities. Specifically, the EEAA was given the authority to "participate with the concerned agencies and ministries in the preparation of a National ICZM Plan for the Mediterranean Sea and Red Sea coasts". As a result, the "Framework Programme for the Development of a National ICZM Plan for Egypt" was prepared in 1996 by the National Committee for Integrated Coastal Zone Management (NCICZM). The National Committee includes top rank representatives of all concerned ministries, NGOs and major stakeholders. Its function is not only to draw up a consistent policy and strategy for future development, but also to resolve conflicts between different users. The Framework Programme was adopted by the NCICZM in 1996. In addition, guidelines on EIA procedures were prepared by EEAA and adopted in 1996 along with environmental guidelines for the development of coastal areas.

Some of the main ICZM related project development milestones in Egypt include the following: the 1995 GEF Red Sea Coastal and Marine Resource Management project (completed); the 1999 CAMP Fuka Matrouh project (completed); the 2002 Lake Manzala engineered wetland project (completed); the 2005 ICZM planning for the Coastal area between Marsa Matrouh and Sallum (on-going).

Preliminary observations, combined with the recent ongoing activities related to the issue indicate that the support for ICZM planning in Egypt is high. The revisions of Law No. 4/1994 for the environment include, for the first time, the concept of CZM as an integral part of environmental management. The Law No. 4/1994 for the Environment (as amended by Law 9/2009) includes articles defining the coastal zones (art. 39) and the Integrated Coastal Zone Management (art. 40 & 48). Integrated management of coastal areas is defined as "a process by which all concerned authorities participate in coordinating their work in order to preserve the environment of the coastal areas."

On a local level, in conformity with Law no. 124 of 1983, the General Authority for Fish Resources Development established the Lake Mariout Development Committee. The tasks of the Committee are to plan, supervise and implement development programs for the Lake and to make field visits to the Lake to detect any violation. Due to its limited mandate, membership and representation, its role has been limited to regulate fish catch, develop fish production and protect the interests of the fishermen community. It includes members from Universities, NGOs, research centers, Alexandria governorate local council, General Organization for Sanitary Drainage, EEAA and fishermen association.

4. Significance of the Impact on the Mediterranean Sea from the Alexandria Hot Spots

Although a major source of pollution to the Mediterranean Sea through El-Mex Bay and a continuous threat to the livelihoods of the local communities, Lake Mariout plays a critical role as an environmental buffer for the entire Alexandria coastal zone as detailed below.

Lake Mariout, a major source of pollution to the Mediterranean Sea through El Mex Bay. Degradation of water quality due to land-based pollution is a major problem in the Mediterranean coastal areas. The Strategic Action Plan for the Mediterranean[1] has identified several "hot spots and sensitive areas" on the northern coast of Egypt, which for several decades have been experiencing a continuous increase in population, development, and environmental degradation. Two of these "hot spots" are located in Alexandria, namely El-Mex Bay and Abu-Qir Bay. Lake Mariout is one of the major sources of conveyance of land based pollution to the El-Mex Bay. The Lake has no direct connection to the sea and its surface is maintained at 2.8 m below mean sea level by pumping water from the lake to the Mediterranean Sea at El-Mex Bay. The Lake Mariout receives polluted water from three major sources on a daily basis:

- Industrial effluents: Various industries discharge directly their effluents into the Lake or El Mex Bay. The pollutants brought by the industries include high Biochemical Oxygen Demand (BOD) and Chemical Oxygen Demand (COD) and heavy metals.

[1] The Mediterranean countries have also worked together to set priorities related to these transboundary problems and have jointly agreed on what interventions are needed to address such priorities through two Strategic Action Programs (SAPs): (a) The Strategic Action Program to Address Pollution from Land-Based Activities (SAP MED); and (b) The Strategic Action Program for the Conservation of Mediterranean Marine and Coastal Biological Diversity (SAP BIO). The two Strategic Action Programs are aimed at: (i) reducing land-based sources of marine pollution (SAP-MED) and (ii) protecting the biodiversity and living resources of the Mediterranean, as well as their habitats (SAP-BIO).

- Domestic effluents: Two wastewater treatment plants discharge their primary treated effluents into the Lake Mariout. The total discharge of primary treated sewage is about 916,000m3/day. The East Waste Water Treatment Plant (ETP) releases effluents into Dayer-El-Matar drain which then empties into the Lake. Additionally, Lake Mariout receives effluent that is discharged directly from the West Waste Water Treatment Plant (WTP).

- Drainage water from agriculture: The Lake receives an important part of agricultural drainage water coming from secondary drains and agricultural activities upstream, bringing pesticides, nutrients (phosphate, nitrogen compounds, sulphate, etc) along with organic matter from animal farming and domestic wastewater of nearby villages.

Over the years, Lake Mariout has been divided into several basins by road infrastructure. One of these basins, the Main Basin, is the most polluted and receives pollution from different sources. Table 1 below provides the concentration of effluents to the Main Basin. Although this Basin receives pollutants from several sources, the El-Qalaa drain has a higher concentration of pollutants than the Oumoum drain and, given direction of water flow to El-Mex pumping station, is a higher contributor to the Basin's deterioration.

Table 1: Pollution concentration of effluents from El-Qalaa and Oumoum drains to the Main Basin (mg/l)

	Discharges m3/d	TDS mg/l	TSS mg/l	COD mg/l	BOD mg/l	P mg/l	NH4-N mg/l	N03-N mg/l
El Qalaa drain	915790	1543	120	107	80	1,13	1,37	2,5
Oumoum drain	4200000	3700	37	20	66	0,4	2,0	0,9

Source: Consultants report, 2009

A total of eight million cubic meter of water per day is being pumped from Lake Mariout into the El Mex Bay hot spot with severe impact on coastal biodiversity, cultural heritage and tourism in the whole Alexandria area. According to the Transboundary Diagnostic Analysis (TDA) for the Mediterranean Sea, the pollution load reaching the Mediterranean Sea via the two hot spots in the Alexandria area are significant with more than a third of the total Biochemical Oxygen Demand (BOD) and Chemical Oxygen Demand (COD) discharges in the Alexandria area. In particular, according to the TDA, Alexandria is among the 20 urban centers along the rim of the Mediterranean discharging the most BOD, thus bringing one of the highest pollution loads to the Mediterranean Sea.

Lake Mariout pollution, a persistent threat to the livelihoods of local communities. The continuous pollution of the lake has had a critical impact on fish production over time. In spite of the severe decline in fish catch, fishing activities remain a significant source of income for the fishermen and their families. There are presently about 2,700 licensed fishing boats which are owned and employed by about 8,000 fishermen representing an estimated community of about 40,000. However, eutrophication phenomena in the Lake Basins and open sea have been reported and the Lake is losing its attraction as recreational resort which negatively affects the livelihood of the local population. Today, approximately 60% of the lake is covered by aquatic reed, a key obstacle to livelihood security and the ecosystem.

Lake Mariout, a critical environmental buffer for the Alexandria coastal zone. Environmental conditions and hydrological features of the two water bodies, Lake Mariout and El Mex Bay are inextricably connected and interdependent. Indeed, the pumping of 8 million cubic meters of water per day into the El Mex Bay is absolutely essential in keeping the overall environmental balance in the entire coastal region. In addition, lake Mariout provides an abatement of 49% in Total Suspended Solids (TSS), 57% in COD and 60% in BOD before discharging into El Mex Bay through a process of dilution and attenuation. However, the continuous flow of pollution loads entering the Lake and the growth of aquatic reed seriously affects the self-cleaning capacity of the Lake and continues to represent a major threat to the ecosystem in the region.

B. Rationale for Bank involvement

The rationale for the Bank's involvement is to continue providing assistance to GOE for improving its environmental management capabilities and to demonstrate the value added of an integrated and participatory approach to coastal zone management for sustainable development. The project is partially blended with the ongoing Second Egypt Pollution Abatement Project (EPAP II), which aims at the reduction of industrial pollution in two hot spots in Egypt, namely Alexandria (primarily Lake Mariout) and Greater Cairo. The proposed project builds upon the successful collaboration both in terms of policy work and project investments (EPAP I and EPAP II) over the past several years, based on a comprehensive approach linking technical, environmental, social and economic considerations.

The proposed project will use a *two pronged approach* to sustainable coastal zone management including the use of institutional strengthening measures and pollution reduction interventions. The project will pilot innovative and low-cost technologies for pollution reduction originating from agricultural drainage water and rural domestic wastewater, partially responsible for the severe eutrophication problem in the Lake basins. The project will complement other on-going projects, each addressing a different source of pollution. The other set of interventions include the EPAPII sub-projects on industrial pollution and the Government upgrade of the East and West Waste Water Treatment Plants for domestic pollution as part of the Alexandria City Development Strategy. The project will thus treat more diffuse non-point sources of pollution originating from rural and agricultural areas while the other interventions target point source pollution (see figure 1 below).

Given the scale of the environmental degradation in Alexandria, the project in itself may only contribute marginally to the reduction of pollution ultimately entering the Mediterranean Sea. However, its main advantage and value added reside in its catalytic function to trigger consensus building, awareness raising and institutional strengthening on sustainable coastal management using pilot investment interventions as a platform to bring all stakeholders closer on the issue. The project will address the continued fragmented approach to coastal zone management in and around Alexandria area and the lack of consensus around the future of the lake by consulting a wide range of stakeholders with conflicting interests and supporting the mainstreaming of coastal zone management principles into land use or urban planning in Alexandria.

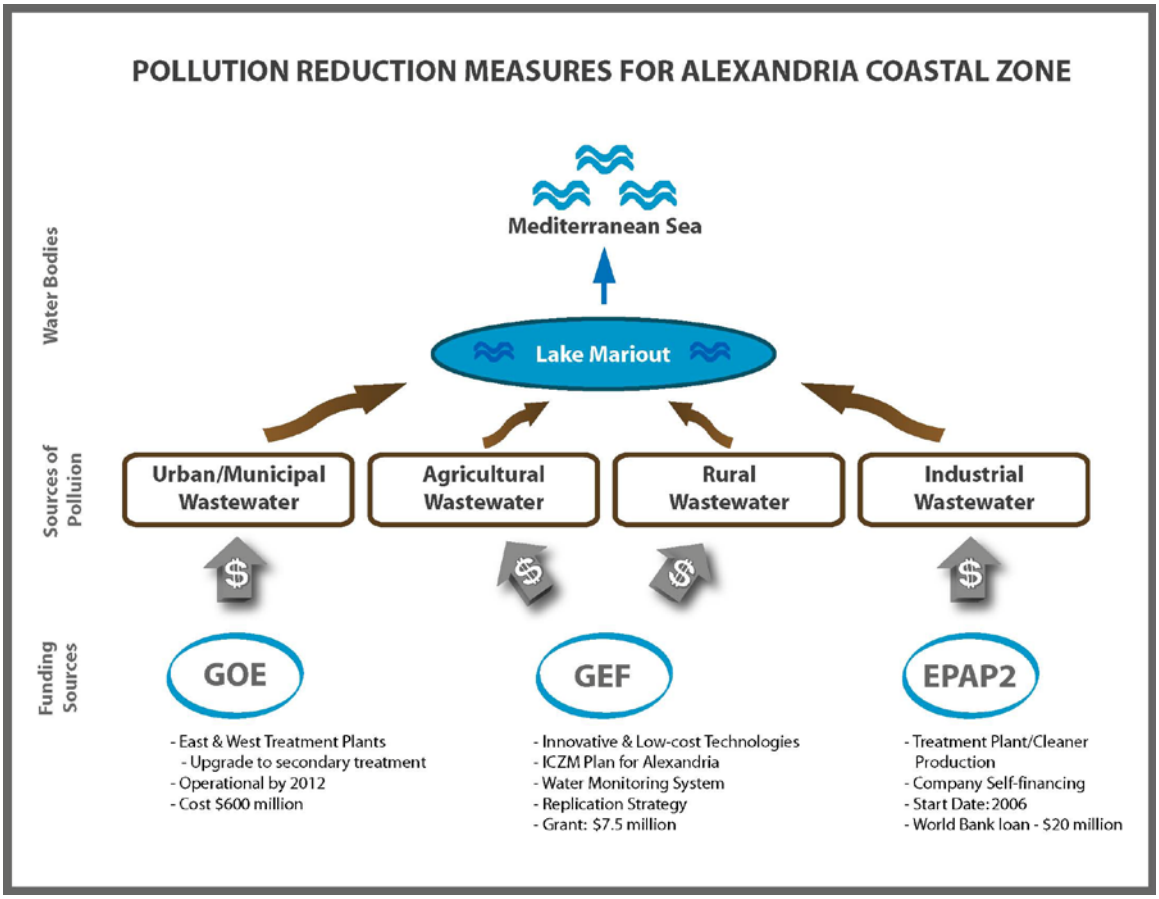


Figure 1: Complementarities of the proposed project with other on-going activities

The drafting and adoption of a Master Plan on coastal zone management for Alexandria including Lake Mariout, is directly consistent with the on-going preparation of the National Strategy for ICZM in Egypt, under the leadership of EEAA. It is expected that the drafting of this plan – the Alexandria Coastal Zone Management (ACZM) Plan - would start soon after the National Strategy for ICZM is in an advanced stage of preparation and a draft is available. This would allow for the national priorities to be reflected in the ACZM Plan. In particular, the National Committee on ICZM will ensure alignment between the ACZM Plan and the National Strategy for ICZM. Based on consultations held for the preparation of the National Strategy for ICZM, the following issues were considered as cornerstones: shoreline erosion and flooding; irrational land use; water pollution; and deterioration of natural resources and habitats. To address these issues, the ACZM Plan would include a shoreline management plan, a land use plan; a water quality monitoring plan and a climate change/hazardous impact assessment plan.

The ACZM Plan and related public consultations will also provide the decision makers with a tool for the management of the coastal zone, including lake management. The multi-stakeholders consultations on the ACZM Plan will be an opportunity to discuss, based on an ecosystem approach to CZM, the other upstream measures on agricultural and rural wastewater and their impact on water quality in the Lake Mariout and Mediterranean Sea. The consultations will offer

a platform to emphasize the importance of parameters and standards for the use and release of agro-chemicals and reflect this into the ACZM Plan.

The ACZM Plan will recommend that any future development projects in Alexandria are aligned with the criteria or standards defined by the National Strategy for ICZM. In particular, the ACZM Plan prepared by EEAA and its recommendations will be reflected into the urban development plan for Alexandria, including Lake Mariout, under the responsibility of the Ministry of Housing, Utilities, and Urban Development (MoHUUD). The ACZM Plan will be monitored by EEAA jointly with the Governorate of Alexandria and the EEAA RBO in Alexandria.

Additionally, the proposed project will build on the experience gained from the implementation of the Integrated Sanitation and Sewerage Infrastructure Project (ISSIP); a project financed by the Bank in the fields of sewerage treatment, water quality monitoring, and social participation. Synergies with the ISSIP as well as links with the National Organization for Potable Water and Sanitary Drainage (NOPWASD) and the Holding Company for Water and Wastewater (HCWW) are important as they could lead to better management of the Lake Mariout.

C. Higher level objectives to which the project contributes

The proposed project is consistent with one of the key objectives of the Government of Egypt (GOE), which is to reconcile economic development with environmental and social sustainability. In particular, the project complements the strategy of the Government to increase and improve the treatment of point sources of pollution in Alexandria in particular through the upgrading of the East Waste Water Treatment Plant and the West Waste Water Treatment Plant.

Reducing the environmental pollution to Lake Mariout will lead to the reduction of pollution load to the Mediterranean, which is an objective of the Ministry of State for Environmental Affairs (MSEA) and also an obligation for the Government who has signed and ratified the Convention for the Protection of the Mediterranean Sea against Pollution (the Barcelona Convention). The project will also support the development of an integrated coastal zone management plan for Alexandria; a concept that can be followed in the rest of coastal zones in Egypt, most notably in the other northern lakes in Egypt.

The activities under the proposed project are aligned with the International Waters Focal Area Strategic Programs for GEF-4. In particular, originally designed in conformity with Operational Program #2 and Operational Program #8 under GEF-3. the project is equally aligned and being developed within the framework of the "Reducing nutrient-enrichment and oxygen depletion from land-based pollution of coastal waters in LMEs" of the International Waters Focal Area Strategic Program #2 of GEF-4. The project will demonstrate how a heavily degraded lake can be rehabilitated using low cost ecological technologies and through policy and institutional reforms as well as innovative partnerships and community participation. The project is directly in line with the implementation of the Strategic Program #2 expected outcomes: political commitments to nutrient and other pollution reduction and Integrated Coastal Management (ICM); institutions and reforms to catalyze implementation of policies for coastal pollution reduction and ICM; and multi-agency partnerships to catalyze innovative investments for

nutrient reduction. Specifically, the results framework of the project is aligned with the indicators of the SP #2, i.e. national inter-ministerial committee on ICM; adoption of ICM master plan for Alexandria and policy and institutional reforms; and monitoring of reduced levels of nutrient releases at demonstration sites.

In addition, by focusing on non-point sources of pollution, including agricultural and rural waste water, the project is in line with the Government commitment to improve rural sanitation in the Delta region particularly in priority drainage basins within the Governorates of Beheira, Gharbeya and Kafr El Sheikh.

Finally, the project is consistent with the eligibility criteria of the Investment Fund for the LME as shown by Table 2 below.

Table 2: Consistency with the Project Eligibility Criteria of the Investment Fund

Eligibility Criteria of the Investment Fund	**Elements of Consistency with the Alexandria Coastal Zone Management Project**
The project focuses on hotspots and sensitive areas and responds to priorities identified by the Mediterranean Sea TDA and SAP BIO and SAP MED.	The SAP for the Mediterranean and the TDA has identified El-Mex Bay in Alexandria as a hot spot of significant relevance in the context of the Mediterranean Sea. Lake Mariout is one of the major sources of conveyance of land based pollution to the El-Mex Bay through the El-Mex pumping station.
The project responds to the priorities identified in the National Action Plan or equivalent strategic documents endorsed by the requesting country.	The National Environmental Action Plan (2002-2017) identified a program on marine coastal zones management with a series of interventions including monitoring and pilot projects. The proposed GEF project will support the NEAP priorities through (a) the development of a water monitoring system integrated with the EEAA database and (b) the implementation of a package of small scale innovative pollution reduction measures on a pilot basis.
The project has secured adequate co-financing for non-incremental components.	The GEF contribution complements (i) the Government on-going large scale infrastructure program to upgrade the treatment capacity of municipal wastewater treatment plants in Alexandria and (ii) the Government program to reduce industrial pollution in Alexandria and greater Cairo under the EPAP II.
The project adheres to the principles of the GEF International Waters Strategies, Operational Programs, and Strategic Priorities and is formally endorsed by the country's GEF Focal Point(s).	The project fully conforms to the GEF4 IW Strategic Objectives and Programs and has been endorsed by the GEF Operational Focal Point.
The project includes piloting and testing alternative methodologies and approaches that are innovative in the country context.	The project includes a pilot project to demonstrate how low cost technologies can reduce nutrients and pollution from agricultural drainage water and rural waste water. The pilot project will also improve water circulation in the drains and in the Lake which combined with the other measures can be replicated in rural areas in the Delta.
The project can demonstrate on-the-ground impact and includes provisions and adequate financial resources for monitoring and evaluation activities, and specific indicators consistent with International Waters and Biodiversity frameworks.	The project will have an impact on the reduction of nitrogen, phosphorous, BOD and COD both within the drains and in El-Mex bay. M&E is a key component of the project and has received adequate financial resources. Specific stress reduction indicators have been identified and will be monitored during project implementation.
The project demonstrates high potential for replication within the country and the Mediterranean basin	The in-stream treatments constitute potential replicable experiments in northern villages in the Delta and the small scale engineered wetland could be considered for other coastal Lakes in Egypt and elsewhere in the Mediterranean basin. The project will cooperate with the UNEP Regional Component of the Partnership to enhance awareness and replication.

II. PROJECT DESCRIPTION

A. Lending instrument

The lending instrument is a GEF grant in the amount of US$ 7.15 million. Financing is being provided from the EPAP II project in the amount of US$ 19.72 million to beneficiary industries for pollution abatement projects in Alexandria, and from the GOE in the amount of approximately US$ 600 million to upgrade the East and West Waste Water Treatment Plants in the city of Alexandria. The treatment capacity is expected to increase from 607,000m3/day to 800,000m3/day for the East Waste Water Treatment Plant and from 480,000m3/day to 680,000m3/day for the West Waste Water Treatment Plant. The level of treatment will increase from primary to secondary treatment for both plants. The construction of the East WWTP started on October 23, 2008 with a total budget of 1.485 billion EGP and is expected to be completed in October 2011. The construction of the West WWTP which receives mostly industrial effluents is expected to start in late 2009/early 2010, after completion of the tendering process.

B. Project development objective and key indicators

The objective of the project is to improve the institutional mechanisms for sustainable coastal zone management in Alexandria in particular to reduce land-based pollution to the Mediterranean Sea.

The proposed key outcome indicators of success are:

- The ICZM plan is officially adopted and the institutional mechanisms for implementation are successfully in operation;
- The pollution load entering the Mediterranean Sea through Lake Mariout is reduced by at least 5%.

Details of these indicators are available in Annex 3.

C. Project components

The proposed project will consist of three components, to be implemented within a time frame of five years (2010-2015).

Component (1): Planning, Institutional Capacity and Monitoring Strengthening (US$ 1.982 million). The expected outcome is an increased capacity by the various relevant entities to manage the coastal zones in and around Alexandria in an integrated, participatory and sustainable manner, including planning, consensus building, and monitoring. The outputs for this component include: (i) a master plan for the management of the coastal zones of Alexandria including Lake Mariout (the "Alexandria Coastal Zone Management (ACZM) Plan"), which will be preceded by a legal and regulatory framework analysis; and (ii) the development of an integrated water quality monitoring network for Lake Mariout and the Mediterranean Sea, including a modeling activity for El-Mex bay, which can be used to estimate the overall project

impact on the Mediterranean. Synergies with the Ministry of Housing and the GOPP will be sought as soon as the preparation of the Strategic Plan for Alexandria urban development is underway.
This component will include (i) the procurement of goods including water monitoring equipment and (ii) the provision of consultancy services for the preparation of the Alexandria CZM master plan including public consultation workshops, study tour, training workshops on CZM and master plan dissemination.

Component (2): Pollution Reduction. The expected outcome is a reduction in the land based source of pollution entering the Lake Mariout and subsequently the Mediterranean Sea through pilot pollution reduction measures. The outputs of this component include: (i) in-stream treatment (set of bio-films) in the Qalaa drains, (ii) set of aerators in the Qalaa drains, (iii) a small scale engineered in-lake wetland located at the outfall of the Qalaa drain and (iv) reed removal in the lake to improve water circulation and self-cleaning capacity of the Lake. Financing for this component will go to: (i) the provision of consultancy services for the preparation of the necessary feasibility studies for the pollution reduction measures, and (ii) the procurement of works and goods necessary for the implementation of those pollution reduction measures.

Component (3): Project Management and Monitoring and Evaluation (US$ 0.543 million).
The expected outcome is the completion of a M&E system and the documentation of the project results for the purpose of up-scaling and replication. The outputs of this component include (i) a project monitoring system with measurable indicators which are consistent with the Investment Fund for the Mediterranean Sea Large Marine Ecosystem; and complying with the GEF International Waters Tracking Tool; and (ii) the documentation of project's progress and results, dissemination of lessons learned from the project and adoption of a replication strategy in conformity with GEF IW: LEARN. Following the environmental disclosure example being piloted in EPAP II, it is expected that data on water quality will be progressively available to the public once improvements are recorded. Financing for this component will go towards the provision of consultancy services for developing an M&E system.

D. Lessons learned and reflected in the project design

An important lesson learned from implementing the EPAP I (completed) and the ongoing EPAP II projects is that any investment needs to be accompanied by a significant institutional strengthening and capacity building component and public consultations to ensure success. This is reflected in the project design in terms of the activities included in component 1 of the proposed project such as public consultations, training on coastal zone management practices, study tour, and M&E system.

Furthermore, the monitoring and evaluation (M&E) system constitutes one of the major features to be developed in order to monitor the project progress and ensures any needed correction in the project along its implementation progress. In that respect, a M&E Specialist will be contracted under the project funds to collect feedback from the beneficiaries during the entire project implementation and to build the M&E capacity of the EEAA PMU.

The experience gained with the Lake Manzala UNDP-GEF project that demonstrated the viability of engineered wetlands and related innovative low cost water treatment methods in Egypt under conditions very similar to those of Lake Mariout was also considered. Therefore, clear arrangements have been made with the relevant implementing agencies for the operation and maintenance costs of the pollution reduction interventions in the case of Lake Mariout after project completion. These arrangements are key to ensure long-term sustainability after the project ends. Detailed inter-agency agreements have been prepared and signed between EEAA and other Ministries (MWRI and MALR on October 26, 2009 and November 2, 2009, respectively) including hand over of the project infrastructure. In addition, drawing from the experience of Lake Manzala, a Communications Specialist will be contracted from the start under the technical assistance of the project to raise awareness about the project objectives and develop a consultation strategy with all stakeholders.

Finally, the project draws on the experience from the Alexandria Development Project (ADP) in terms of the significance of securing the support and ownership from key stakeholders in the early stages of project preparation.

E. Alternatives considered and reasons for rejection

The "no project" option. The "no project" option meant failing to recognize that there is an urgent need to support the GOE in its effort to improve its coastal zone management. A "no project" approach would have meant a continued fragmented approach to coastal zone management in and around Alexandria area, little consideration for biodiversity conservation and ecosystem issues, limited investments specifically targeting more diffuse upstream agricultural drainage water and rural domestic wastewater, reduced capacity to monitor water quality in and around Alexandria on a regular basis, limited participation of local communities and relevant stakeholders and foregoing the skills and information to replicate the piloted technology at a larger scale. This alternative was therefore rejected.

Treating only point source (industrial) pollution. One of the technical options for the pollution reduction measures involved building a centralized industrial wastewater treatment plant for a group of tanneries that pollute El Mex Bay. This alternative was discounted because it would provide a disincentive both for the group of tanneries to pay for the pollution they are ultimately causing and disincentive for other firms that improve their environmental performance through self financing, or through borrowing from the EPAP II project.

Reusing wastewater for landscaping. The option of diverting part of the primary wastewater from the West Treatment Plant currently being discharged to the basin, through reusing the water for landscaping, has also been considered. Although this would significantly reduce the load of urban domestic waste pollution that enters the Lake, it will not address the removal of nutrients, essentially originating from agricultural drainage water as well as rural wastewater. In addition, the costs involved with such an operation would be excessive and with questionable financial sustainability.

Selecting only one pollution reduction intervention. Initial pre-feasibility studies have focused solely on designing an engineered wetland at the outfall of the El-Qalaa drain. However, given the nature of the GEF funds which are intended for innovative, catalytic and pilot activities,

additional research and analysis have demonstrated the value of adopting a package of mutually supportive interventions with a greater impact on the water quality in El-Mex bay.

III. IMPLEMENTATION

A. Partnership arrangements

The project will be implemented as part of the GEF-World Bank-UNEP Strategic Partnership for the Mediterranean Sea Large Marine Ecosystem (LME), which will support capital investments, economic instruments, implementation of policy reforms, and strengthening of public institutions and public participation. This Partnership will be accomplished through two complimentary components: the Regional Technical Assistance project or Regional Component, implemented by UNEP and executed by the Mediterranean Action Plan (MAP), its regional centers, and various partners (FAO, GWP, UNESCO, UNIDO, WWF), and the investment Fund managed by the World Bank. The project will cooperate with the UNEP Regional Component of the Partnership to enhance awareness and replication, given that the Director of the CZM Department in EEAA is the focal point for the MAP Priority Actions Programme/Regional Activity Centre (PAP/RAC) in Egypt.

Several donors are active in supporting environmental projects in Egypt. In fact, EPAP II project, with which this proposed project is partially blended, is a multi-donor project with contribution from the European Investment Bank (EIB), the Japan Bank for International Cooperation (JBIC, currently JICA), the French Agency for Development (AFD), with technical assistance provided, in part, by the Government of Finland. The Bank's team is in constant contact with the donors active in the sector to ensure that there is a common understanding and agreement as to the measures that are needed to improve the coordination related to coastal zone management. In addition, the Bank has established a close relationship with the Center for Environment and Development for the Arab Region and Europe (CEDARE) as the project builds on the Alexandria Lake Mariout Integrated Management project (ALAMIM) funded under the EU SMAP III (Short and Medium term priority environmental Action Program). The ALAMIM project is implemented by CEDARE and aims to promote the integrated development of the Lake Mariout and its activities.

B. Institutional and implementation arrangements

The ***EEAA*** is the agency responsible for overall project implementation. Together with the Governorate of Alexandria, the EEAA will also lead the coordination work with other implementing agencies, including the MWRI and the MALR. Even though the EEAA would not necessarily be able to enforce implementation of the ICZM plan, its coordinating role given by Law, along with the participatory and consultative process for the development of the ICZM plan should combine to ensure the successful implementation. The institutional arrangements have been designed to ensure a multi-sector and participatory approach to sustainable Coastal Zone Management and to build on the technical expertise and comparative advantage of the different agencies. Synergies and cross-fertilization with the EPAP II PMU staff at EEAA will be ensured.

A number of steps have been included in project design to address potential conflicts from project interventions. These measures include the participation of the Lake Mariout Development Committee and a representative of civil society organizations in the Project Steering Committee

and the assignment of a social specialist and an environmental specialist in the EEAA PMU to review and monitor the social/participatory, and environmental aspects, respectively. The management (and assets) of the investment component will be transferred from the EEAA to the relevant agency/ministry after project completion to ensure long-term sustainability. To that effect, an inter-agency agreement was prepared and signed between EEAA and MWRI and GAFRD on October 26, 2009 and November 2, 2009, respectively, as a condition for negotiations (a copy of the inter-agency agreement with each Ministry is attached in annex 6b and 6c).

The proposed implementation arrangements are as follows:

A ***Project Management Unit*** (PMU) for the proposed project will be put in place. In order to build on the significant expertise gained in EEAA from the implementation of the EPAP I and EPAP II, the Director of the PMU for EPAP II in EEAA will serve as the PMU Director for the proposed project. However, given that the EPAP II is still under implementation, the PMU will be reinforced by hiring three new staff: (i) a technical specialist: (ii) a financial management officer; and (iii) a procurement specialist. This will ensure that the GEF project PMU can continue to oversee the project implementation, even after the EPAP II closing date in 2012. In order to draw on the experience accumulated by EEAA in the area of sustainable coastal zones management, the technical aspects of the project will fall under the responsibility of the General Department for Coastal Zone Management in EEAA who will have to work in close tandem with the PMU Director and staff.. The on-going participation of EEAA's General Department for CZM in the preparation of the National Strategy for ICZM will facilitate the development of the Alexandria master plan and ensure coherence with the national priorities. The technical staff in the PMU will also include staff from the Alexandria EEAA RBO who will have a significant role in overseeing the monitoring of the water quality in the El-Mex bay as well as progress related to the project interventions. In order to reflect the interests of all stakeholders in the proposed interventions, the PMU will contract and pay out of the project funds (i) a Social specialist, (ii) a M&E specialist and (iii) a Communication specialist on a part-time or task basis. The PMU will have the overall technical and fiduciary responsibility of the project. The PMU will be responsible for the preparation of tender documents, receiving and evaluating bids, managing contracts, supervising works and consultants, and prepare progress reports.

Project Working Groups (PWG) will be formed in each implementing agencies (MWRI and MALR). The PMU will work with a relevant agency to coordinate the implementation of the project's interventions, the MWRI for the in-stream biofilm and in-stream aerators, and the Ministry of Agriculture and Land Reclamation for in-lake wetland and reed removal (Component 2 of the project). These working groups will include technical specialists from the relevant Ministries in order to ensure ownership during project implementation and sustainability of the interventions upon project completion. The role of the PWG is not only managerial but also technical. The implementing agencies will ultimately be responsible for the preparation of the technical specifications of the bidding documentation together with the PMU procurement specialist as well as the evaluation, contracting, construction supervision and reporting tasks. A total of three technical specialists from each implementing agency will be financed and appointed by the relevant Ministries.

The management of the investment infrastructure will be transferred from EEAA to the relevant agency/ministry after project completion. Close coordination with the Governorate of Alexandria

is essential as the Governorate will facilitate the provision of information and data related to the fulfillment of the project outputs and provide feedback on the annual work plans and progress reports. Annex 6 of the PAD provides a detailed description of the responsibilities of each PMU members.

A ***Project Steering Committee*** (PSC) will be established to provide oversight and direction to the project including the Annual Work Plans. The PSC will include representatives of all agencies involved in implementation directly or which have a legal stake in project outcomes or implementation including EEAA; the Governorate of Alexandria; the MWRI; the MALR; a member of the Lake Mariout Development Committee which represents the interest of the fishermen community and a representative of civil society organizations. The PMU Director, the representative of the Alexandria RBO and the PMU CZM Technical Manager will represent EEAA in the PSC. The Committee will be chaired by the CEO of EEAA. The PSC will meet quarterly to review progress and propose any remedial actions if necessary. Annex 6 provides in greater details the responsibilities of each PSC members.

The ***National Committee for Integrated Coastal Zone Management*** will provide scientific advice and inputs into the preparation of the Alexandria Coastal Zone Management Plan serving as a scientific and advisory body in particular for Component (1) during the preparation stage. The Committee will approve and adopt the final version of the Alexandria ICZM Plan upon receipt of a draft by the PSC. The Committee may also provide scientific and advisory inputs on any aspects of the project components if requested by the PSC. Before the end of the project, a small sub-set of action items proposed by the plan would have been put in place. These action items would indicate that the stakeholders, with the support of the National Committee, have put in place the necessary mechanisms to implement plan activities once adopted, including budget allocation, enforcement procedures, human resources requirements and monitoring and evaluation functions. The Plan would clarify and assign institutional responsibilities to implement a set of immediate, short, medium and long-term measures for sustainable CZM. The coordinating role of EEAA along with the participatory and consultative process for the development of the CZM plan for Alexandria would support the successful implementation of the plan.

The roles and responsibility of each agency is detailed in the Inter-Agency Agreement between the EEAA and the relevant agencies already prepared and signed (on October 26 and November 2 with MWRI and GAFRD, respectively), and in the Operations Manual, which will be developed within three months of project effectiveness. For more details on the institutional structure, see annex 6.

C. Monitoring and evaluation of outcomes/results

Performance indicators to track the performance and outcome of the project have been identified and agreed with EEAA as part of project appraisal. To the extent possible, baseline and benchmark indicators have also been determined. Performance indicators are detailed in Annex 3.

Social development issues will be included in the proposed M&E framework. M&E variables will largely be environmental, but key social issues will also be highlighted as the project is

scaled up. Brief household surveys will be carried out at regular intervals in an effort to measure any changes in public/community perceptions of the project, and a few selected variables could be monitored over time, e.g. changes in the quantity and quality of the fish, market price, income generation, standard of living, attitudes towards the project etc. The preparation of a stakeholder M&E framework and consultation plan will specifically include local stakeholders.

Progress against the performance indicators will be conveyed as part of the regular reporting undertaken by the PMU. The PMU will submit quarterly and annual progress reports detailing project implementation and progress against indicators. Semiannual interim financial reports and annual project financial statements will address financial management issues. Given expected effectiveness by February 2010, a mid-term review will be scheduled for July 2012. An Implementation Completion and Results (ICR) Report will be prepared by the Bank within six months of project closing, and will include a final evaluation by EEAA.

D. Sustainability and Replicability

Sustainability

The GEF project clearly fits within the continuing efforts of the Government of Egypt (GoE) to implement an integrated approach to coastal zone management, in particular the on-going preparation of a national strategy for CZM. The project is also a critical component of a series of complementary interventions supported by the GoE, the Bank and other donors to reduce pollution loads entering Lake Mariout, such as the EPAP II and the upgrade of the Eastern and Western municipal treatment plants. Thus the project places itself within a larger initiative to which the Government is committed and for which it receives donor support, and will build on the existing structures, investments and linkages established by other projects.

Institutional complexities and lack of coordination among various entities on issues related to CZM were highlighted as a major challenge in Egypt. However, the institutional arrangements and role of the different stakeholders in coastal zone management including Lake Mariout will be discussed and specified in the Alexandria Coastal Zone Management plan, laying the foundation for longer term institutional sustainability. In addition, the project interventions will be discussed among a wide range of stakeholders during the preparation of the feasibility studies.

Project sustainability will be enhanced by introducing technologies with low operations and maintenance costs such as the in-stream bio-films. It has been tested and used in Egypt once and proved successful. The Project would also pilot the production and sale of duckweeds as part of the in-lake wetland whereby the revenues of the sale would cover a portion of the O&M costs of the interventions. The Project also makes provisions for strengthening the capacity of the local implementing institutions and central administration to ensure that they acquire the needed managerial and technical skills to implement the project. In addition, detailed inter-agency agreements have been signed between EEAA and other Ministries (MWRI and MALR on October 26, 2009 and November 2, 2009, respectively) including hand over of the investments infrastructure and O&M responsibilities after project completion.

The M&E system, which will have a public disclosure function, will provide information on water quality improvement. It will also provide an incentive for the relevant agencies (MWRI in particular) to reduce the use of certain types of pollutants such as agro-chemicals and thereby enhance the accountability of government institutions.

In addition to the national-level workshops which will be organized to maximize participation in the project design, the project includes training components for relevant national and local government officials, such as workshops on coastal zone management, a study tour and participation in the GEF's International Waters Learning Exchange and Resource Network (IW LEARN) programs. The selection of the country for the study tour will be based on an analysis of the most relevant experience on coastal zone management practices drawn from the GEF IW-LEARN program.

Replicability

The following actions should help in replicating the project's actions and results: i) an M&E system will be put in place to properly assess project results and to document and disseminate lessons learned from the project, including through the EEAA website and brochures; ii) opportunities for up-scaling and replicability in other coastal areas will also be explored and discussed with various stakeholders during public consultations and; iii) the project will collaborate with the UNEP-led Regional Component of the Mediterranean Strategic Partnership which includes a sub-component for facilitating replication of practices.

E. Critical risks and possible controversial aspects

The analysis of the critical risks concurrent to the projects are summarized in the following matrix:

Critical risks matrix:

Risks	Risk Mitigation Measures	Risk Rating with Mitigation
Achievement of Project Development Objective		
Conflicting objectives of the various stakeholders may render the Coastal Zone Management Plan for Alexandria ineffective	Component (1) will include extensive consultation process, institutional strengthening, capacity building, and a study tour. This should bring the various players closer together and build consensus.	S
Achievement of Component Results		
Uncertainty of the proposed pollution reduction measures and/or actual conditions may result in lower efficiency of the piloted interventions	A "package" of pollution reduction measures is proposed, which should reduce the risk of underperformance if a single measure was proposed. The pollution reduction measures were selected according to a multi-criteria process (i.e. that they should be low cost, modular and simple to use). Furthermore, a full feasibility study and detailed design will be carried out prior to implementing the investment component.	M
Limited demand for industrial waste water projects in Alexandria to be financed through EPAP II	The implementation set-up makes use of the existing EPAP II PMU, which will set during project's implementation, as one of its priorities, the promotion of industrial waste water projects in Alexandria to reduce industrial effluents in the area of influence of the project.	M
Implementation is delayed or complicated by the multitude of active players.	Inter-agency agreements have been developed and signed between EEAA and MWRI and between EEAA and MALR clearly detailing roles and responsibilities for implementation and hand-over arrangements of the infrastructure upon project completion.	M
Project Management Unit fails to carry out the various tasks required by the project	The existing PMU is familiar with the project tasks and with the Bank procedures. The hiring of three additional staff to the existing EPAP II PMU will further ensure a strong and capable implementation unit.	N
Overall Risk Rating	Modest	

H: High; S: Substantial; M: Modest; N: Negligible

F. Loan/credit conditions and covenants

Negotiations conditions

- None.

Board conditions

- None.

Effectiveness conditions

- None.

Dated Covenants

- The PMU has been established and is fully staffed and operational within one month of Project effectiveness
- The Project working groups in MWRI and MALR have been established within one month of Project effectiveness
- The OM Manual including FM and procurement arrangements has been approved and adopted by EEAA within one month of Project effectiveness

Implementation Covenants

- The Recipient shall ensure that EEAA at all times maintains the PMU.
- The Recipient shall at all times carry out the Project in accordance with the Project operations manual and the environmental and social management plan.
- The Recipient, shall carry out jointly with the Bank, no later than October 31, 2012, a mid-term review of the progress made in carrying out the Project. The Mid-term Review shall cover, amongst other things: (a) progress made in meeting the Project's objectives; and, (b) overall Project performance against Project performance indicators.

IV. APPRAISAL SUMMARY

A. Economic and financial analyses

Preliminary estimates indicate that the GEF interventions will annually remove about 168 tons of nitrogen and 50 tons of phosphorous from Lake Mariout (close to Qalaa drain) and about 12,300-24,600 tons of COD load at El Mex bay. A pre-feasibility analysis suggests that these interventions will provide also a significant BOD reduction, however the magnitude of this impact could not be quantified.

Economic analysis. The GEF-financed interventions will provide several global benefits, such as reducing trans-boundary pollution from Lake Mariout to Mediterranean Sea, and improving the lake's biodiversity. It will also provide local benefits in terms of potential sales of duckweeds, improved air quality and potential increase in fish production. The lack of estimates concerning

the global benefits and the partial estimates of local benefits (i.e. US$441,000 per year as potential sales of duckweeds) do not allow undertaking a cost-benefit analysis of the GEF interventions or calculating the economic internal rate of return. A cost-effectiveness analysis of the intervention resulting in pollutant reduction (in lake wetland) was undertaken, by comparing its cost per unit of pollutant reduction with that estimated for a GEF-financed Nutrient Reduction Project in Hungary (World Bank, 2006). The in lake pilot wetland appears cost-effective, with the financial cost per unit of nutrient reduction (US$150-300/t) close to the cheapest intervention of the other project (US$241/t) (see Annex 9, Table 2 for more details).

Financial analysis. Because the interventions mainly result in environmental benefits, the financial rate of return is not the main consideration in undertaking the investment. Instead, it is important to discuss the financial viability of the GEF-financed interventions, to ensure that they continue operating beyond the end of the project. GEF covers only the investment cost of these interventions (US$4.5 million). The revenues from sales of duckweeds (pending confirmation in the final design and feasibility study) will be used to recover some of the costs, thus lessening the reliance on external institutions for sustaining the costs of these interventions beyond the end of the project.

B. Technical

Integrated Coastal Zone Management has been recognized as an efficient and sustainable approach to managing eco-systems and water resources and is applied in the project. The project will use a two-pronged approach to sustainable CZM. On the one hand, the project will support ICZM by bringing various stakeholders together in the preparation and adoption of an integrated coastal zone management plan for Alexandria. On the other, the project will complement conventional municipal and industrial wastewater treatment interventions with a package of low cost and pilot treatment of pollution load coming from upper parts of the water catchment, including agricultural drainage water. This package includes (i) in-stream treatment (set of bio-films) in the Qalaa drains, (ii) set of aerators in the Qalaa drains, (iii) a small scale engineered in-lake wetland located at the outfall of the Qalaa drain and (iv) reed removal in the lake to improve water circulation and self-cleaning capacity of the Lake.

The project design includes the following technical elements:

A package of pilot interventions. To treat the more diffuse land-based sources of pollution entering Lake Mariout, the project proposes to implement a set of pollution reduction measures, which either individually or presented as a package have not been used on a wide scale in Egypt and are therefore considered as pilots. Drain aeration, as such, has not been implemented before in Egypt. In-stream biofilm was only applied once before in Egypt on the Muheit and Rahawy drains, but on a small scale. Reed removal combined with an in-lake wetland has not been implemented previously, although the wetland was built in the case of the Lake Manzala. In addition, these pollution reduction measures were also selected according to a multi-criteria analysis process. One of these criteria was that they should be low cost, modular, and simple; all are pre-requisites for a successful upscaling/replication. Indeed, the use of in-stream treatment (i.e. bio-films), introduces a dynamic, mobile and easily manageable technique mechanism.

The specific location of the replication/up-scaling cannot be known at this stage, however, it is expected that the replication would take place on similar settings of polluted drains leading to northern lakes such as Edku, Burulus and Bardaweel. Similar to the analysis undertaken during the pre-feasibility study conducted during preparation of this project, the replication/scaling-up of pollution reduction interventions in comparable settings would need to evaluate the various pollution reduction solutions on a case-by-case basis in order to identify the optimum case-specific solution(s) or package thereof. Such analyses would be based on a set of multi-criteria indicators including pollution reduction effectiveness, ease of implementation, cost of investment, financial sustainability (O&M cost and potential for cost recovery), institutional clarity, and any other relevant indicators identified. The analyses must then also consider the potential for packaging of more than one pollution reduction measure into a single, integrated package. In such situations however and in addition to investigating the technical feasibility of a "packaged" solution, budget constraints will need to be closely considered at the planning phase in order to efficiently achieve the desired pollution reduction targets in an economic manner.

During project preparation, a pre-feasibility analysis of the pollution reduction measures was conducted and found that the implementation of a number of small interventions (in stream bio-films and in-stream aeration, pilot in-lake wetland, reed removal) would be mutually supportive. The idea of a package of interventions has been retained as up-stream in-drain treatment would improve the performance of the wetland while retain its potential for cost recovery. Based on previous experience with Lake Manzala, engineered wetlands have demonstrated satisfactory removal rate of key pollutants (61.2% for BOD, 80% for TSS, 15.2% for Total Phosphorous, 51.4% for Total Nitrogen, 99.7% for Total Coliform, according to the UNDP Final Evaluation Report of Lake Manzala, October 2007, EGY/93/G31). Feasibility studies and detailed design will be done in the course of Project implementation, following detailed field surveys and investigations, for which provisions have been made under the Project.

A Water Monitoring Network. In order to capture data on water quality from each relevant project interventions, a comprehensive and continuous monitoring network will be put in place and samples will be strategically taken along the project interventions. This comprehensive monitoring network funded under Component 1 of the project would allow to monitor the synergetic effect of the in-stream treatment on the water quality and the impact for the wetland which will be located further downstream. Adjustment to the design of the engineered wetland could thus be made if necessary. Although the proposed package of interventions are mutually supportive, phasing the interventions is crucial so that the large fixed investment involved in the in-lake wetland would be based on actual, rather than expected, influent characteristics to which it is sensitive. In addition, the water quality monitoring equipment should also collect and analyze data about the suitability of fish for human consumption before and during the project and not monitor only the production side of fishing in the Lake.

Water Quality and Hydraulic Modeling. In order to address existing data gaps, the project will support the development of water quality modeling studies and applications to determine the hydrodynamics, water quality of the Lake and the surrounding water bodies (channel, pumping, gate, open sea). The models and scenarios, including climate change aspects, would assist in detecting water quality deterioration and seasonal variation. The water modeling will provide a more accurate picture as to the impact resulting from all the

interventions, including from the proposed project, on the water quality of the Mediterranean Sea. These models would also serve as a planning tool for the identification of priority activities and as a means to measure the lake response to any restoration measures.

C. Fiduciary

Financial Management

The Ministry of State for Environmental Affairs (MSEA), through the EEAA, will carry out the technical, environmental management and monitoring requirements of the proposed project. Also the EEAA will be responsible for the project Financial Management (FM) including the accounting, reporting and the project external audit arrangements. The GEF grant will be disbursed as a parallel financing to other activities implemented in the area and financed by other donors. Also the grant will be disbursed as an extra budgetary fund thus it will not be part of the government budget as approved by parliament.

Activities on the lake Mariout can only be implemented by the fishery department which is under the Ministry of Agriculture, while the monitoring equipments to be installed at the lake sites will be operated by the Ministry of Water Resources and Irrigation. Having various ministries involved in the project implementation and with the EEAA responsible for the project FM and disbursement arrangements creates risks related to flow of information and communication between the various entities. For this purpose the EEAA has signed interagency agreements in the last quarter of 2009 with each of the two ministries, defining the responsibility of each as well as the payment procedures.

The project over all FM risk was assessed as moderate mainly due to: (i) The EEAA has previous experience with Bank financed projects as they are the entity following on the EPAP II project, (ii) Already the project manager has been assigned to the envisaged project PMU that is under establishment and the EEAA is fully committed to engaging a financial officer to the PMU within a maximum period of one month from project effectiveness and (iii) A manual of procedures will be developed by the EEAA defining the controls[2] (Grant is extra budgetary fund) and the flow of information including the auditing arrangements between the various implementers under the project.

Though the Project will follow the government applied controls set in the local laws and applied by the EEAA, there will be supplementary controls in place for monitoring Project activities through the PMU where additional verification of the invoices will take place, bank accounts will be reconciled and periodical financial reports will be prepared and generated.

To ensure that funds are readily available for Project implementation, a US Dollars Designated Accounts (DAs) will be opened and will be operated by the EEAA. The US Designated Accounts (DA) will be opened at the Central Bank of Egypt or any other commercial Bank acceptable to the World Bank and in accordance with the Government of Egypt regulations.. An

[2] As the project will be implemented as an extra budgetary fund, there will be in place additional controls will be introduced and applied by the EEAA.

independent external auditor will be hired to audit on annual basis the Project financial statements and payments made on SOE basis (FM arrangements are detailed in Annex 7).

Procurement

Procurement of all contracts financed by the GEF Grant would be carried out under the "Guidelines: Procurement under IBRD Loans and IDA Credits" dated May 2004 and revised in October 2006, and the selection of consultants would be carried out under the "Guidelines: Selection and Employment of Consultants by World Bank Borrowers" dated in May 2004 and revised in October 2006. The World Bank Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants dated October 15, 2006 would apply. Procurement under the grant will be done using the Bank's Standard Bidding Documents (SBD) for all ICB as well the minimum NCB provisions for Egypt to be set out in a side letter at Negotiations. Since a number of consultancies are involved, there may need to be a waiver usually provided by Government of Egypt if the funds involved pertain to grants alone similar to this GEF Grant.

An assessment of the capacity of the Implementing Agency to implement procurement actions for the project was carried out by the Bank in September 2008 and updated in May 2009. The assessment has reviewed the organizational structure for implementing the project and the interaction between the project's staff responsible for procurement and the relevant unit for administration and finance. Annex 8 explains the outcome of the assessment and identifies the risks associated with the implementation of procurement activities. The procurement arrangements for the proposed GEF Grant financed operation address these identified risks and weaknesses. To reinforce implementation capacity the ongoing PMU for EPAP II in the EEAA supplemented by TA financed by the EU would be in overall charge of contract packages to be financed by the proposed grant in accordance with Bank guidelines.

D. Social

With regard to social development impacts, the various pollution abatement sub-projects are expected to have largely positive impacts. In fact the proposed project represents a good example of how improved environmental management may contribute directly to better environmental health and livelihood sustainability for the fishery community which represents the poorest sections of the population around Lake Mariout. Environmental degradation of the lake combined with air pollution from the nearby industry has clearly had negative health and livelihood impacts on this community. The reduction of pollution of both air and water is therefore a critical local concern. Related to water pollution, the increasing problem associated with aquatic reed – which currently covers about 60% of the lake – has also been identified as a key obstacle to livelihood security. The aim of the proposed project– together with other ongoing and planned efforts to reduce the pollution of the lake– is thus a key priority of the poorest and most vulnerable sections of the population. The poor in general living next to the polluting industries are, more than any other group, exposed to pollution and associated health problems on a daily basis, and the fishermen in particular are dependent upon a cleaner lake for livelihood sustainability.

During the past three decades a number of studies have called attention to the need to reduce the pollution of the lake and to stop reclamation of land by illegally filling in the lake. As a result the size of Lake Mariout has been reduced considerably during the past few decades, by more than two-thirds since 1950, from an estimated 50 000 acres to the current 15 000 acres. The annual fish catch has seen a similar decline and has reportedly been reduced by some 75-80%. Unless land reclamation is stopped, the survival of the lake is highly uncertain. Efforts to clean up Lake Mariout are strongly supported by the fishermen, Local Councils and an actively engaged civil society in Alexandria. In spite of these changes, fishing is still one of the major activities in the Mariout area. There are presently about 2,700 licensed fishing boats which are owned and employed by about 8,000 fishermen representing an estimated community of about 40,000. Estimates of the current fish catch vary, but most sources indicate an annual catch of somewhere around 6,000 tons.

As a result of the diversity of activities in and around Lake Mariout one finds a wide variety of opinions regarding the future of the lake, and a number of different stakeholders (at central, governorate and local levels) would like to be heard in the discussion on developing a future vision and strategy for the Mariout area. This includes almost a dozen central ministries, the governorate, the private sector as well as civil society and the fishermen's cooperative association. A recent stakeholder analysis (2007) carried out by CEDARE indicates that some entities, e.g. the private sector, focus on the need for further land development while others insist on preserving the remaining lake and stopping all further land reclamation. The latter position is most strongly supported by fishery interests at both central and local levels, as well as entities representing local community/fishermen in Alexandria, but these are not necessarily the most influential with regard to initiatives at the local level. Efforts to clean up Lake Mariout are strongly supported by the fishermen, Local Councils and civil society in Alexandria, particularly Friends of the Environment (FoE) an influential local NGO established by a former Attorney General.

Establishing a Conflict Resolution Mechanism (CRM): In view of the diversity of stakeholders and the many opinions regarding the future of Lake Mariout, the need to establish a mechanism to deal with any potential conflicts remains critical. A suitably strengthened Coastal Zone Management (CZM) Committee which would include fishermen and civil society representation will be proposed as an appropriate conflict resolution mechanism. More specifically, this committee would also function as a grievance redress mechanism for any potential conflicts arising during project implementation. The Law No. 4 (as amended by Law 9/2009) refer to a Governorate level (i.e. Alexandria) CZM Committee which could assume this function. A Social Specialist will be hired on a part-time basis by EEAA to ensure that social issues are given adequate attention.

Non-Triggering of OP 4.12: None of the project components warrant the triggering of the Bank's Operational Policy on Involuntary Resettlement. This is explained in the following. For Component (1), the development of the Integrated Coastal Zone Management Plan is an output, whereas the implementation of the plan itself is beyond the scope/duration of the project. Notwithstanding the above, the project does include a set of checks and balances to ensure that

social impacts, especially on marginalized groups, from the plan implementation is minimized, through the following:

(i) The National Committee on Coastal Zone Management, which provides the ultimate oversight on coastal zone management issues in Egypt, including the endorsement of the development of the Integrated Coastal Zone Management Plan, includes representatives from nongovernmental organizations

(ii) The Project Steering Committee includes a representative from the Lake Mariout Development Committee, which represents the interests of the local communities, in particular the fishermen community during project implementation; as well as representatives from the civil society.

(iii) Financing for the project's first component will include "public consultation workshops and master plan dissemination", which will ensure that the views and interests of the civil society agencies are well represented.

Furthermore, the impacts of Component (2) in terms of involuntary resettlement (whether land acquisition or loss of livelihood) is nonexistent because of the following reasons:

(i) The investment activities included will not involve any land take whatsoever, during the construction or operation phases.

(ii) The small engineered wetland (about 20-30 feddans corresponding to 8.4-12.6 ha), to be implemented in Lake Mariout will be constructed at the effluent point of Qalaa Drain to the main basin of Lake Mariout. This area is not used by the fishermen, since it is the most heavily polluted part of the Lake. This was confirmed by the team during discussions with the fishermen syndicate and fishermen association, and the Lake Mariout Management Committee, during the last mission in May 2009. The same finding was ascertained through the prepared Environmental and Social Impact Assessment Report (ESIA) and also during its public consultation which took place on September 30th in Alexandria. Therefore, there will be no limitation of access to amenities or disruption of livelihoods as a result of the in-Lake wetland.

(iii) The drains are not a source of revenue and none of the pollution reduction activities on the drain would result in any land take nor would interfere with any of the economic activities of the residents.

E. Environment

The Alexandria Coastal Zone Management project is expected to have important and positive environmental impacts with an objective of contributing to a reduction in the load of land-based sources of pollution entering the Mediterranean Sea, especially from Lake Mariout, through the hot spots of El-Mex Bay and Alexandria. The project will develop a master plan for the management of coastal zones of Alexandria including Lake Mariout, and through the implementation of innovative pilot-level low-cost investments in pollution reduction. Accordingly, it is not expected that significant negative impacts would be generated through the implementation of the project. The project is classified as an environmental Category B according to the World Bank’s Operation Policy on Environmental Assessment (OP 4.01), requiring partial assessment.

The project has identified a selection of pilot interventions including: (i) in-stream treatment (set of bio-films) in the Qalaa drains (ii) set of aerators in the Qalaa drains, (iii) a small-scale engineered in-lake wetland located at the outfall of the Qalaa drain; and (iv) reed removal in the Lake to improve water circulation and self-cleaning capacity of the Lake. An Environmental and Social Impact Assessment (ESIA) report was prepared for the project by an independent third party consultant, according to Terms of Reference approved by the Bank. The ESIA includes an assessment of potential impacts of the proposed project (mainly resulting from interventions under Component 2) and the likely significance of such impacts and recommended mitigation measures. The ESIA also includes an environmental and social management plan (ESMP) relevant to these interventions, which will be used as a guide for the preparation of site-specific ESMPs that will be a part of the contractor's bidding documents. The ESMP includes—for construction and operation—potential environmental and social impacts, mitigation measures, and institutional responsibility for implementing and monitoring the recommended mitigation measures, capacity building and training requirements, and a cost estimate for implementation.

Public Consultation and Disclosure of ESIA

Public Consultation and Stakeholder Participation: Given the complexity of the stakeholders' relations, several preliminary consultations took place during project preparation. These consultations included a workshop held in Alexandria in May 2008 which was attended by representatives from the Alexandria Governorate, EEAA, the MALR, the Alexandria Sanitary Drainage Company, the MWRI, the University of Alexandria, CEDARE, EWATEC and the Coastal Research Institute; a meeting with members of the National Steering Committee on ICZM held in May 2009 during the pre-appraisal mission and discussions with representatives from the Fisheries Syndicate and the Fisheries Association during project preparation missions.

To protect the interests of affected communities, the ESIA process included consultation and disclosure of information to key stakeholders involved in and/or affected by the project. As per the objectives of consultation and disclosure, various stakeholders and interested parties (civil society, governmental authorities, NGOs, academia, etc.) were consulted andand informed of the proposed project. They were given the opportunity to express their views and opinions regarding the potential impacts that might affect their livelihood. The ESIA report includes a summary of the outcome from these discussions, including key issues raised and how they will be addressed by the project. On September 30th, 2009, the public consultation session was held in Alexandria. Representatives of the government, Alexandria Governorate, civil society, academia and the media participated. The main outcomes from the public consultation session demonstrated that there is a very high level of interest in the project area, Lake Mariout, as well as in the proposed interventions and the degree of expected improvement from the project's activities. Participants expressed deep concern about the deteriorated environmental conditions of Lake Mariout and the causes of these problems. Several suggestions to improve the situation were proposed and discussed among the participants as well as EEAA team. The socio-economic conditions of the fishermen community also gained a lot of attention from the attendants, especially from NGO's, who urged the project to involve the fishermen community in implementing the project activities to ensure buy-in as well finding opportunities to improve their livelihoods through small scale projects associated with the proposed interventions.

Due to the fact that there are many institutions involved in utilizing Lake Mariout in different ways, a lot of the discussion focused on the level of contribution of each institution to the environmental problems in the Lake and the role that each can play to improve the current conditions. The need for coordination and cooperation between the different institutions in managing the lake was stressed. A discussion about the environmental and social impacts of each intervention also indicated that the positive impacts are likely to be far more important than the negative ones since the proposed interventions aim at improving environmental conditions in and around Lake Mariout.

It is recognized that the key challenges facing this project are likely to be institutional rather than technical, and involving all the stakeholders fully as early as possible will be critical in addressing longer term sustainability issues. The above-mentioned Social Specialist (Section D) will also ensure that a participatory approach to M&E is developed and will monitor the implementation of the social mitigation measures as part of the ESMP. He/she will further be responsible for the social reporting and will work closely with the PMU staff in preparing a detailed plan for stakeholders' consultations.

Disclosure of Environmental and Social Impact Assessment (ESIA) Report: In accordance with World Bank disclosure policy and guidelines, the executive summary of the ESIA was translated into Arabic and both versions were disclosed at the World Bank's Infoshop on October 29, 2009. They were also disclosed and in-country in easily accessible places to the public, including the website of EEAA on October 22, 2009.

Main impacts and proposed mitigation measures

The ESIA presents an analysis of the potential positive and negative impacts of the proposed project activities. It is expected that the construction and operation activities of the interventions will have some negative impacts. Potential negative impacts during construction could include: (i) impacts during installation of in-stream biofilm such as from the transportation of materials and personnel; temporary storage of construction material on drain sides; (ii) from dredging, impacts from use of heavy machinery; temporary storage of excavated contaminated sediments; disposal of excavated contaminated sediments/sludge; degradation of water quality; and disruption of aquatic ecosystems; (iii) from removal of reeds, impacts include those from use of heavy machinery; disruption of aquatic ecosystems; temporary storage of contaminated reeds; and disposal of contaminated reeds; and (iv) from construction of in-lake wetland, negative impacts in the form of introduction of alien aquatic plant species. However, any potential negative environmental impacts will be minor and temporary in nature and could be expected during the construction phase, if the contractor does not comply at all times with the relevant national environmental, health and safety legislations. Therefore the design of the sub-projects will include the necessary engineering measures and operational practices to ensure proper construction and operation. Additionally, the contractor's bidding documents will include site-specific ESMPs.

Environmental and Social Management Plan

Detailed tables summarizing the ESMP are included in Annex 10, listing environmental and social impacts; mitigation measures; institutional responsibility for implementation and monitoring. Within the project's context, a Project Management Unit (PMU) will be established and staffed with the needed expertise required to manage and operate the project. An Environmental Specialist will be assigned by the EEAA on a part-time basis to the PMU, to address the environmental safeguards issues related to the project and oversee the implementation of the ESMP. Specifically, the environmental specialist will monitor the implementation of the environmental mitigation measures, monitoring plan, and institutional/training requirements of the ESMP, and will be responsible for environmental reporting responsibility within the PMU. Additionally, a Social Specialist will be contracted and paid under the project funds on a part-time basis by EEAA to ensure a participatory approach to M&E and to monitor the implementation of the social mitigation measures as part of the site-specific ESMP and will be responsible for the social reporting within the PMU.

F. Safeguard policies

Safeguard Policies Triggered by the Project	Yes	No
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]

G. Policy Exceptions and Readiness

There are no policy exceptions sought for this project.

* *By supporting the proposed project, the Bank does not intend to prejudice the final determination of the parties' claims on the disputed areas*

Annex 1: Country and Sector or Program Background

EGYPT, ARAB REPUBLIC OF: Alexandria Coastal Zone Management Project (Under the Investment Fund for the Mediterranean Sea Large Marine Ecosystem)

Key Macro Economic Country Conditions, Achievements and Challenges

Egypt's economy is continuing its positive growth trend, with a GDP growth of 7.7% in the first half of FY06/07.[3] The growth is the result of the Government's efforts started in 2004 to stimulate foreign and domestic investment. This effort resulted in an increase in FDI to US$3.9 billion in 2004/05, US$11.1 billion in FY05/06 and has reached US$7.8 billion in the first half of 2007/08.[4] Large-scale development and export of its natural gas resources, including construction of liquefied natural gas (LNG) facilities as well as high international oil prices, have contributed significantly to economic growth in Egypt.

The broad mandate of the present Government is to improve living standards, promote investment, reduce unemployment, contain inflation, and improve the performance of administrative entities. To begin addressing these ambitious goals, bold reforms have already been initiated, and plans for others have been announced. A fundamental part of the Government's plan is to promote private sector development by strengthening trade policies, the financial sector, and regulations governing business transactions. Opportunities for private sector activity will expand through further privatizations, while planned public sector reforms will promote partnership with investors to develop physical and social infrastructure, and to generally improve the delivery of public services.

Key Environmental Issues, Achievements and Challenges

Surface water contamination and air pollution are, with land degradation due to salinization, the most significant environmental issues currently besetting Egypt. Although air pollution in urban areas is mainly due to transportation activities, localized air pollution from industrial activities is nevertheless a significant concern in many areas of Cairo-Helwan, Alexandria and Suez. Moreover, water pollution caused primarily from urban wastewater discharges to the Nile delta. In addition, point source discharges from industry is also a significant contributor to pollution, particularly in coastal areas such as Alexandria, because of concentration effect as well as the hazardous/toxic nature of the pollutants emitted.

Air Quality

The degradation of air quality in Greater Cairo and in the metropolitan and secondary cities is one of the most serious environmental issues. Values of pollutants parameters (PM10, SOx, NOx, Lead and Ozone), especially in Cairo, have exceeded the WHO and national ambient concentration limits in certain months. The appearance in November of 1998 of a "Black Cloud" in the skies of Cairo, and the systematic occurrence of this phenomenon every autumn, is a strong indicator that the capital city is exceeding its allowable pollution loads during certain

[3] Source: Egypt: Briefing on the recent wages and subsidies increase and offsetting budgetary measures, June, 2008, MoF
[4] Source: www.investment.gov.eg/MOI_Portal.

months of the years. Major contributors to air pollution in Cairo are vegetative burning of agricultural residues and municipal waste, public and private transport, lead smelters, fertilizers and cement factories. Similar pattern is also found in Alexandria. In addition to the problem of deterioration of air quality of Grater Cairo, there are a number of well-defined large industrial sources of air pollution scattered around Egypt. These sources have relatively limited geographical impact, but have serious health impacts on communities adjacent to them.

According to a study commissioned by the World Bank in 2003, the total damage cost caused by the energy and agricultural waste sectors was estimated to be L.E. 6.5 billion for 1999 and would likely increase to L.E. 8.0 billion in the year 2010-11. One of the factors responsible for such high damage costs is due to the substantial subsidies to fuels and to certain consumer groups of electricity, especially the residential and agricultural sectors. The total subsidy amounted to approximately LE 14.5 billion in 1999/2000 and was expected to increase to LE 29.6 billion in 2010-11 if no corrective measures are taken in the meanwhile.

Reducing damage costs through price readjustment and through the implementation of the sector policies packages would result in actual benefits of LE 2.8 billion/year (US$0.6 billion) by the year 2010. Furthermore, the implementation of the policies package would generate LE 3.0 billion/year (US$0.64 billion) by the year 2010 and the total revenue from the Certified Emission Credits of the Clean Development Mechanisms (CDM) projects would also generate an additional LE 94.3 million/year (US$20.28 million) by the year 2010. Clearly, this is a “win-win” solution for the energy and transport sectors in Egypt.

Improving air quality is technically and financially feasible if the Government adopts, among others, the recommendations of the Energy Environment Review (EER) action plan. Mitigating measures are possible; they are economically and financially attractive for the Government, and would improve both economic growth and the environment.

Water Quality

The general assessment of the water quality status of the Nile indicates generally good water quality conditions until the river reaches Cairo. Deterioration in water quality occurs when the Nile divides into the Damietta and Rosetta branches in a northward direction due to disposal of municipal and industrial effluents and agricultural drainage with decreasing flows. In the Nile Delta confined between these two branches, fecal coliform (FC) bacteria counts are 3-5 times higher than the permissible national standards. For dissolved oxygen (DO) which can be one of the key parameters inferring fishery health/production, concentrations ranging between 2 and 5 mg/l are observed in the northern lakes and the Delta agricultural drains, and also in few locations towards the downstream of the two Nile Delta branches (the standard lowest permissible level being 5 mg/l). As for the total dissolved solids (TDS), an indicator of salt concentrations, TDS often exceed the limit above 1000 mg/l due to repeated reuse of drainage water and to presence of saline groundwater in the north. Sources of inferior quality are due to sewerage in rural areas, agricultural and industrial discharges and municipal solid waste. Groundwater is also vulnerable to deterioration due to percolation of agricultural chemicals and seepage from agricultural drains.

As part of the CEA, a cost benefit analysis was undertaken to evaluate the full social costs of water quality deterioration and wastewater disposal in Egypt with particular emphasis on rural

water and sanitation. Poor water quality was found to affect both people's health, land productivity and fisheries with damage costs reaching LE 5.35 billion in 2003 or 1.8% of National GDP. This percentage is higher than the figure of 1% of GDP estimated under the cost assessment of environmental degradation. The lower figure takes into consideration the health impact only but did not include impact on land productivity and fisheries. If no actions are taken to improve the water quality parameters, the damage costs could increase to LE 9.5 billion/yr or 3.2% of national GDP. The analysis showed that water quality improvement is not only a function of increasing the investments (e.g., LE 1.0 billion/year). As proven in many countries, "blanket" water/wastewater subsidies can be regressive, thus undermining the equity and efficiency of water quality investments. The total water/wastewater subsidies in Egypt are estimated at LE 5 billion/year. A policy of top-down conventional investments, and blanket-subsidies, may not be sustainable in the long term and will reduce only 30% of damage costs. In fact this policy would lead to aggravating Government debts. Recently the Government of Egypt has declared its intention to review its policy for blanket subsidy and to replace it with target subsidies and incentives.

Environmental Policies and Institutions

Policy Formulation

Environmental policy formulation in Egypt has been an evolving process which has been fluctuating with time, modified with major unexpected environmental events and often influenced by the leadership and senior decision makers. The environmental policy process in Egypt started with the National Environment Action Plan (NEAP) of 1992, which was the first public document that clearly articulated the environmental issues of Egypt and provided a series of policy, institutional and investment actions to help resolve these issues. A rapid assessment of the results of the actions proposed in the NEAP of 1992, demonstrated a strong emphasis on investments and institutional strengthening. It also highlighted the impact of undermining implementing policy actions particularly those related to input pricing of water and energy, and development of market-based instruments for environmental compliance.

In 2002, the NEAP was updated with UNDP assistance, to delineate Egypt's agenda for environmental actions over the next 15 years. It is a demand driven national report, developed through a very wide consultation and participation of the different segments of the Egyptian civil society. It underlies a comprehensive program of policies, institutional and investment actions aimed at establishing the foundations of sustainable development.

The Legal Framework

Over the past four decades, Egypt has adopted a substantial body of environmental and environment related laws, decrees and regulations addressing various aspects of environmental protection and natural resources management. The most important environmental unified laws enacted were the Natural Protectorates and Natural Resources Management Law No. 102 of 1983 and the Environmental Protection Law No. 4 of 1994. The latter was enacted as a compromise to satisfy all the parties concerned without giving the real authority to MSEA and EEAA to enforce the provisions of the law.

The track record of Egypt for implementing and enforcing environmental laws has not been very successful in the past. With limited exceptions, violations of environment-related laws went

undetected and requirements went often not enforced especially with the public sector polluting enterprises. The main impediments to effective and meaningful implementation and enforcement of environmental and environment-related laws was due to the fragmentation among regulatory institutions, licensing agencies, police authorities etc., at both national and governorate levels, as no single institution was able to apply enforcement measures effectively.

Since 2003, however, there have been substantial efforts made to improve monitoring and enforcement at the national and local levels. Major institutional and organizational reforms have taken place within the Environment and Surface Water Police of the Ministry of Interior. The general directorate for environmental inspections in EEAA was further strengthened. Periodic monitoring and inspections are made by this directorate, especially for controlling air emissions and wastewater discharges. Furthermore, the preparation of environmental registers compliance action plans has increased as a result of the continued monitoring of the various commercial and industrial establishments.

The Institutional Framework

There are many institutions in Egypt carrying various responsibilities in the area of environment. They could be classified in the following three categories: (a) the national environmental organizations represented by the Ministry of State for Environmental Affairs (MSEA), the Egyptian Environmental Affairs Agency (EEAA) and its Regional Branch offices (RBOs) which are charged with overall monitoring and regulatory coordination; (b) institutions with specific operational functions on the environment which are performed by environment units in line ministries, and by environment management units in the governorates; and (c) institutions with environment support roles such as universities and research institutes.

The Environmental Protection Law provided new mandates for the EEAA. Given its coordinating and horizontal role among all ministries, EEAA was put under the responsibility of the Council of Ministers, and a minister of state was assigned to oversee the work of the agency, and chair EEAA Board of Directors. The Chief Executive Officer (CEO) of the Agency is nominated by the Council of Ministers and has a first undersecretary rank.

Until the early nineties, the Agency was weak and seriously understaffed. This was due to new EEAA mandates for which the required skills were not readily available in the Egyptian market. Soon after the NEAP, several measures were undertaken to enhance the institutional and human resource capacities of the Agency with the help and support of international donors. EEAA is currently a much better-established organization than it was ten years ago. At the regional level, EEAA has decentralized part of its functions to eight RBOs of which, five were established and strengthened by international donors. At the local level, each of the 26 governorates has an Environmental Management Unit (EMU), attached to the governorate. In 2008, two new governorates were established (6^{th} of October, and Helwan), and their EMUs are under formation.

Information dissemination, coordination, private public partnerships

The civil society is becoming increasingly active in the environmental field. Egypt has a number of NGOs actively participating in the environmental arena. The media is also becoming a major active partner in the protection of the environment in Egypt. All the major newspapers and

magazines have their special correspondents in the environment field. They also have a weekly page dedicated to the environmental issues; and they do freely report on environmental issues and activities, and do not hesitate to bring to the public the major violations undertaken either by the State or by private and public sector entities.

The Government of Egypt's (GoE) environmental program

The environmental program of the current government is highlighted by the following key activities:

- A strong commitment towards the finalization of the Fresh Water Improvement Program through controlling industrial discharges according to the set phased plan presented to the president, and stricter monitoring of all that may influence the quality of drinking water.
- Development of a plan for air pollution abatement and consistent monitoring of air pollution levels in large cities.
- Stress the importance of environmental impact assessment studies for all projects, and prohibiting the establishment of any project that may negatively impact the environment, especially near tourism development areas and coastal zones.
- Development of monitoring and follow-up bodies and units to ensure the rapid implementation of programs, environmental laws, regulations and international environmental protection protocols and conventions. From that point of view, and following a dialogue with the Bank established in the course of using the "country Environmental Assessment system" for the recently approved Second Pollution Abatement Project, Egypt has recently upgraded its environmental assessment guidelines.
- Formation of the National Committee on Sustainable Development in 2006, to be charged with the development of policies, plans, and legal mandates necessary to establish the basis of sustainable development in Egypt. The Technical Secretariat of the committee, which includes representatives of the various ministries and relevant agencies, is charged with the preparation of the national strategy on sustainable development. The secretariat also makes recommendations for the policies and action plans necessary to implement the strategy, and provides technical assistance to the various relevant authorities in this regard.
- Preparation of a solid-waste management master plan in 2007 that estimated the cost of upgrading the current solid-waste management systems, and proposed a detailed governorate-by-governorate assessment.

Annex 2: Major Related Projects Financed by the Bank and/or other Agencies

EGYPT, ARAB REPUBLIC OF: Alexandria Coastal Zone Management Project (Under the Investment Fund for the Mediterranean Sea Large Marine Ecosystem)

Project title	Funded by / Implementing Agency	Project stage	Objective / outcome
Second Pollution Abatement Project (EPAP II)	World Bank	2006-2012	• Addressing industrial pollution management activities • Providing financial mechanisms and incentives for reducing industrial pollution including around Lake Mariout
Alexandria Lake Mariout Integrated Management (ALAMIM)	SMAP; CEDARE	2005-2009	• Promoting and adopting ICZM approaches for the Lake Mariout
Regional Environment Management Improvement Project (REMIP)	Japan	2005-2009	• Environmental training for EEAA and RBOs and environmental awareness raising of EMUs, enterprises, NGOs and citizens
Environmental Information & Monitoring Program (EIMP)	EEAA, DANIDA	1998 -	• Coastal Water Monitoring • Air Quality Monitoring
Integrated Coastal Management Plan for Marsa Matrouh – Al Saloum area	University of Cantabria, Spain and Matrouh Governorate	on-going	• Stocktaking of the coastal area • Institutional set-up for Integrated Coastal Zone Management in the area
ICZM related activities of LME project	GEF / UNEP	2008-2012	• Ensuring sustainable management of Mediterranean coastal zones, with particular reference to international waters and biodiversity
Implementation of MAP ICZM Protocol	MAP / PAP-RAC	continuous	• Streamlining national ICM policies towards Mediterranean coast

Project title	Funded by / Implementing Agency	Project stage	Objective / outcome
ICM and CAMP activities of MAP	MAP / PAP-RAC	continuous	• Preparation of national report of Egypt on coastal zone management
Cost of Environmental Degradation in Egypt	METAP	2007	• Determining the cost of environmental degradation of the Egyptian coastal zones
Water Supply and Sanitation Project	World Bank	pipeline	• Addressing the sewage situation in Alexandria with the new holding company
Integrated Sewerage and Sanitation Infrastructure Project (ISSIP)	World Bank	on-going	• Provision of sanitation systems for village clusters in the Delta; • Result-based monitoring and evaluation system; • Institutional development for public institutions in charge of sanitation implementation
West Delta Project	World Bank, AFD	on-going	• Water conservation and irrigation rehabilitation
Integrated Irrigation Improvement and Management Project (IIIMP)	World Bank, KfW	on-going	• Improving the management of irrigation and drainage; • Increase the efficiency of irrigated agriculture water use and services
Second National Drainage Project	World Bank, KfW, EIB	on-going	• Improving drainage conditions through evacuation of excess irrigation water with subsurface drains into existing open drains.
Lake Burulus activities	MedWet Coast	completed	• Addressing environmental problems of Lake Burulus, North Egypt lake open to the Mediterranean
Engineered Wetlands in Lake Manzala	GEF / UNDP	completed	• Improving self-cleaning capacity of the wetlands in Lake Manzala

Alexandria Sanitary Drainage	Alexandria Sanitary Drainage Company (ADSCO)	2008-2012	• Treating all wastewater from communal areas being discharge directly or indirectly into the Lake Maryut and El Mex Bay; the activities include extension of the sewerage network, the connection of unserviced urban areas, the construction of new wastewater treatment plant and the extension and provision of secondary treatment of existing treatment plants

Annex 3: Results Framework and Monitoring

EGYPT, ARAB REPUBLIC OF: Alexandria Coastal Zone Management Project (Under the Investment Fund for the Mediterranean Sea Large Marine Ecosystem)

Results Framework

The project will adopt monitoring indicators consistent with the Investment Fund for the Mediterranean Sea Large Marine Ecosystem; and will comply with the GEF Waters requirements for monitoring project progress and results (the International Waters Tracking Tool).

Key indicators:
Process indicators: increased inter-agency coordination and public awareness and participation on Coastal Zone Management for Alexandria including Lake Mariout and improved environmental monitoring capacity of EEAA;
Stress-reduction indicators: reduction of the load of land-based sources of pollution entering the Mediterranean Sea in the hot spot of El-Mex Bay through Lake Mariout

PDO	Project Outcome Indicators	Use of Project Outcome Information
The objective of the project is to improve the institutional mechanisms for sustainable coastal zone management in Alexandria in particular to reduce land-based pollution to the Mediterranean Sea.	The ICZM plan is officially adopted and the institutional mechanisms for implementation are successfully in operation; The pollution load entering the Mediterranean Sea through Lake Mariout is reduced by at least 5%.	Adjust scheduling and targeting of activities if needed during implementation to meet PDO. Replicability of inter-agency coordination and conflict resolution mechanisms. Evaluate success and challenges of project and dissemination of lessons learned through GEF IW-LEARN. Potential up-scaling of successful pilot activities for pollution reduction within Egypt and beyond.
Intermediate Outcome	**Intermediate Outcome Indicators**	**Use of Intermediate Outcome Monitoring**
Increased capacity by the various relevant entities to manage the coastal zones in and around Alexandria in a sustainable manner.	Adoption of the National Integrated Coastal Zone Management Strategy by the National CZM Committee	Use of information/data and collaboration among various agencies and stakeholders to identify bottlenecks and address them

	Commitment by relevant agencies towards sustainable coastal zone management reflected in medium term plans Major new investments decisions taken during the lifetime of the project by relevant agencies utilize sustainable coastal zone management principles according to the CZM plan At least 3 public consultations on the preparation and adoption of the CZM plan for Alexandria are held by 2015 (process)	Provide inputs into master plan for CZM in Alexandria Assure ownership and sustainability of the pilots
Improvement in the water quality of Lake Mariout and subsequently the water quality of the Mediterranean Sea hot spot of El-Mex Bay Efficiency of pollution reduction measures	15% reduction of BOD within the area of influence of the project[5] Increase in percentage of surveyed population noticing an improvement in daily lives (in terms of improved water quality, fishing quantity, and quality)	Evaluate performance in the management of innovative pollution reduction measures
Completion and systematic use of water monitoring network Evaluation and replication strategy of the project results	A water quality monitoring network measuring project impacts fully operational and integrated with the EEAA database by 2011 (process)	Adjust performance of the pollution reduction interventions during implementation if needed Draw lessons from project for dissemination and potential replication

[5] The baseline for BOD level in the area of influence of the project, and the reduction target will be confirmed in light of the results of the feasibility study.

	Report on “Lake Mariout: Results and Lessons Learned” published and disseminated by 2015 (process). Participation in IW learning activities Project’s details and results published on the website of EEAA, in line with the IW Learn template. Replication strategy prepared and adopted by 2015 (process)	

Arrangements for results monitoring

		Target Values					Data Collection and Reporting		
Project Outcome Indicators	**Baseline**	**YR1**	**YR2**	**YR3**	**YR4**	**YR5**	**Frequency and Reports**	**Data Collection Instruments**	**Responsibility for Data Collection**
Component 1: Improved capacity to manage Alexandria coastal areas in a sustainable and participatory manner									
Adoption of Integrated Coastal Zone Management Plan for Alexandria	No plan exists	TOR, RFP and Selection of Consultant	Data Collection and Sectoral Plans	Preparation of Draft ICZM Plan	Adoption of ICZM Plan & Institutional Arrangements of ICZM Plan in place	Small subset of action items proposed by the Plan is being implemented	Once every 6 months after project effectiveness	Periodic and Annual Reports from PMU; Supervision	EEAA PMU
Stakeholder Consultations held on a regular basis	Some initial consultations	Launch Workshop; Outreach & Communication Activities	Annual Workshop & Meetings	Annual Workshop & Meetings	Annual Workshop & Meetings	Annual Workshop & Meetings	Consultations & Workshops Reports; Minutes of Meetings	Minutes of Stakeholders Consultations; Supervision	EEAA PMU
Increased capacity for implementing ICZM through training/study tour Increased capacity to implement CZM principles reflected in adoption of CZM principle in major investments overseen by concerned relevant agencies	Limited capacity exists	Study Tour	Training of Trainers (ToT) on ICZM/monitoring and GIS	Training on ICZM, monitoring and GIS	Training on ICZM, monitoring and GIS Major agency investments apply CZM principles	Training on ICZM, monitoring and GIS Major agency investments apply CZM principles	Annual Progress Reports; Evaluations	Progress Reports from PMU; Evaluations of training; Supervision	EEAA PMU
Effective water monitoring network is in place on Lake Mariout and El Mex bay	Sporadic samples are collected currently for Lake Mariout;	Tender documents, Selection and Contracting of Firm	Monitoring and Data Collection	Monitoring and Data Collection	Monitoring and Data Collection	Monitoring and Data Collection	Monthly samplings	Quarterly reports	EEAA PMU; Other partner agencies (MWRI, MALR)

	Periodic monitoring in El Mex Bay								
Component 2: Improved quality of effluents entering the Mediterranean Sea through Lake Mariout									
Installation and effective operation of pollution reduction measures (in-stream; aeration; wetland; reed removal)		TOR, RFP, Selection of Consultant for Feasibility study and final design	Tender documents, Selection of Firm and Start of Equipment installation	Equipment installation	Construction is completed; hand-over to Agencies and O&M	O&M	Once every 6 months	Periodic and Annual Reports from PMU; Supervision; field visits reports	EEAA PMU; MWRI; MALR
BOD Reduction	TBD in light of the results of the feasibility study							Water quality samples from pollution reduction measures	EEAA PMU; Other partner agencies (MWRI, MALR)
Percentage of surveyed population noticing an improvement in daily lives	TBD			Target to be based on baseline		Target to be based on baseline		Surveys	Independent consultant not associated with the project
Component 3: Project Management and Monitoring and Evaluation									
Effective M&E system in place	No M&E system in place	M&E Plan prepared & approved	M&E Plan implemented (data collection, evaluation and reporting)	M&E Plan implemented (data collection, evaluation and reporting)	M&E Plan implemented (data collection, evaluation and reporting)	M&E Plan implemented (data collection, evaluation and reporting)	Progress Report; Annual Reports; Mid-term review; Completion Report	Minutes of PSC meetings	EEAA PMU

Replication Strategy is prepared and implemented	No Replication Strategy in place	Communication & Replication Strategy prepared (incl. media strategy & dissemination workshop)	Communication and Replication Strategy completed and adopted by PSC	Replication Strategy implemented	Replication Strategy implemented	Dissemination workshop including lessons learned and best practices	Periodic Reports; Annual Reports	Brochures; Project Website; minutes of Dissemination Workshop	EEAA PMU

Annex 4: Detailed Project Description

EGYPT, ARAB REPUBLIC OF: Alexandria Coastal Zone Management Project (Under the Investment Fund for the Mediterranean Sea Large Marine Ecosystem)

1. Project components

The proposed project will consist of the following three components, to be implemented within a timeframe of five years.

1.1 Component (1): Planning, Institutional Capacity and Monitoring (US$ 1.982 million).

1.1.1 This component is intended to help increase the institutional capacity of the relevant agencies involved in the management of Lake Mariout, in particular, and the coastal zone in Alexandria, in general. These agencies include all those responsible for the direct implementation of the project, i.e the EEAA, the Governorate of Alexandria, the MWRI, the MALR and the Lake Mariout Development Committee. The integrated management of this vital resource is contingent upon:

- Identifying the roles and responsibilities of the various stakeholders, through compiling available studies, assessing the needs and capabilities of each of these stakeholders, through focus group surveys and building consensus amongst those stakeholders, through stakeholder consultation workshops.
- Conducting an analysis of the legal and regulatory framework governing lakes management in Egypt. Developing a management plan for the Lake that takes into account the interests of the various groups in an integrated manner, and studying the impact of various scenarios through a water quality and hydraulic modeling of the lake and the various possible activities.
- Raising the capacity of the various stakeholders toward the optimal management of the Lake, through training workshops and ICZM study tour for a representative group (a six-day study tour for 10 participants).
- Ensuring the sustainability of the developed ACZM Plan through providing the main players (EEAA, Alexandria RBO, and Alexandria Governorate) with the tools required to achieve this goal, in terms of maps, GIS capabilities, computers and printers/plotters, water quality monitoring equipment, and water quality management and data analysis software.

1.1.2 The expected outcome is an increased capacity by the various relevant entities to manage the coastal zones in and around Alexandria in an integrated, participatory and sustainable manner, including planning, consensus building, and monitoring. The outputs for this component will include (i) a master plan for the management of the coastal zones of Alexandria including Lake Mariout (the "Alexandria Coastal Zone Management (ACZM) Plan"), and (ii) the development of a water quality monitoring network to assess impact of project interventions including a modeling activity for El-Mex bay, which can be used to estimate the overall project impact on the Mediterranean.. On the capacity side, 3 local training activities on sustainable coastal zone management will be held,
and a study tour on best practices for CZM will be organized for the implementing agencies.

The recommendations of the ACZM Plan will be reflected in the future land use plan for the city of Alexandria. The Project Management Unit will prepare drafts of the ACZM Plan which will be reviewed by the Project Steering Committee. The final draft will be approved by the National Committee on ICZM and a Ministerial decree will be issued to officially adopt it. This component will finance: a) consultancy services including public consultation workshops and master plan dissemination and b) procurement of goods (computers, printers, water monitoring equipment, etc.). This component will be implemented by the EEAA in close collaboration with the Governorate of Alexandria.

1.1.3 The overall objectives of the ACZM Plan to be developed under this component shall be guided by the on-going activities in Egypt related to coastal zone management as well as the principles of the Barcelona Convention Protocol on Integrated Coastal Zone Management for the riparian Mediterranean countries to which Egypt is committed. Under Article 5 of the Barcelona Convention, the objectives of integrated coastal zone management are to:

(a) facilitate, through the rational planning of activities, the sustainable development of coastal zones by ensuring that the envionment and landscapes are taken into comment in harmony with economic, social and cultural development;

(b) preserve coastal zones for the benefit of current and future generations;

(c) ensure the sustainable use of natural resources, particularly with regard to water use;

(d) ensure preservation of the integrity of coastal ecosystems, landscapes and geomorphology;

(e) prevent and/or reduce the effects of natural hazards and in particular of climate change, which can be induced by natural or human activities;

(f) achieve coherence between public and private initiatives and between al decisions by the public authorities, at the national, regional and local levels, which affect the use of the coastal zone.

- It may be difficult at this early stage to foresee with great detail what the ACZM Plan would entail, especially in the face of the complex institutional and administrative landscape related to lake management in Egypt. Nonetheless, deriving from international experiences in the development of similar plans, a CZM plan would typically include sections covering the following key areas; (i) an analysis of the legal and regulatory framework and the overall regional and national contexts within which the plan is developed (sample Terms of Reference for conducting such analysis are attached), (ii) an overview of the overall coastal zone management program in the area, (iii) definition of the coastal zone boundary and a description of key activities influencing the development of the coastal zone, (iv) institutional measures, guidelines and standards that govern the decision making related to development in the coastal zone (this could be divided into several sub-sections covering the relevant issues, such as water quality, marine ecology, wetlands, aquaculture, archeology, data management, public awareness & dissemination…etc), (v) description of the implementation arrangements including the

assignment of roles and responsibilities for the implementation and monitoring of a set of short, medium, and long term measures, and (vi) an overview of the key agencies and stakeholders involved and their relevance to the implementation of the plan.

1.2 Component (2): Pollution Reduction (US$ 4.625 million).

1.2.1. This component will entail the implementation of a package of pollution reduction measures to be implemented on a pilot basis, to reduce the pollution load entering the Lake Mariout, especially the nutrients (Nitrogen and Phosphorous), as well as the oxygen depleting substances, such as the biological oxygen demand (BOD) and the chemical oxygen demand (COD). This will, in turn, reduce the pollution load entering into the Mediterranean from the Lake water through El-Mex pumping station. It should be emphasized that the proposed project is complimentary to other on-going projects, each addressing a different source of pollution.

1.2.2. A number of technical options were considered for this purpose. The interventions considered fall under three major groups, namely

- Increasing DO level in the Qalaa Drain (the agricultural drain most responsible for the BOD, COD, and nutrient load to Lake Mariout) through aeration. Two approaches were studied, namely, in-stream aeration through available renewable energy; and in stream electric powered aeration.
- Use of in-stream Bio-film for pollutant treatment in Qalaa Drain (which falls under two major possibility for operation, aerobic and anaerobic)
- Applying engineered wetland practices (either in-stream or in-lake)

In terms of sensitivity to concentrations, the biofilm, and in stream wetland were found to be flexible, while aeration is easily adjustable. On the other hand, the benefits envisaged from the in-lake wetland are highly sensitive to the inflow of available nutrients. Concerning reasonable operational costs, all alternatives comply with this criterion, except the electric powered aerators. Aeration is imperative and the use of renewable energy for aeration is subject to silting constraints. Because of the importance of both aeration, to maximize performance, and the in-lake wetland, for cost recovery reasons, none of the options were excluded based on their non-compliance with the original criteria.

It was determined in the preliminary analysis that individual pollution reduction measures (PRM) would not be sufficient to achieve the optimal targets of pollution reduction. Instead, the analysis revealed that a “package” of intervention is required, whereby a synergy of these individual measures is ensured for a maximum, all around, performance. It is also noted that the natural aeration and the in-stream wetland are comparable with other options relative to all criteria except for effectiveness which is mainly related to the context in which they are considered. The main package to be considered will thus be composed of the biofilm with needed, or additional, aeration and the in-lake wetland.

1.2.3. The budget available for this component is US$4.625 million, of which around US$75,000 would be spent on consultancy services towards the full feasibility analysis and final design of the pollution reduction measures. Therefore, the available budget for goods and works

investment is around US$4.55 million .Three main components need to be implemented within this ceiling:

- Integrated Biofilm/aerator to consume COD/BOD.

- In-lake wetland to consume nutrients, and provide crucial income for cost recovery.

- Reed removal to improve water circulation.

Although this needs to be confirmed at the feasibility study phase, 30 feddans seem to represent the minimum area required for the in-lake wetland. This area is potentially translated to yearly sales of duckweeds of LE 2.4 million, which could cover its operational costs as well as those of the package of biofilm/aerators. It will, however, not cover depreciation. The investments would be divided as follows:

- US$2.8 million for 625 sections of biofilm together with required aerators,
- US$0.4 million for 2 sets of aerators to oxidize ammonia (as needed, since ammonia could be oxidized naturally if no high oxygen demand exists),
- US$0.6 million for reed removal to improve water circulation in the basin,
- US$0.8 million for the 30 feddans area in-lake wetland.

1.2.4 This package is expected to bring a reduction of approximately 15 % of the COD load currently reaching the El Mex Bay[6]. The proposed package, when added to the implementation of the upgrading projects of Alexandria WWTPs could make this reduction reach 50% of the current load. The presence of the biofilm is likely to avail nitrogen in the form usable by the duckweeds, and will afford to clear reeds in selected channels in the basin (selected based on hydrodynamic modeling). The reduction of load resulting from the upgrading of the East Wastewater Treatment Plant could make the final effluent from the Qalaa drain of reasonable quality (less than 50 mg/l), and a higher conversion of NH4 to NO3.

At least a similar improvement is expected in terms of BOD reduction. Since the base information concerning the nutrients reaching the bay is not consistent, it was not possible to estimate the percentage reduction of nutrients reaching the bay. It should be noted that this level of reduction of COD/BOD in the effluent to El-Mex Bay and the partial recovery of the Lake's ecosystem, brings Egypt substantially closer to achieving its regional commitments concerning discharges to the Mediterranean.

1.3 Component (3): Project Management and Monitoring and Evaluation (US$ 0.543 million).

This component entails supporting the Project Management Unit (PMU) currently associated with the EPAP II to carry out the various activities related to the project implementation. The Monitoring function under component 3 applies to all project interventions including evaluation and reporting whereas the Monitoring function in component 1 is only intended to monitor the

[6] The lack of a comprehensive regional water modeling system however, makes it difficult to assess with sufficient precision the impact of the project interventions on the quality of the water in the Mediterranean Sea and thus the project indicator for pollution reduction is based on a conservative estimate (5% reduction) compared to the 15% reduction suggested by the PPG consultants. The rationale behind adopting a more conservative indicator is due to the pilot nature of the project interventions. Component 1 of the project is designed to include a modeling activity for El-Mex Bay which can be used to estimate the overall project impact on the Mediterranean.

water quality of Lake Mariout and the Mediterranean Sea. In addition, the monitoring equipments are different for each component and require a different set of skills for their operation. This component includes hiring of local and/or international consultants to: (a) support the PMU, especially as related to technical, financial management and procurement, on a part-time basis, (b) assist the PMU in the development and implementation of the necessary monitoring and evaluation framework, including data analysis and reporting as related to pollution loads to Lake Mariout and to El-Mex bay and the publication of a final report on "Lake Mariout: Results and Lessons Learned" to be disseminated by the end of the project; and (c) assist the PMU to develop the necessary information dissemination strategy to follow-up on the project's progress and to disseminate lessons learned. The vehicle for the latter is likely to be national workshops, the publication of the Project's details and results on the website of EEAA, in line with the IW Learn template, as well as the participation in the GEF's International Waters Learning Exchange and Resource Network (IW LEARN) programs.

Draft of Terms of Reference for the Legal and Regulatory Study related to the Development of the Coastal Zone Management Plan

This study is intended to provide a summary and analysis of the legal framework for coastal zone/land use planning as it relates to the area that will be subject to the ICZM plans supported by the Project. The overall purpose of the study is to help the Project and the Government's financial partners supporting the Project (i) to understand clearly the legal context in which the planning component of the Project will be operating, and (ii) to identify and address any shortcomings or risks that may be associated with existing laws as they relate to the ICZM planning exercise.

Through review of relevant documentation, supplemented by interviews with relevant officials and other stakeholders, the consultant should:

A. Summarize and assess relevant legislation, regulations, existing plans and jurisprudence affecting planning in the Project area. This review should be comprehensive, identifying all issues of possible significance for the implementation of the Project planning activities and the eventual implementation of the ICZM plan that will be produced with Project support. Special attention should be given to describing and analyzing how and to what extent the legal framework addresses the following:

(i) the scope, content, level of detail and legal force of the type of plan envisaged to be developed under the Project.
(ii) the process to be used in formulating and adopting a plan of this sort, including the roles, rights and responsibilities of various stakeholders and the requirements, if any, for public consultation.
(iii) the roles, rights, responsibilities and remedies of various stakeholders in the implementation and enforcement of the type of plan envisaged under the Project, including the enforcement controls available to relevant agencies in the event of violation.
(iv) the legal status and treatment of pre-existing non-conforming uses under this type of plan.
(v) any gaps, weaknesses or ambiguities apparent from a review of the legal framework that the Project should be aware of and take into account going forward.

B. Describe the nature, scope and any difficulties with the implementation and enforcement of existing planning laws, identifying to the extent possible with available documentary information and interviews with relevant stakeholders:

(i) a typology of the main types of violations that have occurred or have been identified.
(ii) the extent and type of enforcement actions undertaken in recent years and their effectiveness.

(iii) the procedures used for enforcement measures including notice, appeal and mitigation measures.

(iv) the nature and incidence of administrative or legal disputes that have arisen under existing planning laws in recent years.

(iv) the effects of enforcement or non-enforcement on the rights and livelihoods of different groups, especially the poor and vulnerable, and those without clear property rights or formal building permission.

(vi) any problems, gaps or constraints encountered or inconsistencies or weaknesses apparent in the enforcement or application of existing laws.

Annex 5: Project Costs

EGYPT, ARAB REPUBLIC OF: Alexandria Coastal Zone Management Project (Under the Investment Fund for the Mediterranean Sea Large Marine Ecosystem)

	GEF Financing ($)	EPAP II		GoE	Other contributions		Project Total
		EPAP II Co-financiers (WB, EIB, JICA, AFD)	Egyptian Companies Self-Financing			EU-SMAP III (ALAMIM)	
COMPONENT 1. Planning, Institutional Capacity and Monitoring	**1,982,000**			**100,000**		**1,000,000**	**3,082,000**
CZMP Development	150,000	-	-	-	-	-	150,000
Capacity building including study tour	51,000	-	-	-	-	-	51,000
Maps and GIS capabilities	160,000						160,000
Computers and printers	21,000						21,000
Water quality modeling software	100,000						100,000
Water quality monitoring equipment	1,500,000	-	-	-	-	-	1,500,000
COMPONENT 2. Investments in Pollution Reduction	**4,625,000**	**19,720,000**	**14,380,000**	**611,111,111***			**649,836,111**
Feasibility studies and final design	120,000	-	-	-	-	-	90,000
Construction of pollution reduction measures	4,505,000	-	-	-	-	-	4,535,000
COMPONENT 3. Project Management and Monitoring and Evaluation	**543,000**			**692,182**			**1,235,182**
Consultancy support to PMU	68,000	-	-	-	-	-	68,000
Operational cost	300,000						300,000
M&E Development and Reporting (including IWs Tracking Tool)	75,000	-	-	-	-	-	75,000
Replication strategy and dissemination of lessons learned	100,000	-	-	-	-	-	100,000
GRAND TOTAL	**7,150,000**	**19,720,000**	**14,380,000**	**611,903,293**		**1,000,000**	**654,153,293**

*US$ equivalent of 3.785 billion EGP (combined budget for East and West WWTP)

Annex 6a: Implementation Arrangements

EGYPT, ARAB REPUBLIC OF: Alexandria Coastal Zone Management Project (Under the Investment Fund for the Mediterranean Sea Large Marine Ecosystem)

1. Context and Institutional Assessment

The Project will be implemented during FY10-FY15 through the coordinated efforts of four Ministries/Agencies: the Egyptian Environmental Agency Authority (EEAA), the Governorate of Alexandria, the Ministry of Water Resources and Irrigation (MWRI) and the Ministry of Agriculture and Land Reclamation (MALR). The EEAA is the executing agency ultimately responsible for the overall project implementation, and for leading the coordination activities with the other implementing agencies according to their specific roles and responsibilities.

The following aspects and institutional assessments have also been considered in the design of the implementation arrangements:

-The EPAP II PMU staff will provide financial and procurement support to the PMU of the project given the substantive expertise acquired throughout the implementation of EPAP II.

-The relevant implementing agencies will be reviewing both the investment plans and O&M plans for the investment component as the infrastructure will be fully transferred to them upon project completion. Early negotiations on the hand-over process will take place and include agreement on a business plan before project completion.

-Project Working Groups (PWGs) will be established jointly with EEAA and each implementing agencies (MWRI and MALR). These Working Groups will include technical specialists from each relevant Ministry in order to ensure ownership during project implementation and sustainability of the interventions upon project completion.

-A series of measures to address potential conflicts as result of the project interventions have been integrated in project design, including the participation of the Lake Mariout Committee and a representative of civil society organizations in the Project Steering Committee and the assignment of a Social specialist and an Environmental specialist to review and monitor the social and environmental safeguards.

2. Institutional & Implementation Arrangements

Component 1 – Planning, Institutional Capacity and Monitoring: This component is under the responsibility of the EEAA. The PMU will coordinate with the activities of the implementing agencies and other key stakeholders.

Specifically, the Director of the ***Project Management Unit*** (PMU) for EPAP II in EEAA will serve as the PMU Director for the proposed GEF project. The PMU will be reinforced by hiring three new staff: (i) a technical specialist, (ii) a financial management

officer, (iii) a procurement specialist. The PMU will have the overall technical and fiduciary responsibility of the project, and will be the point of liaison for the project vis-à-vis the World Bank. The PMU's main responsibilities include the preparation and carrying out of financial management, reporting and evaluation related to the above component during the project implementation.

The technical aspects of the project will fall under the responsibility of the General Department for Coastal Zone Management in EEAA who will have to work in close tandem with the PMU Director and staff. The head of the GDCZM will be the technical coordinator in the PMU. The technical staff in the PMU will include staff working in the Coastal Zone Management Unit in EEAA, as well as staff from the Alexandria RBO. The latter will be working on the project while physically located in Alexandria. This will ensure an efficient follow up of the work on the ground in Alexandria. These technical specialists will be responsible for following up on the consultant's work for Component (1), related to the preparation, review and adoption of the Alexandria ICZM plan. They will also prepare the annual work plans for the Project. The technical specialists will interact closely with the M&E, Social, Communications and Environmental Specialists (under Component 3 of the project).

The PMU will be responsible for acquiring the necessary monitoring equipment, the water quality management and data analysis software as well as the maps and GIS capabilities based on technical specifications. The main task of the PMU under this sub-component is to prepare and carry out financial management, reporting and evaluation during project implementation. The PMU procurement specialist will work with the consulting firms in charge of purchasing the water monitoring equipment.

The PMU will include the following positions:

- ***PMU Director***. The PMU Director will be responsible for managing staff and overseeing the day-to-day activities of the PMU in its management of the implementation of the Project. The Director will report directly to the CEO of EEAA, which will facilitate resolution of any internal delays to implementation.

- ***Procurement Specialist***. The Procurement Specialist will be responsible for overseeing all aspects of the procurement process for contracts financed by the project, including preparation and supervision of the procurement plan, preparation of TORs and requests for World Bank no-objections, organization of bidders conferences and bid evaluations, oversight of contractual obligations, etc. In cooperation with the Director and other PMU staff, the Procurement Specialist will prepare and submit periodic procurement progress reports including the updated Procurement Plan. With respect to the procurement of the main component of the Project (component 2), the Procurement Specialist will work closely with the Implementing Agencies and the Project Implementation Teams (PIT) carrying out the engineering designs and bid documents. He will be providing support during the contracting phases as well as during construction supervision. The Procurement specialist of the EPAP II PMU will provide support

to the Project PMU in order to ensure appropriate procurement and contract management at early stages of the project and to assist in capacity building of the PMU. In addition to the current procurement capacity of the EPAP II PMU, an external consultant with extensive procurement experience will be included as part of an overall technical assistance contract to the PMU.

- ***Environment Specialist.*** The environmental specialist will address the environmental safeguards requirements of the World Bank and of the Egyptian Environmental Affairs Agency. Given the EEAA experience with safeguards, EEAA will not need to secure external consulting support in this area. The environment specialist will be assigned by EEAA on a part-time basis to monitor the implementation of the site specific Environmental and Social Management Plans (ESMP). Specifically, the environmental specialist will monitor the implementation of the environmental mitigation measures, monitoring plan, and institutional/training requirements of the EMP, and will be responsible for environmental reporting responsibility within the PMU.

- ***Coastal Zone Management Specialist.*** The head of the GDCZM Unit in EEAA will be in charge of all the CZM aspects in the Project and will oversee and lead the day-to-day work of two other staff members with technical expertise in CZM, including one staff from the Alexandria RBO. The CZM specialist and his technical team will work closely with the other PMU members in particular the M&E specialist and will provide technical inputs into the bidding documents when relevant. Each specialist will be working on a full time basis.

- ***Financial Management Officer***. Tasks of the financial management specialist include development and monitoring of annual Project budgets, reporting on the status of Project accounts and the disbursement of funds, liaising with the external auditor, and handling the Project flow of funds (disbursements to project contactors/suppliers and withdrawals from the Project accounts). The financial management function will be seconded from within EEAA for the first two years (i.e. the EPAP II PMU staff), given the lack of experience in the PMU with the World Bank procedures related to financial management.

- ***Monitoring and Evaluation Specialist***. In coordination with the PMU director, the procurement and financial management specialists, and the CZM technical staff involved in Project implementation, the M&E specialist will be responsible for preparing the periodic Project progress reports, including reporting progress on general implementation and progress against agreed indicators (mid-term review & completion report). The M&E specialist will be assisted by an M&E consultant, to be contracted and paid under the project funds as part of component (3) activities.

- ***Social Specialist.*** A Social Specialist will be contracted and paid under the project funds on a part-time basis by EEAA to ensure a participatory approach to M&E and to monitor the implementation of the social mitigation measures as part of the

site-specific ESMP and will be responsible for the social reporting within the PMU.

- ***Communications Specialist.*** A Communications Specialist will be contracted and paid under the project funds on a part-time basis by EEAA to increase public awareness about the project, draft a Communication & Replication Strategy (including a media strategy & dissemination workshop) and prepare dissemination materials (brochures, website, etc…).

A ***Project Steering Committee*** (PSC) will be established to provide oversight and direction to the project. Amongst the main responsibilities of the Steering Committee are to:

- Review, discuss and approve the Annual Work Plans prepared by the PMU;
- Review, discuss and approve the investment plans and O&M plans for sub-components (2) related to the pollution reduction measures;
- Review drafts of the Alexandria ICZM plan before submission of a final draft for endorsement to the National Steering Committee on ICZM; and
- Review and discuss implementation progress and propose any remedial actions if necessary.

The PSC will be made up of representatives of all agencies which are involved in implementation directly or which have a legal or regulatory stake in project outcomes or implementation. These agencies include:

- EEAA (which includes the PMU Director, the representative of the Alexandria RBO and the PMU CZM Technical Manager), responsible for drafting and submitting quarterly or semi-annual reports on project implementation to members of the PSC, developing annual work plans jointly with other partners; and monitoring overall progress of the project presenting to the PSC any constraints that could hinder proper implementation of the project. – 3 members

- Governorate of Alexandria (Secretary General), responsible for providing information and data related to the fulfillment of the project outputs and feedback on the annual work plans and progress reports – 1 member

- MWRI, responsible for providing information and data related to the fulfillment of the project outputs and feedback on the annual work plans and progress reports – 1 member

- MALR, responsible for providing information and data related to the fulfillment of the project outputs and feedback on the annual work plans and progress reports – 1 member

- Lake Mariout Development Committee, representing the interests of the local communities, in particular the fishermen community during project implementation – 1 member

- Civil Society Organizations – 1 member

The World Bank's Task Team Leader of the Project could participate in the Project Steering Committee meetings but only as an observer. The PSC will be chaired by the CEO of EEAA and will meet quarterly.

The ***National Committee for Integrated Coastal Zone Management*** which was reinstated in December 2007 will provide scientific advice and inputs into the preparation of the Alexandria Integrated Coastal Zone Management Plan serving as a scientific and advisory body in particular for Component (1) during the preparation stage. The Committee, however, will approve the final version of the Alexandria ICZM Plan upon receipt of a draft by the PSC. The Committee may also provide scientific and advisory inputs on any other aspects of the project components if requested by the PSC.

The PMU staff will be financed by the Government, as a project counterpart contribution, and will report to the CEO of EEAA.

Component 2 – Pollution Reduction Measures: This component will be under the responsibility of the EEAA which will coordinate the project activities with the implementing agencies i.e. the MWRI and the MALR according to their mandate and specific responsibilities. The PMU at EEAA will contract a relevant agency to coordinate the implementation of the Component (2), under MWRI for the in-stream bio-film and in-stream aerators, and under the Ministry of Agriculture and Land Reclamation for in-lake wetland and reed removal. To ensure that proper attention is given to project implementation, Project Working Groups will be established within the two Ministries/agencies.

Initially, the Project Working Groups will be responsible for the coordination and review of the consultant's work that will be hired for this component to carry out the final feasibility study and final design and tender documents. The PWGs will be ultimately responsible for preparation of the technical specifications of the bidding documentation together with the PMU Procurement specialist, as well as the evaluation, contracting, construction supervision and reporting tasks. The PWG will be financed and appointed by the relevant Ministries/agencies and will include technical specialists.

The PWGs will be responsible for the day-to-day implementation of their project and be required to work closely with the EEAA PMU by providing regular reports and documentation.

The management (and assets) of the investment component will be transferred from EEAA to the relevant agency/ministry after project completion. Close coordination with the Governorate of Alexandria is also essential. An Interagency Agreement between

EEAA and the Ministry of Water Resources and Irrigation (MWRI) was signed on October 26, 2009; and between EEAA and the General Authority for Fish Resources Development (GAFRD), signed on November 6, 2009.

Component 3 – Project Management and Monitoring and Evaluation: This component will be under the responsibility of EEAA, including the Alexandria EEAA RBO. The *Alexandria EEAA Regional Branch Office (RBO)* will collect water quality data from project interventions.

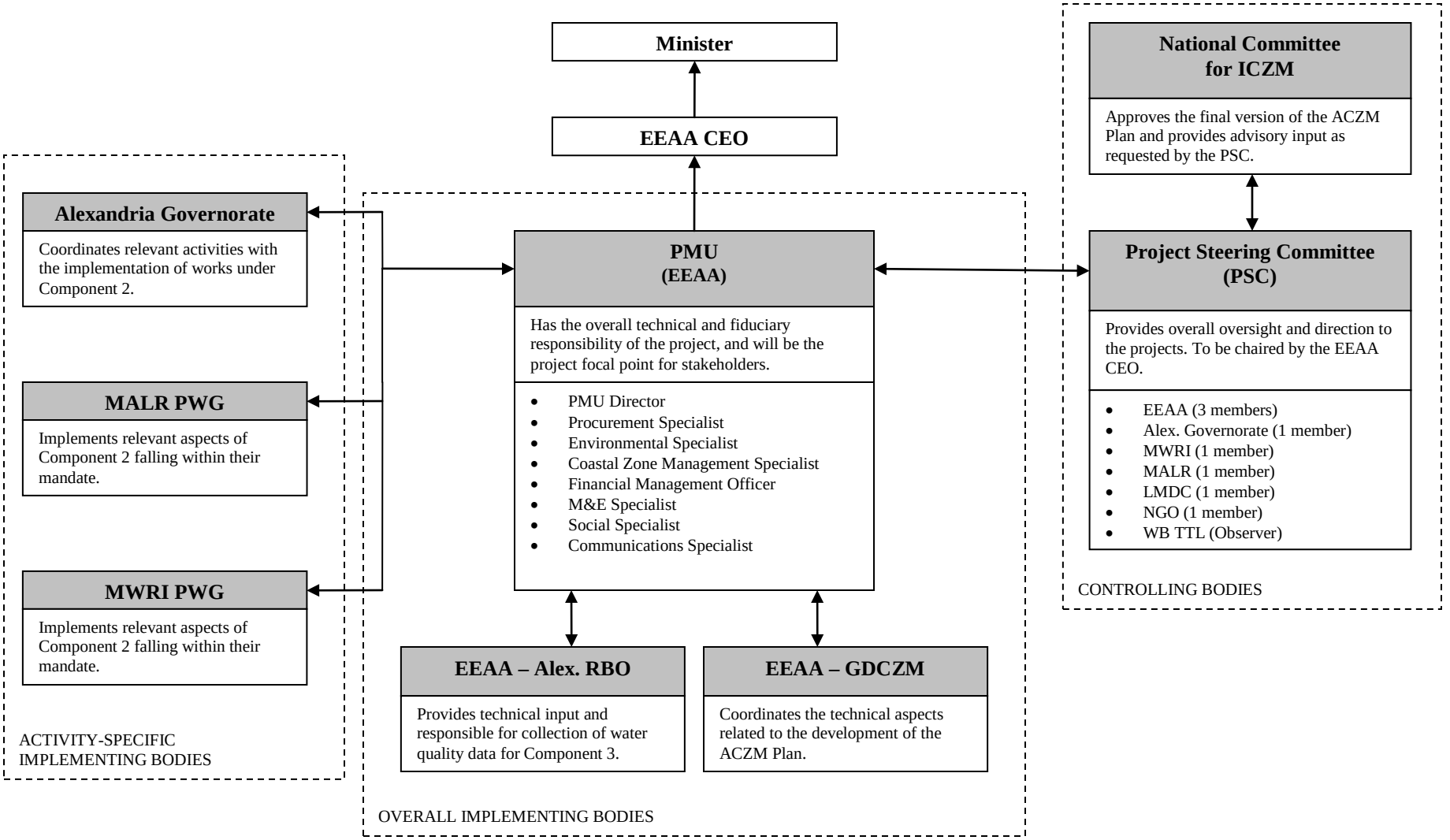
The monitoring and evaluation function is a critical element of Component 3 which includes the elaboration of a Replication Strategy as part of the M&E Evaluation scheme. To that effect, a ***M&E specialist*** will be contracted and paid under the project funds on a part-time basis by the EEAA. In coordination with the PMU staff involved in Project implementation, the M&E specialist will be responsible for developing a M&E evaluation scheme and for preparing periodic reports (Project progress reports, including reporting progress on general implementation and progress against agreed indicators).

In addition, a ***Social Specialist*** will also be contracted and paid under the project funds on a part-time basis by EEAA to review the social safeguards aspects of the project, monitor the implementation of the social requirements of the ESMP and ensure a participatory approach to M&E per the above description.

To facilitate public outreach and awareness about the project, a ***Communications Specialist*** will be contracted and paid under the project funds on a part-time basis to prepare a media strategy, a dissemination workshop on lessons learned including relevant publication materials.

Finally, an ***Environmental Specialist*** will be assigned by the EEAA on a part-time basis to address the environmental safeguards issues related to the project and oversee the implementation of the ESMP.

The Operations Manual and the Inter-Agency agreements spell out the implementation arrangements and clear roles and responsibilities for each agency.


Minister
EEAA CEO
National Committee for ICZM
Approves the final version of the ACZM Plan and provides advisory input as requested by the PSC.
Alexandria Governorate
Coordinates relevant activities with the implementation of works under Component 2.
PMU (EEAA)
Has the overall technical and fiduciary responsibility of the project, and will be the project focal point for stakeholders.
PMU Director
Procurement Specialist
Environmental Specialist
Coastal Zone Management Specialist
Financial Management Officer
M&E Specialist
Social Specialist
Communications Specialist
Project Steering Committee (PSC)
Provides overall oversight and direction to the projects. To be chaired by the EEAA CEO.
EEAA (3 members)
Alex. Governorate (1 member)
MWRI (1 member)
MALR (1 member)
LMDC (1 member)
NGO (1 member)
WB TTL (Observer)
CONTROLLING BODIES
MALR PWG
Implements relevant aspects of Component 2 falling within their mandate.
MWRI PWG
Implements relevant aspects of Component 2 falling within their mandate.
ACTIVITY-SPECIFIC IMPLEMENTING BODIES
EEAA – Alex. RBO
Provides technical input and responsible for collection of water quality data for Component 3.
EEAA – GDCZM
Coordinates the technical aspects related to the development of the ACZM Plan.
OVERALL IMPLEMENTING BODIES

Annex 6b: Interagency Agreement between the Egyptian Environmental Affairs Agency and the Ministry of Water Resources and Irrigation

SIGNED ON OCTOBER 26, 2009

Interagency Agreement Between the Egyptian Environmental Affairs Agency (EEAA) and the Ministry of Water Resources and Irrigation (MWRI) for the Coordination of Implementation of the Alexandria Coastal Zone Management Project (ACZMP), funded by the Global Environmental Facility (GEF)

A. Background and Project Objectives

The Government of Egypt, represented by the Egyptian Environmental Affairs Agency (EEAA) is currently preparing the Alexandria Integrated Coastal Zone Management Project (AICZM) which has the following main objective;

a. to supply a strategic framework and immediate small- scale investments to reduce the load of land- based sources of pollution entering the Mediterranean Sea in the hot spots of El Mex Bay and Lake Mariout; and
b. to protect/restore globally significant coastal heritage and ecosystem processes by supporting the Government of Egypt's efforts to develop and implement a National Coastal Zone Management Plan.

The project is developed with assistance from the World Bank (through a grant from the Global Environment Facility (GEF)) in the amount of US$7.15 million, which continues to provide support to the Government of Egypt for improving its environmental management capabilities and to demonstrate the value added of an integrated and participatory approach to coastal zone management for sustainable development.

The project consists of three components:

Component (1): Planning, Institutional Capacity and Monitoring:
The expected outcome is an increased capacity by the various relevant entities to manage the coastal zones in and around Alexandria in an integrated, participatory and sustainable manner, including planning, consensus building, and monitoring. The outputs for this component include (i) a master plan for the management of the coastal zones of Alexandria including Lake Mariout, and (ii) the development of a water quality monitoring network for Lake Mariout. The recommendations of the master plan will be reflected in the future land use plan for the city of Alexandria. Financing for this component will be for consultancy services including public consultation workshops and master plan dissemination.

Component (2): Pollution Reduction Measures:
The expected outcome is a reduction in the land based source of pollution entering the Lake Mariout and subsequently the Mediterranean Sea. The output of this component is the completion of small scale innovative pollution reduction measures such as in-stream treatment (bio-films and aeration) among others. Financing for the sub- components 2 will go to (i)

consultancy work for the preparation of the necessary feasibility studies for the few pollution reduction measures, and (ii) goods and works for the implementation of those measures.

Component (3): Project Management and Monitoring and Evaluation:
The expected outcome is the completion of a comprehensive Monitoring and Evaluation scheme and the documentation of the project results for the purpose of up-scaling and replication. Financing for this component will go to (i) consultancy work for developing an M&E scheme, (ii) operational cost for the PMU, and (iii) a replication strategy and dissemination activities.

B. Implementation Arrangements

This Interagency Agreement aims to set forth the following implementation arrangements between EEAA and MWRI:

1. EEAA is the agency responsible for the project implementation & management .

The Steering Committee is formed according to the list appearing in Annex 1 of this agreement and it will meet quarterly. MWRI is represented in the Steering Committee by two members of its staff.

2. The project implementation and coordination activities will be primarily carried out by a Project Management Unit (PMU), which will be formed in EEAA.
3. The MWRI will be represented by a member of its staff to facilitate the work on component 2. This member of staff will maintain his/her office in MWRI, but will participate in weekly coordination meetings with the PMU or as needed.
4. To ensure the proper execution of relevant contract packages of Component 2, a working group will be formed with representation of the PMU and MWRI, headed by the designated MWRI staff. It will be made up of 6 members (3 of each organization), to carry out the following activities:

    - Review the draft and final reports prepared by the consultant for component (2) on the final feasibility study and final design and tender documents, on the pollution reduction measures. Clearance of payment to the consultant will only be made after the WG accepts the consultant deliverables;
    - Review the bids submitted by the contractors for the implementation of the works and supply for equipment for component 2;
    - Supervise the contractors work and review and clear the contractor’s invoices that will be forwarded to the PMU for payment process along with the approval sheet.

    The MWRI designated staff will cooperate with the PMU to prepare the bi-annual progress reports on general implementation to be submitted by the PMU to IBRD.

C. Hand-over Arrangements

- Following the project completion (expected in 2015), the management of the pollution reduction measures and the equipments will be completely transferred to MWRI. The hand-over negotiations will start ahead of project completion and be completed before the

project ends. Minutes of the negotiations will include a budget allocation to cover the O&M costs for the next 2 years after project completion and a draft business plan.

- The negotiations will be facilitated by the PMU. EEAA & MWRI will, continue to monitor the water quality at key points before and after treatment facilities. The data will be shared between MWRI and EEAA to ensure adequate monitoring of the project impact, discuss any remedial actions if necessary.
- After the project completion, all the project stakeholder (Ministry of Environment, Ministry of Irrigation, Ministry of Agriculture, Alex Governorate) will define sources to provide the maintenance and operation cost after the 2 years covered from the project budget .

Annex 1. Composition of the Project Steering Committee

The PSC will be made up of representatives of all agencies which are involved in implementation directly or which have a legal or regulatory stake in project outcomes or implementation. These agencies include:

- EEAA (which includes the PMU Director, the representative of the Alexandria RBO), responsible for drafting and submitting quarterly or semi-annual reports on project implementation to members of PSC, developing annual work plans jointly with other partners; and monitoring overall progress of the project presenting to the PSC any constraints that could hinder proper implementation of the project. – 2 members

- Governorate of Alexandria (Secretary General), responsible for providing information and data related to the fulfillment of the project outputs and feedback on the annual work plans and progress reports – 1 member

- MWRI, responsible for providing information and data related to the fulfillment of the project outputs and feedback on the annual work plans and progress reports – 2 member

- MALR, responsible for providing information and data related to the fulfillment of the project outputs and feedback on the annual work plans and progress reports – 2 member

- Lake Mariout Committee, representing the interests of the local communities, in particular the fishermen community during project implementation – 1 member

The World Bank's Task Team Leader will participate in the Project Steering Committee meetings as an observer. The PSC will be chaired by the CEO of EEAA and will meet quarterly.

Annex 6c: Interagency Agreement between the Egyptian Environmental Affairs Agency and the Ministry of Agriculture and Land Reclamation

SIGNED ON NOVEMBER 2, 2009

Interagency Agreement Between the Egyptian Environmental Affairs Agency (EEAA) and the Ministry of Agriculture and Land Reclamation (MALR) for the Coordination of Implementation of the Alexandria Coastal Zone Management Project (ACZMP), funded by the Global Environmental Facility (GEF)

A. Background and Project Objectives

The Government of Egypt, represented by the Egyptian Environmental Affairs Agency (EEAA) is currently preparing the Alexandria Integrated Coastal Zone Management Project (AICZM) which has the following main objective;

c. to supply a strategic framework and immediate small- scale investments to reduce the load of land- based sources of pollution entering the Mediterranean Sea in the hot spots of El Mex Bay and Lake Mariout; and
d. to protect/restore globally significant coastal heritage and ecosystem processes by supporting the Government of Egypt's efforts to develop and implement a National Coastal Zone Management Plan.

The project is developed with assistance from the World Bank (through a grant from the Global Environment Facility (GEF)) in the amount of US$7.15 million, which continues to provide support to the Government of Egypt for improving its environmental management capabilities and to demonstrate the value added of an integrated and participatory approach to coastal zone management for sustainable development.

The project consists of three components:

Component (1): Planning, Institutional Capacity and Monitoring:
The expected outcome is an increased capacity by the various relevant entities to manage the coastal zones in and around Alexandria in an integrated, participatory and sustainable manner, including planning, consensus building, and monitoring. The outputs for this component include (i) a master plan for the management of the coastal zones of Alexandria including Lake Mariout, and (ii) the development of a water quality monitoring network for Lake Mariout. The recommendations of the master plan will be reflected in the future land use plan for the city of Alexandria. Financing for this component will be for consultancy services including public consultation workshops and master plan dissemination.

Component (2): Pollution Reduction Measures:
The expected outcome is a reduction in the land based source of pollution entering the Lake Mariout and subsequently the Mediterranean Sea. The output of this component is the completion of small scale innovative pollution reduction measures such as in-stream treatment (bio-films and aeration) among others. Financing for the sub- components 2 will go to (i)

consultancy work for the preparation of the necessary feasibility studies for the few pollution reduction measures, and (ii) goods and works for the implementation of those measures.

Component (3): Project Management and Monitoring and Evaluation:
The expected outcome is the completion of a comprehensive Monitoring and Evaluation scheme and the documentation of the project results for the purpose of up-scaling and replication. Financing for this component will go to (i) consultancy work for developing an M&E scheme, (ii) operational cost for the PMU, and (iii) a replication strategy and dissemination activities.

B. Implementation Arrangements

This Interagency Agreement aims to set forth the following implementation arrangements between EEAA and MALR:

1. EEAA is the agency responsible for the project implementation & management .

2. The project implementation and coordination activities will be primarily carried out by a Project Management Unit (PMU), which will be formed in EEAA.

3. The Steering Committee is formed according to the list appearing in Annex 1 of this agreement and it will meet quarterly. MALR is represented in the Steering Committee by the Chairman of the General Authority for Fish Resources Development (GAFRD).

4. To ensure the proper execution of relevant contract packages of Component 2, a project working group will be formed with representation of the PMU and GAFRD (6 member; 3 from each agency), headed by the designated GAFRD staff, to carry out the following activities:
   - Review the draft and final reports prepared by the consultant for component (2) on the final feasibility study and final design and tender documents, on the pollution reduction measures. Clearance of payment to the consultant will only be made after the WG accepts the consultant deliverables;
   - Review the bids submitted by the contractors for the implementation of the works and supply for equipment for component 2;
   - Supervise the contractors work and review and clear the contractor's invoices that will be forwarded to the PMU for payment process along with the approval sheet.

   - The MALR/GAFRD designated staff will cooperate with the PMU to prepare the bi-annual progress reports on general implementation to be submitted from the PMU to IBRD.

C. Hand-over Arrangements

- Following the project completion (expected in 2015), the management of the pollution reduction measures and the equipments will be completely transferred to MALR. The hand-over negotiations will start ahead of project completion and be completed before the

project ends. Minutes of the negotiations will include a budget allocation to cover the O&M costs for the next 2 years after project completion and a draft business plan.

- The negotiations will be facilitated by the PMU. EEAA & MALR will, continue to monitor the water quality at key points before and after treatment facilities. The data will be shared between MALR and EEAA to ensure adequate monitoring of the project impact, discuss any remedial actions if necessary.
- After the project completion, all the project stakeholder (Ministry of Environment, Ministry of Irrigation, Ministry of Agriculture, Alex Governorate) will raise A memo to the Prime Minister to provide the maintenance and operation cost after the 2 years covered from the project budget .

Annex 7: Financial Management and Disbursement Arrangements

EGYPT, ARAB REPUBLIC OF: Alexandria Coastal Zone Management Project (Under the Investment Fund for the Mediterranean Sea Large Marine Ecosystem)

1. Executive Summary

The Project will be implemented by the Ministry of State for Environmental Affairs (MSEA), through the Egypt Environmental Affairs Agency (EEAA), who will carry out the technical, environmental management and monitoring requirements of the proposed project. Also the EEAA will be responsible for the project Financial Management (FM) including the accounting, reporting and the project external audit arrangements. The GEF grant will be disbursed as a parallel financing to other activities implemented in the area and financed by other donors. Also the grant will be disbursed as an extra budgetary fund thus it will not be part of the government budget as approved by parliament.

PMU will be established and entrusted follow on the project activities. This PMU is located at EEAA and will have the mandate to follow on the project activities and coordinate with the various ministries involved in implementation. In an effort to reinforce the capacity of the PMU, a project manager has already been assigned to the PMU and an agreement was reached with the EEAA to assign a financial officer as part of the PMU establishment for the project. Adequate training by the Bank team will be provided to Financial Officer assigned to work on the project.

Activities on the lake Mariout can only be implemented by the fishery department which is under the Ministry of Agriculture. While, the monitoring equipments to be installed at the lake sites will be operated by the Ministry of Irrigation with the EEAA responsible for the project FM and disbursement arrangements creates risks related to flow of information and communication between the various entities. For this purpose the EEAA has signed interagency agreements in the last quarter of 2009 with each of the two ministries, defining the responsibility of each as well as the payment procedures.

The project over all FM risk was assessed as moderate mainly due to: (i) The EEAA has previous experience with Bank financed projects as they are the entity following on the EPAP II project, (ii) Already the project manager has been assigned to the envisaged project PMU that is under establishment and the EEAA is fully committed to engaging a financial officer to the PMU within a maximum period of one month from project effectiveness and (iii) A manual of procedures will be developed by the EEAA defining the controls[7] (Grant is extra budgetary fund) and the flow of information including the auditing arrangements between the various implementers under the project.

The Project through the PMU will be required to issue semi annually interim un-audited financial reports (IFRs). These reports will reflect the project sources and uses of funds, contracts

[7] As the project will be implemented as an extra budgetary fund, there will be in place additional controls will be introduced and applied by the EEAA.

expenditures as well as uses of funds by project component. These reports shall be submitted to the Bank 45 days following the end of each semester starting from the semester where the first disbursement from the grant does take place. The Financial Officer at the PMU will be responsible for the preparation of the IFRs and sending them on a timely basis to the World Bank.

To ensure that funds are readily available for Project implementation, a US Dollars Designated Accounts (DA) will be opened and will be operated by the EEAA. The account will be opened at bank acceptable to the World Bank. An independent external auditor will be hired to audit on annual basis the Project financial statements and payments made on SOE basis.

Component 1 and 3 of the project will be fully managed by the EEAA PMU while as component 2 will be technically managed by the Ministry of Irrigation; the following FM arrangements will be followed:

1- Disbursements for bulky items procured under this component, which can not be financed from the Designated Account, will follow the Direct Disbursement and Special Commitments methods to the contractor. In this regard, it is important that the legal aspects under this component are coordinated to allow for Direct Disbursement and Special Commitment payments to suppliers that are contracted with the Ministry of Irrigation to carry out work for the project.

2- Payment invoices or certificates under this component must be technically reviewed and approved by the Ministry of Irrigation before forwarding to the PMU for the financial review and the payment processing.

To following are the actions required to successfully implement the FM arrangements of the project.

	Action	**Due Date**
1.	Engage a financial officer to follow on the project accounts and generate project reports (as part of the Project Management Unit)	Within one month of Project effectiveness.
2.	Finalize the financial management manual as part of operation manual of procedures. This manual to define the FM and disbursement procedures under the project.	Within one month of Project effectiveness.
3.	Contract an external auditor. The auditor TOR as well as the selected auditor should be acceptable to the Bank.	Within one month of Project effectiveness.

2. Financial Management Risk

Country Financial Management Risk The most recent Egypt Country Financial Accountability assessment (CFAA) indicates that the country's fiduciary risk is rated as moderate on condition that the government continues to implement it reforms to the Public Financial Management system. However, the project will be implemented as an extra budgetary activity where the grant

proceeds will be made available to the EEAA directly and not through the government budget. This will create a set of risks due to the lack of written laws, regulation and controls that may be applied to the grant funds and payments. For this purpose the project manual of procedures will include an FM section that will define the control process and the flow of information and payment requests between the EEAA and the ministries implementing the project.

Project Financial Management Risk. EEAA and the PMU, following on EPAP II, financial management (FM) arrangements were assessed based on the World Bank's FM Guidelines, to determine if the FM arrangements for the Project are acceptable to the World Bank. Detailed FM questionnaires were completed by the EEAA and are included in the Project's files. The risks identified and the mitigating measures addressing these risks are detailed in the table below:

Risk	Risk Rating	Incorporated Risk Mitigating Measures (MM)	Risk rating after MM
Inherent Risk (IR)			
Country Level	Moderate	According to recent CFAA, the financial risk in the Republic of Egypt is moderate. However the project will be implemented as an extra budget activity. <u>Mitigating measures:</u> • Define the controls to be applied under the project in the project manual. ▪ Ring fence the Project's implementation and flow of funds arrangements. ▪ Hire an independent qualified private audit firm acceptable to the Bank to audit the Project annually.	Moderate
Entity and Project Level	High	Possible limited coordination between the EEAA and the Ministry of Agriculture and Ministry of Irrigation. This might affect the implementation of the Project and cause delays in issuing payments, IFRs and the yearly audit report. <u>Mitigating measures:</u> ▪ EEAA has signed interagency agreements in the last quarter of 2009 with each of the two ministries, defining the responsibility of each as well as the payment procedures. ▪ A Finance Officer will be assigned within the PMU staff to follow on the project accounts and generate the IFRs. ▪ Financial management and disbursement workshops will be conducted during Project launching to enhance the PMU capacity at EEAA.	Significant
Overall IR	***High***		***Moderate***
Control Risk (CR)			
Budgeting	Moderate	EEAA will prepare on annual basis the project budget which will include counterpart funds, in kind contributions and the grant funds <u>Additional measures:</u> The Financial Officer at the PMU will be responsible for preparing a detailed Project budget.	Low
Accounting	Moderate	Lack of an appropriate accounting system at the EEAA and the PMU. Presently, donors are financing a system that the EEAA will be using in the future to report on its activities. Based on the system TORs the system is more of a database on contracts and not a financial system. <u>Mitigating measures:</u> ▪ The PMU will be using spreadsheet applications to report on the project activities and generate the semi annually IFRs. The project reports will reflect the financial status of the grant as at the issuance date.	Low
Funds Flow	High	Grant proceeds, Counterpart funds and in kind contribution may not be timely available. <u>Mitigating measures:</u> ▪ The Project will open separate DAs and will operated by the EEAA through the PMU. The account will be reconciled on timely basis and will be replenished periodically.	Significant

		▪ The PMU will prepare cash forecast taking into consideration the budget year through which the project counterpart funds will be allocated ▪ The flow of funds process will be included in the procedure manual to be developed by the Project.	
Financial Reporting	Significant	EEAA system may not adequately report on the Project's activities and automatically generate quarterly financial reports. Mitigating measures: Excel spreadsheet will be used to report on the project activities. The format and details of the report will be agreed upon with the PMU during project appraisal.	Moderate
Auditing	Moderate	EEAA and the ministries accounts are post audited by the Government's Audit Bureau. Additional measure: ▪ The Project will engage a qualified independent private auditor acceptable to the Bank in accordance with agreed upon TORs to audit the Project on an annual basis. ▪ The auditor will issue an opinion on such statements.	Low
Overall CR	***Significant***		***Moderate***

3. Project Arrangements

Implementation Entities and staffing

The Project will be implemented by two ministries and will be coordinated by the EEAA through the PMU which will be established and appropriately staffed. The EEAA has already experience relating to Bank financed projects as they are following on the EPAP II project.

Internal Controls

The grant funds and the Government contribution will follow the government applied controls, where applicable, and will have in place enhanced supplementary controls to deal with the flow of information and funds. The Project's financial controls will be documented in the operation manual of procedures (OM). This manual will define the relation between the EEAA and the two ministries involved in implementation, the flow of information between the field and the EEAA, the request of payments and who is authorized to do so, the cash forecasts under the contracts signed by each of the two ministries, the Designated Account management, the accounting and reporting plus the auditing arrangements under the project.

Flow of Funds

To ensure that funds are readily available for Project implementation, a US dollars Designated Accounts (DA) will be opened at the Central Bank of Egypt or any other commercial Bank acceptable to the World Bank and in accordance with the Government of Egypt regulations. Deposits into and payments from the DA will be made in accordance with the disbursement

letter. The EEAA through the PMU will prepare withdrawal applications with the related supporting documents, signed by the designated signatories.

All Project related invoices will be subject to the applicable controls and procedures which stipulate the following process: (i) invoices and supporting documents are received by the EEAA under cover letter by the respective ministry and are verified by the Financial Officer at the PMU (ii) invoices are checked for their accuracy, eligibility based on the signed contract before the Financial Officer prepares a payment, (iii) the PMU director performs an ex – ante compliance check regarding the expenditure's compliance then (iv) the EEAA controller checks the accuracy of the payment, (v) once approved, the expenditure is recorded in the project accounting books of the PMU, also the safeguard of the assets under the project will be defined.

Component 1 and 3 of the project will be fully managed by the EEAA PMU while as component 2 will be technically managed by the Ministry of Irrigation; the following FM arrangements will be followed:

1- Disbursements for bulky items procured under this component, which can not be financed from the Designated Account, will follow the Direct Disbursement and Special Commitments methods to the contractor. In this regard, it is important that the legal aspects under this component are coordinated to allow for Direct Disbursement and Special Commitment payments to suppliers that are contracted with the Ministry of Irrigation to carry out work for the project.

2- Payment invoices or certificates under this component must be technically reviewed and approved by the Ministry of Irrigation before forwarding to the PMU for the financial review and the payment processing.

Budgeting

The Project's Finance Officers at the PMU need to prepare on annual basis budgets and disbursement plans reflecting the project cash needs and per quarter. The initial plan will be developed based on the initial procurement plan, implementation schedules and estimated payments cycles, and revised thereafter. The budget will be used as a monitoring tool to analyze variances and manage cash. Updating the annual budget will be the responsibility of the PMU in coordination with the Ministry of Irrigation

Accounting

The Project will follow the cash basis of accounting where resources and used of funds are recorded when cash is received or when payments are made. Presently, donors are providing financing to develop for the EEAA a system that will be able to report on its activities. Based on the TORs this system will not have features to generate financial reports as it is designed as a data base for the EEAA activities. Given the level of transaction under the project, manual records and excel sheets will be used to generate the project IFRs. The format and content will be agreed upon during appraisal.

Financial Reporting

In line with the Bank guidelines, the following reports will be required under this Project:

Semi Annually: The Project will be required to generate semi annually Interim un-audited financial reports (IFRs) and submit them to the Bank as part of the Project's progress report or separately. These reports will consist of the following:

a. Statement of sources and uses of funds and uses of funds by project component, indicating funds received from various sources, cash forecast, an expenditure report comparing actual and planned expenditures by activity, and DAs reconciliation statements.
b. Contracts listing: to include a listing of all contracts showing amounts committed and disbursed under each as at the report date.

These reports will be prepared using excel sheet applications and should be remitted to the Bank within 45 days from the end of the semester as per the Project's loan agreement. The Financial Officer in the PMU will be responsible for compiling the interim reports for both implementing entities in one package and sending it on a timely basis to the Bank.

Annually: The Financial Officer at the PMU will prepare, on annual basis, the Project Financial Statements (PFS). The PFS will follow the cash basis of accounting and will be audited and submitted to the Bank within six months from year end. The consolidated PFS will include:

c. Statement of sources and uses of funds, indicating sources of funds received and Project expenditures;
d. Appropriate schedules classifying Project expenditures by component, showing yearly and cumulative balances;
e. DAs reconciliation statements reconciling opening and year-end balances;
f. Statement of payments made using Statements Of Expenditures (SOEs) procedures as defined in the legal agreement; and
g. Statement of Project commitments, i.e., the unpaid balances under the Project's signed contracts.

Auditing

The Project's financial statements will be audited by an independent private – sector auditor. The external independent auditor should be acceptable to the Bank and his TOR will be prepared and submitted for the Bank's no objection, at least nine months prior to the end of the Project fiscal year. The external auditor report (in English) shall encompass all Project's components and activities under the grant Agreement and shall be in accordance with internationally accepted auditing standards e.g., International Standards on Auditing (ISA). In addition, the auditor is required to prepare a "management letter" identifying any observations, comments and deficiencies, in the system and controls, that the auditor considers pertinent, and shall provide recommendations for their improvements.

The Project's auditor will be requested to prepare the following audit reports and to meet the due date specified below:

Audit Report	Due Date
1) Project Specific Financial Statements	Annually by June 30
2) Special Opinions	
• SOE, if applicable	Annually by June 30
• Designated Account	Annually by June 30
• Other specific audit reports	Upon request

Disbursement Arrangements

The proceeds of the grant will be disbursed in accordance with the Bank's disbursements guidelines as outlined in the Bank disbursement guidelines. Transaction based disbursement will be used under this Project. Accordingly, requests for payments from the Grant account will be initiated through the use of withdrawal applications (WAs) either for Direct Payments, Reimbursements, Replenishments to the DAs, or Issuance of Special Commitments especially under component two of the project. All WAs will include appropriate supporting documentation including detailed SOEs for reimbursements and replenishments to the DAs.

Authorized signatories, names and corresponding specimens of their signatures will be submitted to the Bank prior to the receipt of the first replenishment application.

Allocation of Grant Proceeds

Category	Amount of the Grant Allocated (expressed in USD[i])	Percentage of Expenditures to be Financed
(1) Goods	5,536,000	100%
(2) Works	750,000	100%
(3) Consultants' Services	564,000	100%
(4) Unallocated	300,000	100%
TOTAL AMOUNT	7,150,000	100%

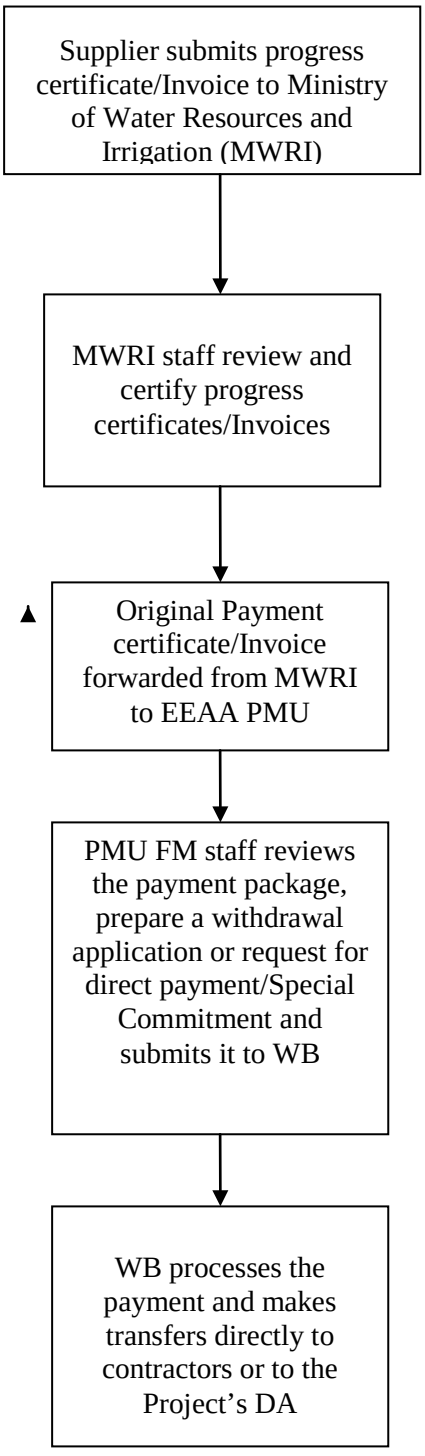
Statement of Expenditures (SOE)

During implementation, SOEs will be used for all expenditures relating to: (i) goods under contracts costing less than US$ 200,000; (ii) consulting services under consulting firm contracts costing less than US$ 100,000 equivalent each and under individual consultant contracts costing less than US$ 100,000 equivalent each; and (iii) training costs, under such terms and conditions as the Bank shall specify by notice to the Borrower. The supporting documentation will be maintained at EEAA and will be made available for review by the Bank supervision missions upon request. Documentation relating to SOEs would be retained for up to one year from the date the Bank receives the audit report for the fiscal year in which the last WA from the Grant was made.

World Bank Supervision

Financial management of the Project will be supervised by the Bank in conjunction with its overall supervision of the Project. Initially support will be provided to the PMU and thereafter supervision will be performed on a semiannual basis and will review the adequacy of Project financial management arrangements at the EEAA.

Component 2 funds and documents flow demo:



Annex 8: Procurement Arrangements

EGYPT, ARAB REPUBLIC OF: Alexandria Coastal Zone Management Project (Under the Investment Fund for the Mediterranean Sea Large Marine Ecosystem)

A. General

1. The CPAR of 2003 concluded that Egypt's Procurement Law (Law No. 89) and the Executive Statues provide important concepts and for public procurement in Egypt and generally contains sound principles. However the broad nature of its principles and the absence of written guidelines for their application leave considerable room for extensive discretionary power which can result in inconsistent decisions and loss of transparency.

2. In addition, a follow-on sector specific assessment to the CPAR an institutional procurement capacity assessment in the water sector was carried out in 2005 as part of the PER also issued at about the same time in early 2006.The assessment emphasized the importance of developing the National Procurement Guidelines (NPG) to avoid conflicting interpretation of the above mentioned Law 89. The proposed guidelines should explain all steps necessary for the efficient procurement of goods and works, as well as provide guidelines for the selection of consultants (currently non-existent) based on qualitative criteria, as well as guidelines on thresholds.

3. Procurement for the proposed project would be carried out in accordance with the World Bank's "Guidelines: Procurement under IBRD Loans and IDA Credits" dated May 2004, revised August 2006; and "Guidelines: Selection and Employment of Consultants by World Bank Borrowers" dated May 2004, revised August 2006, and the provisions stipulated in the Legal Agreement. The general description of various items under different expenditure category is described below. For each contract to be financed by the Grant, the different procurement methods or consultant selection methods, the need for prequalification, estimated costs, prior review requirements, and time frame are agreed between the Beneficiary and IDA project team in the Procurement Plan. The Procurement Plan will be updated at least annually or as required to reflect the actual project implementation needs and improvements in institutional

4. The EEAA would be responsible for carrying out all procurement for the ACZMP and a preliminary assessment in September 2008 and reconfirmed during the May 2009 pre-appraisal mission and has concluded that the existing institutional mechanisms and procedures of the EEAA assisted by the PMU for the EPAP II which will also be in charge of GEF financed procurement are overall satisfactory given their experience with other projects in the sector the Bank is financing. Additionally, the Director of the PMU for EPAP II will serve as the PMU Director for the GEF-financed project thereby facilitating synergy and cross-fertilization between the two EEAA-implemented projects. As EPAP II is still under implementation however, the project's PMU shall be reinforced by hiring of additional staff including a designated procurement specialist. This will also ensure that the GEF project PMU can continue to oversee the project implementation even after the EPAP II closure date of 2012.

5. **Procurement of Goods:** Procurement of goods under this project will include: (i) supply and installation of pollution reduction measures to reduce the pollution load entering lake Mariout which in the aggregate will form the bulk of the investments ($4.5 million) comprised of installation of a Biofilm membrane, and Aerators in the Qalaa Drain. Aside from the associated equipment with the package for pollution reduction measures, the GEF grant would also in parallel finance goods ($1.5 million) comprised of monitoring equipment, water quality management and data analysis software, as well as computers printers/plotters for key institutions accountable for environmental mitigation measures in the Alexandria coastal zone area. and (ii), Dredging and Dike works under Component 2. It is also worth mentioning that the MWRI, which is one of the main agencies in charge of the technical interventions under this component, has a long history of collaboration with the World Bank given that it is the implementing agency for several past and on-going Bank projects in Egypt.

6. **Procurement of Works:** Works for the dredging and construction of dike work related to the engineered wetland including reed removal in Lake Mariout (US$0.75 million)

6. **Selection of Consultants:** the consulting services contracts estimated to cost approx. $1.0 million comprised of: (i) the Master Plan for ACZMP; (ii) an M&E evaluation scheme; (iii) necessary feasibility and final design for the pollution reduction measures: and external auditors. Shortlists of consultants for services estimated to cost less than $200,000 equivalent per contract (which would be the case under the proposed GEF grant) may be comprised entirely of national consultants in accordance with the provisions of paragraph 2.7 of the Consultants Guidelines.

7. **Non-Consulting Services:** The proposed grant would also finance: (i) Training workshops on ACZM; (ii) a ten-day study tour for 10 participants; as well as (iii) Replication strategy and Dissemination of Lessons Learned from this innovative GEF operation designed to test applications for scaling-up under EPAP II and supplementary investments anticipated by GoE.

B. Assessment of the agency's capacity to implement procurement

8. **Capacity Assessment** - The pre-appraisal mission in September 2008 had visits to the PMU for the ongoing EPAP II established in the EEAA, as part of its on-site assessment of its record in handling procurement in general and Bank-financed procurement in particular. In addition, the May 2009 pre-appraisal mission reconfirmed the earlier finding that the existing PMU in EEAA with limited additional procurement capacity for the PMU earmarked specifically for the grant will be able to capably address, both the fiduciary compliance and quality of technical specification concerns. The proposed designated PS will be part of the hybrid Administrative/Technical Operational Unit in the PMU reporting to the Project Director of the ACZMP and will work possibly on a part time basis. This model of injecting required additional but limited competency in procurement has been opted for given the limited number of contract packages envisaged, which however need to be procured over quite some time after Effectiveness of the GEF Grant.

9. Establishing accountability for procurement on a designated part/full time Procurement Officer would help ensure the quality of procurement the process, as the PMU management can

count on the designated PS (even if he is part time) would carry out his assignment pursuant to the guideline objectives of economy, efficiency, transparency, and in full compliance with Bank guidelines for procurement of goods, works, and consultant services.

10. The nearly fully staffed and functional PMU responsible for managing and often implementing procurement under EPAP II, mostly of the ICB type of contracts (supply and installation of plants) as well as consultant services utilizing a grant from the Government of Finland, is not likely to be overburdened in handling the limited amount of contract packages envisaged to be procured under the proposed ACZMP.

11. As part of its long term strategy to increase the absorptive capacity of the EEAA to handle Bank financed procurement, the PMU had been the recipient of TA from an internationally recruited procurement expert (part of the FEMIP financed COWI consultancy). The TA team periodically makes strategic interventions as regards the PMU's role in terms of compliance with Bank guidelines under EPAP II subprojects by assisting in the development of bidding documents for complex tenders as well as in support of evaluation of bids received.

As a result of the capacity assessment in September 2008 and May 2009 the following prior review thresholds in paragraph 12 are recommended.

12. Prior Review Thresholds for ACZMP. The World Bank will conduct a prior review of the following procurement documentation:

a) Goods and Equipment: All contracts to be procured under ICB above US$500,000 will be submitted for prior review, while the first NCB and shopping contracts will also be subject to prior review.

b) Works: All contracts to be procured under ICB above US$1,000,000 will be submitted for prior review, while the first three NCB and shopping contracts will also be subject to prior review.

c) Consultants' Services: All contracts with firms above US50,000 as well as Individual Consultants above $20,000, will be subject to Bank prior review.

d) Operational expenses: All individual long term contracts (greater than three months) for project staff will be subject to prior review.

e) Contracts that would not be the subject of Bank prior review would be subject to ex-post review.

C. Procurement Plan

13. The EEAA, at preparation/pre-appraisal, developed a preliminary procurement plan for project implementation The September mission had discussed in some detail the relevant procurement strategies and methods of procurement to be proposed. The draft procurement plan was reviewed during pre-appraisal in May 2009 and revised procurement plan was submitted by

the PMU in late June 2009 which was discussed during the appraisal mission and a revised version submitted in October 2009 for incorporation into the PAD. A final version of the grant procurement plan acceptable to the Bank will be signed and minuted during Negotiations and made available in the project's file and in the Bank's external website. The procurement plan with methods and applicable thresholds will be updated annually or as required to reflect the actual implementation needs and improvement in institutional capacity of the EEAA and its PMU.

14. Training programs - As regards any training and in-country workshops, study tours and the like outside the draft Procurement Plan, such expenditures would only be eligible for financing under the GEF Grant if they are carried out on the of approved Semi-annual work programs.

D. Frequency of Procurement Supervision

The overall project risk for procurement is MODERATE.

15. In addition to the prior review supervision to be carried out from Bank offices, in view of the pilot nature of many of the interventions under the project, the capacity assessment concluded in May 2009 of the PMU and implementing arrangements including procurement has confirmed the need for at least two supervision missions annually.

Procurement Plan

I. General

Project Information

Project Name:	*Alexandria Coastal Zone Management Project*
Country:	*Egypt*
Project ID:	*P095925*
Loan/Credit Numbers:	*enter Loan/Credit Number here*
Bank's approval date of Procurement Plan	Original: January 14, 2010 Revision 1: *Add new revisions*

Date of General Procurement Notice

II. Goods, Work and Non-Consulting Services Thresholds

Prior Review Threshold. Procurement Decisions subject to Prior Review by the Bank as stated in Appendix 1 to the Guidelines for Procurement: [Thresholds for applicable procurement methods (not limited to the list below) will be determined by the Procurement Specialist /Procurement Accredited Staff based on the assessment of the implementing agency's capacity.]

Procurement Category	Prior Review Threshold (USD)	Comments
Goods	> = 500,000	All plus First contract < 500,000
Works	>1,000000	All plus First contract < 1,000,000
Non-Consultant Services	All	

Procurement Method	Procurement Method Threshold (USD)	Comments
ICB and LIB (Goods)	> = 500,000	
NCB (Goods)	< 500,000	
Shopping (Goods)	< 50,000	
ICB (Works)	> = 1,000,000	
NCB (Works)	< 1,000,000	
ICB (Non-Consultant Services)	N/A	

Prequalification. N/A

Proposed Procedures for CDD Components (as per paragraph 3.17 of the Guidelines):
Refer to the relevant CDD project implementation document approved by the Bank **N/A**

Reference to (if any) Project Operational/Procurement Manual: NYD

Any Other Special Procurement Arrangements: *[including advance procurement and retroactive financing, if applicable* N/A

Procurement Packages with Methods and Time Schedule: See attached "Goods and Works" sheet

III. Selection of Consultants

Prior Review Threshold: Selection decisions subject to Prior Review by Bank as stated in Appendix 1 to the Guidelines Selection and Employment of Consultants:

Procurement Category	**Prior Review Threshold (USD)**	**Comments**
Consulting Firms (Competitive)	> 50,000	All plus First contract <50,000
Consulting Firms (Sole Source)	ALL	
Individual Consultants (Competitive)	> 20,000	All plus First contract < 20,000
Individual Consultants (Sole Source)	ALL	
Include all categories authorized by the GEF Grant		

Procurement Method	**Procurement Method Threshold (USD)**	**Comments**
QCBS	> = 100,000	
QCB	< 100,000	
FCS	< 100,000	
LCS	< 100,000	
Consulting Firms (Competitive)	<100,000	
Consulting Firms (Sole Source)	<50,000	
Individual Consultants (Competitive)	<100,000	
Individual Consultants (Sole Source)	< 50,000	
Include all methods authorized by the GEF Grant		

Short list comprising entirely of national consultants: Short list of consultants for services, estimated to cost less than $200,000 equivalent per contract, may comprise entirely of national consultants in accordance with the provisions of paragraph 2.7 of the Consultant Guidelines.

Note: OPCPR list of ceilings can be found here:
http://go.worldbank.org/MKXO98RY40

Any Other Special Selection Arrangements: *NA*

Consultancy Assignments with Selection Methods and Time Schedule: See attached "Consulting Services" sheet

IV. Implementing Agency Capacity Building Activities with Time Schedule: See attached "Capacity Building" sheet.

h

** Applicable in case of Bank's prior review

										Prequalification										
	SL No.	Package/ Reference No.	Description of Goods/ Works	Goods/ Works/ NCS	Estimated Cost and Date of Estimate	Currency of Estimated Cost	Review by Bank (Prior/ Post)	Method of Selection	Domestic Preference (yes/no)	Prequalification (yes/no)	No Objection from Bank for Draft Prequalification documents (Date)**	No Objection from Bank for Evaluation of Prequalification Application (Date)**	Preparation of Bid Document (Date)	Bank's No Objection to Bidding Document (Date)**	Bid Invitation (Date)	Bid Closing (Date)	Bid Opening (Date)	Contract Award Decision (Date)	Bank's No Objection to Bid Evaulation Report and Contract Award (Date)**	Contract Signed (Date)
Planned		equipement	engineering wetland	Works	0.75	MUS$	Prior	ICB/NCB	No	No	NA		1-Jan-11	1-Jul-10	1-Jul-10	1-Oct-10	1-Oct-10	1-Dec-10	1-Jan-11	1-Mar-11
Revised																				
Actual	1																			
Planned		equipement	biofilms, aeration, reed removal	Goods	3.8	MUS$	Prior	ICB/NCB	No	No	NA		1-Jan-11	1-Jul-10	1-Jul-10	1-Oct-10	1-Oct-10	1-Dec-10	1-Jan-11	1-Mar-11
Revised																				
Actual	2																			
Planned		furniture	desks, chairs	Goods	0.05	MUS$	Post	shopping	Yes		NA		NA	NA	1-Apr-10	NA	NA	1-Jun-10	NA	1-Jul-10
Revised										No										
Actual	3																			
Planned		IT equipement	MAPs and GIS capabilities	Goods	0.2	MUS$	Post	NCB	Yes	No	NA		1-Jun-10	NA	1-Jul-10	1-Aug-10	1-Aug-10	1-Oct-10	NA	1-Nov-10
Revised																				
Actual	4																			
Planned		IT equipement	computers and printers	Goods	0.02	MUS$	Post	shopping	Yes	No	NA		NA	NA	1-Apr-10	1-Jun-10	1-Jun-10	1-Aug-10	NA	1-Oct-09
Revised																				
Actual	5																			
Planned		IT equipement	water quality modelling sofwares	Goods	0.1	MUS$	Post	NCB	Yes	No	NA		1-Jun-10	NA	1-Jul-10	1-Aug-10	1-Aug-10	1-Oct-10	NA	1-Nov-10
Revised																				
Actual	6																			
Planned		pollution monitoring equipment	monitoring equipment	Goods	1.5	MUS$	Prior	ICB	Yes	No	NA		1-Jun-10	1-Jul-10	1-Aug-10	1-Aug-10	1-Oct-10	1-Nov-10	1-Dec-10	1-Jan-11
Revised																				
Actual	7																			

Procurement Plan for Consultant Services

#REF!

** Applicable in case of Bank's prior review

In some contracts, one or more of these approvals may be contained in one Bank communication.

		Package/ Reference No.	Description of Services	Estimated Cost	Currency of Estimated Cost	Review by Bank (Prior/ Post)	Type of Consultant (Firm/ Individual)	Method of Selection	Advertising for Short listing (Date)	TOR/Shortlist to be Finalised (Date)	RFP Final Draft to be forwarded to the Bank (Date)	No Objection from Bank for TOR (Date)**	No Objection from Bank for Shortlist (Date)**	No Objection from Bank for Final RFP (Date)**	RFP Issued (Date)	Proposal Submission Deadline (Date)	No Objection by the Bank to the Technical Evaluation Report (Date)**	No Objection by the Bank (Technical/ #Combined/ Draft Contract/ Final Contract) (Date)**	Contract Signed (Date)	Contract Value	Contract Currency	Contract No.	Name, City, and Country of Contractor (incl. Zip Code if US)	Services Completion (Date)	Expenses Incurred to Date
Planned				75000	US$	Prior	Firm	QCB	NA	1-Apr-10	1-Apr-10	1-May-10	1-Jun-10	1-Jul-10	1-Aug-10	1-Oct-10	1-Dec-10	1-Jan-11							
Revised																									
Actual	1	reports	ancy for feasability study (comp																1-Mar-11						
Planned				100000	US$	Prior	Firm	QCBS	NA	1-Jan-15	1-Feb-15	1-Feb-15	1-Mar-15	1-Apr-15	1-Apr-15	1-Jun-15	1-Aug-15	1-Sep-10							
Revised		consultancy	egy & dissemination of lessons	(component 3)																					
Actual	2																		1-Oct-15						
Planned				10000/YEAR	US$	Post	Firm	Sole source	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA							
Revised																									
Actual	3	consultancy	External Auditor																1-Apr-10						

Capacity Building Activities

SL No.	Expected Outcome/ Activity Description	Estimated Cost US$	Estimated Duration	Start Date	Type of consultant	Comments
1	Attend a procurement skills building workshop in the region.	6,000	2 weeks	Prior		Project PS most to benefit

Annex 9: Economic and Financial Analysis

EGYPT, ARAB REPUBLIC OF: Alexandria Coastal Zone Management Project (Under the Investment Fund for the Mediterranean Sea Large Marine Ecosystem)

This project will reduce the land-based pollutants entering Lake Mariout and, subsequently, the Mediterranean Sea, through a package of interventions which include: (1) in-stream biofilms and aerators in Qalaa drain; (2) reed removals and in lake pilot wetland in Lake Mariout, close to Qalaa drain. GEF will cover only the investment costs of this package, in the amount of US$4.5 million[8]. This annex focuses on this package of interventions and provides: a tentative quantification of the expected impacts in terms of pollutant reduction (Section 1); an economic analysis of the associated costs and benefits, and a cost-effectiveness analysis of pollutants removal (Section 2); a financial analysis of the viability of the interventions (Section 3).

It should be noted that, because the GEF-financed interventions are undertaken in parallel with several other components[9], it is often difficult to identify and separate the specific impact of GEF interventions from that of the other components. Moreover, in a case with so many different threats, it would be unrealistic to expect any one intervention to cause major improvements by itself, if the other threats persist.

1. Expected project impacts

The GEF-financed interventions are expected to reduce land-based inputs of nutrients (nitrogen, phosphorous) and oxygen-demanding substances (COD, BOD) caused by agriculture and industrial effluents flowing into Lake Mariout and, subsequently, into the Mediterranean Sea. Table 1 provides some indicative estimates of pollutants reduction. The use of in-stream biofilms and aerators is expected to reduce the COD load at El Mex Bay by 12,300 to 24,600 t per year. The pre-feasibility analysis suggests that these interventions would also provide a significant BOD reduction, however the magnitude of this impact could not be quantified. In addition, they will improve the lake's self-cleaning capacity from the current 29 percent to 36 percent in the short run and to about 40 percent in the near future (World Bank, 2009).

The package will also remove nutrients through their consumption by duckweeds[10], phytoplankton, and micro-organisms. As this is first time implementation of the duckweeds-based approach in Egypt, their retaining capacity of nutrients is not known, as it depends on several factors, such as the organic loading rate, water depth, and hydraulic retention time. Crude estimates indicate that duckweeds and phytoplankton would remove about 168 t of nitrogen and 50 t of phosphorous annually from Lake Mariout, or

[8] In addition, GEF will also cover other project components in the amount of US$2.45 million.
[9] This includes GOEs project to upgrade the East and West wastewater treatment plants in Alexandria (US$600 million) and EPAP II (US$19.7 million) to reduce industrial pollution discharging into Lake Mariout.
[10] The in lake wetland will use duckweed plants, able to remove many persistent organic compounds, such as nitrogen and phosphorous.

about 13 percent of the total nutrient quantity in Qalaa drain. As nutrient consumption by microorganisms could not be quantified, we consider these estimates conservative. For comparison, the removal efficiency of the engineered wetland proposed by the UNDP-GEF project in Lake Manzala was estimated at about 15 percent for nitrogen and 32 percent for phosphorous quantities under the high flow volume treatment option and it was substantially higher under other treatment options[11] (UNDP, 1997).

Table 1. Expected removals of nutrients and oxygen demanding substances from Lake Mariout

Nutrients	Annual removals (t)	Percent of total nutrients
Nitrogen[1]	168	13 percent of total quantity of N in Qalaa drain
Phosphorous[1]	50	13 percent of total quantity of P in Qalaa drain
COD	12,300 – 24,600	15-30 percent of total quantity of COD at El Mex bay exit

Source: crude estimates drawn from communication with technical expert. Further refinements will be done at the stage of feasibility study. [1] 20 percent of the total removals are expected to come from duckweeds and 80 percent from consumption of phytoplankton.

2. Economic analysis

The GEF-financed interventions will provide several global and local benefits. It should be noted that many global benefits (e.g. biodiversity) are difficult, if not impossible, to estimate in monetary terms. Sometimes even local benefits are difficult to value, due to insufficient information on the project impacts as well as baseline data. For example, although this project will improve water quality to a certain level, it is not known if and by how much such improvement would increase fish production and quality for consumption[12].

Global benefits expected from the package include:

- reducing trans-boundary pollution from Lake Mariout to the Mediterranean Sea. The reduction of nutrients (nitrogen, phosphorous) and oxygen demanding substances (COD, BOD) at El Mex bay represents global benefits in terms of an improved water quality flowing into the international waters of the Mediterranean Sea.
- improving Lake Mariout's biodiversity. Once important for its high value fish species (e.g. *Mugil cephalus, Labeo niloticus, Bagrus bajad*), the water quality has drastically deteriorated during the last two decades (Box 1). Currently, the lake is dominated by less valuable fish (*Tilapia*) and about 60 percent of its

[11] The removal efficiency was estimated at 71 percent of phosphorous and 67 percent of nitrogen quantities under low flow volume option, and at 89 percent for phosphorous and 93 percent of nitrogen quantities under the reciprocating-gravel bed option (UNDP, 1997, p.60).

[12] The difficulty arises not in the valuation *per se*, but in the quantification of impacts – that is, in estimating how the fish catch would increase as a result of reduced pollution, and how the quality of the fish, and hence the health consequences of consuming them, would change.

surface is covered by weeds and aquatic plants[13]. The reduction of COD, BOD, and nutrient loads from the lake and the improved water circulation resulting from reed removal are expected to improve the lake's biodiversity, helping endemic biota to begin to re-occupy its niche within the lake's ecosystem.

Local benefits include:

- Potential sales of duckweeds. In addition to removing nutrients from water, duckweeds have also economic use as feed for fish, chicken, and ducks (Landolt and Kandeler, 1987), or organic manure (Culley et al., 1981). World Bank (2009) estimates that duckweeds generate a total protein yield of 20 t/feddan per year and their lowest price on the market is US$735/t. On a total pilot area of 30 feddans, the potential sales value of duckweeds would be about US$441,000 per year.

- Improved air quality**.** The package is expected to improve water quality in Qalaa drain and Lake Mariout, which might lead to improved air quality by reducing the noxious smell in the vicinity of the lake. The lack of information does not allow the estimation of this benefit. It should be noted however that most air pollution is due to emissions of traffic and industry, rather than the lake itself. Thus, even in lack of estimates, we can assume that the benefit of improving air quality due to the GEF interventions is small.

- Increase in fish production. Fish catch in Lake Mariout declined sharply over time and is currently considered a health hazard, especially because of heavy metal contamination. Box A9-1 indicates that the causes of the decline in fish catch are multiple and complex. Clearly identifying these causes and the contribution of each of them to the decline in the fish catch is important for the choice of water quality management measures. However, the available data do not allow carrying out this type of analysis at this stage. We can only assume that sufficient improvements in water quality through the reduction of COD, BOD, nutrient load, and heavy metals would increase both the fish catch and its quality for consumption. Duckweed, which is proposed to be used as the flora medium for the in-lake wetland in the main basin of Lake Mariout, may bio-concentrate heavy metals. However, the amount could not be ascertained until a final design of this component is completed during project implementation, in addition, the responsiveness of fish populations to a reduction of water pollutants is not known. To give a sense of potential magnitudes, if we assume that the interventions increase the fish catch by 1 percent annually compared to the baseline scenario, the present value of the additional fish catch would be US$480,000; a 5 percent increase would generate US$680,000, and 10 percent increase would generate US$1.4 million. Once again, we cannot attribute these benefits to the GEF-financed interventions.

[13] Based on discussions with the Fisheries Department of the Ministry of Agriculture, the Fishermen Association and the Fishermen Syndicate.

- Increase in recreational activities. Recreational activities are totally restricted to coastal fishing in relatively clean basins, such as Hydrodome. The tourism potential of Lake Mariout is estimated at 100,000 tourists, if the lake was developed and cleaned (METAP, 2006). Given the high water degradation in the lake and the relatively low tourism potential, the package's contribution to tourism development is believed to be negligible.

The lack of estimates concerning the global benefits and the partial estimates of local benefits do not allow to undertake a cost-benefit analysis of this package, or to calculate an economic internal rate of return. In lack of a cost-benefit analysis, we carry out a cost-effectiveness analysis of the intervention resulting in pollutant reduction (in-lake wetland). Because the estimate of nutrient removal of 218 t/year from Table 1 represents the quantity removed close to Qalaa drain, we assume that the reduction in nutrient quantity at El Mex bay exit ranges between 50 percent and 100 percent of the available estimate. Accordingly, Table 2 presents the cost per ton of nutrient reduction in this range and compares it to that of interventions undertaken under the GEF-financed *Nutrient Reduction Project* in Hungary (World Bank, 2006). The in-lake pilot wetland appears cost-effective, with the financial cost per unit of nutrient reduction close to the cheapest intervention of the other project.

Table 2. Nutrient (N and P) reduction and cost-effectiveness

	Intervention	**Projected quantity reduced (t/year)**	**Financial cost/unit of reduction**
Proposed package	In lake pilot wetland	109 - 218	150 - 300
Nutrient reduction project in Hungary	Development of tertiary treatment at the NBWWTP (Budapest)	2462	1,059
	Wetland restoration in DDNP	1,826	241
	Total	**4,290**	**621**

Note: Over the 20 years period, total nutrient reduction is estimated at 2180 t (50 percent scenario) to 4360 t (100 percent scenario) at a total cost of US$0.7 million, which is the investment cost of the in lake wetland.

3. Financial analysis

A Financial Rate of Return was not calculated for the package, given the nature of the investments, which result mostly in environmental benefits. Therefore, the financial rate of return is not the main consideration in undertaking the investment. It is important to discuss the financial viability of this package, to ensure that it continues operating beyond the end of the project.

Table 3 presents the distribution of costs linked to the package over 20 years. GEF covers only the investment cost, in the amount of US$4.5 million (occurring in the 1st and 3rd year). The project will work with other institutions towards achieving financial viability during the lifetime of the interventions. The O&M costs of the in lake wetland (US$50,000 per year for 20 years) will be sustained by the General Authority for Fishing Resources of the Ministry of Agriculture, which is in charge with the supervision of all

activities in Lake Mariout. The O&M costs associated to biofilms, aerators and reed removals (totaling US$60,000 per year over 20 years) and the investment cost in aerators in Qalaa drain after the end of the project (US$300,000 in the 11th year) will be supported by the Egypt Public Agency for Drainage Projects of the Ministry of Water and Irrigation. The depreciation costs of the proposed interventions attain about US$200,000 per year over the same period.

The revenues from sales of duckweeds will be used to recover some of the costs. Assuming that 100 percent of these revenues will be realized, they would be sufficient to cover all the O&M and the depreciation costs of the interventions. However, given the experimental nature of the in lake wetland, we could realistically assume that the rate of success of selling duckweeds is lower. A 25 percent realization of potential sales revenues (US$100,000 per year) would be sufficient to cover all O&M costs during 20 years, while 50 percent of potential revenues (US$200,000) would also cover a substantial part of the depreciation costs. Both scenarios would undoubtedly lessen the reliance on external institutions for sustaining the costs of these interventions beyond the end of the project.

Table 3. Estimated costs of the proposed interventions over 20 years (US$ million)

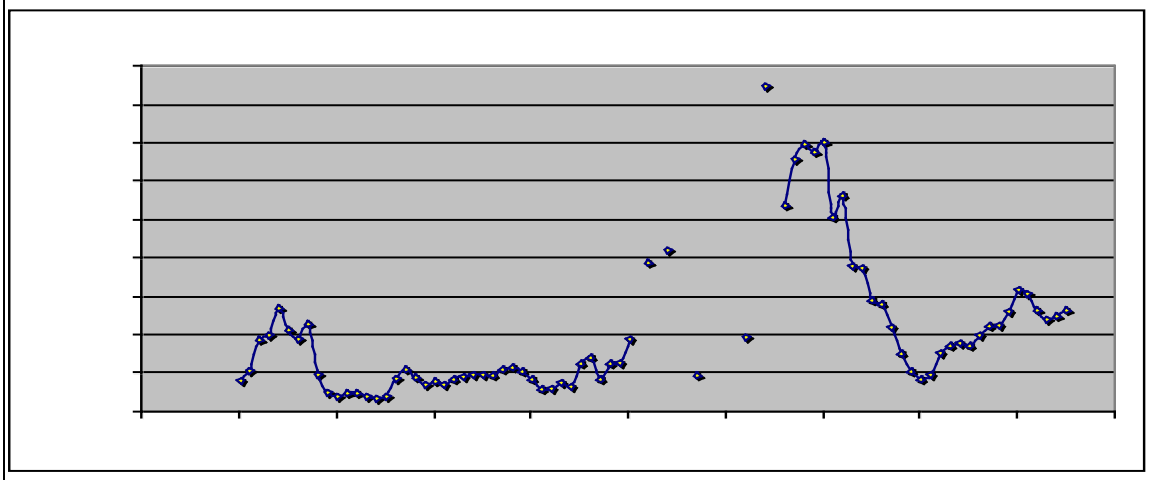
	Years							
	1	**2**	**3**	**4**	**5**	**6-10**	**11**	**12-20**
INVESTMENT COSTS	**2.2**		**2.3**				**0.3**	
- In-stream biofilm (min efficiency)	1.7							
- Aerators (electric powered)	0.3						0.3	
- Wetland (in lake)	0.2							
- Extension of wetland			0.5					
- Reed removal			0.5					
- Additional biofilm and aerators			1.2					
O&M COSTS	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**
- Biofilms	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
- Aerators	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
- Reed removal system	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
- In lake wetland	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
DEPRECIATION COSTS	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**
- Biofilms and aerators	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
- Reed removal system	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
- In lake wetland	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03

Source: based on World Bank (2009).

Box 1. Fisheries in Lake Mariout

Lake Mariout is one of four brackish water lakes in the Nile Delta near the shore of the Mediterranean Sea. The fish of Lake Mariout are essential to the well-being and livelihood of about 7,000 fishers and their families (EEAA, 2009). Figure A9-1 illustrates the trend of fish catch over a 90-year period, based on available statistics. Until the mid-1970s, Lake Mariout was highly productive, contributing no less than 75 percent of the national fish catch. In 1974, fish catch attained its peak level of 17,000t. Since the beginning of 1980s, fish production decreased progressively, mainly due to the discharge of industrial waste and sewage from Alexandria into the lake and, to a less extent, to overfishing. As a result, fish catch dropped to 5,000 t in 2007, or about 70 percent of the mid-1970s level. Nowadays, fish production in Lake Mariout is 0.5 t/ha of lake, which is lower than that in the other brackish lakes in Nile Delta, namely Edku (1.1 t/ha), Burollus (1.2 t/ha), and Manzala (0.7 t/ha).

Figure A9-1. Fish catch in Lake Mariout



The decrease in fish catch was accompanied by a change in fish composition over time. Most of the brackish high value fish (e.g. *Mugil cephalus, Labeo niloticus, and Bagrus bajad*) almost disappeared from the lake. They were replaced by other less valuable fish such as Tilapia, which now accounts for about 75 percent of the total yield. The dominance of Tilapia and increase of Clarius gariepinus production in Lake Mariout are due to their high tolerance to marginal environmental conditions, in terms of oxygen concentrations, high nutrient loading, and salinity variation.

Consumption of fish from Lake Mariout is considered a health hazard. Amr et al.[14] (2005) found that the levels of heavy metals in fish samples from the Main Basin were higher than those in

[14] Amr, H.M., El-Tawila, M.M., Ramadan, M.H.M. 2005. Assessment of pollution levels in fish and water of main basin, Lake Mariout. The Journal of the Egyptian Public Health Association (JEPHAss.), Vol. 80, No. 1,2.

water samples, and recommended to reduce fish consumption from this basin until heavy metals reach acceptable levels. El-Rayis[15] (2005) also found elevated concentrations of heavy metals in the main basin and concluded that the basin is a dangerous source for health-hazard fish.

[15] El-Rayis, O. 2005. Impact of man's activities on a closed-fishing lake, Lake Maryout in Egypt, as case study. In: Mitigation and Adaptation Strategies for Global Change 10: 145-157

Annex 10: Safeguard Policy Issues

EGYPT, ARAB REPUBLIC OF: Alexandria Coastal Zone Management Project (Under the Investment Fund for the Mediterranean Sea Large Marine Ecosystem)

1. The Alexandria Coastal Zone Management project has an overarching objective to deliver a strategic framework and immediate small-scale investments to contribute towards a reduction in the load of land-based sources of pollution entering the Mediterranean Sea, especially through the hot spots of El-Mex Bay, from Lake Mariout. The proposed project will consist of the following three components, to be implemented within a timeframe of five years: Component (1): Planning and Institutional Capacity: The outputs include (i) a master plan for the management of coastal zones of Alexandria including Lake Mariout, (ii) establishment of a multi-stakeholder Lake Mariout Management Committee to address the sustainability of the pollution reduction measures including cost recovery and any other issues encountered during implementation of the project, and (iii) development of a water quality monitoring network for Lake Mariout. Component (2): Pollution Reduction: The output is the completion of one or more low-cost innovative pollution reduction measures such as engineered wetland or in-stream treatment among others. Component (3): Monitoring and Evaluation: The outputs include (i) water monitoring network with measurable indicators; and (ii) documentation and dissemination of lessons learned from the project.

Environmental Aspects

2. The project is classified as an environmental Category B according to the World Bank's Operation Policy on Environmental Assessment (OP 4.01) and as a result, an Environmental and Social Impact Assessment (ESIA) report was prepared for the project by an independent third party consultant, according to Terms of Reference approved by the Bank. The ESIA includes an assessment of potential impacts of the proposed project and the likely significance of such impacts and recommends mitigation measures. The ESIA also includes an environmental and social management plan (ESMP) relevant to potential project interventions, which will be used as a guide for the preparation of site-specific ESMPs that will be a part of the contractor's bidding documents. The generic ESMP includes—for construction and operation—potential environmental and social impacts, mitigation measures, and institutional responsibility for implementing and monitoring the recommended mitigation measures, capacity building and training requirements, and a cost estimate for implementation. Additionally from a Project Preparation Grant, consulting firms hired by EEAA carried out several studies including Monitoring and Baseline Studies; Strategic Environmental Assessment for the project, Pre-Feasibility Studies for Demonstration Projects, Pre-Feasibility Analysis for Pollution Reduction Measures; Lake Mariout and El-Mex Bay Environmental Improvement Master Plan; and Institutional Report. Results and recommendations from these studies have been taken into account in the preparation of the ESIA.

3. Lake Mariout does not have a direct connection to the Mediterranean Sea, but rather through some Bays, one of them being the El-Mex Bay. It receives water from different sources including canals, drains, sea locks, underground water, and also directly

from the East and West Treatment Plants. Lake Mariout is one of the major sources of conveyance of land-based pollution to the Mediterranean Sea, through El-Mex Bay. From Lake Mariout, El-Mex Bay receives untreated pollutants—sewage waters, municipal and industrial wastes, agriculture—affecting water quality and sediments. Additionally, the Alexandria tanneries complex with about 40 small private tanneries and one public tannery discharge their waste effluents to a stormwater line, which discharges directly to El-Mex Bay. It is estimated that the combined waste effluents (characterized by high levels of TSS, COD, BOD, Sulphide and Chromium) from all the tanneries located in this complex and reaching El-Mex Bay has an average flow of about 3200 m3/d. In order to maintain the lake surface below the sea level, water from the polluted lake is pumped to the Mediterranean Sea at El-Mex Bay. The main pollutant loads to El-Mex Bay come from the outflow of El-Mex pumping station and from the tanneries. Water pollution in Lake Mariout is caused by industrial waters, municipal/domestic waters, and agriculture with the following characteristics: industrial waters containing high COD and heavy metals; agricultural effluents containing nutrients and organic matter; and municipal/ domestic effluents containing primary treated effluents discharge from the two wastewater treatment plants. There are two main drains entering the Lake—El-Qalaa and El-Oumoum. El-Qalaa drain receives effluent from the East Treatment Plant, raw wastewater, and irrigation drainage and agriculture runoff. El-Oumoum drain receives agricultural drainage (including pesticides and various nutrients) along with organic matter from animal farming and domestic wastewater. Additionally, Lake Mariout receives effluent that is discharged directly from the West Treatment Plant. Domestic sewage, industrial and agricultural waste are discharged continuously into the Lake, thereby further deteriorating its status and resulting in diminishing and harmful fish (containing heavy metals), impacting the living and socio-economic conditions of the inhabitants around the Lake.

4. The net environmental impact of the project will be positive as it is expected that proposed project interventions will lead towards the restoration and rehabilitation of the lake ecosystem, improve water quality and biodiversity conservation, and improve environmental conditions for inhabitants around the lake. The environmental issues that may require attention would be related to Component 2 of the project dealing with pollution reduction interventions. Site-specific environmental and social management plan (ESMP) for each intervention—meant to eliminate adverse environmental and social impacts—will be prepared and included in the bidding documents for contractors.

5. The project is considering various pollution reduction interventions to reduce the pollution load entering Lake Mariout, especially the nutrients (Nitrogen and Phosphorous), as well as the oxygen depleting substances, such as the biochemical oxygen demand (BOD) and the chemical oxygen demand (COD). This will, in turn, reduce the pollution load of these priority pollutants entering into the Mediterranean from the Lake water through El-Mex pumping station. The proposed project is complimentary to other on-going projects, each addressing a different source of pollution. The pollution reduction measures being considered will be based on clear criteria covering environmental effectiveness to substantially reduce pollution load; technical ease of implementation; investment costs; financial sustainability; institutional clarity; and, suitability as pilot based on potential for scalability in the same site and/or replicability in

other sites. The project has identified the following selection of possible interventions for implementation. However the final selection of interventions and locations will be confirmed from results of the "feasibility studies for pollution reduction measures" that will be undertaken as a first activity during implementation, under Component 2 of the project.

- In-stream/drain biofilm: considered to remove or reduce organic pollutants by adapting the severely polluted segments of the drains/streams to act as large plug-flow anaerobic/aerobic biofilm reactors in which bacterial culture will be intensified. This option is highly effective in polluted drains (El-Qalaa Drain) and causes a decrease in BOD/COD levels;
- In-stream/drain aeration: considered to increase the level of dissolved oxygen in the El-Qalaa Drain (the agricultural drain most responsible for the BOD, COD, and nutrient load to Lake Mariout). Two approaches were studied, namely, in-stream aeration through available renewable energy; and in stream electric powered aeration. It should be noted that El-Qalaa drain's annual pollution load to Lake Mariout;
- Reed removal: considered to improve water circulation in the basin, thus both improving aeration and entraining some deteriorated sediments. Removing the weeds would contribute to restoring the ecosystem of the Lake and its self-cleaning capacity and preserving the fish variety and biodiversity per the PDO. In particular, original species could be re-introduced in the Lake;
- In-lake wetland: considered for its capacity to remove many persistent organic compounds such as nitrogen and phosphorous. Duckweed will be used for their capacity to neutralize the load of BOD, COD, suspended solids, nitrogen and phosphorous, with an adequate retention time, depth and water flow. This option provides efficient, consistent and economical wastewater treatment.

6. It was determined in the preliminary analysis that individual pollution reduction measures would not be sufficient to achieve the optimal targets of pollution reduction. Instead, a "package" of intervention is required, whereby a synergy of these individual measures is ensured for a maximum, all around, performance. Some expected outcomes will be a reduction in BOD/COD load, diversion of nutrients from the lake, improved water circulation in the lake resulting from reed removal, thereby resulting in positive impact on the lake's biodiversity. It will also lead to an improvement in the assimilative capacity of the lake as well as an increase in its self-cleaning capacity.

7. It should be noted that financing for Component 2 will go towards: (i) the provision of consultancy services for the preparation of the necessary *feasibility studies for the pollution reduction measures*, and (ii) the procurement of works and goods necessary for the implementation of those pollution reduction measures. Therefore due-diligence will be carried out before a decision is made on specifics of the final interventions. With regards to selection of aquatic plant for the in-lake wetland, it will be chosen so that maximum economic benefits (as feed for fish, poultry, etc.) can be obtained, without compromising on human or animal health impact (bio-concentration of heavy metals). The final feasibility study will therefore evaluate the level of heavy metal in both reeds and aquatic plants (duckweed or water hyacinth) for the optimal use of these

resources, without being a threat to human or animal health. The study will also recommend various alternative options for use of harvested aquatic plants (e.g. handicrafts).

8. Monitoring indicators will be built into each subproject intervention and will focus on measuring compliance with related standards and permits, including health and safety for construction workers. Special attention will be paid during construction works to chance findings of objects of archaeological or cultural value. As required, works will be suspended immediately if cultural objects are found, and the contractor will inform the relevant authorities before proceeding.

Institutional setup for ESMP implementation

9. The main implementing agency for the project is the Egyptian Environmental Affairs Agency (EEAA). The Project Management Unit (PMU) that was established for EPAP II under EEAA will also serve as the PMU for the proposed project—with the hiring of additional technical staff. A part-time environmental and a part-time social specialist will be hired by the PMU. The environmental specialist will be responsible for oversight of both the Bank and Egyptian environmental safeguards requirements. He/she will also be responsible for monitoring implementation of the site-specific ESMPs, especially of the environmental mitigation measures, monitoring plan, and institutional/training requirements of the EMP, and will be responsible for environmental reporting within the PMU. The part-time social specialist will ensure a participatory approach to M&E and monitor the implementation of the social mitigation measures as part of the site-specific ESMP and will be responsible for social reporting within the PMU. The Coastal Zone Management Unit in EEAA will act as the Technical Secretariat of the project and will prepare the annual work plans. The work plans will be reviewed by the Alexandria Coastal Zone Management Committee which is expected to be established pending the revisions of Law 4/1994 for the environment (as amended by Law 9 for the year 2009).

10. Although EEAA is responsible for overall project implementation, the PMU at EEAA will contract the relevant agencies to coordinate the implementation of Component 2, dealing with pollution reduction measures (subprojects) with the Ministry of Water Resources and Irrigation (MWRI) for in-stream biofilm and in-stream aerators; and with the Ministry of Agriculture and Land Reclamation (MALR) for in-lake wetland and reed removal. Additionally, project implementation teams (PITs) will be established within the two ministries/agencies to ensure proper implementation. Consequently, the management of the investment component (pollution reduction measures) and equipment will be transferred from EEAA to the relevant agency after project completion (expected in 2015).

Reporting on ESMP

The part-time environmental and social specialists of the PMU will be responsible for environmental and social reporting on implementation of the ESMP. Their inputs will be included in the quarterly reports that the PMU will prepare and submit to the Bank.

Additionally, the PMU with input from the M&E specialist will prepare a chapter on implementation of the ESMP as part of their project mid-term report. A draft of this report will be available before the Bank's mid-term review mission.

Disclosure of ESIA

In accordance with World Bank policy and guidelines, public consultation was undertaken with key stakeholders and their concerns taken into account during preparation of the ESIA. The executive summary of the ESIA report was translated into Arabic and both documents were disclosed at the World Bank's Infoshop (on October 29, 2009) and in-country in easily accessible places to the public, including the website of EEAA (on October 22, 2009).

Environment and Social Management Plan

The following tables present the institutional arrangements necessary for environmental management; environmental mitigation measures during construction and operation; and monitoring plans to ensure the impacts are managed. It also includes an estimated cost for ESMP implementation.

Table 1: Overall Environmental Impact Assessment Matrix

Activity	Environmental Aspects	Environmental Receptors Affected							
		Air	Soil	Water Bodies	Aquatic Ecosystem	Terrestrial Ecosystem	Noise	Health & Safety	Overall Impact
Impacts during Construction									
Installation of In-Stream Biofilm	Transportation of materials and personnel	L	N	N	N	N	L	L	**L**
	Storage of construction material on drain sides	N	L	N	N	L	N	N	**L**
Dredging	Use of heavy machinery	L	N	N	N	N	L	L	**L**
	Temporary storage of excavated contaminated sediments	N	H	N	N	M	N	M	**H**
	Disposal of excavated contaminated sediments/sludge	N	H	N	N	H	N	M	**H**
	Degradation of water quality	N	N	L	L	N	N	L	**L**
	Disruption of aquatic ecosystems	N	N	N	M	N	N	N	**M**
Removal of Reeds	Use of heavy machinery	L	N	N	N	N	L	L	**L**
	Disruption of aquatic ecosystems	N	N	N	M	N	N	N	**M**
	Temporary storage of contaminated reeds	N	L	N	M	L	N	N	**L**
	Disposal of contaminated reeds	M	M	N	N	M	N	M	**M**
Construction of In-Lake wetland	Introduction of alien aquatic plant species	N	N	N	M	N	N	N	**M**
Impacts during Operation									
Maintenance of the in-stream biofilm	Cleaning and disposal of biofilm parts	N	L	L	N	N	N	N	L
Maintenance of In-Lake wetland	Removal, recycle or disposal of duckweeds	L	L	N	L	L	N	H	H
Use of electrically driven aerators	Consumption of fossil-based energy	L	N	N	N	N	N	N	L

N: Neutral or Negligible
L: Low
M: Moderate
H: High

Mitigation Measures and Associated Institutional and Financial Responsibilities

Environmental/Social Aspect(s)	Environmental/Social Impact(s)	Proposed Mitigation Measure(s)	Responsibility		Timeframe	Cost (US$)
			Implementation	Monitoring		
Transportation of materials and personnel	Air Pollution Health and Safety	Only vehicles which pass the legal environmental tests for exhaust are allowed to have access to the site. Drivers to be provided with Safe Driving Instructions H&S signs and gear should be available on site	Contractor in coordination with MWRI	PMU	Whenever materials or personnel are transported to project site	None Embedded in works contract
Storage of construction material on drain sides	Land contamination	Dedicate specific area for storage of construction material and restrict access to it by installing proper fences	Contractor in coordination with MWRI	PMU	During initial phases of mobilization	Embedded in works contract
Use of heavy machinery in dredging	Noise Disruption of the ecosystem Water pollution	Provide H&S equipment for workers and site visitors Properly mark the areas that will require dredging Restrict access of equipment to the areas where no dredging is required	Contractor in coordination with MALR	PMU	Continuous during dredging	Embedded in works contract None Embedded in

Environmental/Social	Environmental/Social	Proposed Mitigation	Responsibility		Timeframe	Cost (US$)
						works costs
Temporary storage of excavated contaminated sediments	Land contamination Solid wastes causing health risks	Designate specific area for temporary storage of excavated sediments Conduct a feasibility study for utilizing the sediments.	Contractor in coordination with MALR PMU in coordination with MALR	PMU PMU	Continuous during dredging	Embedded in works costs Included in the final feasibility study of the proposed interventions
Disposal of excavated contaminated sediments/sludge	Solid wastes causing health risks	Sign contract with waste collection contractor to properly dispose of the sediments	Contractor in coordination with MALR	PMU	During temporary storage and before end disposal	Embedded in works costs
storage and disposal of reeds and duckweeds	Solid wastes causing health risks	Conduct Sampling and Analysis for the removed reeds and duckweeds Conduct a feasibility study to find out best way to utilize the harvested reeds and duckweeds. Designate area for temporary storage of reeds before final disposal	PMU PMU in coordination with MALR Contractor in coordination with MALR	PMU PMU PMU	Before harvesting of reeds or duckweeds	Included in the final feasibility study of the proposed interventions Embedded in works contract
Cleaning and disposal of biofilm parts	Solid wastes causing health risks	Sign contract with waste collection company to remove and	MWRI	PMU	During the routine maintenance	To be determined during the

Environmental/Social	Environmental/Social	Proposed Mitigation	Responsibility		Timeframe	Cost (US$)
		properly dispose of the un-used materials				feasibility studies.
Aerators consumption of fossil-based energy	Indirect air pollution	Purchase energy efficient aerators	PMU in coordination with MWRI	PMU	During procurement	Embedded in procurement costs
Introduction of alien aquatic plant species	Disruption of ecosystem	A native plant that can provide similar functions as the duckweeds should be researched and utilized	PMU in coordination with MALR	PMU	Before construction of in-lake wetland	Included in the final feasibility study of the proposed interventions
Interaction with fishermen community	Lack of participation threatening the sustainability of the project	Involve fishermen in project activities especially in reeds removal and harvesting of the aquatic plants (duckweeds)	PMU	PMU	During project construction and during harvesting of the aquatic plants	15,000 (from the project budget)
Total Estimated Costs (US$)						**15,000**

Monitoring measures

The following table presents a fully fledged environmental monitoring program that needs to be implemented throughout the project's life time.

Table 2: Continuous Monitoring Program

Parameter	Location (**)	Number of Samples	frequency	Responsible Organization	Costs US$ **
Physical parameters: • Depth • Temperature • Transparency • Salinity • Conductivity • Dissolved oxygen (DO mg/l) • Oxygen saturation (DO %) • pH	• Effluent of west treatment plant • Qalaa Drain outfall • in the course of Nobareya Canal • in the course of El-Omoum drain • at the central part of the main basin. • At the northern corner of the main basin	One sample at each location	monthly	MWRI/ MALR/Alex RBO	None
Bacteriological parameters • Total coliforms • Faecal coliforms • Faecal streptococci	• Effluent of west treatment plant • Qalaa Drain outfall • in the course of Nobareya Canal • in the course of El-Omoum drain • at the central part of the main basin. • At the northern corner of the main basin	One sample at each location	monthly	MWRI/ MALR/Alex RBO	None
Eutrophication Parameters • Nitrate • Nitrite • Ammonia • Total nitrogen • Phosphate • Total phosphorus • Silicates • Total suspended solids • Chlorophyll a • BOD5 • COD • Oil and grease • Heavy metals	• Effluent of west treatment plant • Qalaa Drain outfall • in the course of Nobareya Canal • in the course of El-Omoum drain • at the central part of the main basin. • At the northern corner of the main basin	Representative Samples to be quantified by sampling agency	monthly	MWRI/ MALR/Alex RBO	None
Bottom sediments: • TOC • Heavy metals (Cr, Al, Fe, Cu, Pb, Zn, As, Ni and Hg).	• Qalaa Drain outfall • in the course of Nobareya Canal • in the course of El-Omoum drain • at the central part of the main basin.	Representative Samples to be quantified by sampling agency	Annual	Alex RBO/MWRI	None

Parameter	Location (**)	Number of Samples	frequency	Responsible Organization	Costs US$ **
	• At the northern corner of the main basin				
Tissue of Fish (Tilapia) Heavy metals: (Cr, Al, Fe, Cu, Pb, Zn, As, Ni and Hg).	The Main basin Fisheries basin	Representative Samples to be quantified by sampling agency	Half Annual	MALR	None
Excavated Sediments Heavy metals: (Cr, Al, Fe, Cu, Pb, Zn, As, Ni and Hg).	Temporary storage site	Representative Samples to be quantified by sampling agency	Once after the sediments dry out	Alex RBO/MWRI	None
Removed reeds Heavy metals: (Cr, Al, Fe, Cu, Pb, Zn, As, Ni and Hg).	Temporary storage site	Representative Samples to be quantified by sampling agency	Once after the removed reeds dry out	Alex RBO/MALR	None
Duckweeds (or other aquatic plants used in CW) Heavy metals: (Cr, Al, Fe, Cu, Pb, Zn, As, Ni and Hg).	Temporary storage site	Representative Samples to be quantified by sampling agency	After the plants dry out	Alex RBO/MALR	None

(*) The location of sampling could be changed based on the final feasibility study
(**) Component 1 in the project will include procurement of monitoring equipment which will be utilized by the PMU and partner agencies.

COST ESTIMATES AND SOURCES OF FUNDS

The sources of funds for the implementation of the ESMP will mainly be from the project's operations budget. The main cost elements associated with the implementation of the ESMP can be categorized as follows:

1. Manpower

In order to implement the ESMP, a part-time environmental consultant should be recruited. The duties and responsibilities will include monitoring the implementation of the mitigation measures, recording any environmental violations and most importantly recording and analyzing the environmental monitoring data. The periodical environmental reports as stated in the above tables will be included in the periodical project progress report that should be submitted to the donor agencies as agreed upon.

In addition, a social development consultant will be recruited to conduct periodical social studies and enhance the socio-economic aspects of the project.

The cost associated with is element of the ESMP is embedded in the overall project staffing budget.

2. Sampling and Analysis Equipment

Component (1) of the project has allocated funds for procurement of monitoring equipment. Therefore the costs will not show as part of this ESMP. The analysis of the results will be undertaken in MWRI laboratories at minimal administrative costs.

3. Implementation of mitigation measures

Most of these costs will be estimated during the preparation of the final feasibility study of the project. However, any associated costs related to construction will be part of the works contract.

The total estimated cost to implement mitigation measures during construction and operation is $15,000 to be funded from the project's overall budget and specifically from Component 2.

Annex 11: Project Preparation and Supervision

EGYPT, ARAB REPUBLIC OF: Alexandria Coastal Zone Management Project (Under the Investment Fund for the Mediterranean Sea Large Marine Ecosystem)

	Planned	Actual
PCN review	8/14/2008	8/21/2008
Initial PID to PIC	-	-
Initial ISDS to PIC	12/2/2008	12/2/2008
Appraisal	11/18//2009	11/18/2009
Negotiations	12/28/2009	1/13/2010
Board/RVP approval	04/28/2010	
Planned date of effectiveness	05/31/2010	
Planned date of mid-term review	10/31/2012	
Planned closing date	6/30/2015	

Key institutions responsible for preparation of the project:

- Ministry of International Cooperation, Egypt
- Ministry of State for Environmental Affairs, Egypt
  - Egyptian Environmental Affairs Agency (EEAA)
- Ministry of Water Resources and Irrigation, Egypt
- Ministry of Agriculture and Land Reclamation, Egypt

Bank staff and consultants who worked on the project include:

Name	Bank Unit	Title
Maged Hamed	MNSSD	Sr. Env. Specialist (Task Team Leader)
Knut Opsal	MNSSD	Sr. Social Scientist (social safeguards)
Dahlia Lotayef	MNSSD	Sr. Env. Specialist (environmental safeguards)
Mikael Sehul Mengesha	MNAPR	Sr. Procurement Specialist
Sara Gonzalez Flavell	LEGEM	Sr. Counsel
Akram El-Shorbagi	MNAFM	Sr. Financial Management Specialist
Nathalie Abu-Ata	MNCMI	Operations Officer
Banu Setlur	MNSSD	Env. Specialist (environmental safeguards)
Lelia Croitoru	MNSSD	Consultant (economic analysis)
Adel F. Bichara	MNSSD	Consultant
Marie A. F. How Yew Kin	MNSSD	Language Program Assistant
Enas Shaaban Mahmoud	MNC03	Program Assistant
Laila Kotb	MNC03	Program Assistant

Bank funds expended in FY09 for project preparation is US$147,240.36
Remaining costs to approval: US$ 40,000
Estimated annual supervision cost: US$85,000

Annex 12: Documents in the Project File

EGYPT, ARAB REPUBLIC OF: Alexandria Coastal Zone Management Project (Under the Investment Fund for the Mediterranean Sea Large Marine Ecosystem)

World Bank Documents

ICR for EPAP I, September 1, 2006
PAD for EPAP II, February 27, 2006
PCN for ACZMP, August 14, 2008
Aide Memoire ACZMP Preparation Mission, October 16, 2008
Aide Memoire ACZMP Pre-appraisal Mission, May 2009
Mediterranean Environmental Technical Assistance Program (METAP). 2006. Cost of Environmental Degradation in Coastal Areas of Egypt
Hungary Nutrient Reduction GEF project, World Bank, 2006

Other Documents

UNDP. 1997. Lake Manzala Engineered Wetland. Project Document. Project EGY/93/G31

Egypt Environmental Affairs Agency (EEAA). 2009. Alexandria Coastal Zone Management Project (ACZMP). Environmental and Social Impact Assessment.

Consultant Reports

a. Egypt – Alexandria Integrated Coastal Zone Management Subprogram of the Egyptian Pollution Abatement: Baseline Conditions
b. Egypt- Alexandria Integrated Coastal Zone Management Project: Strategic Environmental Assessment for ACZM Project
c. Egypt – Alexandria Integrated Coastal Zone Management Subprogram of the Egyptian Pollution Abatement: Water Monitoring Networks
d. Egypt - Alexandria Integrated Coastal Zone Management Subprogram of the Egyptian Pollution Abatement Pre-feasibility for Demonstration Projects
e. Egypt- Alexandria Integrated Coastal Zone Management Project: Monitoring and Evaluation Framework
f. Egypt- Alexandria Integrated Coastal Zone Management Project: Environment Improvement Master Plan
g. Egypt- Alexandria Integrated Coastal Zone Management Project: co-financing
h. Pre-feasibility Analysis for ACZMP Pollution Reduction Measures

Annex 13: Statement of Loans and Credits

EGYPT, ARAB REPUBLIC OF: Alexandria Coastal Zone Management Project (Under the Investment Fund for the Mediterranean Sea Large Marine Ecosystem)

			Original Amount in US$ Millions						Difference between expected and actual disbursements	
Project ID	FY	Purpose	IBRD	IDA	SF	GEF	Cancel.	Undisb.	Orig.	Frm. Rev'd
P095392	2008	EG-NATURAL GAS CONNECTIONS	75.00	0.00	0.00	0.00	0.00	75.00	0.00	0.00
P094551	2008	EG-FINANCIAL SECTOR DPL II	500.00	0.00	0.00	0.00	0.00	500.00	500.00	0.00
P094311	2008	EG INTEGRATED SANITATION & SEWERAGE INFR	120.00	0.00	0.00	0.00	0.00	120.00	0.00	0.00
P093470	2007	EG-MORTGAGE FINANCE	37.10	0.00	0.00	0.00	0.00	16.48	-2.24	0.00
P087970	2007	West Delta Water Conserv. & Irrig. Rehab	145.00	0.00	0.00	0.00	0.00	145.00	70.00	0.00
P091945	2006	EG-EL TEBBIN POWER	259.60	0.00	0.00	0.00	0.00	208.44	77.24	46.06
P090073	2006	Second Pollution Abatement Project	20.00	0.00	0.00	0.00	0.00	17.13	9.13	9.13
P082952	2005	EG-Early Childhood Education Enhancement	20.00	0.00	0.00	0.00	0.00	17.04	12.27	0.00
P073977	2005	EG-INTEGRATED IRRIGATION IMPR. & MGT	120.00	0.00	0.00	0.00	0.00	112.32	32.32	1.33
P082914	2004	EG-AIRPORTS DEVELOPMENT PROJECT	375.00	0.00	0.00	0.00	0.00	40.24	0.24	1.63
P049702	2004	EG-SKILLS DEVELOPMENT	5.50	0.00	0.00	0.00	0.00	2.05	2.05	-0.57
P045499	2000	EG-NATIONAL DRAINAGE II	50.00	0.00	0.00	0.00	0.00	0.63	0.63	0.65
P050484	1999	EG Secondary Education Enhancement Proj	0.00	50.00	0.00	0.00	0.00	21.92	18.59	0.64
P049166	1998	EG East Delta Ag. Serv.	0.00	15.00	0.00	0.00	0.62	3.86	2.76	2.50
P045175	1998	EG-HEALTH SECTOR	0.00	90.00	0.00	0.00	0.00	1.11	-7.45	-7.61
		Total:	1,727.20	155.00	0.00	0.00	0.62	1,281.22	715.54	53.76

EGYPT, ARAB REPUBLIC OF
STATEMENT OF IFC's
Held and Disbursed Portfolio
In Millions of US Dollars

		Committed				**Disbursed**			
		IFC				**IFC**			
FY Approval	Company	Loan	Equity	Quasi	Partic.	Loan	Equity	Quasi	Partic.
1996	ANSDK	1.33	0.00	0.00	0.00	0.56	0.00	0.00	0.00
2004	Alexandria Fiber	8.00	0.00	0.00	0.00	7.00	0.00	0.00	0.00
2001	Amreya	4.69	0.00	0.00	0.00	4.69	0.00	0.00	0.00
2006	CIB LLC	0.00	0.72	0.00	0.00	0.00	0.48	0.00	0.00
1999	CIL	0.00	0.74	0.00	0.00	0.00	0.74	0.00	0.00
2004	CIL	0.00	0.15	0.00	0.00	0.00	0.15	0.00	0.00
1992	Carbon Black-EGT	0.00	1.48	0.00	0.00	0.00	1.48	0.00	0.00
1997	Carbon Black-EGT	0.00	1.48	0.00	0.00	0.00	1.48	0.00	0.00
1998	Carbon Black-EGT	4.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00

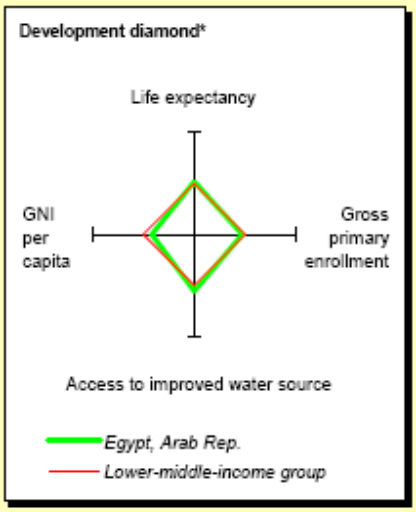
2000	Carbon Black-EGT	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2002	Ceramica Al-Amir	3.33	0.00	0.00	0.00	3.33	0.00	0.00	0.00
2006	Cmrcl Intl Bank	0.00	23.28	0.00	0.00	0.00	23.03	0.00	0.00
2006	EFG Hermes	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2004	EHF	0.00	1.70	0.00	0.00	0.00	1.70	0.00	0.00
2005	Egypt Factors	0.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00
2006	Gippsland	0.00	4.61	0.00	0.00	0.00	2.03	0.00	0.00
2001	IT Worx	0.00	2.00	0.00	0.00	0.00	2.00	0.00	0.00
2004	Lecico Egypt	8.94	0.00	0.00	0.00	8.94	0.00	0.00	0.00
1986	Meleiha Oil	0.00	8.62	0.00	0.00	0.00	0.00	0.00	0.00
1988	Meleiha Oil	0.00	9.20	0.00	0.00	0.00	0.00	0.00	0.00
1992	Meleiha Oil	0.00	13.00	0.00	0.00	0.00	0.94	0.00	0.00
2005	Merlon Egypt	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2002	Metro	10.50	0.00	0.00	0.00	10.50	0.00	0.00	0.00
1992	Misr Compressor	9.70	0.00	0.00	0.00	9.70	0.00	0.00	0.00
	Orix Leasing EGT	4.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1996	Orix Leasing EGT	0.00	0.53	0.00	0.00	0.00	0.53	0.00	0.00
2001	Orix Leasing EGT	1.09	0.00	0.00	0.00	1.09	0.00	0.00	0.00
2001	Port Said	41.07	0.00	0.00	132.53	41.07	0.00	0.00	132.53
2002	SEKEM	4.18	0.00	0.00	0.00	4.18	0.00	0.00	0.00
2006	SONUT	10.00	0.00	4.00	0.00	0.00	0.00	0.00	0.00
2004	SPDC	18.40	0.00	0.00	0.00	18.40	0.00	0.00	0.00
2001	SUEZ GULF	40.40	0.00	0.00	129.07	40.40	0.00	0.00	129.07
1997	UNI	2.05	0.00	0.00	0.00	2.05	0.00	0.00	0.00
2001	UNI	2.06	0.00	0.00	0.00	2.06	0.00	0.00	0.00
2005	Wadi Group	15.00	0.00	0.00	0.00	7.50	0.00	0.00	0.00
	Total portfolio:	214.74	70.51	4.00	261.60	165.47	34.56	0.00	261.60

		Approvals Pending Commitment			
FY Approval	Company	Loan	Equity	Quasi	Partic.
2004	ACB Acrylic	0.00	0.00	0.00	0.00
2004	Merlon Egypt	0.00	0.00	0.00	0.02
2000	ACB Expansn III	0.00	0.00	0.00	0.00
2006	Rally Energy	0.01	0.00	0.00	0.00
	Total pending commitment:	0.01	0.00	0.00	0.02

Annex 14: Country at a Glance

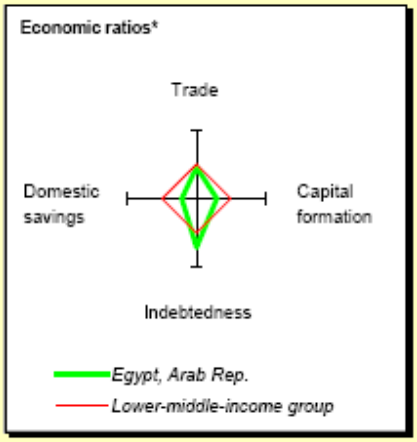
EGYPT, ARAB REPUBLIC OF: Alexandria Coastal Zone Management Project (Under the Investment Fund for the Mediterranean Sea Large Marine Ecosystem)

POVERTY and SOCIAL	Egypt	M. East & North Africa	Lower-middle-income
2007			
Population, mid-year *(millions)*	75.5	313	3,437
GNI per capita *(Atlas method, US$)*	1,580	2,794	1,887
GNI *(Atlas method, US$ billions)*	119.5	876	6,485
Average annual growth, 2001-07			
Population *(%)*	1.8	1.8	1.1
Labor force *(%)*	2.8	3.6	1.5
Most recent estimate (latest year available, 2001-07)			
Poverty *(% of population below national poverty line)*	..	..	..
Urban population *(% of total population)*	43	57	42
Life expectancy at birth *(years)*	71	70	69
Infant mortality *(per 1,000 live births)*	29	34	41
Child malnutrition *(% of children under 5)*	5	..	25
Access to an improved water source *(% of population)*	98	89	88
Literacy *(% of population age 15+)*	71	73	89
Gross primary enrollment *(% of school-age population)*	105	105	111
Male	107	108	112
Female	102	103	109

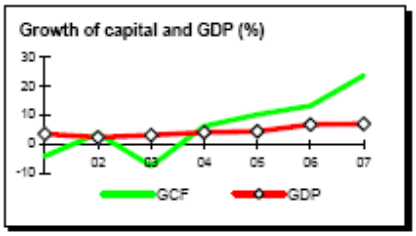


KEY ECONOMIC RATIOS and LONG-TERM TRENDS	1987	1997	2006	2007
GDP *(US$ billions)*	40.5	78.4	107.5	130.5
Gross capital formation/GDP	26.1	17.6	18.7	20.9
Exports of goods and services/GDP	12.6	18.8	29.9	30.3
Gross domestic savings/GDP	15.9	11.5	17.1	16.3
Gross national savings/GDP	19.1	17.3	22.0	22.5
Current account balance/GDP	-2.3	0.2	1.6	2.1
Interest payments/GDP	1.2	1.0	0.6	0.6
Total debt/GDP	108.9	38.2	26.8	23.3
Total debt service/exports	17.9	10.6	5.4	5.0
Present value of debt/GDP	..	..	24.0	..
Present value of debt/exports	..	..	63.1	..

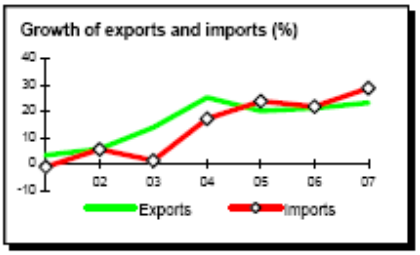
	1987-97	1997-07	2006	2007	2007-11
(average annual growth)					
GDP	4.1	4.4	6.8	7.1	6.5
GDP per capita	2.0	2.5	5.0	5.2	5.4
Exports of goods and services	6.3	12.0	21.3	23.3	21.6



STRUCTURE of the ECONOMY	1987	1997	2006	2007
(% of GDP)				
Agriculture	20.5	17.0	14.1	14.1
Industry	27.1	31.2	38.4	22.8
Manufacturing	16.5	17.6	16.6	15.7
Services	52.4	51.8	47.5	63.1
Household final consumption expenditure	69.9	77.2	70.6	72.4
General gov't final consumption expenditure	14.3	11.3	12.3	11.3
Imports of goods and services	22.8	24.9	31.6	34.8



	1987-97	1997-07	2006	2007
(average annual growth)				
Agriculture	2.8	3.4	3.2	3.7
Industry	6.3	4.4	11.5	7.9
Manufacturing	5.3	4.9	5.8	7.6
Services	2.7	4.8	5.1	7.4
Household final consumption expenditure	4.7	3.1	5.1	5.2
General gov't final consumption expenditure	2.3	3.0	3.1	0.2
Gross capital formation	-1.3	4.3	13.3	23.8
Imports of goods and services	2.5	8.4	21.8	28.8



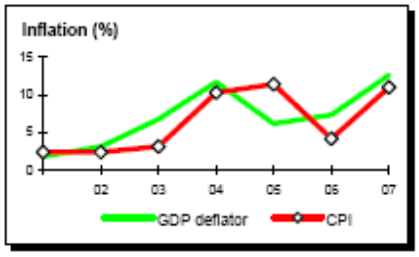
Note: 2007 data are preliminary estimates.

This table was produced from the Development Economics LDB database.

* The diamonds show four key indicators in the country (in bold) compared with its income-group average. If data are missing, the diamond will be incomplete.

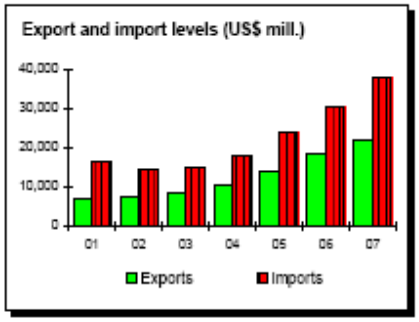
PRICES and GOVERNMENT FINANCE

	1987	1997	2006	2007
Domestic prices				
(% change)				
Consumer prices	..	6.2	4.2	11.0
Implicit GDP deflator	31.1	9.9	7.4	12.6
Government finance				
(% of GDP, includes current grants)				
Current revenue	20.3	22.8	23.4	23.2
Current budget balance	-5.4	2.8	-6.8	-3.2
Overall surplus/deficit	-15.0	-0.9	-8.2	-7.3



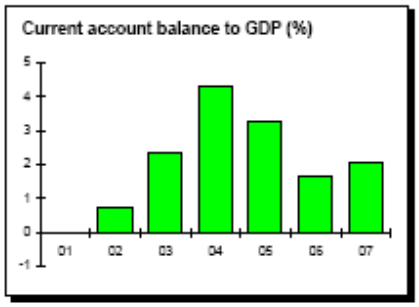
TRADE

	1987	1997	2006	2007
(US$ millions)				
Total exports (fob)	2,264	5,345	18,455	22,018
Cotton	458	2,578	10,407	10,223
Other agriculture	343	107	146	110
Manufactures	665	1,302	5,172	7,519
Total imports (cif)	7,323	15,565	30,441	37,834
Food	2,338	2,885	1,921	2,671
Fuel and energy	884	1,909	5,443	4,336
Capital goods	1,764	4,114	7,888	9,845
Export price index *(2000=100)*	87	126	150	157
Import price index *(2000=100)*	86	116	135	138
Terms of trade *(2000=100)*	101	108	111	113



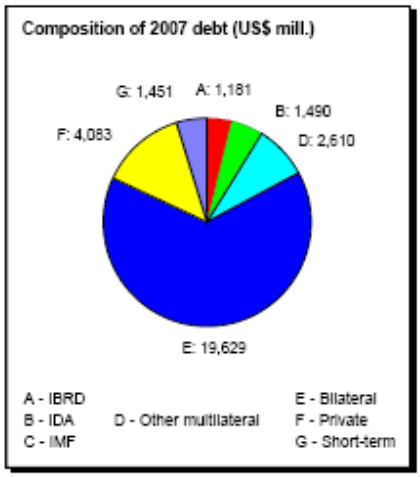
BALANCE of PAYMENTS

	1987	1997	2006	2007
(US$ millions)				
Exports of goods and services	5,667	14,534	33,891	39,381
Imports of goods and services	9,468	19,528	38,217	44,935
Resource balance	-3,801	-4,994	-4,326	-5,554
Net income	-480	967	531	1,188
Net current transfers	3,356	4,145	5,547	7,611
Current account balance	-924	119	1,752	2,696
Financing items (net)	106	1,793	1,502	2,587
Changes in net reserves	819	-1,912	-3,253	-5,282
Memo:				
Reserves including gold *(US$ millions)*	..	..	26,660	30,320
Conversion rate *(DEC, local/US$)*	1.3	3.4	5.7	5.7



EXTERNAL DEBT and RESOURCE FLOWS

	1987	1997	2006	2007
(US$ millions)				
Total debt outstanding and disbursed	44,122	29,951	28,763	30,444
IBRD	1,703	869	544	1,181
IDA	892	1,206	1,481	1,490
Total debt service	1,660	2,113	2,211	2,422
IBRD	244	297	93	144
IDA	10	24	53	58
Composition of net resource flows				
Official grants	560	1,028	639	..
Official creditors	753	-10	-1,040	56
Private creditors	574	-37	-250	-103
Foreign direct investment (net inflows)	948	891	10,043	..
Portfolio equity (net inflows)	0	515	502	..
World Bank program				
Commitments	0	75	817	0
Disbursements	163	260	164	737
Principal repayments	125	241	108	144
Net flows	38	19	56	593
Interest payments	129	80	39	58
Net transfers	-91	-61	18	535



The World Bank Group: This table was prepared by country unit staff; figures may differ from other World Bank published data. 1/28/09

Annex 15: Incremental Cost Analysis

EGYPT, ARAB REPUBLIC OF: Alexandria Coastal Zone Management Project (Under the Investment Fund for the Mediterranean Sea Large Marine Ecosystem)

OVERVIEW OF THE INCREMENTAL COSTS ANALYSIS

The project's global objective is to supply a strategic framework and immediate small-scale investments to reduce the load of land-based sources of pollution entering the Mediterranean Sea in the "hot spots" of El-Mex Bay and Alexandria, through Lake Mariout.

The project will allow the GOE to (i) strengthen the capacity of the various relevant entities to manage the coastal zones in and around Alexandria in an integrated, participatory and sustainable manner; (ii) reduce the load of land based sources of pollution entering the Mediterranean, through Lake Mariout with the completion of low-cost pollution reduction measures; and (iii) document and disseminate lessons learned from the project interventions, based on a M&E system, for the purpose of replication and up-scaling along the coast of Egypt and in other Mediterranean countries.

The GEF project complements other on-going investments financed by the GOE, local Egyptian industries, the Bank and other donors. These investments aim to reduce industrial and municipal pollution loads entering Lake Mariout and the Mediterranean Sea using conventional infrastructure-based treatment plants. The GEF project is critical as it adds to this significant mass of investments by treating more diffuse pollution coming from agricultural drainage water and rural domestic wastewater through innovative and natural processes in an effort to develop an integrated approach to coastal zone management in Egypt.

The GEF alternative proposes to achieve this objective at an incremental cost of US$7.15 million. The estimated baseline project cost for the project is US$647,003,293, with contributions from the Government of Egypt, the World Bank, the EU, the EIB, the AFD, and Egyptian industries located in Alexandria. The GEF alternative is therefore estimated to be US$654,153,293.

CONTEXT – LOCAL AND GLOBAL ENVIRONMENT ISSUES

Degradation of water quality due to land-based pollution is a major problem in the Mediterranean coastal areas, including in Alexandria, Egypt. Lake Mariout is one of the major sources of conveyance of land based pollution to the El-Mex Bay in Alexandria and for several decades the northern coast of Egypt has been experiencing a continuous increase in population, development and environment degradation. Due to the expansion of the City of Alexandria, Lake Mariout has been divided into five main basins by road infrastructure and is surrounded by urban and industrial development.

Today, the Lake Mariout receives polluted water from three major sources, including industrial effluents with various industries discharging directly their effluents into the Lake or El Mex Bay, domestic effluents with two wastewater treatment plants discharging their primary treated

effluents into the Lake Mariout and drainage water from agricultural activities upstream, bringing pesticides, nutrients (phosphate, nitrogen compounds, sulphate, etc) along with organic matter from animal farming and domestic wastewater of nearby villages.

According to the Transboundary Diagnostic Analysis (TDA) for the Mediterranean Sea, the pollution load reaching the Mediterranean Sea via Alexandria area are significant with more than a third of the total Biochemical Oxygen Demand and Chemical Oxygen Demand discharges in the area. Eight million cubic meter of water per day – almost equivalent to the flow of the Rosetta branch – is being pumped from Lake Mariout into the hot spot El-Mex Bay in the Mediterranean with impact on coastal biodiversity, cultural heritage and tourism in the whole Alexandria area.

Eutrophication in the basins of the Lake and open sea has also been reported. Today, 60% of the Lake basins are covered by plants and aquatic reeds causing the Lake to lose its attraction as a recreational resort. More significantly, however, eutrophication negatively affects the livelihoods of the local population including marginalized groups like the fishermen who are highly dependent on the fish catch from the Lake basins for their income.

SECTOR DEVELOPMENT GOALS

In Egypt, Environment is under the Council of Ministers, and represented in the Cabinet by the Minister of State for Environmental Affairs (MSEA). The operational arm of MSEA is the Egyptian Environmental Affairs Agency (EEAA). In association with EEAA and several sector ministry agencies, the National Environmental Action Plan (NEAP) was prepared in 1992 and is the first major environmental activity. As a result of the NEAP, environmental protection became one of the major priority programs in Egypt during the decade 1992-2002.

Since the NEAP, Egypt has succeeded in building up basic environmental management capabilities. The country enacted the environment protection law No. 4 of 1994, and issued its executive regulations in 1996. Environmental guidelines for development in the coastal areas were also issued in 1996. Egypt updated its NEAP in 2002 with the help of United Nations Development Programme (UNDP) and the executive regulations were updated in 2006 to include standards based on environmental load in addition to those based on concentration.

The Government of Egypt (GOE) has recognized the possible detrimental impact of further deterioration of its coastal zones along the Mediterranean Sea due to continuous flow of land based sources of pollution and is currently upgrading the secondary treatment of the Eastern and Western municipal wastewater treatment stations in Alexandria, which would directly improve the quality of Lake Mariout receiving water. The treatment plants are expected to be operational in 2012. In addition, with the support of the World Bank and other donors, the Second Egypt Pollution Abatement Project (EPAP II) focuses on reducing the industrial pollution through cleaner production systems and treatment plants in Lake Mariout and Greater Cairo. The project provides attractive loans to financially viable industrial enterprises for pollution reduction measures. To date, the proposed interventions include the Amria petroleum refining public company with a proposal to use NMP solvent instead of Phenol, the national paper private company with a proposal to supply and install second stage biological wastewater treatment plant, and Wael Tex with a proposal for rehabilitation of the industrial wastewater.

At a policy level, Integrated Coastal Zone Management remains a priority for the GOE with on-going efforts to prepare a National Strategy for Coastal Zone Management (CZM) under the leadership of EEAA and in coordination with the National Committee for CZM chaired by the CEO of EEAA. In addition, the environmental rehabilitation of Lake Mariout and the development of the surrounding land is one of the three pillars of the Alexandria City Development Strategy (CDS). Together with EEAA, the Regional Branch Office of EEAA and the Governorate of Alexandria will be closely involved in the preparation and implementation of the proposed GEF project.

BASELINE

Under the *baseline scenario*, Egypt will improve its management of coastal zones but will be unable to control and reduce the sources of land based pollution in an integrated, sustainable and decentralized manner and with the necessary tools to achieve effective monitoring of water quality. Furthermore, protection and biodiversity conservation of natural ecosystems are not being mainstreamed in projects currently implemented by the GOE with support from various external partners. Finally, on-going interventions by the GOE and other donors do not address non-industrial pollutants being discharged directly or indirectly into the Mediterranean Sea. Thus, the baseline scenario would result in limited progress toward targeting and reducing all land-based sources of pollution as part of a comprehensive strategic framework, and ensuring the protection and conservation of important coastal areas, including coastal lakes and coastal waters of large marine ecosystems.

Implementation of the Baseline scenario would result in:

- Development of a new national strategy for CZM with limited concrete implementation measures for Alexandria area and limited mainstreaming of coastal zones management considerations in urban planning at local level. Continued fragmented approach to coastal zone management in and around Alexandria area.
- A Coastal Zone Management Strategy being developed but incorporation of biodiversity conservation and ecosystem issues with consideration for downstream pollution is limited.
- On-going infrastructure investments mainly target industrial and municipal wastewater through conventional treatment plants. Very limited investments specifically targeting more diffuse upstream agricultural drainage water and rural domestic wastewater.
- Monitoring and evaluation systems established that do not incorporate indicators of biodiversity conservation (fisheries, etc…).
- Capacity to monitor water quality in and around Alexandria on a regular basis area is limited.
- Limited involvement and participation of local communities and relevant stakeholders in addressing coastal zone management.

Total expenditures under the Baseline scenario are estimated at US$647,003,293 million.

GLOBAL ENVIRONMENT OBJECTIVES

In spite of various abuses, Lake Mariout still proves today to be of first importance for the environmental balance of the whole region and provides significant pollution abatement before discharging into the El Mex bay. The Project is expected to yield local environmental benefits through the polishing of the water discharged into the Lake thereby restoring the Lake self-cleaning capacity as well as regional and global environment benefits through the reduction of trans-boundary pollution entering the Mediterranean in the El Mex Bay and Alexandria region.

GEF ALTERNATIVE

Under the *GEF Alternative scenario*, Egypt will be able to improve the management and conservation of coastal zones areas through targeted low-cost investments, strengthening planning, decision-making process and institutions at national and local levels with the mainstreaming of integrated coastal zone management considerations in development plans and the use of effective water quality monitoring instruments. Without the grant from the GEF, the following specific outcomes would not have been possible:

- Support towards the establishment of long-term institutional mechanisms which incorporate integrated coastal zone management and conservation considerations into land use planning based on a multi-sectoral approach to urban development.
- Decentralized decision-making process for environmental protection measures of coastal areas.
- Increased participation of communities and organizations involved in coastal zone management with adequate training and capacity-building activities including sharing lessons from other Mediterranean countries.
- Establishment of an efficient and rapid monitoring mechanism for water quality and biological diversity conservation in and around Lake Mariout to quickly feed into decision-making process for pollution control.
- Sustainable practices for cost recovery of project interventions are piloted
- The capacity of the local environmental agency to adequately monitor water quality in the coastal areas is strengthened.

Total expenditures under the GEF Alternative scenario are estimated at US$654,153,293 million.

INCREMENTAL COSTS

The difference between the cost of the Baseline scenario (US$647,003,293 million) and the cost of the GEF Alternative (US$654,153,293 million) is estimated at US$7.15 million. This represents the incremental cost for achieving global environmental benefits.

Incremental costs matrix (US$ millions)

Summary of Local Benefits of the Baseline vs. Global Benefits of the Alternative				
Component	**Cost Category**	**US$ million**	**Domestic Benefit**	**Global Benefit**
Planning, Institutional Capacity and Monitoring	Baseline		Long-term planning but with limited coordination and few tools to ensure effective and sustainable management of coastal zones among various agencies	
	With GEF Alternative		Fully integrated and mainstreamed ICZM in national and local development/urban plans	Regular monitoring of water quality along the Mediterranean Sea fully integrated in coastal zone management and in decision-making process; Establishment of comprehensive mechanisms for biodiversity monitoring
	Incremental	1,982,000		
Pollution reduction	Baseline		Industrial and municipal wastewater treatment is targeted with limited investments to reduce more diffuse sources of pollution from rural municipal waste and from agricultural drainage water, including nutrients.	
	With GEF Alternative		Comprehensive treatment of land based sources of pollution entering the Mediterranean Sea through Lake Mariout; Improvement in livelihoods of local communities (fish production increases) and health aspects; innovative and low-cost pollution reduction measures easily managed by local communities	• Reduction in pollution loads entering Mediterranean Sea; • Protection and restoration of endangered wetlands and habitats in and around Lake Mariout
	Incremental	4,625,000		
Project Management & M&E	Baseline		N/A	
	With GEF Alternative		Replication of experiences of how biodiversity conservation may have local tangible benefits for the community & their livelihoods; participation of local communities in coastal zone management and generating lessons learned	Replication of nutrient reduction techniques; replication of ICZM practices including decentralized approach and multi-sector coordination; generation of a scientific database on water quality entering the Mediterranean Sea
	Incremental	543,000		
TOTAL	Baseline		Some actions towards reducing the load of land based sources of pollution entering the Mediterranean Sea through Lake Mariout in the absence of a long-term strategic framework for ICZM	Sporadic measures to protect and restore large marine ecosystems
	With GEF Alternative		Long-term planning for sustainable management of coastal resources with adequate monitoring mechanisms	Reduction of water pollution from various sources; protection and restoration of endangered wetlands and habitats; biodiversity conservation.
	Incremental	7,150,000		

Annex 16: STAP Roster Review

EGYPT, ARAB REPUBLIC OF: Alexandria Coastal Zone Management Project (Under the Investment Fund for the Mediterranean Sea Large Marine Ecosystem)

STAP ROSTER TECHNICAL REVIEW OF THE "*ALEXANDRIA COASTAL ZONE MANAGEMENT PROJECT*"

by J. A. Thornton PhD PH CLM
Managing Director
International Environmental Management Services Ltd – United States of America

The STAP reviewer comments are generally highly supportive of the project objectives and design and note that the project overall is scientifically and technically sound. The reviewer draws attention primarily to issues of conflict resolution mechanisms between the fishermen community and proponents of land-based activities around the Lake. The STAP reviewer report has been received by the Bank in February 2009. Following is a summary of the key comments and the team's replies. The PAD has been revised to address the comments, as needed.

Key Issues

Key Issue 1: Scientific and technical soundness of the project

1. *Comment:* The project proposes to develop monitoring and evaluation instruments that should help to ensure that the results of the project are implemented in a sustainable manner. While focused on the project-related elements, a practicable monitoring system should be expanded in scope to ensure timely and appropriate feedback to regulatory authorities tasked with ensuring compliance with the environmental quality standards and requirements adopted by the various governmental units having jurisdiction in the coastal zone. Ensuring that communities, the private sector, and governmental bodies participate in this monitoring process will be critical to ensuring sustainability.

Response: A participatory monitoring and evaluation mechanism has been developed and is reflected in project design. A social specialist will be hired by the EEAA to ensure a participatory approach to M&E and to monitor the implementation of the social mitigation measures as part of the site-specific ESMP. Regular consultations with stakeholders will take place including for the preparation of the ICZM Plan and data on water quality collected through the M&E system will be publicly disclosed following the example of the PROPER approach under the EPAP II,

2. *Comment:* Box 1 of Annex 9 and Figure A9-1 suggest a complicated relationship between fish catches over time. Catches appear to be highly variable and therefore there is a need to clarify the linkages between fish catch and the many factors that can modify fish catch. Such knowledge would be fundamental to the choice of water quality management measures considered for implementation. For example, there is a need to develop an understanding of the relationship between nutrient load and fish catch and fish species composition, between fishing effort and fishing gear types and fish catch and between a decrease in lake surface level and fish catch.

Response. It is clear that identifying the causes of the decline in the fish catch is important for the choice of water quality management measures. However, the available data do not allow to carry out this type of analysis. We can only assume that sufficient improvements in water quality through the reduction of COD, BOD, nutrient load, and heavy metals would increase both the fish catch and its quality for consumption. With regards to heavy metals, duckweed is proposed to be used as the flora medium for the in-lake wetland in the main basin of Lake mariout and is known to bio-concentrate heavy metals. However, the potential removal of heavy metals could not be ascertained until a final design of this component is completed during project implementation.

3. *Comment:* Notwithstanding, the issue of elevated heavy metals levels in the fish catches is clearly linked to human activities, and is a cause for concern. These discharges should be addressed through the complementary industrial pollution control measures being implemented in the tributary area under the associated investment programs.

Response: The proposed project is partially blended with the EPAP II which targets pollution abatement in factories in Alexandria and in Greater Cairo, to reduce water and air pollution in these two hot spots. The specific investment relevant to the proposed GEF project are those sub-projects that directly reduce polluted effluent to Lake Mariout, namely:(i) the Amria petroleum refining public company with a proposal to use NMP solvent instead of Phenol, (ii) the national paper private company with a proposal to supply and install second stage biological wastewater treatment plant, and (iii) the Wael Tex company with a proposal for rehabilitation of the industrial wastewater.

4. Comment: The PAD documents a conflict between the fishing community and other sectors of the community desirous of implementing land-based developments, and hints at the loss of surface area of Lake Mariout as a direct consequence of development of land-based activities in this coastal zone. The project, as currently conceived, does not seem to offer a mechanism to address this particular conflict. The institutional and implementation arrangements explicitly include the fishing community and government, but do not necessarily include the other sectors, including agriculture, that appear to be contributing a substantial portion of the contaminant loads and occupying the surrounding landscape.

Response: The team recognizes that the added value of the GEF project essentially resides in the fact that it offers a platform where different and competing interests can be brought together and reconciled either through the preparation of a CZM plan or through small scale pilot pollution reduction measures. Several steps to address conflict resolution issues will be taken and include regular multi-stakeholder consultations, the review and monitoring of the social and environmental safeguards of the project and a communication strategy to raise awareness and provide feedback on project implementation. In addition, participation of the Lake Mariout Committee, a sort of fishermen committee, in the Project Steering Committee will ensure that the interests of the fishermen are adequately represented. With regards to agriculture, linkages and synergies between the GEF project and the Bank's Integrated Sanitation and Sewerage Infrastructure Project will be established through sharing of information during the design of the pollution reduction interventions and dissemination of results and lessons learned in particular for the in-drain treatments.

Key issue 2. Identification of global environmental benefits and/or drawbacks of the project, and consistency with the goals of the GEF.

5. *Comment:* The threat of ongoing degradation of the aquatic environment as the result of wastewater discharges from urban, industrial, and agricultural development includes both water quality degradation and public health impacts related to the spread of waterborne diseases. Waterborne diseases remain the single greatest cause of infant mortality, despite significant improvements in water supply and sanitation. If unchecked, discharges from these human land-based activities will continue to threaten the globally significant ecosystems of the Mediterranean Sea. Consequently, true global benefit is presumed as a result of the ultimate connection of the Mediterranean Sea to the Atlantic Ocean.

The project is consistent with the goals and objectives of OP 10,[16] contributing to the global effort to address priority environmental concerns arising from land use practices and land-based activities, in this case focusing on the management of pollution from metropolitan areas, coastal industries, and watershed-based agricultural activities. The project complements related initiatives being conducted under the auspices of the GEF Strategic Partnerships for the Mediterranean Sea Large Marine Ecosystem Program and the World Bank Second Egypt Pollution Abatement Project.

In this regard, the participation of the relevant governmental organizations with responsibility for land use management, wastewater treatment, and agriculture is an important element in ensuring the implementation of the project outcomes. This participation is provided through the relevant national, governorate, and municipal government agencies, including the Egyptian Environmental Affairs Agency, Ministry of Housing, Utilities and Urban Development, General Organization of Physical Planning, and relevant local governments. Establishment of a functional operational strategy between and amongst these multiple agencies, as proposed in the project document, will contribute to achieving this objective. It also is important to note that the inclusion of industry and other nongovernmental organizations (NGOs) in the project steering committee. This latter involvement is crucial to the sustainability of remedial measures.

Response: The GEF project value added is based on the promotion of a strong participatory process in the adoption of sound ICZM practices. In that respect, representatives of NGOs and industries will be invited to participate in public consultations during the preparation of the ICZM plan. Although coastal industries are not directly part of the Project Steering Committee given that the project intends to address non-point source of pollution coming from agriculture and rural wastewater, the EPAP II will provide a basis for their involvement as the two projects are partially blended. In particular, following the example of the PROPER pilot approach (Program for Pollution Control, Evaluation and Rating) in the EPAP II, the public disclosure of

[16] Operational Program 10 (OP 10) includes as indicative activities, *inter alia*, global projects which are designed to "demonstrate ways of overcoming barriers to the use of best practices for limiting releases of contaminants..., and to involve the private sector in utilizing technological advances for resolving these transboundary priority concerns." Priority transboundary concerns include "land-based activities..., contaminants released from ships, persistent toxic substances such as persistent organic pollutants (POPs), and targeted regional or global projects useful in setting priorities for possible GEF interventions, meeting the technical needs of projects in this focal area, or distilling lessons learned from experience." This Operational Program is intended to include "projects that help demonstrate ways of overcoming barriers to the adoption of best practices that limit contamination of the International Waters environment."

water quality data as a result of the GEF project interventions will provide a strong incentive for these industries and others to comply with environmental regulations.

Key issue 3. Regional context

6. *Comment:* While the project is centered on the Lake Mariout, the connection of these waters to the Mediterranean Sea and, ultimately to the Atlantic Ocean argues that adequate and appropriate consideration has been given to the regional context of the project. Actions proposed to better integrate the national regulatory initiatives within a regional program are fully consistent with the development of a sustainable regional approach to managing these waters. To this end, the Mediterranean Sea Regional Seas Program and the associated GEF-WB-United Nations Environment Programme (UNEP) Strategic Partnership for the Mediterranean Sea Large Marine Ecosystem provides an important context for this project, as well as a vehicle for disseminating best practices more widely within the region. This Partnership and related investment programs documented in the PAD ensure a coherent and appropriate regional context for this project. Further, actions are proposed within the project to strengthen the national regulatory programs and institutions. This will encourage and facilitate replication of the project outcomes elsewhere in Egypt. The proposal clearly indicates an intention to disseminate information and results on both a regional and global basis.

Response: Consultations and participatory in dissemination activities from project interventions and results have been included in the project design, in particular participation in the GEF IW-LEARN programs and conferences, preparation of experience notes and the set-up of a website capturing project outcomes and main achievements according to the GEF IW-LEARN standards.

7. *Comment:* It is noted that the project area contributes more than one-third of the measured biochemical oxygen demand (BOD) and chemical oxygen demand (COD) in the area. Although it is not clear from this statement whether the area referred to is the entirety of the Mediterranean Sea of the Alexandria coastal zone, any efforts to mitigate the discharge of oxygen consuming substances into the Alexandria coastal zone should have significant benefit for the coastal marine ecosystem, and ultimately for the Mediterranean Sea as a whole.

Response: The pollution emptying in the El-Mex Bay and originating from the Lake Mariout contributes more than one-third of the measured BOD and COD in the Alexandria area. Although the primary impact of the land-based pollution is in El-Mex Bay, the mixing process would also result in a positive impact on the adjacent Mediterranean water.

Key Issue 4. Replicability

8. *Comment:* The implementation of the project clearly contributes to the potential for replication of beneficial practices and techniques—including engineering practices for the management of instream water quality and intergovernmental coordination measures. Further, the inclusion of mechanisms for disseminating information and results achieved fosters replication of effective and successful measures throughout the Mediterranean region.

Response: A Replication Strategy will be developed and will rely on data provided by the water monitoring system which will be put in place as part of the project interventions. Other communications tools will also be used to disseminate results such as a website and publications. A Communications Specialist will be recruited as part of the Project technical

assistance and a report capturing outcomes and "lessons learned" will be prepared and published at the end of the project.

Key issue 5. Sustainability of the project.

9. *Comment:* The PAD indicates that a significant element of the sustainability of the project rests upon the ability of the project team to overcome barriers relating to competing economic activities, especially between land-based and fisheries-based activities; a weak regulatory regime and institutional structure; and, low levels of community awareness and involvement, exacerbating the sectoral competition for land and water resources. Even with respect to the aquatic resources, the PAD documents weak coalitions. For example, the shared interests of lake front property owners, recreational users, and fishers would seem to form the basis for joint action to promote good water quality and a healthy lake ecosystem; however, such coalitions do not seem to exist. The closest approximation to such a coalition would appear to be the provision of assistance by the Friends of the Environment to the fishing community in seeking enforcement of pollution control regulations (directed toward halting reclamation of shorelands). In other respects, there seems to be significant divergence of goals, with the momentum on the side of the argument for continued lake degradation to benefit land-based activities. This particular barrier will have to be addressed within the project, if the project is to have any chance of successfully reducing water pollution and sustaining the coastal fishery.

Response: A strategic plan for the city of Alexandria will be prepared by the General Organization for Physical Planning (GOPP) under the Ministry of Housing during project implementation and will address issues related to land-based activities. In that context, a strategic environment assessment (SEA) for the development of the land around the Lake and Wadi (Valley) Mariout will be developed. Furthermore, the drafting of the Alexandria CZM plan as part of the GEF project will be closely coordinated with the preparation of the Strategic Plan for Alexandria by the GOPP.

10. *Comment:* The commitment of the Government of Egypt to support the project activities provides some assurance that the project results will be continued beyond the immediate period of project implementation with GEF support. However, the demise of the National Committee for Coastal Zone Management, noted as having been "reinstated" pursuant to Prime Ministerial Decree No. 266 of 2007, does indicate a significant degree of risk.

Response: Significant steps have been taken by EEAA since 2007 testifying to the continued commitment of the Government of Egypt towards sustainable coastal zone management. The revisions of Law 4/1994 for the environment (as amended by Law 9 for the year 2009[17]), include articles defining the coastal zones (Art.39) and the Integrated coastal zone management (Art.40 & Art.48), and articles that assign to EEAA the role of preparing a National Strategy for ICZM (Art.5) to ensure sustainable development of coastal area. The revised law also assigned to the Minister of State for Environment, the role of coordination with the relevant agencies/stakeholders to achieve the [water protection] objectives, as well as the objectives of the integrated coastal zone management. In early 2009, a series of workshops have been held to discuss the main components of a Draft National Strategy for Integrated Coastal Zone Management (Vision, Objectives and Priorities) under the auspices of the National Committee

[17] The relevant amendment text in English is available from the project files.

for ICZM. In addition, the executive regulations of the revised law (pending) are expected to establish a Governorate level Coastal Zone Management (CZM) Committee.

11. *Comment:* The project proposes to address a key element of sustainability through the strengthening of appropriate governmental units. The development of a trained cadre of individuals, the establishment of coordination mechanisms among the appropriate institutions, and the promulgation of the necessary enabling legislation are essential elements of the proposed project. To this end, the constitution of the project management unit (PMU) will be a critical element in ensuring the sustainability of the project outcomes. The composition of the project steering committee (PSC), likewise, will be a crucial element in ensuring dissemination of the project outputs and implementation/replication of project outcomes elsewhere in the coastal zone. It will be vitally important that inter-governmental coordinating mechanisms established for the project (under the auspices of the PSC?) be continued beyond the conclusion of the GEF-funded interventions in order to avoid a return to the sectoral conflicts and environmental degradation that has led to this project.

Response: Drawing from the experience of other GEF projects on CZM, special attention has been paid to participatory and monitoring aspects in the project design with the hiring of a communications, social and M&E specialists as part of the project TA. An institutional structure under the leadership of the EEAA will be put in place towards the end of the project to implement and monitor the implementation of the ICZM plans.

12. *Comment:* The implementation arrangements and institutional responsibilities (Annex 6) and procurement arrangements (Annex 8) provide some degree of assurance of effective project execution, although the financial management and disbursement arrangements remained to be completed at the time of the STAP review. These measures, combined with the monitoring and evaluation protocols adopted for the project set forth in Annexes 3, 10 and 11, would seem to adequately address these concerns, although the project supervision arrangements were not articulated to any degree in Annex 11. These areas should be addressed prior to project initiation.

Response: Arrangements on procurement, implementation and M&E have been developed in close collaboration with the EEAA during project preparation.

Key issue 6. Targeted Research Projects.

13. *Comment:* Targeted technical demonstration and capacity building projects are key features envisioned within the GEF International Waters Contaminant-based Operational Program. While not specifically articulated in the PAD, the development and pilot scale implementation of biofilm and instream wetland technologies are included as major elements of this proposed project (Annex 4). To this end, it is important that the demonstration projects be monitored and the results reported, using the information dissemination mechanisms previously identified, beyond the project period. Such continuity is totally consistent with the catalytic nature of the GEF, and an essential element to the sustainability of the project. Capacity building and institutional strengthening, envisioned in the PAD, thus become the basic building blocks upon which this project will succeed or fail, both from the point of view of its sustainability and from its scientific and technical integrity.

Response: Capacity-building and institutional strengthening activities have been built in project design and will be launched as soon as the project is initiated, including training on CZM practices, stakeholder consultations and coalition-building, participatory M&E system, study tour, and participation of the National Committee on ICZM as a scientific and advisory body.

Secondary Issues

Secondary issue 1. Linkage to other focal areas.

14. *Comment:* This project is formulated as an International Waters project under OP 10 of the GEF *Operational Strategy*. No specific cross-cutting areas have been identified, although land degradation and hazardous waste management (POPs) are identified as key environmental issues faced by Egypt. The in-stream remedial measures to be implemented as pilot demonstration projects will address elements of the latter issue, while the strategies developed for inclusion in the coastal zone management plan must take the former into account if they are to be truly effective in moderating the current state of affairs.

Response: As part of the CZM master plan, a series of plans will be developed, addressing challenges related to shoreline management; land use; water quality monitoring and climate change/hazardous impact assessment. The issues of land degradation and hazardous waste management (POPs) will be reviewed during the preparation of the plans.

Secondary issue 2. Linkages to other proposals.

15. *Comment:* The project recognizes the complementarities between the management of Lake Mariout coastal zone, under the auspices of the Mediterranean Sea Large Marine Ecosystem Project, and other ongoing initiatives, including the WB Egypt Pollution Abatement Projects and other bilateral and multilateral initiatives. The inclusion of the GEF-financed activities within the implementation arrangements under the Strategic Partnership for the Mediterranean Sea Large Marine Ecosystem Program provides specific linkages with regional seas projects and related environmental and economic development projects being conducted in the Egyptian coast zone (as enumerated in section III.A. of the PAD).

In addition, it is recommended that the project make use of IW-LEARN and related mechanisms for dissemination of the project outcomes and outputs. Such an overt linkage provides a high degree of sustainability and connectivity to this project, and contributes to the likelihood that lessons learned can and will be transferred beyond the project boundaries to other, similar situations and locations within the Mediterranean Sea region and beyond.

Response: The project will build on the experiences accumulated by the National Water Resources Center (NWRC), and its Drainage Research Institute about the use and replication of low-cost mechanisms to improve water quality in the agriculture drains. Options to extend the technology for treatment of domestic sewage in the villages located on the fringes of the Delta where land is more readily available will be assessed. Please see response to comment 6 above about dissemination of the project outcomes.

Secondary issue 3. Other beneficial or damaging environmental effects.

16. *Comment:* The project has no known or obvious damaging environmental impacts associated with the activities proposed to be executed. The beneficial impacts of the project have been articulated and include the implementation of targeted interventions that address diffuse land-based sources of pollution of the aquatic environment. The provision of trained staff and institutional capacities needed to enforce and enhance existing environmental protection regulations, and the dissemination of successful management measures further contribute to the benefit of this region. Nevertheless, the creation of specific mechanisms to address cross-sectoral resource conflicts—associated with land-based developments, shore land reclamation, and loss of aquatic habitat—has not been fully articulated and remains a significant risk, as indicated in the critical risks matrix.

Response: Please see response above to comment 4.

Secondary issue 4. Degree of involvement of stakeholders in the project.

17. *Comment:* The project involves some of the stakeholders, including fishermen and governmental agencies. The project explicitly indicates support for capacity building and institutional strengthening with respect to governmental organizations. Unfortunately, a mechanism for including proponents of land-based activities, that affect the shoreward areas of the coastal zone and contribute to the filling of Lake Mariout, are not stated, and introduce a significant risk into the project as has been noted in the critical risks matrix. The involvement of all stakeholders in the development of a strategy for the management of the coastal zone and its resources is critical to the sustainability of the project.

Response: Although the project is expected to have positive impact on the livelihood of the fishermen community on the long-run, pollution from industries located close to the Lake and pressures from proponents of land-based activities will remain a challenge. To address this, a comprehensive strategy for stakeholders' involvement will be elaborated including regular consultations and development of a communication strategy. In addition, encouraging synergies with other Bank projects in Egypt such as the Integrated Sanitation and Sewerage Infrastructure Project (ISSIP) and building relationships with the NOPWASD will create an opportunity to leverage government support and participation of all stakeholders in the project.

Secondary issue 5. Capacity building aspects.

18. *Comment:* Capacity building is a critical element of the proposed project. Creation and strengthening of the appropriate institutions, conduct of the demonstration projects, and the training of agency staff form the core of the GEF-financed elements of the Project. Annex 4 briefly introduces these issues as part of the proposed stakeholder involvement process and monitoring and evaluation (M&E) process. Further elaboration of these mechanisms is noted to be an element to be completed during project appraisal. As noted above, this element should be implemented in conjunction with the best practices data base of IW-LEARN to enable wider dissemination of practices that have positive effects beyond the project area. Such knowledge is an essential element in building capacity and strengthening institutions in the region and beyond.

Response: Beyond a technically focused team, special expertise in the field of communications, stakeholder outreach, community development and institutional strengthening will be hired under the project technical assistance building on lessons learned from other GEF projects in

Egypt, including the Lake Manzala UNDP-GEF project. A communications specialist and M&E specialist will be hired by the project to raise public awareness and generate consensus on sustainable coastal zone management and project interventions if broader social and institutional goals are to be achieved.

Secondary issue 6. Innovativeness.

19. *Comment:* Development of appropriate practices for the management of coastal lakes and the coastal zone is a critical element for the protection of the marine environment, within the context of an integrated land- and water-based management program. By creating and strengthening the appropriate human resources and institutions, creating inter-institutional coordination and cooperation mechanisms, and developing appropriate remedial technologies, such as the in-stream biofilm reactors, the proposed program will complement other pollution abatement practices being implemented by the basin governments and stakeholders. In particular, the development of the biofilm reactors under the rigorous conditions present in the Lake Mariout area will provide an important new tool for replication in other drainage areas where diffuse source pollution is a major concern and where site-specific remedies are not practicable. The proposed actions and approaches reflect state-of-the-art practices. Their application to Lake Mariout, and the near shore areas of the Mediterranean Sea, will significantly advance current environmental management practices in the Metropolitan Alexandria region, as well as within the Mediterranean Sea region as a whole. In this manner, the project promotes innovation and development of regionally applicable remedial practices and experiences.

Response: To treat the more diffuse land-based sources of pollution entering Lake Mariout, the project proposes to use in-stream treatment (for example bio-films), which introduces a dynamic, modular and easily manageable technique mechanism. The in-stream treatment, although relatively new in Egypt, has been used successfully by the MWRI as a pilot and has been recommended for broader application elsewhere in the country by other agencies. As part of the package proposal, the synergetic effect of the in-stream bio-film and the in-stream aeration will give the in-lake engineered wetland a medium water quality permitting the latter to initiate its own ecological cycle that will permit the cultivation of duckweeds. The duckweeds will in turn absorb the nutritive salts and oxygenate the effluent and the sale of the duckweeds will cover the running cost of the aeration. The project thus proposes innovative integrated and natural process based options such as wetlands which are used as nutrient traps to treat more diffuse pollution load coming from upper parts of the water catchment where conventional treatment solutions are not feasible. Feasibility studies and detailed design will be done in the course of Project implementation, following detailed field surveys and investigations, for which provisions have been made under the Project.

Annex 17: Maps

EGYPT, ARAB REPUBLIC OF: Alexandria Coastal Zone Management Project (Under the Investment Fund for the Mediterranean Sea Large Marine Ecosystem)