

ALEXANDRIA GROWTH POLE PROJECT
Integrated Environmental and Social Impact Assessment
Executive Summary

Governorate of Alexandria

16 August 2006

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ABBREVIATIONS

AGPP	Alexandria Growth Pole Project
ARP	Abbreviated Resettlement Plan
ASDCO	Alexandria Sanitary Drainage Company
AUDI	Arab Urban Development Institute
AWCO	Alexandria Water Company
CAA	Competent Administrative Authority
CDD	Community Driven Development
CDS	City Development Strategy
CEPT	Chemically Enhance Primary Treatment
DO	Dissolved Oxygen
DWTP	Drinking Water Treatment Plant
EEAA	Egyptian Environmental Affairs Agency
EGP	Egyptian Pound
EHD	Environmental Health Department
EIA	Environmental Impact Assessment
EMU	Environmental Management Unit (Governorate)
EPAP	Egyptian Pollution Abatement Project
ESA	Egyptian Survey Authority
ESMP	Environmental and Social Management Plan
FIAS	Foreign Advisory Services Program
GAFI	General Authority for Free Zones and Investment
GAID	General Authority for Industrial Development
GIS	Geographical Information System
GOPP	General Organisation for Physical Planning
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit
HSES	Health, Safety, Environment (al) and Social
ICA	Investment Climate Assessment
IESIA	Integrated Environmental and Social Impact Assessment
IFC	International Financing Corporation
IT	Information Technology
MALR	Ministry of Agriculture and Land Reclamation
MCE	Misr Consulting Engineers
MHUUC	Ministry of Housing, Utilities and Urban Communities
MLI	Ministry of Labour and Immigration
MoH	Ministry of Health
MUSD	Million United States Dollars
NGO	Non Governmental Organisation
NSCE	North South Consultants Exchange, Consultants, Egypt
OSS	One Stop Shop
PE	Population Equivalent
PHRD	Japan Policy and Human Resources Development
PIP	Project Implementation Plan
PMU	Project Management Unit
PPP	Public-Private-Partnership
PSP	Private Sector Participation
QA	Quality Assurance
RBO	Regional Branch Office (EEAA)
REPD	Real Estate Publicity Department
RFP	Resettlement Policy Framework
RHK	Royal Haskoning, Consultants, the Netherlands
ROW	Right of Way

RP	Resettlement Plan
SA	Social Assessment
SFD	Social Fund for Development
TOR	Terms of Reference
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNICEF	United Nations International Children's Emergency Fund
WWTP	Wastewater Treatment Plant

Rates of exchange (August 2006)

US\$/LE 5,73

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PREAMBLE

This executive summary is aimed at presenting the main findings of the Environmental and Social Assessment conducted for the Alexandria Growth Pole Project (AGPP). The objective of the environmental and social assessment is to examine the environmental, social, economic, physical, and biological impacts in the areas which may be affected by the project, and propose mitigation measures, as well as construction and operation environmental management and monitoring plans.

This executive summary is intended to be a self-contained, stand-alone document that can be relied upon to provide major information necessary to understand the environmental and social sensitivities, potentially significant impacts, and mitigation measures to be undertaken under the proposed project. The reader is referred to the main body of the three reports, the draft Integrated Environmental and Social Impact Assessment (IESIA), Social Assessment (SA) and Resettlement Policy Framework (RPF) reports for the AGPP Project for specific information or further details not presented in depth in this summary, in particular for a description of the existing social and ecological environment as well as relevant baseline data.

The Project is partly financed by the World Bank and as such will have to comply with World Bank guidelines relative to environmental and social safeguard policies as well as Government of Arab Republic of Egypt applicable laws and regulations.

The IESIA report was prepared by an Egyptian Independent Consulting Firm (North South Consultant Exchange) in collaboration with an international firm (Haskoning Netherland BV). The names of the experts in these firms that participated in the preparation of the IESIA report are listed in Annex 1.

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INTRODUCTION

Alexandria is one of the oldest cities in the world. The city, with its 4 million inhabitants, is located on north western border of the Nile Delta. Its borders extend all along a coastal line whose length is estimated to be 70 km to the west north of the Delta. The Mediterranean borders Alexandria from the north. Al Beheira Governorate borders it from the south. Alexandria's borders extend along 171 km on Alexandria-Cairo desert high way, to the east reaching Abu Qir Bay and Idku Lake, and to the west reaching El Hammam town till the kilo 60 on Alexandria- Matrouh highway.

Alexandria plays an important and a vital role in the Egyptian economy and cultural life since the oldest and biggest port is located in Alexandria. The bigger part of Egypt's foreign trade passes through this port whose capacity is estimated to be 75% of the total capacity of Egypt's ports on the Mediterranean Sea. Due to the fact that through this port the percentage of the ships passing represents 55% of the total number of ships incoming to the Egyptian ports on the Mediterranean. The city is considered a powerful industrial base since it includes 4417 industrial firms with a number of personnel estimated to be 201012 representing 17.3% of the total labour force of the city which is estimated to be 1161743 personnel. Alexandria's production represents 40 % of Egypt's total industrial production. There is a diversity of industries in the city. Among the most important industries are iron and steel, petroleum, cement, chemicals, petrochemicals, spinning and weaving, and fertilizers.

The key challenges facing Alexandria are:

- Generating more and better jobs.
- Improving the local business climate.
- Promoting better industrial zoning and planning.
- Providing basic services to all.
- Upgrading the ports of Alexandria and Dekheila.
- Strengthening the Textile & Garments sector.
- Strengthening the Food Processing sector.
- Developing the potential of the Petrochemical sector.
- Developing the potential of the Tourism sector.

Serious sanitation and urban development problems such as a reliable water supply and sanitation system in Alexandria, inadequate infrastructure and urban services, and coupled with inadequate land policies have seriously affected the living and health conditions of the urban poor communities of Alexandria. Furthermore, the institutional setup urban and land use management is inadequate for improving the business environment conditions given the weak public-private-partnership prevailing for service delivery as a result of these challenges. For these reasons the World Bank and the Government of Egypt have co-financed the City Development Strategy of Alexandria.

The Alexandria Governorate, with the assistance of the World Bank (Cities Alliance Grant), has developed a strategic framework for sustainable development, namely the City Development Strategy (CDS). The strategy aims to develop a medium to long-term economic development strategy; to develop a participatory urban upgrading strategy for squatter settlements; and to develop a land use plan of the Lake Mariout area, within a sustainable urban development framework. The CDS forms the foundation of the Alexandria Growth Pole Project

3 PROJECT OBJECTIVES AND DESCRIPTION

The overarching aim of the project is to strengthen Alexandria's position as a growth pole in Egypt through strategic investments in hard and soft infrastructure that support its competitive advantages, which would contribute to removing constraints to private sector-led growth and improving the management and utilization of local assets, while ensuring the socio-economic integration of the poor. The project will enable Alexandria Governorate and its development partners from the public, private and civil society sectors to lay a first foundation towards achieving their commonly-defined long-term vision for Alexandria by implementing key investments of the City Development Strategy.

Specifically, the **project development objectives** are to: (i) support private sector development through removing key infrastructural and administrative constraints hindering its operation and growth; (ii) improve access of residents in informal and squatter settlements to infrastructure, basic services and income-enhancing opportunities; and (iii) build Alexandria Governorate's economic development and utilization of local assets through pilot investments in environmental regeneration and land development.

The total investment costs of this project are US\$ 130 Million, of which US\$ 100 Million as an IBRD loan and 30 Million as a contribution from the Government of Egypt. The duration of the project is 5 years (2007-2012).

The project is divided into 4 main components; each component is further subdivided into subcomponents. Every subcomponent consists of one or more projects. These projects are in a number of times complementary to (or proceed) other projects funded by other partners of the AGPP Partnership.

The project is implemented in several areas in Alexandria, these areas are:

- The area of the Eastern and Western WWTPs, the associated drains and Lake Mariout.
- The land in the vicinity of Carrefour including shallow area with water level of about 20-40 cm.
- The area north of the Merghem Industrial Zone and south of Agamy and Max, where the selected roads for rehabilitation are located.
- Merghem and El Nahda Industrial zones located south of Alexandria city and separated by the Cairo Alexandria Desert Road.
- El Amrawy squatter area, located in the eastern part of Alexandria city.
- Naga' El Arab squatter area, located in the western part of Alexandria city.
- El Hadara El Gedida squatter area, located in the central part of Alexandria city.

The map attached in Annex 2 of this summary shows the locations of the project areas.

Project components

The Alexandria Growth Pole Project (AGPP) has four components:

Component 1—Priority Infrastructure to support Local Economic Development (\$97.75 million, of which IBRD contributes **\$78.00 million**):

- 1.1 Enhancing the wastewater treatment system surrounding Lake Mariout's Main Basin to enable full utilization of the land reserves surrounding it (works, \$62.75 million, of which IBRD contributes **\$47.50 million**);
- 1.2 Providing off-site infrastructure needed to support private development of a strategic site bordering Lake Mariout's Main Basin (works, **\$14.50 million**); and
- 1.3 Rehabilitating four critical access roads linking major centers of economic activity in Alexandria (works, \$20.00 million, of which IBRD contributes **\$16.00 million**).

Component 2—Improving the Local Investment Climate (\$2.25 million, of which IBRD contributes **\$2.00 million**):

- 2.1 Streamlining key business start-up licensing procedures through reduction of time/steps and system automation in Alexandria Investor Services Complex' One-Stop-Shop (goods and works, **\$0.75 million**);
- 2.2 Facilitating registration of existing land and property informally held by investors in the North Merghem industrial/enterprise park (goods and services, \$0.35 million, of which IBRD contributes **\$0.25 million**); and
- 2.3 Expanding private sector participation in the management and development of industrial areas, through pilots in Al Nahda and North Merghem areas (services, \$1.15 million of which IBRD contributes **\$1.00 million**).

Component 3—Urban Upgrading of Squatter and Informal Settlements (\$20.00 million, of which IBRD contributes **\$15.00 million**; in addition to \$10.00 million equivalent in SFD funds for micro-credit):

- 3.1 Improving access to infrastructure, basic services and community facilities (works and services, \$19.50 million, of which IBRD contributes **\$14.50 million**); and

- 3.2 Increasing access to micro-credit and business support services (services, **\$0.50 million**; in addition to \$10.00 million equivalent of SFD funds for micro-credit).

Component 4—Institutional Development, Technical Support and Project Operation (\$5.00 million)

- 4.1 Updating Alexandria's Master Plan (services, **\$2.00 million**);
4.2 Establishing the Alexandria Development Agency (goods, **\$0.50 million**);
4.3 Preparing detailed studies, engineering designs, and supervision of works (services, **\$2.00 million**); and
4.4 Supporting the Project Management Unit's operation (services, **\$0.50 million**).

Component 1: High priority economic infrastructure to support local economic development (IBRD: US\$ 78 Million)

This component is composed of three subcomponents which are summarised as follows:

Component 1.1 Enhance wastewater treatment system in Alexandria (IBRD: US\$ 47.5 Million)

This project aims, together with other complimentary projects, to prevent wastewater from being discharged to Lake Mariout, improving therefore its water quality and enhancing sustainable development around the lake. The master plan to improve wastewater is divided to three phases, phase 1 (till 2009) to be financed through the AGPP, which will cover the wastewater projections till the year 2020. The consecutive phases will be implemented to cover wastewater projections till the year 2030. Sludge treatment will be undertaken on the basis of the Hydroplan study and will be conducted in the successive phases during the operation phase for the project. Sludge will be treated in the existing sludge treatment facilities and a comprehensive cost/benefit study will be undertaken in the successive phases, the Governorate of Alexandria has undertaken to implement the sludge treatment till the year 2030 and based on the recommendations of the cost/benefit study.

This project will finance the addition of facilities at the existing vacant lands in the Eastern and Western WWTPs for Chemical Enhanced Primary Treatment (CEPT). Treated effluents from the two treatment plants are conveyed to aerated lagoons followed by maturation ponds to be constructed in the neighbouring drain from the Eastern WWTP and the north western basin of the Lake Mariout. For the Western WWTP, the total surface area required for constructing the aerated lagoons and the maturation in the northwest basin at the first phase is about 133 hectares (1.33 km²), this area will be dredged to a depth ranging from 3-4m. For the Eastern WWTP, the total surface area required for constructing the aerated lagoons and the maturation along the drains at the first phase is about 210 hectares (2.1 km²), this area will be dredged to a depth ranging from 3-4m. Treated water will be no longer discharged as previously to Lake Mariout, instead this will be used for irrigation and aquaculture. The effluents are in compliance with the Egyptian and WHO guidelines for wastewater reuse, and also in compliance with the Barcelona Convention and its protocols.

Component 1.2: Development of land surrounding Lake Mariout (IBRD: US\$ 14.50 Million)

Building upon component 1.1, the area around Lake Mariout can be developed for entertainment, commercial and housing purposes. The development process should be implemented in a sustainable and systematic manner to prevent uncontrolled

development around the lake. This approach has been adopted in the Strategic Development Plan for Lake Mariout and Wadi (Mariout valley). The AGPP focuses on the land development of the area surrounding Carrefour with a surface area of approximately 230 hectares (548 feddans), as a pilot area for land development around the Lake Mariout. The preliminary land development plan for this area has been prepared and approved by the Governorate.

The project finances the construction of the off-site infrastructure needed to enable private sector-led mixed-use development. The infrastructure includes:

- water supply, fire and irrigation network
- Wastewater and drainage water collector systems
- Main roads in the development area
- Electricity and telecommunication infrastructure

Component 1.3: Rehabilitating/reconstructing selected critical access roads (IBRD: US\$ 16 Million)

The aim of this component is to provide alternative roads connecting the existing industrial areas of El Nahda and Merghem to the main ports of Alexandria. This will reduce the traffic loads on the existing road infrastructure, and improve traffic circulation in the area and reduce traffic pollution.

The project will finance the rehabilitation of 4 roads, as shown in the following table:

Table 1: Roads reconstructed/rehabilitated under the AGPP

Road name	Length (m)	Width (m)	Construction cost (million LE)	Construction cost (million US\$)
Al Sad Al Aly road	6,000	14	20.0	7.0
Om Zeghiou road	14,000	14	40.0	3.5
Merghem collector road	8,000	7	40.0	7.0
Container Port Access (Kabary)	2,500	14	15.0	2.6
Total cost four roads	30,500	NA	115.0	20.0

The El Sad El Aly and Om Zeghiou roads run through restricted residential areas at certain locations. The part of El Sad El Aly road passing through restricted residential area, will be widened to permit smooth traffic circulation. The widening will be through land acquisition from the State-Owned Alexandria Petroleum Company and will be carried out in accordance with the Resettlement Policy Framework (RPF) which was received and approved by the Bank. The part of Om Zegiu road passing through restricted residential area will be bypassed through an alternative road passing inside the Nasr Company. The alternative requires land acquisition from the Nasr Company. The proposed bypass has a 70m right-of-way.

Component 2: Improve local investment climate (IBRD: US\$ 2 Million)

This component focuses on addressing three key challenges identified in the Egypt Investment Climate Assessment study and confirmed by investors in Alexandria as major constraints to doing business: (i) lengthy business start-up licensing procedures; (ii) lack of land and property registration in industrial areas, and; (iii) weak management of industrial zones. This component consists of 3 subcomponents.

Component 2.1: Streamlining business start-up licensing procedures (IBRD: US\$ 0.75 Million)

The objective of this component is to reduce by 75% the time needed to complete the key business start-up procedures through system reengineering, delegating of more functions to Alexandria Investment Complex (One Stop Shop) and automating of essential business start-up licensing procedures in the form of IT equipment and portals. This project will cover Alexandria's seven districts, industrial zones and free zone, ensuring coordination among the governorate, the One Stop Shop (OSS), and the districts. The project will finance technical assistance, and purchase of computer software and hardware.

Component 2.2: Facilitating registration of existing land and property informally held by investors (IBRD: US\$ 0.25 Million)

The objective of this component is to facilitate access to land by private investors by streamlining and automating the property registration system of existing land and property informally held by investors and development and piloting of a model parcel-based title registration system and unified registry (PCs, GIS, manuals and capacity building) on a pilot scale in an area called North Merghem area (6.5 km²). The project will finance technical assistance and purchase of computer software and hardware for this pilot area.

Component 2.3: Expanding private sector participation in management and development of industrial areas (IBRD: US\$ 1 Million)

The purpose of this component is to devise appropriate institutional and financial arrangements for the management/development of industrial areas through:

- (i) Assisting the Industrial Development Agency (IDA) in strengthening the regulatory framework for the development and management of industrial estates (a key investor demand), and accordingly recommend appropriate institutional and financial arrangements for the management and development of Al Nahda industrial area and North Merghem enterprise park based on private sector participation.
- (ii) prepare a full feasibility study for a model privately-developed industrial estate on a pilot site in Al Nahda Industrial area through structuring a public-private-partnership arrangement (successfully piloted activities in Alexandria would be replicated by IDA at the national level).

The project will finance the full feasibility study, on the basis of pre-feasibility studies developed and financed under a separate project, for a privately-developed industrial estate in Al Nahda in accordance with the strengthened regulatory framework. It will also finance:

- (i) Environmental audit to improve environmental compliance and determine environmental liabilities.
- (ii) Detailed engineering designs for off-site infrastructure,
- (iii) Complete tender documents including Request for Proposals for competitively selecting a private zone developer,
- (iv) Technical assistance in negotiating the transaction and completing the deal.

After the zone developer is identified, IDA and Alexandria Governorate would finance the delivery of off-site infrastructure required under a separate project.

Component 3: Urban upgrading of informal and squatter settlements (IBRD: US\$ 15 Million, in addition to \$10.00 million equivalent from the SFD funds for micro-credit)

The project will finance urban upgrading and community development activities in squatter settlements in Alexandria, starting with three pilot areas: El Amrawy, El Hadara El Gedida and Naga' El Arab.

Component 3.1: Increasing access to infrastructure and services (IBRD: US\$ 15 Million)

This component addresses on a demand driven basis the provision of basic infrastructure and service including, piped water supply, sanitation, rainwater drainage, road pavement, multi-purpose community centres and community development activities (family health services and literacy programs) to improve the standards of living and environment in the squatter settlements.

Component 3.2: Increasing access to jobs, micro-finance and business support services (SFD: US\$ 10 Million)

This component aims to assist unemployed people in squatter settlements to provide micro-credits to support employment generation, income generation and for house improvement. This component will be financed entirely by the Social Fund for Development.

Component 4: Technical support and project operation (IBRD: US\$ 5 Million)

Component 4.1: Update of Alexandria urban master plan (IBRD: US\$ 2 Million)

The objective of this component is to assist Alexandria Governorate updating the urban Master Plan of Alexandria. This will include updating the Structure Plan of Alexandria Governorate, the Land Use Plan of Alexandria City, and preparing detailed plans for selected actions areas.

The Structure Plan will guide location and direction of city's urban growth; suggest better, safer and faster connection between Borg Al-Arab and Alexandria; and propose an overall land use plan for all lands surrounding Lake and Wadi Mariout as well as vacant land south of Alexandria Governorate.

The project will finance technical assistance in the development and preparation of the master plan.

Component 4.2: Establishment of Alexandria Development Agency (US\$ 0.5 Million)

The aim of this component is to establish a semi-independent City Development Agency (Alexandria Development Agency) which will be given significant decision-making powers, resources and financial autonomy to undertake strategic planning, promote LED building on its many endowments and competitive advantages, and strengthen local administration and management practices. This Sub-Component would finance consultancy service and the purchase of necessary equipment, especially to set up a Geographic Information System (GIS) and an Information Management System (IMS) that would enable ADA to efficiently perform its mandate.

Sub-Component 4.3 Preparing detailed studies and engineering designs (US\$ 2 Million)

The objective of this sub-component is enable the PMU to hire consultants on a demand basis to a) prepare downstream feasibility studies needed for the AGPP, b) prepare

detailed engineering designs needed for implementation; and c) assist the PMU to supervise highly complex technical sub-components, especially in Component 1.

Sub-Component 4.4 Supporting the Project Management Unit's operation (US\$ 0.5 Million)

The objective of this sub-component is to enable the PMU to hire consultancy services needed to support project implementation, especially fiduciary (procurement, financial management) and safeguard responsibilities, as well as the detailed M&E system including monitoring compliance with the ESMP and the Resettlement Policy Framework. It will also cover related incremental operating costs related to the PMU.

4 OTHER RELEVANT DEVELOPMENT PLANS AND DEVELOPMENT STUDIES

The last section in the executive summary includes the list of documents and studies that were used on the preparation of the IESIA report. The key documents that were used include:

- Aide Mémoire for Alexandria Growth Pole Project, February 2006.
- Project Appraisal Document for AGPP, July 2006.
- Interim report for Enhanced Wastewater Treatment System in Alexandria by Hydroplan/MCE, July 2006.
- Interim report for Market Analysis, Land Use Planning, and Structuring the Development Process for Mixed Use Land Development, Lake Mariout Basin, Alexandria Egypt by Ehaf/Chemonics.
- Inception report for Traffic and Road Network Assessment and Feasibility Studies for Improvement of Traffic and Critical Roads in Support of Economic Activities in Alexandria by Moharam and Bakhoun.

5 POLICY LEGAL AND REGULATORY FRAMEWORK

The Integrated Environmental and Social Assessment for the project must meet a number of policy and legal requirements. The World Bank safeguard policies and the Egyptian Environmental Protection Law No. 4/1994, Law No. 48/1982 concerning the protection of River Nile, canals and drains, and detailed requirements for conducting EA as defined in Law 4/1994 have been complied with during the course of project preparation and will also be complied with during project implementation.

5.1 Applicable World Bank Policies

Operational Policy 4.01 on Environmental Assessment. The World Bank undertakes environmental screening of each proposed project to determine the appropriate extent and type of Environmental Assessment (EA). The World Bank classifies any proposed project into one of four categories (A,B,C,FI), depending on the type, location, sensitivity, and scale of the project and the nature and magnitude of its potential environmental impacts. A Category 'A' project is likely to have significant adverse environmental impacts that are sensitive, diverse, or unprecedented. These impacts may affect an area broader than the sites or facilities subject to physical works.

The Alexandria Growth Pole Project is considered a Category A project as the rehabilitation, improvement and expansion of water and wastewater services will produce impacts from noise, dust and water quality degradation during construction, water and waste water quality, sludge and solid waste during operation that could be significant for a number of people living in the areas. It should be noted that there will also be a number of nominal benefits resulting from these projects including improved

water quality, waste management, access to clean water supply and sanitation, and most importantly improvement of living conditions and public health of the squatter settlements.

Operational Policy 4.12 on Involuntary Resettlement: This operational policy examines whether the development project would require any involuntary resettlement and/or land acquisition. The implementation of the project will not induce any resettlement, however, in project components related to rehabilitation of roads and increasing access to infrastructure and services. There will be a possibility that the roads will be enlarged on additional lands neighbouring the right-of-way, this could require the expropriation of Land from the Nasr Saline Company and Alexandria Petroleum Company. In this case the land acquisition and expropriation mechanism will be carried out in accordance with the RPF which consultation took place was disclosed.

Operational Policy 4.11 on Cultural Property: This operational policy addresses the impact on physical cultural properties having archaeological (prehistoric), paleontological, historical, religious, and unique natural values. The policy aims at ensuring the preservation of cultural heritage.

The policy is not triggered for the city of Alexandria which has a rich historical heritage. The implementation of the water supply and sanitation project will not require the demolition of any known historical sites, nor will it directly affect any known archaeological sites. On the contrary, the long term permanent impact of the project on the existing sites will therefore be positive due to proper treatment and collection of wastewater, improved amenity and aesthetic quality of the city which would outweigh any temporary adverse impacts.

Moreover, during the execution of works if a “chance find “ of archaeological significance occurs the civil work contract will require the contractor to immediately inform the employer and stop further work as this is standard practice in Egypt. Employer will in turn inform the Antiquities Department for further investigation and action.

Operational Policy 4.04 on Natural Habitats: is triggered by any project with the potential to cause significant conversion (loss) or degradation of natural habitats, whether directly (through construction) or indirectly (through human activities induced by the project). This policy is not triggered. The vegetation associated with Mariout Lake comprises communities of both aquatic and terrestrial habitats. Towards the shore of the lake, the soil is saline and halophytic vegetation prevails. AGPP will not have any significant conversion or degradation of the Mariout Fauna and Flora, which is at present threatened because of severe eutrophication. On the contrary with the improved water quality of the Lake, it is expected that the natural habitats of the fresh and coastal ecosystems will be improved. Furthermore, the dredging of approximately 1.33 km² in north west basin of Mariout lake is not considered significant as this area is less than 2 percent of the total area of the Mariout Lake and is already under threat by the construction of the Al Ziraa' Al Bahary Road, and already highly eutrophic. Furthermore, a GEF financed project of approximately US\$ 7.5 million is currently under design in order to conserve, preserve, and develop the biodiversity of the Mariout Lake.

5.2 Applicable Egyptian Environmental Legislations

The Egyptian standards have been drawn from the range of provisions in the following documents:

- Law 4/1994 (Law for the Environment) and the Prime Minister's Decree No. 338 of 1995, which promulgates the executive Regulations of Law 4.
- Law 48 of 1982 regarding the protection of the River Nile and waterways from pollution and the Decree No. 8 of 1983 promulgating its Executive Regulations.
- Law No. 93 for 1962 regarding the drainage of liquid wastes, particularly sanitary drainage.
- Law of Labour No. 12/2003.
- Law No. 38/1967 amended by Law No. 31/1976 on public cleanliness and collection and disposal of solid waste.

The project will adhere to the aforementioned laws and standards. Furthermore, the treated effluent will meet WHO and the Egyptian Code guidelines for treated wastewater to be used in Agriculture dated 2005 and its attached annexes. These guidelines specify a nematode level of less than 1 egg per litre and faecal coliform of less than 1000 FC per 100 ml.

With respect to industries, existing national legislation provides for control of industrial discharges. EEAA is mandated with the enforcement of the limits for industrial discharges and has secured so far a modest record in terms of enforcement of the laws and regulations against polluters by issuing warnings, imposing fines and eventually bringing them to courts. This will be further reinforced in this project and in the Bank-financed Egyptian Second Pollution Abatement Project, which was approved by the World Bank in March 2006, which will mitigate industrial pollution in Alexandria. In summary, the project will abide by all national laws and standards and will follow internationally accepted best practices.

5.3 Applicable International Agreements

The project will also comply with the relevant international conventions signed by the Government related to wastewater discharge to the Mediterranean, namely:

- The convention for the protection of the Mediterranean Sea against pollution (Barcelona) and its amendments and protocol regarding pollution from land-based sources which lists the substances of which discharge is prohibited, and the factors which should be taken into account in order to eliminate pollution from these substances. It also lists substances for which discharge is subject to authorisation by the competent national authorities. This authorisation must take particular account of the characteristics and composition of the waste, the characteristics of the elements in the waste in terms of harmfulness, the characteristics of the place where the waste is discharged and the marine environment it is entering, the techniques available to manage the waste, as well as possible damage to marine ecosystems and its effect on sea water usage.
- Basel convention on transboundary movements of hazardous wastes and their disposal.

INSTITUTIONAL ARRANGEMENTS

Several governmental ministries/agencies are directly involved in the implementation of the AGPP project. The main agencies are:

The **Governorate of Alexandria** is responsible of managing all activities within Alexandria. The Governorate has the administrative authority on the regional Ministerial offices in its territory. The district and city councils also are under its authority. The Governorate also plans and implements regional master plans. The Governorate is responsible for the overall supervision of the AGPP project. The AGPP is managed by a Project Management Unit that is headed by the Secretary General of the Governorate and will include a full time Environmental and Social Specialist to oversee the implementation of the ESMP that will be implemented by the relevant institutions in collaboration with specialised consultants.

The **Alexandria Sanitary Drainage Company (ASDCO)** is responsible for wastewater collection and treatment in Alexandria. ASDCO prepares master plans for wastewater collection and treatment; implements urban wastewater projects; operates and maintains wastewater collections systems and WWTPs; and provides permits for discharge to the public sewer network. ASDCO will be involved in all civil works related to wastewater collection and treatment, these are: component 1.1 enhance primary treatment in Alexandria, component 1.2 Development of area surrounding the lake and component 3.1 Increasing access to infrastructure and services.

The **Alexandria Water Company (AWCO)** is responsible for supply of potable water to Alexandria. AWCO prepares master plans for water treatment and distribution, implements urban water supply projects, and operates / maintains DWTPs and water distribution systems. AWCO is responsible of the water supply works for component 1.2 related to land development of the area surrounding Lake Mariout and component 3.1 related to increasing access to infrastructure and services.

The **General Authority for Free Zone and Investment (GAFI)** is the managing authority for the Amreya Free Zone. It provides permits for the industrial establishments working in the free zone and manages the utilities within the zone. GAFI will be responsible for the implementation of component 2.1 related to reducing times and steps of business start up procedures.

The **Real Estate Publicity Department (REPD)** is the department responsible of registration of property in Alexandria. REPD will be involved in the implementation of component 2.2 related to enhancing registration of property owned by investors

The **General Authority for Industrial Development (GAID)** is responsible for industrial development in Alexandria. GAID will be directly involved in component 2.3 related to enhancing PSP in private sector

District Authorities are responsible of managing all activities within their districts. The District Authorities are involved in the construction of public service buildings as part of the component 3.1 on increasing access to infrastructure and services.

Several governmental ministries/agencies, besides provide support to the AGPP activities for monitoring and enforcement of the different rules and regulations involved in this project. The main ministries/agencies are:

The **Egyptian Environmental Affairs Agency (EEAA)** is the central Egyptian organisation for environmental protection. Through Law 4/1994 and the Prime Minister Decree number 338/1995 (amended by Prime Minister Decree 1741/2005), the EEAA has the coordination authority; with respect to environmental pollution; with different competent administrative authorities (CAA). These CAA are the responsible ministries / governorates for different urban, industrial, agricultural, irrigation and petroleum activities.

The EEAA sets guidelines for Environmental Impact Assessments, reviews EIA for different activities and recommends approval / refusal of the proposed projects as part of the licensing procedures for any new activity or development. The EEAA will review this IESIA.

The EEAA regional branch office in Alexandria together with the Environmental Management Unit in Alexandria Governorate will be responsible to ensure that compliance of the ESMP will be undertaken by the different institutions included in the ESMP. The RBO will also have to ensure that discharge of treated wastewater will be in compliance with the Barcelona Convention and its protocols.

The **Ministry of Water Resources and Irrigation (MWRI)** is the central institution for water quantity and quality management. Under law no. 12/1984; it retains overall responsibility for the management of all water resources, including available surface water resources of the Nile system, drainage water, groundwater and the Mediterranean coastline. MWRI has the authority to issue licenses for domestic and industrial discharges to the surface and groundwater bodies. Under this project, MWRI will be responsible for ensuring that the water quality of the Lake Mariout and drains will be in accordance with the Egyptian standards and guidelines.

The **Ministry of Health (MoH)** is responsible of public health in general. In the framework of Law 48/1982, this ministry is involved in standard setting and monitoring.

The Environmental Health Department (EHD) is responsible of monitoring with respect to potable water sources, drain waters to be mixed with other waters for drinking purposes, industrial and sewage plant effluents. The EHD will monitor the effluents from the Eastern and Western WWTP to ensure compliance with environmental legislation. The MoH reports non-compliances related to effluents to MARL for enforcement. Under this project, EHD will be responsible for monitoring the compliance of effluents discharged from the WWTPs with the relevant environmental standards.

The **Ministry of Agriculture and Land Reclamation (MALR)** develops policies on the use and subsidy reduction of fertilizers and pesticides to improve the water quality of agricultural drains. MARL will monitor the compliance of effluents from Eastern and Western WWTPs with the water reuse regulations as set forth in Egyptian Code for water reuse in agriculture. Under this project, MARL will be responsible for the monitoring the fish production and quality in case that effluents are used for aquaculture.

The **Ministry of Labour and Immigration (MLI)** is responsible of safeguarding the rights of labour force in safe working environment. Under Law 12/2003 and its executive regulations, Ministry of Labour sets limits for occupational health and safety in the working environment. THE MLI will inspect the compliance of the AGPP project with the occupational health and safety regulations in Egypt. Under this project, particularly those related to the project activities.

ANALYSIS OF ALTERNATIVES TO THE PROJECT

Alternatives have been analysed at aggregate level (the total project under consideration) as well as at the level of components with a major Works content, i.e. enhanced wastewater treatment (component 1.1.) and the development of the Lake Mariout area (component 1.2). These components have been evaluated and compared in terms of investment costs, land requirements, environmental impacts, social impacts, community needs and local conditions.

Aggregate Level

Two alternatives to the proposed Project have been evaluated, i.e. the current situation (the "no-project" alternative) and the alternative of separate implementation the project components.

The "no project" alternative to the proposed Project would result in the continued deterioration of the water quality of Lake Mariout due to the discharge of primary treated wastewater to it. The deterioration of Lake Mariout has already resulted in limiting the opportunities of using this important water resource as a basis for sustainable development in the area. The uncontrolled urban and industrial development around the Lake has already resulted into increasing the adverse environmental impacts due to the rising number of squatters and uncontrolled industrial activities in the area.

These settlements will remain with inadequate water supply and sewerage. Severe adverse environmental and health conditions would increase and impact negative on public health and economic potential of these areas. Air quality will deteriorate due to the congested critical access roads, in particular along the Alexandria Desert Road.

The cancellation of investments to develop the area and to improve the business climate will impact negatively on the economic development of the target area and enhance the negative interaction between poverty and environmental degradation in the target areas.

As a result the no-project alternative is not considered to be a viable or acceptable alternative to the proposed project.

The second alternative of considering each component separately on its own and its own merits will not yield the same benefits as the integrated approach adopted in this Project. The improvement of the wastewater disposal system will not improve the water quality in Lake Mariout unless the area around the Lake is developed in a sustainable manner to ensure continual improvement of the Lake Mariout environment. On the other hand, the area surrounding the lake cannot be developed except when the environmental conditions of the lake improve. The overall sustainable development of Alexandria requires improving the business climate to attract investors together with providing basic services and infrastructure, especially to the poor residents in squatter settlements to ensure social security and improve the living and health conditions of these communities.

Component level: The options for wastewater treatment

Three alternatives have been identified including primary treatment (current situation), conventional secondary treatment (proposed in the wastewater master plan in 1992) , and advanced treatment proposed under this project. Particular attention was paid in the evaluation to sludge management and re-use of treated wastewater.

Primary treatment has been proved ineffective and has contributed, together with untreated sewage and industrial effluents, in the deteriorating environmental conditions of the Lake Mariout. Hence, the option of primary treatment is rejected.

The environmental studies on the Lake have shown that even secondary treatment will not help improving the conditions of Lake Mariout and that polluted discharges to the Lake should be avoided. The option of secondary treatment was also rejected, considering the very high investment costs of conventional secondary treatment and the lower quality of effluents than that of the advanced treatment.

The proposed project provides the best water quality permitting re-use of treated effluents in different purposes such as irrigation and aquaculture. A summary of the environmental impacts of wastewater treatment processes is given in Table 2.

Table 2: Comparison of Environmental Impacts of Wastewater Treatment Processes

Parameter	Primary	Secondary	Tertiary
Impact on health	Negative-High	Negative-Medium	Very low
Discharge of effluent in water bodies	Negative-High	Negative-Medium	Very Low
Reuse of effluent in agriculture	Positive-Low	Positive-Medium	Positive-High
Amount of sludge produced	Negative-Medium	Negative-Medium	Negative - High
Reuse of sludge in agriculture (amount)	Positive-Medium	Positive-Medium	Positive-High
Reuse of sludge in agriculture (quality)	Positive-high	Positive-high	Positive-medium
Impact on soil	Low	Low	Low
Odour generation	Negative-High	Negative-Medium	Low
Noise generation	Low	Low	Low

Component level: the options for the Lake Mariout development area

With respect to the development area surrounding Lake Mariout, three alternative development plans have been compared as summarised in the following table. The proposed land use for all alternatives will be limited to tourism facilities, residential compounds, business parks, commercial centres, exhibition and fair ground, recreational facilities, public services, educational facilities, parks and open areas. No industrial activities take place in this area

Table 3: Comparison of the three land development scenarios

Alternatives	Financial benefits	Green areas and water activities	Roads	Cost (Million US\$)
Alternative 1	338.36 feddans of parcels to sell	66.20 feddans	94.52 feddans	31.6
Alternative 2	380.58 feddans of parcels to sell. Providing more financial resources to Governorate that can be used to improve health and education services	95.60 feddans.	48.57 feddans	22.2
Alternative 3	358.41 feddans of parcels to sell	81.88 feddans	55.48 feddans	27.7

The selected alternative (Alternative 2), is the most appropriate, cost efficient and environmentally friendly.

8 SIGNIFICANT ENVIRONMENTAL AND SOCIAL IMPACTS

The IESIA report indicated that the execution of the project will have positive environmental impacts in terms of reducing pollution of natural resources, will generate significant economical, social and public health benefits, will promote sustainable development of the area surrounding Lake Mariout, and will enable the Government represented by the Ministry of State for Environmental Affairs, the EEAA and its Regional Branch Office in Alexandria to improve the enforcement of existing environmental regulations and standards.

8.1 Positive environmental and social impacts

Component 1.1: Enhancing wastewater treatment in Alexandria

The upgrading of wastewater treatment facilities will have a strong positive effect on the overall environment and the public health conditions. There will be improvement of water quality in the drains and the main basin of Lake Mariout and a reduction in the odours emitted from the lake and Qalah drain. As a result, economic benefits will occur in terms of increased water volume of good quality. There will be considerable benefits to the fishermen and communities surrounding the Lake Mariout by improving health conditions and their livelihood as the quality and quantity of the fish caught will increase. Additionally, reducing the odours coming from Lake Mariout, and from the el-Qalah drain will increase the demand and cost of the land for future urban development. Besides, improving people's quality of life, this is also likely to have positive impacts on investment and tourism development in the area.

Component 1.2: Land development of the area surrounding Lake Mariout

The sustainable development of the area surrounding Lake Mariout will reduce the adverse environmental impacts resulting from uncontrolled development around the lake and generate revenues that will be partly used to protect the environment. Improved infrastructure will increase the possibility for people in the target communities to take better advantage of the opportunities offered by the City of Alexandria.

Component 1.3: Reconstruction/rehabilitation of critical access roads

This component will provide alternative routes between industrial zones and the main ports of Alexandria thus reducing traffic loads on the major roads such as Cairo Alexandria Desert Road thus enhancing the attractiveness of the industrial areas for

investors and contributing to an increased level of economic activity in the areas concerned. It will also contribute to the reduction of pollution due to transport along the Cairo – Alexandria Desert Road. Erecting streetlights increases the level of public safety both in terms of road accidents and criminality. Local job opportunities could emerge as the targeted area develops.

Component 2.1 Reduce time, costs and steps of business start-up procedures

Facilitating business start up procedures will improve the business climate in Alexandria that will encourage both local and foreign investment in the Governorate. This will result in providing higher employment opportunities in the city.

Component 2.2 Facilitating registration of land informally held by investors

Existing investors will be able to expand their operations using land as collateral since formerly informally held property would be legally registered in their names. The reform in investment legislations as stipulated by the General Authority for Investment and Free Zones will generally promote a feeling of security that would act as enticement for more investment in the private sector.

Component 2.3: Enhancing PSP in operation and development of industrial area

This project will overcome the existing problems of maintenance of infrastructure. Furthermore, public private partnership in the expenditures related to the management and development of industrial zones will lead to increased compliance with environmental regulations and will mobilize expertise and competence of private sector operations and strategies to help capacity building in these areas.

Component 3.1: Increasing access to infrastructure and services in squatter settlements

The project will rehabilitate water networks in squatter settlements, therefore provide good quality water on a continuous basis and to reduce unaccounted for water. Thus the project will provide controlled water supply to the households and will reduce overdraft of the aquifer. It will improve health conditions of the population by providing them with adequate water quantity and quality.

The provision of wastewater collection to uncovered area in the settlements will have a strong positive effect on the overall environment and the public health conditions. A major benefit of the project is the protection of groundwater resources from contamination by untreated sewage. As a result, economic benefits will occur in terms of lower medical costs associated with treating water-borne diseases.

Component 3.2: Increasing access to jobs, micro-finance and business support services

This component will result in creating more jobs for residents in the selected squatter settlements, therefore, improving their living conditions. Assistance will be provided to residents in squatter settlements to perform home improvements thus improving quality of life. This component will also help building the institutional capacity of small local companies, NGOs, institutional partners and the creation of adequate structures for set up, follow-up and evaluation will institutionalize systems for successive urban upgrading.

Component 4.1: Updating Alexandria Urban Master Plan

Planned urbanisation and industrialisation of Alexandria will result in reducing potential negative environmental impacts as environmental and social concerns will be mainstreamed during the development and preparation of the master plan.

8.2 Potential Adverse Environmental Impacts of the Project

These are summarised below under the following sections and addressed in the ESMP:

- Treated effluents quality
- Sludge quality
- Industrial Effluent
- Agriculture pollution
- Solid waste
- Other environmental impacts: noise, dust, safety and odour
- Social impacts: stakeholders, employment opportunities, and private property

Treated Effluent Quality

Table 4 shows the analysis of raw sewage that is limited to BOD₅ and COD. As these measurements were insufficient, as part of the ESMP, a budget was allocated for the analysis of raw and treated wastewater and for sludge. Treated effluent should be of acceptable quality so that it can be safely discharged into drainage canals and the Mediterranean. This means that the effluent quality should meet the standards for discharge into water bodies and the Egyptian guidelines for agriculture re-use and comply with the requirements of the Barcelona Convention and its protocols (The protocol for pollution from Land-Based Sources requires from Egypt to take all appropriate measures to prevent, abate, combat and eliminate to the fullest possible extent pollution of the Mediterranean Sea Area caused by discharges from rivers, coastal establishments or outfalls, or emanating from any other land-based sources and activities within their territories, giving priority to the phasing out of inputs of substances that are toxic, persistent and liable to bioaccumulate). One of the major parameter of concern is the level of nematodes eggs which should be less than 1 egg per litre for water used in irrigation. The other major concern is the concentration level of nutrients such as ammonia, nitrate and phosphate which could result in algal growth in the receiving water bodies. The level of heavy metals is also of concern and could have adverse impacts on agriculture and water bodies. Regular monitoring of these variables by the PMU and the EMU will be required to ensure strict adherence to the prevailing standards.

The proposed upgrade in WWTPs is based on the advanced treatment of sewage through chemically enhanced primary treatment followed by aerated lagoons then maturation ponds. This process can ensure a treated effluent of acceptable quality for discharge in receiving water bodies and/or re-use in agriculture. This process will result in the removal of nematodes to less than one percent of the concentration in the raw wastewater entering the treatment plant.

Treated effluent from the Eastern and Western WWTPs will be discharged through force mains conveying the water to the Om Dourman basin for fish farming.

Continuous monitoring of treated effluent, to ensure compliance with standards, and of receiving water bodies, to detect any deterioration in water quality, will be conducted as part of the EMP.

Table 4: Influent and Effluent Design Data for Western and Eastern WWTPs

Parameter	Unit	Raw Wastewater	Treated Wastewater
<i>Western WWTP:</i>			
BOD	mg/l	537	<30
COD	mg/l	1654	<60
SS	mg/l	Not measured	< 25
Faecal coliforms	FC/100 ml	Not measured	< 1000
Nematodes	1 egg/litre	Not measures	< 1
Total Nitrogen	mg/l	Not measured	< 30
<i>Eastern WWTP:</i>			
BOD	mg/l	177	<30
COD	mg/l	535	<60
SS	mg/l	Not measured	< 25
Faecal coliforms	FC/100 ml	Not measured	< 1000
Nematodes	1 egg/litre	Not measures	< 1
Total Nitrogen	mg/l	Not measured	< 30

Sludge Quality

Sludge produced from Western and Eastern WWTPs in 2006 is estimated at 58,800 tons/year, and with the advanced chemical treatment the amount will increase to 72000 tons/year by year 2020. The sludge collected in the Western WWTP and Eastern WWTP is primary sludge extracted at the respective sedimentation basins. The sludge from Eastern WWTP is pumped to Western WWTP, where the raw sludge is dewatered. The pH value is around 6.5 and the DS content amounts on average to 4.7%, which is quite normal for primary sludge. Ashes and volatile contents of 24.4% respectively 75.6% show a good degradability of the sludge. Sludge dewatering facilities at the Western WWTP comprise 12 belt filter presses and associated equipment to dewater "in house" the pre-thickened sludge from Eastern WWTP and Western WWTP. Dewatered sludge is then transported to the disposal site 9N for disposal and composting based on analysis of sludge performed during the year. The composted sludge will meet the WHO guidelines of less than one nematode egg per 100 grams dry solids, as well as FAO guidelines for heavy metals content including cadmium, chromium, nickel, lead and zinc. During project implementation, sludge analysis will be conducted in accordance with the monitoring plan in section 8. Should the sludge contain nematode eggs, it will be stored for one year so that the nematode eggs could be removed.

Industrial Effluents

The city of Alexandria is an important industrial centre. Many industrial facilities are located within the project area. Wastewater treatment facilities will provide an opportunity to better control industrial discharges through pre-treatment and connection to the collection system as stipulated in the Egyptian law. In addition, ASDCO will only provide connections to industries that do not discharge toxic substances which may affect the performance of the sewage treatment plant.

The EMU will ensure that the industrial effluent discharges are pre-treated to levels which comply with the Egyptian legislation, taking into account the treatment efficiency that can be achieved by the treatment plant for the various parameters of concern.

For those industries for which their industrial water will not be pre-treated, and/or will not be connected to the network, the Bank-financed Egyptian Second Pollution Abatement Project (EPAP II) will provide financing for developing compliance action plans (CAP) for polluting industrial establishments in the hotspots of Mariout, Abu Qir and El Max. The CAP will address the major pollutants, the type of pre-treatment required and the investments, and monitoring costs for the pre-treatment facility. Operational permits for those industries will be subject to the implementation of the CAP as yearly monitored by the EEAA and enforced by the Alexandria Governorate. This will be reflected in the EMP of the Project.

Agricultural Pollution

The treated effluents and sludge from the WWTPs could be used for irrigation purposes subject to compliance with the Egyptian standards on water reuse and therefore will provide a better irrigation water quality and will increase crop production. Potential contamination and accumulation of heavy metals in crops and soil will be closely monitored in accordance with the monitoring plan to ensure compliance with WHO and Egyptian standards. Training workshops on re-use of treated effluent and sludge as well as awareness campaigns will be also provided to all concerned stakeholders.

Solid Waste

Solid waste generated at the wastewater treatment plants as well as screenings and grit from the inlet works will be collected and disposed by ASDCO in its disposal site (9N) site specially designed for that purpose. In case of waste contamination, 9N management will ensure that signs are posted in the landfills areas notifying of the special waste contaminations. Alexandria Governorate will subcontract Onyx for the disposal of solid waste. The hazardous waste will be disposed of in the hazardous waste, which is operated by the Alexandria Governorate.

Solid waste generated from different construction activities will be handled according to the contractor waste management plan. Solid wastes will be disposed of in the official land fill operated by Onyx. Hazardous waste, if any, will be clearly marked and disposed of at the Nassereya hazardous waste disposal site located in the Amreya area,

Other Environmental Impacts

Adverse environmental impacts during construction (for all components including works) could be significant, however they are only temporary. Typical impacts are those of dust, noise, traffic congestion, and disturbance to the residents of the area. Good construction practices would mitigate most of these temporary impacts to acceptable levels. Dangerous activities in public areas will be controlled to reduce risk to the public, traffic and warning signs will be placed at construction sites, trenches will be provided by fences, or railings. The construction contract document will incorporate all requirements to minimize disturbance from construction activities as stated in Annex 5 of the IESIA report. It will be monitored by the Environmental Specialist at the PMU to ensure compliance and implementation of the required provisions by the Contractor.

Odours emissions from the wastewater treatment plants will be minimized by careful planning and implementation of the plant operation and maintenance procedures. Regular Odour emissions monitoring from the wastewater treatment plants will be implemented to mitigate any non-compliance by taking appropriate operating measures

8.3 Potential Adverse Social Impacts of the Project

The adverse social impacts of the project are summarized below under the following sections and reflected in the ESMP:

- Exclusion of stakeholders and under-representation of vulnerable groups
- Unfair/inadequate/inappropriate land pricing
- Mal-distribution of new employment opportunities
- Public safety and road traffic
- Low use of micro credit lending
- Default repayment of micro credit loans
- Possibility of resettlement
- The cost of installing water meters and sewage and networks

Exclusion of stakeholders and under-representation of vulnerable groups

While the AGPP has many positive impacts on the local population around Lake Mariout, it cannot reach this potential unless all implementing agencies adopt means that are transparent and participatory in order to include the primary stakeholders and the most vulnerable in the process of development. This can be ensured through the formation of a local committee in each community, composed of natural leaders, NGO members, and other representatives, who would be consulted and informed prior to any action that would affect their community directly or indirectly.

Unfair/inadequate/inappropriate land pricing

Rules for pricing lands whether for sale or leasing shall consider activities that are expected to encourage investment on one hand, and create job opportunities on the other.

Mal-distribution of new employment opportunities

The most efficient and direct way in which the target communities will feel ownership of the project is for them to take responsibility of their own development. The employment of local labour in AGPP activities and limiting the insertion of labour from other areas to a minimum will avoid conflicts and will contribute to a comprehensive development of the target areas. Further, in order to guarantee a sustainable development and to maintain long term benefits after the upgrading and construction components of the AGPP are completed, it is important to draft a plan that will involve local human resources in the new employment opportunities that the investors attracted to the area will bring. To the extent possible, any necessary technical and vocational training should be provided to the local population in order to equip them with the necessary skills that will assist them in finding employment in these new opportunities.

Public safety and road traffic

The new roads and the development works that will be conducted pose a potentially large risk on the local population. Public safety should be ensured through the implementation of a road traffic plan and through increasing signage as well as through the establishment of an emergency plan that covers all possible incidents.

Low use of micro credit lending

The focus group discussions that were conducted on the field indicated that there is a significant proportion of the population is not inclined to use micro credit. While the reasons for this are various and include perceived religious prohibitions, some also cited negative experiences with micro credit in the past as a deterrent. In order

to ensure that micro credit programmes are accepted as a means of increasing income, appropriate information sessions and workshops will be conducted in order to better inform the local population about micro credit programmes and their benefits.

Default repayment of micro credit loans

In any micro credit programme there are risks of non-repayment involved. This however can be mitigated through a number of precautionary measures, which in essence are necessary in any such programme. Informing people well of the legal implications of micro credit loans, of their responsibilities and assisting them with non financial services should be part and parcel of the micro credit programme. Also essential is to study the local economy, particularly in light of the AGPP activities that will take place and of the future investments in the area and to encourage micro credit borrowers to establish projects and businesses that will serve these activities, thereby ensuring a market for their business and further contributing to a comprehensive development.

Possibility of resettlement

Alexandria Governorate has already declared itself opposed to the possibility of resettling local populations unless it is absolutely unavoidable. In the eventuality that this will be the case, extra care should be taken in ensuring that the process of resettlement follows the recommendations spelled out in the Resettlement Policy Framework (RPF) document. It is also necessary that the entities involved be well informed of the RPF, of their responsibilities in this regard, and that there be an accountability system.

The cost of installing water meters and sewage and networks

The focus group discussions conducted during the social assessment revealed that a significant proportion of the population in target groups are not favourable to paying for the installation of water meters and for the connection of their homes to sewage and water networks. There is a need to conduct further study of the willingness to pay, and the terms of reference of this study have been annexed to the Social Assessment Report. Also advisable is to consider expanding the micro credit loans for upgrading and repairing homes to include cases of installing water meters and connecting homes to networks

9 ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

The ESMP identifies feasible cost effective measures that may be used to mitigate any adverse environmental impacts that might occur during the construction and operation of the project. The ESMP covers mitigation measures, monitoring and institutional strengthening.

Mitigation of Adverse Environmental and Social Impacts

Mitigation measures have been identified to ensure that the defined objectives of the project are achieved whilst preventing and reducing any adverse environmental and social impacts. Tables 5, 6, 7 and 8 summarise the major impacts and the mitigation measures for the construction and operation phases.

The final design process will detail and finalize construction drawings and tender documents of the project components. This process will incorporate final review of the designs by environmental specialists of the EMU, RBO and PMU to ensure that all required environmental issues are properly addressed and tender documents

include specific provisions concerning environment, health, safety as well as the use of archaeological chance find procedures in the event that unknown archaeological and/or historical sites are encountered during the course of construction. Annex 5 of IESIA report provides instructions to be included as part of the civil work contract.

In addition, pre-tender conferences will be held to brief pre-qualified contractors on the effective implementation of mitigation measures. All pre-qualified contractors will be called to a pre-tender conference at which environmental, health and safety issues will be outlined. The contractors will be briefed on: (i) chance find procedures, (ii) special procedures to be adopted in the vicinity of sites defined as requiring protection, (iii) penalties for non-compliance, and (iv) coordination with concerned authorities.

Liaison arrangements will be established between the public, contractors, and the Project Management Unit. A procedure will be established to allow the general public to lodge complaints at the Project Management Unit about excessive disturbance.

The contractors will provide suitable and reliable equipment for construction, with a formal maintenance program to ensure efficient operations. ASDCO will develop and establish appropriate safety procedures for the operation and maintenance of the wastewater treatment plants. All employees of the contractors and supervising institutions will get suitable training in health, safety and environment.

Monitoring Plan

Monitoring of construction activities will have to ensure that mitigation measures of construction impacts are being implemented properly, while monitoring of operation activities is to ensure that no unforeseen negative impacts are arising. Monitoring will comprise supervision of the civil work contractors as well as physical monitoring. Tables 9 and 10 give the proposed monitoring requirements during the construction and operational phases.

The EEAA Regional Branch Office (RBO) and the Environmental Management Unit (EMU) in Alexandria will have the overall responsibility to oversee that adverse impacts are maintained to acceptable levels and corrective actions are taken when required. A project monitoring report will be prepared on the effectiveness of the ESMP once every 6 months and will be sent to the World Bank after review and approval of the RBO.

Institutional Strengthening

The institutional arrangement and capacities of the organizations in-charge with the implementation and management of the proposed project were reviewed with the intention of providing technical assistance and proposing reinforcement of these organizations as required.

Training programs as summarised in the ESMP, will be designed and implemented with the assistance of local and international experts and will include Supervising Institutions as well as Staff of Wastewater Treatment Plants.

Technical assistance will be provided to EEAA regional branch office and Alexandria EMU to set up baseline data on existing environmental conditions and to develop a quality assurance and a quality monitoring program as well as an enforcement program for industrial discharges. These activities will be implemented in close

coordination with the on-going World Bank Egyptian Second Pollution Abatement Project (EPAP II).

Cost Estimate

A total amount of 1,149,0000 US dollars will be allocated for the implementation of the environmental and social management plan as detailed in Table 11 and will be included in the project cost. It should be noted that the total cost does not include the following:

- Cost of mitigating negative construction impacts (included in the construction contract cost).
- Cost of mitigation measures and routine effluent quality monitoring of the WWTPs (included in the operation and maintenance contract cost).
- Cost of mitigation measures for reconstructing/rehabilitation critical roads. These are considered as part of the project implementation costs.

Table 5: Mitigation Measures for General Construction Works (Components 1.1, 1.2, 1.3 and 3.1)

Potential Impacts	Mitigation Measures	Responsibility		Cost (US\$)
		Implementation	QA/QC	
Water pollution	Collect and dispose wastes, demolition and excavated materials at the landfill operated by Onyx; Restrict surface runoff from the site.	Civil Work Contractor	EMU monitored by ES	Part of Civil Work Contract
Dust from construction activities	Employ dust suppression measures such as wetting and dust enclosures.	Civil Work Contractor	EMU monitored by ES	Part of Civil Work Contract
Air pollution	Enforcing the revised environmental regulations of prohibiting waste burning on site	Civil Work Contractor	EMU monitored by ES	Part of Civil Work Contract
Generation of wastes	Use appropriate methods for the storage of waste materials; Dispose of solid wastes to Onyx landfill and hazardous waste to Nassereya landfill	Civil Work Contractor	EMU monitored by ES	Part of Civil Work Contract
Noise	Limit construction activities between 8:00 am and 7:00 pm with Friday off	Civil Work Contractor	EMU monitored by ES	Part of Civil Work Contract

Table 6: Mitigation Measures during the Construction Phase specific to each component

Potential Impacts	Mitigation Measures	Responsibility		Cost (US\$)
		Implementation	QA/QC	
Component 1.1 Upgrading Eastern and Western WWTPs				
Excavation of potentially contaminated surface sediments from lake dredging	Analysis of pollutants in sediments to be dredged from lake and drain, to ensure that are no hazardous constituents	ASDCO	PMU	17,500
Employment opportunities are not distributed equitably to the local population	Draft an employment plan that ensures the local population is given the necessary training and the opportunity to be integrated in the development activities in their neighbourhoods and the areas surrounding Lake Mariout	Governorate	-	Governorate SFD
Component 1.2 Construction of trunk infrastructure				
Accumulated construction / demolition leftovers on site	Waste analysis for possible use of leftovers as earth for grading and road pavement, otherwise dispose the waste in the sanitary landfill operated by Onyx	Civil Work Contractor	EMU monitored by ES	8,000
Component 3.1 Infrastructure improvement to squatters				
Clogging of natural drainage channels	Maintain ditches	Civil Work Contractor	EMU	Included in project costs
Encroachment on private property	Where resettlement is unavoidable, develop and implement appropriate plans in accordance with the AGPP Resettlement Policy Framework.	PMU	Alexandria Governorate	RPF implemented
Risk of damage to unknown archaeological sites	Use "chance find" procedures and coordinate with the Higher Council for Monuments	Civil Work Contractor	Higher Council for Monument monitored by ES	TBD based on project
Cross contamination sewage and water lines due to pressure differentials and leaks)	Employ suitable prevention measures such as good drainage around water supply points	Civil Work Contractor	AWCO monitored by ES	Included in project costs
Site Selection for proposed buildings such as post offices and medical centres	Specific lots should be chosen based on geographic and topographic characteristics. The site selection involves analysis of the site's urban characteristics; accessibility; land ownership; suitability of soils for construction; contamination pollutants.	SFD	PMU	Included in project costs
Impacts from CDD sub-projects	Compliance with the construction guidelines for CDD sub-project detailed in Appendix 5 of the IESIA report	Civil Work Contractor	EMU monitored by ES	Part of Civil Work Contract

Table 7: Mitigation Measures during operations

Potential Impacts	Mitigation Measures	Responsibility		Cost (US\$)
		Implementation	QA/QC	
Component 1.1 Upgrading Eastern and Western WWTPs				
Industrial effluents affecting the treatment process	Prohibit connections to sewer networks in case that polluting industrial establishments do not have pre-treatment Require that each polluting establishment prepare a compliance action plan	ASDCO EEAA - RBO	EEAA – RBO Alexandria Governorate	No additional cost EPAP II funding scheme
Health and environmental risks associated with discharge and reuse of treated effluent in irrigation or fish farming	Adequate treatment should be provided to control the effluent quality through proper operation and maintenance of the WWTPs, including regular inspection and maintenance. Such measures should be defined as part of the operation and maintenance manual of the WWTPs	WWTP Management	ASDCO Management	No additional cost
Sludge disposal	Dispose of all sludge in the 9N disposal site till the implementation of the new sludge management system in the consecutive phases	WWTP Management	ASDCO Management	No additional cost
Odour and insects at the 9N site	Provide covers to equipment, containers and beds that are likely to cause odour nuisance	9N Management monitored by ASDCO Environmental Unit	EMU	No additional cost
Increased incidence of water related diseases in wastewater reuse scheme	More frequent Parasite monitoring for workers and residents (weekly minimum) of wastewater quality at various points to determine source of contaminant prior to entering irrigation system and at various points throughout system. Conduct a workshop to educate residents and local government officials about causes of disease	WWTP Management	EHD	10,000
Odour at the Eastern and Western WWTPs	Proper planning and implementation of operation and maintenance Provide covers to equipment, containers and beds that are likely to cause odour nuisance	WWTP management monitored by ASDCO Environmental Unit	EMU	No additional cost
Nuisance during sludge transportation	Provide covers to trucks during sludge transportation	ASDCO	Environmental Unit	No additional cost

Potential Impacts	Mitigation Measures	Responsibility		Cost (US\$)
		Implementation	QA/QC	
Sludge quality and the risk of public and farmers acquiring infection	Approval for reuse should be obtained from Ministries of Health and Agriculture	9N Management	ASDCO Environmental Unit	No additional cost
	In the case that the nematodes are higher than requirements. Sludge should be stored for more than 1 year to ensure that no parasites are present in sludge.	9N Management	ASDCO Environmental Unit	No additional cost
Risk of groundwater pollution at 9N sludge disposal site	Construct two monitoring wells upstream and downstream the site to perform regular testing of groundwater quality	9N management	ES	15,000
Pollution of Lake Mariout from failure of dykes of the ponds at the Western WWTP	Regular visual inspection of the integrity of the dykes	Western WWTP Management	ASDCO maintenance department	ASDCO maintenance budget
Component 1.2 Construction of infrastructure at land development area				
Water pollution from improper disposal of wastewater	Connect internal wastewater network to the main 400mm pipeline running near the area and collecting to the Western WWTP	Contractor	ASDCO	Included in project costs
Air pollution from activities in the area	Ensure compliance of establishments with environmental regulations concerning air pollution	EMU	EEAA – RBO	No additional costs
Water pollution	Ensure compliance of establishments with environmental regulations concerning water pollution	EMU	EEAA – RBO	No additional costs
Generation of wastes	Dispose of solid wastes and locate suitable number of bins for waste collection	Onyx	Alexandria Governorate	Onyx operational costs
Component 1.3 Reconstruction/Rehabilitation of access roads				
Noise and public safety near residential areas at Al Sad Al Aly road	Construct noise and public safety barrier (concrete type) for the area passing through the residential areas	Contractor monitored by ES	EMU	Included in project costs (Unit cost of noise barrier is 22.5 US\$/ft ²)
	Construct pedestrian bridges to enhance the accessibility of residents between the separated areas.	Contractor	PMU	Included in project costs
Storm water management	Construct appropriate storm water drainage system for the roads rehabilitated	Contractor	PMU	Included in project costs

Potential Impacts	Mitigation Measures	Responsibility		Cost (US\$)
		Implementation	QA/QC	
Public safety is at risk from the roads trafficked by trucks serving the oil and petrochemical industries	Put signage on the roads and improve existing ones Decrease traffic control Establish an emergency plan for cases of accidents and emergencies on these roads	Transport Authority	Governorate	No additional costs
Component 2.1 Reducing time and steps of business start-up				
New job opportunities resulting from investors attracted to the area do not employ local labour	Focus on enhancing human capital skills-sets to match needs of private investment projects, thus promoting technical and vocational education.	Governorate	-	Governorate budget
Component 3.1 Infrastructure improvement to squatters				
Storm water management for roads rehabilitation	Construct appropriate storm water drainage system for the roads rehabilitated	Contractor	PMU	Included in project costs
The cost of installing water meters is too high for some families	Develop a micro credit program for the installation of water meters, connection to sewage and water distribution networks as well as for upgrading homes	SFD	PMU	Cost of installation of water meters (LE 500) x number of households
Disease transmission through infectious waste sharps and contaminated water. Chemical and toxic threats through chemical and pharmaceutical exposure for medical centers	Train staff trained on handling, storage, treatment, and disposal of medical waste Provide protective clothing for staff handling medical waste Good hygiene practices Vaccinated workers Temporary storage containers in designated locations Segregate solid and medical waste Incinerate medical waste in a designated site	Medical centre management	PMU	Included in project costs
Spread of disease and environmental impact from planning new medical centres	Select a location with easy access to safe drinking water Install adequate sanitation facilities to prevent the spread of disease from infected patients Avoid locations adjacent to schools to minimize children's risk of exposure Pick a location where waste can be safely buried easily shipped off site for safe disposal in sanitary landfill	Medical centre management	PMU	Included in project costs

Potential Impacts	Mitigation Measures	Responsibility		Cost (US\$)
		Implementation	QA/QC	
Component 3.2 Micro-credits				
Low use of micro credit lending for housing improvements	Any micro credit schemes must be accompanied by information sessions to familiarize community members with benefits of micro-credit and how it functions	SFD	PMU	SFD
Default repayment due to limited experience of business start-up and to lack of legal awareness	Provision of business start-up and business advisory services to offer community members a comprehensive set of services Conduct sessions for borrowers prior to taking loans in order to inform them of the legal aspects of micro credit loans.	SFD	PMU	Included in project costs SFD budget

Table 8: Mitigation Measures General Social Aspects

Potential Impacts	Mitigation Measures	Implementation Responsibility	Cost (US\$)
Exclusion of primary or secondary stakeholders	Conduct a public awareness scheme and public consultations	Governorate	Governorate budget
Under-representation of groups in vulnerability context or vulnerable to risk	Conduct economic analysis for vulnerable groups in the area (fishermen, poorer communities and scattered population in the area) Establish community representation through community committees	Governorate	15,000
Absence or reluctance of PPP	Prepare and implement schemes to mobilize public-private participation PPP	Governorate	Governorate budget
Unfair/inadequate/inappropriate land pricing prevents the poor from buying the land their house is built on	Establish a transparent process for the purchase of land and provide access to housing loans	Governorate	Governorate budget

Table 9: Monitoring Program for General Construction Activities (Components 1.1, 1.2, 1.3 and 3.1)

Environmental Parameters to be monitored	Monitoring Location	Frequency	Standard	Responsible Organization		Cost (US\$)
				Implementation	Supervision	
Noise	Construction sites	Quarterly	90 dB (A)	Civil Works Contractor	ASDCO	7,000
Noise	Activities near residential areas	Twice weekly at daytime and night	Daytime: 60 dB Night: 50 dB	Civil Works Contractor	EMU	75,000
TSP	Activities near residential and unpaved roads	Twice daily (am and pm)	230 µg/m ³ / 24 hrs	Civil Works Contractor	EMU	32,000

Table 10: Monitoring Program for the operations phase

Environmental Parameter to be monitored	Monitoring Location	Frequency	Standard	Responsible Organization		Cost (US\$)
				Implementation	Supervision	
Component 1.1: Upgrading WWTPs						
Treated effluent quality and Om Dourman Basin						
BOD5 COD PH Oil and grease TSS Nematode eggs Fecal coliform.	Raw sewage and at final discharge point of Wastewater Plants	Daily	60 mg/l 80 mg/l 6 – 9 10 mg/l 10 mg P/l ≤ 1 egg/litre 1000/100 ml	WWTP management at operations	EEAA - RBO	155,000
Phosphate Ammonia Nitrate Fluoride Sulphate Sulphide Phenols TDS	At final discharge point of Wastewater Plants	Weekly	10 mg/l 5 mg/l 10 mg/l 90 mg/l 20 mg/l 500 mg/l 1 mg/l 0.2 mg/l	WWTP management at operations	EEAA - RBO	52,000
Cadmium Chromium Copper Iron Lead Selenium Silver Zinc	At final discharge of Wastewater Plants and in Om Dourman Basin	Monthly	0.1 mg/l 0.1 mg/l 0.5 mg/l 3.5 mg/l 0.1 mg/l 0.1 mg/l 0.5 mg/l 2.0 mg/l	WWTP management at operations	EEAA - RBO	27,000

Environmental Parameter to be monitored	Monitoring Location	Frequency	Standard	Responsible Organization		Cost (US\$)
				Implementation	Supervision	
Sludge						
Nematode eggs (egg/100gm solids) Faecal Coliform	At 9N site	Every Batch	<1	9N Management	EEAA - RBO	73,000
Heavy Metals: Cd Cu Ni Pb Zn Cr	At 9N site	Every Batch	(mg/kg sludge) 20 – 40 1000 – 1750 300 – 400 750 – 1200 2500 – 4000 16 - 25	9N Management	EEAA – RBO	180,000
DO pH Faecal coliform	Ground water Monitoring wells at 9N site	Every six months	DO > 4 mg/l pH 7-8.5 FC < 5000 / 100 ml	9N Management	EEAA - RBO	15,000
Component 1.2 Construction of trunk infrastructure						
Overflows of manholes	Areas of wastewater collection system	Every 6 months	No overflow from manholes	Wastewater collection system operators	ASDCO Environmental Unit	No additional costs
Component 1.3 Reconstruction/Rehabilitation of access roads						
NO _x CO TSP	Near residential areas at the Sad Aly road	2 / year (Jan and Jul) for 5 consecutive days. Four times a day at 07:00, 10:00, 14:00 and 17:00.	NO _x : 400 µg/m ³ (1 hr) 150 µg/m ³ (24 hr) CO: 30 mg/m ³ (1 hr) 10 mg/m ³ (8 hrs) TSP: 230 µg/m ³ (24 hrs)	EMU	EEAA – RBO	50,000
Noise	Near residential areas at the Sad Aly road	4/ year for 2 consecutive days	Daytime: 60 dB Night: 50 dB	EMU	EEAA – RBO	75,000
Component 3.1 Infrastructure improvement to squatters						
Operating drainage channels	Road rehabilitation area	Every 6 months	All drains in settlements operating	EMU	MWRI	No additional costs
Overflows of manholes	Areas of wastewater collection system	Every 6 months	No overflow from manholes	Wastewater collection system operators	ASDCO Environmental Unit	No additional costs

Table 11: Cost Estimate of Environmental and Social Management Plan

Component	Quantity	Unit Rate US\$	Total Cost in Thousand US\$
MITIGATION MEASURES (Tables 5 – 8)	65,500	-	66
MONITORING PLAN (Tables 9 – 10)	741,000	-	741
Subtotal			807
INSTITUTIONAL MEASURES			
<u>Recruitment:</u>			
Environmental Specialist for the PMU	5 years	24,000/year	120
Short term environmental consultant to provide technical assistance to the PMU	10 months	12000/month	120
<u>Studies, Training and Awareness</u>			
Two days workshop to site supervisors, EMU and EEAA - RBO on environmental management, monitoring, analysis and evaluation	2 workshops	7000/workshop	14
Two days workshops for EMU, EEAA – RBO and ASDCO on treated effluent and sludge re-use	2 workshops	7000/workshop	14
One week training workshop to Staff of Wastewater Treatment Plants on laboratory sampling, analysis, environment monitoring and QA/QC	4 workshops	4000/workshop	16
One day training workshop on occupational health and safety to staff at Wastewater Treatment Plants	4 workshops	1000/workshop	4
One day workshop for local NGOs, communities and farmers, focusing on public awareness and on re-use of treated wastewater and sludge for agricultural purposes.	4 workshops	1000/workshop	4
Public awareness and notification on project activities			50
Subtotal			342
TOTAL			1,149

10 PUBLIC CONSULTATION

10.1 Public consultation

Numerous governmental and non-governmental organizations were consulted at various stages of project preparation, as shown in Tables 12 and 13. At the initiation of the project, technical, financial, environmental and social issues associated with the project were discussed in meetings attended by design consultants, representatives of the City Council, NGO's, and various other stakeholders. Terms of reference (TOR) for the

IESIA studies were developed and shared with key stakeholders in scoping meetings, which were held on April 2006.

The people consulted in the public hearing are classified in the following table:

Table 12: Number and classification of participants in public consultation

Sector	No of attendees
Governmental Organizations	23
Civil society, NGOs, Investors, business	23
International organizations	4
Academics	9
Media	4

The purpose of the public consultation meetings was multi-fold, namely:

- To disseminate information about the nature of the proposed project.
- To raise the awareness of the public regarding the nature and purpose of the Integrated Environmental and Social Impact Assessment process in simple-to-follow terms.
- To identify a preliminary list of potential environmental and social issues and impacts.
- To explore, discuss, and document the issues of concern to the public; which would be addressed in the future phase of impact assessment.
- To disclose to the public how the impacts were determined, the magnitude and severity of the impacts, and the proposed mitigation measures.

Upon the completion of the draft IESIA report, the executive summary was translated to Arabic and a public hearing was held in Alexandria for presenting the findings and recommendations of the consultants at the end of the IESIA process. The Public hearing was held in Alexandria on August 1st, 2006 and was attended by a large number of people including representatives of the academic society, civil society, government officials, entrepreneurs, elected local popular council, contractors, consultants, and medias.

The public mainly expressed their eagerness to improve Alexandria environmental and enhance living conditions of the Alexandria community in general and within the project area specifically.

The main concern of the public was focused on Lake Mariout where they expressed their discontent with the current levels of pollution in the Lake and the land filling practices that are taking place illegally. The participants showed their strong commitment to protect the Lake from further deterioration and opposed any trials to landfill more areas within the lake.

Concerning the wastewater treatment facilities, the issue of proper operation and maintenance of the proposed technological solutions was raised as a risk factor that need to be carefully highlighted in order to provide good training and capacity building for the plant operators. Another issue raised was whether the proposed wastewater plants will be capable of improving the quality of the treated wastewater to the extent that it can be used for irrigation of some green areas. The sludge disposal issue was also highlighted during the discussions and the public showed their concern about how

the sludge will be treated, how it will be utilized and where it will be eventually disposed of.

Regarding the land development, the public wondered about the rational behind developing the lands surrounding Lake Mariout specifically and not moving towards the west of Alexandria. Also, the social aspects concerning this component were raised in a clear signal that the local community should benefit from the land development process through provision of job opportunities and affording capacity building for the locals to improve their skills.

The rehabilitation of the roads took a good portion of the discussion where a public concern was highlighted concerning the existing congestion and how it obstacles the proper development of the industrial areas and connecting them to the ports and main roads. The issue of potential resettlement of some families due to road widening was raised in order to ensure that proper and timely compensations are afforded to affected ones.

Concerning the industrial area in El-Nahda, there was a public concern about the current status of compliance of the existing industries with the legal requirements and whether there will be efforts to bring them to compliance. The issue of lack of information about the pollution levels in these areas was also highlighted and it was requested to make such information available for the public.

10.2 Public disclosure

Complete sets of the IESIA reports for the AGPP, including the Arabic Version of the executive summary will posted for public disclosure purposes in the following places accessible to the public:

- Public relations office, Alexandria Governorate
- AGPP Project Implementation Unit, Alexandria Governorate
- AGPP web site
- Bibliotheca Alexandrina

Moreover, the documents will also be disclosed electronically through the World Bank Information Center (Infoshop) website (www.worldbank.org/infoshop).

Table 13: Key Comments Raised during the Scoping Meetings

Key Issue	Comments	Action taken
Slum Upgrading	<ul style="list-style-type: none"> - The 3 squatter settlements are characterised by being informal and can not be identified as "slums". - El-Nahda and Om-Zhegio areas are not considered as slum areas. - Alexandria Governorate/AGPP approach is to improve the living conditions of the dwellers of the 3 settlements. No resettlement is intended. - Rehabilitation and improvements of physical conditions are the common interventions adopted by Alexandria Governorate as in the case of Karantina district. - Dwellers are feeling quite secure and the issue of regularization is not of high priority at this stage especially in El-Amrawy and El-Hadra El-Gedida 	- Modification of the terms of reference for the IESIA based on the scoping session
Environment (Water Quality)	<ul style="list-style-type: none"> - Need to consider impacts of the project on Alexandria sea and beaches. 	

	<ul style="list-style-type: none"> - Continuous monitoring of sea water quality will be needed - Water quality monitoring in Lake Mariout especially after implementation of the proposed enhanced treatment - Lake Mariout needs special attention and high level coordination between different Government Authorities such as fisheries, EEAA and Alexandria Governorate - Possibility of re-using the treated waste water in planting trees and mixing with agriculture wastes - Accessibility to sea water quality data through the EU project running under the EEAA and with the CEDARE NGO. 	
Environment (Air Quality, Fauna and flora, Land Topgraphy)	<ul style="list-style-type: none"> - Data about air quality are existing for Alexandria in general but not necessarily for the project areas. - Will the fauna and flora and land topography for the areas surrounding the project be affected? 	
Environment (Lake Mariout and Surroundings)	<ul style="list-style-type: none"> - The proposed area for development surrounding Lake Mariout might be affected by high level of ground water - Coordination with the Industrial Development Agency is needed regarding future development plans in the area. 	
Business Environment/Micro Enterprises	<ul style="list-style-type: none"> - Management of micro-loans - Encouraging formalization of micro scale polluting workshops for the purpose of upgrading 	
Social	<ul style="list-style-type: none"> - Positive impacts of the project on the behaviour of the residents of the areas - Willingness of the dwellers to pay for improved services and regularization 	

Table 14: Key Comments Raised During the Public Hearing

Project Component	Key comments	Action taken
Overall Project	<ul style="list-style-type: none"> • Current stage of the project design and implementation and whether the inputs of stakeholders will be considered in other project phases • More technical information about the project are needed • Social Impacts of the project on the public in terms of traditions • Involvement of the community and their natural leaders in the project. 	<ul style="list-style-type: none"> • The AGPP project is currently in the final design phase after several rounds of workshops and discussions. For the environmental and social impact assessment, the input from different stakeholders at this public consultation event will be reflected in the report before being finalized and published. • All reports shall incorporate the issues raised during the consultation stages and will be disclosed to the public. • A social assessment report was prepared to determine the overall social impacts • The social study recommended the involvement of the community during various stages of the project cycle.
Wastewater (Component 1.1)	<ul style="list-style-type: none"> • The negative impacts of the existing primary wastewater treatment plants are many because they are not capable to 	<ul style="list-style-type: none"> • The proposed project involves advanced treatment of wastewater at the Eastern and Western WWTPs. This level of treatment will

Project Component	Key comments	Action taken
	<p>treat the amount of sewage produced daily</p> <ul style="list-style-type: none"> • Lack of training for the wastewater treatment plant staff and the lack of maintenance may affect the quality of treated sewage that is planned to be reused to irrigate green areas and green belt around Alexandria • More technical and economic information are needed about the proposed solution for wastewater treatment • Will the treated wastewater quality be high enough to be re-used • Information about Lake Mariout water quality and the existing pollution level need to be available for the public may be in a form of database • Protection of Lake Mariout and avoidance of further damage or pollution to the lake is necessary. 	<p>enhance reuse of treated water by reducing the pollutants to a level that permits water reuse according to Egyptian and International standards. Effluents <u>will not</u> be discharged to the Main Basin of Lake Mariout. Section 3 in the report provides details of the proposed project including technical and economic information. Additionally, Section 6 compares the proposed project to other alternatives in terms of technology used, possibility of reusing treated water, and economics.</p> <ul style="list-style-type: none"> • The ESMP in this report includes on the job training for the operators and the development of O&M manual by the contractor prior to delivery of the project to ASDCO. This will ensure proper operation and maintenance of the plant to optimise the treatment process.
Land Development (Component 1.2)	<ul style="list-style-type: none"> • Potential environmental impacts due to tourism development around Lake Mariout as part of the Land Development component • The rationale upon which the area surrounding lake Mariout was designated for land development instead of other areas west of Alexandria • Land development around Lake Mariout and its relation to a wider urban development plan of Alexandria City • Resettlement of families due to land development and appropriateness of compensation • Current practices of land-filling that occur in Lake Mariout and whether more land-filling will take place during land development 	<ul style="list-style-type: none"> • The potential environmental impacts for land development are detailed in section 3 of the report. • One of the main objectives of the project is to ensure sustainable development in the area surrounding the Lake Mariout. The details are presented in section 3 of the report. The project aims to prevent uncontrolled development around the lake, thus maintaining the lake and its quality after improvement through component 1.1. • No resettlement of families is expected from this component.
Roads Rehabilitation (Component 1.3)	<ul style="list-style-type: none"> • The impacts of roads rehabilitation on the communities, businesses and the environment (for example increase in traffic primarily trucks will increase noise levels in residential areas) • Resettlement of families due to road rehabilitation and appropriateness of compensation 	<ul style="list-style-type: none"> • No resettlement is intended due to any of the project components. However, it is expected to acquire land from State-owned enterprises to implement rehabilitation of Om Zeghiou and El Sad El Aly roads to bypass restricted residential areas. • A Resettlement Policy Framework has been prepared to deal with any unlikely resettlement

Project Component	Key comments	Action taken
Enhancing PSP in development and management of industrial areas (Component 2.3)	<ul style="list-style-type: none"> Environmental Impacts of the industries in industrial areas (El-Nahda) 	<ul style="list-style-type: none"> The AGPP involves only the implementation of a pre-feasibility and detailed feasibility analysis for involving private sector in the operation and development industrial zone. The feasibility analysis will investigate the readiness of private sector to participate in the operation of industrial areas and the possible regulatory reforms to promote PSP in industrial zones management. The component does not include any works that can affect the environment in the project area.

10.3 Conclusions

The main outcomes from the first consultation stage demonstrate that there is a high level of optimism regarding the results of the project. However, very high expectations and diversity of problems facing the Alexandria community were dominating the discussions. The complexity of the proposed AGPP and its diversified nature also represented a major challenge especially in terms of coordination between the different components and the various consultants.

The interviewed persons from the government, technical consulting firms, business community and dwellers of the project areas all welcomed the project and were quite well informed about the AGPP. This is explained by the fact that many of the activities were taking place on the ground and many of the government officials as well as project consultants were frequently conducting field visits.

The second stage of public consultation showed that the water quality of Lake Mariout is the main concern of the majority of the participants. It was obvious that any of the project components (especially wastewater treatment and land development around Lake Mariout) should not have any negative impacts on the lake. In fact, there is a need to demonstrate that the key project components will eventually improve the overall conditions of the lake.

Other concerns that were raised during the consultation were concerning the social impacts of the project and the inclusion of the community during the project implementation in order to maximize the socio-economic benefits of the project.

Concerns raised during the Public Consultations have been addressed in the ESMP.

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Annex 2: Map showing project areas

