Ministry of Transport
Egyptian National Railways

CAIRO ALEXANDRIA TRADE LOGISTICS DEVELOPMENT PROJECT

ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK (ESMF)

Prepared by: Integral Consult©

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ACRONYMS

APA	Alexandria Port Authority
AQI	Air Quality Index
CAA	Competent Administrative Authority
CAPMAS	Central Agency for Public Mobilization and Statistics
CBO	Community Based Organizations
CEPF	Critical Ecosystem Partnership Fund
CHS	Community, Health and Safety
CTC	Central Traffic Control Buildings
DP	Dry Port
EAD	Environmental Affairs Directorate
EEAA	Egyptian Environmental Affairs Agency
EHS	Environmental, Health and Safety
EHSG	Environmental, Health, and Safety Guideline
EMF	electric and magnetic fields
EMU	Environmental Management Unit
ENR	Egyptian National Railways
ENRMP	Egyptian national railway management project
ENRRP	Egypt National Railways Restructuring Project
ESA	Egyptian Survey Authority
ESF	Environmental and Social Framework
ESIA	Environmental and Social Impact Assessment
ESMF	Environmental and Social Management Framework
ESMMF	Environmental and Social Management and Monitoring Framework
ESMP	Environmental and Social management plan
ESS	World Bank Group Environmental and Social Safeguards
GARB	General Authority for Roads and Bridges
GBV	Gender Based Violence
GC	Greater Cairo
GM	Grievance Mechanism
GOE	Government of Egypt
GRM	Grievance Mechanism
HDD	Horizontal Directional Drilling
HSE	Health, Safety and Environment
IBAs	Important Bird Areas
ICNIRP	International Commission on Non-Ionizing Radiation Protection
IFC	International Finance Corporation
ILO	International Labor Organization
IMF	International Monetary Fund
IR	Involuntary resettlement
KBA	Key Biodiversity Area
LMP	Labor management procedures
MoE	Ministry of Environment
MoT	Ministry of Transport
MSDS	Material Safety Data Sheets
MTB	Main technical Building
NCHR	National Council for Human Rights
NCLS	National Child Labor Survey
NMT	Non-Motorised Transport
OSH	Occupational Safety and Health
PAPs	Project Affected Persons
PM	Particulate Matter
PMU	Project Management Unit

PPE	Personal Protective Equipment
RF	Resettlement Framework
RoW	Right of Way
RP	Resettlement Plan
SA	Subsidiary Agreement
SEA/SH	Sexual Exploitation and Abuse/ Sexual Harassment
SEP	Stakeholder Engagement Plan
TIA	Traffic impact assessment studies
TSP	Total Suspended Particles
WB	World Bank
WMP	Waste management plan

1 INTRODUCTION

1.1 Background

According to the World Economic Outlook (WEO April 2019), the IMF projects an average annual increase of Egyptian export volumes of 5.8% and an average increase of import volumes of 3.8% up to 2024. The Greater Port of Alexandria (the ports of Alexandria and El-Dekheila) represents Egypt's primary gateway port and handles about 55% of Egypt's containerized gateway traffic, serving the greater Alexandria area and Egypt's populated north-east region. Without constructing a new freight line bypass to the Cairo Railway Hub, the current existing railway network which would need to be used for the transportation of freights would have to go through the Cairo Railway Hub, which is highly congested by passenger traffic and unavailable to freight traffic for most of the day. The bypass includes building a missing link and upgrading other sections to deliver efficient rail connectivity to dry ports and Upper Egypt. The current ENR network only allows around 4 trains per day from north to south and vice versa with poor reliability given the bottleneck in the Cairo Railway Hub.

ENR is planning to improve its operational efficiency to accommodate more freight trains. As such, ENR plans to develop a new railway line dedicated to freight traffic with a segment to bypass to the congested areas between Imbaba and El Maraziq stations. The Government of Egypt (GOE) is expanding the Egyptian transport infrastructure to account for the expected growth in freight traffic through the construction of distribution centers, road networks, railway networks, container handling terminals and dry ports.

The Government of Egypt with support from the World Bank will solve the current infrastructure bottleneck by implementing the railway bypass to the Cairo Railway Hub. The railway bypass includes (1) Greenfield Link; Construction of a greenfield link from the Bashteel–Itay El Baroud section to the Marazeeq-Wahat section, including (a) constructing structures (bridges, viaducts) and laying track foundation; and (b) installation of track and signaling. (2) Marazeek–Wahat Section Upgrade; Upgrading of existing track and signaling modernization from Maraziq to the junction point with the greenfield link. (3) Bashteel-Itay Baroud Section; (a) Upgrading of existing track, construction of a parallel track, and new signaling installation on both tracks on Bashteel-Etihad segment; and (b) upgrading of the existing single track and signaling on Etihad-Itay Baroud segment. (4) Etihad-Tafaroa Section ; Upgrading existing single track and signaling on Etihad-Tafaroa section..

The project also includes Railway Sector Reform, Stakeholder Engagement, Women's Economic Empowerment, Decarbonization study and Private Sector Participation. These objectives are critical for improving logistics in Egypt, allowing connections to other quadrants of the national railway network, including Sokhna Port, the Suez Canal Economic Zone (SC Zone), and other Egyptian ports on the Mediterranean such as Damietta and Port Said. The first dry port in Egypt will be in 6th of October city and is expected to go into operation by 2023. The Port is expected to transport containers between Alexandria Port Authority (APA) and the 6th of October dry port (DP6) via a dedicated freight railway line. This will decrease the traffic congestion on the Cairo to Alexandria dessert road and reduce the negative environmental social and safety impacts resulting

from truck traffic which is one of the main causes of road accidents in Egypt. The project main objective is to improve the performance and lower the greenhouse gas emissions of the logistics and railway sectors in the Alexandria-6th October-GCA railway corridor and generate private sector participation in railway transport in Egypt.

1.2 ESMF Objectives

According to the World Bank Environmental and Social Framework (ESF), an Environmental and Social Management Framework (ESMF) is required since the project consists of a number of components and subcomponents, where scope and nature of some interventions are not yet known. The following table provides the sequencing of component 2 and the current available information:

Component	Expected starting year of implementation
Subcomponent 2.1 Missing Link: constructing of greenfield track	Year 1
Subcomponent 2.2 Marazeek – Wahat section:	Year 1
Subcomponent 2.3 Bashteel – Itay El Baroud section:[1]	Year 2- Year 3
Subcomponent 2.4 Etihad – Tafaroa section:	Year 2- Year 3
Embedded safety management culture and physical safety measures into the upgrade and new works for all subcomponent	Year – Year 3

Component 1 will be support technical studies that their scope will be determined during the project implementation. This has necessitated the development of this Environmental and Social Management Framework (ESMF) to sets out the principal, guidelines, and procedures to identify, assess and manage the environmental and / or social impacts that may accompany the subcomponent.

1.3 ESMF Scope

The scope of this ESMF incorporates all activities and components under the project that are described in detail in Chapter 2 including component 2. The ESMF provide a special focus on sub-component 2.3 and 2.4 which is expected to be supported at a later stage of the project (year2). The ESMF provides guidance for assessing, managing and monitoring the environmental and social aspects related to the proposed subprojects throughout their lifecycle, i.e. requirements before the construction phase (e.g. ESIA studies), construction phase, and operation phase.

[1] At this stage the conceptual design of the partial dualization of this segment is not ready and the location of the dualization is expected to vary across the 100 Km depending on the conceptual design.

1.4 Rationale for ESMF

This ESMF was developed in compliance with the World Bank requirements to set rigorous environmental and social requirements and road map for the implementation of the sub-projects, including:

- Introduction
- Project Description
- Legal, Regulatory and Institutional Framework
- Framework for Environmental and Social Settings and Baseline
- Identification and Analysis of Alternatives
- Environmental and Social Impacts Framework
- Environmental and Social Management and Monitoring Framework (ESMMF)
- Public Consultation and Disclosure
- Screening of Subprojects for Environmental and Social Requirements
- Annexes

1.5 Methodology for Preparation of ESMF

The following subsections will explain the methodology followed to prepare the ESMF:

1.5.1 Legal and Institutional Framework

- Identify national legislations that are / may be applicable to the project
- Identify the pertinent standards and policies of the World Bank
- Evaluation of the ESSs relevant to the project and the ESF
- Conduct a gap analysis between the WBG requirements and national legislations
- Determine the standards / criteria that the project should follow throughout the different phases of its life cycle
- Identify the international conventions relevant to the project that Egypt is committed to implement
- Define the institutional framework related to each of the subprojects

1.5.2 Environmental and Social Settings-Baseline

- Collect data on the characteristics of the project intervention areas in terms of their vulnerability and sensitivity to positive and negative environmental and social impacts and risks, such as: air quality, water bodies, infrastructure, climate, land and social and environmental conditions
- Determine the general baseline conditions in the subproject's areas
- Determine the environmental and social context that may require detailed investigations in subsequent studies, after clearly identifying the project intervention locations
- Analyze the elements of the natural environment, built environment, and infrastructure in addition to the economic and social environment conditions to determine the scope of the monitoring system and develop such system accordingly

- Determine the level of details needed for describing the environmental and social settings, methods to be followed, types of measurements and surveys to be conducted

1.5.3 Analysis of Alternatives

- The alternatives will be evaluated for each subproject based on social and environmental advantages and disadvantages of each proposed alternative. The evaluation includes:
  - "No Action" alternative
  - Technical alternatives
  - Economic alternatives
  - Project site alternatives
- The chosen alternative will be evaluated in detail in subsequent detailed studies

1.5.4 Environmental and Social Impacts Framework

A preliminary assessment of the potential positive and adverse impacts during the construction and operation phases for different project components was performed and significance of impacts determined. Significance was determined on the basis of severity of the impact and/or risk level determined from severity and probability of the impact. A rating method was applied to determine the significance of the impacts.

The scope of the impact and risk assessment of project components on:

- Natural physical environment (air quality, ambient noise levels, water bodies and soil)
- Biological environment (fauna and flora)
- Socio-economic aspects such as livelihood
- Built environment such as infrastructure and underground utilities
- Labor and working conditions
- Resources and pollution
- Community health and safety
- Land-related aspects
- Cultural Heritage

1.5.5 Environmental and Social Management and Monitoring Framework (ESMMF)

An Environmental and Social Impacts Mitigation Framework was developed on the basis of mitigation hierarchy approach for identified impacts and risks associated with the project. The mitigation framework consists of relevant plans required to mitigate potential impacts identified from the preliminary assessment of impacts. The methodology to select specific mitigation measures constituting the plans outlined in the mitigation framework should be based on consideration of costs, manpower, local availability of equipment and technology needs and timing to ensure implementation. The ESMF provides screening procedures to identify appropriate ESS instruments that should be developed by the PMU prior to construction.

An Environmental and Social Management and Monitoring Framework (ESMMF) was developed to provide guidance and principles on measures and plans including the need for additional

instruments (ESIA, feasibility studies, environmental audits, etc.) to safeguard ESS for the project using the Mitigation Hierarchy approach to avoid, minimize, mitigate and/or offset adverse risks and impacts. The ESMMF defines responsibilities, requirements (measure and plans), and associated estimated costs for implementation and supervision.

On the basis of ESMMF, staffing requirements for implementing entities including types of skills and associated training needs to properly manage and implement environmental and social duties throughout the project life cycle and according to ESMF and RF requirements were determined.

1.5.6 Public Consultation and Engagement

- Consultation activities will be conducted in a public consultation session and interviews with concerned parties
- These activities will be carried out in accordance with all national regulations related to public consultation as well as the World Bank Group Environmental and Social Safeguards (ESSs) related to public disclosure and consultation:
  - ESS 10 and the World Bank Policy on Information Disclosure
- Results of the consultations should be included in the ESMF
- ESMF must be developed in conjunction with the Stakeholder Engagement Plan (SEP)
- Comprehensive guidelines must be provided to follow during project implementation once the physical footprint of the site's activities is better known
- Provide guidelines for meaningful consultations and, to the extent possible, specify methods, locations and timing of consultations to be conducted at different stages of the project life cycle
- The ESMF and RF must be publicly disclosed within the country and on the World Bank website before the project is evaluated
- Key principles for effective participation that guide stakeholder consultations including:
  - Ensure that all sessions are free from intimidation or coercion
  - Provide useful information in an understandable and culturally appropriate form and language tailored to the needs of the targeted stakeholder group (s)
  - Be inclusive in representing perspectives, including different ages and genders, and integrate vulnerable groups and / or minorities who may be ignored or marginalized due to their own circumstances
  - Respecting local traditions in decision-making processes

2 PROJECT DESCRIPTION

2.1 Overview

The Project will build a railway bypass to the congested railway network around greater Cairo. This bypass will improve the efficiency of freight transport between the Alexandria Sea Port and Greater Cairo. Coupled with ongoing improvements to the railway lines between Cairo and Nag Hamadi under the RISE Project, freight trains can reach Upper Egypt. The bypass includes a greenfield segment starting at the Bani Salamah station on the line connecting Bashteel with El Itihad stations) and the Marazeeq-Wahat line. The bypass also upgrades the signaling on the Marazeeq-Wahat line, between Marazeeq (km 0 point) and the meeting point with the greenfield segment. The Project will also improve access by train for container trains to the 6th of October Dry Port (DP6) which manages only containers and lies along the Marazeeq-Wahat railway line. The Project will also upgrade the railway signaling on the Bashteel-El Itihad (El Manashy segment) and El Itihad-Tafaroa (El Itihad segment) between Greater Cairo Area and Alexandria.

The Project will increase the capacity of the existing railway corridor between Alexandria and Cairo to manage freight trains. The Project will allow, for example, to increase from 4 trains per day bound to DP6 to more than 30 once all the Project is complete. Traffic for other types of freight trains will also increase. Moreover, because of the bypass to the heavily congested area of Greater Cairo, the Project will increase the railway connectivity to Upper Egypt, allowing for a trade and economic corridor to Sudan. Furthermore, the Egyptian railways' network is extensive, so this bypass opens up other parts of the network to railway traffic, including the Damietta Port and Port Said. Other dry ports can also benefit if they build last-mile connectivity to the existing ENR network to take advantage of the projects' benefits.

The Project will also introduce the Infrastructure Access Charge (IAC) regime for railways in Egypt. The IAC allows private railway operators, for example, to run their trains, paying a charge to ENR as the owner of the tracks. The railway bypass to the bottleneck in the GCA increases capacity to allow more trains, including those eventually operated by the private sector. The Project also opens up other private sector participation opportunities in railways.

2.2 As part of the project design, all subcomponents embed a zero harm/zero tolerance, safety first" into the upgrade and new works on the tracks, at communities along the tracks, ensuring safety for communities along the tracks, such as fencing, level crossings, and education measures.Project Components

All project components will be described briefly herein-below with special focus on the fourth component which includes physical interventions:

2.2.1 Component 1: Railway Sector Reform, Project Delivery, Stakeholder Engagement, Women's Economic Empowerment, and Private Sector Participation

There are six sub-components that fall under this component:

2.2.1.1 Subcomponent 1.1. Railway sector reform:

(a) Developing and adopting a transparent railway infrastructure access charging (IAC) scheme for the Egyptian railway network, determining the specific charges to be paid for access and use of infrastructure by public and private railway operators, and supporting the ENR in drafting, negotiating and entering into IAC Contracts with private railway operators;
(b) Developing a regulatory framework for the railway network, identifying the detailed scope and responsibilities of a railway regulator and the associated governance framework;
(c) Identifying and developing additional rail-friendly policies to increase traffic on the railway network.

2.2.1.2 Subcomponent 1.2. Project-delivery activities:

(a) Setting up an owner's Works Supervisor and Integrator to manage and integrate the design and construction of works financed by the Ministry of Transport (MoT) and works financed with Loan proceeds under Part 2;
(b) financing of a technical audit for the works under Part 2.

2.2.1.3 Subcomponent 1.3. Promotion of Women's Employment and Stakeholder Engagement:

(a) Promoting women's employment in the ENR's workforce through upgrading its childcare facility, establishment of a female internship program and
(b) Implementing activities under the [Stakeholder Engagement Plan] to strengthen meaningful stakeholder engagement under the Project, including establishing and disseminating a citizen's charter.

2.2.1.4 Subcomponent 1.4. Enabling private capital mobilization (PCM) for the railway sector:

Transaction support to the ENR in dealing with private parties concerning the private sector participation opportunities in the rail sector.

2.2.1.5 Subcomponent 1.5 Decarbonization study (ENR financed):

Conducting a technical study for developing a decarbonization roadmap for the ENR.

Support for strengthening the operational, fiduciary, and technical capacity of the PMU, through the provision of ICT equipment, non-consulting services, consulting services, and training.

2.2.2 Component 2: Track extension, railway signaling modernization, and selected track upgrades to create a railway bypass around the Greater Cairo Area.

There are four sub-components that fall under this component. Component 2 involves the construction, upgrading and signaling work of 4 railway lines (three existing lines and 1 new lines) (Figures 2-1). Upgrading work and signaling provision will be carried out in the 2 existing lines. Construction work and signaling provision will take place at the proposed new line site in addition to the dualization of one of the existing lines.

A description of activities for each line (subcomponent/line) is provided in the upcoming subsections.

Since the exact nature and physical location of interventions' footprints for component 2.3 and 2.4 will only be finalized during project implementation, accordingly, an Environmental and Social Management Framework (ESMF) was developed as part of the Environmental and Social Assessment Process. An Environmental and Social Impact Assessment (ESIA) for subcomponents 2.1 and 2.2 has been developed.

The GoE is the funding source for the industrial works and structures under subcomponents 2.1, 2.3.a and 2.3.b. The GARB will implement the GoE-funded works. The World Bank is the funding source for the remaining track and signaling. The Egypt National Railways (ENR) is the project owner and the main implementing agency for the project.

Figures 2-1 : Current routes for freight trains from AP to DP6 and proposed route by the project

2.2.2.1 Subcomponent 2.1 Greenfield Link:

Construction of a greenfield link from the Bashteel–Itay El Baroud section to the Marazeeq-Wahat section, including (a) constructing structures (bridges, viaducts) and laying track foundation; and (b) installation of track and signaling.

The railway bypass is described in the following map Figure 2-2.

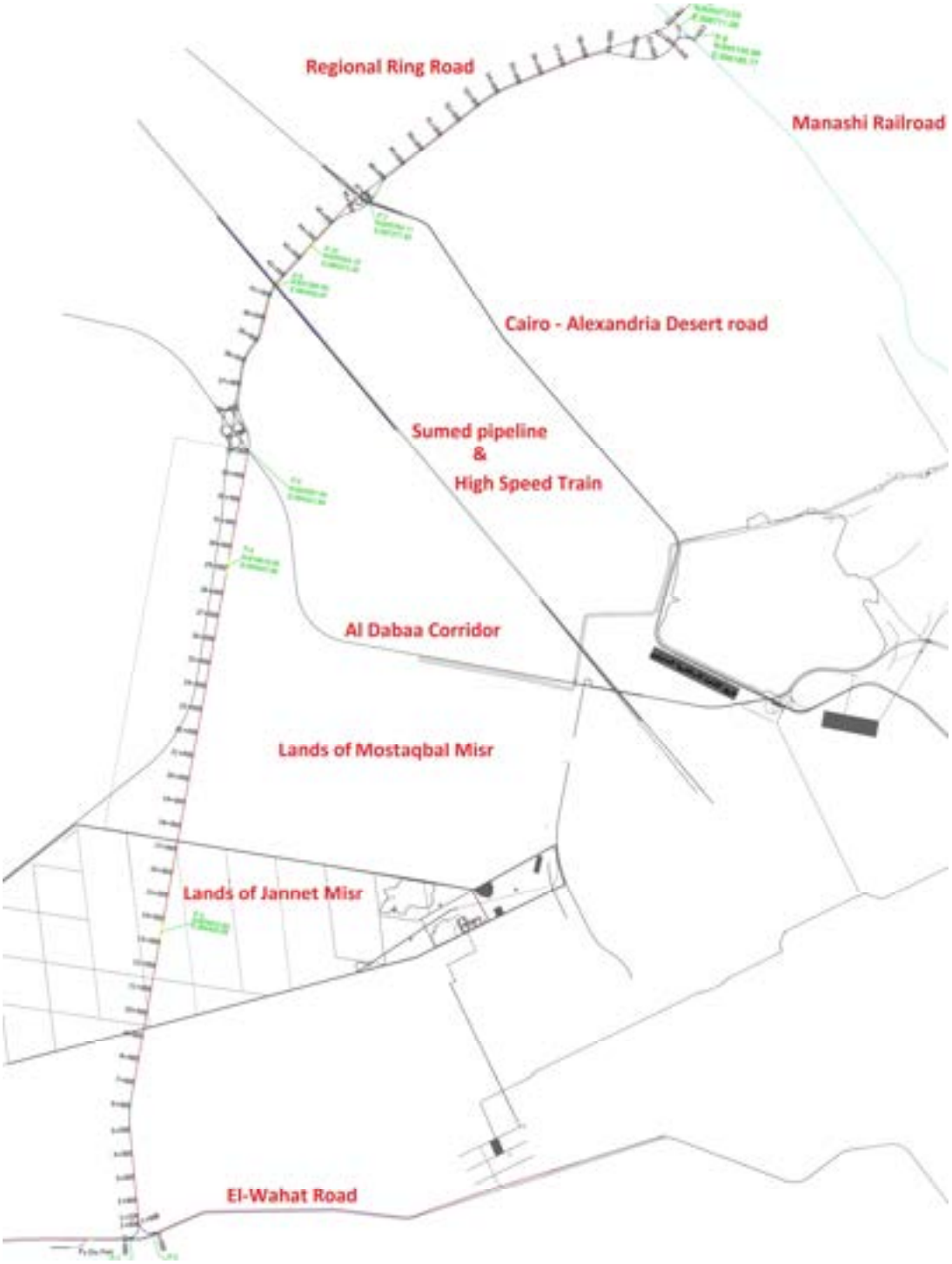


Figure 2-2: Map images of the proposed Project

Works planned for construction of the greenfield track include

- Railway embankments

- Track and alignment work
- Equipment, construction raw materials, cables, new tracks, and sleepers' mobilization
- Trenching and new cables installation activities
- Track upgrading / renewal activities
- Horizontal Directional Drilling (HDD)
- Construction activities required for signaling towers and level crossings
- Construction of important structures that support the new railway track in order to enable its existence or for or future hydraulic and infrastructural intersections/crossings. These structures are the Railway line structures include culvert, Road underpasses, Railway viaducts and Road flyovers.
- Loading and off-loading cargo
- Locomotive refueling
  Locomotive repair and maintenance (such as oil change, mechanical repairs, electrical repairs, painting, welding and fabrication).

2.2.2.2 Subcomponent 2.2 Marazeek–Wahat Section Upgrade:

Upgrading of existing track and signaling modernization from Maraziq to the junction point with the greenfield link.

Works planned for the modernization of signaling and upgrading of tracks include:

- Track repair and maintenance (such as ballast refill, vegetation outgrowth clearance, coating track for protection from outwear, lubricating tracks, replacing damaged track sections, realigning misplaced tracks, etc.)
- The upgrading of signaling installations,
- Fully new automatic blocks (with contraflow signaling) with color light signals,
- Creation of the track circuits,
- Cancelling all mechanical interlocking and electrical relay interlocking installations,
- Creation of new electronic interlocking systems according to the new track layout
- Construction activities required for signaling towers and level crossings
- Renewing all signaling ground installations, including laying cables and civil works (some sub-water line laying of cables), excluding track installations,
- Installation of all the point motors for the switches controlled by the CTC,
- Fully new automatic level crossings, not including the civil works.

2.2.2.3 Subcomponent 2.3 El Bashteel-Itay El Baroud Section:

(a) Upgrading of existing track, construction of a parallel track, and new signaling installation on both tracks on Bashteel-Etihad segment;
(b) upgrading of the existing single track and signaling on Etihad-Itay Baroud segment.

Table 2-1 Characterization of Bashteel/ Etihad / Itay Baroud line

Start	Bashteel Station

End	Itay Baroud Station
No of Stations	35 passenger stations
Total length (km)	117 km single track railway line
Description	Pass by 4 bridges & 33 level crossings There are 13 illegal level crossing
Maximum Speed	70 km/hour
Signalling	- Electric signals - C.T.C Centralized Train Control at Itay baroud - A.T.C Automatic Train control. - U.P.S Uninterrupted Power System at Itay Baroud
No of Trains	Freight & Passenger
Trains	20 trains from Bashteel to Itay Baroud & 21 in the opposite direction
Condition	- As for the Straight lines, they are in good condition, except for the section from 22.700 km to 27.400 km, which is in bad condition and needs maintenance. - some sections in the line are covered with weeds and dust and needs to be cleaned - Most of the yards need renovation, especially the yard of Kom Hamada and the yard of the Katta. - There are many illegal crossings on the line. -

2.2.2.4 Subcomponent 2.4 El Itihad – Tafaroa section:

Upgrading existing single track and signaling on El Itihad-Tafaroa section.[2]

Table 2-2 Characterization of Etihad - Tafroa line

Start	**Etihad**
End	Tafroa Station (Alexandria Sea Port)
No of Stations	17 stations
Total length (km)	From Qabary to Tafroa station 15.4 km double line & from Tafroa station to Etihad station 108 km single line.
Description	Pass by 20 concrete steel bridges & 27 level crossings (not all of them upgraded. There are 38 non legal level crossings

[2] The Tafaroa to the gate of the Alexandria Port segment (17 km) is currently functional and does not require support from the project.

Maximum Speed	50 km/hour
Signalling	Tafroa signalling block is operationally connected to Qabary/Marsa Matroh line -Mechanical signalling Etihad tower is operationally connected to Itay baroud/Manashy -Electrical signalling. Signals in depots are operated manually Line is not equipped with Automatic control system. Some stations are equipped to have night lightings, but other stations are not equipped yet for night lighting.
No of Trains	Freight only
Condition	As for the Straight lines, they are in good condition, except for the section from 28.94 km to 42.49 km, which is in bad condition and needs maintenance.

The upgrading of existing tracks and signaling (c) will include the same works planned for the modernization of signaling and upgrading of tracks described in **subcomponent 2.2.**

2.3 Number of workers

According to the project's Labor Management Procedures (LMP) the anticipated total number will be around 2070 divided into: 70 Direct Workers; 1600 contracted workers; and 400 Primary Supply Workers.

The project is not expected to install workers camps for the different project segments given the proximity of the segments to main cities along the routes and the accessibility of the sites.

The estimated numbers for the Project are summarized in the table below.

Table 2-3 Anticipated number of workers

Type of Worker	Estimated number of workers	Comments
Direct Workers		
PMU	10-20	
Consultants	10	
Civil Servants	40	
Total	**70**	
Contracted Workers		
Contracted workers (unskilled and semi-skilled)	400	**2.1: Bani Salamah-Wahat:** (based on the feasibility study prepared for the construction of the missing link) **including GARB and ESA hired sub-contractor**
	200	**2.2: Marazeeq-Wahat**
	600	**2.3: Bashteel – Itay El Baroud** **including GARB and ESA hired sub-contractor**
	300	**2.4 Itihad-Tafaroa**
Contracted workers (skilled)	20	Technical auditor: One entity hired by PMU
	80	**Project Supervisor and Project integrator consultant, GARB, ESA** 50 workers are estimated to be employed for supervision on component 2 activities (project supervisor and system's integrator) 30 are estimated to be employed for preparing technical studies for component 1 (consultancy firms)

Total	**1600**	**1570 workers for component 2** **30 workers for component 1**
Primary Supply Workers		**Relevant to component 2**
Raw material suppliers, Ballast Suppliers, food supplies ties and tracks	400	Estimated as a 25% of the total contracted workers (for works involving physical interventions, i.e., component 2)
Total	**400**	
TOTAL	**2070**	**All components**

3 LEGAL AND INSTITUTIONAL FRAMEWORK

The project will comply with both Egyptian laws and the World Bank ESF. This section will review the national legislations as well as the World Bank standards applicable for this project. It will also provide a gap analysis, and the institutional framework for the project.

Several national and international laws and policies provide the legal framework for the investigated project. The national framework includes the Egyptian Environmental Law and all its relevant subsequent amendments and executive regulations. The international framework adopted in this study is the World Bank's ESS, the World Bank environmental, health and safety general guidelines and that for railways. These international criteria cover key areas for environmental and social impacts to be adhered to by any of the Foundation's funded projects. This section reviews both national and international policies and their applicability to the project.

Egyptian law provides for environmental compliance procedures and emission limits, which are close to the WBG limits, if not more conservative. The proposed project components must comply with international policies, which stipulate compliance with local laws. If there is a difference between local and WBG standards, the more stringent standards will be adopted.

3.1 National Legal Framework

Annex I provides a thorough explanation of the various national laws, regulations and framework related to the proposed project. Table 3-1 summarizes the national legal provisions applicable to the proposed project.

Table 3-1 the relevant legal National requirements for the project

Case	Relevant Law and legislation	Articles applicable to the project	Relevant executive regulations	Standards and specifications provided
Pollution of the environment	Law No. 4/1994 (Environmental Law) Amended by Law No. 9 of 2009	Articles 19, 20, 21, 23, and 33 regarding the performance of environmental impact assessment Articles 22 and 23 regarding the follow-up of the environmental register	Articles 10, 11, 12, 13, 13 bis, 14, 15 and 16 regarding the performance of environmental impact assessment Articles 17 and 18 regarding the follow-up to the environmental register	Appendix 3 of the Executive Regulations of the Law: A Model for the Environmental Register
Hazardous waste management	Law No. 4/1994 (Environmental Law) Amended by Law No. 9 of 2009	Articles 29 and 30 regarding hazardous material and waste handling and management		
Waste management	Law 202 for 2020	Articles 15, 16, 20, 31, 33, 34, 38 for municipal waste and articles 58, 60 & 61 for hazardous waste.		
Law 38/1967 (Public Cleanliness Law)	cleanliness law 38/1967 amended by law 31/1976 and its executive regulations			
Air pollution	Law No. 4/1994 (Environmental Law) Amended by Law No. 9 of 2009	Substances 34 to 39, 42, 43 and 47 bis of the project site, emissions or leaks of air pollutants, use of engines, dumping or burning of refuse,	Articles 34, 35, 36, 37, 38, 41, 44, 45 of the project site and responsibilities, the permissible limits of air pollutants, exhausts of machinery and engines, open	Appendix 5: Maximum limits of external air pollutants Appendix 7, Table (3) Maximum noise levels in different areas (rural

		waste and exhaust of drilling and construction works, noise and internal air quality in order	burning and disposal of waste, methods of dealing with waste and exhaust of drilling and construction, permissible noise limits, indoor air quality in order	dwellings, urban dwellings, etc.)
Occupational Health and Safety	Law No. 4/1994 (Environmental Law) Amended by Law No. 9 of 2009	Articles 42, 43, 44, 45, 46 on noise, indoor air quality, temperature and humidity, ventilation and smoking.	Articles 44, 45, 46, 47, 48 on noise, indoor air quality, temperature and humidity, ventilation and smoking respectively	Appendix 7: Permissible limits for indoor and indoor noise levels Appendix 8: Maximum air pollutants within the workplace according to the quality of each industry. Appendix 8, table 4: Quantity of air required to ventilate public areas. Appendix 9: Maximum and minimum temperature and humidity
Labor Law	Law No. 137 of 1981 (Labor Law) amended by Decree 12 of 2003			
	Labor Law and the Social Insurance and Pensions Law-Decree no. 168/2007 and its amendment no.162/2019, which			

	originally referred to article No.26 of Labor Law 12 of the year 2003			
land acquisition	Law No. 10 of year 1990 and its amendments by Law No. 24 for the year 2018, and law No. 1 for the year 2015. The law describes the cases of property expropriation for public benefit,	Articles 2 (fourth paragraph), 3, 5 (second paragraph), 6 (second paragraph), 7 (first paragraph), 13, 15 (first paragraph) of Law No. 10 of 1990 regarding expropriation of real estate for the public benefit		
	Law no. 152 of year 1980 and it amendments by law no. 144 for year 2020 regarding the railway RoW	Article no. 7		
Cultural Heritage	Law 117 of 1983 on the protection of monuments and cultural heritage, amended by Law 12 of 1991. Cemeteries Law No. (5) of 1966 and its executive regulations			
GBV	Presidential Decree No. 50 of 2014, its amendments			

	in 2017; and recent amendment to law 141/2021 carried out in August 2021 amending some articles of the 58/1937 Penal Law, to increase the penalty for sexual harassment, including sexploitation. Article 306 (a, b) of the Penal low 2018 provides the punishment for harassment, whether verbal or physical.			
Public Consultation	Law 4/1994 on Environmental Protection EEAA guidelines related to the Public Consultation	Paragraph 6.4.3.1 Paragraph 6.4.3.2 Paragraph 6.4.3.3 Paragraph 7	Scope of Public Consultation Methodology of Public Consultation Documentation of the Consultation Results Requirement and Scope of the Public Disclosure	

3.1.1 Egyptian Law Enforcement Authorities

The staff of Egyptian Environmental Affairs Agency (EEAA) and its branches in the governorates, to be determined by a decision of the Minister of Justice in agreement with the minister concerned with environmental affairs, shall have the status of judicial control officers in proving the crimes committed in violation of the provisions of the law and the decisions executed therefor, Which gives the authority to prove the commission of offenses in violation of the provisions of Law 4/1994 or the decisions issued in implementation thereof.
Traffic Law Enforcement Authority 121/2008 is the traffic police of the Ministry of Interior.

The enforcement authority for Law 93/1962 regarding the discharge of wastewater to the public sewerage system is the Ministry of Housing, in cooperation with the sanitation authorities.

The enforcement authority for Law 48/1982 on the protection of water bodies from pollution is the Ministry of Irrigation.

The enforcement authority if Law no. 152 of year 1980 and it amendments by law no. 144 for year 2020 regarding the railway RoW.

3.1.2 The Relevant International Treaties Signed by Egypt

Egypt has signed and ratified a number of international conventions that oblige the country to preserve environmental resources.

- International Plant Protection Convention (Rome, 1951)
- African Convention for the Conservation of Nature and Natural Resources (Algeria, 1968)
- UNESCO Convention for the Protection of the World Cultural and Natural Heritage (Paris, 16 November 1972)
- United Nations Convention on Climate Change (New York 1992). The Convention covers measures to control greenhouse gas emissions from various sources, including transportation
- Convention on Biological Diversity (Rio de Janeiro, 1992), covering the conservation of plant and animal species and their habitat, and biological diversity
- Convention on the Protection of the Ozone Layer (Vienna 1985)
- Convention on the Prevention and Control of Occupational Hazards caused by Carcinogenic Substances (Geneva, 1974)
- Convention on the Protection of Workers from Occupational Hazards in the Work Environment due to Air Pollution, Noise and Vibration (Geneva 1977)
- ILO: Basic labor standards to be followed during project implementation. Egypt has been a member of the International Labor Organization (ILO) since 1936 and has signed 64 conventions that regulate labor standards and working conditions. In 1988 Egypt ratified the Occupational Safety and Health Convention of 1979 (No. 152)
- Cultural Heritage: Respect for cultural heritage and non-financing of projects that threaten the safety of sites with a high level of protection for reasons of cultural heritage, for example UNESCO World Heritage Sites
- Consultation, participation and public disclosure: Aarhus regulation promotes transparency of environmental information and involvement of project stakeholders. The consultation identifies and manages any public concern at an early stage. The Regulations include provisions for public disclosure of key project information: such as non-technical summary and environmental impact assessment

3.1.3 Penalties

- Violations of Environment Law no. 4/1994, Amended by Law no. 9/2009

Chapter 4 (articles 84 to 101) defines the penalties provided for violations of the provisions of the various articles of law.

Article 84: Without prejudice to any more severe punishment provided for in another law, whoever contravenes the provisions of Article (28) of this Law shall be subject to imprisonment and / or fined not less than five thousand pounds and not more than fifty thousand pounds. In all cases, the court shall order the confiscation of seized birds, animals, living organisms, plants and fossils, as well as machinery, weapons, equipment and means of transport used in the commission of the crime.

Article (84): Penalties for violation of the provisions of Articles 22 (Environmental Register), 37 (item A) (open burning of waste), 69 (discharge of untreated waste or liquids) of this law shall be imprisonment for not more than one year and / with a fine of not less than five thousand pounds and not more than one hundred thousand pounds.

Any person who contravenes the provisions of Articles 19 and 23 (environmental declarations for expansions and renewals of an existing establishment) shall be punished by a fine of not less than fifty thousand pounds and not more than one million pounds.

In the event of a return to the offense, the minimum and maximum amount of the fine is doubled, and the maximum period of imprisonment doubled.

In addition to the previous original penalties, there may be penalties for closing the facility, revoking the issued license or suspending the infringing activity.

Article 86: Violation of the provisions of Article 36 (equipment / machinery exceeding permissible air emissions levels) shall be punishable by a fine of not less than 200 pounds and not exceeding 300 pounds. For violations of the provisions of Article 39 of Law 4/1994 and its amendments in Law 9/2009 (Construction and Demolition Activities), the penalty shall be a fine of not less than LE 500 and not more than LE 1000. The court may order a suspension of the license for at least one week and not more than six months. If the offense is returned, the court may revoke the license.

Article 87: Any person who contravenes the provisions of Article 42 by using the loudspeaker with a volume exceeding the permitted levels of sound intensity. He shall be punished by a fine of not less than LE 500 and not more than 2000 LE. The machines and equipment used in the violation shall be confiscated. Violators are subject to the provisions of Articles 35, 37, 40, 43, 44, 45, or 46 to fines not less than 1000 pounds and not more than 20,000 pounds. In the event of a return to the contrary, the fine provided for in the preceding paragraphs shall be doubled.

Article 95: A deliberate violation of the provisions of Law 4/1994 and its amendments in Law 9/2009 shall be punishable by imprisonment for a term not exceeding 10 years if this violation causes permanent disability to an incurable individual. The penalty shall be imprisonment if an offense results in the disability of three or more persons. If the consequences of the offense are the death of a person, the penalty shall be temporary hard labor, and if it results in the death of three or more persons, the penalty shall be permanent hard labor.

3.2 International Standards and Guidelines

The aim of following international guidelines and standards is to ensure that all issues are considered and managed in line with international good practice. This section describes the most relevant international guidelines and standards aimed at ensuring that all environmental and social issues are considered and managed in line with good international practices. Where standards and guidelines do not exist in Egyptian law or are more stringent than similar industrial guidelines, compliance will be with the more stringent guidelines.

3.2.1 World Bank Requirements

The project components shall comply with the WB Environmental and Social Framework, Environmental and Social Standards (ESSs) and guidelines. The standards help to ensure the environmental and social soundness and sustainability of investment projects. They also support integration of environmental and social aspects of projects into the decision-making process. In addition, the ESF promotes sustainable development by supporting the protection, conservation, maintenance, and rehabilitation of natural habitats and the environment.

- World Bank Environmental and Social Standards (ESSs)

The World Bank (WB) has identified 10 environmental and social standards that should be considered in its financed projects. These standards are:

- **Environmental and Social Standard 1:** Assessment and Management of Environmental and Social Risks and Impacts
- **Environmental and Social Standard 2:** Labor and Working Conditions
- **Environmental and Social Standard 3:** Resource Efficiency and Pollution Prevention and Management
- **Environmental and Social Standard 4:** Community Health and Safety
- **Environmental and Social Standard 5:** Land Acquisition, Restrictions on Land Use and Involuntary Resettlement
- **Environmental and Social Standard 6:** Biodiversity Conservation and Sustainable Management of Living Natural Resources
- **Environmental and Social Standard 7:** Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities
- **Environmental and Social Standard 8:** Cultural Heritage
- **Environmental and Social Standard 9:** Financial Intermediaries
- **Environmental and Social Standard 10:** Stakeholder Engagement and Information Disclosure

- ESS 1: Assessment and Management of Environmental and Social Risks and Impacts

This ESS highlights the importance of managing environmental and social performance, including the ESIA studies.

Project activities will impact environmental receptors including air quality, and noise levels. The project activities will include generation and handling of waste. If not managed properly, activities will negatively impact environmental receptors.

Project activities involve a significant social component due to planned locations of activities in urban areas or near communities.

ESS1 is relevant to this project due to the environmental and social risks and impacts associated with the activities, including:

Environmental risks and impacts, including: (i) those defined by the EHSGs; (ii) those related to community safety (including pedestrian safety and safe use of railways); (ii) noise from construction activities, and solid waste.

- ESS 2: Labor and Working Conditions

This ESS discusses the worker-management relationship. It aims to promote the fair treatment and equal opportunities of workers without any discrimination in order to comply with the national employment and labor laws to protect workers (including vulnerable categories such as children, workers engaged via third party and workers in the supply chain) and to avoid the use of forced labor in order to promote safe working conditions.

Project activities will involve employment of labor. The nature of activities will involve general construction and associated health and safety risks and hazards. The project will involve specialized activities involving generation and handling of hazardous wastes and associated safety hazards and risks. The scale of the project is expected to require employment of various types of workers including direct, contracted, and primary suppliers.

ESS2 is relevant to this proposed project due to the need for workers and health and safety impacts associated with the nature of project activities as well as the other risk related to the hiring procedures and the labor working conditions which are all addressed under the developed LMP.

- ESS 3: Resource Efficiency and Pollution Prevention and Management

This ESS aims to protect the human health and protect the environment by minimizing the pollution that occurs from different project activities. This can be achieved by promoting the use of sustainable resources of energy and water; and reducing the air pollutants and GHG emissions.

ESS3 is relevant to this project due to activities involving consumption of resources and generation of pollution during the Construction of embankment and viaducts.

- ESS4: Community Health and Safety

This ESS aims at avoiding the negative impacts on health and safety of the affected communities throughout the whole project cycle. This has to be done in accordance with relevant human rights principles in order to avoid or minimize any harmful effects or risks that may occur affecting the affected communities.

The operation of the project will involve road safety, pedestrian crossing the railway tracks, vehicles and people safety risks at level-crossings.

ESS4 is relevant to this project due to possible risks and impacts on the community health and safety from project activities, including:

(i) risks for communities living adjacent to physical works, (ii) risks from ENR's operations and current safety performance, (iii) the COVID-19 pandemic also introduces potential risks of

community exposure through contagion pathways such as meetings, stakeholder engagement sessions and construction sites, and from train travel in general

- ESS 5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement

This ESS discusses the resettlement techniques (physical or economic) that cannot be avoided and need to be done as a result of any land acquisition or restrictions on land use that occur during the project life cycle. The standard aims to avoid, or minimize if avoidance is not possible, the adverse social and economic impact of land acquisition but providing compensation for loss of assets at replacement cost and ensure the resettlement activities are implemented with appropriate information, consultation and informed participation of the affected personnel.

ESS5 is relevant to this project.

- ESS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources

This ESS aims to protect and conserve the biodiversity and adopting the practices that integrate conservation needs and development priorities in order to promote the sustainable management of living natural resources.

ESS6 is relevant to this project.

- ESS 7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities

ESS 7 aims to ensure that the development process maintains full respect for the human rights, dignity, aspirations, culture, and natural resource-based livelihoods of indigenous people issue. It aims to establish an on-going relationship based on Informed Consultation and Participation (ICP) with the local communities that may be affected by a project.

Project activities are planned at the same existing railway track, where there are no indigenous people.

ESS7 is not relevant to this project.

- ESS 8: Cultural Heritage

This ESS aims to protect the cultural heritage from any impacts that may occur during the project life cycle. It promotes the equal sharing of benefits from use of cultural heritage.

ESS8 is relevant to this project.

- ESS 9: Financial Intermediaries (FI)

ESS 9 aims to set out guidelines for the FI for the assessment and management of environmental and social risks and impacts resulted from the financed subprojects. It also seeks to promote good environmental and social management practices as well as sound human resources management in the financed subprojects.

Project activities do not include financial intermediaries.

ESS9 is not relevant to this project.

- ESS 10: Stakeholder Engagement and Information Disclosure

This ESS discusses the importance of open and transparent engagement between the Borrower and project stakeholders as an essential element of good international practice. Effective

engagement of stakeholders can improve the environmental and social sustainability of projects, enhance project acceptance, and make a significant contribution to successful project design and implementation.

Project activities involve the upgrading and modernization of the railway sector, which is a vital sector in Egypt involving various stakeholders both formal and informal. Stakeholder engagement activities will be conducted throughout the lifetime of the project cycle. This will apply to the stakeholders related to this component of the project as well as the remaining components. A Stakeholder Engagement Plan (SEP) will be prepared as part of the project preparation and should be carefully applied throughout project implementation.

Consultations will be conducted as part of the RPs that could be developed as needed. Related information disclosure will be done using the appropriate modalities for each group of the stakeholders as per the SEP.

ESS10 is relevant to this project due to the involvement of various stakeholders and complex implications of the project.

3.2.2 World Bank Environmental, Health and Safety (EHS) Guidelines

The general World Bank Environmental, Health, and Safety Guidelines will be followed to ensure that all the project components and subcomponents comply with the Environmental Health and Safety standards and requirements of the WB during the different phases of the project. Environmental health and safety guidelines are organized to identify common themes applied to any industrial sector or project (Table 3-2). These guidelines are based on good international industrial practices and the achievable levels of performance in new facilities at reasonable costs through existing technology. It is important to note that if national regulations differ from the levels and measures contained in the environmental health and safety guidance, the project developer is expected to achieve the most stringent.

Table 3-2 Themes of the WB EHS guidelines and applicable ones

Aspect	WB EHS guidelines	Applicability
Environmental	Air Emissions and Ambient Air Quality	√
	Energy Conservation	√
	Wastewater and Ambient Water Quality	√
	Water Conservation	√
	Hazardous Materials Management	√
	Waste Management	√
	Noise	√
	Contaminated Land	√
Occupational Health and Safety	General Facility Design and Operation	√
	Communication and Training	√
	Physical Hazards	√
	Chemical Hazards	√
	Biological Hazards	√

	Radiological Hazards	×
	Personal Protective Equipment (PPE)	√
	Special Hazard Environments	√
	Monitoring	√
Community Health and Safety	Water Quality and Availability	√
	Structural Safety of Project Infrastructure	√
	Life and Fire Safety (L&FS)	√
	Traffic Safety	√
	Transport of Hazardous Materials	√
	Disease Prevention	√
	Emergency Preparedness and Response	√
Construction and Decommissioning	Environment	√
	Occupational Health and Safety	√
	Community Health and Safety	√

3.2.3 World Bank Environmental, Health and Safety Guidelines for Railways

The EHS Guidelines for Railways are applicable to activities typically conducted by rail infrastructure operators dedicated to passenger and freight transport. This guideline is organized into two main areas, namely rail operations, covering construction and maintenance of rail infrastructure as well as operation of rolling stock, such as locomotives and rail cars; and, locomotive maintenance activities, including engine services, and other mechanical repair and maintenance of locomotives and railcars.

Table 3-3 Industry-Specific Impacts, Management and Monitoring

Aspect	Activity	Possible Impact	Monitoring
Environment	Rail Operations	- Habitat alteration and fragmentation - Emissions to air - Fuel management - Wastewater - Waste - Noise	Environmental monitoring programs should be implemented to address all activities that have been identified to have potentially significant impacts on the environment, during normal operations and upset conditions. Environmental monitoring activities should be based on direct or indirect indicators of emissions, effluents, and resource use applicable to the particular project. Monitoring frequency should be sufficient to provide representative data for the
	Maintenance of Rolling Stock	- Hazardous materials - Wastewater - Waste management	

			parameter being monitored. Monitoring should be conducted by trained individuals following monitoring and record-keeping procedures and using properly calibrated and maintained equipment. Monitoring data should be analyzed and reviewed at regular intervals and compared with the operating standards so that any necessary corrective actions can be taken.
Occupational Health and Safety	Rail Operations	- Train / worker accidents - Noise and vibration - Diesel exhaust - Fatigue - Electrical hazards - Electric and magnetic fields	The working environment should be occupational hazards relevant to the specific project. Monitoring should be designed and implemented by accredited professionals as part of an occupational health and safety monitoring program. Facilities should also maintain a record of occupational accidents and diseases and dangerous occurrences and accidents
	Maintenance of Rolling Stock	Physical, chemical, and biological hazards as well as confined space entry hazards. Physical hazards may be associated with work in proximity to moving equipment. Chemical hazards may include potential exposures to a variety of hazardous materials. Biological hazards may include potential exposures to pathogens present in sewage storage compartments. Confined spaces may include access to railroad tank and grain cars during repair and maintenance.	
Community Health and Safety	General rail operational safety	the threat of serious injury or the potential loss of life due to train collisions with other	

		trains or with road vehicles, as well as the possibility of derailment due to track and equipment failures which are the primary causes of train derailments on main tracks, whereas the use of switches and switching rules has a substantial effect on derailment frequency on siding and yard tracks.	
	Transport of dangerous goods	a potential risk of release to the environment in the event of accidents	
	Level crossings safety	Represent high-risk accident locations for railways. On railways with sparse traffic, a flagman may be used to stop all traffic at the crossing and clear the tracks before the approach of a train	
	Pedestrian safety	risks from moving trains, electrical lines and equipment, and hazardous substances	

3.2.4 World Bank Environmental, Health and Safety Guidelines for Construction Materials Extraction (2007)

The EHS Guidelines for construction material extraction is relevant to construction materials extraction activities such as aggregates, limestone, sand, gravel, and clay, as well as other materials. It addresses stand-alone projects and extraction activities supporting construction, civil works, and cement projects. The construction materials extraction guidelines concepts are also applicable to small extraction operations if need for the project.

3.3 Gap Analysis for Key Egyptian and WB Environmental and Social Standards

This section outlines the key requirements of both the Egyptian legislations and the WB ESSs and the gaps between the requirements of the two entities.

3.3.1 Gap Analysis for ESSs and National Laws

Table 3-4 shows the gaps between the WB ESSs and national laws.

Table 3-4 Gap analysis between ESSs and national laws

ESS	National Laws	Gap
ESS 1: Assessment and Management of Environmental and Social Risks and Impacts	• Law No. 4 of 1994 Amended by Law No. 9 of 2009 (Environment Law) and its amended Articles of Association amended by Resolution 1095 of 2011, Decree No. 710 of 2012, Decision of the Prime Minister No. 964 of 2015 and Decree No. 618 and 1963 of 2017 • Public cleanliness law 38/1967 amended by law 31/1976 and its executive regulations • Law no. 159 for the year 1953 regulates the cleanliness of fields, roads and streets as well as organization of collection and transport of waste. • Laws 106/1976 and 101/1996 allow local governments to include the management of construction and demolition waste in the permits required for construction activities • Law 202/2020 regarding solid waste management. • Law 140/ 1956 regarding occupation of public roads • Law 84/ 1968 regarding public roads • Law 93/1962 on Wastewater disposal into the drainage systems • Law 48/1982 on protection of Nile River Water and Egypt waterways from pollution	• Discrepancies in air quality, water quality and noise limits between the national laws and WB standards • Not addressing all social risks and impacts, including: (ii) temporary labor influx, and (iii) risk of gender-based violence. Objectives related to avoiding impacts do not fall disproportionately on the disadvantaged or vulnerable, and they are not advantaged in sharing development benefits and opportunities resulting from the project. The lack of a specific role for the official in charge of social aspects
ESS 2: Labor and Working Conditions	• Articles 43 - 45 of Law No. 4/1994 and articles 44 - 47 of its modified Executive Regulations by Decrees No. 1095/2011 and 710/2012 • Labor Law and the Social Insurance and Pensions Law- Decree no. 168/2007 and its amendment no.162/2019, which originally referred to article No.26 of Labor Law 12 of the year 2003	• The Egyptian labor law does not include clear articles that guarantee application to all project workers including fulltime, part-time, contracted workers, primary supply workers, community workers, temporary, seasonal and migrant workers,

	• GBV law: Presidential Decree No. 50 of 2014, its amendments in 2017; and recent amendment to law 141/2021 carried out in August 2021 amending some articles of the 58/1937 Penal Law, to increase the penalty for sexual harassment, including sexploitation. • Child laws: - Child Law no. 12 of 1996 - Decree No. 118 of 2003 - Child Law No 126 of 2008.	• The WB ESS2 ensures a clear GM for all workers without any discrimination. • Egyptian Labor Law does not include an obligation to provide workers with facilities appropriate to the circumstances of their work, including access to canteens, hygiene facilities, and appropriate areas for rest. In addition to quality of accommodation, if needed.
ESS 3: Resource Efficiency and Pollution Prevention and Management	• Law No. 4 of 1994 Amended by Law No. 9 of 2009 (Environment Law) and its amended Articles of Association amended by Resolution 1095 of 2011, Decree No. 710 of 2012, Decision of the Prime Minister No. 964 of 2015 and Decree No. 618 and 1963 of 2017 • Public cleanliness law 38/1967 amended by law 31/1976 and its executive regulations • Law no. 159 for the year 1953 regulates the cleanliness of fields, roads and streets as well as organization of collection & transport of waste. • Law 10/2005 establishing a solid waste collection fee system on the electricity bill • Laws 106/1976 and 101/1996 allow local governments to include the management of construction and demolition waste in the permits required for construction activities • Law 140/ 1956 regarding occupation of public roads • Law 84/ 1968 regarding public roads • Law 93/1962 on Wastewater disposal into the drainage systems • Law 48/1982 on protection of Nile River Water and Egypt waterways from pollution	The Egyptian laws don't consider the Energy savings and GHG emissions. Also, laws don't mention the efficiency of products. Low efficient products still in the market. In addition to the gaps mentioned in ESS1.

	• Law 202/2020 for waste management.	
ESS4: Community Health and Safety	• Law no. 94/2003, Protection of communities Human Rights Laws • GBV law: Presidential Decree No. 50 of 2014, its amendments in 2017; and recent amendment to law 141/2021 carried out in August 2021 amending some articles of the 58/1937 Penal Law, to increase the penalty for sexual harassment, including sexploitation.	Not addressing all social risks and impacts, including: (i) Infrastructure and equipment design and safety, and (ii) safety of services
ESS 5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	• Egyptian Constitution has preserved the right of private property, Egyptian Constitution (1971, amended in year 1980) and Egyptian Constitution (2014, articles 33 and 35) • Egyptian Civil code 131/1948, Articles 802-805 for private ownership right • Law No. 10 of year 1990 and its amendments by law No. 24 for the year of 2018, and law No. 1 for the year 2015 for property expropriation for public benefit	• Identification of Project Affected Persons and affected assts (lands, crops and plantations, and structures): • ESA formulates a census Committee. The cut-off date is the last day of the official census survey carried out by ESA, during which PAPs attend and sign the official census lists. • Monitoring and Evaluation: Monitoring or evaluation measures are not stipulated in Egyptian regulation. • Valuation of compensation: • ESA formulates a Valuation Committee: • Egyptian regulations use prevailing price in the affected areas to calculate and compensate project affected people for their expropriated property. The amendment of the year 2018 entailed increase for the value of the compensation to include additional 20% above the prevailing market price for the interest of the affected persons (landowners), and Law 187/2020 which most importantly include committing the project proponent to deposit the value of the compensation in no more than 3 months from the public interest decree issuance date.

		Previous Egyptian experiences show that the full replacement cost (providing assistance is not covered) principle as stated by ESS5 has not been realized by the affected group. • Income restoration (livelihoods): Egyptian law does not discuss compensation for loss of income, only land and assets.
ESS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	• Law No. 102 of 1983 regarding the nature reserves, and its complementary decrees in preservation of rare and endangered wild animals	• No gap.
ESS 8: Cultural Heritage	Archaeological and cultural heritage is protected by the following laws: • Law 117 of 1983 on the protection of monuments and cultural heritage, amended by Law 12 of 1991	• There are no regulations for Mosques and Churches constructions.
ESS 10: Stakeholder Engagement and Information Disclosure	• EEAA EIA guidelines related to the Public Consultation prior to the project construction and implementation	• There are no regulations on committing the project owner to conducting stakeholder engagement activities as well as disclosing information regarding the environmental and social risks and impacts of the project to project-affected parties as well as to community members, throughout the project life cycle • There are no regulations on committing the project owner in establishing a GM

3.3.2 Gap Analysis for Key Egyptian and WB Environmental Quality Limits

This section outlines the key environmental requirements of both the Egyptian Legislations and the World Bank policies and the gaps between both.

- Air Quality

Table 3-5 shows Ambient Air Quality limits in the Egyptian legislations and WB/IFC standards.

Table 3-5 Ambient Air Quality limits in the Egyptian legislations and WB/IFC standards

	Requirements of Egyptian Legislation	Requirements of WB/IFC

	Outdoor Air Pollutants (in urban and industrial areas) as per Article 34 of law 4/1994 amended by law 9/2009 and Annex 5 of the Executive Regulations amended by Decree 710/2012.				**Ambient Air Quality** as per OP 4.01 IFC General EHS Guidelines (Table 1.1.1 [3] [4])			
Exposure Period	1 hr	8 hr	24 hr	1 year	1 hr	8 hr	24 hr	1 year
Carbon monoxide CO (µg/m³)	30 (urban and indus.)	10 (urban and indus.)	N/A	N/A	N/A	N/A	N/A	N/A
Sulphur dioxide SO_2 (µg/m³)	300 (urban) 350 (indus.)	N/A	125 (urban) 150 (indus.)	50 (urban) 60 (indus.)	N/A	N/A	125 (IT-1) 50 (IT-2) 20 (guideline)	N/A
Nitrogen Oxides NOx (µg/m³)	300 (urban) 300 (indus.)	N/A	150 (urban) 150 (indus.)	60 (urban) 80 (indus.)	200 (guideline)	N/A	N/A	40 (guideline)
Particulates PM_{10} (µg/m³)	N/A	N/A	150 (urban) 150 (indus.)	70 (urban) 70 (indus.)	N/A	N/A	150 (IT-1) 100 (IT-2) 75 (IT-3) 50 (guideline)	70 (IT-1) 50 (IT-2) 30 (IT-3) 20 (guideline)
Particulates $PM_{2.5}$ (µg/m³)	N/A	N/A	80 (urban) 80 (indus.)	50 (urban) 50 (indus.)	N/A	N/A	75 (IT-1) 50 (IT-2) 37.5 (IT-3) 25 (guideline)	35 (IT-1) 25 (IT-2) 15 (IT-3) 10 (guideline)
Total suspended particles TSP (µg/m³)	N/A	N/A	230 (urban) 230 (indus.)	125 (urban) 125 (indus.)	N/A	N/A	N/A	N/A
Ozone O_3 (µg/m³)	180 (urban) 180 (indus.)	120 (urban) 120 (indus.)	N/A	N/A	N/A	160 (IT-1) 100 (guideline)	N/A	N/A

In case of any discrepancy between the requirements of Egyptian legislations and the requirements of the WBG the requirements of the WBG will be applied. However, the Egyptian limits will be applied for the following cases:

- Carbon monoxide limits
- Sulfur dioxide limits for 1 hour, and 1 year
- Nitrogen oxide limits for 24 hours
- Total suspended particulates limits
- Ozone limits for 1 hour

- Water Quality

[3] World Health Organization (WHO). Air Quality Guidelines Global Update, 2005.
[4] IT stands for Interim Target, which are the increment values that should be targeted by an organization during the implementation of a project leading to the recommended guideline values.

Table 3-6 shows Egyptian legislations and WBG standards concerning Water Quality.

Table 3-6 Egyptian legislations and WB/IFC standards concerning Water Quality

Requirements of Egyptian Legislations		**Requirements of WBG**	
Reference	Requirements	Reference	Requirements
Executive Regulations issued by decree 92/2013 of Law 48/1982 (Article 49)	States the standards and specifications of fresh waterways quality to which industrial water can be discharged	ESS1	Projects with the potential to generate process wastewater, sanitary (domestic) sewage, or storm water should incorporate the necessary precautions to avoid, minimize, and control adverse impacts to human health, safety, or the environment.
Ministerial Decree No. 44/2000 of law 93/1962	Controlling the discharge of wastewater into the sewage system and public network, and includes the Limits for discharging treated wastewater effluent The decree also states the entity should acquire the wastewater discharge licenses from the concerned authorities during the construction and operation phase	ESS1	Discharges of industrial wastewater, sanitary wastewater into public or private wastewater treatment systems should meet the pretreatment and monitoring requirements of the sewer treatment system into which it discharges.

Table 3-7 Limits for discharge of liquid effluent into sewer system

Parameter/Pollutant	**Effluent threshold (ER 44/2000 of law 93/1962**
pH	6-9.5
BOD (mg/l)	600
COD (mg/l)	1100
Total nitrogen (mg/l)	100
Total Phosphorous (mg/l)	25
Oil and grease (mg/l)	100
Total suspended solids (mg/l)	800
Total Coliform Bacteria (Most Probable Number/100 ml)	N/A

In case of any discrepancy between the requirements of Egyptian legislations and the requirements of the WB/IFC, the requirements of the WB/IFC will be applied.

- Noise

Table 3-8 Egyptian legislations and WB/IFC standards concerning Ambient Noise

Requirements of Egyptian Legislations		Requirements of WBG	
Reference	**Requirements**	**Reference**	**Requirements**
Law 4/1994 amended by law 9/2009 and its ERs amended by decree 1095/2011 and 710/2012	Maximum allowable limit for ambient noise intensity	ESS1	Limit of noise beyond the property boundary of the facilities.
Law 4/1994 amended by law 9/2009 and its ERs amended by decree 1095/2011 and 710/2012	Maximum noise limits in work environment	WBG General Guidelines: Occupational Health and Safety Table 2.3.1	Limit of noise exposure inside the work environment

Table 3-9 Limits for ambient noise as per Egyptian and WB/IFC requirements

Egyptian Law Permissible noise level			WBG Permissible noise Levels		
Area type	**Maximum permissible equivalent noise level [dB(A_{eq})]**		**Receptor**	**One hour L_{Aeq} (dB_A)**	
	Day	Night		Daytime	Night
	7 AM – 10 PM	10 PM – 7 AM		7:00 – 22:00	22:00 – 7:00
Sensitive areas to noise exposure	50	40	Residential	55	45
Residential suburbs with low traffic flow	55	45	Industrial	70	70
Commercial and administrative areas in city center	60	50			
Residential areas with some workshops, administrative activities, or recreational and entertainment activities overlooking public roads less than 12 meters	65	55			
Areas overlooking public roads more than or equal 12 meters, or industrial areas with light industries	70	60			
Industrial Zone with heavy industries	70	70			

Table 3-10 Limits noise exposure in Work environments as per Egyptian and WB/IFC requirements

Egyptian Law Permissible noise level			WBG Permissible noise levels		
Type of place and activity	**Maximum permissible equivalent noise level [dB(A)]**	**Exposure duration**	**Location/ activity**	**Equivalent Level, L_{Aeq}, 8 hrs**	**Maximum LAmax, fast**
a) Workplaces (workshops and industries) with up to 8-hour shifts (licensed before 2014)	90	8	**Heavy Industry (no demand for oral communication)**	85 dB(A)	110 dB(A)
b) Workplaces (workshops and industries) with up to 8-hour shifts (licensed since 2014)	85	8	**Light industry (decreasing demand for oral communication)**	50-65 dB(A)	110 db(A)

In case of any discrepancy between the requirements of Egyptian legislations and the requirements of the World Bank, the more stringent requirements will be adopted.

3.4 Institutional Framework

3.4.1 Ministry of Agriculture

The Agriculture Directorate: In case, that the projects land needed located outside the ENR property, or an estimation of compensation for crops and trees, as well as in the case of farmers' grievance to clarify the bounders of their properties from the ENR property. The Agriculture Associations, is responsible for the following

- Provide a proof of property documentation for lands and crops
- Nominates a member to accompany Compensation Committee during the inventory,
- Estimates the value of crops and trees according to their actual conditions
- Participate with the Compensation Committee during the payment of compensation
- Attend individual consultations related to the resettlement
- Publish PAPs lists in the agriculture association

3.4.2 Egyptian Environmental Affairs Agency (EEAA)

In accordance with Article 19 of Law 4 of 1994, the entity responsible for a particular project must undertake an environmental impact assessment study for any new project and for extensions and renovations of existing projects to assess the impacts of the project on the natural and social environment prior to project implementation. The results of this assessment are submitted for

review by the EEAA before other government agencies issue licenses Project execution. The law considers the ESIA as a main condition for licensing and thus the project that does not prepare an ESIA or does not abide by the ESIA conditions could be subjected to its license revoke (Articles 10, 12 and 19 of the executive regulations of Law 4/1994, modified by the decree 1741/2005.

3.4.3 Governorates and Local Governmental Units

are responsible for:

- Participate with the Compensation Committee during the payment of compensation
- Providing the construction permits for new technical buildings
- Coordination between the project and the Traffic and Roads Department to facilitate construction and tunnels along the road and slides

3.4.4 General Authority for Roads and Bridges and Land Transport

Responsible for permissions related to any road work for the Project (e.g., road cutting). Also, for the construction activities, ENR have signed an agreement with the General Authority for Roads and Bridges (GARB) which has ample experience procuring and implementing major transport infrastructure projects in Egypt. As part of this agreement, ENR will provide technical specifications for the civil works such as viaducts, "industrial structures," and track foundations needed for subcomponents 2.1, 2.3(a), and 2.3(b). The GARB will follow local procurement procedures for contracting these works with local contractors. The PMU will coordinate with the GARB: (i) to select the contractors whose bids match the ENR needs most advantageously; and (ii) to manage the implementation of the contracted scope.

3.4.5 Egyptian Survey Authority (ESA)

According to law 10/1990, the Egyptian Survey Authority (ESA) is mandated to do the task of land or property acquisition or resettlement at the central level together with other ministries or local governmental bodies. This executing agency would be responsible for paying the compensation to affected groups through ESA or under its supervision, offering alternative resettlement options, and implementing the resettlement project.

3.4.6 Ministry of Irrigation

The Ministry of Irrigation, along with ENR, share some parts of the RoW in terms of canals and drains. They should be involved in coordinating construction of the dualization

3.4.7 Ministry of Awqaf

The Ministry is responsible for Islamic houses of worship in Egypt. Coordinate with the Ministry in the case of demolition of mosques and the establishment of other alternatives during expansion works at the stations.

3.4.8 The National Council for Women

Cooperating with the ENR in managing awareness campaigns against harassment (Safe Rail Campaign حملة السكة امان)

3.4.9 Ministry of Tourism and Antiques

To check with them all identified antiques area neighboring the line.

4 ENVIRONMENTAL AND SOCIAL SETTINGS-BASELINE

Project components and sub-components are planned in Giza, Menofia, El-Beheira and Alexandria governorates. The project footprint is located mainly around the existing railway tracks in the 4 governorates across urban and rural areas for around 301 Km. The 63.5 Km greenfield will be constructed mainly in Giza governorate in desert, urban and rural areas. This section describes all relevant components of the physical, biological, and socio-economic environment, as well as health and safety baseline within the project footprint.

Data and information are provided on the existing state of environment, economic and social conditions of the study/investigation area at the national, regional (covering the north-eastern region), and local (focused on the specific conditions in the immediate vicinity of the railway alignment), as appropriate.

The baseline information shall inform the identification of potential sensitive receptors that may be impacted by the project components. As part of the proposed project, ten environmental and social baseline elements will be considered:

1. Site location
2. Climate
3. Air Quality
4. Noise
5. Soil & groundwater contamination
6. Surface water quality
7. Biodiversity
8. Current status of railway tracks & stations.
9. Built infrastructure (places of worship, residential buildings, crossing roads etc.)
10. Socio-economic activities of the governorates that the project passes through

4.1 Project Location:

The project's 2 components will support interventions within the vicinity of the existing railway network in the project footprint. Geographically, the ESMF covers a 371.5 km linear segment of Egypt National Railways (ENR)'s existing 5,000 km railway network, which could be divided into 4 segments extending from Alexandria to Giza:

1. The missing Link [5]
2. Wahat- Marazeeq [6]
3. Bashteel - Itay Baroud:
4. Etihad - Tafroa

[5] More site-specific Baseline information can be found in the ESIA prepared for this segment
[6] More site-specific Baseline information can be found in the ESIA prepared for this segment

Segment 1 and the existing segment 2 are located in Giza Governorate in desert, urban and agriculture lands as shown in the following figure:

Figure 4-1: Location of Project on Google Earth

Segment (3&4) are existing single railway tracks extending across 4 governorates starting from Giza in Greater Cairo Area (GCA), Menofia and Beheira in the Delta region, and Alexandria in the North. Generally, most of the 2 segments are located in rural settings and the socioeconomic features vary considerably along the 235 Km. Figure 4-2 shows the proposed project route for segment (1&2).

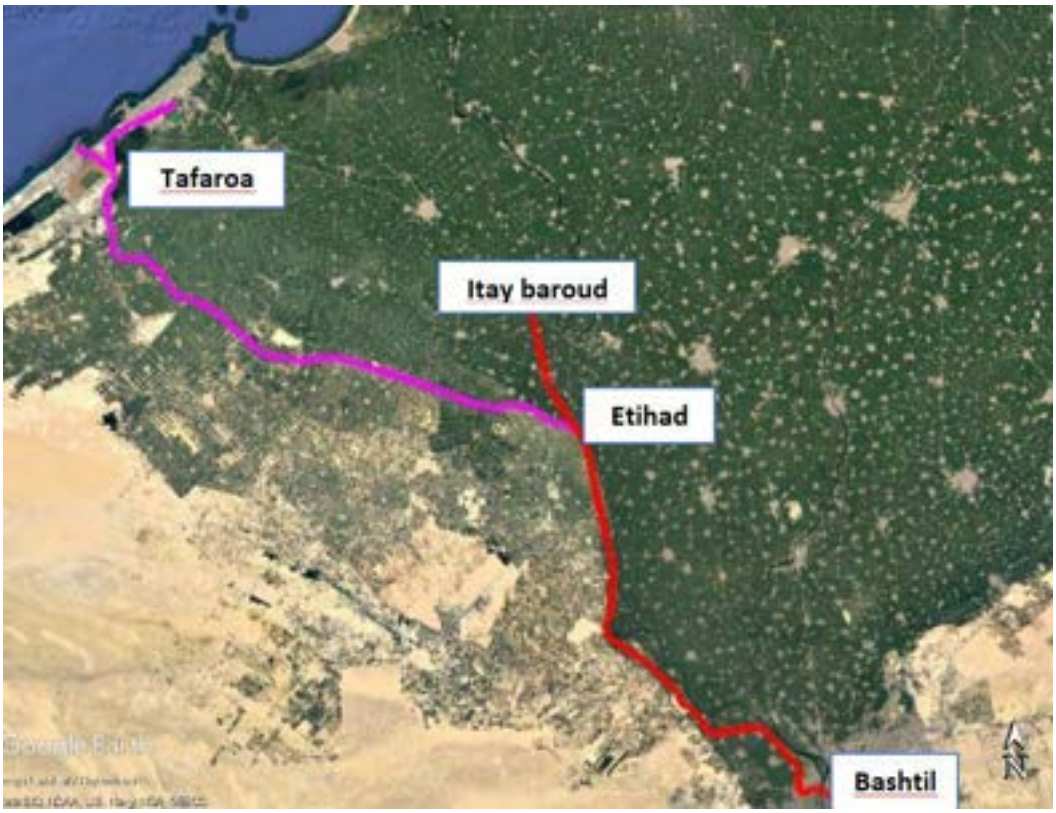


Figure 4-2 Proposed Bashteel to Itay Baroud and Etihad to Tafaroa Freight Railways

4.1.1 Subcomponent 2.3: Bashteel/Etihad /Itay Baroud

The current line starts from Bashteel Al-Mahata reaching Itay Baroud, passing through Al-Manashy; the line spans over 123 km and services passengers and goods. The line is mostly straight (79.93 %) and there are 92 horizontal curves.

The line passes through four longitudinal bridges, namely:

- Zubaydah drain Bridge at km 115.900 with a length of 6.4 meters
- Diab channel Bridge at km 108.800 with a length of 7.6 meters
- Nubaria channel Bridge at km 99.443 with a Length of 108.85 meters
- The Al-Tairia drain Bridge at km 84.95, with a length of 15 metres.

Table 4-1 shows the 35 passenger stations of Bashteel/Etihad/Itay Baroud line and their coordinates while Figure 4-3 shows the route from Bashteel Al-Mahata station to Itay Baroud station.

Table 4-1 Stations of Bashteel - Itay Baroud line and their locations

	Station	Location
1.	Bashteel Al-Mahata	30°04'19.4"N, 31°11'06.1"E
2.	Bashteel Al-Balad	30°05'14.4", N 31°11'00.6"E
3.	Al-Kom Al-Ahmar	30°06'27.6"N, 31°11'03.6"E
4.	Osiem	30°07'52.4"N, 31°09'44.6"E
5.	Brts	30°09'04.3"N , 31°08'31.0"E
6.	Al-Galatma	30°10'30.6"N, 31°06'50.9"E
7.	Al-Manashi	30°10'43.7"N, 31°06'07.4"E
8.	Zat El-Kom	30°10'28.9"N, 31°04'13.4"E
9.	Nekla	30°10'19.6"N, 31°02'57.5"E
10.	Berqash	30°10'08.8"N, 31°01'34.6"E
11.	Al-Qatta	30°11'39.5"N, 30°59'35.4"E
12.	Al-Qatta El-Balad	30°12'45.9"N, 30°58'20.8"E
13.	Al-Gezira El-Westania	30°13'53.4"N , 30°57'11.6"E
14.	Abu-Ghaleb	30°16'24.1"N, 30°54'28.0"E
15.	Werdan	30°17'30.8"N, 30°52'57.2"E
16.	Beni Salama	30°19'11.1"N, 30°50'02.6"E
17.	Al-Khatatba	30°21'32.6"N , 30°49'09.5"E
18.	Al-Akhmas	30°24'11.0"N 30°49'29.2"E
19.	Al-Tarana	30°25'29.7"N, 30°49'36.3"E
20.	Kafr Dawod	30°27'48.7"N, 30°49'24.9"E
21.	EL-Brigat	30°29'50.6"N, 30°48'50.5"E
22.	Moderiet El-Tahrir	30°32'47.5"N , 30°48'00.8"E
23.	Abu-Alkhawi	30°35'11.5"N , 30°47'24.5"E
24.	El-Tairia El-Mahata	30°37'45.7"N , 30°46'47.0"E
25.	Al-Tairia El-Balad	30°38'45.6"N , 30°46'31.2"E
26.	Etihad	30°39'46.6"N , 30°45'46.9"E
27.	Manshaa't Abu Raya	30°40'35.1"N, 30°45'10.9"E
28.	Waqd	30°41'44.8"N, 30°44'18.5"E
29.	Kafr Bolin	30°43'40.2"N, 30°42'51.7"E
30.	Kom Hamada	30°45'39.8"N , 30°41'50.8"E
31.	El-Nqidy	30°47'25.7"N , 30°41'22.6"E
32.	Saft El-Enab	30°49'02.3"N , 30°40'57.8"E
33.	Qleshan	30°50'13.1"N, 30°40'39.2"E
34.	El-Magdia	-
35.	Itay Baroud	30°53'00.4"N , 30°39'45.5"E

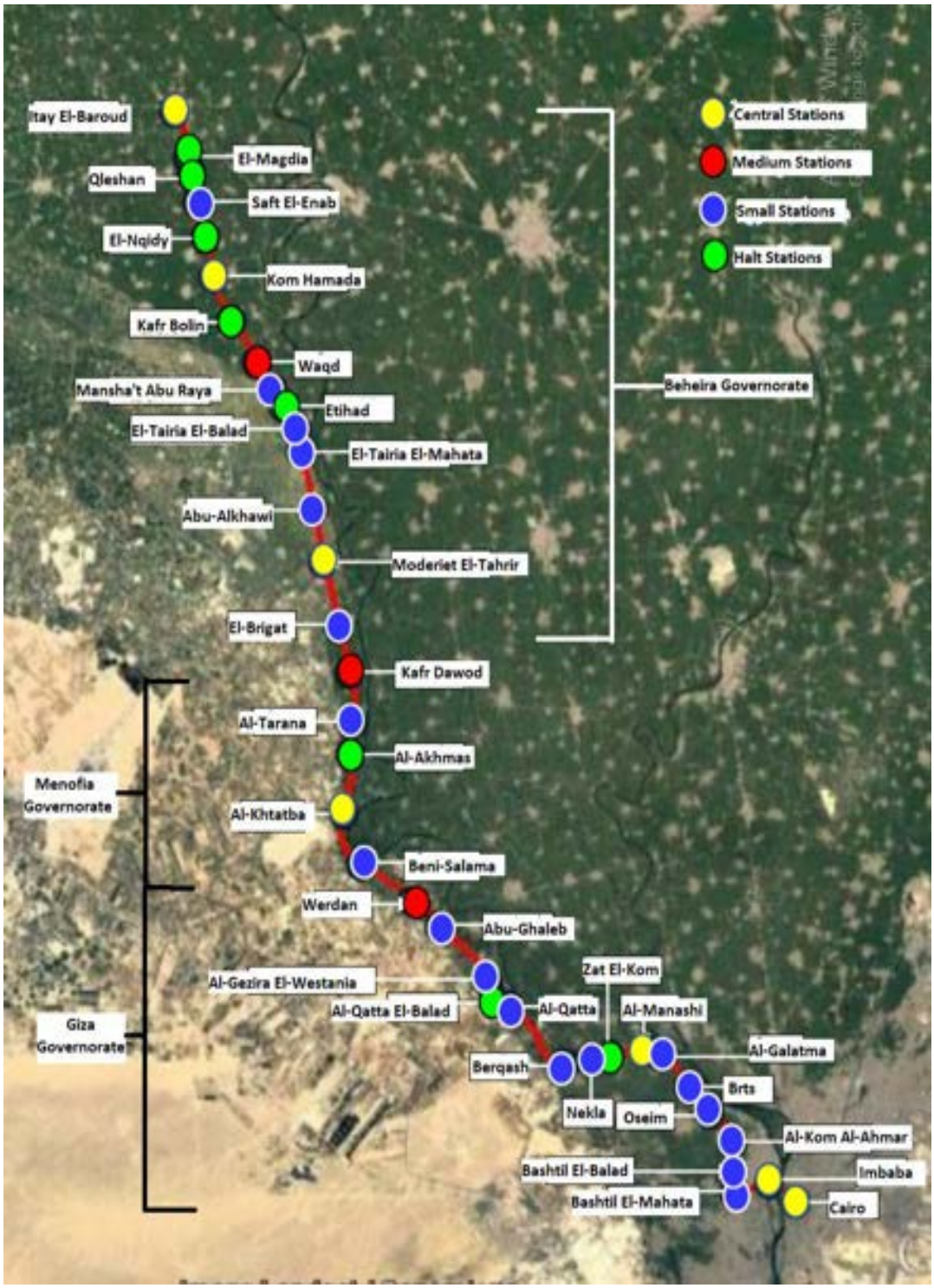


Figure 4-3 Route of Bashteel - Itay Baroud line

4.1.2 Subcomponent 2.4: Etihad / Tafaroa

The current line starts from Etihad reaching Tafaroa, passing through 11 stations; the line spans over 108 km and services goods only. The line is mostly straight (86 %) and there are 39 horizontal curves. The line passes through 20 longitudinal bridges.

Table 4-2 shows the 11 stations of Etihad /tafaroa line and their coordinates while Figure 4-4 shows the route of that segment.

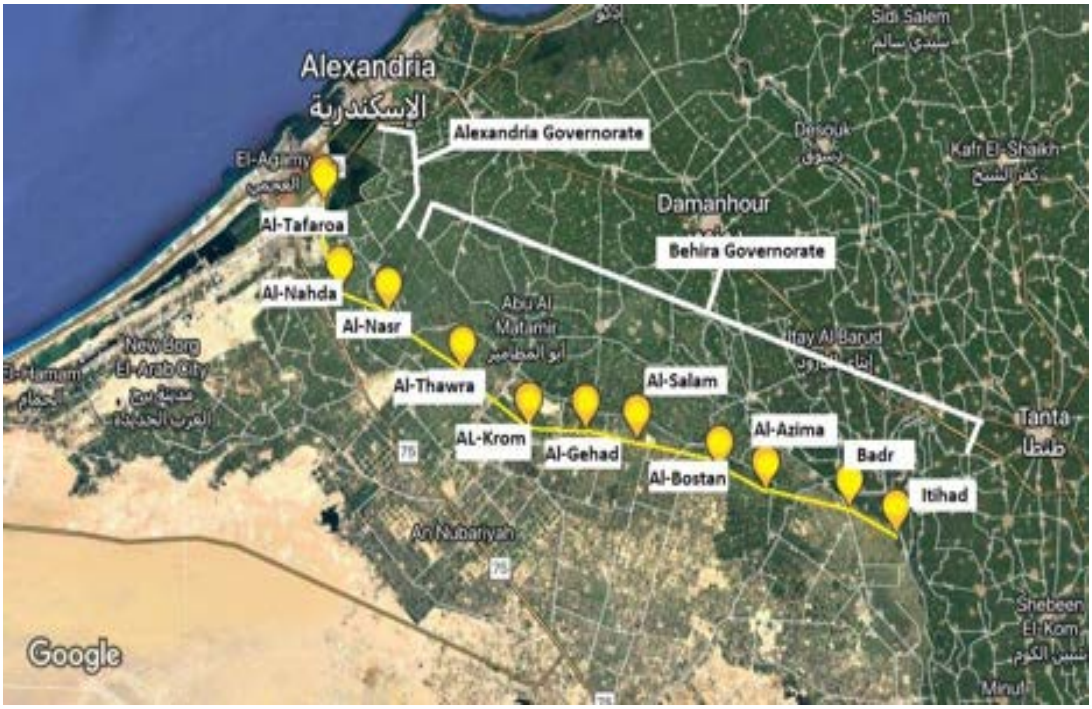


Figure 4-4 Route of Etihad / Tafaroa line

Table 4-2 List of the Stations and their Locations

	Station	Location
1.	Etihad	30°39'46.6"N , 30°45'46.9"E
2.	Badr	30°41'37.8"N , 30°41'21.9"E
3.	El-Azima	30°42'53.9"N, 30°33'18.9"E
4.	Al-Bostan	30°44'20.2"N, 30°28'52.4"E
5.	Al-Salam	30°46'34.3"N, 30°20'55.9"E
6.	Al-Gehad	30°47'17.7"N, 30°16'00.8"E
7.	Al-Krom	30°47'26.2"N, 30°10'32.6"E
8.	Al-Thawra	30°51'30.2"N , 30°04'09.0"E
9.	Al-Nasr	30°55'43.5"N , 29°57'01.1"E
10.	Al-Nahda	30°57'12.4"N, 29°52'23.8"E
11.	Al-Tafroa	31°03'40.8"N, 29°50'53.1"E

4.2 Natural Environment

4.2.1 Climate

4.2.1.1 Temperature and precipitation

Climate of Egypt is mostly hyper-arid, with the exception of coastal areas, which enjoy a slightly milder, arid climate due to the maritime effect of the Mediterranean Sea. Precipitation rate is generally low throughout the country and is mostly in the form of winter rain.

Using Meteoblue climate diagrams, which are based on 30 years of hourly weather model simulations, the average temperatures and precipitations of the governorates of the proposed project are shown in Figure 4-5, Figure 4-6, Figure 4-7 and Figure 4-8

4.2.1.1.1 Giza

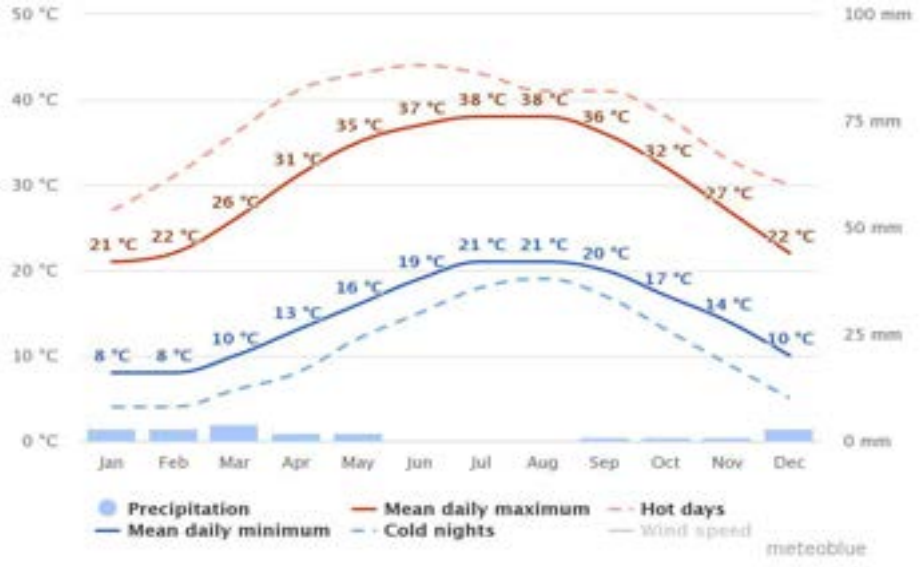


Figure 4-5 The temperature and percipitation averages of Giza (Source: Meteoblue)

4.2.1.1.2 Menofia

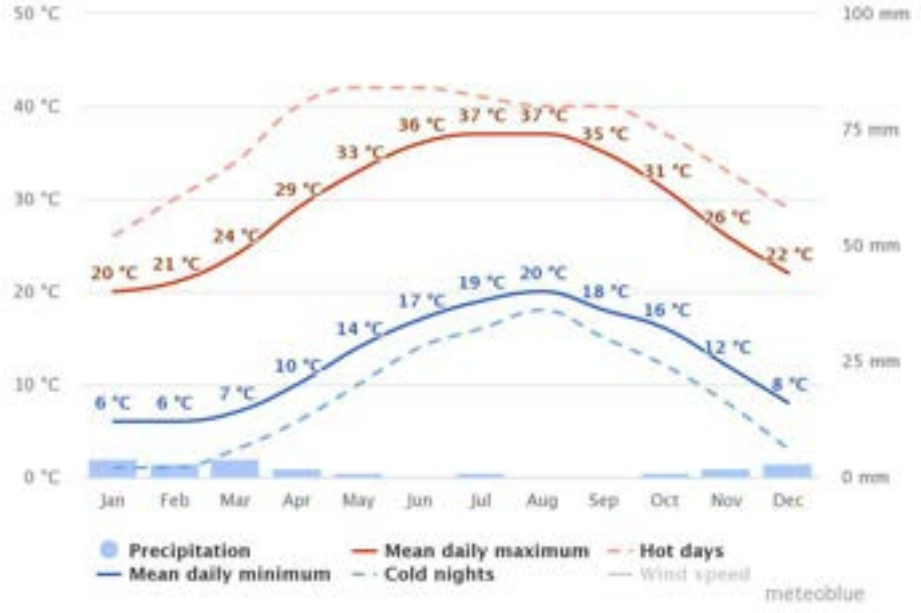


Figure 4-6 The temperature and percipitation averages of Menofia (Source: Meteoblue)

4.2.1.1.3 Beheira

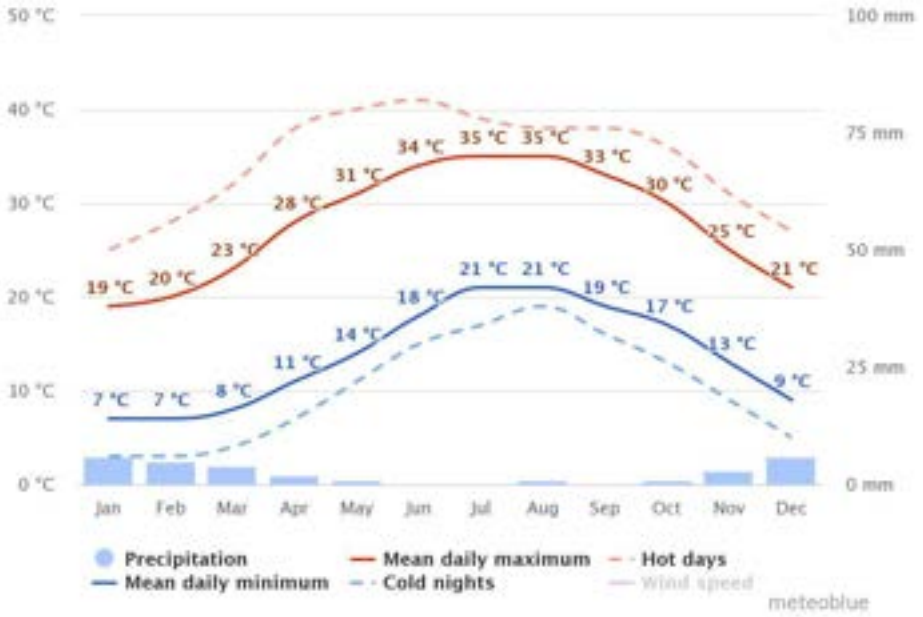


Figure 4-7 The temperature and percipitation averages of Beheira (Source: Meteoblue)

4.2.1.1.4 Alexandria

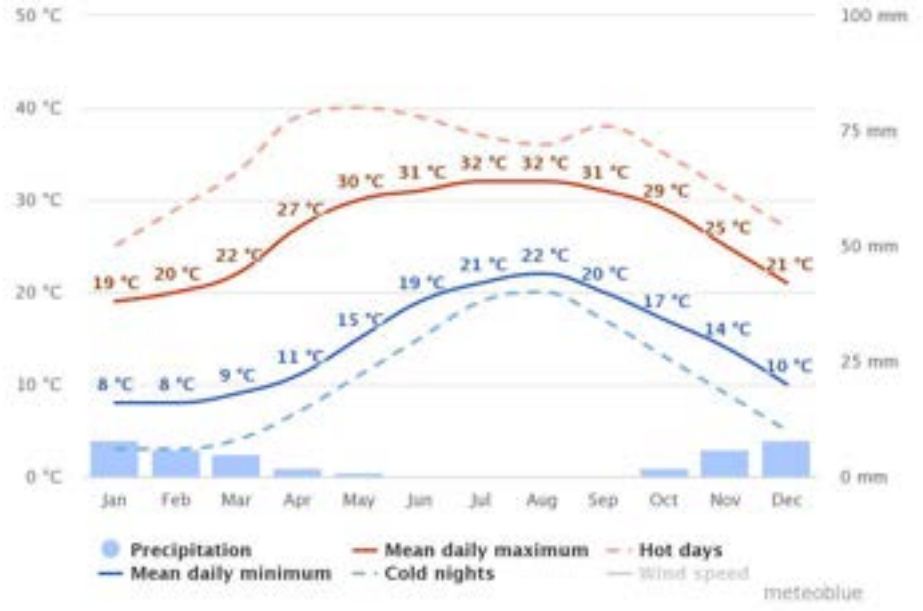


Figure 4-8 The temperature and percipitation averages of Alexandria (Source: Meteoblue)

4.2.1.2 Wind

Wind circulation over Egypt is controlled by three permanent high-pressure belts: the Azores, the Indian subtropical and the South Atlantic subtropical. Besides these, a permanent low-pressure belt, the Doldrums, crosses the African continent in the vicinity of the equator.
Seasonal high and low -pressure systems also alternate over the continental mass, the Red Sea, the Mediterranean and the Arabian Peninsula. Occasionally, very hot dust-laden wind blows in the spring (Khamasin). This wind may have numerous environmental consequences including possible effects on climate, soil formation, ground-water quality and crop growth. Visibility during these storms is reduced substantially (below 1000 m).
Based on the meteorological data collected by Meteoblue for an average of 30 years using an hourly simulation model, the wind rose chart for the governorates of the proposed project were modeled (shown in Figure 4-9, Figure 4-10,
Figure 4-11 and Figure 4-12). The wind rose shows the number of hours per year in which the wind blows from the specified direction. The north east direction prevails.

4.2.1.2.1 Giza

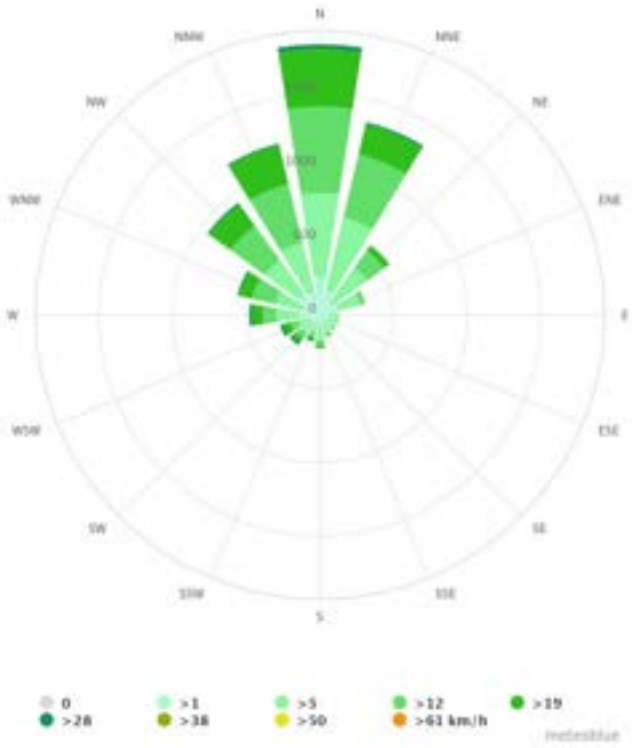


Figure 4-9 Windrose of Giza (Source: Meteoblue)

4.2.1.2.2 Menofia

Figure 4-10 Windrose of Menofia (Source: Meteoblue)

4.2.1.2.3 Beheira

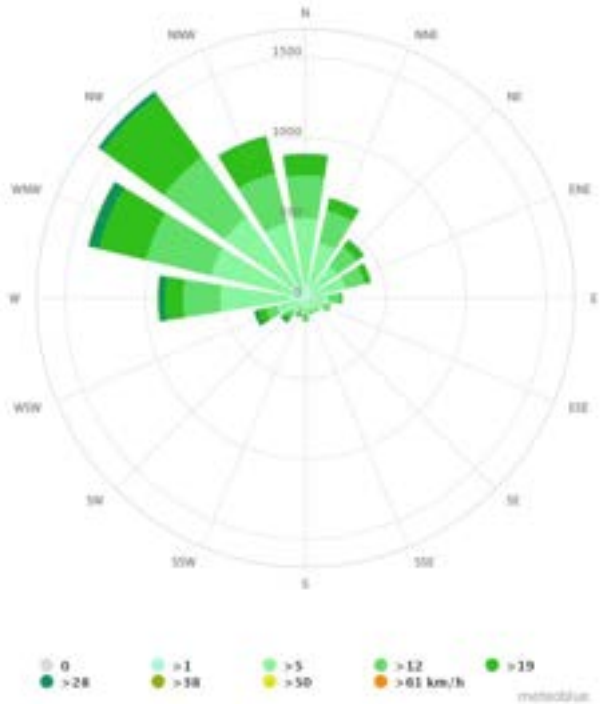


Figure 4-11 Windrose of Beheira (Source: Meteoblue)

4.2.1.2.4 Alexandria

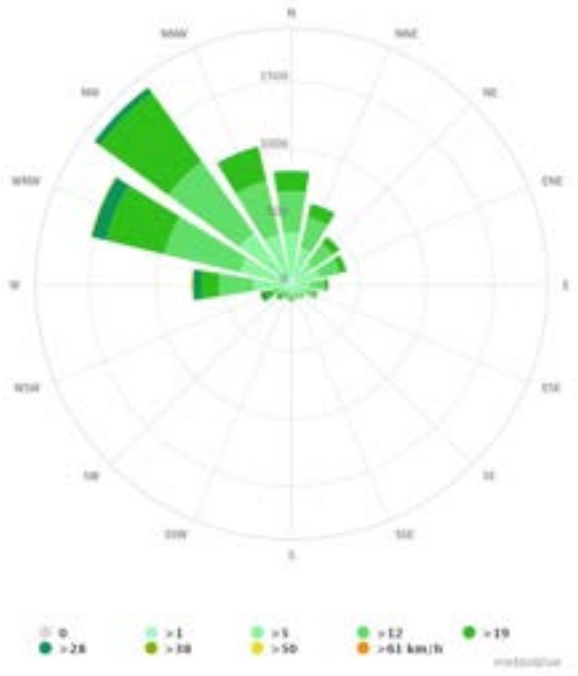


Figure 4-12 Windrose of Alexandria (Source: Meteoblue)

4.2.2 Ambient Air Quality

The Executive Regulations of Law 4 of 1994 defines the national air quality standards for outdoor air in terms of maximum permissible limits of air pollutants and exposure period. As per the National Air Pollutants Monitoring Network in 2021 Air pollution levels vary considerably from one place to another along the railway corridor which runs through the highly diverse settings from the north (Alexandria) to Giza. No comprehensive statistics are available on the background levels of the air pollutants along the railway lines covered in this project or its adjacent population centers.

Since no baseline measurements were conducted at this stage, a snapshot of the AQI (US) levels has been taken to the whole project area on April 26, 2022 at 7:00 am via (www.breezometer.com)[7]. It has been found that the railroad line of the proposed project fall in area ranged between "Good" and "Moderate", as shown in Figure 4-13.

[7] BreezoMeter uses a hybrid index that is based on the AirNow's NowCast and U.S. AQI

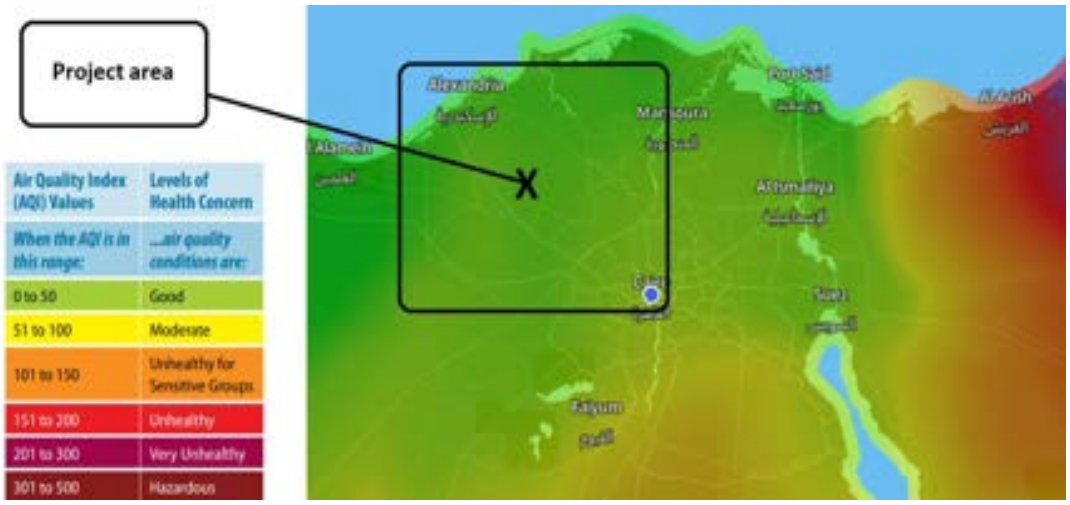


Figure 4-13: AQI map of Delta region, April 26,2022 (source: www.breezometer.com)

Table 4-3 displays the pollutants that are part of the AQI (US) calculation, and the timeframe taken to average each pollutant type.

Table 4-3 Index Pollutant Types and averages timeframe

Pollutant Type	Period
$PM_{2.5}$	12h average
PM_{10}	12h average
O_3	Depending on the averaged O_3 concentrations in the last hour vs. the last 8 hours.
SO_2	Depending on the averaged SO_2 concentrations in the last hour vs. the last 24 hours.
NO_2	1h average
CO	8h average

The average of each pollutant type was taken as described in table 4-3, and then the average pollutant concentrations were converted to an AQI for each pollutant.

Table 4-4 shows the AQI (US) of 6 stations along Bashteel/Etihad/Itay Baroud segment on April 26,2022 at 7:00 am, while Table 4-5 shows the AQI (US) of 3 stations along Etihad/Tafaroa segment on April 26,2022 at 8:00 am. The AQI values are Moderate in Giza and Menofia governorates and good in Behira and Alexandria governorates.

Table 4-4 Air Quality of Bashteel/Etihad/Itay Baroud segment on April 26, 2022 (7:00 am)

			AQI (US) = 61
1.	Bashteel Al-Mahata	$PM_{2.5}$	18 µg/m3
		PM_{10}	36 µg/m3
		SO_2	13 ppb
		NO_2	18 ppb

		O_3	14 ppb
		CO	173 ppb
			AQI (US) = 59
		$PM_{2.5}$	16 µg/m3
		PM_{10}	30 µg/m3
2.	**Al-Manashi**	SO_2	9 ppb
		NO_2	13 ppb
		O_3	18 ppb
		CO	162 ppb
			AQI (US) = 55
		$PM_{2.5}$	14 µg/m3
		PM_{10}	25 µg/m3
3.	**Al-Gezira El-Westania**	SO_2	4 ppb
		NO_2	8 ppb
		O_3	21 ppb
		CO	145 ppb
			AQI (US) = 51
		$PM_{2.5}$	12 µg/m3
		PM_{10}	22 µg/m3
4.	**Al-Tarana**	SO_2	1 ppb
		NO_2	4 ppb
		O_3	24 ppb
		CO	132 ppb
			AQI (US) = 46
		$PM_{2.5}$	10 µg/m3
		PM_{10}	20 µg/m3
5.	**Etihad**	SO_2	1 ppb
		NO_2	3 ppb
		O_3	28 ppb
		CO	128 ppb
			AQI (US) = 43
		$PM_{2.5}$	10 µg/m3
		PM_{10}	20 µg/m3
6.	**Itay Baroud**	SO_2	1 ppb
		NO_2	3 ppb
		O_3	30 ppb
		CO	124 ppb

Table 4-5 Air Quality of Etihad/Tafaroa segment on April 26,2022 (8:00 am)

			AQI (US) = 43
		$PM_{2.5}$	10 µg/m3
		PM_{10}	20 µg/m3
1.	Al-Bostan	SO_2	1 ppb
		NO_2	3 ppb
		O_3	28 ppb
		CO	124 ppb
			AQI (US) = 49
		$PM_{2.5}$	12 µg/m3
2.	**Al-Thawra**	PM_{10}	40 µg/m3
		SO_2	16 ppb
		NO_2	9 ppb

		O_3	27 ppb
		CO	133 ppb
			AQI (US) = 46
		$PM_{2.5}$	13 µg/m3
		PM_{10}	30 µg/m3
3.	**Al-Tafroa**	SO_2	26 ppb
		NO_2	11 ppb
		O_3	27 ppb
		CO	134 ppb

According to the Field visit, no sources of significant air emissions were observed since most of the project areas area classified as rural areas. However, the site-specific instruments to be prepared should provide more detailed information. Air emissions in the project areas are largely attributed to vehicle emissions, particularly at Bashteel area where traffic of vehicles and trains is high comparing to other areas.

4.2.3 Ambient Noise Levels and Vibrations

According to the Field visit, Noise emissions in the project area are largely attributed to vehicles and current train traffic. Also, with the greatly varied physical setting, background noise level along the railway corridor from Alexandria to Giza varies considerably. Ambient noise levels are also expected to vary at different times of day as a result of variation of levels and types of human activities as well as the sensitivity of receptors.

Annex II describes in details the sensitive receptors along Bashteel/Etihad/Itay Baroud and Etihad/Tafaroa segments, where both segments have long stretches of sensitive receptors bordering the railroad (Houses, schools,etc.) which are currently significantly impacted by current train traffic. Segments 1 and 2 include also a number of sensitive receptors including mainly residential areas as provided in detail in the ESIA.

It is worth noting that for operation phase, a study on railway noise in the city of Assuit[8], noise measurements showed that the noise generated by passing trains exceed the acceptable levels set by Egyptian noise standards of Law number 4 of 1994 and its executive regulations. The study showed, however, that railway is the second significant source of noise in that city, with road traffic being the most significant source of noise. Sound levels as high as 80 dB and higher were recorded in residential areas during train passage. According to that study, 51.3% of dwellers of Assuit heard railway noise. Sixty seven percent of those who heard railway noise felt highly annoyed.

Accordingly, the site specific E&S instrument shall identify the receptors along the lines and include ambient level measurements at the sensitive receptors particularly the residential areas, schools and hospitals. Also, modeling the noise and vibration emitted after dualization is essential for subcomponent 2.3 to determine the needed mitigation measures in accordance with the ESF

[8] S. A. Ali. 2005. Railway noise levels, annoyance and countermeasures in Assiut, Egypt. Applied Acoustics 66, 105-113.

and the national requirements.

4.2.4 Soil and groundwater contamination

During the site visits soil surficial contamination with oil & grease was observed in different locations especially in a number of stations along Bashteel/Etihad/Itay Baroud segment and recorded in Annex II. The sources of contamination include leakage from old ENR train fleet which is currently being replaced with new imported fleet. In December 2021, the government announced the retirement of the latest old railway carriages running, marking an end to a major part of an EGP 225 billion national comprehensive overhaul scheme.[9]

The site-specific instruments should analyze the soil conditions to have more realistic evaluation on the level of the contamination from a representative location along the segments. Also, the need for removing the contaminated soils or material around the areas and its appropriate disposal during the construction phase should be considered.

Figure 4-14: Soil Contamination with oil and grease

4.2.5 Surface Water Quality

High concentrations of PAHs and heavy metals in waterways bisected or bordered by railways are expected due to leakages of petroleum products from fuel storage tanks[10].

The project segments of the proposed project either cross or parallel a watercourse as discussed below:

4.2.5.1 Bashteel/Etihad/Itay Baroud segment

[9] https://english.ahram.org.eg/News/452257.aspx

[10] Lucas, P.S., de Carvalho, R.G., Grilo, C. (2017). Railway Disturbances on Wildlife: Types, Effects, and Mitigation Measures. In: Borda-de-Água, L., Barrientos, R., Beja, P., Pereira, H. (eds) Railway Ecology. Springer, Cham. https://doi.org/10.1007/978-3-319-57496-7_6

- Starting from El Manashi station the exiting track is on a linear island between Al-Rayah El-Nasery and Al-Rayah Al-Behiry in parallel for around 40 Km.
  The distance between the track and both channels along this area is around 20m as shown in Figure 4-15.
- Starting from Alkhatatba station, each water channel head in a different direction.
  The track is closer to the eastern channel (Al-Rayah Al-Behiry) at different distances ranging from 10m at Itay Baroud station to 6km at Saft El-Enab.
- The track cross over many water canals and drains along the segment (e.g. Al-Zumor canal, Taiaria drain, Nubaria canal, Abu-Diab canal and, Zubaydah drain).

Al-Rayah El-Nasery and Al-Rayah Al-Behiry are two main water irrigation channels that come from Rosetta Branch (RB) which is considered the main freshwater resource for the western governorates of the Nile Delta, in addition to El-Beheira governorate, Egypt[11]. A study carried out on Rosetta branch water to assess the Water Quality Index (WQI) of its water. The mean annual averages of WQI values of Rosetta branch Water were good to poor for irrigation (up to 55) and from poor to very poor for aquatic life (up to 97) at stations exposed to wastewater discharged from drains into water branch. The obtained values of physical and chemical variables of Rosetta branch and drains water were matched with the standard values set by FAO (1994) for irrigation and Canadian Water Quality Guidelines (2011) for aquatic life. The obtained results indicated that the values of examined variables were higher than the recommended standards[12]. Also, high concentrations of PAHs and heavy metals are expected in both Al-Rayah El-Nasery and Al-Rayah Al-Behiry since waterways bisected or bordered by railways are affected by those types of pollutants due to leakages of petroleum products from fuel storage tanks[13].

[11] Nada A, Zeidan B, Hassan AA, Elshemy M. Water quality modeling and management for Rosetta Branch, the Nile River, Egypt. Environ Monit Assess. Aug 2021;193(9):603. doi: 10.1007/s10661-021-09357-8. PMID: 34448956.

[12] Mohamed H. Abdo, Hanan B. Ahmed, Maher H. Helal, Medhat M. Fekry, Ahmed E. Abdelhamid. Water Quality Index and Environmental Assessment of Rosetta Branch Aquatic System, Nile River, Egypt. Egyptian Journal of Chemistry. January 2022 DOI:10.21608/ejchem.2021.92605.4405

[13] Lucas, P.S., de Carvalho, R.G., Grilo, C. (2017). Railway Disturbances on Wildlife: Types, Effects, and Mitigation Measures. In: Borda-de-Água, L., Barrientos, R., Beja, P., Pereira, H. (eds) Railway Ecology. Springer, Cham. https://doi.org/10.1007/978-3-319-57496-7_6

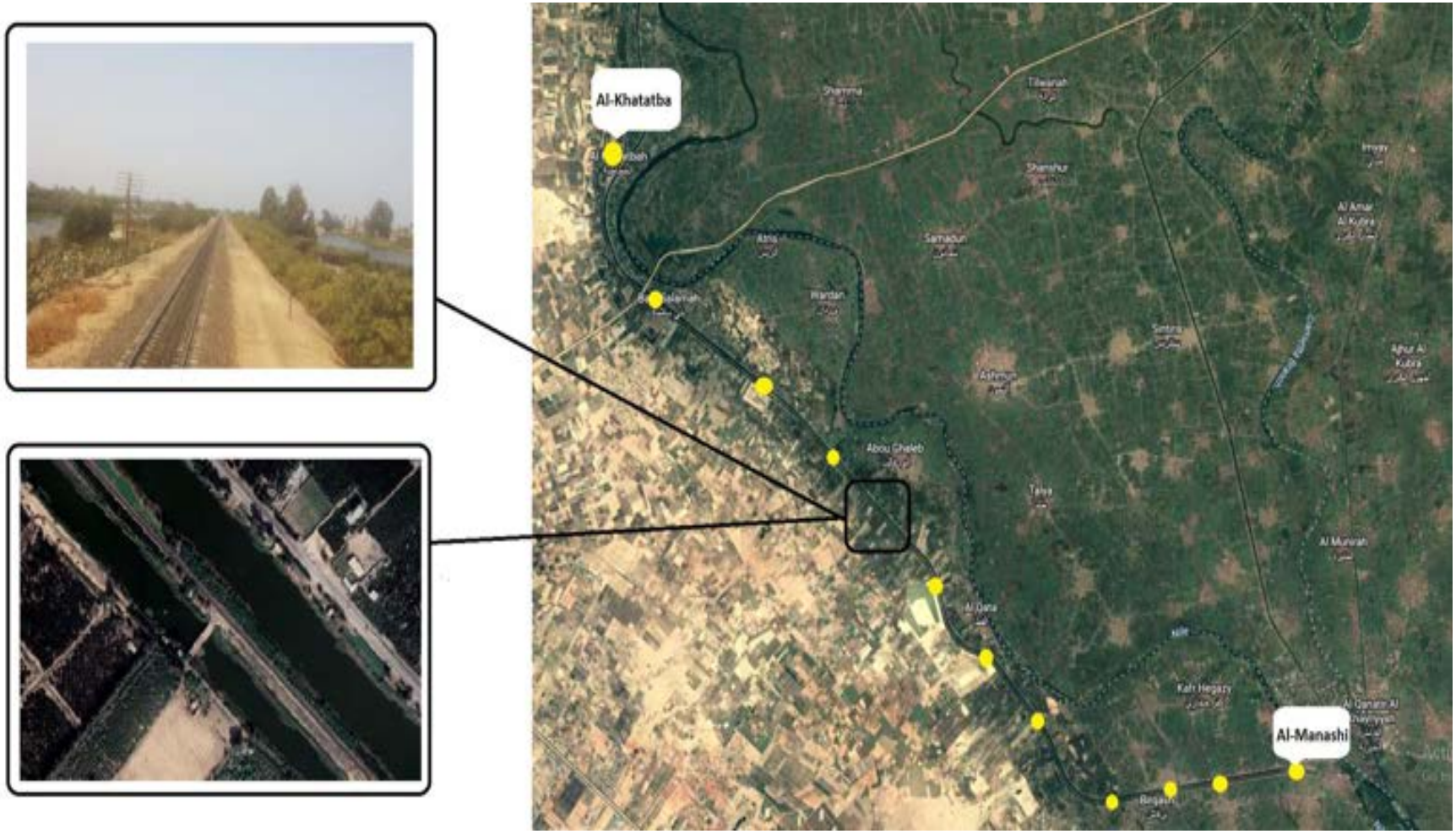


Figure 4-15 Railroad between Al-Rayah El-Nasry and Al-Rayah Al-Behiry

4.2.5.2 Etihad/ Tafaroa segment:

That segment is located in the western side of Nubaria Canal at different distances averaged around 2km. The track crosses over many canals and drains along the segment (e.g. Al-Bostan canal, Al-Nasr Canal, Al-Nasr drain, Al-Salam drain, Al-Nour drain, Al-Tahrir Canal, Al-Thawra drain, etc.)

The water quality of those watercourses is expected to be contaminated with agricultural and sanitary wastewater.

However, Samples from neighboring watercourse, focusing on fresh water canals, should be collected and analyzed to have more realistic evaluation on the level of the contamination.

4.2.6 Biodiversity

4.2.6.1 Flora and fauna

In a 2015 study, the ornamental flora in the Delta alone, including Cairo and Alexandria, was comprised of 2,392 species and infra-species, outnumbering wild flora[14].

During the field visit, it was observed that all rural areas along the railroad contain cultivated plants that are grown on a large scale commercially, such as vegetables, fruits and horticulture. A study on the diversity of crop plants in Nile Delta covered the four governorates of the proposed project showed that One hundred and seventy three crop species belonged to 99 genera and 44 families were recorded in the region. Poaceae (Gramineae) had the highest contribution (22 species = 12.7 % of the total species), followed by Fabaceae (Leguminosae) (21 species = 12.1 %), Cucurbitaceae (20 = 11.6 %), Apiaceae (Umbelliferae) and Rosaceae (each of 12 = 6.9%). On the other hand, the genus *Cucumis* had the highest contribution (8 species = 4.6 % of the total species), followed by *Citrus* and *Brassica* (each of 7 species = 4.0 %), and *Hordeum*, *Sorghum* and *Allium* (each of 6 species = 3.5 %). There is a gradual increase in the frequency of the flowered species from 24.8 % in December until reaching the maximum percentage 44.6 % in May. This could be interpreted in the view that most species are growing in winter. (68 %), followed by the summer (18 %)[15].

Most agricultural areas that are maintained by human activities, or so-called Secondary Nature, are spread across Nile Valley and Nile Deltas. Almost all indigenous habitats and its species in those areas have long been replaced by valuable agricultural land. Thus, species suited for man-induced habitat – i.e. raptors include hawks, falconine, and barn owl, and bird like heron are inhabited there[16].

The livestock owned by farmers in Nile delta comprised of buffalo, local cattle, crossbred cattle, sheep, donkey, chicken, rabbits, and ducks. There is general agreement among the respondents

[14] Shaltout, Kamal Hussien . 2018. Status of the Egyptian Biodiversity: A Bibliography (2000-2018). Contribution to the Sixth National Report on Biological Diversity in Egypt, UNDP.

[15] Ahmed, Dalia & El-Beheiry, Mohamed & Ammar, Esraa & Shaltout, Kamal. (2015). Diversity of crop plants in Nile Delta, Egypt. Taeckholmia. 35. 77-97. 10.21608/taec.2015.12219.

[16] STUDY REPORT ON COMPREHENSIVE SUPPORT STRATEGIES FOR ENVIRONMENT AND DEVELOPMENT IN THE EARLY 21ST CENTURY, - Arab Republic of Egypt

that crop farming, livestock, and goats are important for livelihoods[17].

The Nile and its associated network of side channels and agricultural canals in the Delta provide spawning habitat for 94 species of freshwater fish, 49 of which are rare, native species[14]. Lake Mariout is heavily polluted and suffers from eutrophication due to discharges from drains carrying industrial and municipal waste leading to destruction of fish species[18]. As a result, most of the less tolerant high-valued fish such as *Mugil cephalus, Labeo niloticus, Bagrus bajad, Lates niloticus and Barbus bynni* have decreased in numbers and/or completely disappeared from the lake while *Tilapia spp*. flourished, representing about 90 % of the total yield in recent years. The mullet catch in Lake Mariut has been reduced from 3.6% of the catch in the late1970s to less than 1% in the early 1990s[19].

The pristine natural habitats do not exist in most of the areas of the Nile Valley, including those covered in this project. Nevertheless, cultivated areas and even urban areas of the valley support considerable wildlife. Several species of mammals, birds and reptiles have successfully adapted to living in close proximity of community and urban activities in these densely populated areas. Wild flora occurs as weeds in cultivated fields and grows spontaneously in a great variety on banks of irrigation and drainage canals and at the edges of the railway embankment.

The railway track corridor of Egypt has been in place for more than a century and is already part of the man-made landscape of the Nile Valley. Although some wild animals and plants seem to utilize man-made microhabitats around the track corridor, none seems to be obligate user that requires these microhabitats for its survival. Available data show that none of the species that are likely to occur around the railway corridor is threatened.

4.2.6.2 Important Bird Areas (IBAs)

The Directory of IBAs in Egypt identifies 34 sites as IBAs in the country (shown in Figure 4-16). Egypt's IBAs comprise wide range of habitats critical for birds, including: wetlands, high altitude mountains, desert wadis, coastal plains and marine islands. The Northern lakes (Mariut, Edku, Burullus, Manzala, and Bardawil) of global importance for migratory birds extend along the Egyptian Mediterranean coast.

[17] Abd-Allah, S., Mohamed, M.I., Shoukry, M.M. et al. Assessment of the traditional goat production systems in rural areas of the Nile Delta in Egypt. Bull Natl Res Cent 43, 114 (2019).

[18] Nayer, Aida & Abouhassan, M.. (2015). Sustainability assessment in the built environment of Lake Mariout, Alexandria city, Egypt: factors and a decision framework. 10.2495/SD150051.

[19] EGYPT'S FIFTH NATIONAL REPORT TO THE CONVENTION ON BIOLOGICAL DIVERSITY

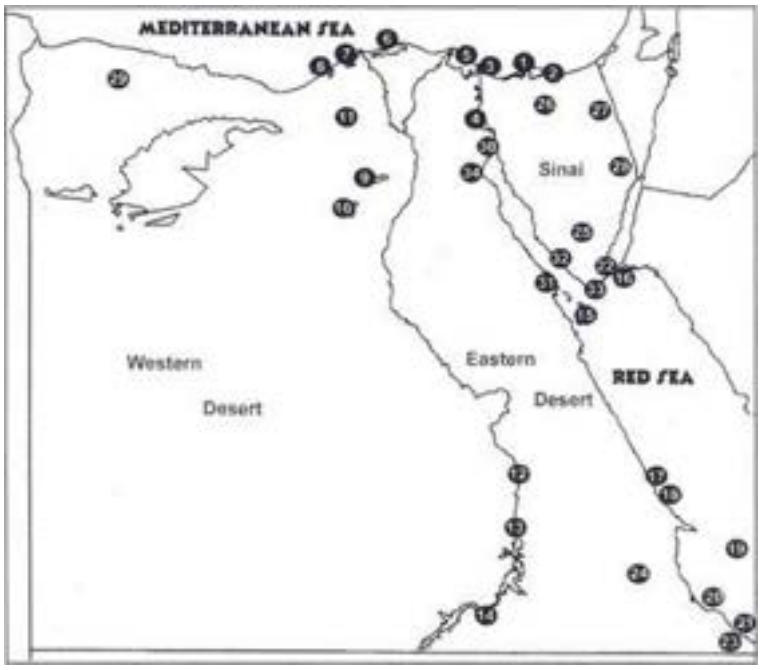


Figure 4-16 Distribution of IBAs in Egypt

Tafaroa station is very close to Mariut Lake which is the westernmost of the northern delta wetlands, although its history and origin are different. Formerly, the lake was fairly large, but late in the nineteenth century the western half was cut off by a railway embankment and transformed into an extensive salina, now known as Malahet Mariut, which is seasonally flooded (usually during winter). Today, the remaining part of this lake is made up of several fragments, dissected by roads and embankments, and lies practically within the boundaries of greater Alexandria and its sprawling suburbs. What remains of the lake proper is brackish, receiving agricultural drainage-water through several drains (the most important of these is the Qala Drain), as well as large quantities of municipal and industrial effluent from the city of Alexandria. The lake is eutrophic and is the most polluted wetland in Egypt. Agricultural drainage-water, discharged into the lake, is heavily contaminated with pesticides and fertilizers, as are the huge quantities of largely untreated municipal and industrial waste water. The level of disturbance is particularly high because of the very close proximity of Alexandria's urban and industrial sprawl. The outlook for the future of this wetland is rather grim.

Mariut Lake qualifies as a Key Biodiversity Area of international significance that was identified using previously established criteria and thresholds for the identification of Important Bird and Biodiversity Areas (IBAs) and for which available data indicate that it does not meet global KBA criteria and thresholds set out in the Global Standard. KBA identified in the CEPF Ecosystem Profile of the Mediterranean Hotspot (2017). Taxonomy, nomenclature and global threat category follow the 2016 IUCN Red List[20]. So, the project activities are not expected to have any impact on the lake, given that the scope will be limited to signaling only in this area.

[20] https://www.keybiodiversityareas.org/site/factsheet/6194

Figure 4-17 Proximity of Tafaroa station to Mariut Lake

4.2.6.3 Protected areas

None of the project areas lies within boundaries of Egypt's listed protected areas. The nearest protectorate is Qobet El-Hasana which is 13 km away from the proposed project.

Figure 4-18 Distance between the nearest protectorate (Qobet Al-Hasana) and the project

4.2.6.4 Ramsar Sites:

Egypt has four Ramsar sites, which are the Bardawil, Burullus, Qarun, and Rayan lakes. The nearest sites are Burullus and Qarun Lakes which are 65 and 87 km away from the proposed project respectively.

Figure 4-19 Ramsar Sites

4.3 Current status of the stations and railroad way

Annex II describes in details the current status of the stations and the railroad between the stations as well, focusing on the platform status, surrounding land uses, the proximity of the railroad to the community, soil contamination with oil and grease, solid waste management and the safety in accordance to the site visit. It should be noted that Segment 2 does not include any station. This section summarizes the status as following:

4.3.1 Status of the stations

4.3.1.1 Bashteel/Itay Baroud (passenger and freight)

With respect to stations, common features identified during site visits include:

- Non-functioning service or inaccessible facilities such as toilets and faucets
- Presence of shelter areas, however, insufficient to allow for gender segregation, a cultural need in particular in crowded areas, and for specialized areas for people of reduced mobility
- Unavailability of rooms specialized for women (resting areas, nursing/changing)
- Small ticketing line area preventing allocation of space for gender segregated lines and for people with disability
- Platform conditions varied from good and paved to poor and unpaved constituted of dirt. (Figure 4-20 to Figure 4-24)
- Inconsistent availability of overpasses/pedestrian bridges; where available, bridges are not accessible to people of reduced mobility (people with disabilities, pregnant, seniors)

- Inconsistent line demarcation of platform (line beyond which no traveler should go until train is parked)
- Trains for women are not clearly distinguishable
- Insufficient trash bins for public waste
- Some platforms are shorter than the train and the passengers cannot get off easily (Figure 4-25).
- The current signal system is German system called “Relay interlocking”, more than 30 years ago. Frequent malfunctions and the scarcity of spare parts for the system leads to irregularity, disruption and delay in the course of trains and the possibility of accidents.
- Communication between trains and central control is affected by weather conditions

The following figures show the current status of some station.

Figure 4-20 Al-Manashi station

Figure 4-21 Al-Qatta station

Figure 4-22 Al-Qatta El-Balad station

Figure 4-23 Abu-Ghaleb station

Figure 4-24 Beni Salama Station

Figure 4-25 Short platform (Al-Akhmas station)

Annex II describes the status of each station and the railroad way between stations as well, based on the field visit conducted to the line from Bashteel to Itay Baroud.

4.3.1.2 Etihad / Tafaroa (freight)

Annex II describes the status of each station and the railroad way between stations as well, based on the field visit conducted to the line from Etihad to Tafaroa. All stations were in a bad shape and need to be upgraded; the following figures show the current status of some station.

Figure 4-26 Etihad station

Figure 4-27 Badr station

Figure 4-28 Al-Azima station

Figure 4-29 Al-Bostan station

With respect to stations, common features identified during site visits include:

- Al-Nahda, Al-Nasr, Al-Thawra, Al-Gehad, Al-Salam, Al-Bostan, Al-Azima and Badr stations are not connected to each other. Switching signals and work with clamps on which their keys are locked at the station with the worker.
- Due to the lack of handling tools at the stations and the manual handing over of cylinders, Workers are at risk and cylinders are at loss and damage, which in turn negatively affects the regularity and safety of the trains' tracks
- Communication between trains and central control is affected by weather conditions

4.3.2 Community Health & Safety

4.3.2.1 Illegal level crossings for vehicles:

For all project segments, more than 50 illegal level crossings for vehicles were observed due to the lack of flyover bridges/level crossings which help people passing to the other side of the track.

Figure 4-30 Three-wheeler crossing the railroad

Figure 4-31 illegal level crossing for vehicle

4.3.2.2 Pedestrian Safety

For all project segments, the tracks are easily accessible by pedestrians, as no track corridor along the railroad;

- Most of the stations that were visited do not include a pedestrian bridge or tunnel, and that in turns puts the people at risk of being run-over by trains while crossing the track.

Figure 4-32 crossing the railway track in Moderiet El_tahrir

Figure 4-33 crossing the railway track in Kom Hamada

4.3.2.3 Soccer field

In rural areas, informal football fields are common, where children play and have fun due to the lack of youth centers and sport clubs. During the field visit, it was observed that children play with each other along the railway in particular schoolchildren after getting out of their schools. Figure 4-34 shows informal soccer field bordering the railroad between Al-Breigat and Moderiet El-Tahrir stations.

Figure 4-34 Soccer field

4.4 Built Environment

4.4.1 Houses

Many houses were observed along the railroad without safe distance either in the stations or bordering the railroad between stations which expose the residents of those areas to danger while crossing the line to carry out their daily activities.

Figure 4-35 Houses in Saft El-Enab

Figure 4-36 Houses in Werdan

4.4.2 Schools

Noise pollution is recognized as a major problem for the deterioration of the quality of life in urban areas. Noise emission, especially from Railway lines, affect daily activities and can lead to a range of health disorders such as cardiovascular problems, hearing impairment, sleep deprivation and low concentration. These side effects have adverse impact on students' academic performance.

Figure 4-37 School in Bashteel Al-Mahata

Figure 4-38 School in Bashteel Al-balad

4.4.3 Train bridges

It was observed that the railroad crosses the watercourses through narrow bridges.

Figure 4-39train bridge crossing watercourse

4.4.4 Infrastructure

A set of fundamental facilities and systems that support the sustainable functionality of households and cities were observed during the field visit e.g. water station, highway bridge, water pipes, etc.

Figure 4-40 Water station

Figure 4-41 Alexandria agricultural bridge in Qelshan

Figure 4-42 Water Pipes in Al-Nahda

Figure 4-43 Electricity rooms in Badr

4.4.5 Solar panels:

People use the solar panels as a renewable energy significantly along the railroad between Moderiet El-Tahrir and El-Tairia El-Mahata stations (around 10 km length).

Figure 4-44 Location of the Solar panels

Figure 4-45 Solar panel

4.4.6 Waste management

As observed during site visits and as per ENR representative a private company is responsible for the waste management within ENR facilities including platforms, stations, buildings and the tracks in between platforms only. While along the railway corridors, waste is particularly common, and many illegal dumping and burning of wastes exist along and in very close proximity to the railway corridors.

Figure 4-46 Significant quantities of municipal solid waste on the railroad track in Bashteel

Figure 4-47 Waste burning in Etihad

4.5 Socio-Economic Baseline

This section contains a description of the baseline socio-cultural characteristics of the social environment at the proposed project areas and candidate sites. Description of the existing baseline socioeconomic conditions was assessed through a desk-based study based on a combination of both primary resources reviewed including statistical data and secondary data.

4.5.1 Socio-Economic Profile

The socioeconomic features that are dominant in the project area vary significantly along the railway track. The surrounding communities vary from big urban cities of Alexandria to poor informal areas and remote villages. The railway track passes through rural areas where the main economic activity is agriculture, in addition to, fish and poultry farming. The line also cuts through urban areas with more diverse economic activities.

In most big towns, the area around the main train station is a local hub for economic activities. Businesses are formed to serve the passengers of the train whether in transportation, restaurants and coffee shops. Accordingly, some of these businesses directly depend on the operation of the railway service.

The railway track in Giza is surrounded by built walls that allow traffic at relatively limited intervals. With highly dense population, these limited intervals weren't sufficient and caused traffic bottlenecks. Therefore, informal crossings were created by breaking the protective walls. Informal crossings cause major hazards to the people and the passing trains. On the other hand, the rest of the railway track to Tafaroa is not surrounded by built walls and crosses many agricultural and residential lands and thus pedestrians trespass on the track and established illegal crossings to practice their usual life activities. Table 4-6 shows the population for each governorate along the corridor.

Table 4-6 Population of governorates of this segment[21]

Governorate	Population	Urban%	Rural%
Alexandria	5,477,679	98.7%	1.3%
Behira (Damanhour)	6,753,635	18.2%	81.8%
Menoufia	4,656,271	20.7%	79.3%
Giza	9,350,771	61%	39%
Total	26,238,356	-	-

[21] CAPMAS https://www.capmas.gov.eg/Pages/populationClock.aspx retreived 4 October 2022

4.5.2 Demographics Characteristics

The natural, urban and social characteristics vary greatly in the Governorates, which the railways pass through.

Alexandria Governorate is located north of Egypt, directly on the Mediterranean Sea. At 2,300 km2, Alexandria is Egypt's second largest governorate, increasing at 2.05% from the year 2006 until the year 2019. (CAPMAS, 2019). It is the key seaport of Egypt. Alexandria gained its importance from its civilization reservoir across history. It is a metropolitan city where different cultures in the Mediterranean basin coexist. It has a unique geographical location and mild climate as well as different trade, industry and agriculture activities. Alexandria is also an industrial governorate where 40% of Egyptian industries are concentrated, especially chemicals, food, spinning and weaving as well as oil industries and fertilizers. Borg Al-Arab city was established to be an industrial, housing and agricultural city to absorb the current and future population increase.

Behira Governorate is a costal governorate located in the northern part of the country in the Nile Delta at west of the Rosetta branch. It is located within the Alexandria Region, which encompasses Alexandria, Matrouh, and Beheira Governorates.

Beheira Governorate enjoys an important strategically place, as it borders northwards with Mediterranean, southwards with Giza, eastwards with Rashid Branch and Daqahlia and westwards with Alexandria and Matrouh. It comprises four important highways, namely the Cairo-Alexandria desert road, the Cairo agricultural road, the international road and the circular road. (source: Beheira Governorate, Egypt Description by Information, 2017). Beheira Governorate is by far the largest Governorate as to area of agricultural lands which are estimated at 6819.078 km^2 (including the Nubaria lands).

Menofia Governorate is a part of the Delta region encompassing Gharbyah, Menofia, Dakahlya, Damietta and Kafr El Sheikh. Menofia lies in the south of Delta region between Rosetta and Damietta branches. It is bordered by Gharbyah to the north, by Giza to the south west, by Qalyubiya to the south east, and by Behera Governorate to the West. The governorate's shape is triangular with the head facing south, and the base towards north (source: Menofia Governorate, Egypt Description by Information, 2017). Menofia total area comes to 2499 km2, forming 0.2% of the country's total area. It is divided into 9 precincts (Marakez), 10 cities, 2 districts, and 70 rural local units with 245 affiliated villages. The governorate's natural growth rate of 25.40 per thousand.

Giza governorate is located on the west side of the Nile River. It is bordered by Qalyoubia, Menofia and Behera Governorates in the north, Fayoum and Giza in the south, in addition to 2 localities el Saff and Atfeeh which are located on the eastern side of the River Nile. Giza total area is 13.184 km^2, forming 1.3% of the country's total area. The inhabited area of Giza Governorate represents about 8.8% of its total area of 1,156 km. The inhabited area of Giza Governorate is distributed in various proportions to occupy agricultural lands within the reins 8,66% of the total inhabited area of the governorate. The area of agricultural lands outside the reins with approximately 174 km at 15% of total inhabited area followed by the benefits and cemeteries with an area of 120 km^2 with a percentage of 10.3%. While housing is occupied by 1.7% of the total inhabited area. The largest

area for agricultural use is located in the Awsim Markez, with a surface area of 25,184 km of the total inhabited area of the governorate known as the flood plain of the governorate.

4.5.3 Poverty

Poverty rates in Egypt fell 2.8 percent during the fiscal year of 2019/2020, recording 29.7 percent, down from 32.5 percent in 2017/2018, according to the Central Agency for Public Mobilization and Statistics (CAPMAS).

According to the CAPMAS, this decrease reflects the success of the state's efforts to achieve social justice in conjunction with the economic reforms implemented by the state, which focused on the social dimension of development.

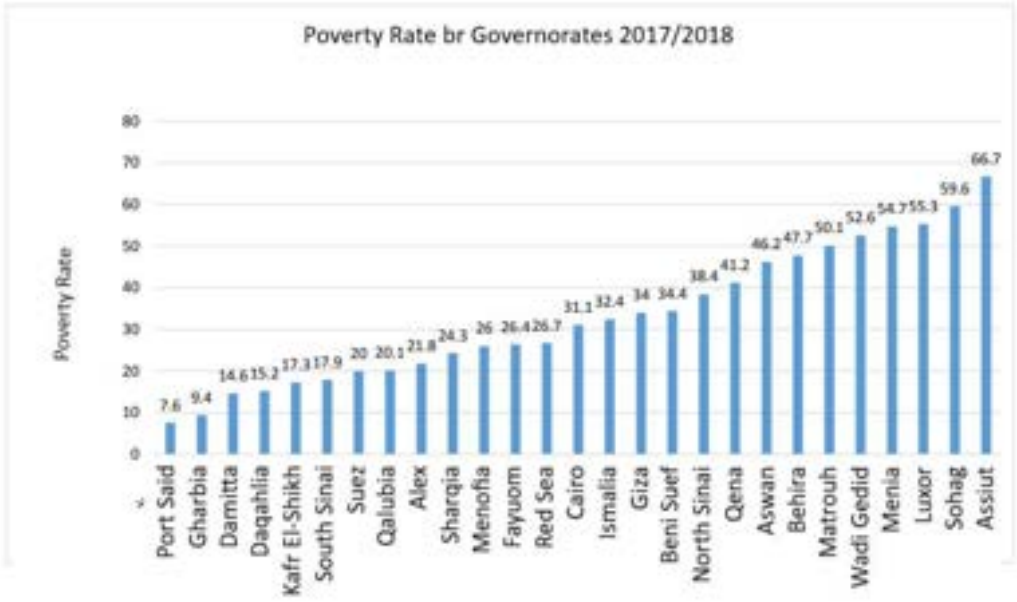


Figure 4-48 Poverty rate by governorates, CAPMAS 2019

4.5.4 Economic activities:

The agricultural lands are dominant along Bashteel/Itay Baroud segment, in addition to street vendors and different types of shops bordering the stations. On the other hand, Many farms and factories were observed along Etihad / Tafaroa segment as following:

4.5.4.1 Crops farming

The railroad crosses agricultural lands along the project segments, particularly, Bashteel/Itay Baroud segment where the farmer carries out the traditional daily activities of breeding livestock, storing fodder, etc. on both sides of the railway, forcing him to cross it, which in turn puts the farmers at risk

Figure 4-49 Pedestrians beside railroad way in Berqash

Figure 4-50 Farmers on the railroad

Figure 4-51 Livestock

4.5.4.1 Street Vendors

Street vendors abound in rural areas and some traditional urban areas, so it becomes a feature of these areas and one of the residents' economic activities. Many railway lines pass through the traditional rural and urban areas, as these markets occupy the railway RoW as a place for sale, storage or dumping of market waste; this makes it a source of risk on the train track and the risk of accidents and encroachment on ENR property. These markets have become one of the challenges facing the ENR, whether in terms of maintaining safety and risks of accidents or in terms of getting rid of the continuous encroachment on its properties.

Figure 4-52 Street vendors occupy the railroad in Brts

4.5.4.2 Pottery manufacture

Many Potteries manufacturers have been observed along the railroad between Al-Manashi and Zat Al-Kom stations.

Figure 4-53 Pottery Manufacture

4.5.4.3 Fish farms

Many fish farms exist along Etihad / Tafaroa segment. The railroad track passes between them via narrow road doesn't exceed 16m in width for around 4 km in length between Al-Gehad and Al-Krom stations.

Figure 4-54 Narrow road between fishfarms

4.5.4.4 Poultry Farms

Many poultry farms were observed near the railroad between El-Gehad and El-Nasr stations in Etihad / Tafaroa segment.

Figure 4-55 Poultry farm

4.5.4.5 Charcoal Manufacture

Many charcoal kilns were observed along Etihad / Tafaroa segment in particular between Al-Azima and Al-Salam.

Figure 4-56 Charcoal kilns

4.5.4.6 Livestock farm

Figure 4-57 Livestock farm

4.5.4.7 Factories

Some factories exist on the border of the railroad along Etihad / Tafaroa segment. Herring factory between Al-Bostan and Al-Salam stations, Petroleum and textile factories Between Al-Nahda and Tafaroa stations.

Figure 4-58 Petroleum company

Figure 4-59 Textile factory

4.5.5 Culture heritage

4.5.5.1 Mosques

Many Mosques were observed along the railroad without any safe distance or pedestrians level crossings to access them.

Figure 4-60 Mosque in werdan

Figure 4-61 Mosque in Nekla

4.5.5.2 Burial place

Cemeteries were observed in different locations along Etihad-Tafaroa segment bordering the railroad.

Figure 4-62 Burial place in Al-Bostan

4.5.5.3 Land owned by the Ministry of Antiquities:

During the field visit, there were **two empty plots of lands bordering the** Etihad/Tafaroa segment **at Al-Salam stations (around 1.5 km^2 and 0.25 Km^2) as provided below. The two plots of lands** are under the jurisdiction of the Ministry of Antiquities as both mostly likely include tangible cultural heritage objects. There is no current available information on the nature of the tangible objects in the two sites, but the instruments should further investigate and recommend mitigation measures in accordance with the ESF and national requirements including avoidance of the area.

Figure 4-63 Location of the empty lands

Figure 4-64 Empty land said to belong to Ministry of Antiquities

4.5.6 Gender-based Violence (GBV)

In general, violence and sexual harassment against women is considered a serious social problem in Egypt. The 2015 survey "The Egypt Economic Cost of Gender-Based Violence Survey" (ECGBVS, 2015) includes the most comprehensive data on violence against women in Egypt.

The ECGBVS is the first nationally representative study in Egypt presenting findings related to the various types and forms of violence experienced by women and girls. The sample consisted of 21,448 households in urban and rural populations in five regions: urban governorates, urban lower Egypt, rural lower Egypt, urban upper Egypt and rural upper Egypt (Aswan Governorate and local community in general is considered to be located within rural upper Egypt). Women aged 18-64 who were residents or present in the household for a month or more before the survey were eligible for the survey. More than half of the survey respondents were from rural areas (54%).

The key outcomes and results of the study related to transportation and workplace demonstrate that:

- 4% of women reported experiencing violence and sexual harassment at the workplace. Around 3% were subjected to physical or psychological violence and 1% experienced sexual harassment.
- Rural women were less vulnerable to harassment in public transport than urban women. 5% of women living in rural areas experienced harassment in public transport versus approximately 9% among urban women. The lowest incidence of harassment against women in public transport was observed in rural Upper Egypt; where only around 2% of women reported having been subjected to harassment in public transport.

The Egypt Gender Profile which was conducted in 2018 echoes the ECGBVS findings and highlights the severity of gender-based violence and sexual harassment in the Egyptian society. The profile also finds that women's access to land and financial resources is limited, despite women's land ownership and inheritance rights being legally approved. This is mainly due to the absence of legal frameworks as well as conservative social norms (JICA, 2018).

Figure 4-65 Working women along the project line

ENR, in cooperation with the National Council for Women, launched the (Railway Safety امان السكة) campaign on December 1, 2020, which is a campaign to develop awareness against harassment and encourage individuals who use railway services to submit their complaints through ENR's hotline (15047). The campaign was announced on the official website of the Ministry of Transport on December 2nd.

The campaign operated in eight stations for a period of two weeks. Before launching the campaign, a survey was conducted on a sample of train passengers to receive feedback on usage of the hotline to submit a GBV related complaint, and another evaluation survey will be conducted at the end of the campaign, to know their feedback on the campaign.

Complaints can be recorded 1) through customer services who will register the details in a form that was specially prepared for the campaign, and 2) a form designed for complainants to register the details themselves.

A limited number of employees work in the ENR customer service (four female employees work from 8 am until 3pm, and then only one employee work from 3pm until 8 am the next morning).

In addition, transportation inspectors are present in trains and station entrances to respond to passenger's complaints. ENR officials also explained that the devices customer service use to receive complaints only enable them to receive one call at a time. This enables them to track all complaints to resolve the complaint or take the necessary measures in a timely manner. In the meantime, the department of ENR customer services and ENR official who was responsible for launching the campaign have stated that no complaints were received by the campaign thus far.

Therefore, the role of the customer service staff is limited to: a) Receive contact b) Record the complaint in Form c) Direct the complainant to another party represented by the station or police overseer available in the stations or the train to take the necessary measures and deal with the complaint.

Figure 4-66 Railway Safety (السكة امان) campaign in Itay Baroud station

4.5.7 Child labor

Child labor is a challenging phenomenon in Egypt; the latest ILO/ Central Agency for Public Mobilization and Statistics (CAPMAS) National Child Labor Survey (NCLS) indicates that 1.6 million children are engaged in hazardous or unlawful forms of work among the 1.8 million working children in Egypt. Egypt has ratified the Convention no. 182-Worst Forms of Child Labor and Convention no. 138 - Minimum Age Convention and made some progress, however, many challenges remain. There is a need for more efforts and measures to eliminate the worst forms of child labor. Based on previous national and international best practices, ILO will continue its work in supporting the national constituents in combating child labor with high emphasis on its worst forms[22].

However, what clearly stands out in the NCLS is that the most common types of hazardous child labor in Egypt are; agriculture (63%), work on industrial sites such as: mining, construction and

[22] Capacity of Egyptian Government, Workers' and Employers' Organizations Strengthened to Combat Child Labor.

manufacturing (18.9%) and the services sector (17.6%). The latter includes; children selling items on the streets, serving coffee in coffee shops, delivery boys for small supermarkets and so on[23].

[23] National Action Plan for Combating the Worst Forms of Child Labor in Egypt and Supporting Family (2018 – 2025)

5 ANALYSIS OF ALTERNATIVES

This chapter provides guidance and methods on the principals to consider in assessing different alternatives that should be considered while preparing documents such as feasibility studies, design studies, and site specific instruments (i.e ESIA or ESMP) of any of the project components.

The analysis of the project alternatives forms an integral part of the ESMF as it provide bases to the future E&S instruments to determine the optimum technical and economical options with maximized positive environmental and social impacts and reduced or mitigated negative impacts. In this chapter, the alternatives to implementing the proposed project are preliminary studied and analyzed. The E&S instruments should assess the project alternatives including:

- No action alternative
- Alternatives for Implementing the project

The alternatives analysis guidance considered the updated progress recorded during the site visits and documents review to assess any uninvestigated impacts.

5.1 No Action Alternative

5.1.1 Track Upgrades

This alternative suggests continuing the operation of the railway tracks with their current condition of signaling system, and deteriorated quality and inefficient operational capabilities. This will cause more financial burden on ENR resulting from the frequent breakdowns, and the low-speed motion of trains on those tracks, causing delayed schedules, and further congestion of trains. This will eventually lead to uneconomical use of the lines, decreased reliability of ENR and consumer dissatisfaction without the implementation of the proposed project, and reduced overall railway safety. Additionally, the transportation of goods form the AP, will continue to depend more on the road transportation which produce more green house gases and increase the road incident probability in many areas.

5.1.2 Modernization of Signaling System of the 3 segments

Without the project, the railway service over the existing segments will undergo further deterioration affecting millions of users, resulting in operational risks and increased financial burden and train unreliability. Moreover, if the signaling system is not modernized, the current old system allows for human factor, Therefore, more accidents. In addition, delays to trains and gender safety risks will be expected since many women feel unsafe in overcrowded trains, which results from systematic delays, thereby, forcing women to wait until the platform and the train cars are emptier for boarding.

5.1.3 Construction of new track for the segment

Keeping the current status without dualization or the greenfield means the line will not absorb the volume of future demand; also, the average latency on the line will be higher due to its deterioration with increased demand. On the other hand, in terms of safety factor, the dualization will reduce the accident rate on the line. Also the construction of the new tracks will entail

significant environmental and social impacts in some areas along the line that can be avoided, minimized, mitigated or compensated.

5.2 Project implementation

The project will provide modernization and replacement of elements of the outdated electromechanical signaling system along important railway lines in the Egyptian railway network, namely Bashteel/Etihad/Itay Baroud and Etihad / Tafaroa, in addition to, construction of a parallel track to the segment Bashteel/Etihad. The implementation of the project will be beneficial to the millions of users of that line, which averages of close to 69 million passengers per year (2024) according to ENR statistics. Once completed, the project will improve the railway service of the Bashteel/Itay Baroud and and Etihad / Tafaroa other lines considerably. Positive impacts of the project on the railway service and overall safety include the following:

- Improved train operation safety and safety at level crossings,
- Increasing trains reliability and passengers' trust,
- Reducing trip time as a result of increased train travel speed,
- Reduce operational delays and train scheduling.
- Reduce cost of operation per traffic unit and fatalities arising from railway accidents.
- Reduce GHG emissions from other modal of transportation

Within the framework of this alternative, a number of negative impacts are expected to occur during the construction phase of the project. These impacts will vary across the segments and will include impacts that are temporary in nature, lasting only during the construction process and can be readily mitigated as well as significant impacts that can be avoided, mitigated, or compensated as described in the following chapters. Project elements and activities expected to result in negative impacts are herein considered in terms of guidance for possible alternatives to mitigate adverse impacts.

5.2.1 Signaling Modernization

One of the main activities during Signaling Modernization is trenching along the railway tracks for placing underground cables required for the upgraded electrical system. From an environmental and social impact perspective, the other option would be to install the cables over ground to save the time and resources associated with the digging and backfilling activities. However, based on the scoping sessions held with the signaling technical team of ENR and technical specification therein, this alternative would result in increased risks of asset loss and deterioration. Specifically, exposed cables would be subject to damage due to weather, and material wear and tear and potential increase in cables theft.

5.2.2 Track installation and upgrades

Construction of parallel line (parallel or new) will increase the capacity of the lines for freight transport as well as passengers. The service will be faster, safer and capable to absorb the future demand. This will allow increased operational efficiency.

Also, the replacement of track sections is a necessary procedure in the normal maintenance of railway lines. According to railway experts, the replacement of some of the sections is long overdue. Currently, the train slows down when traveling along these deteriorating tracks, which reduces operational efficiency of the line, i.e., fewer operational trains per unit time. Replacing deteriorated tracks will allow trains to operate at the track design speed, allowing increased operational efficiency.

Track upgrades will also contribute to increased reliability and customer satisfaction resulting from faster, safer, less noisy and more comfortable train service. Replacing track sections is an absolute necessity that is unavoidable in the normal operations of any railway system.

5.2.2.1 Routing:

For the Greenfield alignment, the PC held on May 10th, 2022, at Egyptian National Railways confirmed the objection and rejection of the route until then optimal proposed route for segment 1. Accordingly, options include optimization of some sections of the route bordering both private developers lands, return of land to selling entity (NUCA) with additional costs incurred relating to interest rates, and any spending thus far by the developer, or reaching an agreement with the developers. The ESIA has been updated and another Public consultation is planned to be carried out on August 25th.

For the Parallel tracks, Constructing the new track on the left side or the right side should be deeply investigated in the 100 Km in Bashteel/Etihad. The route to be selected should consider the mitigation the mitigation hierarchy in the ESF to avoid the impact in the first place. The routing should consider reducing the parallel track width and RoW to the possible extent given the nature of the project area. Also, special attention is needed for the areas where residential buildings are in very close proximity to the line. An Engineering consultancy firm should be hired to determine the optimum routing considering the E&S envisaged impacts.

5.3 Alternative Technologies in Interlocking System

In railway signaling a high degree of reliability and safety has to be achieved. The safety of the station is guaranteed by the interlocking system. It has to reject unsafe combinations of track- and signal-commands. It is the primary aim of the interlocking system to prevent collisions and derailment. Currently in Egypt, in most of the rail corridors, ENR achieves this by mechanical interlocking system.

This ESMF studies the upgrade of the traditional signaling system of ENR from mechanical interlocking to electronic interlocking system.

However, there are some different applications of interlocking systems, with different operational characteristics including:

5.3.1 Mechanical Interlocking System:

In mechanical interlocking plants, a locking bed is constructed, consisting of steel bars forming a grid. The levers that operate switches, derails, signals or other appliances are connected to the

bars running in one direction. The bars are constructed so that if the function controlled by a given lever conflicts with that controlled by another lever, mechanical interference is set up in the cross locking between the two bars, in turn preventing the conflicting lever movement from being made.

In purely mechanical plants, the levers operate the field devices, such as signals, directly via a mechanical rodding or wire connection. The levers are about shoulder height since they must supply a mechanical advantage for the operator. Cross locking of levers was affected such that the extra leverage could not defeat the locking (preliminary latch lock).

This mechanical type of interlocking allows capacity of one train per 30-50 minutes depending on track arrangement, due to the fact that train route cannot be preselected and levers have to be manually operated. Also, it contains a high probability of error and malfunction.

Figure 5-1 Mechanical Interlocking system

5.3.2 Relay Interlocking:

Where Interlockings effected purely electrically (sometimes referred to as "all-electric") consist of complex circuitry made up of relays in an arrangement of relay logic that ascertain the state or position of each signal appliance.

As appliances are operated, their change of position opens some circuits that lock out other appliances that would conflict with the new position. Similarly, other circuits are closed when the appliances they control become safe to operate. Equipment used for railroad signaling tends to be expensive because of its specialized nature and fail-safe design.

Figure 5-2 Relay interlocking system

5.3.3 Electronic interlocking:

Modern interlockings are generally solid state, where the wired networks of relays are replaced by software logic running on special-purpose control hardware. The fact that the logic is implemented by software rather than hard-wired circuitry greatly facilitates the ability to make modifications when needed by reprogramming rather than rewiring. In many implementations, this vital logic is stored as firmware or in ROM that cannot be easily altered to both resist unsafe modification and meet regulatory safety testing requirements. The aspect of safety is of utmost importance, nevertheless reliability is an important quality of the system. The change from relays to computer based interlocking systems brings a fundamental change of the characteristics of the subsystems: A highly distributed system, built of components with anticipative faults and the fail-safe property, is substituted by a system where high functionality is concentrated to single computer nodes. Electronic Interlocking are being adopted on a large scale to derive benefits of digital technologies in train operation and to enhance safety.

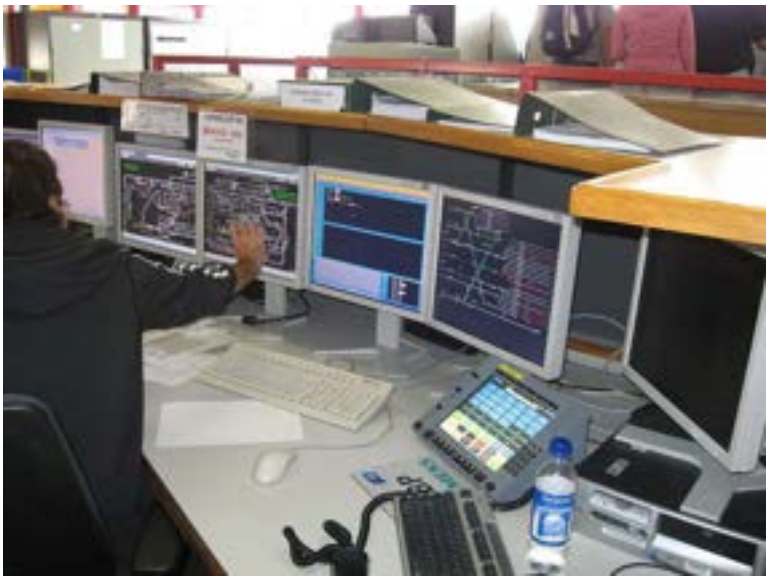


Figure 5-3 Electronic interlocking system

Therefore, it can be concluded that electronic interlocking systems provide more reliability and safety when it comes to operation as it minimizes the human factor and relies on highly functional computers and telecommunicated signals, creating overall accuracy and precision in operation. Since a fault, propagating to the signaling system may immediately cause a crash with great losses of human life, this poses a great importance on choosing the right technology for interlocking systems.

6 FRAMEWORK FOR IDENTIFICATION OF ENVIRONMENTAL AND SOCIAL IMPACT

This section describes in general terms the key potential environmental and social risks positive and negative impacts during construction and operation phases for the project[24].

6.1 Description of Risks and Impacts and/or Benefits Significance

Significance of an impact will be determined according to the severity and/or risk level of that impact. In this context, severity will address the impact component, while the combined result of severity with probability will address the risk component. This approach will be applicable to all general impacts; however, specific risk considerations related to Community Health Safety and OHS are to be addressed in separate Quantitative Risks Assessment studies. Those specific impacts/incidents are referenced in the preliminary impacts and risks assessment in section 6.3.

- Severity assessment of the impact
- Severity of potential impacts will be assessed according to 4 evaluation criteria: spatial scale, temporal scale/duration, difficulty to avoid, minimize, change and/or reverse the impact, and concerns of interested parties (stakeholders)

- Probability of occurrence of impact
- Probability of occurrence of impact represents the likelihood that the consequence (impact) will occur.

- Risk level assessment of the impact
- Risk level is determined by combining the magnitude of a potential consequence, herein referred to as severity, and the likelihood of the consequence occurring denoted by probability.

Rating and Ranking

Significance will be determined on the basis of severity of the impact and/or risk level determined from severity and probability of the impact.

6.2 Risks and Impacts Assessment Methodology

Several environmental and social impacts (positive and negative) associated with the proposed project were identified through field visits, desktop analysis and the use of experts' judgment.

A rating method is applied to determine the significance of the impacts. **The site-specific instruments should provide more quantitative assessment of the anticipated impacts based on the actual footprint and the conceptual/detail design of the project components.**

Step 1: Determination of Overall Severity and Probability of Impact

[24] Subcomponents 2.1 and 2.2 are addressed by a separate ESIA. Other project components are addressed in chapter 8.

The severity of each impact is determined according to evaluation criteria ranked on a scale of 1 to 5. Evaluation criteria for severity are presented in Table 6-1:

Table 6-1: Scale for ranking of severity level of impacts

Impact evaluation criteria	Rating				
	1	2	3	4	5
	Very low	Low	Medium	High	Very high
Spatial Scale	Immediate vicinity- On-site	Off-site	Citywide	Nationwide	global
Temporal Scale Duration	Extremely short term 1 day	Less than 1 month	1-6 months	Less than 1 year	Long term More than 1 year or continuous
Difficulty in changing and/ or reversing impact	Easy-reversible	Minor level of effort required	Moderate effort required	Major effort required	Impact cannot be changed Only managed
Concerns of interested parties- stakeholders	No concerns	Minor interest at local level Limited number of parties	Moderate interest /manageable at local/ governorate level Limited number of parties	Major interest at national level More widespread > number of parties	Extreme impact

Overall severity for an impact is determined from the average of ratings of applicable evaluation criteria according to Equation 1.

Equation 1- Severity of Impact Overall Rating

$$Severity(S) = AVERAGE\left(R_{spatial\ scale}, R_{Temporal\ scale}, R_{Difficulty\ in\ changing}, R_{Interested\ parties\ concerns}\right)$$

Probability of occurrence (P) level is ranked on a scale of 1 to 5. The definitions for evaluation criteria scale are presented in Table 6-2:.

Table 6-2: Scale for Ranking of Probability of Impacts

	Rating				
Evaluation criteria	**1**	**2**	**3**	**4**	**5**
Probability of occurrence	Rare	Unlikely	Possible	Likely	Certain

Step 2: Determination of Risk Level of Impact

The risk level of each impact is determined from the product of severity of the impact and the probability of its occurrence (determined in Step 1):

$$Risk\ level = Severity \times Probability$$

Step 3: Determination of Significance of Impact

An impact is considered significant if its severity is ranked 4 or higher, or if the product of the severity and frequency rating is equal to 12 or higher. Measures for avoiding, minimizing, mitigating impacts commensurate with the significance level will have to be developed. The definitions of significance according to overall ranking of severity and risk level are presented in Table 6-3 and Table 6-4, respectively.

Table 6-3: Definition of Significance according to Overall Severity Ranking of Impacts

Severity of impact	Significance
1	Low/minimal impact- no mitigations actions required
2	Low-Medium and localized, but readily containable
3	Medium impact over multiple locations
4	Medium-High and/or regional
5	High impact and/or potential for global impact

Table 6-4: Definition of Significance according Risk Level

Risk level of impact (Probability * Severity)	Significance
[1 -5]	Low
[5-10]	Low-medium
[10-15]	Medium
[15-20]	Medium-high
>20	High- catastrophic

6.3 Risk and Impact Assessment

The following subsections describe in general terms the potential environmental and social risks positive and negative impacts form the Project components.

6.3.1 Environmental and Social Impacts

The project activities include preparing technical studies and project management and supervision in component 1. Component 2 include physical interventions to construct and operate the Railway bypass. The physical interventions include:

- Removal of old and some parts of the track
- Removal of existing turnouts
- clearing of sites
- construction of new and parallel tacks
- Renewal of existing tracks
- Installation of new track
- Installation of new turnouts

Those will involve the following sub-activities:

- land acquisition for the new tracks and expanding the current RoW
- Transportation of materials such tracks/rails, sleepers and cables
- Transportation of raw materials including ballast planned to be obtained from existing quarries on the Oases line and sand for renewing and widening of embankments
- using of Fuel for construction activities and during operation of the trains.
- Transportation of water from tanks and disposal of wastewater either through municipal sewage network of septic tanks if the work site is located in a rural or off-the grid area
- Demolition and leveling activities to widen the railway and clearing the sites
- Constructions related to widening the embankment
- Trenching and new cables installation activities.
- Creation of the track circuits,
- Installing the new track, sleepers, ballasts … etc.
- Horizontal Directional Drilling (HDD) in some areas where the line intersects with water irrigation channels
- Construction activities required for signaling towers.
- Construction/Rehabilitation of the buildings required for line operation
- Removing all mechanical interlocking and electrical relay interlocking installations,
- Installing fully new automatic blocks (with contraflow signaling) with color light signals,
- Creation of new electronic interlocking systems according to the new track layout
- Renewing all signaling ground installations, including laying cables and civil works (some sub-water line laying of cables), excluding track installations,
- Installation of all the point motors for the switches controlled by the CTC,
- Fully new automatic level crossings.
- Disposing the demolition and other wastes result from the aforementioned sub-activities

Positive impacts:

During construction, the whole project will result in creating around 1975 job opportunities. The local community could benefit from the temporary labor force depending on skills set needed for each function. Job opportunities include direct job opportunities to skilled, semi-skilled labor as well as technical experts. Indirect job opportunities related to the different supply chains that will be created too. The impact on job creation is expected to be positive and of medium significance.

During operation, the project will result in increasing the efficiency of the railway transportation System through:

- Increased safety and reliability of the national railway service and,
- Reducing trip time as a result of increased train travel speed and reducing operational delay.

- Decrease of train-related accidents, which either involve derailments of the trains, and train to vehicle accidents at road crossings;
- Improvement of safety for rail transport will therefore benefit both women and men in terms of reduced injuries and fatalities;
- The daily commuting time will be reduced for users of these lines as a result of the modernized railway system. This may attract more commuters to using the train rather than other modes of transportation, which will contribute to reducing car traffic congestion and air pollution resulting vehicular emission.
- This increase in trains traffic would lead to an overall reduction of greenhouse gas (GHG) emissions from transport sector compared to other freight and transport models, which is a positive impact

Negative Impacts

The following table provide an assessment of the key anticipated negative environmental and social impacts of the project components that should be further quantitatively and qualitatively assessed in the instruments to be prepared in accordance with the procedures provided in the following chapter. The tables include also the suggested monitoring framework.

6.4 Environmental and Social Management and Monitoring Framework

The ESMF sets out the principles, rules, guidelines and procedures to assess the environmental and social risks and impacts. It contains measures and plans to reduce, mitigate and/or offset adverse risks and impacts, provisions for estimating and budgeting the costs of such measures, and information on the agency or agencies responsible for addressing project risks and impacts, including on its capacity to manage environmental and social risks and impacts. It includes adequate information on the area in which subprojects are expected to be sited, including any potential environmental and social vulnerabilities of the area; and on the potential impacts that may occur and mitigation measures that might be expected to be used.

Table 6-5: The Key Environmental and Social Impacts of the project

ESS	Receptor/ EHS Aspect	Impacts	Applicability to Component 2[25]	Overall significance	Avoidance, minimizing, mitigation measures	Monitoring Indicators	Responsibility	Mitigation measures cost M EGP[26,27]
Construction								
ESS1, ESS2, ESS3, ESS4	Air quality	<u>Gaseous emissions:</u> Emissions from machinery used for construction (e.g. diesel generator, excavator and construction equipment); Emissions (e.g. CO, NOx and SO2) from the exhausts of vehicles/trains used to transport workers, cables, raw materials, new tracks and other basic equipment. <u>Dust emissions:</u> Dust emissions are expected to occur during the construction phase due to the on-site excavation and trenching activities in addition to the movement of the construction vehicles and unloading of ballast which can generate fugitive dust. The air quality impact resulted from material extraction (i.e Gravel and sand, etc) is expected to be minimum since the project contractors will be allowed to source the material from licensed quarries. **So, Impacts on ambient air quality are expected, in addition to adverse health impact on the respiratory system of the workers.** **The accumulation of dust on the surface of the solar cells located near the railway between Moderiet El-Tahrir and El-Tairia El-Mahata stations reduces the glass cover transmittance and hence decreases the amount of solar irradiation reaching the cells. Under normal conditions any effects witnessed on a local scale will be of a temporary nature and restricted to the immediate point of exhaust emission.**	All subcomponents with varied significance. Subcomponent 2.1 and 2.3 impacts are expected to be higher than the other 2 segments.	High	**Develop Air Quality Management Plan** Minimum mitigation measures: minimizing emissions of pollutant gases, GHGs, dust, and noise, improper disposal of waste	• Chain of custody documents ensuring that the legally sourced from licensed quarries. • Dust levels ambient PM (TSP, PM10) • Dust complaints • SOx, NOx, and CO and black smoke from vehicles	**Contractor/supervising firms** and proponent's HSE manager (and officers) **ENR/supervising firm**: Ensuring the correct implementation of the mitigation and monitoring measures	1.5 per construction year
	Noise and vibration Levels	Activities such as diesel generator, equipment mobilization, site preparation, excavation & trenching works, old tracks dismantling, and new tracks installation construction and installation will result in an increase of noise and vibration levels. The main receptors for noise and vibration will be workers and nearby sensitive receptors including residential areas. The existing segments, especially Bashteel- Itay and Etihad- AP is surrounded by residential buildings in many areas along the lines. The project is expected to increase the noise levels which might be already high in many areas due to the movement of the trains. The greenfield noise impacts in areas where sensitive receptors are located is expected to be higher in significance, given the greenfield nature. Vibration in the area where the dualization will occur is expected be increased significantly and should be quantitatively assessed.		High	**Develop Noise and Vibration Management Plan** Minimum mitigation measures: control and limit noise emissions and vibration levels, at residential properties and other sensitive receptors in the vicinity of the Project	• Noise level maintained below 50 dB (A) during daytime and 40 dB (A) during night at construction phase; • Regular records and logs showing working hours are maintained		0.25 per year for measurements
	Soil and geology	Since the proposed works will involve excavations for trenching activities. Also, impacts on soil from track upgrading are expected. Movement of heavy trucks would loosen the soil by pressure from the wheels and expose them for easy erosion by wind. The heavy machinery, vehicles and equipment will require repairs and maintenance including washing. This may lead to spillage of oil during changing and repairs, generation of waste like engine filters, grease, and scrap materials may lead to soil contamination at the project site. All of that will in turn cause a crop destruction and land degradation as well. **Soil erosion may be caused by exposure of soil surfaces to rain and wind during site clearing, earth moving, and excavation activities. Soil erosion may lead to increased dust emissions. Also, Soil storage area may block the parallel roads or landscape view at the site and when it is used as covering material, if accumulated in a stockpile, it needs to be protected from being swept away by rain and also not to cause dust emissions.**		Medium	**Develop and implement Waste Management Plan (WMP), and Hazardous Waste and Material Management Plan (HAZMAT)** Minimum mitigation measures: prevention of pollution from currently contaminated areas and mishandled waste including procedure for storage, collection, segregation, recycling and/or proper disposal for wastes and contaminated soils or material	• Maintaining valid contracts with authorized waste collection contractors • Records of delivery at final disposal sites • Records of the types and quantities of waste generated and amounts diverted through salvage and reuse, and/or		Integrated in the works contracts around 1-2 %

[25] The environmental and social impacts that might be associated with the outcome of the technical studies under component 1 are further described in the following chapter.
[26] Rough estimations and the site specific instruments should provide more accurate assessment
[27] Percentage of works contract include developing the plans and implementing mitigation measures.

	Water pollution	A dualization between ELrayah El Nassary and Rayah El behiery will be taken place for around 40km, and will cross a number of water channels, this might require building underwater structure (i.e beams for the viaduct, etc) which in turn affect the water quality during the construction phase. Also, Mismanagement of waste might lead to water resources contamination especially during HDD and working in the vicinity of the water resources or (i) poor site management resulting in either surface or groundwater contamination, (ii) washing and maintenance of vehicles and machinery near or in waterbodies, (iii) poor drainage design at viaducts and water crossings resulting in waste, oil and grease contaminating the water system. Additionally, the current surficial contamination of soil in and around the tracks in areas where the railway like crosses water channels may impact water quality. Potential for spills and accidental releases to water channels is expected to be mainly from the in-situ construction of viaducts crossings and during dualization in the narrow area between the two water channels. Where spillage occurs the potential for rapid transport downstream in watercourses is high.	All subcomponents and 2.3 is expected to be more significant	Medium	around the areas to be removed. quality testing of generated waste water, hazardous waste, construction and demolition waste, used oil etc.	recycle.		
ESS2	Occupational Health & safety	Construction phase of the project will encompass different activities, which are expected to affect occupational health and safety for workers. In addition to the risk of train / worker accidents. Train/ worker accidents are generated from railway workers being in the vicinity of rail lines are exposed to moving trains is one of the major risks. Also listed below the main construction site hazards identified by the Occupational Safety and Health Administration (OSHA), all of which will be encountered during the construction of the different components of the project 1. injuries from minor to fatal, including train/worker accidents, rotating and moving equipment, electrical hazards, fire and explosions, eye hazards, noise and vibration, and fatigue including Struck by moving objects, 2. Excavation and Trenching – OSHA has recognized excavation and trenching as the most hazardous construction site operation. 3. Fall - falling from scaffolding more than 6 feet or a steady ladder at a distance of more than 20 feet are among the most serious hazards at the site of construction. 4. Stable and mobile stairs - Fixed and mobile stairs are important causes of injuries and disasters among construction workers. 5. Scaffolding - The most likely hazards are due to the movement of the scaffold components, their collapse due to damage to their component, loss of load, suspension of a suspended material, electric shock or malfunction. 6. Heavy construction equipment. The main causes of such accidents include the injury of workers when the equipment is returning reverse or when the direction of the equipment is changed or when the brakes do not work properly. 7. Electricity - Electricity line workers, electricity technicians and electricity engineers are constantly exposed to electricity and face daily risks. 8. Risks of drowning when working in proximity to surface waters. 9. Risks of exposure to hazardous materials including fuel, chemicals, etc. 10. Poor quality or inappropriate PPE or its use, poor site management. 11. Working near life tracks/ struck by moving trains for all segments	All subcomponents with varied significance. Subcomponent 2.1 and 2.3 impacts are expected to be higher than the other 2 segments.	High	**Develop Occupational Health & safety Management Plan:** Minimum mitigation measures: minimize health and safety hazards and injuries and accidents and conflicts due to incompliance with Good Practice Guidelines and OHS standards The OHS plan should pay special attention to Implementing a safe system of work for undertaking activities under red zone working (near life tracks). The safe system of work shall include (safe arrangements and coordination with the operator, an adequate number of lookouts to safeguard the work crew, and for the lookouts to be positioned the correct distances with adequate communication tools, use of detonators on the track, to protect a blockade, informing and training the train drivers, adequate training, prioritizing working during blockade.	• Occupational health and safety Incident reports • Medical reporting on received cases • No accidents • No incidents regarding public health and safety • Insurance coverage for everyone on site with proof of their presence on site through attendance sheets and copy of IDs.	**Contractor/ supervising firms**: Health and Safety specialist Social development specialists **ENR/ supervising firms**: Ensuring the correct implementation of the mitigation and monitoring measures	5-10% of the work contracts
		In addition to the health and safety risks, workers may encounter inappropriate working conditions or risk of complaints that are not appropriately addressed. Certain groups of workers might be running the risk of discriminatory procedures in hiring under the project (e.g., women, persons with disability)			**Labor amenities** Mitigation measure: Provide appropriate labor amenities both at the labor camps (if needed) and at the worksite. **Workers Grievance mechanism**	• Number of complaints that were resolved and the time it took to resolve them • Number of unresolved complaints		

					Mitigation measure: addressing complaints of workers			
		• **Risks of disease spreading** e.g., COVID-19 transmission between workers			**Develop Emergency response plans specific to prevention of COVID-19 transmission** and tailored to site conditions and workers characteristics, and based on guidance issued by relevant authorities, both national and international (e.g., WHO) Minimum mitigation measures: avoid or minimize the transmission and spread of COVID-19 that may be associated with the influx of temporary or permanent contract-related labor	• Number of trained workers (direct and temporary) • Number on infected persons • Number of isolated persons		
	Child labor	Child labor is a common practice in Egypt at large, the project in particular, considering constructions, primary supply; service provisions around stations. According to Egyptian Labor Law No.12/2003, child labor should be prohibited especially in dangerous works. Children below 18 are favorable labor as they receive low salaries and they are less demanding. LMP elaborates labor issues pertaining to primary supply workers including child labor and indirect workers to ensure compliance with ESS2. **So, there is a risk that this common practice is used in the project. This risk should be carefully handled and restrict obligations and monitoring should be applied in the contractor obligations.**		High	**Minimum age verification** Mitigation measure: Ensure age verification, using ID cards and labor logs are maintained on site **Contracts prohibiting the appointment of children** Minimum mitigation measures: Preventing child labor	• No complaints from community • No children on site		
ESS3	Resource Efficiency	There will be an increase in energy consumption during the construction phase as a result of the transportation of materials and construction equipment to the project site as well as the equipment used to prepare the site (e.g. trucks & loaders), and there will be an increase in overall resource consumption of water, equipment, ballast and raw materials during construction phase. **The amounts of fuel combustion, consumption of raw material for construction such as concrete and water consumption should be estimated by the site specific instruments to be prepared. However, the project is not expected to use significant water and construction raw material. Efficient use of energy in terms of controlling running vehicles and equipment should be in place.**	All subcomponents with varied significance. Subcomponent 2.1 and 2.3 impacts are expected to be higher than the other 2 segments.	Medium	**Resource and material efficiency management plan** to include requirements of minimizing the use of resource and propose practical and technically feasible measures	Quantities of material and resources used	**Contractor/ supervising firms r** and proponent's HSE manager (and officers) **ENR/ supervising firms**: Ensuring the correct implementation of the mitigation and monitoring measures	
	Solid and hazardous waste	The construction activities will include the use of hazardous materials such as fuels, oils and chemicals. Also, other than the excavated soil due to trenching works, construction activities will generate solid waste that consists of municipal waste, construction waste and some hazardous waste from project activities. Waste is expected to include the following categories: <u>Hazardous Wastes.</u> • Used oils & Insulation materials, if any • Empty containers, such as paints. • Replaced sleepers and ballast contaminated with grease. • Some of the sleepers (crossties) are very old and were potentially treated with hazardous materials such as benzo-pyrene. • Waste electrical and electronic equipment (WEEE) • Ballast/soil or cossites contaminated with oil and grease <u>Non - hazardous solid waste</u> • Construction debris (concrete, bricks, sand and gravel) • Dismantled old tracks and related components (track operation keys). • Packaging materials		High	**Develop Waste Management Plan (WMP), and Hazardous Waste and Material Management Plan (HAZMAT)** Minimum mitigation measures: prevention of pollution from mishandled waste including procedure for storage, collection, segregation, recycling and/or proper disposal, quality testing of generated waste water, hazardous waste, construction and demolition waste, used oil etc. **Develop and implement** Spill Response Plans to address, minimize and control potential for oil, chemical and fuel spills from	• Maintaining valid contracts with authorized waste collection contractors • Records of delivery at final disposal sites • Records of the types and quantities of waste generated and amounts diverted through salvage and reuse, and/or recycle. • spill incident logs and corrective actions		Around 1-2% of the works contract

		• Damaged cables, old replaced cables, waste pipes, … • Inert construction / demolition materials; • Refuse, such as metal scrap, wood and empty containers • Sewage from workers Municipal waste From workers activities at sites Historically Accumulated Waste in some spots along the existing alignments. **Negative effects on the environment in case of improper management of hazardous material or disposal of solid waste on the surrounding community (e.g. Fish farms) and its associated impacts of visual disturbance, odor and even open burning. The hazardous waste streams should be properly handled and safely stored and disposed of. Otherwise, it will increase traffic when moving waste to designated landfills / disposal sites or taking up and requiring more areas in landfill to host the waste generated in case no proper waste management practice is in place (reduce, reuse and recycle). Sewage could be pumped out and discharged in the adjacent wastewater treatment plant otherwise it can cause contamination to soil and water sources.**			the facilities, transport vehicles, loading and unloading operations.			
ESS4	Community Health, Safety	- **Level Crossings Safety:** Level crossings represent high-risk accident locations for railways. Also, construction activities at level crossings will lead to complete or partial closure of the crossings to pedestrian and vehicles, causing increased traffic congestion. - **Pedestrian Safety:** Trespassers on rail lines and facilities may incur risks from moving trains, electrical lines and equipment, and hazardous substances, among other issues. - **Illegal level crossing:** Due to the closure of level crossings during construction activities, it is expected that illegal track crossing will be increased raising the risk of accidents. - **Street vendors** Some of construction sites will be located near vital crossings for community, in addition to the random markets scattered, which attract a large number of individuals, which makes construction sites and construction equipment a high risk for the local community. So, Accidents, loss of lives and properties, Safety risks to the public at or near the construction sites and Inappropriate response to incident by security personnel are expected. - **Unexpected train delays** due to reduction of train speed at the project's construction sites will result in longer train trip time - **Communities daily activities:** Construction activities at sites accessible to public especially considering close proximity of existing tracks to communities, areas on the tracks, where communities perform daily activities (not just crossing, for example, praying, children playing a few meters away from tracks etc.) - **Exposure of community to mismanaged waste** - As part of the project design all subcomponents embed a “zero harm/zero tolerance, safety first” into the upgrade and new works on the tracks, at communities along the tracks, ensuring safety for communities along the tracks, such as fencing, level crossings, and education measures.	All subcomponents and 2.3 is expected to be more significant	Very High	**Community Health and Safety Management Plan** Minimum mitigation measures: avoid or reduce any negative impact on the communities along the route; implement the design measures in the project including “zero harm/zero tolerance, safety first” into the upgrade and new works on the tracks	• Number of complaints received with relation to community health and safety issues • Issues raised during community consultation activities • Community health and safety plan prepared • Number of interviews conducted with community members • Availability of project details as well as grievance mechanism details on site.	**Contractor/ supervising firms**: Health and Safety specialist social development specialists **ENR/ supervising firms**: Ensuring the correct implementation of the mitigation and monitoring measures	around 0.5-1 % of works contract
					Code of Conduct Minimum mitigation measures: Commitment of labors towards community groups and the different behavior that should be avoided	Visual Inspection of the site investigating: • The Code of Conduct has been prepared and has been signed by all project workers • Number of complaints received from the community with regards to workers’ behavior in general and the time it took to solve them. • Training records • % of workers trained on Code of Conduct • % of workers whose awareness was raised on GBV related issues • Interview with community members		

						• Numbers of penalties applied		
	Traffic	Increased traffic flow on roads leading to and from the construction site. Traffic jams and increased exposure of travelers and road users to exhaust and associated noise and possible accidents. The surrounding facilities/residents will be impacted including industrial facilities charcoal manufacturers, poultry farmers in the area	All subcomponents and 2.3 is expected to be more significant	High	**Temporary Traffic Management Plan (TTMP)** Minimum mitigation measures: minimize delays and reduce detours, ensure safe access, and protect railway and road assets. The TTMPs would also address access to and from the construction zones by minimizing road crossings by heavy plant, managing truck queuing, managing truck haul routes between construction sites, dump sites and quarries, and ensuring that construction timing and sequences do not adversely affect the road network and its environs	• Effectiveness/extent of implementation of traffic management plan • Number of complaints received associated with traffic and time it took to resolve them • Number of unresolved complaints		Part of the project cost 0.1-0.3% of project contract
	Temporary labor influx	Generally speaking, having workers in small cities or villages might result in unfavorable impacts on the available resources (e.g. pressure on accommodation, food, risk of communicable diseases especially in light of the COVID-19, health care and medication and potable source of water). The contractor will depend on the local labor as much as possible; they are expected to be residents of the project area; which may reduce the risk of labor influx. **So, it may result in inconvenience to the local communities, particularly in the areas where communities are conservative or not accustomed to having outsiders.**	All subcomponents and 2.3 is expected to be more significant	High	**Code of Conduct** Minimum mitigation measures: Commitment of labors towards community groups and the different behavior that should be avoided	Visual Inspection of the site investigating: • The Code of Conduct has been prepared and has been signed by all project workers • Number of complaints received from the community with regards to workers' behavior in general and the time it took to solve them. • Training records • % of workers trained on Code of Conduct • % of workers whose awareness was raised on GBV related issues • Interview with community members • Numbers of penalties applied	**Contractor/ supervising firms:** Health and Safety specialist social development specialists **ENR/ supervising firms:** Ensuring the correct implementation of the mitigation and monitoring measures	Project cost
	Gender-based violence (GBV)	The scale of labor influx and the absorptive capacity of the local community indicate the significance of the anticipated risk of GBV. Although there are no particular statistics on the rate of GBV of women specifically on the local communities in which the construction works are taking place. The project can lead to an increased risk of Gender Based Violence, as women are particularly vulnerable within the context of construction projects. While the impact of the project on GBV cannot be specifically determined. **The various forms of GBV that are likely to occur include:** - **Sexual harassment of women and girls by workers,** - **The probability of limitation of women and young girls' mobility and increased lack of privacy in the project sites,**	All subcomponents and 2.3 is expected to be more significant	Medium	**Grievance mechanism** Mitigation measure: addressing complaints of community, grievance mechanism including anonymous channels	• Number of reported complaints from the community • Community members aware of the activities conducted and the messages shared/discussed (through the beneficiary feedback survey)		

ESS5	Land acquisition, restrictions on land use and involuntary resettlement	Two types of activities will require land: 1- Constructing a new or parallel track: Depending on the width of the right of way (RoW) of the rail corridor, the tracks may be constructed on the RoW or outside of ENR property (details are found in the resettlement framework prepared for this project). 2- Unidentified locations at this stage for technical buildings, rooms for level crossings, cabling and trenching works, temporary storage of materials, etc. For those sites the initial determination of the required land areas, location and the potential impacts have not been identified or determined yet and the area required have not determined yet. Many houses, agricultural lands, water stations and pottery manufacture are bordering the railway. In some areas, the railroad track neighboring utilities (e.g. water pipes and electricity rooms) which may be impacted by the implementation of the project due to excavation or trenching works. Upon confirming the land selection for this component, the relevant resettlement instrument should be prepared (e.g. resettlement plan). **The main contributing risk factors are land and livelihoods related impacts and could be summarized in the following:** 1. **Risk of physical relocation for the tenants or informal users (farmers) that occupy an area of ENR RoW:** The signaling works, which are considered limited in scale are anticipated to consist mainly of, or adjacent government land plots, that will be needed for storage or new project structures. 2. **Impacts on livelihoods:** this risk specifically applies in the cases of individuals and groups whose livelihoods are dependent on land (e.g. tenants of ENR RoW who are using the land for cultivation) and possibly other types of businesses that could be relocated as a result of dualization (e.g. small shops). 3. **Risk of private properties expropriation:** For the creation of the parallel track, while it will consist mainly of impacts on tenants or informal users (farmers) that occupy an area of ENR RoW, land and properties expropriation beyond ENR RoW may also be inevitable for this component in segments where the width of the RoW is not enough. 4. **Risks of involuntary physical relocation for encroachment:** while the mentioned sub-components have several private properties whose owners will be able to demonstrate legal title, there are also potentially land users and encroachers that may likely be relocated. With absence of legal title and documentation, this group is considered more vulnerable to the impacts of relocations and/or loss of livelihoods. 5. **Fragmentation of responsibilities related to the management of resettlement:** As explained, the section of the greenfield involves large number of actors with different roles and responsibilities (ENR, GARB, ESA). The risk of fragmentation of accountability, uncoordinated sequencing of activities and specifically when it comes of the implementation of the resettlement and compensation plans is a valid risk that needs to be mitigated. **6. Temporary land related impacts:** At this construction phase, temporary land acquisition for detouring, storage of material, etc. will likely be unavoidable. There is a risk that private land is resorted to in order to address this temporary need. In such cases, the risk could be in absence of voluntary arrangement and/ or affecting the quality of land (fertility) and subsequently its future usability.	All subcomponents with varied significance. Subcomponent 2.1 and 2.3 impacts are expected to be higher than the other 2 segments.	Very High	**Selection of route should consider first avoidance of the impacts.** **Resettlement Framework (RF) and Resettlement Plan (RP):** Minimum mitigation measures: Avoid, minimize, and mitigate negative IR impacts by facilitating the rehabilitation Of PAPs on a productive and self-sustaining basis. Ensure that they are fully and promptly compensated, and successfully resettled.	• Documentation of the stakeholder sessions and consultations • GM in place and known to local community • Number of complaints that were resolved and the time it took to resolve them • Number of unresolved complaints • Preliminary assessment report of land and livelihoods/assets loss for selected locations for technical buildings. • Resettlement plan	**Contractor/ supervising firms**: Implementation of avoidance strategy and mitigation measures Reporting to ENR **ENR/ supervising firms**: PMU with support from the WB will maintain land avoidance strategy, Reviewing Contractor's	To be estimated once the locations are identified
					Coordinating with the relevant stakeholder regarding the neighboring utilities: Minimum mitigation measures: Avoid any kind of damages.	• Documentation of the stakeholder sessions and consultations • No damages.	**ENR**	
ESS6	Biodiversity conservation and sustainable management of living	- All project areas are all classified as urban or rural. Therefore, pristine natural habitats are not likely to exist within these areas. Also, based on the available data, There are no species listed as nationally or internationally endangered.Mariut Lake qualifies as a Key Biodiversity Area of international significance that was identified using previously established criteria and thresholds for the identification of Important Bird and Biodiversity Areas (IBAs) and for which available data indicate that it does not meet global KBA criteria and thresholds set out in the Global Standard.	All subcomponents with varied significance. Subcomponent 2.1 and 2.3 impacts are	Low	Apply previously mentioned Plans			- Project Cost

	natural resources	- None of the project areas or candidate sites lies within boundaries of Egypt's listed protected areas. - Also, according to the field visit, no endangered animals or plants along the railway • **So, Minimal impacts are expected on biodiversity environmental and biological.**	expected to be higher than the other 2 segments.					
ESS8	Culture heritage	During the field visit, there were **two plots of lands bordering the tracks for around 2 Km and under the jurisdiction of the ministry of antiquities that are likely to contain tangible cultural heritage objects**. • **Probability of finding antiquities exists, compromise of places of worship and of cultural significance.** In the event that any archaeological remains are discovered along the railroad during digging, the contractor must follow the Chance Find Procedures.	Specific to Subcomponent 2.3	High	• Coordinating with Ministry of Antiques regarding the **empty lands** which belong to them. • Develop Culture heritage management plan as needed. • Apply Chance find procedures	• Documentation of communication with Ministry of Antiquities • Discovery of archaeological sites, historical sites, remains and objects	**ENR & Contractor**:	Project cost
		Cultural heritage will be impacted in cases construction activities take place near mosques which have great religious value to community members, taking into account that **Mosques** on that segment are very close to the railroad, so trenching and track activities may impact it.	All subcomponents and 2.3 is expected to be more significant		• Coordination with Ministry of Awqaf to avoid any problems related to Mosque • Discussing with the local community on required actions during the construction period, to minimize conflict or accidents from project activities.	• Number of mosques along railway line that need displacement, • No complaints from community	**ENR**	
		In some areas, **Burial places** are bordering the railroad track which may be affected by the upgrading activities			**A Community Health and Safety Management Plan** includes plan to allow safe access of community to the burial site adjacent to the railway.	No complaints from community	**Contractor & ENR**:	
ESS10	Stakeholder engagement & Information Disclosure	Weak stakeholder engagement activities, including lack of grievance mechanism may entail many risks, and result in unfavourable impacts on the project candidate areas in terms of: • The risk of poor communication with the public, can affect constructive and responsive relationships that are important for successful management of a project's environmental and social risks. • Failure to disclose the project and publish clear information may lead to stakeholder's dissatisfaction and losing trust in the project. • The weakness of the grievance mechanism GRM used in the project or the lack of clarity in the mechanism of application and solution, can lead to escalated unresolved complaints that may threaten the project. • Unaddressed community complaints and potential escalation and/or conflict: - At this stage of the project, community dissatisfaction with the designs and/or the discontent about the compensation could be critical issues that may result in unresolved concerns and negative reactions from stakeholders on the project. - There could be community concersn related to the construction impacts that need to be promptly addressed. The risk of inadequate redressal for the complaint is applicable to this phase o fthe project and may lead to discontent and conflict on the ground. The risks should be carefully handled in the SEP.	All subcomponents with varied significance. Subcomponent 2.1 and 2.3 impacts are expected to be higher than the other 2 segments.	High	**Stakeholder Engagement Plan (SEP):** Minimum mitigation measures: reduces the risks of Lack commitment to good application of the ESS10.	• Number of public consultation activities conducted • Project-level grievance mechanism channels disclosed • Project-level grievance mechanism log	Environment and social development specialists	
Operation								
ESS1, ESS3, ESS4	Air quality	During operation phase, more air quality emissions are expected from the increased train traffic across the segment. Anticipated pollutants include air quality (PM, SOx, NOx, PM10 and PM2.5) Impacts will vary in length depending on location. These pollutants will be of fugitive nature and is expected be less significant given that the MoT announced the retirement of all the old trains. The air quality would be affected by causing an increase of the carbon dioxide and GHG emissions resulting from more trains operating on the railway segments. This GHG is significantly less if compared by other means of transportation.	All segments	Medium	**Action plan in coordination with EEAA to conduct spot air measurements in different locations,** Minimum mitigation measures: to monitor the air quality level	• Dust levels ambient PM (TSP, PM10) • Dust complaints • SOx, NOx, and CO and black smoke from vehicles	ENR	To be estimated once the locations are identified

	Noise and vibration	More noise is expected to occur as a result of more trains operating on the railway segment and impact the near receptors (residents occupy the borders of the railway, schools, Mosques, etc.). Vibration also could impact the structural integrity of the buildings located near the tracks, especially the unlicensed ones especially with the dualization. The implementation of new parallel track will result in increased noise and soil vibration. Accordingly, the highway flyover bridges and old houses may be impacted.	All subcomponents with varied significance. Subcomponent 2.3 impacts are expected to be higher than the other 3 segments.	Very High	**Noise and vibration impacts should be quantitatively assessed prior to the finalization of the design** so that the mitigation measures can be identified according to the mitigation hierarchy, prioritizing avoidance.	• Documents and records review • Spot measurements and site inspection for Noise		Project operation cost
					Action plan in coordination with EEAA to conduct spot noise measurements in different locations, Minimum mitigation measures: to monitor the noise level and exposure time			
					The avoidance measures include but not limited to: • use of composite brake blocks rather than cast iron brake blocks • Resilient wheels • Rail dampers • Gauge-face lubrication • Appropriate maintenance of systems to minimize disturbance			
					Installation of active vibration control systems for locomotive suspension, cabs, or seat posts, as needed to comply with applicable international and national standards and guidelines.	• Maintenance activities to install active vibration control systems for locomotive suspension. • Noise level maintained allowable limits during daytime and at night • Regular records and logs showing working hours are maintained		
ESS2	Occupational Health & Safety	Health and safety issues specific to railway operations include the following: • **Train / Worker Accidents:** Railway workers in the vicinity of rail lines are exposed to moving trains, especially those conducting maintenance related works on the rail tracks. • **Noise and Vibration** Crew members may be exposed to noise from locomotives, rolling stock, and machinery, as well as to significant repetitive mechanical shocks and / or vibrations. • **Diesel Exhaust** Railway workers, including locomotive crews and workers in stations, rail yards, and locomotive and car shops, may be exposed to exhaust from diesel locomotives and other diesel engines. Crew members riding immediately behind the lead engines of trains (e.g. trailing locomotives) and workers in indoor turnaround areas where locomotives are usually left operating, sometimes for prolonged periods, may be exposed to particularly high levels of diesel exhaust. • **Fatigue** Locomotive engineers and other railway workers are often required to work irregular work hours which may result in fatigue. Fatigue may be affected by the length and time of the shift (e.g. long night shifts, shift start times); the nature of the changes between shifts (shift rotation);	All subcomponents	High	**Occupational Health & safety Management Plan:** Minimum mitigation measures: minimize health and safety hazards and injuries and accidents and conflicts due to incompliance with Good Practice Guidelines and OHS standards	• The OHS is prepared & formally adopted • All mitigation measures have been implemented Undertake checks on workers right to work (including work permits, age etc.); • Reports on any accidents, hazardous events, as well as records and reports on health, safety and welfare of workers • Condition of fire extinguishing instruments • Condition of flammable material containers & storage • Availability & usage of	ENR	To be estimated based on the number of workers and general context

		the balance in concentration and stimulation in the work activities being undertaken; insufficient rest breaks; and the time of day. Fatigue, particularly of those whose work is critical to safe operation, can pose a serious safety risk for railway workers and the general public. • **Electrical Hazards** Electrified railways use either overhead wires or a conductor rail (e.g. third rail) to transmit electrical power to the train locomotive or multiple units. Overhead power lines may also be present near non-electrified rail lines. • **Electric and Magnetic Fields** Railway workers on electric railway systems may have a higher exposure to electric and magnetic fields (EMF) than the general public due to working in proximity to electric power lines. • **Diesel Storing tanks for power generators** Power generators to be used in case of powers cut-offs and emergencies are operating with diesel oil that is stored in large steel tanks above or underground. During summer time, temperatures are high causing the generation of diesel fumes which may lead to fire hazards.				PPEs • Condition of Rest Facilities • Workers right to work • % of employees trained on OHS, emergency procedures and GM • OHS statistics such as fatalities, injuries, lost time incidents, first aid cases. • Number of complaints received, solved and unsolved complaints • Social and medical insurance applied		
		• **Risks of disease spreading** e.g., COVID-19 transmission in crowded areas			**Develop Emergency response plans specific to prevention of COVID-19 transmission:** Minimum mitigation measures: avoid or minimize the transmission and spread of COVID-19 that may be associated with the influx of temporary or permanent contract-related labor	• Number of trained workers (direct and temporary) • Number on infected persons • Number of isolated persons		
ESS3	Resource Efficiency and pollution prevention	There will be an increase in energy consumption during the operation phase as a result of the dualization. Mismanagement of waste generated from maintenance activities	All subcomponents with varied significance. Subcomponent 2.3 impacts are expected to be higher than the other 3 segments.	low	Develop Waste Management Plan (WMP), and Hazardous Waste and Material Management Plan (HAZMAT) as well as Pesticide Management Plan (PMT) if needed	• Maintaining valid contracts with authorized waste collection contractors • Records of delivery at final disposal sites • Records of the types and quantities of waste generated and amounts diverted through salvage and reuse, and/or recycle	ENR	Operational cost
	Use of Herbicide	It is necessary to prevent vegetation within railroad rights-of-way to avoid interference with train operations and track maintenance. Growth of trees and plants can cover signals, fall onto the tracks and overhead power lines, and prevent workers from getting to places of safety when trains are passing. The control on vegetation will involve the use of mechanical methods (e.g. mowing) and manual methods (e.g. hand pruning), and the use of herbicides will be avoided. **Minimum risk as use of herbicides will be avoided.**		Medium				
	Solid and hazardous waste	Passengers aboard the trains, Waste generated in passenger cars will increase, whether it is municipal waste or sanitary wastewater. Eventually, this might lead to more trains requiring maintenance, which will generate some hazardous waste in form of oils, lubricants, containers, or replaced parts covered with hazardous materials.	All subcomponents	Medium				
ESS4	Community Health, Safety	In some areas where the available room for the dualization is narrow, the dualization will occupy most of the available area which is currently being used by pedestrians. For example, the area between Beni-Salama and Al-Khatatba where schoolchildren trespass the railroad track to go to their school, schoolchildren will become more risk vulnerable after the implementation of the project. There are impacts on community privacy and/or security concerns: Depending on what the final rail route of the dualization, there are risks of subsequent impact, related to lack of privacy might be encountered. This risk would apply to the affected community at large but can affect certain sub-groups (girls, women) in a different and more serious way.	All subcomponents with varied significance. Subcomponent 2.3 impacts are expected to be higher than the other 3 segments.	High	**Urban Planning Study** Minimum mitigation measures: to prevent access to railway and avoid accidents **Community Health and Safety Management Plan:** Minimum mitigation measures: to prevent access to railway; manage use of pedestrian bridges/tunnels.	• Community grievance log • No accidents • No burning wastes	Urban planning consultant to develop the study ENR: Ensuring the measurements mentioned in the study are applied.	Project cost

		Railway accidents may occur since many tracks are adjoining or crossing busy markets, schools and other public or residential areas. Disturbances related to the practice of burning waste near railway tracks.			The Community health and safety management plan should include **Accidents emergency response procedures.** **Action plan in coordination with Ministries of Local Development, Environment, Agriculture and the governorates:** Minimum mitigation measure: to coordinate with law enforcement authorities and ministry of environment to raise the awareness and enforce prohibition of this practice.			
		Potential risks of SEA/SH	Under component 1.3.a, establishing a female internship program,	Medium	**SEA/SH prevention:** Mimum Mitigation Measures: training of internship mentors on SEA/SH prevention and signing of codes of conduct of those mentors, GM channels dissiminated	• Community grievance log • Codes of conduct signed • Awareness Raising and trainings conducted (with attendance sheets)	ENR	Project Cost

6.4.1 Impacts rating Summary

The following Table 6-6 shows the environmental and social impact rating summary.

Table 6-6 Environmental and social impact rating summary

ESS	Receptor/EHS Aspect	All the project components			
		Impacts rating			
		Low	Medium	High	Very High
Construction					
ESS1	Air quality			√	
	Noise and vibration			√	
	Soil and geology		√		
	Water pollution		√		
ESS2	Occupational Health & safety			√	
	Risk of child labor			√	
ESS3	Resource Efficiency		√		
	Solid and hazardous waste			√	
ESS4	Community Health, Safety				√
	Traffic			√	
	Temporary labor influx			√	
	Risk of gender-based violence (GBV)			√	
ESS5	Land acquisition, restrictions on land use and involuntary resettlement				√
ESS6	Biodiversity conservation & sustainable management of living natural resources	√			
ESS8	Culture heritage			√	
ESS10	Stakeholder engagement			√	
Operation					
ESS1	Air quality		√		
	Noise and vibration				√
ESS2	Occupational Health & Safety			√	
ESS3	Resource Efficiency and pollution prevention	√			
	Use of Herbicide		√		
	Solid and hazardous waste		√		
ESS4	Community Health, Safety			√	

As seen in the previous table, applying the impact ranking method discussed in the beginning of this section yields 12 Receptors / EHS Aspects with significant negative impacts during the construction phase which are:

1 Air quality
2 Noise and vibration
3 Occupational Health & safety
4 Risk of child labor
5 Temporary labor influx
6 Risk of gender-based violence (GBV)
7 Solid and hazardous waste
8 Community Health, Safety

9 Traffic
10 Land acquisition, restrictions on land use and involuntary resettlement
11 cultural heritage
12 Stakeholder engagement

While during operation phase the impact ranking method yields 3 Receptors / EHS Aspects with negative impacts, which are:

1. Noise and vibration
2. Occupational Health & Safety
3. Community Health, Safety

7 IMPLEMENTATION ARRANGEMENTS FOR SAFEGUARDING, MONITORING AND REPORTING WB ESSS

7.1 Procedures to Address Environmental and Social Issues in the project

This section describes the measures and procedures that the project will implement including the need for additional instruments such as Environmental and Social Impact assessments (ESIAs) and Environmental and Social Management Plans (ESMPs) to comply with the ESF using the mitigation Hierarchy approach to avoid, minimize, mitigate and/or offset adverse risks and impacts. The project 2 components will be subject to the following procedures:

1- Screening each component/subcomponent for potential E&S risks and impacts and classifying each subproject according to risk

   The activities under the subcomponents one defined, during the project implementation, will be subject to screening. Once subcomponent details including conceptual design and specific locations are determined, screening and risk classification should be performed. The objective of sub-component screening determines risk classification according to ESS and identifies associated Environmental and Social Instruments for ESF compliance. The screening will be performed using the questionnaire presented in Annex III. The PMU will carry out the screening and share the results with the WB for clearance.

2- Conducting E&S assessment for each subcomponent/activity and developing project specific management plans/instruments

   The PMU will prepare relevant TORs for the E&S instruments to be identified by the screening process. The TORs will be subject to the WB clearance. For high and substantial risk projects the PMU will hire independent consulting firms to prepare the E&S instruments to meet the national requirements as well as the relevant ESSs.

3- Consultation and disclosure of E&S plans and instruments

   The EAD department will have the overall responsibility on the project's E&S requirements. The EAD will be responsible for hiring consultants to develop E&S plans and instruments and perform consultations. The EAD will be responsible for disclosing the instruments.

4- Review and approval of E&S plans and instruments

   All plans shall be reviewed and cleared by the Bank

5- Implementation and monitoring of E&S plans and instruments

The PMU will ensure that site specific plans are integrated in all the contracts under the project and follow up the implementation with the contractors and during the project operation. The PMU will be supported by the supervision consultant and the owner's Works Supervisor and Integrator.

Table 7-1: summary of project mitigation measures with potential responsibilities, requirements

Project sub-component & main activities	Potential negative E&S risks and impacts	mitigation measures/studies to be prepared or implemented	Monitoring		
			Requirements	Responsibility	Cost estimation (USD)
Component 1	Include technical studies which their outcomes if implemented, even if not financed by the project might entail E&S impacts	Ensure that terms of reference (ToRs) for studies, capacity building, training and any outputs of the technical assistance activities carried out under the Project, including, but not limited to, the carrying out of feasibilities studies for future projects in the transport sector, institutional capacity building needs, are acceptable to the Bank and duly incorporate the requirements of the ESSs	TORs for the studies include E&S requirements	PMU/ supervising firm and system integrator	Project operation cost
Component 1.3 (a)	There might be potentially minor civil works that will entail typical construction impacts and the risk are impacts that are mentioned in Table 6-5 are covering these impacts	1. Following screening tool in the ESMF, prepare detailed ESIA or ESMP, as needed, for sub-component 1.3.a 2. The E&S instruments shall take into consideration the preliminary identified impacts and proposed mitigation measures in section 6 and 7 in the ESMF 3. Integrate E&S instruments requirements in the contracts of the activities. 4. Ensure that appropriate GMs are designed and operationalized for the communities 5. Prepare monthly reports on the status of implementing the site-specific instruments 6. Monitor the compliance of the activities with the prepared instruments	ESIA or ESMP, as needed, are prepared, cleared by the Bank, integrated in the contracts, implemented on the ground	PMU/ supervising firm	Within ENR headquarter premises

Component 2.1 and component 2.2	The Draft ESIA include the main E&S impacts associated with the components	1. Amend the draft ESIA and prepare RP for sub-component 2.1 a, 2. Screen the route of the missing link if it will be optimized once determined to determine the needed instrument (i.e., amending ESIA, RP, update of the SEP, etc.) 3. Integrate E&S instruments requirements in the contracts of the activities. 4. Ensure that appropriate GMs are designed and operationalized for the communities 5. Prepare monthly reports on the status of implementing the site-specific instruments 6. Monitor the compliance of the activities with the prepared instruments	Site specific ESIA and RP are prepared, cleared by the Bank, integrated in the contracts, implemented on the ground	PMU/ supervising firm and system integrator	Around 55K for the preparation of the studies. The ESIA should provide cost estimates for the site-specific mitigation measures
Component 2.3 (a and B)	Table 6-5 mentions the Potential negative E&S risks and impacts	7. Prepare detailed ESIA and RP for sub-component 2.3 a and b 8. The E&S instruments shall take into consideration the preliminary identified impacts and proposed mitigation measures in section 6 and 7 in the ESMF 9. Integrate E&S instruments requirements in the contracts of the activities. 10. Ensure that appropriate GMs are designed and operationalized for the communities 11. Prepare monthly reports on the status of implementing the site-specific instruments 12. Monitor the compliance of the activities with the prepared instruments	Site specific ESIA and RP are prepared, cleared by the Bank, integrated in the contracts, implemented on the ground	PMU/ supervising firm and system integrator	Around 55K for the preparation of the studies. The ESIA should provide cost estimates for the site-specific mitigation measures

Component 2.4		1. Prepare detailed ESIA and RP for sub-component 2.3 a, 2. Screen sub-component (b) once the location is determined and the conceptual design is available to determine the needed instrument (i.e., ESMP, RP, update of the SEP, etc.) 3. Integrate E&S instruments requirements in the contracts of the activities. 4. Ensure that appropriate GMs are designed and operationalized for the communities 5. Prepare monthly reports on the status of implementing the site-specific instruments 6. Monitor the compliance of the activities with the prepared instruments	Site specific ESIA and RP are prepared, cleared by the Bank, integrated in the contracts, implemented on the ground	PMU/ supervising firm and system integrator	Around 55K for the preparation of the studies. The ESIA should provide cost estimates for the site-specific mitigation measures
• **The E&S instrument (ESCP, SEP, LMP and RF) have been prepared as per the Bank ESF requirement and are applicable to all the project components. The PMU should update the project's E&S instruments to ensure that the outcomes of the site-specific instruments are well integrated.** • **The E&S instruments shall be integrated as commitments in the relevant bidding documents and contractual agreements. Also, E&S clauses shall be stated, as identified in the individual project ESMPs, for contractors hired to undertake construction activities, including non-compliance penalties.**					

7.2 Staffing Requirements for Implementation of ESMF

The Project Management Unit (PMU) created for the implementation of the Railway Improvement and Safety for Egypt (RISE) Project will implement the CATLDP project. ENR through the current PMU for the RISE project will manage the project and will be accountable for the overall compliance with the ESF requirements including for the activities/components financed by the local fund and for activities conducted by other entities. There will be collaboration with other entities, including the Egyptian Survey Authority (ESA) which is the national entity in charge of applying the public interest and eminent domain law in the country. In the meantime, land acquisition procedures will be implemented in coordination with ENR as per the resettlement framework (RF). Moreover, the General Authority for Roads, Bridges (GARB) will be the one in charge to manage the civil works for the creation of the parallel track and the creation of the new alignment, after that ENR will be in charge to manage the signaling related works. The coordination between GARB, ESA and ENR is crucial to ensure that the different activities are conducted as per the ESF requirements. To minimize the project risks, including E&S risks, sub-component 1.2 a will finance setting up an owner's Works Supervisor and Integrator to manage and integrate the design and construction of works financed by the MoT and works financed with loan proceeds in Component 2.

ENR will allocate adequate logistical and financial resources for the EAD staff dedicated for the project to support management of ESHS risks and impacts of the Project including computers, officers, logistical support, etc.

The implementation arrangements are provided in the below Figure 7-1 including the contractual arrangements and reporting lines. The ENR PMU will have the overall responsibility of ensuring the overall project compliance with the National requirements and the ESF. The key roles and responsibilities of the different entity and the proposed E&S staffing requirements are preliminary (not an exhaustive list of responsibilities) provided in the below table. It should be noted that the site-specific E&S instruments should provide more accurate assessment and staffing requirements.

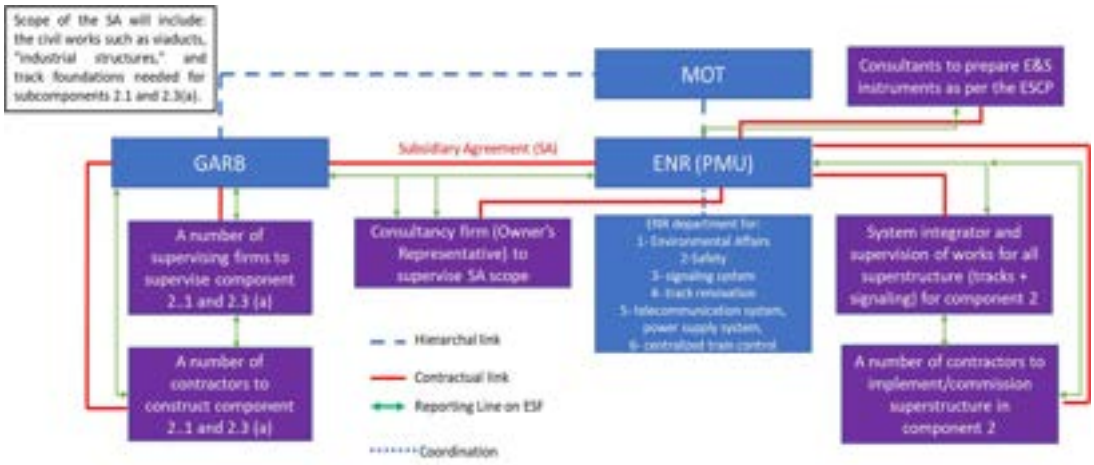


Figure 7-1 the implementation arrangements scheme

Table 7-2 Institutional framework

Entity	Main roles and responsibilities	E&S staffing
ENR PMU and ENR Environmental Affairs Department (EAD)	1- Ensure compliance of all the project components with the E&S National and ESF requirements. 2- Provide visible top management involvement in the E&S for all the project works 3- Coordinate between all the relevant departments within ENR 4- Provide clearance to all the E&S documents to be prepared including contractors' construction management plans 5- Provide clearance for all bidding/contracts of civil works under the component 2 6- Provide clearance for all bidding/contracts of supervision works 7- Prepare the TORs for the technical studies in Component 1 and insure it includes adequate E&S arrangements 8- Prepare TORs for the project's future E&S instruments 9- Implement the procedures listed in section 7.1 10- Ensure collaboration with other entities, including the ESA and GARB. 11- Perform regular monitoring and spot check visits to ensure compliance of the projects. 12- Ensure timely implementation of all the project instruments including ESCP, LMP, ESMF, SEP, ESIA, RF and any other instruments to be prepared.	the PMU within the ENR that is tasked with ESHS management, with support from ENR Environmental affairs department (EAD). The EAD department will have the overall responsibility on the project's E&S requirements and will dedicate to the project: (1) E&S manager for the project, (2) environmental specialists, (2) Occupational and health and Safety specialists (OHS), (2) Social specialists.

Entity	Main roles and responsibilities	E&S staffing
	13- Prepare frequent E&S progress report for all the project 14- Prepare and implement E&S operation management plan for the project during operation	
Owner Representative for SA scope. Scope of the SA will include: the civil works such as viaducts, "industrial structures," and track foundations needed for subcomponents 2.1 and 2.3(a).	1- Provide GARB with ENR standards, requirements, obligations, specs including the E&S requirements of the project's E&S instruments including future ones. 2- Ensure compliance of all infrastructure works for subcomponent 2.1 and 2.3 (a) with the E&S National and ESF requirements. 3- Coordinate between ENR PMU/EAD, ESA and GARB for all E&S related aspects to subcomponent 2.1 and 2.3 4- Support in conducting consultation activities and share information with community members, as per the SEP and in collaboration with ENR. 5- Ensure that in case of land taking from land users, encroachers, tenants, or owners no civil works are happening on the ground without preparation and implementation of appropriate resettlement plans by ENR as per the RF 6- Ensure adequate integration of the site-specific E&S instruments including enforcement measures in case of poor performing contractor in the bidding documents /contracts of supervision firms and civil works contractors 7- Perform frequent monitoring and spot check visits to ensure compliance of the projects with the E&S requirements. 8- Ensure timely implementation of the site-specific E&S instruments. 9- Prepare frequent E&S progress report for subcomponent 2.1 and 2.3 (a) 10- Provide technical assistance and on the job training to ENR EAD as needed to ensure project compliance. 11- assist ENR in investigating any E&S incident and prepare Root cause analysis. 12- Prepare E&S progress report to ENR PMU/EAD	The owner Representative firm for the SA scope will include adequate number of experienced: - Environmental specialist(s) - social specialist(s), - Occupational and health and Safety specialist(s) (OHS), - Community Liaison Officer(s) (CLOs)
GARB	1- Prepare TORs, bidding/contracts for subcomponent 2.1 and 2.3 (a) and ensure integration of the E&S requirements in accordance with the project E&S instruments	GARB will dedicate adequate number of focal points for E&S issues

Entity	Main roles and responsibilities	E&S staffing
	2- Provide visible top management involvement in the E&S for all the project works 3- review and approve supervising firm progress reports 4- Ensure compliance of all the project components with the E&S National and ESF requirements. 5- Implement timely all the project instruments including ESCP, LMP, ESMF, SEP, ESIA, RF and any other instruments to be prepared	
Supervising firms including (firms to supervise component 2.1, 2.3 (a) Works Supervisor and integrator supervising firm/s for all superstructure.	1- Prepare all bidding/contracts of civil works under the component 2.1 and 2.3 (a) and ensure adequate integration of the site specific E&S instruments including enforcement measures in case of poor performing contractor 2- review and approve the Contractors' Environmental, Social and Health and Safety Management Plans in accordance with the CATLDP project E&S instruments. 3- Monitoring the implementation of the approved construction Environmental, Social and Health and Safety Management Plans during the entire duration of the execution of the Contract: 4- in the event of accidents or incidents resulting in serious injury or fatalities, investigate root causes of accidents and oversee implementation of Corrective action plans. 5- ensure that in case of land taking from land users, encroachers, tenants, or owners no civil works are happening on the ground without preparation and implementation of appropriate resettlement plans by ENR as per the RF 6- undertake liaison, from time to time and as necessary, with project stakeholders to identify and discuss any actual or potential ES issues 7- Works Supervisor and integrator to develop and implement an E&S capacity building plan for ENR EAD.	The supervising firms will allocate sufficient resources in accordance with the progress on the ground. At least every supervising firm will include minimum number of environmental, social and OHS specialists to cover their scope in a risk based approach.
Contractors for all infrastructure and superstructure.	1- prepare and implement the Contractors' Environmental, Social and Health and Safety Management Plans in accordance with the CATLDP project E&S instruments. 2- ensure compliance with the E&S requirements at all the times 3- provide training to workers and ensure adequate communication with the local	The supervising firms will allocate sufficient resources in accordance with the progress on the ground. At least every supervising firm will include minimum number

Entity	Main roles and responsibilities	E&S staffing
	communities in accordance with the SEP and site-specific E&S instruments 4- monitoring and reporting the project's E&S performance.	of environmental, social and OHS specialists to cover their scope in a risk based approach.

To minimize the project risks, including E&S risks, component 1 will finance hiring a firm to act as the owner's Works Supervisor and Integrator to manage and integrate the design and construction of industrial works financed by the MoT with local counterpart funds and works financed with loan proceeds in Component 2. Under this approach, this firm scope will include ensuring that all the E&S requirements in the project's instruments are well implemented on the ground and integrated in the contractual arrangements with the different contractors. The firm will have its own E&S team to integrate the ESF requirements in the bidding documents and supervise their implementation, while building capacity of ENR and GARB teams to be assigned under the PMU. The conducted assessments clearly revealed that the extended geographical scope of the project and the significance of the impacts are calling for constant presence on the ground for the E&S team of the firm. The firm team will include also an adequate number of community liaison officers (CLO). The firm team should be working closely with the E&S team under the PMU and EAD. In the meantime, logistical and resources challenges that are encountered by EAD need to be addressed by the project to allow for an improved and more motivating working environment for the E&S teams. Also, ENR will retrofit the signed agreement with GARB to include clear articles to follow relevant E&S requirements.

7.3 Monitoring

ENR's PMU will be responsible for overall monitoring of implementation of the project in compliance with ES safeguards according to defined indicators in the ESMP(s). Monitoring of contractor's implementation of the ESMP will be performed by ENR's environmental and social development officers.

7.4 Reporting

During the construction phase, the contractor/supervising firms will submit monthly reports to ENR's PMU.

During the operation phase, ENR environmental and social specialists will submit monthly monitoring reports to environmental and safety team leader at ENR.

7.5 Training, Capacity Building, and Raising awareness

Furthermore, considering that critical and significant impacts OHS and CHS are expected to be associated with works, capacity building needs are anticipated. Potential capacity building needs and training topics are described in Table 7-3

Table 7-3: Capacity Building and Training Topics for Implementation of WB ESS

Training/Capacity Building Topic	Targeted Entity	Trainer	Estimated cost of training (EGP)
ESMF, ESMP and Safety plans	ENR, private contractor	External consultant	25000/ 1 day
Safety Culture and Leadership with special topics on gender safety, accessibility and inclusiveness, COVID-19 prevention	Safety manager, team leads, specialists, EAD in ENR	External consultant	50000/ 2 days
Training of workers for use of PPE and construction site safety and emergency protocols.	Private contractor		25000/ 1 day
Public safety awareness campaigns and initiatives: - **safety around rail operations and crossings, particularly, for very crowded areas that some of the track's pass** - **prevention of COVID-19,** - **prevention of sexual harassment and sexual exploitation and abuse**	Public	ENR Safety specialists	Awareness booths on-site Brochure dissemination Digital platforms
During operation, Training on management of waste and clean-up of contamination along tracks, and site safety and emergency management, apart from the need to ensure good maintenance and waste management actions.	ENR	ENR Safety specialists and EAD	Operation cost

7.6 Environment and Social Instruments for Safeguarding ESS

The Project will require development and implementation of Environmental and Social (ES) Assessment instruments to comply with the ESF requirements. ES instruments, sub-management plans and other studies required for the Project were identified. The general description of each identified instrument is provided in the following table.

Table 7-4 Environmental and Social instruments and Other Studies proposed for the project

Environmental & Social instrument, sub-management plans, and other studies	Description of scope, objectives, and applicability
Air Quality Management Plan	The plan will include the adequate mitigation measures including but not limited to: ▪ Appropriate sitting and covering of stockpiles of friable materials with a suitable cover in addition to regularly spraying water so as to minimize dust blow ▪ Minimizing drop heights for material handling activities such as unloading of friable materials ▪ Keeping the roads damped via watering spraying to minimize dust from spraying as a result of vehicles moving ▪ Ensuring that vehicles travel on paved routes wherever possible ▪ Sheeting of lorries transporting friable construction materials ▪ Enforcing speed limits on unpaved roads to be <30 km/hr ▪ Implement preventive maintenance program for vehicles and equipment working on site and promptly repair vehicles with visible exhaust fume
Noise and Vibration Assessment and Management Plan	The report shall assess impacts due to dualization, include ambient level measurements, modeling of noise and vibration and identify mitigation measures such as noise barriers and associated specifications. The plan will include the adequate mitigation measures including but not limited to: ▪ Reduces workers' exposure times to noise and vibration, so that they do not exceed the safety limits stipulated in the Egyptian environmental law in addition to occupational safety and health standards ▪ Provide workers in areas of activities with high noise levels with earplugs ▪ The contractor must train all workers before starting construction work on the danger of noise and vibration; and how to avoid them ▪ Avoid construction work in the evening ▪ Restricting the movement of lorry cars to prevent noise and vibration in the early morning and late evening periods ▪ Control exposure to hand-arm vibration from equipment such as hand and power tools, or whole-body vibrations from surfaces on which the worker stands or sits, through choice of equipment, installation of vibration dampening pads or devices, and limiting the duration of exposure. ▪ All machines and vehicles must be stopped when not in use ▪ Communicate the construction schedule with neighboring communities and sensitive receptors

Occupational Health & safety Management Plan	**For construction Phase:** The plan will include the adequate mitigation measures including but not limited to: ▪ Ensure that all workers under both the contactors and the sub-contractors are covered by insurance against any potential accidents. ▪ Restricted entrance to all construction sites, where attendance sheets and copies of all workers at site are required. ▪ Training workers in personal track safety procedures and minimizing risk at construction site ▪ Coordination procedures with ENR to block/arrange train traffic on lines where works are occurring ("green zone working"), giving the contractor safe time to conduct the required works. ▪ Provide adequate signage to prevent accidental falling into open areas ▪ Fencing of the work areas Health and safety environment (HSE) ▪ There is posted material indicating the nearest police station and hospital (with accident and emergency facilities). ▪ The contractor must take reasonable steps to prevent unauthorized people accessing the site. ▪ procedures to address the following risks (injuries from minor to fatal, including train/worker accidents, rotating and moving equipment, electrical hazards, fire and explosions, eye hazards, noise and vibration, and fatigue including Struck by moving objects) ▪ Provide a first aid kits in different places of the work site with the appropriate number of materials given the number of workers on site. The locations of the first aid kits will be provided to all workers. ▪ Providing extinguishers on work site. ▪ Stop people smoking and prohibit using cell phones on work sites and do not allow other work activities involving potential ignition sources to take place nearby. ▪ Providing site boundaries by installing suitable physical boundaries (barriers, tape or fence). ▪ Marking excavation holes with physical boundaries (barriers, tape or fence) ▪ The contractor should put up barriers or covers in the area of openings and excavations. ▪ Store building materials (such as pipes, manhole rings, and cement bags) so that they cannot topple or roll over. ▪ Keep walkways and stairways free of tripping hazards such as trailing cables, building materials, and debris. ▪ Everyone who works on any site must have access to adequate toilet and washing facilities, a place for preparing and consuming refreshments, and an area for storing and drying clothing and personal protective equipment (PPE). ▪ Contractor to ensure appropriate PPE (personal protective equipment) is used by all workers on site for all activities, including the handling and disposal of hazardous waste, specific safety actions for work sites at river and water bodies. ▪ Contractor shall hire a certified Health & safety supervisor ▪ Materials and equipment are tidily stacked, protected and covered where necessary. Additionally, there is adequate space for new materials to be stored in secured covered areas to avoid damage, theft, and to protect these items from weather conditions. ▪ Scaffolding for work in elevated areas such as ceiling painting should comply with the OSHA "General Requirements for Scaffolds". ▪ Emergency response to respond to different risks including natural disasters ▪ Elimination of mobile phones or portable music devices when working in the danger zone (within 3 metres) of the railway

	▪ Slow speed for trains on adjacent line when working in double line section ▪ All construction sites and labor camps (if needed) will provide required amenities for workers. To avoid workplace health and safety issues including accidents and injuries, the Contractor OHS Plan will be prepared according to the World Bank General Environmental, Health and Safety Guidelines and the World Bank Environmental, Health and Safety Guideline for Railways, as well as other Good International Industry Practice (GIIP); and the project specific LMP. The OHS plan will incorporate lessons learned from previous projects, RISE and ENRRP fatalities including Stop Usage of any Motor-Bike on the project subcontracted and own activities; risk/job hazard assessment of all activities under the project; as well as strictly enforce and monitor the OHS plan for all the project activities whether it is done by the contractor or its subcontractors. The main implementing contractor shall pass the OHS procedures to all sub-contractors and provide occupational health and safety training to all employees engaged in work
	<u>For operation phase:</u> The plan will include the adequate mitigation measures including but not limited to: **Measures recommended to prevent, minimize, and control Train / Worker Accidents:** • Training workers in personal track safety procedures; • Blocking train traffic on lines where maintenance is occurring ("green zone working") or, if blocking the line is not feasible, use of an automatic warning system or, as a last resort, human lookouts; • Design and construction of rail lines with adequate clearance for workers; • Segregation of stabling, marshaling, and maintenance areas from the running lines. **Measures recommended to prevent, minimize, and control Noise and Vibration:** • Use of air conditioning systems to maintain cabin temperature and provide fresh air so that windows can remain closed, limiting wind and outside noise; • Reduction of internal venting of air brakes to a level that minimizes noise without compromising the crew's ability to judge brake operation; • Installation of active noise cancellation systems; • Use of personal protective equipment (PPE) if engineering controls are not feasible or adequate to reduce noise levels; • Use of dampers at the seat post to reduce the vibration experienced by the operator; • Installation of active vibration control systems for locomotive suspension, cabs, or seat posts, as needed to comply with applicable international and national standards and guidelines. **Measures recommended to prevent, minimize, and control workers' exposure to diesel exhaust:** • Limiting time locomotives are allowed to run indoors and use of pusher cars to move locomotives in and out of maintenance shops; • Ventilation of locomotive shops or other enclosed areas where diesel exhaust may accumulate; • Filtration of air in the train crew cabin; • Use of PPE where engineering controls are not sufficient to reduce contaminant exposure to acceptable levels **Measures recommended to prevent, minimize, and control Fatigue:**

	Railway operators should schedule rest periods at regular intervals and during night hours, to the extent feasible, to maximize the effectiveness of rest breaks, and in accordance with international standards and good practices for work time Measures recommended to prevent, minimize electrical hazard, include: • Workers exposed to electrical hazards from electrified railways should be trained in personal track safety. • Only workers who are specifically trained and competent in working with overhead • Lines and conductor rails should be allowed to approach these systems. **Occupational Electric and Magnetic Fields exposure should be prevented or minimized through the preparation and implementation of an EMF safety program including the following components:** • Establishment and identification of safety zones to differentiate between work areas with expected elevated EMF levels compared to those acceptable for public exposure, and limiting access to properly trained workers; • Implementation of an action plan to address potential or confirmed exposure levels that exceed reference occupational exposure levels developed by international organizations such as the International Commission on Non-Ionizing Radiation Protection (ICNIRP), and the Institute of Electrical and Electronics Engineers (IEEE). **Measures recommended for Diesel Storing tanks for power generators** • Avail water cooling sprayers on the outer surface of the diesel tank, to prevent the generation of diesel fumes specially at the hot weather conditions at upper Egypt. • An efficient firefighting system is a must.
Labor Management Procedures	The labor management procedures cover working conditions and management of worker relationships including code of conduct, terms and conditions of employment for all types of workers involved in the project, insurance coverage, measures for protecting the work force including prevention of child and forced labor, defines grievance mechanism for workers, assesses potential risks, defines policies and procedures and measures to manage occupational health and safety risks (e.g., Good Practice Guidelines), state guidelines on child labor and GBV prevention, special training plan beyond regular OHS practices such as use of PPE etc. LMP shall include a grievance mechanism that is accessible, transparent, and available for all workers to raise workplace concerns. The grievance mechanism should include the methods of reporting grievances, procedures to handle and resolve grievances promptly and efficiently, as well as communication and archival of grievances, In addition to the following measure: • Encourage employees to use the internal complaint mechanism: Encourage employees to raise concerns internally before they escalate to litigation. • Recognize that any adverse employment action, including demoting or failing to promote, may prompt litigation: It is important to understand that employees can complain of discrimination, even though they have not been terminated. Employers can reduce the risk of litigation by documenting the legitimate business reasons for all adverse employment decisions. • Create, enforce, and make available appropriate policies and procedures: Policies prohibiting discrimination, harassment and retaliation should provide employees with a mechanism for reporting any alleged acts. These policies should be made available to employees through

	handbooks and stand-alone policies that are distributed either individually or posted throughout the employer's office. When initially distributed, it is important that employers obtain and retain an acknowledgment form from each employee. • Train employees: Employees should attend diversity and non-discrimination training that focuses on the types of behaviors prohibited, including harassment and retaliation. Moreover supervisors should be trained in how to respond promptly and appropriately to complaints or questions regarding discrimination. • Respond to internal complaints promptly: A prompt and thorough response to an internal complaint is essential to a successful defense. Interviewing the complaining employee, the accused employee as well as any witnesses are mandatory steps once a complaint has been made. Employers should be careful to document every element of the investigation, including any findings, as both will ultimately be incorporated into a detailed investigation report.
Emergency response plans specific to prevention of COVID-19 transmission	Applicable to construction and operation of train stations, where large agglomeration of people can occur. Plan should be tailored to site conditions and workers characteristics, and based on guidance issued by relevant authorities, both national and international (e.g. WHO). These shall include but not limited to the following measures: - *Control the entry/exit to the work site;* - *Identify any workers with underlying health issues* - *Conduct temperature checks for all workers and record details of any worker that is denied entry;* - *Mask wearing* - *Ensuring general hygiene (hand washing facilities, soap, disposable paper towels and closed waste bins) are present in all key areas on site;* - *Take all necessary measures for proper isolation of affected areas and workers who have been in contact with infected persons (and infected persons) for 14 days* - *Review worker accommodation and assess suitability in light of the above;* - *Conduct regular and thorough cleaning of all site facilities, including offices, accommodation, canteens, common spaces and review cleaning protocols for key construction equipment;* - *Safely dispose of any medical waste produced during the care of ill workers in designated containers or bags and treated and disposed according to relevant requirements.*
Waste Management Plan (WMP), and Hazardous Waste and Material Management Plan (HAZMAT)	The plan will include the adequate mitigation measures including but not limited to: ▪ The contractor will obtain official permits from the local authorities for the disposal of wastes (construction wastes landfills, hazardous wastes landfills, etc.) prior to the commencement of construction activities

	▪ Wastes will be segregated and temporarily stored safely in the allocated areas for waste storage on the premises of the construction site in a way that doesn't cause further traffic disruption or contamination to local environment, and will be cleaned up, in case of spills or contamination. ▪ Wastes will be covered to avoid the pollution of the ambient air by dust dispersion ▪ Adequate trucks will be used for wastes transportation and the trucks will not be overloaded with waste volumes ▪ Consignments for waste disposal will be recorded in terms of weight, destination and responsible person ▪ Waste collection should occur daily and it should be transported to the approved and safe disposal locations via adequately equipped trucks. The supervisor has to make sure that this process occurs without any hazards or problems. ▪ This will be included in the Temporary Traffic Management Plan (TTMP) for vehicles travelling between construction sites and dump sites/quarries. **Non-hazardous (domestic) waste disposal** The proposed **Solid Waste Management Plan** for the safe disposal of domestic waste including but not limited to: ▪ The non-hazardous wastes (paper, garbage, wood and plastics) will be segregated and transported to the local disposal sites by the mean of the approved contractor ▪ The non-hazardous wastes will be transported off-site for recycling or final disposal by a licensed contractor and supervisor will be responsible for the disposal procedure and the conditions of the trucks ▪ This will be included in the Temporary Traffic Management Plan (TTMP) for vehicles travelling between construction sites and dump sites/quarries. **Old Dismantled Tracks disposal** ▪ The dismantled tracks are either: Maintained and reused by ENR at sub-rail road lines, or Sold by auctions/bidding as scrap. **Hazardous waste generation** The proposed **Hazardous Waste Management Plan** for the safe disposal of such waste including but not limited to: ▪ According to Article 33 of Law 4/1994, the contractor is required to keep up records and manifests in a register for the methods of waste disposal and the agencies contracted to receive such wastes ▪ Training to employees should incorporate information from Material Safety Data Sheets (MSDSs) for hazardous materials being handled. MSDSs should be readily accessible to employees in their local language ▪ Description of response activities in the event of a spill, release, or other chemical emergency should be incorporated ▪ Representatively test the wooden ties and Ballast to confirm their disposal/reuse techniques. ▪ Identify appropriate drainage management to minimize risk of contamination from oil, grease or any waste for the soil and surface or groundwater.

	<u>While hazardous waste generated from tracks upgrading / renewal</u> are old contaminated sleepers/ crossties which were coated by a hazardous benzo-pyrene and ballast contaminated with grease, both will be disposed to a hazardous waste landfill by specialized and approved contractor.
Community Health and Safety Management Plan	The plan will include the adequate mitigation measures including but not limited to: ▪ Information related to community health and safety to be shared regularly and systematically as per stakeholder engagement plan (SEP) ▪ Awareness raising campaigns should be tailored in cooperation with the community-based organization. Securely surround the trench with a solid fence when working adjacent to residential clusters or any area where children are suspected to be present. ▪ Job Hazard Analysis for all activities on site. An OHS plan/Manual for risk management specific to the site and the foreseen activities, and following the risk control hierarchy, should be submitted, reviewed and approved by the PMU (or Owner Engineer) prior to commencement of construction. ▪ The construction site to be fenced and guarded by security personnel in order to prevent any unauthorized access to the site ▪ In case of transporting heavy equipment, the nearby population should be notified in advance ▪ Develop and Implement a well communicated and accessible grievance mechanism for community members to address any complaints ▪ Plan to allow safe access of community to the burial site adjacent to the railway for Etihad – Tafaroa segment For Level Crossings Safety, the proposed mitigation measures are as follows: ▪ Working during the closure of shops, especially at night, in locations far from residential areas and near to level crossings, in order to avoid any accidents during construction near the level crossing; ▪ Installation of automatic gates at all level crossings, and regular inspection/maintenance to ensure proper operation; ▪ Avoiding working on market days, if any; ▪ Timely information sharing with shops and markets regarding any works that will be conducted near the level crossings, as needed. For Pedestrian Safety, the proposed mitigation measures are as follows: ▪ Posting of clear and prominent warning signage at potential points of entry to track areas (e.g., stations and level crossings); ▪ Installation of fencing or other barriers at station ends and other locations to prevent access to tracks by unauthorized persons; ▪ Local education, especially to young people, regarding the dangers of trespassing; ▪ Designing stations to ensure the authorized route is safe, clearly indicated, and easy to use; ▪ Use of closed-circuit television to monitor rail stations and other areas where trespassing occurs frequently, with a voice alarm system to deter trespassers.
Temporary Traffic Management Plan (TTMP)	The plan will include the adequate mitigation measures including but not limited to: Typically, there is a hierarchy of TTMPs – a Route Wide Traffic Management Plan, Local Area Plans and Site-Specific Plans. TTM plans will aim to minimize delays and reduce detours, ensure safe access, and protect railway and road assets. The TTMPs would also address access to and from

	the construction zones by minimizing road crossings by heavy plant, managing truck queuing, managing truck haul routes between construction sites, dump sites and quarries, and ensuring that construction timing and sequences do not adversely affect the road network and its environs. The TTMPs should: • use standardized base plans; • present data on estimated truck numbers – per hour and/or per day; • show on plan where truck holding areas are; • show that Non-Motorised Transport (NMT) – pedestrians, cyclists, carts, animal-drawn vehicles - are better catered for and protected; • focus on safety at level crossings and formal/informal track crossings – this is where confusion could arise if there are detours or temporary traffic signals deployed; there is a risk of trains colliding with vehicles and pedestrians. • It is assumed that truck loads are of normal size. If there is a need for any special provision for abnormal truck loads – extra wide, long or high – then this should be catered for and included in the TTMP. The institutional arrangements for the development and implementation of the TTMPs should be presented. Usually this is a top-down approach but with room for flexibility at a local level to meet contingencies. The **main contractor** prepares the TTMPs for: (1) the whole route or route section of the railway track; (2) each station; (3) each signaling tower; (4) trenching accesses; (5) level crossings and other pedestrian/vehicle crossing sites; and (6) designated truck routes to/from dump sites and quarries; The issue of hiring of trucks and recruitment of truck drivers should be examined. As can sometime be the case worldwide, trucks are typically individually owned or form part of a small fleet under a small contractor. If this is the case, ENR and its contractors will need to be able to manage this myriad of trucks and truck drivers in an efficient way. Truck management can be improved with the use of GPS, RFID or mobile phone applications. ENR could also consider the development of a Drivers' Information Pack on road safety to be handed out to all drivers. The use of Traffic Agents such as the Traffic Police should be examined. Such personnel can provide in-situ supervision of the TTMPs at construction sites and stations and be on-hand 24/7 to direct traffic, direct residents and answer their questions. There is scope to showcase this project and provide a learning archive by uploading a Learning Legacy online as other major rail projects (such as Crossrail and HS2 in the UK) have done. The contractor requires having a time management plan to manage and schedule the traffic movement for the construction materials, equipment in addition to transporting the debris to the landfill. In addition, the notification to the traffic department should be obtained and the time management plan should be approved prior to the construction activities. It is estimated that the overall additional traffic would have insignificant impacts on the level of service on the road. The following point present mitigation measures for the traffic impact:

	1. Informational signs should be posted at the construction zones before the commencement of any construction activities to inform drivers and ensure the safety of the roads 2. The contractors and the site supervisor should choose a location for temporary storage of construction materials, equipment, tools, wastes and machinery before construction so as not to cause further traffic disruptions due to routes blockages 3. Minimizing pedestrian interaction with construction vehicles. Pedestrian crossings can be provided if necessary 4. Construction work should be avoided at the traffic peak times whenever possible. 5. Uncontrolled off-road driving will be prohibited 6. Employing safe traffic control measures, including road signs and flag persons to warn of dangerous conditions 7. Regular maintenance of vehicles and use of manufacturer approved parts to minimize potentially serious accidents caused by equipment malfunction or premature failure. 8. Using locally sourced materials, whenever possible, to minimize transport distances. Locating associated facilities 9. Improving driving skills and requiring licensing of drivers 10. Adopting limits for trip duration and arranging driver rosters to avoid overtiredness 11. Avoiding dangerous routes and times of day to reduce the risk of accidents 12. Use of speed control devices (governors) on trucks, and remote monitoring of driver actions, if possible 13. Approval from the traffic department prior to construction should be obtained by the contractor prior to the construction preparation 14. The contractors should make sure that the employed drivers of construction machinery (such as trucks and loaders) have received sensitization/training on safety utilization of their machines in order to minimize accidents risks 15. Unusual traffic delays or accident caused during construction or any complaints received should be reported in the monthly report prepared by the construction supervisor.
Code of Conduct	stipulates the different commitment of labor towards community groups and peers/emplyees/managers, and the different behavior that should be avoided
Abbreviated Resettlement Plans/Resettlement Plans	The ARP/RP should include description of project objectives, components, identification of the project impact area, objectives and scope of the ARP/RP, description of policies and regulations, project impacts, alternatives considered to avoid or minimize resettlement; and mechanisms established to minimize resettlement, socio-economic characteristics, stakeholder consultation, eligibility criteria and entitlement policy matrix, institutional arrangements, grievance mechanism GM, monitoring and evaluation, Timetable and budget.
Checklist ESMP	The checklist ESMP defines key measures to mitigate impacts from works that are small, localized, and of short/temporary duration and of low significance. Key elements include description of activities, general mitigation and monitoring measures associated with activities covering air quality, noise and vibration, OHS (including PPE, implementing Code of conduct and special precautions to prevent spread of COVID-19, prevent GBV, and child labor), CHS. The checklist should be included in tendering documents.

Site-specific ESMP	The ESMP defines measures and associated actions to be implemented to eliminate or reduce (to acceptable levels) negative impacts on environmental and social receptors, defines monitoring measures including parameters and indicators for monitoring, frequency and responsible entities, requirements for third party verifications. The site specific ESMP will addresses, at a minimum, all preliminary negative impacts and risks of project activities on sensitive receptors associated with ESS2-ESS3-ESS4 in the ESMF. The ESMP should go beyond common impacts between stations and highlight any station specific features such as presence of informal markets etc. The ESMP shall also identify gender-sensitive indicators. ESMPs are to be included in tendering documents
ESIA	The ESIA identifies and assess the potential environmental and social impacts of a proposed project, evaluate alternatives, and design appropriate mitigation, management, and monitoring measures. Also, It will Sets out in detail the baseline data which is: • Relevant to decisions about project location, design, operation, or mitigation measures. This should include a discussion of the accuracy, reliability, and sources of the data as well as information about dates surrounding project identification, planning and implementation. • Identifies and estimates the extent and quality of available data, key data gaps, and uncertainties associated with predictions. • Based on current information, assesses the scope of the area to be studied and describes relevant physical, biological, and socioeconomic conditions, including any changes anticipated before the project commences. • Takes into account current and proposed development activities within the project area but not directly connected to the project.
Public awareness initiatives and campaigns on safety	Targeting safety from the user side. Public education on safety is essential to reduce accidents and incidents and improve safety. Communication methods may include on-site awareness booths, distribution of brochure, signage, and digital platforms. Public awareness campaigns and initiatives topics should include at a minimum: practicing safety at crossings, trespassing dangers, general safety in railroad surrounding, prevention of sexual harassment on public transit, awareness on needs of people having limited mobility (disabled, pregnant, seniors), prevention of COVID-19 measures

8 PUBLIC CONSULTATION AND ENGAGEMENT

The Stakeholder Engagement chapter aims at highlighting the key consultation and community engagement activities conducted and their outcomes. In addition to the procedures that must be taken into consideration when preparing the stakeholder engagement plan (SEP). The stakeholder engagement activities were conducted with reference to ESS10: Stakeholder Engagement and Information Disclosure.[28]

Various consultation and engagement activities were performed; the work teams recorded the different reactions of the community and the governmental stakeholders towards the proposed project.

In this chapter, results from the initial steps of the process, scoping session with stakeholder defined thus far on the ESMF, are presented. The consultation activities and findings of the ESMF will feed into the SEP, which is prepared separately.

8.1 Consultation Objectives

The purpose of stakeholder engagement and public consultation process is to ensure that all relevant stakeholders are aware of the project and have the opportunity to comment on issues of relevance to them. The objective is to develop and maintain avenues of communication between the Project owner and stakeholders in order to avoid and/or reduce negative impacts and enhancing benefits from the project. Consequently, consultations will be conducted with the local community and other relevant stakeholders to ascertain their priorities and recognize the effects associated with the project which may require management.

Stakeholder engagement is an inclusive process conducted throughout the project life cycle. Where properly designed and implemented, it supports the development of strong, constructive and responsive relationships that are important for successful management of a project's environmental and social risks. Stakeholder engagement is most effective when initiated at an early stage of the project development process, and is an integral part of early project decisions and the assessment, management and monitoring of the project's environmental and social risks and impacts.

Accordingly, this chapter describes the consultation activities that have been undertaken thus far. Future activities are listed in more detailed in the SEP.

Objectives of various consultation activities are summarized as follows:

- Define potential project stakeholders and suggest their possible project roles;
- Disseminate comprehensive information about the project to enable stakeholders to identify their concerns, needs, and recommendations;
- Listen to their comments, ideas and concerns and recording the same for follow up;
- Document stakeholder feedback and enhance the ESIA accordingly;

[28] http://pubdocs.worldbank.org/en/837721522762050108/Environmental-and-Social-Framework.pdf

- Identify the most effective outreach channels that support continuous dialogue with the community;
- Avoid any misconceptions about the project and properly manage expectations;
- Discuss potential resettlement plans and impacts of involuntary resettlement.

As a result, the key principles of effective engagement that guide stakeholder consultations and SEP include:

- Ensuring that all interactions are free of intimidation or coercion.
- Providing meaningful information in a format and language that is understandable and tailored to the needs of the target stakeholder group(s).
- Being inclusive in the representation of views, i.e. including different ages, genders, and incorporating vulnerable and/or minority groups.
- Respecting local traditions in the decision-making processes.
- Information should be easily accessible for stakeholders and be culturally appropriate; to allow the effective participation of those identified as minorities, disadvantaged or vulnerable groups.

8.2 Methodology and approach

- A train drive through along the line took place 11-18/04/2022 to select a random sample of passengers, and local residents and businesses around the stations.
- Field observations regarding density of passengers, condition of stations, and behavior of local residents were recorded and analyzed.
- A total of 79 catch interviews (68 males and 11 females, age 17-79 years) were conducted with passengers inside the train and local residents and businesses around the stations, including street vendors to better understand local perceptions, impacts, and mitigation measures.
- Two Key Informant Interviews were conducted with Head and 3 deputies of El Sadat Markaz (13/04/2022) and Head and 2 deputies of Badr Markaz and City (13/04/2022)
- Two Focus Group Discussions were conducted with representatives of civil society, local authorities, and local residents to closer assess main concerns, perceived impacts, and mitigation measures. The first in Sadat city on 16/04/22 (10 participants), and the second in Badr City on 18/04/22 (10 participants). Meetings were set up and conducted in respective city councils.
- Names and contact details of all respondents and participants are included in the log of consultation activities.
- Individual interviews and notes of FGDs were written up, compiled, and analyzed. Arabic excel data sheets for interviews and word files of meetings notes are available upon request.

8.3 Findings

8.3.1 Main findings of observation and catch interviews with passengers, local residents, and businesses around the stations

1. Land use around the stations

- Between El Manashy and El Qatta stations, there are no residential buildings close to the stations. The train passes between the Nile River from one side and a canal from the other side.
- There are small agricultural plots from each side of the track on the right-of-way of the track[29].

GPS satellite image taken during the drive through between El Manashy and El Qatta stations

2. Passengers' density

- Density of passengers along this line is moderate, especially for Bashteel El Mahata and El Galatma stations.
- Somme stations, e.g., Bashteel El Balad, Bartas, Nekla, and Kafr Dawood seem to have higher density.
- Other stations, e.g., El Kom El Ahmar, El Manashy, Zat El Kom, Berqash, and El Qatta have very low density.

3. General perceived problems/concerns

- Passengers complain that today, the line begins at Bashteel and not Ramsis or Imbaba like before.
- There are no regular bus stops in Bashteel station; therefore, passengers have to take a microbus for LE 5.
- Price of the train ticket to Bashteel is higher (LE 10 for train ticket plus LE 5 for microbus ticket) than the direct microbus ticket (LE 7) to Bashteel.
- Headway time is very long, it reaches up to one hour.
- The delay of rains might also exceed the hour.
- The condition of train wagons has deteriorated; and therefore, very old wagons had to be condemned. The train used to have ten new wagons in past which were reduced to eight; and today, the train consists of only five wagons.

4. Conditions of stations and platforms

[29] It was understood within the meeting with ENR property department (dated 14/04/22) that farmers pay a usufruct amount of LE 200 per karat per year.

- Some platforms in some stations are in a highly deteriorated condition.

El Qatta platform

- There is no real renovation for all of the stations, except for painting the façade of the station building.
- Most stations do not have waiting areas/facilities for passengers.
- Toilets are not functioning in many stations; there are new toilets, but not open for the public claiming that there are no workers to clean it.

5. Special problems related to specific stations

a) Owsseim station

- Owsseim station has accumulated belated electricity bills; therefore, after 18 00 pm, the electricity cuts off every day and passengers can not purchase tickets. Inside the train, the controller charges them for the ticket and the penalty of ascending into the train without a ticket.
- Because the electricity is cut off after sunset, the station is not safe and attracts drug addicts to the location.

b) EL Galatma station

- People from different ages throw stones on the train in the station.
- High accident rate on the train crossing point in the station.
- High crime rate in the station, for example mobile phones are stolen while passengers are talking over the phone from train windows.

c) Kafr Dawood station

- The ticketing officers in the station arrive to his desk few minutes before the departure of the train.
- Because the station is very dense with passengers, a lot of chaos happens at time of train departure from the station.

6. Perceived impacts of line dualization

In broad terms, all respondents have appreciated the dualization of El Manshy-Etay Baroud line. They believe the dualization will save a lot of time and improve density in some stations.

However, some negative impacts were stated as follows:

- Concern about raising the price of the ticket after dualization.
- Concern about potential land acquisition if lands are needed to establish the new line, especially that some lands were expropriated in front of Bashteel station to expand the Ring Road in this location.

Ring Road expansion works in front of Bashteel station

8.3.2 Main findings of KIIs and FGD with representatives of local residents and authorities in El Sadat Markaz and City

1. Use of the line

- Most people in the local community use the train, being the sole mean of transportation, to travel outside El Sadat City.
- Participants from Bashteel stated: *"we do not have any other means of transportation except this train line", "we are underprivileged due to lack of alternative transportation means".*

2. Problems with the current single line

- Previously the line was traveling until Ramsis and Imbaba which numerous means of transportation, e.g., public buses, metro lines, and microbuses which can go to any place in Egypt. Today, the line ends in Bashteel which lacks interconnecting means of transportation. This concern is confirmed and stressed by participants who have children studying in universities or institutes in Cairo, and who have to pay extra transportation cost to their children. This issue was believed to negatively affect the affordability of these families to send out their children to study in Cairo.
- Participants complained about stopping the line at Bashteel (instead of Ramsis and Imbaba) without having conducted a feasibility study. The main concern here is the extra cost people have to pay to move further from Bashteel, and also the lack of interconnecting means of transportation in Bashteel station. Most vulnerable groups identified here include: elderly and chronically sick people, especially those with cardiac problems.
- Trains are very slow and stop in many stations. Many of them confirmed the need of a quicker train line.
- Participants complained about ticketing officers in Kafr Dawood station who arrive few minutes (3-5) before the departure of the train. It was explained that this station is always very dense since it covers passengers from all over Monofeya Governorate. Waiting time on the tickets desk was reported to exceed half of an hour.

3. Perceived impacts

All participants in the group have appreciated very much the dualization of El Manshy-Etay Baroud line and believe that the dualization will reduce the delay of trains and also high density of passengers in some stations.

However, main negative impact revolves around the worry about any increase of ticket prices after the dualization. Most of them confirmed that the current price of tickets today is affordable, but they cannot afford more.

4. Proposed mitigation measures

- Control the price of tickets, since most passengers do not have other alternatives and most of them come from middle to low socio-economic standards.
- The section from Bashteel to Cairo and Giza (Ramsis and Imbaba) needs other interconnecting means of transportation (bus stops and metro stations) to arrive from Bashteel to down town. A special concern is for Bashteel-Ramsis where most services and offices are located.

- Improve and upgrade the roads to stations to ease the access to stations.
- Establish pedestrian bridges inside the stations to enable the movement from platform to the other.
- Develop train crossing points to minimize accidents around these locations.
- Maintain the stations, buildings, and platforms which are highly deteriorated in almost all stations; and establish decent and shaded waiting areas, lampposts, escalators, and decent toilets for males and females.
- Improve the train wagons which are highly deteriorated and unclean from inside.
- Capacitate employees at the stations and inside the train to better communicate with passengers, and also effectively monitor their performance with the public.
- Introduce electronic ticketing scheme to save time (since officers come very late to the station desk), and also activate sound notifications of train departure and arrival due times.
- Exempt elderly and women from standing long times on the ticketing desk ques.
- Introduce a bus line for “east and west Delta” (affiliated to the ministry of Transport) to enable travels to Alexandria, Marsa Matrouh, and other governorates.


FGD, El Sadat City, 16/04/2022

8.3.3 Main findings of KIIs and FGD with representatives of civil society, local residents, and local authorities in Badr Markaz and City

1. Use of the line

- There is one microbus stop/station, but local residents rely on first hand on the train, especially when traveling to Kom Hamada or Etay Baroud.

2. Problems with the current single line

- The train ends in Bashteel and this is reported to be a great problem because there is no enough transportation connections from there. It is requested to extend the train line at least Imbaba.
- Constant delay in trains.
- The total cost to travel to Cairo is very high; many families have children who study in Cairo and use the train daily to Bashteel and then take other connections to reach their destination in Cairo. The price of the ticket increased from LE 2.5 to LE 15; in addition to the cost of the microbus from Bashteel which reaches LE 30 (total one-way cost of approx. LE 45).
- The cost and physical effort to travel to Cairo became very high and difficult for many people, especially for elderly and women.
- The train is very slow and stops in many stations along the route; there is another quicker train (Cairo-Marsa Matrouh), but it does not stop in Modoreyet El Tahrir station (a Markaz), it stops only in Kom Hamada station (a village). The destination from the village (Kom Hamada) is 3 km far.
- Modereyet El Tahrir station is very dense, because it includes all passengers from and to El Monofeya Governorate. It was explained that the crossing point 77/900 on El Manashy line serves more than 40 million passengers and connects El Berigat and Modoreyet El Tahrir stations; it also connects Badr Markaz and Kom Hamada, and Monofeya and Behaira governorates.
- Passengers who are traveling to Upper Egypt have to take a train and book the ticket from Ramsis station; there is no possibility to get the ticket to Upper Egypt from Modoreyet El Tahrir station.
- Ticketing officers come very late (5 minutes before the departure of the train) to the ticket desk in the station. Therefore, passengers ascend into the train without having a ticket and pay the cost of the ticket and penalty to the controller inside the train.

3. Perceived impacts

All participants acknowledged the dualization of the line, because it will save time for all passengers and minimize the high density in the station. They also confirmed that the dualization was always an urgent request. None of the participants mentioned any negative impact in regard to line dualization.

4. Proposed mitigation measures

- Improve and “legalize” train crossing points based on feasibility studies, and if not, introduce bridges and tunnels in the right-of way which is very wide in this location. It was explained that the current crossing point is not legal and was established by local residents (including

signalling and hiring a guard) to minimize crossing accidents; and therefore, it closes every now and then. It was also explained that guards in the previous and following station communicate with the guard of Modoreyet El Tahrir through mobile call rather than formal means of communication.

- Upgrade and improve stations who are all in deteriorated conditions. Participants stressed on "real" upgrade, not only painting the façade of the station building.
- Dualize freight and passengers' line.
- Provide more interconnecting means of transportation in Bashteel, and a metro station as well.


FGD, Badr City, 18/04/2022

8.3.4 Interview with Monshaat El Qanater Markaz and City and FGD with representatives of Civil Society

Stakeholder	- Local authority of Monshaat El Qanater Markaz and City - Representatives of civil society
Date of meeting	14/04/2022
Place of meeting	Premises of Markaz and City
Participants	- ENR - Integral - Head of Monshaat El Qanater Markaz and City - Deputy Head of Monshaat El Qanater Markaz and City - Representatives of civil society
NOTE	*Consultation covers the new line El Manashy-October (2.1) and the dualization of Bashteel-Etay El Baroud (2.3) since Monshaeet El Qanater is involved in both subcomponents*

FGD with local authority and representatives of civil society, Monshaeet El Qanater Markaz and City, 14/04/2022

Topic	Response
Problems with current line Bashteel- Etihad	- High density of passengers - Deteriorated passengers' wagons - Bad behavior of people who throw the trains with stones all the time - The termination of Bashteel-Ramsis stations
Perceived positive impacts related to the new line (2.1)	The line will interconnect the industrial area in October City and the planned Logistical Area on El Dabaa Corridor, as well as new development projects, e.g., Mostakbal Masr and Gannet Masr.
Perceived negative impacts related to the new line (2.1)	- Acquisition of lands for the new line, especially in Manashy which includes agricultural lands affiliated to the Reconstruction Authority and the Agricultural Reform Authority. - Ownership of agricultural lands and supervising authorities could not be definitely/precisely confirmed during the meeting
Proposed mitigation measures	- Engage with local authorities responsible with lands subject to potential acquisition, e.g., Reconstruction Authority, Agricultural Reform Authority, and New Sphinx Authority.

Stakeholders to be considered for the new line (2.1)	- Reconstruction Authority - Agricultural Reform Authority - New Sphinx Authority New Sphinx City is established under the New Urban Communities Authority NUCA upon the ministerial decree issued on 01/11/2020 with a total area of about 76931 feddans. Sphinx City is extended over ten kilometers on Cairo-Alexandria Desert Road (from kilo 48 to kilo 58), and is bordered by Sheikh Zayed, Solimaneya, Sodic, the Regional Ring Road, and Dabaa Corridor from the North; and Sphinx International Airport from the South. Today, there are some existing residential compounds, e.g., El Solimaneya, Wadi El Nakheel, and Ofoq. Current population is estimated at 41,477 per capita with a planned capacity to absorb a total of 1,300,000 per capita in the coming years. The premises of the New Sphinx Authority has been recently established on Cairo-Alexandria Desert Road (kilo 55); and a huge commercial complex (Hyper One) was also erected close to Solimaneya Compound to serve local residents in the area. The main strategic plan of the city is to include many facilities and amenities, e.g., various residential complexes, an industrial area in the south west of the city, 24 service complexes, regional parks overlooking El Dabaa corridor, agricultural development lands around the city, a cultural area which includes various activities (tourism, entertainment, cultural heritage, media production, and Simbel Theater), water and wastewater plants, electricity generation stations, and an air control tower.
Additional comments	All participants in the group requested to add passengers' wagons to the freight line Manashy-October to transport workers and employees to and from the industrial area in October City.

8.3.5 Main Findings from Public Consultation

The Public Consultation held on May 10th 2022 at Egyptian National Railways confirmed the objection and rejection of the optimal proposed route for segment 1 under sub-component 2.1. Accordingly, options include optimization of some sections of the route bordering both private developers lands, return of land to selling entity (NUCA) with additional costs incurred relating to interest rates, and any spending thus far by the developer, or reaching an agreement with the developers. The ESIA will need to be updated.

9 Annex I: National legal framework

The following is an explanation of the various national laws, regulations and framework related to the proposed project.

9.1 The Egyptian Environmental Law No.4 of Year 1994

The main legal framework for environmental issues is Law No. 4 of 1994 and amended by Law No. 9 of 2009 and Law 105 of 2015 and its implementing regulations amended by Resolution 1095 of 2011 and then Resolution 710 of 2012 and Resolution 964 of 2015 known as the Environmental Protection Law and Decree No. 618 of 2017. The Egyptian Environmental Affairs Agency (EEAA) was established by Prime Minister Decree No. 631 of 1982 to be the administrative body responsible for environmental affairs in Egypt. Law 4/1994 states that EEAA is the body responsible for environmental affairs.

In accordance with Article 19 of Law 4 of 1994, the entity responsible for a particular project must undertake an environmental impact assessment study for any new project and for extensions and renovations of existing projects to assess the impacts of the project on the natural and social environment prior to project implementation. The results of this assessment are submitted for review by the EEAA before other government agencies issue licenses Project execution. The law considers the ESIA as a main condition for licensing and thus the project that does not prepare an ESIA or does not abide by the ESIA conditions could be subjected to its license revoke (Articles 10, 12 and 19 of the executive regulations of Law 4/1994, modified by the decree 1741/2005.

The articles (19, 20, 21, 22, 23, 34, 70, 71, and 73) of Law no. 4 of 1994 stipulate measures and procedures related to the preparation of the ESIA. These are further clarified by the provisions of articles no. (10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 34, 57, 59, and 60) of the Executive Regulations issued by the Prime Minister's Decree No. 338 of 1995, modified by decree no 1741/2005.

The Egyptian Environmental Affairs Agency (EEAA) is the governmental entity responsible for the management of environmental issues. The Egyptian law defines three main roles of EEAA:

- Organizing and coordinating most activities in addition to the executive role in the management of nature reserves and pilot projects
- The Authority is responsible for formulating the environmental management policy, developing the implementation plans necessary to preserve the environment, and following up its implementation in cooperation with the competent administrative authorities
- Reviewing and approving environmental and social impact assessment studies

The Environmental Management Unit at Governorate and District level (EMU) is responsible for the environmental performance of all projects/facilities within the governorate's premises. The governorate has established environmental management units at both the governorate and city/district level. The EMU is responsible for the protection of the environment within the governorate boundaries and are mandated to undertake both environmental planning and operation-oriented activities. The environmental management unit is mandated to:

- Follow-up on the environmental performance of the projects within the governorate during both construction and operation phases to ensure that the project abides by laws and regulations as well as mitigation measures included in its ESIA approval

- Investigate any environmental complaint filed against projects within the governorate
- The EMU are affiliated administratively to the governorate yet are technically affiliated to EEAA
- The governorate has a solid waste management unit at the governorate and district level. The units are responsible for the supervision of solid waste management contracts

The Competent Administrative Authority (CAA) is the entity responsible for issuing licenses for projects construction and operation. The ESIA is considered one of the requirements of licensing. The CAAs is thus responsible for receiving the ESIA forms of studies, check the information included in the documents concerning the location, suitability of the location to the project activity and ensure that the activity does not contradict with the surrounding activities and that the location does not contradict with the ministerial decrees related to the activity. The CAA forwards the documents to EEAA for review. They are the main interface with the project proponents in the ESIA system. The CAA is mandated to:

- Provide technical assistance to Project Proponents
- Ensure the approval of the Project Site
- Receive ESIA Documents and forward it to EEAA
- Follow-up the implementation of the ESIA requirements during post construction field investigation (before the operation license)

After submission of the ESIA for review, the EEAA may request clarifications in the ESIA report within 30 days, including additional mitigation measures, before issuing the approval of the report. The project proponent will have the right to issue an appeal within 30 days from its receipt of the EEAA's decision. It should be noted that once the ESIA has been approved, the ESMP as will be presented in the report, will be considered an integral part of the project; and the proponent will be legally responsible for the implementation of that plan, depending on their involvement in construction or operation.

9.1.1 Environmental and Social Impact Assessment (ESIA)

The EEAA issued, in 2009, sector-specific Guidelines for ESIA preparation. The objective of the guidelines is to:

- Describe the objective of the ESIA process and its legal requirements
- Identify the projects for which ESIAs are required
- Indicate the criteria for classification and the different levels of assessment
- Describe the requirements for ESIA of different categories
- Describe the requirements for public consultation

In accordance with these guidelines, the projects are classified according to four categories based on the severity of the potential environmental impacts and place of residence of the establishment and its proximity to the residential areas:

Category (A): Projects with low environmental impacts, category (B): projects with potentially negative environmental impacts but less than category (C), category (B-Scoped): with substantial negative environmental impacts but less than category and category (C): projects with significant negative impacts and this category is required to prepare a full ESIA study.

Based on these categories, the **CAIRO ALEXANDRIA TRADE LOGISTICS DEVELOPMENT PROJECT** is classified as scoped "B" defined by Egyptian requirements. The following procedures will be followed to fulfil the requirements of the study:

- The developer/operator (ENR) shall submit a letter to the competent administrative authority or to the licensing authority explaining the nature and activity of the proposed project, which has been classified as a "scoped B" project. The developer will also attach three printed copies and one electronic copy of the ESIA study on the project in accordance with the General Principles and Guidelines by EEAA
- The competent administrative authority (MoT) shall record the documents and verify whether the classification is correct and whether the information contained in the ESIA conforms to the information required in accordance with relevant sector guidelines
- The competent administrative authority shall examine the documents and submit the application formally to the EEAA for review and evaluation
- EEAA shall evaluate the documents and submit to the competent administrative authority its opinion and possible proposals for measures to be taken to ensure the protection of the environment within 30 days of the EEAA receiving the ESIA study. Failure to do so is considered as approval of the evaluation
- EEAA records documents, proposals and records its opinion on ESIA
- The competent administrative authority shall formally notify the developer (the project owner) of the result of the evaluation with a registered letter with acknowledgment of receipt

The competent administrative authorities are responsible for receiving the study and reviewing the data contained therein regarding the site and its suitability to the nature of the project and its commitment to the ministerial decision on the activity and ensuring that the activity does not conflict with neighboring activities. Then the administrative entity is to send the study to the Environmental Affairs Agency for review. The administrative entity, which is responsible for dealing with the sponsors of the project, is charged with the following:

- Provide technical support to project providers
- Ensure the approval of the project site
- Receive environmental and social impact assessment studies and send them to EEAA
- Follow up the implementation of environmental and social impact requirements through field visits during the construction phase and before the operating license

After the ESIA study is submitted for review, the EEAA may request amendments to the study within a period of 30 days, including additional mitigation measures, before the final approval of the report is issued. The applicant can submit an appeal within 30 days of obtaining the EEAA decision. Once the environmental and social impact assessment has been approved, the environmental and social monitoring plan presented in the report is considered an integral part of the project and the project-based company is committed to implementing this plan, depending on its involvement in the construction and operation phases.

9.1.2 Environmental Register

In accordance with Articles 22 and 23 of Law 4/1994, the developer/operator, as the owner of the project, will keep a written record of the impact of the project activity on the environment (environmental register) according to the model set forth in Annex 3 of the executive regulations of the law. Articles 17 and 18 of the Implementing Regulations that define the rules for the preparation of the environmental register as well as the time frame of the obligation of the entity to maintain it and the data to be entered therein.

- Emissions from or discharged from the facility
- Safety procedures and environmental monitoring applied in the facility
- Tests, periodic measurements, number of samples, timing and place of withdrawal, measurements, analysis and results
- Appoint a person responsible for review and follow-up

9.1.3 Environmental Protection Regulations for Air Pollution

In accordance with the provisions of Articles 34 to 40, 42, 43 and 47 in Law 4/1994, amended by Law 9/2009, Article 42 and Annex 5 and 6 of the Implementing Regulations.

Air Emissions

During the construction and operation phases of the proposed project, emissions in the area (including the proposed project) will not exceed the maximum allowable limits of ambient air pollutants as shown in Table 9-1.

Table 9-1 Maximum Limits of Outdoor Air Pollutants (Annex 5 of the Executive Regulations amended in 2012)

Pollutant	Location Area	Maximum Limit [µg/m^3]			
		1hour	8hours	24hours	1Year
Sulphur Dioxide	Urban	300		125	50
	Industrial	350		150	60
Carbon Monoxide	Urban	30	10	-	-
	Industrial	mg/m^3	mg/m^3	-	-
Nitrogen Dioxide	Urban	300	-	150	60
	Industrial	300	-	150	80
Ozone	Urban	180	120	-	-
	Industrial	180	120	-	-
Total Suspended Particles (TSP)	Urban	-	-	230	125
	Industrial	-	-	230	125
Particulate Matter less than 10 µm (PM_{10})	Urban	-	-	150	70
	Industrial	-	-	150	70
Particulate Matter less than 25 µm ($PM_{2.5}$)	Urban	-	-	80	50
	Industrial	-	-	80	50
Suspended Particles Measured as Black Smokes	Urban	-	-	150	60
	Industrial	-	-	150	60
Lead	Urban	-	-	-	0.5
	Industrial	-	-	-	1.0
Ammonia (NH_3)	Urban	-	-	120	-
	Industrial	-	-	120	-

Appendix (6) of the amended executive regulations includes the following decisions: 1095 for 2011, 710 for 2012 and 964 for the year 2015 on the permissible limits for emissions of air pollutants from different sources.

Table 9-2 Maximum allowable emissions from vehicles that operate using gasoline fuel (Table 23 of Annex 6 of the Executive Regulations amended in 2012)

Before the year 2003	From 2003 to 2009	Year 2010 and later

Pollutants	Hydrocarbons HC (ppm)	CO%	HC (ppm)	CO%	HC (ppm)	CO%
Maximum allowable Limit	600	4	300	1.5	200	1.2

Measurements should be done at the idle speed from 600 to 900 rpm.

Table 9-3 Maximum allowable emissions from vehicles that operate using diesel fuel (Table 24 of Annex 6 of the Executive Regulations amended in 2012)

Manufacturing Year (model)	Before the year 2003	From 2003 and later
Smoke density factor K (m^{-1})	2.8	2.65

Measurements are done in accordance with the ISO-11614 international standard.

According to Article 43 of the Law, the owner of an establishment is held to take all precautions and procedures necessary to prevent the leakage or emission of air pollutants inside the work premises except within the permissible limits as defined by the executive regulations of this Law, whether they result from the nature of the establishment activities or from malfunctioning equipment. Table 9-4 provides the maximum (permissible) limits for air pollutants inside workplaces per industry types.

Table 9-4 Maximum permissible limits for air pollutants

Measurement parameter (unit)	SO_2 (ppm)	H_2S (ppm)	NO_x (ppm)	CO (ppm)	CO_2 (ppm)	Smoke ($\mu g/m^3$)
Max. Permissible Limit inside the working environment	2	10	3	25	5000	-
Max. Permissible Limit in the ambient air (1 hour)	300 $\mu g/m^3$	-	300 $\mu g/m^3$	30 $\mu g/m^3$	-	150 $\mu g/m^3$ (24-hour)

Noise

Article 42 of the environmental law states that during the construction and operation phases of the project, the resulting noise levels must not exceed the sound intensity levels given by Table 3 of Appendix 7 of the Executive Regulations when carrying out production, service or other activities, particularly when operating machinery and equipment or using sirens and loudspeakers. The table lists the maximum permissible noise level limits according to area type as per the following designation:

- Sensitive areas to noise exposure
- Residential suburbs with low traffic flow
- Commercial and administrative areas in city center
- Residential areas with some workshops, administrative activities, or recreational and entertainment activities overlooking public roads less than 12 meters
- Areas overlooking public roads more than or equal 12 meters, or industrial areas with light industries
- Industrial Zone with heavy industries

The applicable maximum noise level for the project activities are shown in Table 9-5.

Table 9-5 Maximum permissible noise level limits for the project area (from Annex 7 of the Executive Regulations, Table 3)

AREA TYPE	MAXIMUM PERMISSIBLE EQUIVALENT NOISE LEVEL [dB(A_{eq})]

	Day 7 AM – 10 PM	Night 10 PM – 7 AM
Areas overlooking public roads more than or equal 12 meters, or industrial areas with light industries	70	60

9.1.4 Solid waste Management

In general, the law prohibits the disposal of any solid wastes except in areas designated for this purpose through article 37, and articles 38, 39 and 41 of the executive regulations which require that during excavation, construction or demolition activities, the entity undertaking the work must take the necessary precautions to safely store and transport the resulting wastes in accordance with the set procedure.

Regarding the hazardous wastes, and in accordance with the provisions of articles 29 to 33 of law 4/1994 which is equivalent to law 9/2009 and articles 28, 31 and 33 of the executive regulations, the entity producing hazardous wastes in gaseous, liquid or solid form is committed to collect and transport the generated waste to designated disposal sites which are predetermined by the local authorities, the competent administrative authorities and the Egyptian Environmental Affairs Agency.

The hazardous waste should be collected in specific locations with clear warning signs and oral or written instructions for safety conditions that prevent the occurrence of any damage generally or to people who get exposed to it. Additionally, the workers should be trained on proper handling procedure.

The transportation vehicles used to transport hazardous waste should belong to licensed entities that manage hazardous waste and follows the guidelines included in the executive regulations.

9.2 Other Egyptian Environmental and Social Laws Applicable

Egyptian environmental law covers many aspects, such as air quality, water quality, noise, solid waste management and occupational safety and health. Each of these aspects and permissible limits will be discussed according to their applicability to the project. The governing laws applicable to the scope of this evaluation are:

Environmental framework:

1. Law No. 38 of 1967 (the Public Cleanliness Law) and its executive regulations issued by the Ministry of Housing dealing with solid waste
2. Law No. 202 of 2020 for solid waste management
3. Law No. 48 of year 1982 on the Nile River, waterways and its executive amendment
4. Law No. 93 of 1962 on industrial wastewater disposal on domestic wastewater network and its implementing regulations
5. Law No. 102 of 1983 regarding the nature reserves, and its complementary decrees in preservation of rare and endangered wild animals

Social framework:

1. Law No. 117 of 1983 Amended by Law No. 12 of 1991 for the Protection of Archaeological Areas and Cultural Heritage

2. The Egyptian Constitution has preserved the right of private property, Egyptian Constitution (1971, amended in year 1980) and Egyptian Constitution (2014, articles 33 and 35). The Egyptian Civil code 131/1948, articles 802-805 recognize private ownership right and stipulates that the owner of a certain property has the sole right of using and/or disposing his property.
3. Property expropriation for public benefit is indicated by Law No. 10 of year 1990 and its amendments by law No. 187/2020, No. 24 for the year 2018, and law No. 1 for the year 2015. All laws regulating land acquisition will be applied to this project's scope of work, In case that the project needs lands outside the ENR property.
4. Article 306 (a, b) of the Penal low 2018 provides the punishment for harassment, whether verbal or physical.
5. Law No. 137 of 1981 (Labor Law) amended by Decree 12 of 2003 and known as the Unified Labor Law
6. Labor Law and the Social Insurance and Pensions Law-Decree no. 168/2007 and its amendment no.162/2019, which originally referred to article No.26 of Labor Law 12 of the year 2003
7. Law No. 148 of 2019 on social insurance pension system. The new unified program covers 26 categories of workers, including public- and private-sector employees, civil servants, and self-employed persons
8. EEAA ESIA guidelines related to the Public Consultation. Paragraph 6.4.3 of EEAA EIA guidelines provides detailed information about the scope of public consultation, methodology and documentation thereof.
9. Law no. 94/2003, Protection of communities Human Rights Law. The Law on Establishing the National Council for Human Rights (NCHR) aims to promote, ensure respect, set values, raise awareness and ensure observance of human rights. At the forefront of these rights and freedoms are the right to life and security of individuals, freedom of belief and expression, the right to private property, the right to resort to courts of law, and the right to fair investigation and trial when charged with an offence.
10. Law No. 48 of 1978: it regulates employment in the civil sector
11. Law No. 18 of 2015 concerning the Civil Service: It regulates public sector employment including working conditions for civil servants; setting the retirement age for the sector; and setting out the wage structure for civil servants. It is the most recent law on Egypt's civil service, and its scope is assumed to be similar to Law No. 48 of 1978.
12. Child Law no. 12 of 1996, amended by Law no. 126 of 2008 and it executive regulation issued by decree no. 2075 of 2010. The Child Law is a general law for the protection of the rights of the child, introduced a number of amendments increasing the minimum age for children employment.
13. Decree No. 113 of 2003 regulates preparatory and complementary work which needs to be finished by workers before or after the end of work. Its scope is not specified in the law, however, since it is an executive decree of the Labor Law it is likely to have the same scope.
14. Decree 115 of 2003 determines the works that are intermittent by their nature and in which the worker may stay at the place of work more than 10 hours a day but maximum 12 hours a day. It covers work that is deemed intermittent by nature, including certain types of farming, transport (including land, air and water), port work and shipping.

15. Decree No. 118 of 2003 concerning the employment of children in hazardous work. It sets forth list of jobs for which children under the age of 18 shall not be employed. It does not exclude specific sectors as a whole or specific types of employment.
16. Law No. 83 of 2002 on Economic Zones of a Special Nature regulates employment relations, organization, and management in Economic Zones of a Special Nature. It sets out that in these zones, foreign nationals may only account for 25% of a firm's workforce.
17. The Law on the Rights of Persons with Disabilities of 2018 regulates the social protection, training and the right to work of people with disabilities. Its specific scope is unclear.
18. Social Security Law No. 79/1975, as amended, and its executive regulations;
19. Law No. 203 for the year 1991, addressing special requirements for employees working in the public commercial (business) sector of the State;
20. Child Law No 126 of 2008.
21. Laws relating to prohibition of GBV (SEA-SH): Presidential Decree No. 50 of 2014, its amendments in 2017; and recent amendment to law 141/2021 carried out in August 2021 amending some articles of the 58/1937 Penal Law, to increase the penalty for sexual harassment, including sexploitation.
22. Law no. 152 of year 1980 and it amendments by law no. 144 for year 2020 regarding the railway RoW

9.2.1 Public Cleanliness Law Number 38/1967

Law 38 for the year 1967 amended by law 31/1976 and its Executive Regulations issued by decree 134/1968 prohibit the dumping of solid wastes in any location other than those designated by the municipal authorities. This includes solid waste treatment and disposal, in addition to the temporary storage in undesignated containers. Article 1 of the Ministry of Housing and Utilities decree 134/1968 defines solid waste as any waste generated by persons, residential units, non-residential constructions such as commercial establishments, camps, animal cages, slaughterhouses, markets, public spaces, parks, and transportation methods.

The Public Cleanliness Law and its Executive Regulations requires the municipal authority responsible for public cleanliness or the contracted entity assigned by it for the collection, transportation, and disposal of solid wastes, to carry out these processes in accordance with the specifications stipulated in the Executive Regulations and any other regulations by the municipal authority.

9.2.2 Law No. 202 /2020 and its executive regulation

Article (15): The generator or holder of waste may take all necessary and necessary measures related to the waste management hierarchy, in order to achieve the following:

- Reducing waste generation
- Promote reuse
- Working to ensure recycling, treatment and final disposal of waste.
- Waste management in a way that reduces harm to public health and the environment.
- The executive regulations of this law specify the other measures that the generator or owner of waste must take.

Article (16): The generator or holder of waste shall bear the cost of integrated waste management in a healthy and environmentally safe manner, as determined by the executive regulations of this law.

Article (20): Open burning of residues is prohibited

Article (31): The agency supervises the organization and planning of integrated municipal waste management processes and prepares forms for the terms and specifications for implementing integrated municipal waste management services, and the ministries and competent authorities should assist the agency in doing so.
The New Urban Communities Authority shall provide the required financial resources to ensure the implementation of integrated management services for municipal waste in urban communities in accordance with the terms and specifications set by the agency, and are defined as contained in the executive regulations of this law.
The competent administrative authority shall be the body responsible for the procedures of offering and contracting for the implementation of integrated municipal waste management services and monitoring the implementation of the contract, and the offering is carried out according to the terms and specifications booklets prepared by the agency.
And the provision of integrated management services for municipal waste through the entities that contract with the competent administrative authority.
In the event that the Prime Minister approves upon a request from the competent administrative authority and a proposal from the competent minister, the competent administrative authority may implement any of the services of integrated municipal waste management as stipulated in Article (22) of this law.
Article (33): Ownership of municipal waste shall be vested in the competent administrative authority as soon as the owner has abandoned it in the places designated for this or once it is delivered to the persons authorized to do so, unless the contracts between the competent administrative authority and any other body to provide any of the integrated management services for municipal waste otherwise stipulate

It is not permissible for the owner of municipal waste to abandon it or deliver it except in the designated places or to the persons authorized to do so.

Article (34): The integrated waste management units of the municipality in the competent authority in the governorates, centers, cities, neighborhoods, villages, and agencies of new urban communities, by themselves or by others, shall collect a monthly fee for the services they provide for the integrated waste management or one of these services, from the built units and space lands that are subject to the provisions of this law. According to the classification of the following categories:

- From two to four pounds per month for residential units.
- From thirty pounds to one hundred pounds per month for independent commercial units, and units used as headquarters for self-employment and professional activities.
- Not exceeding five thousand pounds per month for governmental establishments, public bodies, public sector companies, public business sector, hospitals, health care facilities, and private educational establishments.
- Not exceeding twenty thousand pounds per month for commercial, industrial and tourism establishments, space lands utilized for commercial activities, companies and

administrative buildings belonging to the private sector, commercial centers, hotels and sports facilities, and similar establishments or activities.

- And worship places are exempt from the performance of this fee.
- Micro enterprises shall be exempt from half of the fees prescribed in this article.

The controls and categories of this fee shall be determined by a decision from the Prime Minister after the approval of the Council of Ministers based on a proposal from the concerned minister, and these categories may be increased every two years with the same tool at the rate of (10%), provided that the total of this increase does not exceed twice the limit of the maximum limit for each category

This fee is collected by electronic payment or in cash by the units of the integrated management of municipal waste in the competent authority or the bodies of the new urban communities, or from a warning in the public or private sector or state agencies.

The obligation to pay the aforementioned fee is without prejudice to special contracts, agreements or protocols that may be concluded by the establishments indicated in clauses (3,4) of the first paragraph of this article regarding municipal waste management services.

The competent local units in the governorates and the new urban community agencies shall establish offices to receive complaints from citizens in the event that they are affected by failure to abide by the provisions of this law and to take necessary action in this regard.

The executive regulations of this law determine the standards and controls necessary for the implementation of this article, including the basis for determining the parties obligated to pay these fees.

Article (38): Municipal waste is prohibited to be dumped, sorted, or treated except in designated places in accordance with the procedures specified by the executive regulations of this law.

Article (53): The Agency shall establish a technical committee from the competent administrative authorities for hazardous materials and wastes, which is concerned with developing, issuing and reviewing the unified lists of hazardous materials and wastes, setting controls and requirements for handling and the integrated management of hazardous materials and waste and determining the method of limiting their generation. The committee shall have a technical secretariat with experience, and the executive regulations of this law determine the formation of the committee, its jurisdiction and its system of work.

Article (55): It is prohibited to handle hazardous materials and wastes except after obtaining the approval of the agency with a license from the competent administrative authority. It is prohibited for persons licensed to handle hazardous materials or waste to abandon them or deliver them except in designated places or persons authorized to do so.

Article (56): Those in charge of the production or management of hazardous materials and wastes, whether in their gaseous, liquid or solid state, are obligated to take all precautions specified by the Agency and the Committee referred to in Article (53) of this Law to ensure that no damage occurs to the environment.

The owner of the facility or the person in charge of its departments whose activities result in hazardous waste in accordance with the provisions of this law must keep a record of these wastes and how to dispose of them, as well as the contracting agency for any management process for these wastes.

The owner of the facility or the person responsible for its management that generates hazardous waste must clean it and disinfect the soil and the place in which it was established, if the facility is moved or its activity is suspended, in accordance with the requirements and standards determined by the executive regulations of this law.

Article (58): The use of empty packages of hazardous materials or the use of products resulting from their recycling is prohibited, except in accordance with the requirements specified by the executive regulations of this law.

Article (60): It is prohibited to establish or manage any facilities for the purpose of circulation or integrated management of hazardous materials or wastes except with a license from the competent administrative authority after the approval of the agency, and the disposal of hazardous materials or waste shall be in accordance with the conditions and standards determined by the executive regulations of this law.

The competent administrative authority shall determine, after the approval of the agency, and after consulting the ministries and the concerned authorities, the places of disposal of these materials or wastes.

Article (61): All establishments that fail to perform their activities as hazardous wastes are obligated to classify, collect and pack them, as well as provide tools and requirements for separation, collection, transport and storage within the facility. The executive regulations of this law clarify the requirements and standards for these tools and requirements.

9.2.3 Industrial Wastewater Disposal Law 93/1962

The law prohibits the disposal of domestic, industrial and commercial wastewater, treated or untreated, in public drainage system without obtaining a prior approval.

Article 14 of the executive regulations set the parameters required regarding the quality of the wastewater discharged to the public sewage network.

9.2.4 Protection of Nile River Water Law 48/1982

The protection of the Nile River and water was law number 48 for the year 1982 defines the water ways to which this law is applicable as Fresh water and non-fresh water sources. The fresh water sources are the river Nile and its branches and bays, as well as the branches and canals of all sizes and the non-fresh water sources are: all types of open type drainages, lakes, ponds and enclosed water bodies and underground water reservoirs.

The law states that for all the stated water ways, it is prohibited to dispose or dump any solid, liquid or gaseous waste from all residential, commercial and industrial activities as well as waste water unless an approval is obtained from the Ministry of Water Resources and Irrigation according to the regulations issued in this regard.

9.3 Work Environment and Occupational Health and Safety

Several laws and decrees tackle occupational health and safety provisions at the workplace, in addition to Articles 43 – 45 of Law 4/1994, which address air quality, noise, heat stress, and the provision of protective measures to workers. These laws and decrees apply to the work crew that will be involved in construction activities.

Law 12/2003 on Labor and Workforce Safety and Book V on Occupational Safety and Health (OSH) and assurance of the adequacy of the working environment. The law also deals with the provision of protective equipment to workers and firefighting/emergency response plans.

Decree No. 211/2003 (replacing MD 55/1983) specifies the necessary conditions required for a safe working environment with respect to physical, mechanical, electrical, chemical, biological and other hazards. Special chapters provide "Maximum Allowable Concentrations" for more than 600 chemical agents in the working environment, safe levels of physical parameters (heat and cold stress, noise, vibration, illumination, radiation, static electrical fields, classification of jobs according to physical workload, etc.), and a list of suspected chemical carcinogens (86 agents). Specifications are equally provided for construction works (ladders, scaffolds, etc).

Decree No. 126/2003 (replacing MD 75/1993) defines procedures and forms for notification of accidents and diseases at work. It also specifies the type of statistics on major injuries and accidents that should be collected and notified.

Decree No. 134/2003 (replacing MD 116/1991) defines the type of industrial and non-industrial enterprises which should have an OSH department and a joint OSH Committee. It also regulates training in occupational safety and health for workers/managers involved with OSH in the enterprise. The decree stipulates that every establishment or a branch thereof, at which 50 or more workers are employed, shall assign the industrial safety task to an OSH department and to a joint OSH committee, where some technicians and specialists are working as full-time OSH controllers and supervisors.

Moreover, the following laws and decrees should be considered:

- Minister of Labor Decree 48/1967
- Minister of Industry Decree 91/1985
- Minister of Labor Decree 116/1991

The environmental aspects that must be taken in consideration for the workplace are noise & vibration, ventilation, temperature, and health and safety, which are as follows:

9.3.1 Noise and Vibration

Annex 7 of the Executive Regulations amended in 2012 stipulates the permissible limits for sound intensity and safe exposure times that must be observed by the operators for the work areas and places within the proposed project.

Table 9-6 Permissible noise levels inside sites of productive activities
(Table 1, Annex 7 of the Executive Regulations)

No.	TYPE OF PLACE AND ACTIVITY	MAXIMUM PERMISSIBLE EQUIVALENT NOISE LEVEL [dB(A)]	Exposure Duration
1.	a) Workplaces (workshops and industries) with up to 8-hour shifts (licensed before 2014)	90	8
	b) Workplaces (workshops and industries) with up to 8-hour shifts (licensed since 2014)	85	8

For the first item (a, b) the exposure duration shall be decreased by half if the noise level increases by 3 dB (A) combined with using ear plugs. This is to avoid any impacts on the sense of hearing.

The instantaneous noise level shall not exceed 135 dB (A) during working period.

The noise level is measured inside working areas and closed areas in L_{Aeq} according to the international guidelines (Parts 1&2) ISO 9612/ ISO 1996 or the Egyptian Specifications No. 2836 part 1 & 2 and No. 5525 concerning this matter.

Equivalent noise level L_{Aeq} is the average acoustic pressure at the level of measurement (A) during a specific time period and expressed in dB.

Table 9-7 Maximum Permissible Exposure to Heavy Hammers (Table 2, Annex 7 of Executive Regulations)

Peak Noise Intensity Level [dB(A)] L_{cPeak}	135	130	125	120	115
Number of Allowable Strikes during Working Hours	300	1000	3000	10000	30000

The intermittent noise exposure depends on the noise level intensity presented in the previous table (number of strikes per shift).

The hammer strikes are considered intermittent if the duration between strikes 1 second or more. If the duration is less than 1 second, the strikes are considered continuous and the noise level shall comply with Table 1 of Annex 7 of the executive regulations.

Regarding vibration, ministerial decree number 211/2003, table 10 stipulates the threshold limits of exposure to vibration

Table 9-8 The threshold limits of exposure to vibration according to Ministerial Decree 211/2003

Daily exposure period	**The square root of the dominant effect of any axis of the daily exposure period of the three axes, which should not be exceeded (m/s2)**
4 hours and less than 8 hours	4
2 hours and less than 4 hours	6
An hour and less than 2 hours	8
less than an hour	12

Other relevant standards

- Health and Safety "The Control of Vibration at Work Regulations 2005 no.1093"[30]
    - For whole body vibration, the daily exposure action value (EAV) is 0.5 m/s^2. If exceeded, action must be taken to reduce workers' exposure to vibration. The daily exposure limit value (ELV) is 1.15 m/s^2, which must not be exceeded.

9.3.2 Ambient Air Quality

Annex 8 of the Regulations lists the maximum allowable limits for air contaminants within the working environment.

[30] http://www.legislation.gov.uk/uksi/2005/1093/pdfs/uksi_20051093_en.pdf

Boundary limits (threshold limits) of air pollutants in the workplace according to the quality of each industry: Boundary limits are concentrations of chemicals in the air that can be exposed to daily workers without health damage and are divided into three types:

a) Threshold limits - 8 hours: The average pollutant concentration in a normal working day (8 hours), which the worker can be exposed to in 5 days a week throughout his/her work without causing health damage.

For total particulates that causes only discomfort and has no significant health effects, the threshold is 10 mg / m3 and for inhalable particles 3 mg / m3 (inhalable soil 2.5 micron to 10 microns).

b) Threshold limits - 15 minutes: Pollutant concentration that worker can be exposed to continuously for a short period. For a period of 15 minutes, which may not be exceeded in any case during the working period and that is not repeated more than 4 times per day and the period of 60 minutes should be between each short exposure.
c) The ceiling is the limit that cannot be reached even for a moment and when the absorption by the skin is a factor in the increase of exposure is marked (+ skin) in front of the threshold limit, and for simple gases that have little toxic effects is measured oxygen concentration in the air, which may not To be less than (18%).

Considering the provisions of the Labor Law 12 of 2003 and its ministerial decrees, the emission limits of different chemicals in the working environment shall not exceed the limits set out in Table 1. The employer or his authorized representative shall also provide identification cards for the chemicals used or produced within the facility in the Arabic language, provided that they are placed in a file in a visible place in the facility so that they can be accessed, considering the following:

1. Name of chemical, scientific and commercial material, name, address and telephone number of manufacturer and distributor of this material
2. Any hazardous components in the substance, as well as the safe concentration of this component, which can be exposed for 8 hours a day without harm
3. Potential human health risks from exposure to a higher concentration than the safe concentration of the substance, as well as the way the substance is absorbed by the skin, breathing, swallowing, etc., as well as the human organs targeted by this substance
4. First-aid measures to be followed in the event of injury to this substance
5. How the substance can be ignited, as well as the fire extinguishers to be used to extinguish the fires (in the case of flammable substances)
6. The method of preventing accidents and injuries that are expected to occur in the event of leakage or spillage of this substance on the ground or the emission of large quantities of evaporation to the working environment as well as how to contain this leakage and health methods to clean the workplace and follow all safety precautions
7. Information on how to handle the substance and how to correctly store it
8. Personal Protective Equipment (PPEs) that should be used when handling substances to prevent injury
9. Physical and chemical properties of the substances such as: (color - state - odor - solubility - steam pressure - boiling point - freezing - density ...etc.)

10. How the substance becomes hazardous as a result of its interaction with other substances, and the extent of the stability of the material as well as the non-compatible substances that are required to be distant from it
11. The toxicity of the substance and the results of the tests conducted to determine it
12. The effect of the material on the environment and the environmental life around it such as aquatic life, plants, animals and birds, as well as the duration of the material in which it remains dangerous
13. Information on safe and correct ways to dispose of the substance
14. Information on the precautions to be taken when transporting this material by different means of transportation
15. Information on classification of material severity according to specifications and requirements of international organizations
16. Any other information about the material

Table 4 from Annex 8 of the Executive Regulations states the amount of air needed to ventilate the public places.

Table 9-9 Amount of air needed to ventilate the public places

No.	Type of location and activity	Occupancy rate (Person/100m^2)	Minimum external air regeneration rate
1	Administrative buildings	5	10
	• Office	30	5.5
	• Reception	50	8
	• Meeting room	50	8
	• Conference room	10	8.5
	• Banks		

9.3.3 Temperature and Humidity

Article 44 of Law 4/1994 and Article 46 of its amended regulation 710/2012 stipulate conditions and requirements for temperature and humidity in the workplace. Annex 9 to the Regulations sets out the major and minor limits for temperature and humidity, exposure periods and safety precautions.

Table 9-10 Thermal exposure limits (heat stress) allowed in the work environment according to the work system (Table 2, Annex 9 of the Executive Regulations)

Work and break system	Thermal Temperature: Temperature of the Wet Globe Temperature (° C) Average Temperature Exposure in Intermittent Working Condition		
	Non labor intensive	Average labor intensive	Labor intensive
Continuous work	30 ◦C	27.8 ◦C	25.8 ◦C
75% work, 25% break	30.58 ◦C	28.8 ◦C	26.8 ◦C
50% work, 50% break	31.58 ◦C	29.58 ◦C	28.8 ◦C
25% work, 75% break	32.8 ◦C	31.8 ◦C	30.8 ◦C

9.3.4 Ventilation

Table 4 from Annex 8 of the Executive Regulations states the amount of air needed to ventilate the public places.

Table 9-11 Amount of air needed to ventilate the public places

No.	Type of location and activity	Occupancy rate (Person/100m^2)	Minimum external air regeneration rate
2	Administrative buildings		
	• Office	5	10
	• Reception	30	5.5
	• Meeting room	50	8
	• Conference room	50	8
	• Banks	10	8.5

9.4 Laws Related to Traffic

The laws applicable to traffic and road work are governed by Traffic Law No. 66 of 1973, as amended by Law No. 121 of 2008. The law is concerned with traffic planning during the construction of projects. Law No. 140 of 1956 concerning the use and occupation of public roads, and Law No. 84 of 1968 concerning public roads, including highways, main roads and regional road.

The laws require that no actions affect the flow of traffic without prior authorization, and the laws specify that the competent administrative authority can use public roads for a fee. The executive regulations of Law No. 140 of 1956 specify the requirements for the management of construction and demolition. In general, vehicle drivers are prohibited from causing any pollution by dumping waste on the road, construction waste or any other materials.

9.5 EEAA EIA Guidelines Related to the Public Consultation

- Conduct a public consultation as part of the ESIA study according to the EEAA guidelines methodology. The involvement of the public and concerned entities in the EIA planning and implementation phases is mandatory for Category C projects through the public consultation process with concerned parties (not required by low for projects of categories B & scoped B).
- Preparation of the Public Consultation Plan before starting the consultation activities in the EIA scoping phase, the project proponent prepares a plan indicating the methodology of the public consultation to be adopted in the two public consultation phases (EIA scoping phase and consultation on the draft EIA). The plan should indicate the concerned parties that will be consulted, method of consultation and other points.
- An individual chapter in the EIA will be prepared for public consultation
- Disclosure of relevant material is an important process and should be undertaken in a timely manner for all Category C projects. This process permits meaningful consultations between the project proponent and project-affected groups and local NGOs is required to take place. Before the public consultation on the draft EIA, the draft technical summary in Arabic should be disclosed to all concerned parties.
- Paragraph 6.4.3.1: Scope of Public Consultation
- Paragraph 6.4.3.2: Methodology of Public Consultation
- Paragraph 6.4.3.3: Documentation of the Consultation Results
- Paragraph 7: Requirement and Scope of the Public Disclosure

9.6 Cultural Heritage

Archaeological and cultural heritage is protected by the following laws:

Law 117 of 1983 on the protection of monuments and cultural heritage, amended by Law 12 of 1991.

Cemeteries Law No. (5) of year 1966 and its executive regulations

9.7 Land Acquisition Laws

The RF represents the reference to be used in managing land acquisition issues and addressing the involuntary resettlement and displacement of people related to WB financed projects. ENR will be committed to complying with the national legislation and WB ESSs and to any future amendments to them. RF discusses in detail the Egyptian legal framework.

10 ANNEX II: THE CURRENT STATUS OF THE LINES

10.1 Bashteel/Etihad /Itay Baroud

1. Bashteel Al-Mahata

a. Location:
30°04'19.4"N, 31°11'06.1"E

b. Station Type:
Small Station

c. Platform and Buildings Status:
Good

d. Surrounding Land use:
Residential

e. Population density
High

f. Proximity to community:
Street vendors and schools at the fence of the station

g. Railway Pedestrian trespassing:
Track corridor is opened at some points to the parallel roads; which allows people to trespass the railway tracks in order to access the platform or pass to the other side.

h. Level crossing:
Not observed

i. Soil contamination with oil & grease:
Observed

j. Waste disposal
Some solid waste on the track

The station

The schools

Soil contamination with oil & grease

The railroad to the next station

k. Surrounding Land use: Residential

l. Proximity to community: Traffics and Street vendors

m. Railway Pedestrian Trespassing: Track corridor is opened at some points to the parallel roads; which allows people to trespass the railway tracks in order to pass to the other side.

n. Level crossing: Not observed

o. Waste disposal: Significant quantities of municipal solid waste on the railroad track

Traffics

Solid wastes

Solid wastes and surrounding area

2. Bashteel Al-Balad

a. Location:
   30°05'14.4", N 31°11'00.6"E
b. Station Type:
   Small
c. Platform and Buildings Status:
   Good
d. Surrounding Land use:
   Residential
e. Population density
   High
f. Proximity to community:
   Street vendors and schools at the fence of the station
g. Railway Pedestrian Trespassing
   Pedestrians trespassing on the tracks. Although the legal level crossing was closed, the Pedestrian cross the railroad ignoring it.
h. Level crossing:
   Undeveloped
i. Soil contamination with oil & grease:
   No

p. Waste disposal
   No

The station

Pedestrian Trespassing & Level crossing

The school

The railroad to the next station

j. Surrounding Land use:
Residential

k. Proximity to community:
A school complex bordering the track corridor, in addition to shops, traffics and street vendors.

l. Railway Pedestrian trespassing:
Pedestrians trespassing on the tracks

m. Level crossing:
Illegal level crossings were observed since the track corridor is opened at some points to the parallel roads; which allows three-wheelers to cross the railway tracks in order to pass to the other side.

n. Waste disposal:
Significant quantities of municipal solid waste on the track

Solid wastes

School complex

Three-wheeler crossing the railroad

3. Al-Kom Al-Ahmar

a. Location:
30°06'27.6"N, 31°11'03.6"E
b. Station Type:
Small
c. Platform and Buildings Status:
Good
d. Surrounding Land use:
Agricultural
e. Population density
Low
f. Proximity to community:
Station bordering an agricultural land and near some houses.

The station

Also, from the other side it is bordered by canal currently under lining works now.

g. Railway Pedestrian Trespassing
Passengers cross the railroad to access the platform via legal crossing level at the end of the station
h. Level crossing:
Undeveloped
i. Soil contamination with oil & grease:
Observed
j. Waste
Significant quantities of solid waste on the track

Legal crossing level

Borders of the station and significant Solid waste

The railroad to the next station

k. Surrounding Land use: Agricultural
l. Proximity to community: Bordered with agricultural lands only.
m. Railway Pedestrian trespassing:
Pedestrians trespassing on the tracks.
n. Level crossing: Narrow illegal level crossing was observed.
o. Waste disposal: No solid waste on the track

Agricultural lands

Illegal crossing level

4. Osiem

a. Location:
   30°07'52.4"N, 31°09'44.6"E
b. Station Type:
   Small
c. Platform and Buildings Status:
   Paved with good condition but Unsuitable sand ramp was existed to access the platform
d. Surrounding Land use:
   Agricultural and residential
e. Population density
   Medium
f. Proximity to community:
   Station bordering a school.
g. Railway Pedestrian Trespassing
   Passengers cross the railroad to access the platform via legal crossing level at the end of the station
h. Level crossing:
   Undeveloped
i. Soil contamination with oil & grease:
   Observed
j. Waste: No

Sand ramp to access the platform

The station

Level crossing

The railroad to the next station

k. Surrounding Land use:
   Agricultural and some residential

l. Proximity to community:
   Bordered with agricultural lands.

m. Railway Pedestrian trespassing:
   Pedestrians trespassing on the tracks.

n. Level crossing:
   Not observed.

o. Waste disposal:

Agricultural lands

Significant demolition waste

Demolition waste

5. Brts

a. Location:
30°09'04.3"N , 31°08'31.0"E
b. Station Type:
Small
c. Platform and Buildings Status:
Bad
d. Surrounding Land use:
Residential
e. Population density
High
f. Proximity to community:
Station bordering houses, Street vendors and Mosque without a distance or separator
Street vendors occupy the level crossing
g. Railway Pedestrian Trespassing
Pedestrians trespassing on the tracks. Although the legal level crossing was closed, the Pedestrian cross the railroad ignoring it.
h. Level crossing:
Undeveloped
i. Soil contamination with oil & grease:
Observed
j. Waste
Significant quantities of municipal solid waste everywhere in the station.

Waste at the station

The station

Legal level crossing

Street vendors occupy the level crossing

The railroad to the next station

k. Surrounding Land use:
   Agricultural
l. Proximity to community:
   Bordered with agricultural lands and main road.
m. Railway Pedestrian trespassing:
   Pedestrians trespassing on the tracks.
n. Level crossing:
   Many illegal level crossings were observed.
o. Waste disposal:
   Significant quantities of municipal solid waste along the railroad. Also, Sheep and goat were eating the wastes inside the railroad

Sheep and goats

Illegal level crossing

6. Al-Galatma

a. Location:
   30°10'30.6"N, 31°06'50.9"E
b. Station Type:
   Small
c. Platform and Buildings Status:
   Good
d. Surrounding Land use:
   Residential
e. Population density
   Medium
f. Proximity to community:
   Station near houses and Mosque
   Also, from the other side it is bordered by lined canal.
g. Railway Pedestrian Trespassing
   Pedestrians cross the track through the level crossing.
h. Level crossing:
   Undeveloped
i. Soil contamination with oil & grease:
   No
j. Waste
   Significant quantities of municipal solid waste everywhere in the station.

Legal level crossing before the station

The station

Houses and Mosque

The railroad to the next station

k. Surrounding Land use:
Residential and agricultural area

l. Proximity to community:
No corridor. The track bordered with agricultural lands and some houses.

m. Railway Pedestrian trespassing:
Pedestrians trespassing on the tracks.

n. Level crossing:
Undeveloped legal level crossing.
many illegal railroad crossing were observed

o. Waste disposal:
Significant quantities of solid waste along the railroad.

Waste & Pedestrians trespassing on the tracks

Legal level crossing after the station

- The railroad pass over Watercourse

The railroad pass over Watercourse

7. Al-Manashi

a. Location:
   30°10'43.7"N, 31°06'07.4"E
b. Station Type:
   Central
c. Platform and Buildings Status:
   Bad
d. Surrounding Land use:
   Agricultural area (between two watercourses)
e. Population density
   Low
f. Proximity to community:
   The station is bordered by agricultural lands.
g. Railway Pedestrian Trespassing
   Pedestrians cross the track through the level crossing to access the platform.
h. Level crossing:
   Undeveloped
i. Soil contamination with oil & grease:
   Observed
j. Waste
   No


Legal level crossing


The station


Soil contamination with oil & grease

The railroad to the next station

k. Surrounding Land use: Agricultural area
l. Proximity to community:
   No corridor. The track crosses the agricultural lands. Donkeys and Livestock were detected on the railroad.
   Many Potteries manufacturers have been observed along the railroad.
m. Railway Pedestrian trespassing:
   Pedestrians trespassing on the tracks.
n. Level crossing: Many illegal railroad crossing were observed
o. Waste disposal: Significant quantities of pottery waste at the railroad


Illegal level crossing for livestock


Donkey and livestock

Pottery

8. Zat El-Kom

a. Location:
   30°10'28.9"N, 31°04'13.4"E
b. Station Type:
   Halt (No ticket window)
c. Platform and Buildings Status: Bad
d. Surrounding Land use:
   Agricultural area (between two watercourses)
e. Population density: Low
f. Proximity to community:
   The station is bordered by agricultural lands
g. Railway Pedestrian Trespassing
   Pedestrians trespassing on the railroad.
h. Level crossing: No legal level crossing, only illegal crossings are existed
i. Soil contamination with oil & grease: No
j. Waste: No

Illegal crossing

The station

The railroad to the next station

k. Surrounding Land use:
   Agricultural area (between two watercourses)
l. Proximity to community:
   No corridor. The track crosses the agricultural lands. accordingly, farmers rests are existed on the railroad
   Railway Pedestrian trespassing:
   Pedestrians trespassing on the tracks.
m. Level crossing: Not observed
n. Waste disposal: No

Farmer rest on the railroad

9. Nekla

a. Location:
   30°10'19.6"N, 31°02'57.5"E
b. Station Type: Small
c. Platform and Buildings Status:
   Good
d. Surrounding Land use:
   Agricultural area (between two watercourses)
e. Population density
   High because of Nekla bridge
f. Proximity to community:
   The station is bordered with Houses
g. Railway Pedestrian Trespassing
   Pedestrians trespassing on the railroad.
h. Level crossing:
   Undeveloped legal level crossing before the station
i. Soil contamination with oil & grease: No
j. Waste: No

Houses at the railroad before the station directly

The station

Pedestrians trespassing on the railroad

The railroad to the next station

k. Surrounding Land use:
   Agricultural area (between two watercourses)
l. Proximity to community:
   Houses, animal feed, Vehicles and Mosque on the railroad
   Railway Pedestrian trespassing:
   Pedestrians trespassing on the tracks.
m. Level crossing: Not observed
n. Waste disposal: No

Houses

Mosque and Vehicles

Animal feed

10. Berqash:

a. Location:
   30°10'08.8"N, 31°01'34.6"E
b. Station Type:
   Small
c. Platform and Buildings Status:
   Good
d. Surrounding Land use:
   Agricultural area (between two watercourses)
e. Population density: Low
f. Proximity to community:
   The station is bordered with agricultural lands
g. Railway Pedestrian Trespassing
   Pedestrians trespassing on the railroad.
h. Level crossing:
   Undeveloped legal level crossing before the station
i. Soil contamination with oil & grease: Yes
j. Waste:
   Some solid waste on the railroad

level crossing before the station

The station

Soil contamination with oil & grease

The railroad to the next station

k. Surrounding Land use:
Agricultural area (between two watercourses)
l. Proximity to community:
The railroad crosses the agricultural lands and bordered a water station
m. Railway Pedestrian trespassing:
Farmers trespassing on the tracks.
n. Level crossing:
Not observed
o. Waste disposal:
No


Pedestrians beside railroad way


Farmers on the railroad


Water station

11. Al-Qatta
a. Location:
30°11'39.5"N, 30°59'35.4"E
b. Station Type: Small
c. Platform and Buildings Status: Bad
d. Surrounding Land use:
Agricultural area (between two watercourses)
e. Population density: Low
f. Proximity to community: The station is bordered with agricultural lands
g. Railway Pedestrian Trespassing
Pedestrians trespassing on the railroad.
h. Level crossing: Not observed
i. Soil contamination with oil & grease: Yes
j. Waste: No


The station

The railroad to the next station

k. Surrounding Land use:
Agricultural area (between two watercourses)
l. Proximity to community:
The railroad crosses the agricultural lands. So, Farmers rest rooms on the railroad
m. Railway Pedestrian trespassing:
Farmers trespassing on the tracks.
n. Level crossing:
Not observed
o. Waste disposal:
No

The railroad crossing the lands

12. Al-Qatta El-Balad

a. Location: 30°12'45.9"N, 30°58'20.8"E
b. Station Type: Halt (No ticket window)
c. Platform and Buildings Status: Bad
d. Surrounding Land use: Agricultural area (between two watercourses)
e. Population density: Low
f. Proximity to community: The station is bordered with agricultural lands
g. Railway Pedestrian Trespassing
Pedestrians trespassing on the railroad
h. Level crossing: illegal level crossing
i. Soil contamination with oil & grease:
Yes
j. Waste: No

The station

illegal level crossing

The railroad to the next station

k. Surrounding Land use: Agricultural area (between two watercourses)
l. Proximity to community: The railroad crosses the agricultural lands. So, Farmers rest rooms on the railroad
m. Railway Pedestrian trespassing:
Farmers trespassing on the tracks.
n. Level crossing: Illegal
o. Waste disposal: No

The railroad crossing the lands

13. Al-Gezira El-Westania

a. Location: 30°13'53.4"N , 30°57'11.6"E
b. Station Type: Small
c. Platform and Buildings Status: Bad
d. Surrounding Land use: Agricultural area (between two watercourses)
e. Population density: Low
f. Proximity to community: The station is bordered with agricultural lands
g. Railway Pedestrian Trespassing
Pedestrians trespassing on the railroad.
h. Level crossing: Not observed
i. Soil contamination with oil & grease: Yes
j. Waste: No


The station

The railroad to the next station

k. Surrounding Land use: Agricultural area (between two watercourses)
l. Proximity to community:
The railroad crosses the agricultural lands.
Houses and Mosque are on the railroad
m. Railway Pedestrian trespassing:
Farmers trespassing on the tracks.
n. Level crossing: Many illegal level crossing
o. Waste disposal: No


House


Mosque


illegal level crossing

14. Abu-Ghaleb

a. Location:
   30°16'24.1"N, 30°54'28.0"E
b. Station Type: Small
c. Platform and Buildings Status:
   Bad
d. Surrounding Land use:
   Residential and Agricultural area (between two watercourses)
e. Population density: Low
f. Proximity to community:
   Mosque and residential buildings on the station
g. Railway Pedestrian Trespassing
   Pedestrians trespassing on the railroad.
h. Level crossing:
   Undeveloped legal level crossing before the station
i. Soil contamination with oil & grease: Yes
j. Waste: No

Mosque

Residential buildings on the station

Legal level Crossing before the station

The railroad to the next station

k. Surrounding Land use:
   Agricultural area (between two watercourses)
l. Proximity to community:
   The railroad crosses the agricultural lands.
   Houses and Mosque are on the railroad
m. Railway Pedestrian trespassing:
   Pedistrians trespassing on the tracks.
n. Level crossing: Many illegal level crossing
o. Waste disposal: No

Houses on the railroad

Vehicles on the railroad

15. Werdan

a. Location:
   30°17'30.8"N, 30°52'57.2"E
b. Station Type: Medium
c. Platform and Buildings Status: Bad
d. Surrounding Land use: Residential and Agricultural area (between two watercourses)
e. Population density: Low
f. Proximity to community: Mosque and residential buildings on the station
g. Railway Pedestrian Trespassing
   Pedestrians trespassing on the railroad.
   A pedestrian bridge at the station is being constructed
h. Level crossing: illegal level crossing before the station
i. Soil contamination with oil & grease: Yes
j. Waste: No

Mosque and Houses

The station

Pedestrian Bridge

The railroad to the next station

k. Surrounding Land use:
Agricultural area (between two watercourses)
l. Proximity to community:
The railroad crosses the agricultural lands.
Mosque, Houses and vehicles on the railroad
m. Railway Pedestrian trespassing:
Pedestrians trespassing on the tracks.
n. Level crossing:
Many illegal level crossing
o. Waste disposal:
No


schoolchildren beside the railroad


Mosque, Houses and Vehicles on the railroad

16. Beni Salama
a. Location:
30°19'11.1"N, 30°50'02.6"E
b. Station Type: Small
c. Platform and Buildings Status:
Bad
d. Surrounding Land use:
Residential and Agricultural area (between two watercourses)
e. Population density: Low
f. Proximity to community: The platform is bordered with Houses without separation or distance
g. Railway Pedestrian Trespassing
Pedestrians trespassing on the railroad.
h. Level crossing: No level crossing at the station
i. Soil contamination with oil & grease: Yes
j. Waste:No


The station

The railroad to the next station

k. Surrounding Land use:
Residential and Agricultural area (between two watercourses)
l. Proximity to community:
The railroad crosses some agricultural lands.
School, Houses and vehicles on the railroad without separation


Cars scrap on the railroad

Cars scrap place was observed

m. Railway Pedestrian trespassing:
Pedestrians trespassing on the tracks.

n. Level crossing: Many illegal level crossing

o. Waste disposal: No

- Shubra-Banha Highway bridge crosses the railroad track to the next station

Shubra – Banha Highway

Houses and Vehicles on the railroad

Pedestrians, School and Houses on the railroad

17. Al-Khatatba

a. Location:
30°21'32.6"N , 30°49'09.5"E

b. Station Type: Central

c. Platform and Buildings Status:
Bad

d. Surrounding Land use:
Residential area (parallel to watercourse)

e. Population density: Medium

f. Proximity to community:
Houses inside the station with no distance or separation
The station is bordered , Schools, Mosque, street vendors and Vehicles.

g. Railway Pedestrian Trespassing
Pedestrians trespassing on the railroad.
A pedestrians bridge is existed

h. Level crossing:

Laundry drying

Undeveloped level crossings before and after the station

i. Soil contamination with oil & grease: Yes

j. Waste: Significant solid waste was observed

Carpets drying

The station and pedestrians bridge

Schools, Solid waste and level crossing

Level crossing after the station

Mosque

The railroad to the next station

k. Surrounding Land use:
   Agricultural area and some residential areas
l. Proximity to community:
   The railroad crosses agricultural lands.
   Houses, pedestrians, schoolchildren and
   Vehicles on the railroad
m. Railway Pedestrian trespassing:
   Pedestrians trespassing on the tracks.
n. Level crossing:
   Many illegal level crossing
o. Waste disposal:
   Significant solid waste on the railroad

Solid wastes

- The railroad crosses a watercourse via narrow bridge

schoolchildren

Watercourse crossing

18. Al-Akhmas

a. Location: 30°24'11.0"N 30°49'29.2"E
b. Station Type: Halt (No ticket window)
c. Platform and Buildings Status:
Bad. The platform is shorter than the train and the passengers cannot get off easily.
d. Surrounding Land use: Agricultural area
e. Population density: Low
f. Proximity to community: The station is bordered with agricultural lands.
g. Railway Pedestrian Trespassing
Pedestrians trespassing on the railroad.
h. Level crossing: Illegal before the station
i. Soil contamination with oil & grease: Yes
j. Waste: No


The station


Short platform

The railroad to the next station
k. Surrounding Land use:
Agricultural area and some residential areas
l. Proximity to community:
The railroad crosses agricultural lands.
Houses on the railroad
m. Railway Pedestrian trespassing:
Pedestrians trespassing on the tracks.
n. Level crossing: Many illegal level crossing
o. Waste disposal:
Some solid waste on the railroad.


Illegal level crossing and houses

19. Al-Tarana
a. Location: 30°25'29.7"N, 30°49'36.3"E
b. Station Type: Small
c. Platform and Buildings Status: Bad

d. Surrounding Land use: Agricultural and residential area
e. Population density: Low
f. Proximity to community: The station is bordered with agricultural lands and some houses
g. Railway Pedestrian Trespassing
Pedestrians trespassing on the railroad Since no level crossing before the station.
h. Level crossing: Developed legal level crossing after the station


The station

i. Soil contamination with oil & grease: Yes
j. Waste: No

Level crossing

The railroad to the next station

k. Surrounding Land use:
   Agricultural area and some residential areas
l. Proximity to community:
   The railroad bordered with some agricultural lands and Houses.
   New road is being constructed adjacent to the railroad
m. Railway Pedestrian trespassing:
   Pedestrians trespassing on the tracks.
n. Level crossing:
   Many illegal level crossing
o. Waste disposal: No

Houses on the railroad

Construction of new road to Sadat.

schoolchildren

20. Kafr Dawod

a. Location: 30°27'48.7"N, 30°49'24.9"E
b. Station Type: Medium
c. Platform and Buildings Status: Bad
d. Surrounding Land use: Residential area
e. Population density: Medium
f. Proximity to community:
The station is bordered with small agricultural land and road from the other side.
Houses, schools near the station.
Many shops are inside the station
g. Railway Pedestrian Trespassing
Pedestrians trespassing on the railroad.
h. Level crossing:
Undeveloped legal level crossing after the station.
No level crossing before the station
i. Soil contamination with oil & grease: Yes
j. Waste disposal: No

The station

- A signboard for safe trip campaign which aims to gender protection.

Safe trip campaign

Level Crossing

The railroad to the next station

k. Surrounding Land use:
Agricultural area and some residential areas

l. Proximity to community:
The railroad bordered with agricultural lands and some Houses.

m. Railway Pedestrian trespassing:
Pedestrians trespassing on the tracks.

n. Level crossing:
Many illegal level crossing

o. Waste disposal:
No.

Bridge

- There is a vehicle bridge crossing the railroad.

Houses

21. EL-Brigat

a. Location: 30°29'50.6"N, 30°48'50.5"E
b. Station Type: Small
c. Platform and Buildings Status: Bad
d. Surrounding Land use:
Residential area and Agricultural
e. Population density: low
f. Proximity to community: The station is bordered with Houses and agricultural lands
g. Railway Pedestrian Trespassing
Pedestrians trespassing on the railroad.
h. Level crossing:
Undeveloped legal level crossing before the station.
illegal level crossing after the station

Legal level crossing before the station

i. Soil contamination with oil & grease: Yes
j. Waste disposal: No

The station and Houses

The railroad to the next station

k. Surrounding Land use:
Agricultural area and some residential areas
l. Proximity to community:
Houses, Mosque near the railroad
Children Soccer field bordered the railroad
The railroad bordered with agricultural lands at certain areas
m. Railway Pedestrian trespassing:
Pedestrians trespassing on the tracks.
n. Level crossing:
Undeveloped level crossing and many illegal level crossings
o. Waste disposal:
Significant solid waste

Soccer field

Houses and Mosque

Solid waste

22. Moderiet El-Tahrir

a. Location:
   30°32'47.5"N , 30°48'00.8"E
b. Station Type:
   Central

c. Platform and Buildings Status:
   Bad

d. Surrounding Land use:
   Residential area

e. Population density
   low

f. Proximity to community:
   The station is bordered with Houses and Mosque

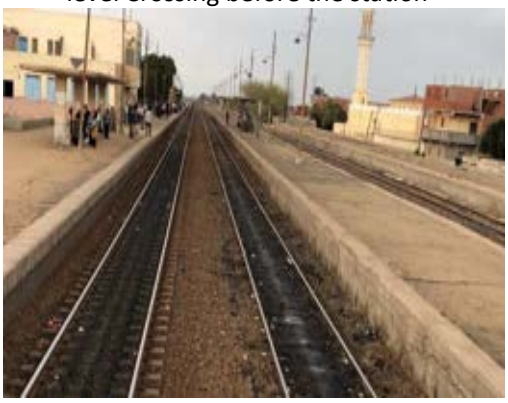
g. Railway Pedestrian Trespassing
   Passengers trespassing on the railroad to get on & off the train

h. Level crossing:
   Undeveloped legal level crossing before the station.
   illegal level crossing after the station

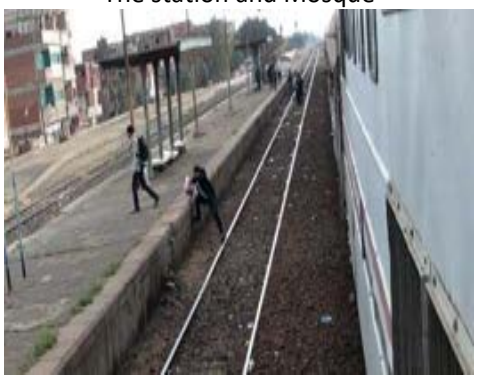
i. Soil contamination with oil & grease:
   Yes.

j. Waste disposal:
   No

level Crossing before the station



The station and Mosque



Passengers crossing the railroad track

The railroad to the next station

k. Surrounding Land use:
   Agricultural area and some residential areas
l. Proximity to community:
   Houses near the rail road
   Vehicle bordered the railroad
m. Railway Pedestrian trespassing:
   Pedestrians trespassing on the tracks.
n. Level crossing: Many illegal level crossings
o. Waste disposal: No

- Solar cells are widely used at that area to the next station

Illegal level crossing and vehicles

Solar cells

23. Abu-Alkhawi

a. Location: 30°35'11.5"N , 30°47'24.5"E

b. Station Type: Small

c. Platform and Buildings Status: Bad

d. Surrounding Land use: Agricultural area

e. Population density: low

f. Proximity to community:
The station between agricultural lands

g. Railway Pedestrian Trespassing
Passengers trespassing on the railroad to get on & off the train

h. Level crossing: illegal level crossings

i. Soil contamination with oil & grease: Yes

j. Waste disposal: Significant Solid Waste

Solid wastes before the station

The station

Illegal crossing

The railroad to the next station

k. Surrounding Land use:
   Agricultural area and some residential areas

l. Proximity to community:
   Houses near the railroad
   Vehicle bordered the railroad

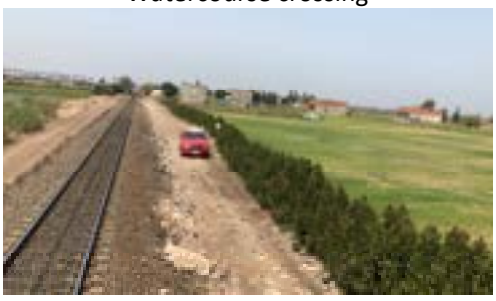
m. Railway Pedestrian trespassing:
   Pedestrians trespassing on the tracks.

n. Level crossing:
   Many illegal level crossings

o. Waste disposal:
   Significant Solid Wastes

- Solar cells are widely used at that area to the next station
- The railroad track crosses a watercourse

Watercourse crossing



Vehicles

Houses and solar cells

24. El-Tairia El-Mahata

a. Location: 30°37'45.7"N , 30°46'47.0"E
b. Station Type: Small
c. Platform and Buildings Status: Bad
d. Surrounding Land use: Agricultural area
e. Population density: low
f. Proximity to community: Street vendors inside the station
g. Railway Pedestrian Trespassing: Passengers trespassing on the railroad to access the platform
h. Level crossing: Developed level crossing before the station
i. Soil contamination with oil & grease: Yes
j. Waste disposal: No

Legal level crossing before the station

Street vendors inside the station

The railroad to the next station

k. Surrounding Land use:
   Agricultural
l. Proximity to community:
   Vehicle road bordered the railroad
m. Railway Pedestrian trespassing:
   Pedestrians trespassing on the tracks.
n. Level crossing:
   Many illegal level crossings
o. Waste disposal: No

The railway to the next station

25. Al-Tairia El-Balad

a. Location:
   30°38'45.6"N , 30°46'31.2"E
b. Station Type: Small
c. Platform and Buildings Status:
   Bad
d. Surrounding Land use: Residential area
e. Population density: Medium
f. Proximity to community:
   Houses, Mosques, School, Vehicles and shops are close to the station.
g. Railway Pedestrian Trespassing
   Passengers trespassing on the railroad to access the platform using ramp and constructed stairs
h. Level crossing:
   Undeveloped level crossing before the station
i. Soil contamination with oil & grease: Yes
j. Waste disposal: Significant solid wastes

Shops

Houses and solid waste

The station and soil contamination

Ramp and Constructed stairs

The railroad to the next station

k. Surrounding Land use:
Agricultural lands

l. Proximity to community:
Vehicle road near the railroad

m. Railway Pedestrian trespassing:
Pedestrians trespassing on the tracks.

n. Level crossing:
Many illegal level crossings

o. Waste disposal:
No

The railway to the next station

and illegal crossing

26. Etihad

a. Location: 30°39'46.6"N , 30°45'46.9"E
b. Station Type: Halt (No Tickets window)
c. Platform and Buildings Status: Bad
d. Surrounding Land use: Agricultural area
e. Population density: Low
f. Proximity to community: Some residential buildings belong to ENR near the station.
g. Railway Pedestrian Trespassing: Passengers trespassing on the railroad to access the platform.

The station

h. Level crossing: Illegal level crossings
i. Soil contamination with oil & grease: Yes
j. Waste disposal: No

- The freight line starting from this station to Qabary

The railroad to the next station

k. Surrounding Land use:
Agricultural and residential lands
l. Proximity to community:
Houses near the railroad
m. Railway Pedestrian trespassing:
Pedestrians trespassing on the tracks.
n. Level crossing: Many illegal level crossings
o. Waste disposal: No


Houses

27. Manshaa't Abu Raya
a. Location: 30°40'35.1"N, 30°45'10.9"E
b. Station Type: Small
c. Platform and Buildings Status: Good
d. Surrounding Land use: Residential area
e. Population density: Medium
f. Proximity to community:
Houses and vehicle road near the station
g. Railway Pedestrian Trespassing
Passengers trespassing on the railroad to access the platform
h. Level crossing:
Illegal level crossing before the station.
Undeveloped level crossing after the station
i. Soil contamination with oil & grease: Yes
j. Waste disposal:
Municipal solid wastes on the border of the rail road


Houses, school and school and solid waste before the station


The station


Legal level crossing

The railroad to the next station

k. Surrounding Land use: Agricultural lands
l. Proximity to community:
The railroad bordered with the agricultural lands
m. Railway Pedestrian trespassing:
Pedestrians trespassing on the tracks.
n. Level crossing: Many illegal level crossings
o. Waste disposal: No


The railroad to the next station

28. Waqd
a. Location: 30°41'44.8"N, 30°44'18.5"E
b. Station Type: Medium
c. Platform and Buildings Status: Good
d. Surrounding Land use:
Residential and agricultural area
e. Population density: High
f. Proximity to community: Houses, Mosques and vehicle road near the station
g. Railway Pedestrian Trespassing
Passengers trespassing on the railroad to access the platform
h. Level crossing:
Undeveloped level crossing before the station
Illegal level crossing after the station.
i. Soil contamination with oil & grease: Yes
j. Waste disposal: Municipal solid wastes on the border of the rail road


Houses and vehicles


The station

The railroad to the next station
k. Surrounding Land use: Agricultural lands
l. Proximity to community:
The railroad is between the agricultural lands
m. Railway Pedestrian trespassing:
No Pedestrians trespassing on the tracks.
n. Level crossing: one illegal level crossing
o. Waste disposal: No
- The railroad track crosses a watercourse via very thin bridge


Watercourse crossing


Illegal crossing

29. Kafr Bolin

a. Location: 30°43'40.2"N, 30°42'51.7"E
b. Station Type: Halt (without tickets window)
c. Platform and Buildings Status: Bad
d. Surrounding Land use: Agricultural area
e. Population density: Low
f. Proximity to community:
The station is bordered with agricultural lands
g. Railway Pedestrian Trespassing
Passengers trespassing on the railroad to access the platform
h. Level crossing: No
i. Soil contamination with oil & grease: Yes
j. Waste disposal:
Few solid waste on the track


The station

The railroad to the next station

k. Surrounding Land use:
Agricultural lands

l. Proximity to community:
The railroad is between the agricultural lands

m. Railway Pedestrian trespassing:
Pedestrians trespassing on the tracks.

n. Level crossing:
Many illegal level crossings

o. Waste disposal:
No


Illegal level crossing

➢ The railroad track crosses a watercourse


Watercourse crossing

30. Kom Hamada
a. Location: 30°45'39.8"N , 30°41'50.8"E
b. Station Type: Central
c. Platform and Buildings Status: Bad
d. Surrounding Land use: Residential area
e. Population density: High
f. Proximity to community:
Houses, School and street vendors are close to the station.
No distance between the track and the Mosque and surrounding buildings at the end of the platform


Residential Buildings, Street Vendors and School

g. Railway Pedestrian Trespassing

Passengers trespassing on the railroad to access the platform

h. Level crossing:
Undeveloped level crossing after the station

i. Soil contamination with oil & grease: Yes

j. Waste disposal: Significant solid wastes after the station

The station

Mosque and Level crossing

Level Crossing and solid waste

The railroad to the next station

k. Surrounding Land use: Agricultural lands

l. Proximity to community:
The railroad is between the agricultural lands
The railroad is bordered with a vehicle road
Some houses are close to the railroad

m. Railway Pedestrian trespassing:
Pedestrians trespassing on the tracks.

n. Level crossing: Many illegal level crossings

o. Waste disposal: No

31. El-Nqidy

a. Location: 30°47'25.7"N , 30°41'22.6"E

b. Station Type: Halt (without Tickets window)

c. Platform and Buildings Status: Bad

d. Surrounding Land use: Residential and agricultural

e. Population density: Low

f. Proximity to community:
Houses bordered the platform.
Mosque near the station

The station

g. Railway Pedestrian Trespassing
Passengers trespassing on the railroad to access the platform
h. Level crossing: Illegal level crossing
i. Soil contamination with oil & grease: Yes
j. Waste disposal: No


Houses

➢ The railroad track crosses a watercourse


Watercourse crossing

The railroad to the next station

k. Surrounding Land use:
Agricultural lands and residential
l. Proximity to community:
Houses, Mosque and shops close to the railroad
m. Railway Pedestrian trespassing:
Pedestrians trespassing on the tracks.
n. Level crossing: Illegal level crossings
o. Waste disposal: No


Level crossing and residential area

32. Saft El-Enab

a. Location: 30°49'02.3"N , 30°40'57.8"E
b. Station Type: Small
c. Platform and Buildings Status: Bad
d. Surrounding Land use: Agricultural
e. Population density: Low
f. Proximity to community:
Some houses near the station
g. Railway Pedestrian Trespassing: Passengers trespassing on the railroad to access the platform
h. Level crossing:
Undeveloped level crossing before the station
i. Soil contamination with oil & grease: Yes
j. Waste disposal: No


The station


Some houses near the station

The railroad to the next station

k. Surrounding Land use:
   Agricultural lands
l. Proximity to community:
   The railroad crosses the agricultural lands
m. Railway Pedestrian trespassing:
   Pedestrians trespassing on the tracks.
n. Level crossing:
   Many illegal level crossings
o. Waste disposal: No

Agricultural area

33. Qleshan

a. Location: 30°50'13.1"N, 30°40'39.2"E
b. Station Type: Halt (without Tickets window)
c. Platform and Buildings Status: Bad
d. Surrounding Land use: Residential and agricultural
e. Population density: Low
f. Proximity to community: Houses Close to the station
g. Railway Pedestrian Trespassing
   Passengers trespassing on the railroad to access the platform
h. Level crossing: Illegal level crossing
i. Soil contamination with oil & grease: Yes
j. Waste disposal: No

Bad Level crossing

The station

The railroad to the next station

k. Surrounding Land use:
   Agricultural and residential lands
   Proximity to community:
   Houses are close to the railroad
a. Railway Pedestrian trespassing:
   Pedestrians trespassing on the tracks.
b. Level crossing:
   Many illegal level crossings

Illegal level crossing and solid wastes

c. Waste disposal:
Significant quantities of solid waste

- A watercourse is parallel and close to the railroad
- Alexandria agricultural highway crosses above the railroad track

Alexandria agricultural bridge

34. El-Magdia
The train doesn't stop at this station

35. Itay El-Baroud

a. Location:
30°53'00.4"N , 30°39'45.5"E
b. Station Type:
Central
c. Platform and Buildings Status:
Good
d. Surrounding Land use:
Residential area and close to watercourse.
e. Population density
High
f. Proximity to community:
The residential buildings near the station
g. Railway Pedestrian Trespassing
There is a pedestrian bridge to move between platforms.
Passengers trespassing on the railroad to access the platform
h. Level crossing:
Developed level crossing
i. Soil contamination with oil & grease:
Yes.
j. Waste disposal:
No

level crossing before the station

Pedestrians Bridge

Level crossing

- There is a signboard for safe trip campaign which aims to gender protection.

Gender protection campaign

10.2 Etihad / Tafaroa / Qabary

Table 10-1 : List of the Stations and their status

1. Etihad
   (30°39'46.6"N , 30°45'46.9"E)

a. Platform and Buildings Status: Bad
b. Surrounding Land use: Agricultural
c. Population density: low
d. Proximity to community: some residential buildings belong to ENR near the station
e. Railway Pedestrian Trespassing: Pedestrians trespassing on the railroad
f. Soil contamination with oil & grease: Yes
g. Waste disposal: No

The station

The railroad to the next station

h. Surrounding Land use: Agricultural and residential lands
i. Proximity to community: Houses are close to the railroad
j. Railway Pedestrian trespassing: Pedestrians trespassing on the tracks.
k. Level crossing: Many illegal level crossings
l. Waste disposal: Significant quantities of solid waste

Waste burning

Houses and illegal crossing

Illegal crossing between agricultural lands

2. Badr
   (30°41'37.8"N , 30°41'21.9"E)

a. Platform and Buildings Status: Bad
b. Surrounding Land use: Agricultural
c. Population density: Very low
d. Proximity to community: The station bordered with agricultural lands
e. Soil contamination with oil & grease: No.
f. Waste disposal: No

The station

The railroad to the next station

g. Surrounding Land use:
Agricultural and residential lands
h. Proximity to community:
Houses are close to the railroad
i. Railway Pedestrian trespassing:
Pedestrians trespassing on the tracks.
j. Level crossing:
Many illegal level crossings
Two developed legal crossings were observed
One semi-developed legal crossings was observed
k. Waste disposal:
Significant quantities of solid waste

Legal level crossing

Electricity rooms (both side)

Houses and illegal crossing

Mosque and illegal crossing

Demolition waste

Watercourse crossing

3. El-Azima
(30°42'53.9"N, 30°33'18.9"E)

a. Platform and Buildings Status:
Very Bad
b. Surrounding Land use: Agricultural
c. Population density: Very low
d. Proximity to community:
The station bordered with agricultural lands
e. Soil contamination with oil & grease:
No.
f. Waste disposal: No

The station

The railroad to the next station

g. Surrounding Land use:
Agricultural and residential lands
Proximity to community:
- Agricultural lands bordered the

railroad
- Many houses
- Livestock
- Burial place
- Many Charcoal kilns along the railroad
- Fish farms

h. Railway Pedestrian trespassing:
Pedestrians trespassing on the tracks.

i. Level crossing:
Many illegal level crossings

j. Waste disposal:
Charcoal production wastes only


Illegal level crossing and houses


Burial place


Livestock


Charcoal kiln and illegal level crossing

Charcoal kilns

Fish farms

4. Al-Bostan (30°44'20.2"N, 30°28'52.4"E)

a. Platform and Buildings Status: Very Bad
b. Surrounding Land use: Agricultural
c. Population density: Very low
d. Proximity to community: The station bordered with agricultural lands
e. Soil contamination with oil & grease: No
f. Waste disposal: No

The station

The railroad to the next station

g. Surrounding Land use: Agricultural, residential lands and industrial

h. Proximity to community:
   - Agricultural area
   - Herring factory
   - Livestock
   - Charcoal kilns
   - Fish rams
   - Many houses on the railroad
   - Burial Place
   - Mosque
   - courtyard land said to belong to

Livestock

Ministry of Antiquities

i. Railway Pedestrian trespassing: Pedestrians trespassing on the tracks.

j. Level crossing: Many illegal level crossings

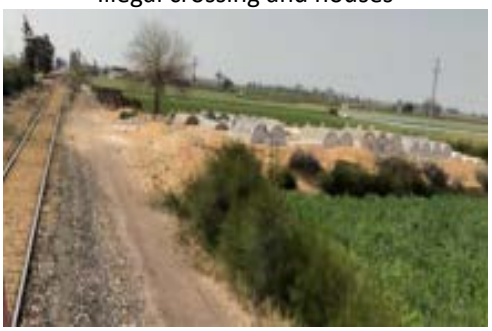
k. Waste disposal: Some Municipal Solid waste

- The railroad crosses a Watercourse

Illegal level crossing and charcoal kiln

Fish farms

Illegal crossing and houses



Burial place

Mosque and illegal crossing

Empty land belongs to Ministry of Antiquities

Solid wastes and illegal level crossing

5. Al-Salam
(30°46'34.3"N, 30°20'55.9"E)

a. Platform and Buildings Status:
Very Bad

b. Surrounding Land use:
Agricultural and residential

c. Population density
low

d. Proximity to community:
The station bordered with agricultural lands and residential buildings belong to ENR

e. Soil contamination with oil & grease:
No.

f. Waste disposal:
No

The station

Residential Buildings belongs to ENR

The railroad to the next station

g. Surrounding Land use:
Agricultural and residential lands.

h. Proximity to community:
- Agricultural area bordered the railroad
- Livestock
- Many houses on the railroad
- courtyard land said to belong to Ministry of Antiquities

i. Railway Pedestrian trespassing:
Pedestrians trespassing on the tracks.

j. Level crossing:
Many illegal level crossings

k. Waste disposal:
Some Municipal Solid waste


Illegal level crossing and vehicles


Empty land belongs to Ministry of Antiquities


Houses


Livestock

6. Al-Gehad
(30°47'17.7"N, 30°16'00.8"E)

a. Platform and Buildings Status: Very Bad
b. Surrounding Land use: Agricultural and residential
c. Population density: low
d. Proximity to community: The station bordered with agricultural lands and residential buildings belong to ENR
e. Soil contamination with oil & grease: No
f. Waste disposal: No


The station

The railroad to the next station

g. Surrounding Land use: Agricultural and residential lands.

h. Proximity to community:
- Agricultural area bordered the railroad
- Sheep and wood crushing place
- Houses and vehicle road close to the railroad track
- Many Fish farms
- Poultry farms
- Livestock


Sheep and wood crushing place

i. Railway Pedestrian trespassing: Pedestrians trespassing on the tracks.

j. Level crossing: Many illegal level crossings

k. Waste disposal: No


Illegal level crossing between agricultural lands

➢ There is a narrow bridge. Also, Narrow railroad between Fish farms. Those should be considered during dualization.


Houses and vehicle road

Livestock & narrow bridge crossing watercourse

Fish farms

Narrow railroad between Fish farms

Poultry farm

7. Al-Krom
30°47'26.2"N, 30°10'32.6"E

a. Platform and Buildings Status:
Very Bad
b. Surrounding Land use:
Agricultural and residential
c. Population density
low
d. Proximity to community:
The station bordered with agricultural lands and residential buildings belong to ENR

e. Soil contamination with oil & grease:
No.
f. Waste disposal:
No

Al-Krom level crossing and ENR's Buildings

The station

The railroad to the next station

g. Surrounding Land use:
Agricultural and residential lands.

h. Proximity to community:

- Agricultural area bordered the railroad
- Houses and vehicle road close to the railroad track
- Fish farms
- Cooking area belongs to the army

Illegal level crossing between agricultural lands and fish farm

i. Railway Pedestrian trespassing:
Pedestrians trespassing on the tracks.

j. Level crossing:
Many illegal level crossings

k. Waste disposal:
No

Narrow bridge crosses the watercourse

➢ There are narrow bridges to be considered during dualization.

Narrow bridge crosses the watercourse

Cooking area belongs to the army

Very Narrow bridge crosses the watercourse and Illegal level crossing

Houses and illegal level crossing

8. Al-Thawra
30°51'30.2"N , 30°04'09.0"E

a. Platform and Buildings Status:
Very Bad
b. Surrounding Land use:
Agricultural
c. Population density
Very low
d. Proximity to community:
The station bordered with agricultural lands.
e. Soil contamination with oil & grease:
No.

The station

f. Waste disposal:
No

The railroad to the next station

g. Surrounding Land use:
Agricultural and residential lands.

h. Proximity to community:
- Agricultural area bordered the railroad
- Livestock
- Poultry Farm
- Mosque
- Livestock farm and feed silos
- Burial place
- Houses close to the railroad track
-

i. Railway Pedestrian trespassing:
Pedestrians trespassing on the tracks.

j. Level crossing:
Many illegal level crossings

k. Waste disposal:
No

➢ There are narrow bridges to be considered


Free Livestock


Poultry farm


Mosque and illegal level crossing


Narrow bridge crosses the watercourse


Livestock farm

Feed silos

Legal level crossing and Burial place

Houses

9. Al-Nasr
30°55'43.5"N , 29°57'01.1"E

a. Platform and Buildings Status: Very Bad
b. Surrounding Land use: Agricultural
c. Population density: Very low
d. Proximity to community: The station bordered with agricultural lands.
e. Soil contamination with oil & grease: No
f. Waste disposal: No

The station

The railroad to the next station

g. Surrounding Land use:
Agricultural and residential lands.

h. Proximity to community:

- Agricultural area bordered the railroad
- Livestock farms
- Free livestock parallel to railroad
- Houses close to the railroad track
- School

i. Railway Pedestrian trespassing:
Pedestrians trespassing on the tracks.

j. Level crossing:
Many illegal level crossings

k. Waste disposal:
Some Municipal solid waste

➢ There are narrow bridges to be considered


Livestock Farm


Free livestock and hay


Legal and illegal level crossing


Houses and school


Solid Waste and pedestrians

Illegal level crossing and wastes

Narrow bridge crosses the watercourse

10. Al-Nahda
30°57'12.4"N, 29°52'23.8"E

a. Platform and Buildings Status: Bad
b. Surrounding Land use: Agricultural and residential
c. Population density: Very low
d. Proximity to community: The station bordered with Ramshackle Buildings belongs to ENR
e. Soil contamination with oil & grease: No
f. Waste disposal: No

The station

Ramshackle Buildings belongs to ENR

The railroad to the next station

g. Surrounding Land use: Agricultural and Industrial lands.

h. Proximity to community:

- Agricultural and Industrial areas
- Pedestrians path and Free livestock parallel to railroad
- Water Pipes
- Petroleum Factory

- Fish farms
- Textile Factory
- Backfilling of salt pans

i. Railway Pedestrian trespassing:
Pedestrians trespassing on the tracks.

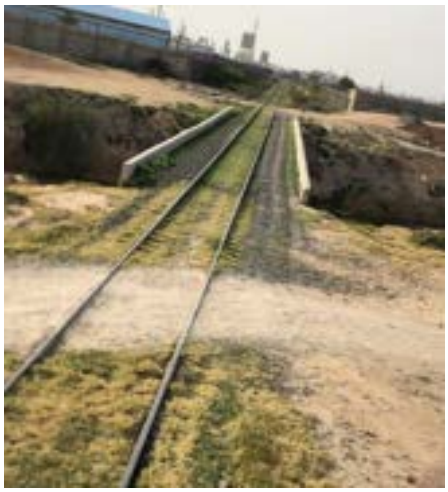
j. Level crossing:
Many illegal level crossings

k. Waste disposal:
No

➢ There are many narrow bridges to be considered during dualization

Pedestrians path, Livestock and illegal level crossing

Water Pipes followed by narrow bridge crosses a watercourse



Illegal crossing and narrow bridge

Petroleum company and bad level crossing

Fish farms

Textile factory and vehicles

Backfilling of salt pans

11. Al-Tafroa
31°03'40.8"N, 29°50'53.1"E

a. Platform and Buildings Status: Very Bad

b. Surrounding Land use: Industrial and residential area
Very close to Mariut lake

c. Population density: Very low

d. Proximity to community: The station is bordered with residential buildings

e. Soil contamination with oil & grease: No

f. Waste disposal:No

The station

11 ANNEX III: ENVIRONMENTAL AND SOCIAL SCREENING CHECKLISTS

Objective: To determine the appropriate type of safeguard instruments

This form is to be used by the Project Implementation Unit (PIU) to screen for the potential environmental and social risks and impacts of a proposed subproject. It will help the PIU in identifying the relevant Environmental and Social Standards (ESS), establishing an appropriate E&S risk rating for these subprojects and specifying the type of environmental and social assessment required, including specific instruments/plans. Use of this form will allow the PIU to form an initial view of the potential risks and impacts of a subproject***. It is not a substitute for project-specific E&S assessments or specific mitigation plans.***

If all answers to questions in the table are 'No', a checklist ESMP shall be developed. If any of the answers to the questions is **Yes**, then a site-specific ESMP shall be developed for the sub-project. If any of the answers to the questions in Section H is **Yes**, then a RP shall also be developed for the sub-project.

	ISSUES	YES	NO	ESS relevance	Due diligence / Actions
	Environmental Criteria				
A.	**Noise and Air Pollution & Hazardous Substances**			**ESS1/ESS3**	**ESIA/ESMP, SEP**
1.	Will activities result in large emissions of air pollutants, dust, GHGs?				
2.	Will the subproject increase ambient noise and /or vibration levels?				
3.	Will the subproject involve the generation, storage, handling or transport of hazardous substances such as solvents, paint, electronic waste etc.?				
B	**Water and Soil Contamination**			**ESS1/ESS3**	**ESIA/ESMP, SEP**
4.	Will the subproject result in potential soil or water contamination (i.e., from oil, grease and fuel from equipment yards)?				
5.	Is the subproject located close to groundwater sources, surface water bodies, water courses or wetlands?				
C	**Fauna and Flora, Natural Habitats and Biodiversity**			**ESS6**	**ESIA/ESMP, SEP**
6.	Will the subproject impact biodiversity due to the destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development?				
7.	Is the subproject located in an area with endangered or conservation-worthy ecosystems, fauna or flora?				
	Social Screening				
D	**Public Utilities and Facilities**			**ESS2**	**LMP, SEP**

	ISSUES	YES	NO	ESS relevance	Due diligence / Actions
8.	Will the subproject require significant levels of accommodation or service amenities to support the workforce during construction (i.e., if more than 20 workers are anticipated on site)?				
E	**Cultural Property**			**ESS8**	**ESIA/ESMP, SEP**
9.	Will the subproject have an impact on archaeological, historical sites or religious sites including mosques/or cemeteries				
F	**Occupational Health and Safety**			**ESS2**	**LMP, SEP**
10.	Will project activities involve OHS risks such as electrocution, fire hazard, slippage, falling, working at heights?				
11.	Will the project activities require temporary labor influx with potential risks such as spreading of COVID-19?				
G	**Community health & Safety**			**ESS4**	**SEP**
12.	Will the subproject involve temporary labor influx posing potential risks including GBV?				
13.	Will the subproject involve temporary labor influx posing potential risks including child labor?				
14.	Is the subproject located near a densely populated area/in proximity of community areas, where CHS risks such as spread of disease, traffic and pedestrian safety, accessibility issues, etc. may occur?				
H	**Resettlement and Expropriation**			**ESS5**	**RAP/ARAP, SEP**
15.	Will the works require acquisition of private land (temporarily or permanently)?				
16.	Will the subproject lead to physical displacement of individuals, family, and businesses?				
17.	Will project activities impact livelihood?				
18.	Will the works impact individuals or entities encroaching on land?				

Signed by Environment Specialist: Name: _____
Title: _____
Date: _____

Signed by Social Specialist: Name: _____
Title: _____
Date: _____

Signed by Project Manager: Name: _____
Title: _____
Date: _____

12 ANNEX IV: PUBLIC CONSULTATIONS MINUTES AND ATTENDANCE