



GABAL EL-ASFAR WASTEWATER TREATMENT PLANT – STAGE II PHASE II PROJECT COUNTRY: EGYPT

PROJECT APPRAISAL REPORT

June 2009

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Currency Equivalents

June 2009

1 UA	=	Euro (EUR)	1.09806
1 UA	=	US Dollar (USD)	1.54805
1 UA	=	Egyptian Pound (EGP)	8.70631
1 EUR	=	EGP	7.928811

FISCAL YEAR

1st July- 30th June

WEIGHTS AND MEASURES

1 metric tonne	=	2204 pounds (lbs)
1 kilogramme (kg)	=	2.200 lbs
1 metre (m)	=	3.28 feet (ft)
1 millimetre (mm)	=	0.03937 inch (“)
1 kilometre (km)	=	0.62 mile
1 hectare (ha)	=	2.471 acres

ACRONYMS AND ABBREVIATIONS

ADB/ ADF	African Development Bank / African Development Fund	GTZ	German Technical Cooperation
AFD	Agence Française de Développement	HCWW	Holding Company for Water and Wastewater
AFESD	Arab Fund for Economic and Social Development	ICB	International Competitive Bidding
APRP	Agricultural Policy Reform Programme	IWRM	Integrated Water Resources Management
BOD	Biological Oxygen Demand	JBIC	Japan Bank for International Co-operation
CBE	Central Bank of Egypt	KfW	Kreditanstalt für Wiederaufbau
CAPW	Construction Authority for Potable Water and Wastewater	LCD	Litres per Capita per Day
		MALR	Ministry of Agriculture and Land Reclamation
CPWC	Cairo Potable Water Company	MHP	Ministry of Health and Population
CWO	Cairo Wastewater Organisation	MHUUD	Ministry of Housing, Utilities and Urban Development
DANIDA	Danish International Development Agency	MIC	Ministry of International Cooperation
DBO	Design-Build-Operate	MOF	Ministry of Finance
EEAA	Egyptian Environmental Affairs Agency	MWRI	Ministry of Water Resources and Irrigation
EGP	Egyptian Pound	NEAP	National Environmental Action Plan
EIA	Environmental Impacts Assessment	NOPWASD	National Organisation for Potable Water and Sanitary Drainage
EIB	European Investment Bank	NWRP	National Water Resources Plan
EIRR/FIRR	Economic/Financial Rate of Return	O&M	Operation and Maintenance
ESMP	Environmental and Social Management Plan	PIT	Project Implementation Team
EU	European Union	SA	Special Account
EWRA	Egyptian Water Regulatory Agency	SPN	Specific Procurement Notice
GAWWTP	Gabal El-Asfar Wastewater Treatment Plant	SS	Suspended Solids
GDP	Gross Domestic Product	UA	Unit of Account
GCSDC	Greater Cairo Sanitary Drainage Company	UNDP	United Nations Development Programme
GOE	Government of Egypt	USAID	United States Agency for International Development
		WB	World Bank

Loan Information

Client's information

BORROWER:	Government of the Arab Republic of Egypt (GOE)
EXECUTING AGENCY:	Construction Authority for Potable Water and Wastewater (CAPW)

Financing plan

Source	Amount (UA)	Instrument
ADB	48.56 million	Loan
AFD	45.54 million	Loan
GOE	118.54 million	Government Contribution
TOTAL COST	212.64 million	

ADB's key financing information

Loan / currency	UA / Euro
Interest type	Fixed Base Rate
Lending Margin	40 Basis Points
Tenor	240 Months
Grace period	84 Months
EIRR, NPV (base case)	(14.7%, NPV EGP 567.4.million)

Timeframe - Main Milestones (expected)

Concept Note approval	January, 2009
Project Approval	October, 2009
Effectiveness	December, 2009
Completion	June , 2014
Last Disbursement	December, 2015
Last Repayment	20 years, December 2029

Project Summary

1. Project Overview

1.1 The Government of Egypt (GOE) has an ongoing investment programme aimed at addressing the national issues of public health and environmental protection, including the protection of the country's finite water resources. The proposed Gabal El-Asfar Wastewater Treatment Plant (GAWWTP) – Stage II Phase II, project is part of that programme. The GAWWTP has a catchment area covering almost the entire middle and lower parts of Cairo East. The main project's output will be a 500,000 m³/d primary and secondary wastewater treatment capacity added to the existing GAWWTP. The cost of putting up this additional treatment capacity is estimated as Euro 233.5 million. The works will be carried out over an implementation period of 4 years - from 2010 to June 2014.

1.2 The people living within the entire catchment of the treatment plant (approx. 8 million) will benefit from the project as it will capture and treat the excess wastewater generated in these areas, and currently being disposed without treatment. The additional capacity will benefit an extra population of about 2.5 million people, in addition to those people living downstream of the plant (approximately 785,000), along the drainage system into which the wastewater flows. These are the people who have to cope with increased pollution from untreated wastewater discharged into these drains.

1.3 The project will have a direct positive impact on its beneficiaries largely through improved water quality in the drainage system, including Lake Manzala and eventually the Mediterranean Sea. Some of this water is used for agriculture while the rest ends up in the Lake, where fishing is a major source of income for those living along its shores. Reduction of pollution in the Mediterranean Sea, the eventual destination of the effluent will also promote improved tourism in the country by providing clean environment.

2. Needs Assessment

Currently, for Greater Cairo alone, it is estimated that approximately 0.80 million cubic meters per day (Mm³/d) of raw wastewater cannot be treated due to inadequate capacity, and is therefore discharged untreated into the drains. This wastewater is a serious source of pollution to the environment including the country's water resources, and the Government is determined to resolve the problem. The Government is making major efforts to increase wastewater treatment capacity in order to eliminate this threat to its finite water resources. For example, in the current five year development plan, an estimated EGP 5.55 billions (bn) is planned for development of the wastewater infrastructure in Greater Cairo alone. The proposed project is part of this plan. Among other alternatives tried, the proposed level of treatment, i.e. up to secondary treatment level is now considered the most effective option. Earlier approaches where the wastewater would only receive primary treatment before disposal did not eliminate the problem of pollution of the environment and ended up being a source of pollution especially for ground water.

3 Bank's Added Value

Bank's participation in the project will be the first in the sector in Egypt for a long time. Bank's participation in financing the project will contribute to the significant resources required for the country to realize its wastewater infrastructure development programme, aimed at protecting the environment. Such participation would also make the Bank a more active member of the

development partners' group in the country. During constant dialogue with the Country, the Bank would have an opportunity to bring its accumulated experience in the development of the water and sanitation sector gained from elsewhere on the continent. Such experience includes sector reforms in order to improve service delivery, the need to integrate promotion of sanitation, hygiene and environment, with such developments, as well as promotion of active participation of the beneficiaries.

4. Knowledge Management

Bank's participation in the financing of a project of this nature and magnitude, will offer an excellent learning opportunity in design, implementation and operation and maintenance (O&M) of large sewerage projects. All this knowledge will be captured in the various project documents including quarterly progress reports, audit reports, midterm review and completion reports. The knowledge will be shared with other complexes of the Bank and also with the other regional member countries, through international forums, seminars and workshops.

VII) Logical Framework

GABAL EL-ASFAR WASTEWATER TREATMENT PLANT - STAGE II PHASE II

HIERARCHY OF OBJECTIVE	EXPECTED RESULTS	REACH BENEFICIARIES	PERFORMANCE INDICATORS, SOURCE, PERIODICITY	INDICATIVE TARGETS, TIMEFRAME	RISKS, MITIGATING MEASURES
<p>Goal:</p> <p>To achieve total coverage of improved sanitation services throughout the country.</p>	<p>Impact:</p> <p>Increased access to improved sanitation services</p> <p>Clean environment</p> <p>Improved public health;</p>	<p>Beneficiaries</p> <p>Entire population of Egypt</p>	<p>Impact Indicators</p> <p>Coverage of improved sanitation service</p> <p>Incidence of water and sanitation related diseases</p> <p>GDP health expenses</p> <p>Source: National Statistical Report, Baseline data collected under the studies and Government statistical bulletins and economic report</p>	<p>Access and coverage of improved sanitation from about 66% in 2008 to 100% by 2037.</p> <p>Infant mortality decreased from 27.9/1000 in 2008 to less than 5/1000 by 2037</p> <p>Under five mortality rate reduced from 33/1000 in 2008 to less than 10/1000 in 2037.</p> <p>Reduction of GDP health expenses on diarrhea from 0.8% in 2007 to less than 0.1% by 2037</p>	<p>Continued government support and prioritization of sanitation sub-sector development.</p> <p>Climate change effects on water sources and its availability. Mitigation through resilience/adaptation strategies</p>
<p>Purpose:</p> <p>To improve the quality of waste water discharged into the drainage system in Cairo East</p>	<p>Outcomes:</p> <p>Wastewater discharged meets national environmental standards;</p> <p>Better quality water in the drain system and Lake Manzala</p> <p>Improved public health among the population in the project site, along the drainage system, and around Lake Manzala</p>	<p>Beneficiaries</p> <p>Population of 8 million living within the catchment of the of GAWWTP and estimated more than 785,800 living downstream of the plant</p>	<p>Outcome Indicators:</p> <p>Quality of wastewater effluents discharged into surface water courses (BOD, SS).</p> <p>Incidence of water borne diseases</p> <ul style="list-style-type: none"> • Sources <ul style="list-style-type: none"> • Performance reports of CAPW through operation contractor. • CAPW Quarterly Progress Reports • Works Commissioning Reports and Borrowers Project Completion Report. 	<p>Wastewater quality meets recommended standards - SS and BOD.5 reduced from 350 mg/l and 250 mg/l to 20 mg/l and 20mg/l respectively by 2016;</p> <p>Reduce incidence of water borne diseases from 17000cases/100,000 in 2007 to 3000 by 2016.</p>	<p>Institutional evolution of wastewater agencies matches their operational obligations at the commissioning of the works. However, there is a risk of slow down especially in passing of the plant to the eventual owner, GCSDC. GOE is required as a condition of the loan to provide a timeframe for these changes.</p> <p>Gradual move towards cost recovery for efficient service delivery. There is a risk of the momentum not being maintained. However, GOE's strong commitment is demonstrated by the strong measures taken towards cost recovery for these services, initially targeting O&M recovery.</p> <p>The plant is expected to operate as per design requirement when completed. There is however the risk of failure to operate and maintain the plant in a sustainable</p>

					manner thereafter. However, there is a 2 year O&M contract (with the contractor) accompanied by intensive on the job training of local staff.																
<p><u>Activities:</u></p> <p>- Engineering services</p> <p>- Civil works and installation of plant and equipment;</p> <p>- Capacity building and promotion of improved sanitation, hygiene and environment</p> <p>Inputs/resources (in millions):</p> <table> <tr> <td>ADB</td> <td>:</td> <td>UA</td> <td>48.56</td> </tr> <tr> <td>AFD</td> <td>:</td> <td>UA</td> <td>45.54</td> </tr> <tr> <td>GOE</td> <td>:</td> <td>UA</td> <td>118.64</td> </tr> <tr> <td>Total</td> <td>:</td> <td>UA</td> <td>212.64</td> </tr> </table>	ADB	:	UA	48.56	AFD	:	UA	45.54	GOE	:	UA	118.64	Total	:	UA	212.64	<p><u>Outputs:</u></p> <p>Increased treatment capacity of GAWWTP</p> <p>Increased flow of improved/treated effluent into the drains and Lake Manzala</p> <p>Electricity generation</p> <p>Sludge production</p> <p>Increased ability of CAPW and GCSDC to manage environmental and social challenges</p> <p>Increased awareness of improved sanitation, hygiene and environment;</p>	<p><u>Beneficiaries</u></p> <p>Approximately 2.5 million people in Cairo East served by the proposed plant extension and approximately 785,500 living downstream;</p> <p>CAPW and GCSDC</p>	<p><u>Output Indicators</u></p> <p>Additional Treatment capacity</p> <p>Treated effluent discharged into drains;</p> <p>Electricity produced</p> <p>Availability of sludge</p> <p>Trained professional staff including females in CAPW</p> <p>Campaigns in improved sanitation hygiene and environment</p> <p>Sources:</p> <ul style="list-style-type: none"> ◆ CAPW reports ◆ Quarterly Progress reports ◆ Project supervision reports ◆ Mid-term review report ◆ Project Completion Report 	<p>An additional 500,000 m³/d treatment capacity added to GAWWTP by 2014;</p> <p>About 182.5 million m³ year of treated wastewater (effluent) discharged into the drainage system by 2014</p> <p>Approximately 6.5 MW of electricity produced by 2014;</p> <p>Approximately 1000 tonnes of sludge produced per day by 2014;</p> <p>More than 230 staff of CAPW & GCSDC trained on gender, water and sanitation issues (both men and women) by 2014;</p> <p>30% increase in residents practicing improved hygiene behaviour by 2014, especially among children and women.</p>	<p>Risk of implementation delays. To be mitigated through a) CAPW's experience in implementing projects of this type and size, b) the major works will be contracted out as one big contract for design and build, c) recruiting experienced engineering supervision consultant with sufficient experience, and d) close supervision by the GOE, AFD and the Bank. during project implementation.</p>
ADB	:	UA	48.56																		
AFD	:	UA	45.54																		
GOE	:	UA	118.64																		
Total	:	UA	212.64																		

REPORT AND RECOMMENDATION OF THE MANAGEMENT OF THE ADB GROUP TO THE BOARD OF DIRECTORS ON A PROPOSED LOAN TO EGYPT FOR THE GABAL EL ASFAR WASTEWATER TREATMENT PLANT (GAWWTP) PROJECT – STAGE II PHASE II

Management submits the following Report and Recommendations on a proposed loan for UA 48.56 million to finance the Gabal El Asfar Wastewater Treatment Plant (GAWWTP) Project – Stage II Phase II in Cairo, Egypt.

I – STRATEGIC THRUST & RATIONALE

1.1. Project linkages with country strategy and objectives

1.1.1 Water is one of the most important resources of Egypt. In recognition of the increasing limitation of this resource, the government within its Integrated Water Resources Management Strategy is undertaking measures for its efficient use, protection from pollution including that related to wastewater disposal, as well as development of new sources. This strategy reflects the Government of Egypt's (GOE) Development Agenda for the sector, which includes a) environmental protection b) reclaiming more desert land for development, and (c) correcting spatial imbalance. The pursuit of this agenda and achievement of its goal and expected outcomes is being guided by a ten points action programme including among others: i) enhancing economic performance; ii) protection of natural resources; iii) developing basic public services; and iv) increased investment and employment generation, presented in Parliament in 2006. The proposed project is included in the current GOE's 6th Five Year Development Plan (2007-12). It will provide a basic public service of improved sanitation as well as protect the environment, and therefore supports the above action points and hence contributes towards achievement of the Government's overall development agenda.

1.1.2 The Bank Group's assistance strategy for Egypt is elaborated in the Country Strategy Paper (2007-2011) and will, support, among others, Pillar I - infrastructure development (in energy, water & sanitation, and transport) critical for enhancing the efficient functioning of the private sector and the entire economy as a whole. The project which will provide essential infrastructure in the water and sanitation sector therefore falls within the Bank's Strategy for support for Egypt. Furthermore, the proposed project is one of those specifically identified in the updated CSP Mid Term Review Progress Report (2009), under Pillar I (Infrastructure – water and sanitation).

1.2. Rationale for Bank's involvement

1.2.1 Egypt is already using almost 100% of its available renewable water resources. More pressure on the limited resources is expected with continued growth of the country's population and economic development. Within the context of its IWRM strategy, GOE is addressing the challenges being faced by the sector, the most serious being the ever growing water demand and increasing pollution. The key pillars of the IWRM strategy include promoting efficiency in the use and management of the water resources and its conservation through streamlined and decentralized sector institutions. Inadequate wastewater treatment capacity is one of the major constraints in reducing water resources pollution. For example, approximately 0.80 Mm³/day from Greater Cairo alone is being discharged untreated into the

environment. The proposed project is one of the several similar developments included in the country's current 6th five year plan (2007-12), aimed at addressing this problem.

1.2.2 The proposed project is in line with the Bank's Medium Term Strategy 2008-12, which highlights the need for selectivity by giving particular operational focus on infrastructure development and governance, in order to promote more robust private sector. In accordance with its Integrated Water Resources Management (IWRM) policy, the Bank is ready to participate in the development of this sub-sector in the country. The Bank's comparative advantage in such participation would bring into the country, its cumulative experience and positive achievements in implementation of water and sanitation developments in other regional member countries. Furthermore, the water and sanitation sector issues being all cross-cutting, Bank's support for the sector would complement its engagement in other sectors in the country's economy.

1.3. Donors coordination

Sector or subsector*	Size		
	GDP	Exports	Labor Force
[Water and Sanitation]	[0.32%]	n.a	[1.0%]
Players - Public Annual Expenditure (average 2007-2012)**			
Government	Donors		
[UA 1583 m]	[UA 105.4 m]	[Germany]	[1.5%]
[93.4%]	[6.6%]	[World Bank]	[1.0%]
		[EC]	[0.9%]
		[USAID]	[0.8%]
Level of Donor Coordination			
Existence of Thematic Working Groups			[Y]
Existence of SWAPs or Integrated Sector Approaches			[N]
ADB's Involvement in donors coordination***			[M]****

**** L: leader, M: member but not leader, none: no involvement

1.3 The water supply and wastewater sector in Egypt is attracting a lot of attention from many development partners within the framework of priorities set by the government. Coordination of partners active in the sector (including water resources and irrigation) is the mandate of the DAG sub-group on Water and Sanitation. The Bank (through EGFO) is an active member of this group. Others include the USAID, EU, World Bank, Germany (KfW/GTZ), the Netherlands, the French Development Agency (AFD), and JICA. The main development partners active in the sector are shown in the above matrix.

II – PROJECT DESCRIPTION

2.1. Project components

2.1.1 The Government’s long term development goal for the sector is to achieve total coverage of improved sanitation services throughout the country. The main direct impacts of this will be improved public health and a cleaner environment. The proposed project will contribute towards the attainment of the government’s goal and consequently boost socio-economic development.

2.1.2 The project objective is to improve the quality of wastewater discharged into the drainage system in Cairo East, thereby contributing to increased coverage of improved sanitation and clean environment for the nearly 8 million people living in this area. The project entails construction of the next phase of GAWWTP (Stage II Phase II). This phase will provide an additional wastewater treatment capacity of 500,000 m³/d. The wastewater will undergo full treatment, including preliminary, primary and secondary treatment. Provisions are also made to chlorinate the effluent when all the wastewater reaching the drains is adequately treated. The proposed extension will bring the total treatment capacity at Gabal El Asfar plant to 2.50 Mm³/d. The project components are summarized in the table below, while more details on both the sector and the project are provided in Annex B2.

Table 2.1: Project components

Nr.	Component name	Est. cost '000 UA	Details
1	Wastewater treatment expansion works	203,770	Construction works of the Stage II Phase II of GAWWTP, to increase the current installed capacity of 1.75 Mm ³ /d (plus another 300,000 m ³ /d Stage I optimization works almost completed) with an additional 500,000 m ³ /d. This will bring the total plant’s capacity to 2.50 Mm ³ /d. The works comprise construction of facilities for preliminary treatment (grit, grease removal, etc.), primary settlement tanks, biological treatment, secondary settlement tanks, provisions for chlorination of effluent, and discharge of effluent, as well as sludge treatment and disposal. CH ₄ generated during sludge digestion will be captured and used for electricity generation, to supply part of plant energy requirements. It will also include O&M of the new facilities for a two years post construction period.
2	Institutional Support and Sanitation & Hygiene Promotion.	660	Provision of on-the job training on O&M of selected staff of both CAPW the implementing agency and GCSDC the eventual beneficiary of the project. In addition, this component covers capacity building and technical support of EA on environment and social safeguards. Awareness campaigns will be conducted for the people living along the drainage system and around Lake Manzala to sensitise them of the importance of and need to practise improved sanitation and hygiene, and environmental protection. It also includes auditing of project accounts.
3	Engineering Services (for Project Management)	8,210	Provision of engineering services to review and update existing bid documents, assist with procurement and supervision during construction, works commissioning and monitoring during O&M period including staff training.
	Total	212,640	

2.2. Technical solution retained and other alternatives explored

2.2.1 The proposed extension of GAWWTP will capture and treat the raw wastewater currently being discharged untreated, and will be very similar to the last plant extension, i.e. Stage II Phase I, with a similar capacity of 500,000 m³/d. This immediate previous phase was completed in 2004 and is operational. The process will incorporate preliminary, primary and secondary treatment, with provision for chlorination of the effluent later on. The aim of this level of treatment is for the effluent to meet the national set standards (suspended solids (SS) 30 mg/l and five days biological oxygen demand (BOD.5) 30 mg/l). The project conforms to the GOE strategy of achieving high quality effluent which can safely be disposed with minimum threat to the environment including country's water resources. The technology employed is widely and successfully being used in the country and elsewhere in the world.

2.2.2 Compared to other similar Bank's financed projects, the proposed project has some interesting and unique features. These include the sheer size of the plant (500,000 m³/d), and the level of technology employed in the process, i.e. advanced treatment process incorporating activated sludge treatment, with the methane gas produced being used for generation of electricity.

2.2.3 Some of the other alternative approaches considered for wastewater treatment include:

Table 2.2: project alternative considered and reason for rejection

Alternative name	Brief Description	Reasons for Rejection
Undertaking only partial treatment of the wastewater.	Undertaking only preliminary and primary treatment, and disposing the resultant effluent and sludge in the desert.	This was the initial approach adopted in most of the older wastewater treatment plants including the Abu Rawash, the largest plant in Cairo West with an installed capacity of 400,000 m ³ /d. Unfortunately, it has been found that due to the poor quality of the effluent, even its disposal in the desert is a serious source of contamination of ground water sources. There are plans now to upgrade these older plants to at least include secondary treatment.
Using waste stabilization ponds for wastewater treatment.	Such an option would entail construction of treatment facilities comprising anaerobic, facultative and aerobic maturation ponds, followed by disposal of the effluent.	Although this treatment method might be cheaper and could achieve similar level of treatment as that proposed, it would however require a vast amount of land for the volumes involved. For example, the proposed Stage II Phase II alone would require more land than the total allocated for all the three Stages of GAWWTP. It is not possible to meet such high demand for land within close reach of the wastewater generation areas, at the same time close to enough to potential areas of reuse of effluent.

2.2.4 The GOE realises the importance of tapping the private sector resources for the development of this sector. In order to attract the private sector, it has been making efforts to create conducive business environment to enhance and strengthen the role of the private sector in the economy. For the water sector, the Government has recently launched a tender for private sector participation in the construction and operation of New Cairo Water Treatment Plant (250,000 m³/d). It is expected that experience gained from this venture will be applied elsewhere in the sector including wastewater treatment and disposal.

2.3. Project type

The GAWWTP Stage II Phase II Project is a stand-alone project. Due to the size and complexity, this has been so far the mode of implementation of similar projects in the water and wastewater projects in Egypt. However, possibilities of a SWAP approach for the sector is currently being studied, particularly for rural based programmes.

2.4 Project cost and financing arrangements

2.4.1 The total cost of Stage II Phase II of GAWWTP is estimated at UA 212.6 million (Euro 233.5 million), net of taxes and duties, of which UA 96.40 million (45.3%) is in foreign currency and UA 116.30 million (54.7%) in local costs. The costs are derived from actual costs of the recently completed Stage II Phase 1 (2004) and from the ongoing Optimization Works, taking into account inflation to date, as well as experience from similar ongoing operations in the country and in the region. A physical contingency of 10% and a price contingency of 3% per annum have been allowed in the cost estimates.

Table 2.3: Project cost estimates by component ['000 UA equivalents]

	(UA '000)			%	% Total
	L. C.	F. C.	Total	Foreign	Base
				Exchange	Costs
I) Wastewater Treatment	93,533	75,451	168,984	44.6	95.8
II) Institutional Support and Sanitation & Hygiene Promotion	546	-	546	-	0.3
III) Engineering Services	4,539	2,269	6,808	33.3	3.9
Total base cost	98,618	77,720	176,339	44.1	100.0
Physical Contingencies	9,862	7,772	17,634	44.1	
Price Contingencies	7,796	10,872	18,668	58.2	
Total Project Cost	116,276	96,365	212,641	45.3	

The Bank will finance component I.

2.4.2 The cost of Stage II Phase II of the GAWWTP will be financed by GOE, and jointly by ADB and AFD, as shown in Table 2.4 below. The Bank will finance UA 48.56 million, contributing 23% of the total project cost. The proposed ADB financing conforms to the Bank's Country Strategy Paper 2007-2011. The joint mission (by ADB and AFD) discussed and agreed with the relevant Ministries on the above financing and the proposed conditions stated in Section V of this document. AFD has already approved its financing in May 2009.

Table 2.4: Sources of financing ['000 UA equivalents]

Source	UA'000			%Total
	L. C.	F. C.	Total	
ADB	-	48,560	48,560	22.8
AFD	-	45,535	45,535	21.4
GOE	116,276	2,270	118,545	55.7
Total	116,276	96,365	212,641	100.0

Table 2.5: Program cost by category of expenditure ['000 UA equivalents]

Category of Expenditure		(UA '000)			Foreign	Base
		L. C.	F. C.	Total	Exchange	Costs
A.	Works	93,533	75,451	168,984	44.6	95.8
B	Goods					
C	Services	4,539	2,269	6,808	33.3	3.9
D.	Miscellaneous	546	-	546	-	0.3
	Total Base Costs	98,618	77,720	176,339	44.1	100.00
	Physical Contingencies	9,862	7,772	17,634	44.1	
	Price Contingencies	7,796	10,872	18,668	58.2	
	TOTAL PROJECT COSTS	116,276	96,365	212,641	45.3	

Table 2.6: Expenditure schedule by component ['000 UA equivalents]

	2010	2011	2012	2013	Total
I) Wastewater Treatment	10,752	49,811	47,661	60,761	168,984
II) Institutional Support and Sanitation & Hygiene Promotion	109	109	109	219	546
III) Engineering Consultancy	1,362	1,362	1,362	2,723	6,808
Total base cost	12,223	51,282	49,132	63,703	176,339
Physical Contingencies	1,222	5,128	4,913	6,370	17,634
Price Contingencies	403	3,435	5,011	9,818	18,668
Total Project Cost	13,848	59,845	59,056	79,891	212,641

2.5. Project's target area and population

The GAWWTP, whose expansion is the subject of this report is located in Cairo East. The plant's catchment area occupies the greater part of this part of the City, and is serving a population of approximately 8 million people. When completed, the proposed additional treatment capacity of 500,000m³/d will serve approximately 2.5 million more people in Cairo East. For these people, the project will provide a clean environment through safe wastewater disposal. Other beneficiaries of the project include people living in villages downstream of the plant and along the system draining the effluent from the plant into Lake Manzala, with an estimated population of more than 785,800. These families will also benefit from an improved environment and consequent reduction of diseases associated with untreated wastewater.

2.6. Participatory process for project identification, design and implementation

2.6.1 The proposed GAWWTP Stage II Phase II project is part of the Government's long term plans to address the multipronged issue of inadequate management in the past, of the country's limited water resources. The decision to increase the capacity of and make GAWWTP the main wastewater treatment plant for Cairo East was arrived at after a lot of consultations with all stakeholders both within the Government system and outside. Similarly, the future expansion programme of the plant is part of the Country's 2037 development master plans recently finalized (first half of 2009) after extensive consultations during their preparation.

2.6.2 Detailed environmental and social impact assessment studies have been carried out during the design phase and before the commencement of each construction phase of GAWWTP. Part of the studies included public consultation and sensitization of the likely impacts of the works on both the people and the environment. The feedback including concerns by the stakeholders has been taken into account while designing the Environmental and Social Action Plan (ESAP). As part of the institutional support component, regular public consultation will be undertaken during project implementation, just to keep the stakeholders updated on the progress.

2.6.3 The project pre-appraisal was jointly done by ADB and AFD. All the key stakeholders including officials of the relevant ministries of GOE, including officials of CAPW, MHUUD, MIC, Ministry of Agriculture and Land Reclamation, Ministry of Health and Population, Ministry of State for Environment Affairs, Ministry of Water Resources and Irrigation, HCWW, Greater Cairo Sanitary Drainage Company (GCSDC), and Greater Cairo Water Supply Company (GCWSC) were consulted. Similarly the development partners active in the sector (World Bank, GTZ, KfW, EU, JICA and USAID). The purpose of these consultations was to ensure that the proposed development was in conformity with and builds on the efforts by these other supporters for the sector and that it is part of the GOE strategy for the sector. Furthermore, both AFD and the Bank will closely monitor the project during implementation through joint missions, while at the same time keeping all these other stakeholders updated of the progress.

2.7. Bank Group experience, lessons reflected in project design

2.7.1 The Bank has no previous experience with projects in the water and sanitation sector in Egypt. However experience by other donors supporting the water and sanitation sector in Egypt has demonstrated the importance of addressing institutional issues as part of support for infrastructure development. Capacity building in the form of training of local staff and institutional support has been included as part of the proposed project.

2.7.2 Bank's past experience in other sectors of the economy as reflected in the latest Country Performance Report (CPR) of 2008, indicates that factors which could affect the performance, outputs and outcomes of projects in Egypt are mainly due to unfamiliarity with Bank's operational rules and procedures. These include procurement, disbursements and reporting, which have often lead to delays in implementation of projects. However, with the current practice where the Bank's Country Office now participates in the full project cycle including appraisal, EGFO is making commendable progress in addressing these issues.

2.8. Project's performance indicators

2.8.1 The project's main outcomes are a clean environment and subsequent improvement in health through reduction of water and sanitation related diseases. The main key performance indicators to be monitored during implementation include incremental capacity added to the treatment plant, quality of effluent and reception by communities of information campaign regarding improved sanitation and hygiene. The plant's throughput will be monitored everyday using the strategically placed measuring devices, while the quality of the effluent will be monitored using the existing laboratory at the site. The responsiveness of health messages will be monitored through regular surveys carried out on the concerned communities.

2.8.2 The implementing agency, CAPW through the Project Implementation Team (PIT) will be responsible for project implementation, and will monitor its outputs and the agreed performance indicators. The PIT shall closely monitor progress and liaise closely with both the project consultant and the contractor to ensure achievement of both its outputs and outcomes. Regular reporting by the PIT (progress reports, Audit reports, and midterm review report, etc) will keep the GOE and the financiers fully informed of the progress. The concerned parties will take timely action to comply with the recommendations contained in these reports.

III – PROGRAM FEASIBILITY

3.1. Economic performance

3.1.1 The key economic figures of the project are given in the following table.

Table C.1: key economic and financial figures

EIRR, NPV (base case)	(14.7%, NPV EGP 567.4 million at 10%)
NB: detailed calculations are available in Annex B7	

3.1.2 The principal benefits of the project are: increased amount of wastewater treated as a result of expanded capacity at GAWWTP and an increase in the use of sludge for the community. Improvement in wastewater quality will also benefit the environment by reducing the volume of untreated wastewater as a result of lack of plant capacity.

3.1.3 The project has other additional benefits, including avoided health costs, savings on treatment of contaminated water, sale of treated compost, local employment generated, and the use of methane (CH₄), a greenhouse gas, for electricity generation rather than being released into the atmosphere. The Economic Internal Rate of Return (EIRR) of the project is 14.7% based on a 25-year time frame. Sensitivity analysis to test the robustness of the EIRR was carried out to determine the impact of adverse variations. The EIRR varies in the range of 12.5% to 11.7%. The analysis shows that the project is economically viable and socially beneficial for Egypt. Annex 7 shows the assumptions and the calculations for deriving the EIRR.

3.2. Environmental and Social impacts

Environment

3.2.1. The project is classified as environmental category 1 given the nature and scope of operation handling a large magnitude of wastewater from dense population of about 20 million in Greater Cairo. The project will add 500,000m³ per day of wastewater treatment capacity to GAWWTP. The treatment will contribute to the abatement of pollution of the most urgent areas requiring cleaning for example Lake Manzala a recipient of the discharged wastewater; drainage system getting clogged with debris and solid wastes, and water borne diseases. The ESIA was posted to the Bank’s website as at 25th March 2008 and to the DARMS, and was also distributed to the Board (Ref No: ADB/BD/IF/2008/55). In addition a publication consultation report highlighting key issues of interaction between communities and the plant has been updated and posted to the Bank’s website on 8th July 2009.

3.2.2. A number of lessons including good practices have originated from the first phase stage one of the implementation of the ESMP in which 1,200,000m³ of wastewater per day is being treated. In part, laboratory analysis of BOD and SS are undertaken frequently and quality level of wastewater closely monitored, landscaping, tree planting, grassing, proper handling of sludge, treatment and control of flies and mosquitoes. The testing of quality of the waste water and keeping records of water level contamination are generating relevant data (information) necessary to inform decision-making, policy articulation and formulation of plans for pollution control and mitigation. Therefore, Phase II Stage II of the plant will enhance effectiveness, efficiency and supplement capacity development and engage local community participation in effective management and control of the environmental problems associated with smell, mosquitoes and flies considered a public nuisance.

3.2.3. Major impacts likely during construction, operation and implementation of the project include: dust emissions, smell/odour from sludge related to the treatment process in the primary and final settlement tanks, aeration chambers, and handling works, disinfection facilities and electro-mechanical works. In addition, ancillary works comprising sewer conveyance channels, access roads and administrative buildings will impact on the physical environment. The ESMP provides mitigation measures that will be incorporated in the contractor's terms of reference.

3.2.4. The ESIA makes provisions with budgetary requirements for effective mitigation measures estimated at 0.244 million Euros. The positive impacts of the project include and not limited to: reducing discharge of raw wastewater, improving the overall quality of the water in the drains and Lake El Manzala. Historical records show that Lake Manzala has shrunk from 1,700 square kilometers since 1950s to about 489 square kilometers in 2008. The disappearance of the Lake is resulting from climate change and to some extent due to continuous pollution from discharge of raw wastewater. Additional benefits to improving quality of the Lake will be providing treated water for possible irrigation of the desert and contributing to forestation.

Climate Change

3.2.5. The design of the project puts into account use of anaerobic digesters with ability to utilize methane a greenhouse gas for electricity generation. The power generation (about 6 MW) by the project will be used internally and cut down electricity costs. The daily production of Methane from the anaerobic digestion is 50,000Nm³. This means that 2,600Nm³ of CO₂ equivalent (1 CO₂ (e) = 5.2% CH₄) will be abated on a daily basis. Egypt's yearly emissions are about 13 million tons of CO₂ (e). The project will abate about 0.73% of the country's annual total emissions. Application of climate change resilience/strategies is useful to internalizing climate change benefits into the project as the process will generate additional revenue streams that will enhance its viability in the long run.

Gender

3.2.6 The GAWWTP discharges the effluents into the drainage system of Bahr El Baqar and eventually into the Lake Manzala. This has a considerable positive impact on the system as it will improve the overall quality of the water in the drain and the Lake. The increase of treated wastewater will improve public health and increase economic opportunity among the population of Cairo and along the drainage canals.

3.2.7 The hygiene promotion and reinforcement of environmental and social safeguards will reduce the direct contact with effluent in the drainage system. This will reduce incidences of water and sanitation related diseases, and hence the burden of nursing sick household members, a task that usually falls on women. One of the reasons of girls' drop-out is the repeated illness which leads to low school attendance. Better hygiene practices and restrictions on direct contact with the effluent will contribute to reduction of drop-out cases (est. 4.7% in 2008).

3.2.8 The project will assist the CAPW, GCSDC and relevant institutions to play their social role in building environmental health and social public awareness. It is intended to increase health and hygiene knowledge especially among women. Illiteracy among women in the project area is high (43 % illiterate) and given their roles in socialization of children and in managing cleanliness and improved hygiene at the household level, it is pertinent to address hygiene promotion from a gender perspective. It is necessary to equip the CAPW, GCSDC and relevant institutions with the essential knowledge on gender concern. Therefore, to start with, some gender sensitization training for CAPW, GCSDC and relevant institutional staff will be conducted (25% of the total staff of CAPW and GCSDC will be trained in gender issues). (*Detailed in annex B8*)

Social

3.2.9 The area surrounding the site consists of cultivated land through use of irrigation, with the desert alongside the expansion of random housing. Villages located in the Qalyublya Governorate, about 11,704 families with a total population of 52,900, living near the project site, as well as people living downstream of the plant, estimated at more than 785,000, will benefit from the project. The project will improve the environmental living conditions and will have a direct impact on public health by protecting available water resources including the Nile River from industrial and household wastewater pollution.

3.2.10 The increased flow of treated effluent into the drainage system, irrigation canals and waterways will enhance the agriculture food crops in the areas. This is in line with the national priority which is stressing the need to improve the water quality in secondary waterways and drains. Water in the Bahr El Baqar drain system is partially reused for irrigation. It was estimated in 2003 that about 232 Mm³ (19% of total drainage water) are used in irrigation observing the Egyptian laws and procedures of the re-use of the treated wastewater. The increase of treated wastewater flowing into the drainage ending in Lake Manzala will enhance the livelihood of fishermen in the areas and improve the marine habitat. In 2008, Lake Manzala was considered to have contributed about 60 000 tons of fish, representing 30% of the country's total production. The project therefore has a beneficial effect on the Lake as it reduces the amount of pollution from wastewater.

3.2.11 The planned interventions of the project will eventually reduce water related diseases which are still high in the project area despite the national efforts. This has been attributed to poor hygiene practices. The proposed institutional capacity building of CAPW and GCSDC will respond to the pressing socio-economic situation caused by population expansion and health and hygiene attitudes of the residents. This will be achieved through increased capacity for wastewater treatment in the plant before the effluent flows to Lake Manzala, where the water could be re-used for agriculture. The hygiene awareness campaign will be conducted for communities and school children and is expected to have a positive impact on environmental behaviour of citizens. Consequently, it is expected that the project interventions reduce water borne diseases from 17,000 cases / 100,000 in 2007 to 3000 / 100,000 by 2016.

This will contribute to the reduction of the infant mortality rate from 27.9 / 1000 in 2008 to 5/1000 by 2037. It will reduce as well the under-five mortality rate from 33/1000 in 2008 to 10/1000 by 2015.

3.2.12 The technical support regarding environmental and social aspects of the project will be given to the CAPW and GCSDC. It will enable them to deal with the imminent environmental and social problems. The project is also expected to offer a significant number of employment opportunities during construction period (about 250) and additional 250-300 permanent jobs with varied skills needed during operations and maintenance of the facility. The project will support a knowledge sharing program among the schools students, the workers in the plant and the people living in the areas through organized visits to the project sites and its surroundings.

Involuntary resettlement

3.2.14 No resettlement is expected from the project. GAWWTP is located at a distance of 30 Km in the North Eastern side of Cairo City. It is established on government land covering 1250 ha in the Egyptian eastern desert of Belbeis. Construction of GAWWTP has been done in stages and phases. The plant still has an area of 630 ha reserved for the remaining planned expansion up to Stage III. This land is already fenced off and is not available or accessible to the public.

IV – IMPLEMENTATION

4.1. Implementation arrangements

4.1.1 The GOE is the borrower of the ADB loan while CAPW, under the Ministry of Housing, Utilities and Urban Development (MHUUD), will be the Executing Agency (EA). The project will be implemented using existing structures and incorporating lessons and experience gained from similar operations, particularly Stage II Phase I completed in 2004. CAPW has the experience in the implementation of similar projects having implemented the earlier phases of the same plant as well as other sewerage projects. The EA will constitute within its Construction Department, a Project Implementation Team (PIT), comprising a Project Coordinator, 3 Engineers (Sanitary, Electrical and Mechanical), one of whom will be experienced in procurement/contracts management), Environmental/Social Specialist, and Project Accountant. The PIT will be directly in charge of the project implementation. Formation of PIT is made a condition prior to first disbursement. The Bank's EGFO will assist the executing agency in the application of the relevant Bank's rules and procedures. The CAPW shall be responsible for overall coordination of the project and reporting obligations to the financiers.

4.1.2 Procurement Arrangements: Procurement of the wastewater treatment expansion works co-financed by AFD and the Bank will be in accordance with the Bank's *Rules and Procedures for Procurement of Goods and Works*, using the relevant Bank's Standard Bidding Documents. CAPW as the executing agency will be responsible for all the procurement under the project (detailed in Annex B5).

4.1.3 Disbursement Arrangements: Disbursement of the ADB resources will be made using the direct payment and the reimbursement guarantee methods of disbursement.

4.1.4 Financial Reporting and Auditing: Assessment of the financial management of CAPW confirmed that the authority has moderately sound financial management systems, and experience in managing similar operations. The PIT will maintain separate accounts for the project showing all the required project financial details, including expenditures by component, category and financing source. CAPW will be responsible for the preparation and submission of withdrawal applications. An independent Auditor, acceptable to both the ADB and AFD, will undertake annual audits of the project. The funding for this is included as part of the Project cost. Certified copies of audited accounts will be submitted to the financiers by the EA within six months after the end of each financial year.

4.2. Monitoring: Critical milestone of project implementation are provided below:

Timeframe	Milestone	Monitoring process / feedback loop
September 2009	Loan Approval	ADB
December 2009	Loan effectiveness	Launching mission; fulfilment of Loan conditions
December 2009	Engagement of Engineering Consultant	Procurement and contract documents; Bank's "No objection"
June 2010	Submission of Bid Documents – Treatment Works	Bid Documents: Bank's "No objection"
January 2011	Award of Treatment Works Contract	Draft Contract Documents; Bank's "No objection"
February 2011	Start of construction works	Tender and contract documents; Bank's "No objection"; supervision monthly reports; annual and quarterly reports and Bank's comments on the reports; supervision missions
March 2012	Mid-term review	Annual and quarterly reports and Bank's comments on the reports; Audit reports; supervision missions
March 2014	Project completion	Commissioning of works
April 2014	Commencement of O&M	Supervision
June 2016	Completion of O&M	Project Handover

4.3. Governance

4.3.1 On the whole, GOE has emerged as a strong supporter of transparency and good governance in all government operations. The people's Assembly of Egypt voted to ratify the UN Convention on Anti-Corruption in December 2004 and the country deposited the instrument of ratification on 25 February 2005, making it the 18th country to ratify the convention. Furthermore, a National Committee on Transparency and Integrity was established in 2007 to support efforts to combat corruption and enhance transparency and accountability in public affairs. It involves both administrative and civil society representatives and acts to support the implementation of the UN Convention on Anti-Corruption.

4.3.2. Regarding procurement, CAPW has internally inbuilt checks and balances to ensure transparency and fight corruption. All procurement is carried out by an independent Committee of 12 people, comprising staff of the Authority and also from other Government organizations and ministries including Ministry of Finance. The Committee undertakes its

evaluation according to set rules and procedures, and submits its recommendations to the Chairperson of CAPW for approval. The Chairperson approves contract awards on behalf of the Minister of MHUUD. For the proposed project, an internationally recognized consulting engineering firm will be recruited to assist with procurement and then supervise the construction of the works. These will reinforce transparency and accountability during tendering and award of contracts. Both AFD and the Bank (through EGFO) shall also closely monitor the procurement activities under the project and will provide assistance whenever necessary. Finally, a provision has been made under the project for an annual audit to be carried out covering all aspects of project implementation. In addition, the PIT will include an expert with adequate experience in procurement and contract management.

4.4. Sustainability

4.4.1 Disposal of untreated wastewater is one of the main polluting agents of the environment including the country's water resources. Egypt depends almost entirely on the River Nile for all its water needs. Paradoxically, the river is also the recipient of most of the country's runoff including effluents from the wastewater treatment plants. The increasing pollution load makes this situation untenable and the Government is making serious efforts to control and curtail this menace. The Government has in the last two decades, invested a lot of resources (over EGP 60 billion for both water and sanitation) to part construct adequate wastewater treatment capacity to curtail this pollution. The proposed GAWWTP Stage II Phase II is part of these GOE long term plans and is a manifestation of the GOE commitment to the development of the sector.

4.4.2 To ensure technical sustainability, the project incorporates a requirement for the contractor to operate and maintain the plant for two years following construction. To ensure technology transfer, both the consultant and the contractor will be mandated to train additional counterpart staff of the executing agency and the operator, on all aspects of the project's O&M. In addition, the proposed project will be very similar to Stage II Phase I and the executing agency is already familiar with the technology.

4.4.3 The institutional long-term sustainability of the sector is a key objective of the ongoing sector reforms, which is addressing the water and waste water policy (to be finalised in July 2009) and reorganizing and mainstreaming the sector institutions with the objective of minimising fragmentation of the key sector players. (Details provided in Annex C1). Therefore, once implemented, the sector reforms will strengthen the sustainability of the sector institutions.

4.4.4 In order to ensure financial and economic long term sustainability of the sector, the water and wastewater policy is targeting continued progress towards cost recovery in service provision through user charges. Currently it is estimated that the recurrent cost of the project (operation and maintenance) will be approximately EGP 45 million per year. For the existing facilities, the costs are met through Government subsidies. Besides cost recovery, the Government is also taking broad measures to improve the sector efficiency and quality of these services. System losses are being reduced through leak detection programmes, metering of consumers and encouraging conservation, streamlining sector institutions, and adopting modern management methods for the services. These measures which have already started bearing fruits are expected to reduce the cost of delivery and make the services more affordable even for the poor.

4.5. Risk management

4.5.1 Decentralisation of the sector development is one of the essential elements of the country's IWRM and is being implemented as part of the institutional reforms entailing streamlining and consolidation of the sector institutions. There is now a gradual move towards giving some institutions responsibilities to both develop and operate and maintain the infrastructure. Although currently the Government is fully committed to these reforms, there is always a risk that these could slow down or be abandoned. Conditions of the loan have been included requiring that the financiers of the project be kept closely informed of progress in institutional developments.

4.5.2 The Government has so far managed to provide subsidies to the provision of water and sanitation services. It however realizes that one of the most effective tools of promoting efficient use of water and sanitation services is to move towards cost recovery. This has already started as demonstrated by the recently approved tariff structure showing gradual increases up to 2012. While this is the case presently, there is always a risk of the momentum not being maintained. Such an eventuality could affect the quality of the sector services being provided. In order to ensure that the momentum toward better cost recovery is maintained, the Government is required as a condition of the loan, to submit annually a report on progress on implementation of its recently approved schedule of tariffs up to 2014.

4.5.3 Another major risk associated with the project is implementation delays. The following measures will mitigate the risk: a) CAPW's experience in implementing projects of this type and size, b) the major works will be contracted out as one big contract for design and build, c) recruiting experienced engineering supervision consultant with sufficient experience, and d) close supervision by the GOE, the Bank and AFD during project implementation.

4.5.4 There is also the risk of inadequate O&M of the plant after construction completion. This is mitigated by having a 2 year operations and maintenance contract (with the contractor) accompanied by on the job training of additional local staff and improving the conditions of service.

4.6. Knowledge building

4.6.1 Many Governments on the continent continue to grapple with the mammoth problem of managing wastewater in their countries. And similar to the case in Egypt, this is not an issue that can easily be ignored as it has direct impact on the quality of the environment and especially on water resources. The project is therefore expected to generate considerable interest and knowledge, on how to resolve problems associated with management of large volumes of wastewater. The lessons from the design, construction and management of projects of such magnitude will be useful to many other countries in the region. The lessons learnt and experience gained will be documented for dissemination in workshops, discussions and seminars. Even during construction, the Bank will encourage groups from regional countries to visit the plant for learning purposes and knowledge dissemination.

4.6.2 Bank supervision missions, quarterly and annual progress reports, mid-term review, audit and completion reports will provide an opportunity to capture knowledge on relevant aspects of the project. This will include its design, implementation modalities, procurement, as well as operations and management, which will be available for analysis and will be shared both within the Bank and with other development partners as well as authorities in RMCs.

V – FINANCING INSTRUMENTS AND CONDITIONS

5.1. Financing instrument

An ADB loan to the Government of Egypt will be used to finance this project.

5.2. Conditions associated with Bank’s intervention

A. Conditions Precedent to Entry into Force of the Loan Agreement

- (i) The Loan Agreement shall enter into force subject to the fulfilment by the Borrower of the provisions of section 5.01 of the General Conditions Applicable to Loan Agreements and Guarantee Agreement of the African Development Bank.

B. Conditions Precedent to First Disbursement for the Loan:

- (i) Provide evidence of having established the PIT within CAPW and appoint a Project Coordinator, 3 Engineers (Sanitary, Electrical and Mechanical), one of whom will be a procurement/contracts management expert), Environmental/Social Expert, and Project Accountant, all with qualifications and experience acceptable to the Bank (para. 4.1.1);

C. Undertaking:

The Borrower undertakes to:

- i) notify the Bank of any institutional changes affecting the ownership of the assets financed under this Loan, and to ensure continuity of overall responsibility for the Project by transferring its non-financial obligations to any future owner of the assets financed under this Loan;
- ii) provide the Bank with a timeframe concerning the future institutional arrangements in accordance with the current applicable regulations, in particular the transfer of the responsibility for operation and maintenance of the facilities financed under this Loan to the Greater Cairo Sanitary Drainage Company (“GCSDC”) (para. 4.4.1);
- iii) take all necessary measures to achieve at least operation and maintenance cost recovery for the provision of water and wastewater services, in line with the actions already taken by GOE and to submit annually to the Bank a report on the status of the implementation of its approved tariff schedules of up to 2014. (para. 4.4.2).

5.3. Compliance with Bank Policies

This project complies with all applicable Bank policies.

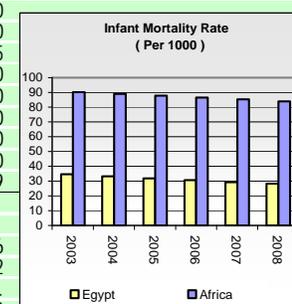
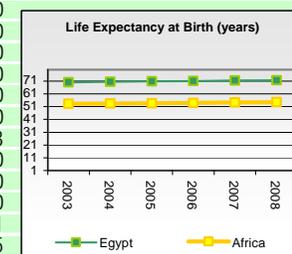
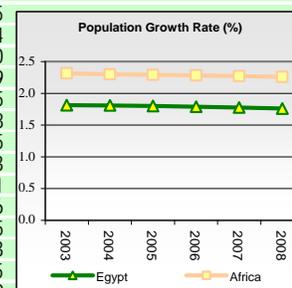
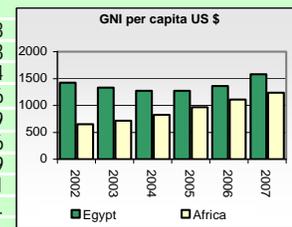
VI – RECOMMENDATION

Management recommends that the Board of Directors approve the proposed ADB loan of UA 48.56 million to the Republic of Egypt for the purposes and subject to the conditions stipulated in this report.

Appendix I

Egypt COMPARATIVE SOCIO-ECONOMIC INDICATORS

	Year	Egypt	Africa	Developing Countries	Developed Countries
Basic Indicators					
Area ('000 Km²)		1 001	30 323	80 976	54 658
Total Population (millions)	2008	76.8	985.7	5 523.4	1 226.3
Urban Population (% of Total)	2008	42.8	39.2	44.0	74.4
Population Density (per Km²)	2008	76.7	32.5	23.0	49.6
GNI per Capita (US \$)	2007	1 580	1 226	2 405	38 579
Labor Force Participation - Total (%)	2005	38.8	42.3	45.6	54.6
Labor Force Participation - Female (%)	2005	33.2	41.1	39.7	44.9
Gender -Related Development Index Value	2002	0.634	0.482	0.694	0.911
Human Develop. Index (Rank among 174 countries)	2006	116	n.a.	n.a.	n.a.
Popul. Living Below \$ 1 a Day (% of Population)	2000	16.7	34.3	25.0	...
Demographic Indicators					
Population Growth Rate - Total (%)	2008	1.8	2.3	0.3	1.2
Population Growth Rate - Urban (%)	2008	1.8	3.3	2.5	0.5
Population < 15 years (%)	2008	32.5	40.9	16.6	27.4
Population >= 65 years (%)	2008	5.0	3.4	16.7	8.0
Dependency Ratio (%)	2008	60.0	79.5	47.7	53.9
Sex Ratio (per 100 female)	2008	100.2	99.3	94.3	101.5
Female Population 15-49 years (% of total population)	2008	25.9	24.2	24.3	25.8
Life Expectancy at Birth - Total (years)	2008	71.6	54.5	76.7	67.5
Life Expectancy at Birth - Female (years)	2008	73.9	55.6	67.5	80.3
Crude Birth Rate (per 1,000)	2008	23.9	35.7	11.0	20.1
Crude Death Rate (per 1,000)	2008	5.6	13.0	10.4	8.6
Infant Mortality Rate (per 1,000)	2008	28.3	83.9	7.1	48.5
Child Mortality Rate (per 1,000)	2008	32.6	137.4	8.8	72.3
Total Fertility Rate (per woman)	2008	2.8	4.6	1.6	2.5
Maternal Mortality Rate (per 100,000)	2005	130.0	683.0	450	9
Women Using Contraception (%)	2005	59.2	29.7	61.0	75.0
Health & Nutrition Indicators					
Physicians (per 100,000 people)	2005	227.3	39.6	78.0	287.0
Nurses (per 100,000 people)	2005	283.3	120.4	98.0	782.0
Births attended by Trained Health Personnel (%)	2005	74.1	51.2	59.0	99.0
Access to Safe Water (% of Population)	2006	98.0	64.3	84.0	100.0
Access to Health Services (% of Population)	2004	99.0	61.7	80.0	100.0
Access to Sanitation (% of Population)	2006	66.0	37.6	53.0	100.0
Percent. of Adults (aged 15-49) Living with HIV/AIDS	2007	0.00	4.5	1.3	0.3
Incidence of Tuberculosis (per 100,000)	2006	24.0	315.8	275.0	19.0
Child Immunization Against Tuberculosis (%)	2007	98.0	83.0	89.0	99.0
Child Immunization Against Measles (%)	2007	97.0	83.1	81.0	93.0
Underweight Children (% of children under 5 years)	2005	6.0	25.2	27.0	0.1
Daily Calorie Supply per Capita	2004	3 286	2 436	2 675	3 285
Public Expenditure on Health (as % of GDP)	2005	2.3	2.4	1.8	6.3
Education Indicators					
Gross Enrolment Ratio (%)					
Primary School - Total	2007	104.7	99.6	106.0	101.0
Primary School - Female	2007	101.7	92.1	103.0	101.0
Secondary School - Total	2005	86.0	43.5	60.0	101.5
Secondary School - Female	2005	83.0	40.8	58.0	101.0
Primary School Female Teaching Staff (% of Total)	2007	55.8	47.5	51.0	82.0
Adult Illiteracy Rate - Total (%)	2007	28.0	38.0	21.0	1.0
Adult Illiteracy Rate - Male (%)	2007	16.4	29.0	15.0	1.0
Adult Illiteracy Rate - Female (%)	2007	39.3	47.0	27.0	1.0
Percentage of GDP Spent on Education	2006	4.6	4.5	3.9	5.9
Environmental Indicators					
Land Use (Arable Land as % of Total Land Area)	2005-08	2.8	6.0	9.9	11.6
Annual Rate of Deforestation (%)	2000-08	-3.4	0.7	0.4	-0.2
Annual Rate of Reforestation (%)	2000-08	2.0	10.9
Per Capita CO2 Emissions (metric tons)	2005-08	2.2	1.0	1.9	12.3



Sources : ADB Statistics Department Databases; World Bank: World Development Indicators;

last update : March 2009

UNAIDS; UNSD; WHO, UNICEF, WRI, UNDP; Country Reports

Note : n.a. : Not Applicable ; ... : Data Not Available;

Appendix II

ADB PORTFOLIO IN EGYPT

	Name	Type	Rating	Amount (UA) million	Date approved
Energy (Power) Sector					
1.	El Kureimat Combined Cycle Plant	Loan	3.0	145.9	27 July 05
2.	Abu Qir Steam Power Plant	Loan	N.A	227.9	11 Nov 07
3.	Ain Sokhna Power Plant	Loan	N/A	291.5	22 Dec 08
Total Approvals				665.40	
Finance Sector					
1.	Financial Sector Reform Programme	Loan	2.75	328.7	26 July 06
2.	Private Sector Support - Franchising	Loan	NA	27.3	25 Feb 09
Total Approvals				356.0	
Social and Agriculture Sectors					
1	Social Fund III: Support to SMEs	Loan	N/A	55.10	11 October 06
		Grant		0.60	
2	Ismailia & Nubaria Study	Grant	N.A	1.70	18 Oct 07
Total				57.70	
Private sector					
1.	Damietta	Loan	3	81.80	4 Dec 07
2.	SME Support Project (2nd LOC to NBE)	Loan	2	140.3	12 Oct 05
TOTAL APPROVALS				232.10	

1- L: loan, G: grant

Appendix III

Key related projects financed by the Bank and other development partners in the country

Name of Project	Financier(s)	Amount USD million	Year to be commissioned
Improved Water and wastewater Services Programme (IWSP)	KfW, EIB, AFD, EU & GoE	391.6	2012
Integrated Sanitation and Sewerage Infrastructure Project	WB, Netherlands, GTZ & GoE	201.5	2014
Infrastructure Improvements Program	USAID	74.9	2009
Water Sector Reform Programme (WSRP)	EU	60	
A'mriya WWTP Expansion Project	KfW	42.5	2009
Decentralised Wastewater Management in the Governorate of Kafr El Sheikh	KfW	147	2009
Fayoum Drinking Water and Sanitation Project (Phase V)	Netherlands	23.1	2011

* All project include customs and taxes

**EGYPT: GABAL EL ASFAR WASTEWATER TREATMENT PLANT STAGE
II - PHASE II PROJECT**

**Appendix II
ADB PORTFOLIO IN EGYPT**

	Name	Type	Rating	Amount (UA) million	Date approved	Disb %
Energy (Power) Sector						
1	El Kureimat Combined Cycle Plant	Loan	3	145.9	27-Jul-05	75.50
2	Abu Qir Steam Power Plant	Loan	N.A	227.9	14-Nov-07	17.98
3	Ain Sokhna Power Plant	Loan	N/A	291.5	22-Dec-08	0
	Total Approvals			665.4		
Finance Sector						
1	Financial Sector Reform Programme	Loan	2.75	328.7	26-Jul-06	100.00
2	Private Sector Support - Franchising	Loan	NA	27.3	25-Feb-09	0
	Total Approvals			356		
Social and Agriculture Sectors						
1	Social Fund III: Support to SMEs	Loan	N/A	55.1	11-Oct-06	100.00
		Grant		0.6		28.30
2	Ismailia & Nubaria Study	Grant	N.A	1.7	18-Oct-07	47.36
	Total Approvals			57.7		
Transport Sector						
1	NAVISAT Satellite Project Study	Grant	N/A	0.6	20-May-09	0
	Total Approvals			0.6		
Private sector						
1	Damietta	Loan	3	81.8	4-Dec-07	0
2	SME Support Project (2nd LOC to NBE)	Loan	2	140.3	12-Oct-05	49.78
	TOTAL APPROVALS			232.1		

EGYPT: GABAL EL ASFAR WASTEWATER TREATMENT PLANT STAGE II - PHASE II PROJECT

Appendix IV

GAWWTP – STAGE II – PHASE II PROJECT LOCATION MAP



This map was provided by the African Development Bank exclusively for the use of the readers of the report to which it is attached. The names used and the borders shown do not imply on the part of the Bank and its members any judgment concerning the legal status of a territory nor any approval or acceptance of these borders.