

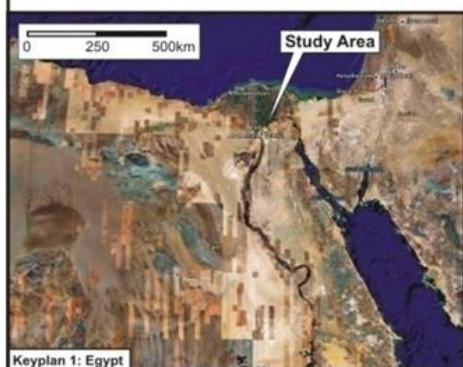
EGYPTIAN REFINING COMPANY PROJECT

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

NON-TECHNICAL SUMMARY



March 2009



Legend

- Project Area
- Traffic routes
- Social & Health survey sites
- Heavy Industry
- Populated areas
- Agriculture
- Canal

- AA2 Active Air Sampling Location
- PA2 Passive Air Sampling Location
- Proposed Noise Monitoring Location

Note: Boundaries shown are approximate only
 * Wind data based on 5-year average
 Drawing reference: Image supplied courtesy of Google Earth

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EGYPTIAN REFINING COMPANY PROJECT

INTRODUCTION

The Egyptian Refining Company (ERC) engaged prominent international and Egyptian environmental and social scientists to develop an Environmental and Social Impact Assessment (ESIA) of the Project. This process follows international and Egyptian “best practice standards” to assess impacts which the Project might have on the environment, neighboring communities and other stakeholders. Where potential environmental or social impacts/risks are identified, mitigation measures and management plans/tools are put in place to address issues.

Through an extensive series of consultations with the public, Government officials, Non-Governmental Organizations (NGOs) and others, which will continue throughout the design, construction and operation phases of the Project, ERC discloses Project information. This process considers all Stakeholders’ relevant views, expectations and needs to ensure that the Project achieves support and is a “good neighbour”.

The Non-Technical Summary of the Environmental and Social Impact Assessment is available on the ERC website: www.ercegypt.com. Additional information about the Project, including a description of its benefits, can be found on the website. The complete ESIA is available at the ERC main office at 14 Refaa Street, Dokki, Cairo.

PROJECT OVERVIEW

In response to increasing demand for refined oil products in Egypt, a proposal has been put forward for a project which will upgrade the existing Cairo Oil Refining Company (CORA) refinery with additional product processing units. ERC will further process products from the existing CORA refinery to produce additional high-quality petroleum products essential to Cairo and Upper Egypt consumers.

This Project, which is to be located in the Mostorod District in the Qalyoubia Governorate 40 km outside Cairo, will be built within the existing Mostorod Petroleum Complex. Non-operating facilities such as offices, warehouses and workshops will be located on the site previously occupied by Chini, Misr Aluminum and El Nasr Glass factories near El Karatssa.

Construction activity will be over a three-year period. The operational lifespan of the facility is expected to be approximately 25 years.

Private Egyptian and Arab investors, led by Citadel Capital, own 85% of the shares. The Egyptian General Petroleum Corporation (EGPC) owns the remaining 15% of shares. To obtain the funding for this major project, a number of international lenders will be involved; therefore, an internationally-compliant ESIA is required.

PROJECT RATIONALE

With the expansion and development of the Egyptian economy, the domestic demand for refined petroleum products, especially diesel, has rapidly increased. In addition, as more natural gas is utilized to meet Egypt's expanding requirements for electricity, the demand for fuel oil decreases. The technology in most of Egypt's refineries produces large amounts of fuel oil, but the growing demand is for lighter products such as diesel. The increased demand for lighter petroleum products is one of the most important challenges Egypt's oil and gas industry faces.

Egypt has nine refineries operating in five governorates; however, with the growing demand for refined petroleum products, these refineries cannot supply all the products Egypt requires. Therefore, Egypt increasingly relies upon imports to satisfy domestic needs.

To address Egypt's increasing need, the **Egyptian Refining Company (ERC)** was incorporated in July, 2007 as a Law 8 Company to upgrade the existing CORC Refinery in Mostorod to provide Egypt with additional lighter petroleum products such as diesel and jet fuel which will be delivered to the heart of the consumption market—Cairo. ERC's products will reduce Egypt's dependency on petroleum imports.

Refinery	Start-Up Date	Location	Capacity (Barrels/Day)
AMOC	2002	Alexandria	34,447
MIDOR	2001	Alexandria	100,000
Assuit	1987	Assuit	47,000
Tanta	1973	Tanta	35,000
Ameriya	1972	Alexandria	78,000
CAIRO	1969	CAIRO	160,000
Alexandria	1957	Alexandria	100,000
El Suez	1921	Suez	64,400
El-Nasr	1913	Suez	146,300

Figure 1: Refineries in Egypt

PROJECT LEGAL AND ADMINISTRATIVE FRAMEWORK

The ESIA has been prepared to meet Lender expectations of compliance with a number of environmental and special legislative requirements, procedures and guidelines from the following agencies:

- Egyptian Environmental Affairs Agency (EEAA);
- International Finance Corporation (IFC);
- World Bank;
- Equator Principles;
- European Investment Bank; and
- Korean EX-IM Bank.

EEAA Approval

In June 2007, EEAA granted ERC an environmental license for the Project based on the stage the Project was in and the initial Environmental Impact Assessment (EIA). Subsequently, after consultations with various stakeholders, EGPC and ERC decided to relocate the Project's process units to avoid potential negative impacts on nearby residents. As a result, the EIA was modified to reflect the location change and resubmitted to EEAA for approval. ERC anticipates receiving the license from EEAA for the re-submission shortly.

The review process by the EEAA has been as follows:

- ERC submitted the EIA prepared by Center for Environmental Research and Studies (CERS) to EEAA in February 2007.
- EEAA evaluated the document and responded with a formal request for more information.
- CERS sent the requested information to EEAA in April 2007.
- EEAA issued a temporary environmental license for the Project in June 2007 (final approval is not granted until facility is operational).
- EGPC and ERC relocated the process units to avoid potential negative impacts on nearby residents; modification of EIA required.
- CERS prepared and presented a modified EIA based on the revised Project layout plan to EEAA for approval in November 2008.



Figure 2: CORC Refinery, May 2008

- EEAA requested additional information in February 2009.
- ERC and CERS prepared the missing information and sent it to EEAA in March 2009.
- Temporary EEAA approval is anticipated in mid-2009.
- EEAA will grant final approval when the ERC facility is operational and EEAA finds it compliant with its environmental commitments.

PROJECT PROCESS AND PRODUCTS

The ERC Project will largely utilise feedstock from the CORC facilities' existing units and will sell its refined products to EGPC at international prices. ERC will produce European (EU V) grade diesel and IATA worldwide specification jet fuel for use solely in the domestic market of Egypt.

The main products from ERC will include:

- Diesel;
- Jet fuel/Kerosene;
- Reformate, Naphtha;
- Liquefied Petroleum Gas (LPG); and
- Fuel Oil.

By-products of the ERC Project include coke and sulphur, both of which are valuable products that will be sold to the local and international markets.

The products produced by ERC will benefit from a 99.9% sulphur recovery technology, i.e., virtually zero sulphur, leading to a reduction in air pollution and greenhouse gases (removing approximately 93,000 tons of sulphur annually) compared to the fuels currently being used.

ERC will be a landmark refinery as the first in Egypt to produce European (EU V) grade diesel for use in Egypt.

PROJECT DEVELOPMENT

As part of Project feasibility, a series of alternatives were explored to determine the best options for the Project and for meeting Egypt's petroleum needs.

Project Benefits

ERC's Project for upgrading the CORC Refinery, built in 1969, to provide much needed lighter products realizes many benefits for Egypt:

- ERC's investment of LE 20 million on environmental improvements within the existing CORC and Pipeline Petroleum Company;
- The investment in Egypt of over USD 3 billion for an import substitution product;
- High-quality petroleum products produced by ERC using the latest technologies, removing 93,000 tons of sulphur each year;
- Short-term employment of 7,000 – 8,000 Egyptian staff during the three-year construction phase;
- Long-term employment opportunities for 700 Egyptian staff during the operating phase of the facility for 25 years; and
- Reduced air emissions from the clean fuel produced.

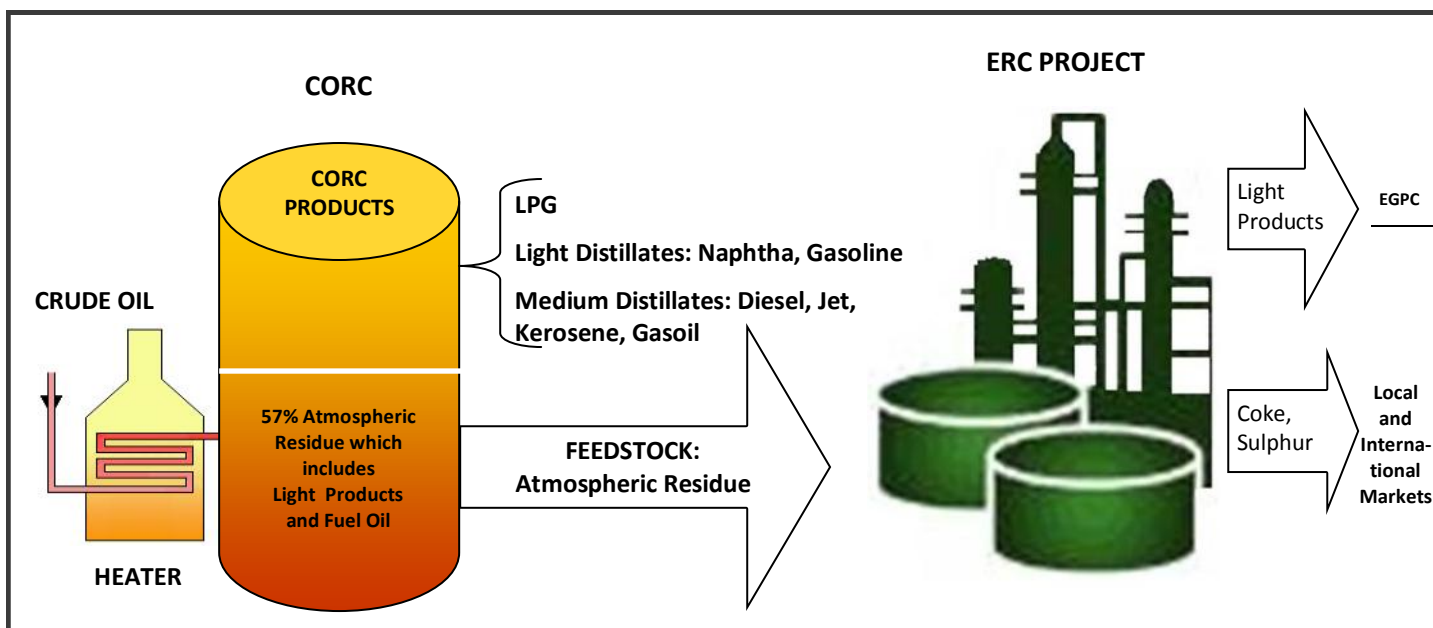


Figure 3: ERC Refining Process: Using Atmospheric Residue from CORC, ERC will produce lighter petroleum products for use in the Cairo market.

The “No-Action” option would lead to loss of these outcomes, and no economic, environmental, social, and health benefits would be realized for Egypt.

Technology Selection

Multiple technologies were assessed to determine optimal technology options. ERC chose the best available technology which comprises the following:

- Hydro-cracking unit;
- Hydrogen plant;
- Kerosene and diesel hydro-treatment units;
- Naphtha hydro-treatment/CCR unit;
- Coker unit; and
- Sulphur recovery unit.

Overall, ERC’s hydro-cracking complex will produce more high-quality middle distillates (diesel, jet fuel, kerosene and gasoil) than other technologies evaluated.

The technology chosen by ERC:

- Produces higher yields of high quality middle distillate than other technologies evaluated;
- Produces higher purity hydrogen than the other alternatives;
- Produces high quality Kerosene and Diesel with while subtracting impurities such as sulphur, nitrogen, halides and trace metal;
- Produces Naphtha to International specifications;
- Utilizes delayed coking for residue upgrading; and
- Utilizes a sulphur recovery unit which ensures better performance by using the separate amine regeneration system that is necessary in minimising hydrocarbon carry-over to the sulphur recovery unit.

Project Site Selection

Three potential locations for the Project were initially considered:

- El Sadat, located 80 km north of Cairo;
- Badr, located 60 km east of Cairo; and
- Mostorod, located 40 km from Cairo centre.

Based on the requirement to obtain feedstock from CORC plus numerous existing operational connec-

tions for intermediate products, the Mostorod location was selected.

Once the Mostorod district was chosen, the exact location for the Project’s facilities was evaluated. Best options were leasing South Plots from EGPC due to available land and proximity to CORC. Additional land was purchased north of CORC (North Plot).

Initially, the plan was to locate the Process Units on both the North and South Plots. As part of ERC’s due diligence effort, a third party insurance risk engineering team performed an extensive/technical risk assessment relating to the equipment/units to be located on the North and South Plots. The analysis concluded that any such risk would be contained within the walls of the refinery property. However, following the social consultations, ERC approached EGPC for additional land for locating operating units in order to reduce perceived impacts on the adjacent North Plot communities.

EGPC made alternative land available within the Mostorod Petroleum Complex (South Plots 2 and 3). Considerable cost and time will be required to make the land ready for constructing the operating units, including taking all appropriate environmental and other steps to prepare South Plots 2 and 3. However, ERC chose to build its operating units on South Plots 2 and 3 instead of the North Plot to minimize negative impacts.

PROJECT AREA LAYOUT

The Project Area comprises the following plots:

- North Plot.
- South Plot 1
- South Plot 2
- South Plot 3
- Laydown Areas
- CORC re-housing area.

The **North Plot**, comprising 193,000 square meters, was purchased from three different industrial companies. The North Plot will accommodate administrative buildings, workshops and a warehouse.

South Plots 1, 2, and 3 will accommodate the main process infrastructure. South Plots 2 and 3 are currently being used by Government product distribution companies. Prior to re-development by ERC, these sites will undergo considerable environmental investigation and remediation to demolish the existing structures and remove any existing contamination.



Figure 4: North Plot



Figure 5: View across Laydown Area

As the Project Area is space-constrained, particularly for equipment laydown and temporary storage, a **Laydown Area**, separated from the actual construction sites, is required. The Laydown Area is divided into two parts to avoid livelihood disruption to farmers growing crops in the centre of the site.

The North section of the Laydown Area is currently used as a waste dump for primarily construction rubble. Without authorization, local companies dump building materials such as concrete blocks and broken tiles in the open plot. This area is sporadically visited by informal waste collectors and sorters.



Figure 6: South Plots

NATIONAL ECONOMIC BENEFITS OF THE ERC REFINING PROJECT

- **A demonstration of a Public/Private Partnership:** The Project is adjacent to a government refinery and the private sector is providing the capital and debt-financing for a much-needed upgrade;
- **Direct Foreign Investment to Egypt of over \$3 Billion;**
- **Provision of refined petroleum products which would otherwise have to be imported;**
- **Creation of 700 permanent jobs during plant operation period, additional to the services that will flourish around the Project;**
- **Creation of 7,000—8,000 jobs during the three-year construction phase;**
- **EGPC will benefit by approximately \$200 million annually through avoided transportation and insurance costs, as well as eliminated product shipment losses;**
- **EGPC will generate revenues through storage and processing fees; and**
- **ERC will produce approximately 3.5 million tons of transportation fuels for Cairo, the heart of the largest consumption market in Egypt.**



ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA)

An Environmental and Social Impact Assessment (ESIA) is a process which identifies at the earliest stage potential benefits or risks a project may have on the physical, biological and socio-economic environments. Once the potential benefits or risks (impacts) are identified, mitigation measures and management tools are proposed to address the key impacts.

The ESIA process is often reported in a phased approach which runs parallel to the Project design. As changes occur in the Project design, they are incorporated into the ESIA process. Often these design changes come about following suggestions from the Environment and Social scientists that adverse aspects may result from the design's implementation.

ERC will also embed any community social and environmental concerns in the decision-making process on design changes. This inclusion prevents the need for complex mitigation and avoids the potential for negative impacts.

The ESIA is the first part of the process to ensure that the positive and negative impacts from the Project on the lives of individuals and groups within the community are identified and understood.

Additionally, the ESIA allows for the positive impacts to be enhanced by Project design while mitigating the negative ones without compromising the economic efficiency of the overall ERC Project and its economic benefits for Project Affected People (PAP).

ERC's July 2008 Draft ESIA was disclosed in public hearings and the final December 2008 ESIA prepared to meet Lender compliance according to a number of environmental and social legislative requirements and guidelines. ESIA standards and guidelines include those of the Egyptian Environmental Affairs Agency (EEAA); International Finance Corporation (IFC) and World Bank guidelines; Equator Principles; European Investment Bank guidelines; and Korean EX-IM Bank Procedures and guidelines.

ESIA AIMS AND OBJECTIVES

The purpose of ERC's Environmental and Social Impact Assessment (ESIA) is to follow Egyptian and International "Best Practice Standards" to ensure that the environment and stakeholders experience Project benefits and are protected from potential negative impacts. The aim is that stakeholders will support the Project and develop a "good neighbor" relationship with ERC.

The objectives of ERC's ESIA process are to:

- Meet and/or surpass the Egyptian and international environmental and social requirements;

- Record pre-Project environmental, social, economic and health baseline conditions to provide stakeholders with an understanding of the valued resources, their constraints and other resource users in the area;
- Provide a forum for communities to become knowledgeable about ERC;
- Ensure that the impacts of the Project on different environmental receptors, people and social groups are understood, recorded, and considered;
- Identify environmental and social risks to people and the Project and suggest risk mitigation options;
- Promote positive and counteract negative impacts throughout the construction and operational phases through implementing an Environmental and Social Management Plan; and
- Provide a baseline of management information essential to the long-term viability of the Project, including monitoring and review requirements.

ERC's ESIA process is achieved through a series of environmental, social, cultural, institutional, political and economic surveys, comprising sample collection, data recording, analyses and consultations. These surveys, analyses and consultations allow for risk mitigation by presenting accurate and timely information and by managing concerns and expectations.

ENVIRONMENTAL AND SOCIAL SURVEYS

The Environmental Surveys focus on air and climate, land, water and ecology. Over a three-month period the environmental field team conducted more than six field sampling campaigns in the Project area. These included:

- Overview site visits (April and June 2008);
- Ecological surveys (April and June 2008);
- Noise monitoring (April, May, June 2008);
- Air quality monitoring (April, May, June 2008); and
- Water quality monitoring - Ismailia Canal, industrial discharges and existing groundwater wells (April, May, June 2008).

The social assessment comprised a number of specific components which reinforce each other and contribute to the overall SIA. The Social Surveys for ERC were conducted in three Phases: Scoping (March-April 2008), Phase 1 SIA (May- June 2008) and Phase 2 SIA (October 2008) which include targeted surveys

with ongoing consultation as part of Social Management Plan implementation. Social investigation was carried out by four Specialist Teams of renown Egyptian and International Scientists: The Consultation, Socio-economic, Health and Resettlement Teams, and took place in five residential areas around the Project sites.

By June 2008 over 10,000 people in El Khosos, El Karatssa, Ezbet Naguib, Arab El Hessn, the Abdel Maqoud Houses and El Katawy and Amal City had been reached through the SIA field work. Residents were consulted on their views about the Project and involved in data collection for the socio-economic and health baselines. Farmers around South Plot 1 and people who sell goods and conduct other livelihoods on the roads from the Project Plots to the Laydown Area were also consulted. A targeted survey of Laydown Area waste collectors and sorters was conducted in October—November 2008.



Figure 7: ERC Social Scientist consulting with Laydown Area community members, May 2008.

Stakeholder Engagement and Consultation Survey

Stakeholder engagement and consultation surveys play a vital role in building positive relationships with Project stakeholders and have a number of purposes:

- Identifying stakeholders with an interest in the Project and/or who could affect the outcome of the Project;
- Ensuring that Project stakeholders are informed about the Project and its potential to (positively or negatively) affect them;
- Identifying perceived and potential Project impacts;
- Giving Project stakeholders the opportunity to

make inputs into ERC's designs and plans for avoiding, mitigating or managing Project impacts;

- Working with Project stakeholders to maximise the positive contribution that ERC will make to the development of its neighbouring communities; and
- Building a positive working relationship between Project stakeholders and the Project, to ensure that ERC is a 'good neighbour'.

Stakeholder engagement and consultation, carried out since the initial Project planning (2006-2007), were an integral part of the ESIA and will continue during the construction and operational phases of the Project. ERC has developed a Public Consultation and Disclosure Plan (PCDP) which describes actions to ensure that engagement with stakeholders is an ongoing process throughout the life of the Project.

Consultation surveys involved discussions with women and men in the five residential areas targeted for social surveys. There are also ongoing consultations with NGOs, Community Based Organisations (CBOs) and Local and National Government. All those consulted have been given Project information verbally and/or through published materials where appropriate.

Since May 2008 ERC has recorded the details of all consultations in its Consultation database. The database allows ERC personnel to track stakeholder engagement over time and alerts ERC personnel to stakeholder issues requiring action. PCDP commitments are monitored on an ongoing basis with a quarterly evaluation.

Socio-Economic Baseline Survey

During the Scoping Phase, over 300 household consultations were undertaken in El Karatssa and Arab El Hessn. For Phase 1 SIA, the survey focused on the direct impact zone (construction). These are the areas nearest to the Project Sites and covered approximately 7,000 people. It was found that many people in these areas are Socio-economically vulnerable due to lack of secure income, low literacy rates and poor access to social infrastructure. The Phase 2 SIA survey supplements these findings if/where necessary as the Project develops.

Health Baseline Survey

The Health Baseline survey complements the Socio-economic Baseline by assessing the existing health status of the Project Area population. The Health

Baseline provides current health status against which to measure any positive or negative Project impacts. The Health Baseline was also conducted so that ERC knows health support needs. The recommendations are part of the Health Management Plan.

The health surveys, carried out by Egypt's Health Care International, included over 7,000 people. The sampling scheme used by the Socio-economic Baseline survey was adopted for the health study. The Health Team tracked all families visited by the Socio-economic Team. Examinations were carried out in locations equipped by ERC's Health Team in each community. Out of 1169 households visited, 1234 persons attended clinical examinations. In addition 20 interviews with key informants and 12 focus group discussions were conducted.



Figure 8: Community Youth from Ezbet Naguib, May 2008

Resettlement Surveys

Although the Project's permanent land take is limited to industrial sites with former owners willing to sell or lease their land, the presence of CORC employee accommodation on the South Plot and the informal uses at or near the Laydown Area led to preparation of a Resettlement Policy Framework to assess any resettlement impacts. There will be no physical resettlement for houses except for the 20 families living inside the CORC refinery.

The South Plot has three CORC-owned residential buildings, now housing 20 employees and their families (107 individuals) who are provided subsidised rent, and who will be re-housed when construction begins. The selection of the apartments was based on proximity to the refinery for convenience with transport and social networks, and a better living environment (outside the refinery complex). The tenants are happy to move, as the old apartments were not in good condition.

The Laydown Area will be used during the construction phase temporarily to store materials. This site was used as an informal waste site for mostly construction rubble, and was occasionally used by informal garbage collectors and waste sorters. When the site is cleared and used for construction, companies will no longer be able to access the site for unauthorized dumping.

ERC conducted an in-depth study among the informal garbage collectors and sorters in the area, completed during the Phase 2 Social Impact Assessment, November 2008. At this time, dumping and sorting stopped. The survey indicated that several recycling activities border the Laydown Area but are not dependent upon materials from the actual site.

ERC will continue to monitor the situation. The residents in the vicinity of the Laydown Area will be targeted for job opportunities as indicated in ERC's Development Needs Assessment and Skills Audit.



Figure 9: New Apartment Building under construction for 20 CORC Employees, May 2008.



IMPACT ASSESSMENT FINDINGS

PROJECT IMPACT ASSESSMENT

The Impact Assessment consolidates findings of the different surveys to:

- Identify potential risks to stakeholders, the environment and to the Project;
- Avoid potential risk by suggesting precaution or risk mitigation taking into account any future actions, Project developments and/or outside risk (Project context risk) that may impose environmental and social stress;
- Advise Project Managers of stakeholders' expectations and grievances;
- Promote consensual decision-making and realistic participation in agreements for problem solving and/or risk mitigation.



Figure 10: Giant Milkweed: *calotropis procera*

Project activities will have a range of different impacts on neighboring communities, including construction, operational and cumulative impacts.

ENVIRONMENTAL IMPACTS

Landscape and Geology

The Project Area is located within the Mostorod district which has been earmarked for industrial development. Indeed, much of the Project Area has already been used by industry. Additionally, there are no geological features of interest within the Project Area. The Project will not negatively affect Landscape or Geology.

Impact Mitigation: None required.

Ecology and Biodiversity

Flora and fauna across the sites are limited due to the industrial context of the area. A lack of natural habitat and the presence of walls and fencing limit the potential for terrestrial species to migrate to and from the area. The Project will not negatively affect Ecology or Biodiversity.

Impact Mitigation: None required.

Archaeological, Cultural and Protected Areas

The nearest archaeological site is the Obelisk of King Senusret, which is about 800 meters from the South-

Eastern boundary of South Plot 1.

The nearest protected area to the Project Area is located in the South-East of Cairo (Petrified Forest) approximately 20 km from the Project.

The Project will not directly affect any protected areas or sites of archaeological importance.

Impact Mitigation: No mitigation; however, a "Chance Find Protocol" (Clause 16.19 "Antiquities") is included in contractual agreements in the event of unexpected archeological findings during construction.

Surface Water

The main surface water resource in the Project Area is the Ismailia Canal, which is situated west of the ERC North Plot and South Plots 1, 2 and 3 and flows from South to North. The canal is an important water system in Egypt as it transports fresh water from the River Nile North of Cairo to the canal cities of Ismailia, Port Said and Suez. Locally the water within the Ismailia Canal is used for irrigation of the agricultural land situated to the East of the ERC plots, recreational fishing, drinking water (which is treated in a facility in close proximity of the ERC South Plot 1) and for the discharge of treated wastewater from industries in the local area.

Six surface water and six sediment samples were collected from the Ismailia Canal and a surface water sample was taken from an irrigation canal. From these limited analyses, it may be inferred that surface water within the Ismailia Canal fails to meet Egyptian standards (Law 48 of 1982, "Regulating Industrial Wastewater Discharges to Canals") for a number of parameters including: chromium, mercury, oil and grease, organic nitrogen, fluoride and chemical oxy-



Figure 11: Ismailia Canal

gen demand. The industries in the local area appear to be having a detrimental impact to the existing surface water quality.

Impact Mitigation: The water supply for the ERC Project will be surface water from the Ismailia Canal. Wastewater from Wastewater from the ERC process will consist of cooling water, process water and sanitary sewage water. Following treatment on the ERC Plot, the final treated runoff will be directed to CORC's discharge system connected to the Ismailia Canal. ERC will have on-line monitoring using appropriate analysers/instruments to ensure that the quality of wastewater coming from ERC will comply with relevant Egyptian and international standards.

Wastewater from ERC's activities will be subject to a three-stage treatment (third stage is biological), meeting highest world standards.

ERC understands that although its wastewater effluents will meet the relevant Egyptian and international standards, the existing baseline water quality of the Ismailia Canal appears to be of poor quality. ERC, therefore, has financially committed to develop a plan to improve overall effluent discharges from industries in and around the Mostorod Petroleum Complex.

A number of other industries currently discharge their wastewater to CORC. At present these separate waste streams have not been assessed; however, ERC and CORC are committed to sampling and analysing these wastes. Additional mitigation measures will then be implemented to improve the combined discharge from CORC for meeting the relevant standards.

Soil

Soil quality beneath the North Plot, South Plots 1, 2, and 3 may already be impaired as a result of previous site activities. ERC will further investigate and resolve contamination issues before construction of the new refinery. In the context of the Project's industrial site, soil quality in itself is not regarded as having the high sensitivity that it would, for example, in an agricultural or residential environment. However, soil contamination can present a risk to on-site workers and the soil itself can provide a pathway for groundwater contamination.

Impact Mitigation: Prior to any construction works, a full site investigation and remediation strategy will be implemented by the Contractor to prevent further contamination and to make the sites suitable for re-development. The remediation strategy will focus on the removal of contaminants from the sites leading to an overall improvement of soil conditions.

Groundwater

Groundwater is abstracted from the area to the East of the Project Area for irrigation. In addition, the Plots are located on a major aquifer and lie within a groundwater protection zone for a public water supply. Due to Health and Safety concerns on the Plots, sampling was limited to samples obtained from three groundwater wells to the East of the ERC plots.

An additional sample was collected from the dewatering system used during the construction of the new wastewater collection system. Comparison against the World Health Organisation guidelines suggests that lead concentrations are elevated.

Contamination was encountered, which is expected given the existing and current industrial settings in the Project Area. No direct groundwater contamination from ERC is predicted during routine construction and operations (minor fuel spills may occur for which mitigation plans will be in place), yet the potential exists during ground works to mobilise existing contamination through induced flow, e.g. during dewatering activities.



Figure 12: Groundwater Sampling Location

Impact Mitigation: Removing contaminated soil will lead to overall improvement of groundwater conditions. Mitigation measures will be in place to ensure that spills are rapidly contained and decontaminated.

Air

Data from two permanent monitoring stations located 17 km North-West (Kaha) and 5 km South-East (Shoubra) of the proposed Project Area measure background maximum pollutant concentrations on a continuous basis. These data provide a regional overview of air quality.

The Shoubra monitoring station dataset only includes Sulphur Dioxide (SO₂) concentrations. The average background SO₂ concentrations measured for all periods at the Shoubra station exceed the limits set by the Egyptian, World Bank and European standards.

The Kaha monitoring station only includes Nitrogen Dioxides (NO₂) and Particulate Matter (PM₁₀) data. The average NO₂ background concentrations are significantly higher at Kaha station than the standards. The average daily PM₁₀ background concentration at the Kaha station exceeds the limit set by the Egyptian and European Air Quality standards.

In addition to the regional monitoring stations, nine active and passive sampling locations were chosen in the Project Area to understand better the local air quality. The results of these “snap-shot” samples suggest that PM₁₀ and SO₂ were higher than the World Bank and EU standards.

Impact Mitigation: The ERC Project includes a range of environmental improvements to CORC, including the reduction of fugitive hydrocarbons emissions which currently contribute to the environmental baseline. Also, CORC’s heaters which currently run on fuel oil will be switched over to gas, when ERC is operational resulting in further emission reductions.

The impacts predicted by the proposed ERC refinery, in combination with the CORC change from fuel oil to natural gas, will reduce air pollutants. This assertion is supported by the results of the air dispersion model, which concluded that reductions in the ground concentrations of all contaminants of potential concern are expected at all points throughout the affected area. Maximum Project contributions to

When the Project is operational, each year the refining process will remove 93,000 tons of sulphur from fuels which would otherwise be used in power plants, vehicles and factories. The reduction of SO₂ in the atmosphere by the ERC Project represents 186,000 tons per year or 510 tons per day.

ground concentrations of SO₂, NO₂ and PM₁₀ are predicted to be at or below 30% of the Egyptian, European Union and World Bank standards. The emissions of NO₂ will decrease further as CORC replaces the current burners through equipment maintenance.

Further substantial reductions in SO₂ emissions in the area will be realised by local use of low-sulphur fuel to be produced by ERC. The new fuels produced by ERC will have virtually zero sulphur content leading to a sulphur reduction annually compared to the present when these fuels are combusted in vehicle engines.

It is expected that overall the regional air quality of Cairo and Upper Egypt will improve with ERC's presence. The combination of the direct improvements at the CORC facility in addition to the reduction in sulphur emissions regionally can be expected to make a net positive contribution to future air quality, a key environmental benefit of the Project.



Figure 13: Project Area Ambient Environment, May 2008

ENVIRONMENTAL BENEFITS FROM THE ERC REFINING PROJECT

ERC is enhancing Positive Impacts by:

- **Reducing the amount of SO₂ released into the air by 510 tons / day (186,000 tons/year) will greatly improve air quality;**
- **Providing double seals on Pipeline Petroleum Company's floating roof tanks will significantly reduce greenhouse gas emissions from the tanks by approximately 75 - 93%;**
- **Providing portable gas emission detection measurement meters will enable CORC to reduce a significant amount of fugitive emissions from valves, tanks and pump seals;**
- **Incorporating an oil filter into the CORC Facilities upstream of the waste water discharge will reduce oil losses during periods of malfunctions of the current CORC treatment units;**
- **Providing CORC with low-NO_x burners to replace the existing ones will reduce NO_x emissions;**
- **Using environmental measuring equipment, consistent with international standards, will enable the daily measurement of low concentration pollutants, such as volatile organic compounds;**
- **Producing the fuel in Cairo rather than transporting from abroad will avoid the risks of spillages and will reduce greenhouse gas emissions;**
- **CORC's switching from using fuel oil to natural gas will significantly reduce SO₂ and particulate matter emissions.**
- **Using a three-stage process to treat wastewater (both ERC and CORC), fewer environmental pollutants will be discharged.**

Noise

The results from the baseline noise assessment suggested that currently a few nearby locations exceed the Egyptian limits for heavy industries and dwelling zones on a public road.

Another contributor to industrial noise is traffic. During construction, the Contractor will be required to apply best practice to reduce noise disturbance to nearby neighbours and will link into the Grievance Mechanism to address any problems as they arise.

Impact Mitigation: A noise prediction model has been conducted to determine the anticipated noise from the ERC facility. The model predicts that the effects of ERC activities on noise levels will be negligible given existing background noise levels. Contractor Public Relations Officers have received training on ERC's consultation strategy and Grievance Mechanism.



Figure 14: Instruments for Measuring Noise Levels

SOCIO-ECONOMIC IMPACTS

Impacts on Community Organisations and Local Institutions

Access to Decision Making

ERC approaches to Stakeholder Engagement have potential to impact on access to decision-making either positively, by improving means for local people to influence Project decision making (through ongoing consultation, the Grievance Mechanism, and consultation on Community Development investments), or negatively, by raising expectations on access to decision-making and then failing to deliver.

Impact Mitigation: ERC will continue to disclose information in a timely and appropriate format for people to make informed decisions in relation to Project activities. A specialist Community Relations Team, including 13 local residents as Community Liaison Officers, has been engaged by ERC to ensure information disclosure according to Lenders' Best Practice Guidelines.



Figure 15: Consultation at a El Hana NGO in El Katawy, May 2008

Representative Community Organisations

The communities have a limited number of civil society organisations able to represent and lobby for the interests of local women and men. People state preference for representation by religious leaders, informal community leaders, or NGOs. In choosing which local organisations the Project engages, ERC is likely to have impacts on the standing, capacity, coverage and support for/of these organisations. These impacts could be positive, if ERC works with organisations that have local support, are inclusive and extend the coverage of Civil Society Organisations, including NGOs, into under-served communities, e.g., the Laydown Area community or South Plot neighbours. Alternatively, the impacts could be negative if ERC works with organisations that serve partisan interests and sideline the vulnerable.

ERC's Stakeholder Engagement during the ESIA has already demonstrated improved access to decision making for community members. Following social consultations, ERC redesigned North Plot activities to include only administrative, storage and workshop functions.

Impact Mitigation: ERC will continue to consult with people to ensure that it identifies and works with representative community organisations that have broad based local support. ERC's Community Relations Team, during the course of the ESIA, forged positive relationships with many NGOs across the Project Area.

Impacts on Population and Socio-Demographic Characteristics

Population Growth

The Project may impact the number of in-migrants into the area. Demographics may change as those migrating to the area for work are more likely to be male and of working age which may impact population structures/population pyramid.

Impact Mitigation: ERC has developed employment measures and policies which consider influx issues specifically targeting local hire where appropriate.

Social Cohesion

The influx of around 8000 construction workers, and to a lesser extent the ongoing presence of 700 operations workers, could have an impact on local social cohesion, by introducing a new population element into established communities. The extent to which the Project workers affect social cohesion will depend on the extent to which ERC hires local workers, and the extent to which workers are given or choose to opt for accommodation (temporary or permanent) in

ERC has identified 21 Non-Governmental Organizations (NGOs) which operate in the Project Areas:

- El Khosos
- Arab El Hessn
- Ezbet Atef
- Ezbet Naguib
- El Katawy
- Amal City

ERC's Community Relations Team, during the course of the ESIA, forged positive relationships with many NGOs across the Project Area and is considering engagement with these and other NGOs.

local communities. ERC will provide transport for operational workers so that they do not need to move to neighbouring communities but will not be able to prohibit workers moving into neighbouring communities.

Impact Mitigation: ERC will develop social policies for workers induction and appropriate behaviour according to socio-cultural context, for interacting in these neighbouring communities.



Figure 16: Youth from Ezbet Atef, June 2008

Impacts on Social Services and Community Infrastructure

The lives of people from the Project communities will be impacted according to their increased or decreased access to social services and infrastructure .

Electricity infrastructure

During the construction phase a potential impact is disturbance of the electricity cable for the community of Amal City near the Laydown Area. The Laydown Area will be fenced off by ERC during the three-year construction period. Community members are concerned this will negatively impact/sever the electricity service.

Impact Mitigation: ERC will ensure appropriate construction measures and due diligence to protect existing electricity infrastructure. At the Laydown Area construction will be minimal, and this message will be clearly conveyed to the residents in advance of any activities to reduce risk of concerns about electricity supply.

Sewerage Infrastructure

During ESIA social surveys concern was expressed by stakeholders in El Khosos/ El Karatssa that the Project will use the already overloaded community sewerage system. The main sewer for this community has previously been blocked as a result of being used over capacity. Concerns were therefore expressed in the community about the Project negatively impacting/ placing additional stress on this sewer.

Impact Mitigation: ERC will not use this sewer for industrial waste water. This message will be clearly conveyed to the residents in advance of any construction activities on the North Plot to reduce risk of concerns about damage to the sewerage system.

Sewerage is also an issue for the communities neighbouring the Laydown Area. Currently the households in these communities are only partially occupied and are not connected to sewerage or water infrastructure. People consulted in communities near the Laydown Area expressed the belief that when the Laydown Area is in use (during the construction phase) the Project will need to be connected to the sewerage and water system. People thus expected the Project would take the opportunity to connect neighbouring communities at the same time. If this does not happen, the negative impact of raised expectations may result.

Impact Mitigation: ERC will engage with Laydown Area stakeholders to keep them informed about Project use of the Laydown in order to manage expectations.

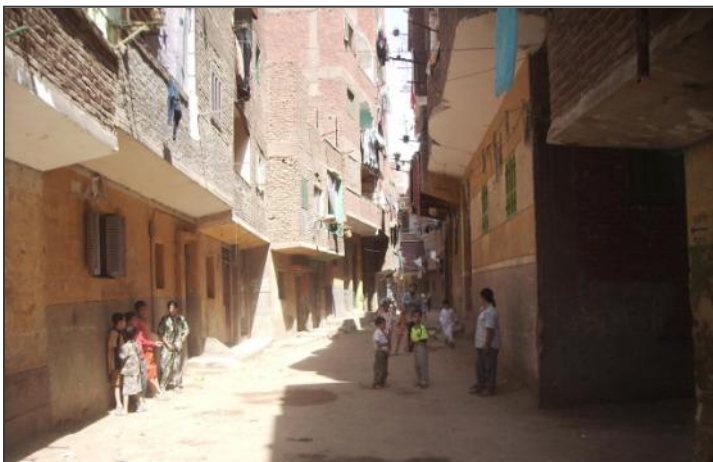


Figure 17: Street near El Khosos, May 2008

Access to Public Transport Services

ERC will employ large numbers (7000-8000) of staff in the construction phase and around 700 members of staff during the operations phase. These staff will

work in shifts and the intention of the Project is to provide transport for these workers. If significant numbers of workers use public transport, there may be an impact on public transport (overcrowding, ticket price inflation).

Impact Mitigation: ERC will address any transport access issues with a robust traffic and worker transport plan that is being developed based on an independently commissioned Traffic and Transport Survey.



Figure 18: Infrastructure, El Khosos, May 2008

Impacts on the Economic Environment

Socio-Economic/Community Development

The ERC Project could have both negative and positive influences on Socio-economic development in its neighbouring communities. Positive impacts could derive from: job opportunities at ERC for local people; multiplier effects on local ancillary services (restaurants, shops, transport, i.e., indirect economic development/employment opportunities) and ERC's investment in Socio-economic growth through its programme of Community Development investments. Negative influences could derive from increased inequality between vulnerable groups and Project employees.

Impact Mitigation: ERC has identified vulnerable groups who will be supported by partnership development with civil society organisations, specifically local NGOs. ERC will work with these and other appropriate implementing partners to enhance the Project benefits of Socio-economic development in the communities such as skills development, livelihoods and health support.

Cost of Goods and Services Including Housing

The purchase of local goods and services by the construction labour force and permanent ERC staff (e.g. use of local shops and restaurants, and housing purchase and rental markets) could potentially impact the local economy. This could be beneficial having positive impacts in terms of creating economic development and employment but may also lead to local inflation. It is unlikely that local inflation or economic development could be clearly attributed to the Project, except in the case of specific businesses likely to attract Project staff.

Impact Mitigation: The extent to which the Project will impact economic development and/or inflation depends on ERC's approach to providing services to its workers (e.g. accommodation, transport, canteen services, and in house medical care). Therefore, ERC will consider the Socio-economic Baseline context and consult community leaders and civil society when making these agreements which, wherever possible, will be to the benefit of local economic development.

As part of the ESIA process, ERC has already procured most of the necessary items locally including labour needed for public hearings and goods such as tent, carpet, stationery and food.



Figure 19: Ezbet Naguib Community, May 2008.

SOCIO-ECONOMIC BENEFITS OF THE ERC REFINING PROJECT

ERC is enhancing Positive Impacts by:

- **Creating over 7000 jobs during the three-year Construction phase;**
- **Creating 700 permanent jobs;**
- **Increasing opportunities for ancillary services such as food services and transportation;**
- **Providing skills training to equip community members with Project-required skills;**
- **Investing in community social / health programs for women and children;**
- **Working with community NGOs to ensure socio-economic development;**
- **Providing capacity building for community NGOs;**
- **Deploying Community Liaison Officers to manage community expectations and concerns and build positive relationships; and**
- **Establishing Community Development Centers as focal points of Project activities in the communities.**

Employment

In both construction and operational phases there is an opportunity for maximizing positive economic impacts of ERC through involving unskilled (and where possible skilled) labour from all Project Area communities. During the Socio-economic survey, around 30-50% of respondents expected improved local employment opportunities due to the Project. The highest expectation of improved employment was recorded amongst those operating income generating activities along the transport route. The lowest expectation of local employment opportunities was amongst Lay-down Area community members.

Although the generation of employment opportunities by ERC is expected as a positive impact, conflicts could arise between local residents and new comers or outsiders, if not appropriately managed. A concern expressed during consultations was that nepotism would influence the recruitment procedure, meaning that local people without connections would not get access to Project jobs.

Impact Mitigation: The Project will create over 7,000 jobs during construction and 700 direct employment opportunities as well as indirect opportunities during operation. Whenever feasible, residents from the Project Area will fill the job vacancies. ERC will work actively to promote local access to Project employment in both construction and operations phases. To do this, ERC and its contractors (GS Engineering & Construction, South Korea; and Mitsui & Co., Japan) will produce transparent and fair employment policies and work with community NGOs on a skills audit of local communities. Some NGOs already consulted have 'job application' support services which ERC could engage for mutual benefit of the Project and the people. Through training, ERC will build the capacity of NGOs to offer career guidance. Particular efforts will be made to include Laydown Area residents in this process so they have access to Project benefits.

ERC recognizes that many positions will be filled with males from the community; therefore, the Project will seek alternatives for women and children through investing in community / social programs.



Figure 20: Welding Trainees sponsored by ERC

Skills Development

If local workers are trained for ERC employment opportunities, this could contribute to social development in general of the area in the long term as communities will be better placed to access other jobs. In the immediate term, community members will benefit as they will be better positioned to access job opportunities created by the Project.

Impact Mitigation/Enhancing Benefits: ERC will identify the skills that it needs for its construction and operations phases at least one year in advance of construction. Appropriate and targeted vocational training will then be provided as part of a community skills development program as well as providing basic life skills training in the communities through its Community Development Centres.

Training local workers in employable skills will lead to the community's social and economic development. ERC will identify the skills needed during the construction and operations phases to provide as part of a community skills development programme. For example, ERC will sponsor training for 500 community welders at the Egyptian Welding Academy and 1,500 in construction trades. Based on the skills audit, ERC will determine the skills to include in a community training plan, with consideration given to skills required by the Project.

Impacts on Quality of Life

Social Harmony

As is normal for large construction Projects, there is potential for conflict between Project workers and local community members.

Impact Mitigation: ERC will put policies and training in place to ensure that Project staff adopts a code of conduct which guarantees respectful and appropriate behaviour towards community members. This is part of ERC's social and good neighbour policies to ensure community members' quality of life is maintained or improved.

Social Inclusion

ERC is one of the first projects in Egypt to include the community residents, representatives and leaders in consultations that have influenced the Project design. Since consultation/SIA surveys began, ERC has made significant changes to its plans in order to include people's recommendations and needs. However, the Project could impact inclusion of the vulnerable either positively or negatively, depending on the way it engages and consults and according to the implementation of its Social Management Plan.

Impact Mitigation: Special care is being taken by ERC to consider vulnerable members of society and be inclusive of all members, e.g., the illiterate are considered when distributing Project information, advertising for jobs in the community and the like so they are not excluded from Project benefits. ERC's Community Relations Team is ensuring social inclusion according to Lenders' Best Practice Guidelines using the social inclusion/vulnerability criteria developed during the SIA surveys.

Security

A Project impact anticipated by residents at the Laydown Area is that improvements to infrastructure and local environment (specifically clearing, fencing and lighting the area) would have a positive impact on reducing crime and improving the neighbourhood in terms of law and order in general.

Impact Mitigation/Enhancing Benefits: ERC will ensure that consultations continue to reach the best solution for improving law and order in this area in particular (as with other Project areas). Relationship

building, led by ERC's Government and Community Relations Managers, with the Mostorod and other community leaders have demonstrated goodwill to combine efforts to increase security that reduces crime and thus enhance people's quality of life.



Figure 21: Children from Ezbet Naguib, May 2008

Local Environment

The majority of respondents from the socio-economic survey expect the Project to negatively impact the local environment and that environmental degradation would impact their quality of life. However, at the Laydown Area 23% of the respondents thought that the Project will improve the local environment which would thus enhance quality of life, with the expectation of ERC cleaning up the Laydown Area.

Impact Mitigation: The environmental and design assessments for the Project demonstrate ERC will operate within emissions and safety standards and will therefore not pose a threat to the local environment and quality of life of community members. Moreover, as part of its Community Development Program, 'environmental improvements' are a key target area of ERC's social investment activities. In addition, ERC has designed construction practices to mitigate dust and noise which may negatively impact local environments, thus protecting communities from construction nuisance and risk to quality of life. ERC will monitor the effective application of construction activities and continue to assure community residents of environmental improvements.

Traffic and Transport Issues

Increased traffic may impact quality of life through increased dust, noise and potentially increased accidents. Stress on transport infrastructure may be high during the construction phase which will also impact quality of life of those who rely on public transport and/or those in private transport caught in any increased road blockages. Traffic congestion emerged as a special concern that will negatively impact quality of life in El Khosos as the main 'entrance' to the community (on the Ismailia Canal) is already vulnerable to blockages.

Impact Mitigation: ERC is adopting a variety of mitigation measures to reduce traffic impacts depending on the location and as advised by the independent traffic survey as well as by listening to concerns raised in SIA social survey and ongoing consultations. ERC has already decided against the use of the El Khosos entrance to reduce disturbance to local communities and thus preserve quality of life. In addition ERC vehicles will be maintained to highest standards with drivers well trained to reduce risk of accidents.



Figure 22: Access Route across Laydown Area, May 2008

Accessibility Issues

Quality of life is impacted if easy access routes, including paths, are blocked. This is not regarded as an issue in most of the Project Areas. However, the fencing off of the Laydown Area could impact quality of life by blocking access to established routes (specifically short cuts across the site) in the construction phase.

Impact Mitigation: As part of SIA survey an overview of people's movements was attained and considered by ERC. ERC Project design has thus accommodated accessibility issues specifically at the Laydown Area

by committing to a footpath at the edge of the fenced agricultural area in the centre of the site.

Health Impacts

Positive or Negative impacts on health from the Project are dependent on Project activities. It is expected that, given appropriate environmental, health and safety controls, negative impacts will be low and given improved environment and community health support, there is potential for positive impacts of the Project on health of local communities.

Worker Health and Safety

Construction works may expose workers to health and safety risks including: noise and dust from demolitions and excavations; working with heavy equipment; working in confined spaces, heavy lifting, storage, handling and use of dangerous substances and waste, and working under noisy conditions. Excavations and transportation of materials may cause further health and safety negative impacts.

Impact Mitigation: ERC will adopt strict construction practices to ensure safety of local communities and construction workers. ERC is also developing HSE policies and plans to ensure workers health and safety.

Community Health

In the long term, due to ERC's air and water quality controls and the establishment of inert activities at the North Plot, community health should be positively impacted. However, health problems on the construction site may be caused by pools of standing water which may create habitats for insect disease vectors. Dust may also create health problems such as allergies and prolonged noise may cause stress and/or depression.

Impact Mitigation: ERC has put in place dust and noise mitigation measure in its construction plan to reduce impacts such as no loud construction at night and removing buildings closest to communities by hand. This is to reduce both dust and noise and also to employ labour from the neighbouring Communities so they have ownership/ a say in the process, as well as enhancing employment opportunities. Improved access to employment potentially positively impacts health. ERC's strict construction practices will ensure no habitats for disease vectors.



CUMULATIVE PROJECT IMPACTS

ENVIRONMENTAL CUMULATIVE IMPACTS

Air and Water

Cumulatively, the most significant potential impacts are related to Air and Water Quality.

Overall, the Project will have significant benefits for the local air quality in neighbouring communities, especially regarding SO₂ concentrations. Additionally, there will be widespread benefits to air quality across Cairo through the use of the higher grade fuel to be produced by ERC. Since the existing baseline of air quality is below European standards, especially with regards to PM₁₀, the ERC Project reductions in PM₁₀ and other pollutants are likely not to result in widespread compliance with air quality standards. However, the Project is of net benefit for local air quality and the exposure of the local populace to airborne pollutants. This benefit will occur through significant reductions of emissions from CORC and ERC's use of environmentally positive technologies and equipment.

The proposed ERC provision of new wastewater treatment units at CORC, combined with ERC's three-stage treatment of wastewater is viewed as an overall positive impact.

Noise

Existing background levels of noise are high, thus the development and operation of the ERC facility is not expected to increase significantly the existing levels of noise. No additional increase over the existing background noise is anticipated from the proposed facility. The ERC Project complies with local and international standards.

SOCIAL AND ECONOMIC CUMULATIVE IMPACTS

Given ERC's commitment to incorporate appropriate environmental, health and safety controls, negative impacts will be minimal. The benefits of improvements to the CORC refinery, remediation of contaminated land and community health support, means potentially cumulative social impacts will be positive. It is likely that:

- Cumulative social and human development will occur from improved social services, vocational training and community development;
- Cumulative economic development will occur from local procurement and employment; and
- Health will experience cumulative positive impacts due to improved air and water quality and as a result of general socio-economic development.



IMPACTS MITIGATION AND MANAGEMENT

ENVIRONMENTAL AND SOCIAL IMPACTS MITIGATION MANAGEMENT

ERC will take a number of specific mitigation and management measures to ensure that the Project minimises or avoids any negative impacts and maximises positive benefits to local communities. These measures are formalised in an Environment, Social and Health Management Plan (ESMP). As well as specifying measures to manage Project impacts, this plan will also include ERC's voluntary contributions to Community Development.

The ESMP details the processes for environmental and social mitigation management including ongoing consultations and the grievance mechanism. The Plan addresses mitigation, monitoring, capacity development and training, and the ESMP's integration with the Project, which includes an implementation schedule and detailed Commitments Register.

ERC will continue with stakeholder engagement through the ongoing development of the Community Development Centres and Community Liaison Officers.

Appendix A of the Non-Technical Summary contains a summary of the Environmental Impacts and Mitigation/Management Measures, followed by the Social Mitigation/Management Measures / Monitoring in Appendix B. A summary chart of the Environmental

Monitoring Plan is in Appendix C .

COMMUNITY RELATIONS TEAM

ERC has established a Community Relations Team to disclose information about the Project and implement social mitigation actions. The Team's primary roles are to disseminate consistent Project messages and oversee timely implementation of the ESMP. The Team will play an important role in managing expectations in Egypt, specifically in the local communities.

The Community Relations Team consists of the ERC Community Relations Manager, the Communications / Corporate Social Responsibility Manager, the Government Relations Manager, Social and Environmental Scientists, and Community Liaison Officers (CLOs). The CLOs, recruited from the local communities, will play a vital role in engaging community members throughout the life of the Project. They serve as the link between the Project and the communities. CLOs are gender balanced to ensure that both men and women from local communities are consulted in a culturally-appropriate manner.

In December 2008, thirteen community members and contractor staff participated in training in ERC's Cairo office to become Community Liaison Officers. Topics included Project information disclosure, effective listening techniques, problem solving, managing the Grievance Mechanism and liaison role expectations.

In addition to being available for consultations in the Community Development Centres, CLOs will organize bimonthly meetings within each of the Project-affected communities. At these meetings, Project information will be disseminated, questions answered and concerns addressed.

Based on input from the communities, the Community Relations Team will also evaluate the types of community programs to be offered by NGOs , local government or private institutions. Additionally, the Team will ensure that the website is updated to reflect Project changes.



Figure 23: Participants in CLO Training, December 2008

CONSULTATION DATABASE

Details of all consultations are recorded in the Consultation Database. In addition to stakeholder contact information, the meeting’s key points, actions, and outcomes are recorded. The database has been designed to inform ERC personnel of issues to be addressed within a specified timeline.

The Consultation Database includes a history of all consultations since May 2008 with meeting notes. This will enable ERC staff to track the development of stakeholder relationships over time and will allow for consistency in ERC’s approach to stakeholders.

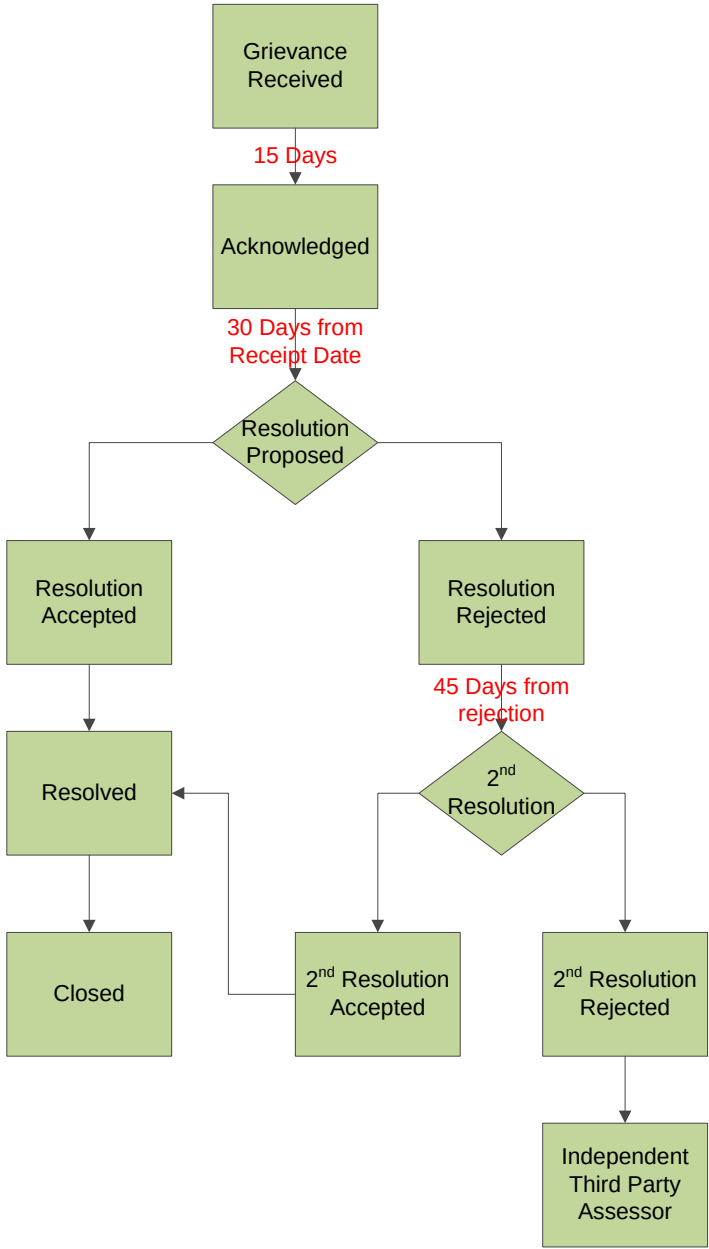
GRIEVANCE MECHANISM

The Consultation Database supports a key ESMP feature - the Grievance Mechanism, which has been developed but will be activated shortly before construction begins.

ERC works actively to prevent grievances through managing Project impacts and through pre-emptive community liaison activities designed to anticipate and address potential Project impacts. The Grievance

Mechanism is the process by which people affected by the Project can bring their comments, concerns and grievances to ERC. Steps in the process are indicated below.

The Grievance Mechanism will be posted shortly before Project construction begins on the ERC website: www.ercegypt.com and will be explained to Community Members by the Community Relations Team. Quarterly and annual reports will summarize consultations and grievances.



ERC MANAGEMENT POLICIES

In recent years for large scale projects such as ERC, the delivery of project Environmental and Social commitments has come to the fore and best practice includes development of control plans in a transparent manner. Such plans are visible and auditable by any of the Project management stakeholders.

Specific policies and plans for the ERC Project include:

- Business Ethics Policy
- “Good Neighbour” Policy
- Local Employment Policy
- Training Plan
- Corporate Funding Policy
- HSE Policy and Plan
- Occupational Health Plan
- Grievance Mechanism
- Employee Housing and Transportation Plan
- Site Clearance and Land Contamination
- Construction-Related Effects Plan
- Traffic Management
- Waste and Emissions Management.

These policies and plans will ensure smooth implementation and operation of ERC’s activities according to the ESMP.

MONITORING

ERC’s Community Relations Team is developing a robust system for monitoring environmental and PCDP activities. Monitoring will focus on information disclosure and consultation events including:

- Compliance with environmental standards and regulations;
- Consultation processes and stakeholder comments;
- Disclosure methods and materials;
- Management of expectations;
- Implementation organization; and
- Complaints and the Grievance Mechanism.

Each component of ERC’s PCDP will be monitored according to the following criteria:

- Relevance;
- Effectiveness;
- Efficiency;
- Coverage / Social Inclusion;
- Coordination / Coherence; and
- Sustainability/Impact.

Detailed M & E social indicators will be determined as the Project progresses towards financial closure.

A summary of ERC’s Environmental and Social Monitoring Plans is in Appendices B and C.

REPORTING

ERC will prepare an internal quarterly report to evaluate the Project’s implementation of its Public Consultation and Disclosure Plan. An annual Report of PCDP

activities will be published on the ERC website and printed copies will be placed in local government and community facilities. The Annual PCDP report will include:

- A report on PCDP activities carried out during the year;
- Consultation Statistics and Findings, including those related to the Grievance Mechanism;
- An evaluation of stakeholder engagement methods and proposed changes;
- The updated PCDP for the following year with detailed activities and Commitments Register.

PUBLIC HEARINGS

As part of ERC’s commitment to stakeholder engagement and consultation, three Public Hearings were held in 2008:

- February (Primary Stakeholders, Community Level) for disclosure and feedback on the Preliminary ESIA;
- July (Primary and Secondary Stakeholders, National and Governors Level) for disclosure and feedback on the Draft ESIA;
- August (Primary and Secondary Stakeholders, Local/Community Level) for disclosure and feedback on the Draft ESIA.

The aim of the public hearings was to present the preliminary and Draft ESIAs to collect comments and to respond to public feedback for the production of ERC’s final ESIA.

The first public hearing (February 2008) at the Mostorod Public Library focused on the communities’ feedback on the findings of the Preliminary ESIA. A second Public Meeting for National and Governorate stakeholders was held July 8, 2008 after the Social and Environmental Surveys and a Draft ESIA with specific impact findings had been completed.



Figure 24: Third Public Hearing, August 2008

ERC personnel and the Social and Environmental Scientists who had been developing the ESIA presented an overview of the ERC project and responded to impact questions and concerns from the 110 attendees.

The third Public Meeting was held in Mostorod August 2, 2008 for residents and business people from the Project-affected areas. The substantial turnout (625) indicated the high level of interest in the Project. As in the previous Public Meetings, the ESIA process and findings were presented.

As Project activities necessitate, additional Public Hearings will be held in appropriate forums to disseminate information as part of PCDP activities.

REVIEW OF ESIA

As the Lenders' Independent Environmental Consultant, Environmental Resources Management (ERM) reviewed the ESIA process, undertaking several reviews and site visits during 2008. ERM's last review of ERC's ESIA provided detailed findings in February 2009. ERM reviewed the ESIA in accordance with the requirements of:

- The Equator Principles;
- The World Bank/International Finance Corporation (IFC) Performance Standards (April 2006); and
- Applicable Egyptian, EU, World Bank/IFC and WHO Environmental Standards in relation to emissions to air, wastewater quality and noise.

Environmental Impact Findings

ERM found the ESIA compliant with the above requirements and concurred that the ERC Project can be classified as a Category B Project (projects with potential limited adverse social or environmental impacts that are few in number, generally site specific, largely reversible and readily addressed through mitigation measures.) ERM will undertake monitoring at regular intervals throughout the construction, commissioning and operational phases to ensure compliance with its commitments.

ERM's review of the environmental impacts found ERC's ESIA to be compliant in Air Quality, Noise, and Traffic and many aspects of Wastewater Treatment. Where the potential for negative impacts exists, mitigation plans are provided. The only environmental parameter found to be partially compliant is that of Phenol concentrations in the wastewater discharge where the ESIA stated that ERC would follow both World Bank and Egyptian standards. ERM requested clarification. ERC responded that although the Egyptian

limit (0.001 mg.L^{-1}) is relatively lower than the World Bank standard ($.2 \text{ mg.L}^{-1}$), ERC's contractor is contractually obliged to comply with all applicable laws. Thus, ERC confirms that the wastewater discharged from its operations will comply with the applicable Egyptian laws with regards to Phenol as with all other compounds.

Social Impact Findings

In its review of the Social Impacts, ERM found ERC's ESIA compliant in its Social Assessment and Social Management Systems and Community Health, Safety and Security. There are no resettlement issues for the North Plot. Regarding the South Plot, the Resettlement Policy Framework for the CORC employees fulfills the requirements of international standards. For the Laydown Area, ERM recommended additional exploration into clarifying potential livelihood displacement for site users who may collect waste on the Area. ERC has planned livelihood economics verification surveys for April-May 2009 to address minor outstanding issues.

CONCLUSION

The ERC Project provides economic, environmental, and social benefits for Egypt. Its world-class, environmentally-friendly technology ensures that ERC will be a model refining facility. Technology alone, however, will not ensure ERC's success. ERC's relationship with Project stakeholders is equally as critical. Therefore, ERC is committed not only to providing a clean, efficient and safe facility but also avenues for productive stakeholder engagement.

The Project will minimize or avoid potential risks and negative impacts while offering sustainable services and activities which will benefit the Project community. With its innovative technology and environmental and social policies, ERC will enhance positive impacts and benefits for all stakeholders.

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Appendix A: Management of Environmental Mitigation Measures

POTENTIAL IMPACT	MITIGATION AND MANAGEMENT MEASURES
Impacts on Soil and Groundwater	A specific Environmental Management Plan will be developed and implemented by the contractor to ensure no further soil or groundwater contamination during activities. An Oil and Fuel Storage Management Plan (OMP) will cover all storage, transportation and usage of oils and fuels. A Site Clearance and Land Contamination Study will cover the initial demolishing, site clearance and initial groundworks and checks for potential contamination.
Impacts on Traffic	A Transport Management Plan (TMP) will cover all transport arrangements during construction.
Impacts on Surface Water	A Waste Management Plan (WMP) will cover all aspects of water and wastewater management and staffing during construction.
Impacts Due to Accidents	An Emergency Response Plan (ERP) will cover all potential accidents and incidents during both construction and operation.
Impacts on Air	The Environmental Monitoring Plan (EMP) will cover the monitoring locations, parameters and frequency.
General Impacts	A detailed Site Investigation and Remediation Study will be performed. It will include the following six phases: - Data collection and preliminary site investigation design - Preliminary intrusive site investigation - Preliminary quantitative risk assessment - Detailed site investigation and quantitative risk assessment - Remediation options appraisal - Remediation design, implementation and verification An Auditing and Management Review program ensures that the company complies with policy and procedures and reviews target, objectives and environmental performance indicators

APPENDIX B: Social Management, Mitigation and Monitoring Plan

IMPACT	KEY PERFORMANCE INDICATOR	TARGET	MEANS OF VERIFICATION	MITIGATION AND MANAGEMENT MEASURES	RESPONSIBLE PARTY
Community Organizations and Local Institutions					
Access to Decision Making	Consultation Meetings; Representative Coverage of Consultation	3 meetings/community/year; one/community/year during operations. Consultations include representative social and gender groups.	Consultation meeting attendance sheets	Effective stakeholder engagement as outlined in PCDP	ERC Community Relations Manager (CRM)
Representative Community Organizations	PAP satisfaction with community organizations chosen for engagement; Meetings with representative organizations.	70% of local people are satisfied with ERC's choice of organizations' to engage. Routine consultation with representative community organizations.	Performance monitoring survey. Stakeholder database.	Effective stakeholder engagement as outlined in PCDP	ERC CRM
Social Services and Infrastructure					
Education: in-migrants could place additional strain on local educational facilities	Grievances related to pressure on school infrastructure	No legitimate grievances related to Project impact on schools.	Grievance Database	Support to local educational infrastructure if schools are oversubscribed by Project worker families	ERC CRM
Education: Radwan Junior School impacted by construction noise and dust	Grievances related to construction impacts on school.	No legitimate, unresolved grievances related to Project impact on school.	Grievance Database	Construction management measures for noise and dust	ERC CRM / Contractors' Construction Managers
Electricity Infrastructure in Laydown Area	Electricity supply to Amal City	Electricity supply to Amal is not disrupted by Project.	Grievance Database; Site visits	Timely avoidance or relocation of community electricity cable	ERC CRM / Contractors' Construction Managers
Sewerage in El Khosos could be overloaded if used by Project	Impact to El Khosos sewerage	No use of El Khosos sewerage for industrial discharge.	Project design implementation	ERC will not use El Khosos sewerage for operations and will not overload the system.	ERC CRM / Contractors' Construction Managers
Expectations about installation of sewerage and water infrastructure in Laydown could lead to social risk is expectations are not managed.	Expectations about ERC infrastructure investments in Laydown Area communities	The majority of PAPs in Laydown Area are aware of Project plans for infrastructure upgrade in the area.	Performance monitoring surveys.	Manage community expectations through stakeholder engagement / PCDP	ERC CRM / Contractors' Construction Managers
Transport Infrastructure	Grievances related to traffic or transport. Project and Contractor drivers familiar with transport rules; infringements of transport rules reported.	No legitimate unresolved grievances related to traffic or transport; All drivers familiar with rules; No infringements of transport rules; target local residents for employment to reduce need to travel to work.	Grievance Database; Spot checks; Observation by security personnel and Contractor Transport Department	Traffic Management Plan; Driver Training; Relocation of North Plot entrance; Signage at site entrance; Support to development of alternative routes and road maintenance if necessary.	ERC CRM / Contractors' Construction Managers

Access Routes for pedestrians, donkey carts, cars	Community grievances related to blocked access	No unresolved legitimate grievances related to blocked access; Upgrade roads for efficient access.	Grievance database; improved roads	Fencing off of Laydown site to provide pedestrian access through the middle; providing demarcated pedestrian access on Laydown Area access roads to Ismailia Canal with signage.	ERC CRM / Contractors' Construction Managers
Socio-Demographics					
In-Migration could disrupt local culture	Proportion of local workers hired; Grievances about worker conduct.	At least 30% of unskilled construction workers form affected communities; at least 30% of unskilled ERC staff from affected communities; No unresolved grievances related to worker conduct.	Employee records; Grievance database.	Preferential hiring of local workers; Train workers in ERC Code of Conduct and "Good Neighbour" Policy as part of induction; Monitor community relations and apply grievance process	ERC CRM. Contractors' Construction Managers; Contractors' Induction Training Managers
Social Inclusion	Representative community satisfaction with Project benefits	Majority of women and men from different background express satisfaction with community access to Project benefits.	Performance monitoring surveys; Employment audits	Promote equal opportunities in Project employment; PCDP; Ensure fair and transparent process for selection of Community Development Projects.	ERC CRM. Contractors' Construction Managers
Economic Environment					
National Economic Development: generation of foreign exchange earnings; investment in local economy; realization of economic multipliers.	N/A	N/A	N/A	Consult community leaders and civil society when making economic development agreements	ERC Project Management
Regional and Local Economic Development could result from increased income for community workers and increased demand for local goods and services.	N/A	N/A	N/A	Consult community leaders and civil society when making economic development agreements	ERC Project Management
Increased Land Prices or Rents	N/A	N/A	N/A	No mitigation	N/A
Costs of Goods and Services	N/A	N/A	N/A	No mitigation	N/A

IMPACT	KEY PERFORMANCE INDICATOR	MITIGATION AND MANAGEMENT MEASURES	MEANS OF VERIFICATION	MITIGATION AND MANAGEMENT MEASURES	RESPONSIBLE PARTY
Employment and Labour					
Access to Project Employment	Percentage of employees from Project Affected Communities; Local advertising of vacancies; Grievances about hiring practices	At least 30% of unskilled construction workers from affected communities; at least 40% of unskilled ERC staff from affected communities; High community awareness of job vacancies; no unresolved legitimate grievances about ERC or Contractor hiring practices.	Employment records; Performance monitoring survey; Grievance database	Fair and transparent employment policies; local advertising of vacancies; support NGOs to compile skills database and submit to contractors.	ERC CRM and HR Managers; Contractors' Construction Managers
Demobilization could result in unemployment.	TBC	TBC	TBC	Demobilization plan for construction workers including liaison with other employers in the industry for vacancies.	ERC and Contractors' HR Managers
Movement of Skilled Workers from Region to Project Area	N/A	N/A	N/A	No mitigation.	N/A
Skills Development	Local residents trained	A significant number of residents from Project affected communities receive training to upgrade skills	Training records	Local Training Plan has been developed.	ERC CRM; C/CSR and Training Managers/Contractors' Construction Managers
Street Vendors in Transport Right of Way could be positively impacted by increased traffic or negatively impacted by noise and dust putting off customers.	Grievances about impact on livelihoods	No unresolved legitimate grievances related to street vendor businesses	Grievance database	Traffic management Plan; Use of clean vehicles; Driver training	
Garbage Collectors at Laydown Area could be negatively impacted by restricted access to informal dump site.		No unresolved legitimate grievances about impact on livelihoods; Waste collector livelihoods are maintained or improved.	Grievance database; Resettlement/livelihood monitoring	Initially fence only southern half of Laydown Area; Phase 2 SIA research into garbage collector livelihoods and provision as appropriate of alternative livelihoods. Phase 2 SIA research into garbage collector livelihoods and provision as appropriate of alternative livelihoods. Phase 2 SIA research into garbage collector livelihoods and provision as appropriate of alternative livelihoods.	ERC CRM
Dust could affect farmers as well as other businesses	Grievances about dust impacting livelihoods	No unresolved legitimate grievances in relation to dust impact on livelihoods	Grievance database	Construction dust management measures; monitoring impacts on farmers' livelihoods	ERC CRM and HSE Managers; Contractors' Construction Managers

(Incorrect) Belief that houses in Naguib and Arab El Hessn will be resettled may cause stress and ill feeling toward Project.	Community awareness of correct Project plans	Majority of community members have access to information on Project Plans	Performance Monitoring	Stakeholder Engagement/PCDP	ERC CRM
Social Conflict may arise from tensions between community members and Project workers	Grievances about Workers' conduct	No unresolved legitimate grievances about worker behavior	Grievance database	Training in Code of Conduct and "Good Neighbour" Policy as part of worker induction.	ERC CRM and HR Managers; Contractors' Construction Managers
Local Environment could be affected by noise and dust	Grievances about noise and dust	No unresolved legitimate grievances about noise or dust	Grievance database	Construction noise and dust management measures (Sheeting, dust suppression techniques); controlling noisy work hours.	ERC CRM and HSE Managers; Contractors' Construction Managers
Cleaner Environment and Reduction of Crime in Laydown Area due to fencing and security measures.	Security of Laydown Area and surroundings	Clean, safe Laydown Area; No unresolved legitimate grievances about management of Laydown Area	Site visits; Grievance database	Fencing, Lighting, and security in Laydown Area.	ERC Government Relations Mgr/ Security Mgr and Contractors' Construction managers
Housing Quality and Location for re-located CORC families	Tenants' satisfaction with re-placement housing	All tenants satisfied with replacement housing	Relocation monitoring	Monitoring of relocated households' satisfaction with new housing.	ERC CRM / Social Advisor
Health					
Health Impacts Related to Operational Pollution (air emissions)	Air Emissions	Compliance with emission standards	Environmental Monitoring	Advanced process design to control pollution	ERC HSE Manager / Contractors' Construction Managers
Health Impacts Related to Construction Pollution (dust, asbestos, noise)	Health impacts resulting from noise and dust	No health impacts resulting from Project sources of construction pollution	Health and Grievance monitoring	Construction noise and dust management measures (Sheeting, dust suppression, no loud work at night)	ERC HSE Manager; Contractors' Construction Managers
Communicable disease as a result of worker movement	Worker awareness of HSE health protection practices	All workers aware of HSE standards	Performance monitoring/spot checks	Investment in sanitary facilities; health monitoring; worker HSE induction training	ERC CRM and HSE Managers / Contractors' Construction Managers
Stress	Community grievances in relation to stress	No unresolved legitimate grievances in relation to stress	Grievance database	Construction noise and dust management measures; effective communication of Project information to counteract rumour.	ERC CRM / Contractors' Construction Managers
Injury or Health Damage	Community injuries resulting from Project activities	No grievances of claims in relation to injuries	Grievance database; CLO records	Community Emergency Preparedness Plan; HSE and Traffic Plan; Road Safety Campaign; First Aid Training	ERC CRM and HSE Managers / Contractors' Construction Managers

IMPACT	KEY PERFORMANCE INDICATOR	TARGET	MEANS OF VERIFICATION	MITIGATION AND MANAGEMENT MEASURES	RESPONSIBLE PARTY
Worker Health and Safety	Worker injuries	No worker injuries	Contractor and ERC medical records	Emergency Preparedness Plan; HSE and Traffic Plan; Road Safety Campaign; First Aid Training	ERC HSE Managers / Contractors' Construction managers
Health Infrastructure could be impacted if used by Project workers	Grievances about stress on local services	No unresolved legitimate grievances about Project workers' use of local health services	Grievance database	Investment in community health infrastructure if necessary	ERC CRM / Contractors' Construction Managers
Grievance Mechanism					
Effectiveness of the Grievance Mechanism is key to tracking performance of social impact management	Grievances resolved within an agreed time frame; Complainants' satisfaction with grievance resolution; Community awareness of grievance mechanism	All grievances resolved within the time-frame; Majority of complainants express satisfaction with the grievance process; Majority of community members aware of how they could lodge a grievance.	Grievance database; Performance monitoring survey	Grievance Mechanism	ERC CRM and CLOs and C/CSR Manager

*"Legitimate" grievances mean grievances that are assessed as legitimate by ERC or, where ERC and complainant do not agree on the validity of a grievance, assessed as legitimate by Third Party Grievance monitors.

Appendix C: Summary of the Environmental Monitoring Plan (Complete Plan in ESIA, Appendix 12.10)

MONITORING PROGRAM	MONITORING ACTIVITIES AND PARAMETERS	
	CONSTRUCTION PHASE	OPERATION PHASE
Visual Inspection	Workshops Waste collection locations and wastewater storage tanks; Material, fuels and oil storage locations	
Surface Water (Ismailia Canal) and Irrigation Canal Monitoring	Parameters to be samples every two months at the point of any discharge, upstream and downstream of discharge location.	
Groundwater	Groundwater level monitoring Groundwater quality monitoring ; Installation of new monitoring well across the Project Area	
Air Emissions	Monitored quarterly by active sampling and measurement for PM ₁₀ , SO ₂ , CO, toxic gases, NO _x (as NO ₂) and ammonia at the same locations of the baseline study.	Same as during construction. Stacks and vents will be monitored by active sampling.
Noise Monitoring	Checked at least weekly (using Type II sound level meter) while pile-driving activities are occurring.	Quarterly at the same locations and by the same method as during construction. Ambient noise will be monitored three times a year at the facility boundaries and at two locations in the nearby dwelling area.
Solid and Hazardous Waste Monitoring	Quantities and destination will be documented by the Contractor and the records handed over to ERC after commissioning, to demonstrate compliant handling and disposal.	Records of the amounts, transportation routes and final reuse/disposal will be kept and maintained; Handled according to the Waste Management Plan.
Incoming and Outgoing Chemicals	Records will be kept, maintained and regularly reviewed.	
Trucking and Machinery Activities	Continuously monitored to avoid unnecessary use and check compliance with the Traffic Management Plan	
Health Risk/Workplace Monitoring	Records of health risk/workplace accidents will be documented and archived.	A baseline check-up for all employees will be carried out. Medical check-ups will be carried out periodically and the results documented and stored. Accidents will be recorded and records regularly reviewed.
Occupational Noise	N/A	Monitored using Type II noise equipment.

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