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Report No: PAD4192

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

PROJECT APPRAISAL DOCUMENT
ON A
PROPOSED LOAN

IN THE AMOUNT OF EUR362.9 MILLION (US$440 MILLION EQUIVALENT)

TO THE

ARAB REPUBLIC OF EGYPT

FOR A

RAILWAY IMPROVEMENT AND SAFETY FOR EGYPT PROJECT

February 10, 2021

Transport Global Practice
Middle East And North Africa Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective January 31, 2021)

Currency Unit =	Egyptian Pound (EGP)
EGP 15.73 =	US$1
Euro 0.8246 =	US$1

FISCAL YEAR
July 1 - June 30

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ABBREVIATIONS AND ACRONYMS

Term	Definition
AF	Additional Financing
AFD	French Development Agency (Agence Française de Développement)
AfDB	African Development Bank
APM	Accredited Practice Manager
ASIF	Avoid-Shift-Improve Framework
CBE	Central Bank of Egypt
CERC	Contingent Emergency Response Component
CPF	Country Partnership Framework
CTA	Cairo Transport Authority
CTC	Centralized Traffic Control
DA	Designated Account
DPL	Data Protection Law
E&S	Environmental and Social
EBRD	European Bank for Reconstruction and Development
EIB	European Investment Bank
EIRR	Economic Internal Rate of Return
ENR	Egyptian National Railways
ENRRP	Egypt National Railways Restructuring Project
ESA	Environmental and Social Assessment
ESCP	Environmental and Social Commitment Plan
ESF	Environmental and Social Framework
ESHS	Environment, Social and Health and Safety
ESIA	Environmental and Social Impact Assessment
ESMF	Environmental and Social Management Framework
ESMP	Environmental Social Management Plan
ESRC	Environmental and Social Risk Classification
ESSs	Environmental and Social Standards
ETCS	European Train Control System
EU	European Union
EXIM	Export-Import
FDI	Foreign Direct Investments
FIDIC	International Federation of Consulting Engineers (Fédération Internationale Des Ingénieurs–Conseils)
FWSI	Fatalities and Weighted Serious Injuries
FY	Fiscal Year
GBV	Gender-Based Violence
GCA	Greater Cairo Area
GDP	Gross Domestic Product
GEMS	Geo-Enabling Initiative for Monitoring and Supervision

GHG	Greenhouse Gas
GM	Grievance Mechanism
GoE	Government of Egypt
GRM	Grievance Redress Mechanism
IBRD	International Bank for Reconstruction and Development
IFC	International Finance Corporation
IFI	International Financial Institution
IFR	Interim Financial Report
IMF	International Monetary Fund
IPC	Integrated Program to Completion
ISR	Implementation Status and Results Report
IVA	Independent Verification Agent
JICA	Japan International Cooperation Agency
KPI	Key Performance Indicator
KWD	Kuwaiti Dinar
LMP	Labor Management Procedures
LTIFR	Lost Time Injury Frequency Rate
MAI	Multi-Annual Infrastructure
MAIC	Multi-Annual Infrastructure Contracts
MENA	Middle East and North Africa
MFD	Mobilizing Finance for Development
MoF	Ministry of Finance
MoIC	Ministry of International Cooperation
MoT	Ministry of Transport
MTR	Midterm Review
NPV	Net Present Value
OHS	Occupational Health and Safety
ONCF	Moroccan National Railways Office
OPRC	Operational Procurement Review Committee
PAD	Project Appraisal Document
PAP	Project Affected Persons
PBC	Performance- Based Condition.
PCM	Private Capital Mobilization
PDO	Project Development Objective
PFM	Public Financial Management
PFS	Project Financial Statement
PIE	Project Implementation Entity
PLD	Passenger Long-Distance
PMC	Project Management Consultant
PMU	Project Management Unit
POM	Project Operations Manual
PPP	Public-Private Partnerships

PPSD	Project Procurement Strategy for Development
PSD	Passenger Short-Distance
PSO	Public Service Obligations
PSOC	Public Service Obligations Contract
PSP	Private Sector Participation
PTES	Payment on The Expense of the State
RAM	Reliability, Availability and Maintenance
RF	Resettlement Framework
RFM	Results Framework and Monitoring
RISE	Railway Improvement and Safety for Egypt
RPF	Resettlement Policy Framework
RSRU	Railway Safety Regulatory Unit
SBA	Stand-By Agreement
SC	Steering Committee
SCAP	Safeguard Corrective Action Plan
SDG	Sustainable Development Goal
SDS	Sustainable Development Strategy
SEP	Stakeholder Engagement Plan
SMEs	Small and Medium Enterprises
SMS	Safety Management System
SORT	Systematic Operations Risk-Rating Tool
SPD	Standard Procurement Documents
STEM	Science, Technology, Engineering and Mathematics
STEP	Systematic Tracking of Exchanges in Procurement
TA	Technical Assistance
TKP	Takaful and Karama Program
ToC	Theory of Change
ToR	Terms of Reference
UN	United Nations
UNDP	United Nations Development Programme
VC	Videoconference
WA	Withdrawal Applications
WBG	World Bank Group
WHO	World Health Organization

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DATASHEET

BASIC INFORMATION

Country(ies)	Project Name
Egypt, Arab Republic of	Railway Improvement and Safety for Egypt Project

Project ID	Financing Instrument	Environmental and Social Risk Classification
P175137	Investment Project Financing	Substantial

Financing & Implementation Modalities

[ ] Multiphase Programmatic Approach (MPA)	[ ] Contingent Emergency Response Component (CERC)
[ ] Series of Projects (SOP)	[ ] Fragile State(s)
[✓] Performance-Based Conditions (PBCs)	[ ] Small State(s)
[ ] Financial Intermediaries (FI)	[ ] Fragile within a non-fragile Country
[ ] Project-Based Guarantee	[ ] Conflict
[ ] Deferred Drawdown	[ ] Responding to Natural or Man-made Disaster
[ ] Alternate Procurement Arrangements (APA)	[ ] Hands-on Enhanced Implementation Support (HEIS)

Expected Approval Date	Expected Closing Date
04-Mar-2021	30-Sep-2027

Bank/IFC Collaboration

No

Proposed Development Objective(s)

To improve safety and service quality of the railway services along the Alexandria-Cairo-Nag Hammadi corridor.

Components

Component Name	Cost (US$, millions)

Safe System Signaling Modernization	602.00
Safe System Asset Management Improvement	54.00
Project Delivery, Institutional and Human Resource Development	24.00

Organizations

Borrower:	Arab Republic of Egypt
Implementing Agency:	EGYPTIAN NATIONAL RAILWAYS Ministry of Transport

PROJECT FINANCING DATA (US$, Millions)

SUMMARY

Total Project Cost	681.10
Total Financing	681.10
of which IBRD/IDA	440.00
Financing Gap	0.00

DETAILS

World Bank Group Financing

International Bank for Reconstruction and Development (IBRD)	440.00

Non-World Bank Group Financing

Counterpart Funding	241.10
Borrower/Recipient	241.10

INSTITUTIONAL DATA

Practice Area (Lead)

Transport

Contributing Practice Areas

Climate Change and Disaster Screening

This operation has been screened for short and long-term climate change and disaster risks

SYSTEMATIC OPERATIONS RISK-RATING TOOL (SORT)

Risk Category	Rating
1. Political and Governance	Moderate
2. Macroeconomic	Moderate
3. Sector Strategies and Policies	Substantial
4. Technical Design of Project or Program	Moderate
5. Institutional Capacity for Implementation and Sustainability	Substantial
6. Fiduciary	Substantial
7. Environment and Social	Substantial
8. Stakeholders	Moderate
9. Other	Moderate
10. Overall	Substantial

COMPLIANCE

Policy

Does the project depart from the CPF in content or in other significant respects?

[ ] Yes [✓] No

Does the project require any waivers of Bank policies?

[ ] Yes [✓] No

Environmental and Social Standards Relevance Given its Context at the Time of Appraisal

E & S Standards	Relevance
Assessment and Management of Environmental and Social Risks and Impacts	Relevant
Stakeholder Engagement and Information Disclosure	Relevant
Labor and Working Conditions	Relevant
Resource Efficiency and Pollution Prevention and Management	Relevant
Community Health and Safety	Relevant
Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	Relevant
Biodiversity Conservation and Sustainable Management of Living Natural Resources	Relevant
Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	Not Currently Relevant
Cultural Heritage	Relevant
Financial Intermediaries	Not Currently Relevant

NOTE: For further information regarding the World Bank's due diligence assessment of the Project's potential environmental and social risks and impacts, please refer to the Project's Appraisal Environmental and Social Review Summary (ESRS).

Legal Covenants

Sections and Description

Loan Agreement. Schedule 2. Section I. A.2(b) (ii): Establish not later than three months after the Effective Date, or such later date as agreed between the Borrower and the Bank in writing from time to time, and thereafter maintain at all times during the implementation of the Project, a Steering Committee with membership and terms of reference satisfactory to the Bank. The Steering Committee shall be responsible for technical oversight, coordination and supervision of activities under Part 3.2 of the Project, in coordination with the Ministry of Transport and the Project Implementing Entity.

Sections and Description

Loan Agreement. Schedule 2. Section I. E.1: Not later than twelve (12) months after the Effective Date, or such later date as agreed with the Bank in writing from time to time, appoint and thereafter maintain, at all times during the implementation of the Project, an independent verification agent with qualifications, experience and under terms of reference acceptable to the Bank ("Independent Verification Agent" or "IVA"), to verify the data and other

evidence supporting the achievement of the PBC as set forth in the Verification Protocol and recommend the corresponding payment to be made, as applicable, under Category (2).

Sections and Description

Project Agreement. Schedule. Section I.B.1 (a): The Project Implementing Entity shall, not later than six (6) months after the Effective Date, prepare and adopt a Project operations manual containing detailed guidelines and procedures for the implementation of the Project, including with respect to: administration and coordination, monitoring and evaluation, financial management, procurement and accounting procedures, environmental and social arrangements, fraud and corruption mitigation measures, a grievance redress mechanism, Personal Data collection and processing in accordance with good international practice, roles and responsibilities for Project implementation, the appointment of an Independent Verification Agent for PBC activities, and such other arrangements and procedures as shall be required for the effective implementation of the Project, all in form and substance satisfactory to the Bank ("Project Operations Manual").

Sections and Description

Project Agreement. Schedule. Section I.E.1: Not later than twelve (12) months after the Effective Date, or such later date as agreed between the Borrower and the Bank in writing (including electronic mail) from time to time, appoint and thereafter maintain, at all times during the implementation of the Project, an independent verification agent with qualifications, experience and under terms of reference acceptable to the Bank ("Independent Verification Agent" or "IVA"), to verify the data and other evidence supporting the achievement of the PBC as set forth in the Verification Protocol and recommend the corresponding payment to be made, as applicable, under Category (2).

Sections and Description

Project Agreement. Schedule. Section III.1: To facilitate the proper maintenance of its financial management system, the Project Implementing Entity shall, not later than twelve (12) months after the Effective Date, appoint an external auditor in accordance with the provisions of the Procurement Regulations.

Conditions

Type	Description
Effectiveness	Loan Agreement. Article IV. 4.01 This Agreement shall become effective once the Bank has received evidence that all the necessary constitutional procedures have been taken by the Borrower in accordance with the provisions of Section 9.01 of the General Conditions.
Type	Description
Effectiveness	Loan Agreement. Article IV. 4.02 The Additional Condition of Effectiveness is that the Subsidiary Loan Agreement has been entered into between the Borrower and the Project Implementing Entity.
Type	Description
Effectiveness	Loan Agreement. Article IV. 4.03 The Additional Legal Matter to be included in the Legal Opinion is that the Subsidiary Loan Agreement has been duly authorized by the Borrower and the Project Implementing Entity, and is legally binding upon the Borrower and the Project Implementing Entity, in accordance with its terms.

Type	Description
Disbursement	Loan Agreement, Schedule 2, Section III. B.1.(a): Notwithstanding the provisions of Part A of this section, no withdrawal shall be made for payments made prior to the Signature Date, except that withdrawals up to an aggregate amount not to exceed €72,580,000 may be made for payments made prior to this date but on or after January 1, 2021, for Eligible Expenditures under Category (1).
Type	Description
Disbursement	Loan Agreement, Schedule 2, Section III. B.2: Notwithstanding the provisions of Part A of this Section, payments under Category (2) shall not exceed the maximum amounts allocated to the PBC as provided for in Verification Protocol.
Type	Description
Disbursement	Loan Agreement, Schedule 2, Section III. B.1.(b): Notwithstanding the provision of Part A, no withdrawal shall be made under Category (2), unless and until the Borrower, through the Project Implementing Entity, has furnished evidence acceptable to the Bank that the PBC set forth in the Verification Protocol for which payment is requested has been met and verified in accordance with said Verification Protocol.
Type	Description
Disbursement	Loan Agreement, Schedule 2, Section III. B.3: Notwithstanding the provisions of paragraph 1(b) of this Section III.B, if the PBC set out in the Verification Protocol has not been achieved by the Closing Date, the Bank may, in consultation with the Borrower: (a) reallocate all or a portion of the proceeds of the Loan then allocated to Category (2) to any other Category; and/or (b) cancel all or a portion of the proceeds of the Loan then allocated to said Category (2).

I. STRATEGIC CONTEXT

A. Country Context

1. **Egypt's macroeconomic environment has shown resilience in the face of the global crisis caused by the COVID-19 pandemic, yet job losses have been reported.** Before this crisis, the Arab Republic of Egypt's macroeconomic stabilization program was largely successful in supporting growth, generating a solid primary budget surplus, reducing the debt-to-gross domestic product (GDP) ratio, and replenishing reserves. Real GDP growth had reached 5.6 percent in fiscal year (FY) 2019, compared to an average of 4.6 percent over the previous three years. Despite the implementation of several containment measures, growth is estimated to have declined (albeit remaining positive) to 3.6 percent in FY2020 (July 1 to June 30). Non-oil private sector activity slowed down, as evidenced by the decline of the Purchasing Managers' Index (PMI), to its lowest level on record (38.3 percent) during April to June 2020. The PMI has since rebounded but continues to signal sluggish activity due to the pandemic.

2. **Foreign reserves remain ample, despite the adverse impact of the pandemic on Egypt's external accounts, notably at the outset of the crisis.** Foreign reserves started depleting rapidly, affected by the large-scale capital outflows, and the sharp drop in tourism receipts, Suez Canal revenues, and merchandise export proceeds. Reserves however, remain ample at US$38.2 billion in end-FY2020 (equivalent to seven months of merchandise imports), well below the pre-crisis peak of US$45.5 billion in end-February 2020. The exchange rate depreciated marginally from EGP 15.7/U.S. dollar in February 2020 to around EGP 16/U.S. dollar as of August 2020. Fiscal consolidation has been challenged by the crisis, but the budget deficit remained at 8 percent of GDP in FY2019/20, broadly in line with its level a year earlier. Further, the primary balance remained in surplus despite the crisis. The slowdown in fiscal consolidation was caused mainly by the decline in the tax-to-GDP ratio even before the crisis, and was exacerbated by the economic contraction and the postponed tax payments during Q4-FY2020. Government debt decreased to 90.2 percent of GDP by end-FY2018/19 from the 108 percent two years earlier. Government debt is estimated to have declined further to 88 percent in end-FY2020, signaling a commitment to continued debt-reduction.

3. **The Government of Egypt (GoE) has undertaken several public health, social and macroeconomic measures in 2020 to mitigate the impact of the crisis.** These include the allocation of an emergency response package worth EGP 100 billion (1.6 percent of GDP), in part to scale up health expenditures and augment social protection programs. Forbearance measures were introduced in the form of delayed tax filing and loan repayments, in addition to subsidized credit to targeted sectors to alleviate immediate financial pressures on individuals and businesses. The Central Bank of Egypt (CBE) eased monetary policy by slashing key policy rates by 350 basis points. This year, Egypt has also mobilized external financing: a US$2.8 billion stopgap loan under the International Monetary Fund's (IMF's) Rapid Financing Instrument, a US$5.2 billion Stand-by Arrangement (of which the first US$2 billion tranche was disbursed), as well as a US$5 billion sovereign Eurobond issuance and a US$750 million green bond issuance.

4. **The global economic outlook remains uncertain and will depend on the duration and severity of the pandemic and the speed of global recovery.** Under the scenario that the pandemic persists through early 2021, growth is expected to further decline in FY2021. Private consumption is expected to remain constrained by falling household incomes and job losses.

5. **Egypt's recently implemented reforms have helped bring the poverty rate down, yet the multidimensional health and economic crisis caused by the pandemic will increase socioeconomic hardship.** The latest official statistics on poverty –released in December 2020– indicate that 29.7 percent of the population lived below the poverty line during the period October 2019 - March 2020. This indicates a decline compared to the 32.5 percent poverty rate of FY2018. The impact of the pandemic on jobs and incomes can cause an increase in social hardship.

To mitigate the social impact on vulnerable groups, the cash transfer programs *Takaful* and *Karama* were extended to another 160,000 families, and payments were increased to women leaders in rural areas. An exceptional grant of EGP 500 per person was disbursed for three months to registered casual workers and covered approximately 2 million individuals.

6. **The Sustainable Development Strategy (SDS): Egypt Vision 2030, enacted in 2016, targets economic inclusiveness and sustainability as it focuses on economic, social, and environmental dimensions.** The main objective of the SDS is to "achieve a competitive, balanced, diversified and knowledge-based economy, characterized by justice, social integration and participation, with a balanced and diversified ecosystem, benefiting from its strategic location and human capital to achieve sustainable development for a better life to all Egyptians." The SDS emphasizes the principles of "inclusive sustainable development" and "balanced regional development," as it considers equal opportunities for all, closing development gaps and the efficient use of resources to ensure the rights of future generations.[1] The SDS has three dimensions and ten pillars: (a) Economic Dimension comprising the pillars of (i) Economic Development, (ii) Energy, (iii) Knowledge, innovation, and scientific research, and (iv) Transparency and efficient government institutions; (b) Social Dimension comprising (v) Social justice, (vi) Health, (vii) Education and Training, and (viii) Culture; and (c) Environmental Dimension comprising (ix) Environment and (x) Urban Development.

7. **The transport sector is critical for Egypt to achieve economic, social, and environmental targets.** Transport has direct and indirect linkages to all three dimensions of the SDS, as well as to the pillars of economic development, energy, transparency and efficient government institutions, social justice, health, environment, and urban development. Transport facilitates an inclusive market economy: good transport systems provide efficient access to employment and economic opportunities to the disadvantaged population, while distributing goods at lower prices to a broader geography.[2] Sound governance of the transport sector can address gender and disability considerations through effective policy interventions and investment projects, and expand the participation of these disadvantaged groups in the labor force.

B. Sectoral and Institutional Context

Egyptian National Railways (ENR): Background and the Current Situation

8. **Egypt is the third most populous country in Africa, after Nigeria and Ethiopia, and is the largest Arab country, with 101.1 million inhabitants, which is growing at 2 percent annually.[3]** Almost half of the population lives in urban areas, while the rest resides in provinces and cities surrounded by intensively cultivated and irrigated land in the Nile River basin. Thus, the transport network is concentrated around the Nile River, with roads and railways following the course of the river.

9. **The ENR plays a critical role in passenger transport in the main urban areas and for interurban trips but remains a marginal player for freight.** The ENR network comprised of over 5,000 km of rail tracks–of which a third is double track and two-thirds are concentrated in the Nile River Delta–primarily offers passenger services for low-income Egyptians. About 270 million passengers took trains in FY2019, up from 228 million in FY2015 and 247 million in FY2010. Passenger transport services represent over 90 percent of the ENR's total operational activity[4]. The ENR

[1] CAPMAS. (2016). SUSTAINABLE DEVELOPMENT STRATEGY (SDS): EGYPT VISION 2030. Cairo: CENTRAL AGENCY FOR PUBLIC MOBILIZATION AND STATISTICS - CAPMAS.
[2] Bertaud, A. (2018). *Order Without Design - How Markets Shape Cities.* Cambridge: MIT Press.
[3] CAPMAS. (2020). Country Statistics. Cairo.
[4] IDE-JETRO. (2020, August). Egyptian National Railways (ENR) - AGE (African Growing Enterprises). Retrieved from Institute of Developing

network is one of the highest traffic density railways in the world, logging in a total of more than 32 billion passenger-km per year in 2016/2017 and transporting 1.4 million passengers per weekday.[5] Rail transport plays a marginal role for freight with 3 million tons (1.46 billion ton-km carried in 2016), accounting for 4 percent of the ENR's overall traffic and 1 percent of all cargo moved nationwide, after years of decline.

10. **The urban transport and railway sectors face a few obstacles that lead to weak performance.** The ENR, the Cairo Transport Authority (CTA), and the metro have yearly deficits[6] due to lower ridership, which has been aggravated by the pandemic. The fare structure is set low on the grounds of user affordability and subsidies are allocated to cover operational losses. Subsidies in other countries are allocated against measurable performance to incentivize efficiency. With this modern approach absent, subsidies can become unsustainably high, coupled with political pressure to avoid fare increases, which creates long-term funding instability that results in underinvestment. As explained below, the Railway Improvement and Safety for Egypt (RISE) Project seeks to introduce performance-based funding for the ENR.

11. **The ENR faces challenges in terms of operations, maintenance, and customer service:** (a) Operations: Operating costs outweigh commercial revenue; for the last period available, 2018–2019, costs totaled EGP 15.8 billion while the corresponding revenue was EGP 2.5 billion.[7] Loan repayment accounts for EGP 8.6 billion, while operating and maintenance costs amount to EGP 7.2 billion. Contributions from the Ministry of Finance (MoF) do not entirely cover the deficit, resulting in increased debt. Measures taken to curb the pandemic aggravated this situation due to lower ridership, but the impact will only be known in next year's reports. (b) Maintenance: The deferred track renewal work is reported at 800 km. During the period 2013–2019, the ENR maintained on average 100 km of track per year, which is insufficient for the size of the network. (c) Customer service: The ENR is the main provider of interurban passenger transport. In the absence of any competition, the ENR fully controls its operations, manages its infrastructure, and determines services to customers unilaterally. However, the factors that favor this practice no longer exist, and in the presence of aggressive competition from the roads sector, the ENR cannot ignore the need to design services to meet customer needs.

12. **The following three key additional barriers continue to impede the ENR's performance:** (a) Unresolved funding of passenger services: Similar to many passenger railways worldwide, the ENR is asked by the government to provide railway passenger services, but fares do not cover costs and subsidies are not linked to performance. (b) Insufficient funding of operating expenditures: Given the historic shortage of funds for operations, the ENR uses about 6–10 percent of its approved capital investment budget for funding of operational expenditures. Funding for capital investments, when not sourced from international financial institution (IFI) loans, is sourced from the budget. Further analysis on the subject is necessary to identify the hidden operating costs for materials, spare parts, or consumables in capital investment expenditure, in order to be able to more precisely estimate the real operating costs of each of the business units of the ENR. (c) Unit costs lack clarity: The current methods of recording and allocation of costs do not meet the international good practice standards because: (i) the ledgers do not record all operating costs, and (ii) not all direct operating costs recorded in the ledgers are allocated to the unit incurring them. The RISE Project seeks to address these problems as explained below.

13. **Statistics on fatalities or the seriously injured are not robust, and occurrences often remain underreported.** The main causes of safety incidents are people getting on/off a moving train, illegal crossings, and poor training

Economies - Japan External Trade Organization: https://www.ide.go.jp/English/Data/Africa_file/Company/egypt03.html

[5] Egyptian National Railway. (2020). Retrieved from Egyptian National Railway: *https://enr.gov.eg/ticketing/public/about.jsf*; and World Bank. (2018a). *EGYPT - Enabling Private Investment and Commercial Financing in Infrastructure.* Washington, D.C.: World Bank.

[6] World Bank. (2018a). Opus Cit.

[7] ENR. (2019). *ENR preliminary cost ledger.*

leading to human error/malpractice. These reasons are common to many other countries.[8] For 2019, the ENR reported 693 serious injuries (requiring hospitalization) and 452 fatalities. The RISE Project centers on improving railway safety in a systemic and holistic manner as explained below, for example through the development of the Safety Management System (SMS).

14. **The ENR service is partially integrated with other public transport, because it lacks connections and fare integration.** Energy-intensive road-based transport predominates in this environment. There are six public transport systems in Greater Cairo: the ENR passenger trains; the metro (a 78-km, three-line network with 65 stations moving 4 million passengers daily); tram; buses (standard, executive, and mini); taxis (collective, standard); and ferries. Yet, there is no proper fare, physical, and schedule integration. Intermodal transfers are expensive and inconvenient. This lack of integration is problematic, particularly for people who live in small settlements along the Nile River Delta, as well as in suburban New Urban Communities in Cairo. Women are also affected by the lack of integration because they need to transfer from one mode to another more frequently than men.

Railway Reform and Modernization

15. **The railways in Egypt operate under the full supervision of the Ministry of Transport (MoT).** The MoT must endorse the ENR Board's decisions that have a political or social impact such as tariff setting, and/or affect the national debt. Matters involving general policy, administration, and governing of ENR staff are overseen by the ENR Chairman. ENR also reports to the Railway Safety Regulatory Unit (RSRU) at MoT, established in 2007. RSRU has three units: (1) Analysis and Research of Safety, (2) Safety Rules, and (3) Safety Compliance. The RSRU acts as the safety regulator of railway and metro transport. In this capacity, the RSRU develops and approves the national safety regulations, issues certificates, permits and safety licenses, and reviews and approves ENR's and Metro's operating rules and procedures, and carries out accreditations of new systems. As a result, the National Safety Regulations for Railway Transport are in place and are already transposed in the Safety Rules and Safety Procedures for the railway and the metro, with the support of experts from the ENR and the Metro company. Using this foundation, this project will translate these rules and procedures into the SMS and add a systemic view of safety.

16. **The MoT sees the modernization and reform of railways as critical to meet the travel needs of the low-income population and boost the overall economy.** Rail is one of the lowest emitting modes of greenhouse gases (GHGs). Improving the service for millions of passengers per day is a priority, particularly because these riders depend on the ENR to access jobs and other opportunities. Likewise, increasing freight transport is a critical objective. The ENR has set an ambitious target to carry approximately 25 million tons of freight annually by 2022 (equivalent to 5 percent of total freight carried in Egypt), up from 4.6 million tons carried in 2017–2018. For now, the Government intends to spend EGP 141 billion (US$9 billion) on overhauling the country's railway system through 2022.

17. **The GoE decided recently to accelerate the pace of modernization by introducing a set of measures for mitigating the debt that the ENR has accumulated to cover deficits, and to avoid accumulating more debt.** Starting with the next financial year (from July 1, 2021), the MoF will exempt the ENR from paying interest on existing debt; the existing debt will be frozen and will be accounted separately from the accounts of the ENR. Recognizing and resolving the historical debt issue is a step other countries have taken as part of their reform efforts (see Box 1 below). In addition, public funds that MoF annually allocates for railway activities (both for operations and investments) will reach EGP 5.5 billion, which is a substantial increase on the current public contribution. Finally, also in line with international best practice, the GoE will define and implement the instruments for financial compensation to the ENR for the reduced-price tickets paid by special categories of passengers who are protected by special laws in Egypt (such as children, students, retired persons, military, and the police). Line ministries and other government entities will

[8] International Union of Railways (UIC) Safety Report, Nov 2020.

include funds in their budgets for the compensation of the ENR for the privileged categories of passengers (for example, the Ministry of Education for students and the Ministry of Defense for the military).

18. **The MoT has also been implementing an important program to increase the safety of the railway, mainly by reducing maintenance backlogs and modernizing obsolete assets, especially with its track renewal and signaling modernization programs.** The World Bank has focused on improving railway signaling, because signaling allows trains to operate safely and reliably, as explained below. Other development institutions provide financial support to the ENR that builds on the existence of upgraded signaling. For example, for replacing locomotives and passenger rolling stock, including by the European Bank for Reconstruction and Development (EBRD), the European Investment Bank (EIB), the African Development Bank (AfDB), and the French Development Agency (Agence Française de Développement, AFD). (See Table 6 in Annex 3 for a list of ENR's loans from these agencies).

The Egypt National Railways Restructuring Project (ENRRP): Background and the Current Situation

19. **The World Bank has been supporting the GoE and the ENR through extensive analytical engagement in the sector, as well as through long-standing operational experience, through the ENRRP (P101103).** The ENRRP loan for US$270 million was approved in 2009 (International Bank for Reconstruction and Development [IBRD]-76560). In 2010, the Board approved an Additional Financing (AF) loan for US$330 million (IBRD-79820). The ENRRP development objective was to improve the reliability, efficiency, and safety of the railways' services on targeted sections of the rail network. The ENRRP supported investments in rail infrastructure and signaling systems to improve efficiency, service levels, and operational safety on some of the ENR's most heavily transited segments (Alexandria–Cairo and Beni Suef–Asyut–Nag Hammadi). The ENRRP closed on December 31, 2020.

20. **The ENRRP generated major improvements in the railway transport sector in Egypt.** It introduced measures to strengthen the ENR's management capacity and operational and financial restructuring. The institutional reform part was also supported by the Italian Cooperation. In addition, the track upgrade component demonstrated that private contractors can deliver works below estimated cost—which enabled the scope to be increased from the original target of 200 km to 296 km. Several signaling segments were commissioned, thus allowing the ENR to train staff and see the benefits of the upgrades. However, as with many complex projects involving a reform agenda, complex civil works, and a change in culture, overall implementation was not always smooth.

21. **The ENR's signaling modernization works experienced significant completion delays.** The project faced several challenges along the way, which were not caused by a single event but by a combination of unrelated circumstances and failures, including managerial, technical, and political. A more detailed account of the ENRRP, its implementation status, and lessons learned are presented in Annex 3. Despite major efforts by the ENR to accelerate track upgrade works, the overall scope of the outstanding works was large and was not finalized by the closing date on December 31, 2020. The installation of signaling cannot be properly completed without the necessary upgrades and essential complementary track infrastructure. Should installation be interrupted, crashes will likely occur, which goes against the key benefits of the project: safe operations at high speeds, improved reliability, higher capacity, and reduction in overcrowding.

22. **The ENRRP included reforms, because investments in infrastructure alone will not reverse the decline of the ENR unless internal reforms are enacted and supported by an adequate legal framework with proper accountability of ENR management that is at arm's length from political interference.** The reforms progressed well during 2007–2010, as shown by (a) the implementation of a staff reduction plan, (b) better fare collection from passengers and reduction in fraud, and (c) better accounting through the creation of business units by type of service (for example, Passenger Long-Distance [PLD]) instead of by technical branches, such as railway lines (see Annex 3). These efforts improved the overall balance sheet, as a result of better cost recovery and some staff reduction. However, the reform process eventually stalled because of: (a) The Arab Spring (February 2011) led to instability that

derailed the reform effort and led to frozen revenues, while costs increased due to inflation and liberal hiring of new staff; (b) and the MoT did not establish a Steering Group to guide the reform at a higher level, as suggested by the World Bank in 2014. Due to the lack of oversight, although the ENR hired a consultant under the ENRRP in October 2016 to assess the ENR's performance and propose the reform agenda, the consultant could not develop the required financial model to identify the costs, risks, impact, and benefits along with the resources required to deliver the reform. These events prevented the key stakeholders (MoF, MoT) from properly considering the reform proposals and convincing the ENR to undertake them. The ENR closed the consultant's contract in late 2019. The RISE Project builds on the lessons from this experience.

Gender and Transport

23. **Globally, concerns of harassment in transport and broadly in the public space represent one of the mobility barriers that affect women and girls disproportionately compared to men and boys, and Egypt is not an exception**.[9] The ENR is an industry leader in this regard, as it worked to identify ways to make transportation safer for everyone. For example, in November 2020 the ENR launched a gender awareness campaign, El Sekka Amman ("The (Rail)Way is Safe") initiative to combat sexual harassment on public transport. Since 2015, the ENR has been working to provide secure train services adapted to the needs of female passengers. The EBRD awarded the ENR the Gold Award in 2018 in the Gender and Inclusion category for its contribution to safe transportation and the Bronze Award in 2020. There are still challenges, as in Egypt only 22 percent of females aged 15 and above participate in the labor force, compared to 71 percent of males.[10] Addressing mobility challenges is critical to enhance female labor force participation and boost economic growth.

24. **In addition, only about 3 percent of about 45,000 ENR employees are women, with more than half engaged in administration.**[11] For example, 215 of 886 engineers are women. Albeit low, the higher share of women engineers compared to the overall share of women in the ENR reflects the remarkable success that women have achieved in the Science, Technology, Engineering and Mathematics (STEM) fields of education: almost half of the STEM graduates in Egypt are female.[12] Still, there are ample opportunities to improve gender balance in technical roles in the ENR. As it is generally the case in the transport sector, the most common issues that typically impede women's access to employment in the ENR include: (a) perceptions that the sector is highly male dominated, which can dissuade women from even thinking of applying for a job in the sector, or physically strenuous, as well as gender stereotypes about the specific roles and capabilities of men and women; (b) the prevalence of a male-dominated work culture; (c) inflexible and generally unattractive terms and conditions of employment, for example, many jobs in the sector involve the need for spatial mobility and irregular and/or atypical working hours, including shift work, which are often difficult to reconcile with family life and represent an obstacle to the employment of women—and also men—with responsibilities for providing care; (d) workplace health and safety issues, which commonly stem from a lack of appropriate facilities and equipment for women, for example, toilets, changing rooms, or gender-specific personal protective equipment; and (e) lack of clear career trajectories and opportunities. International experience shows that lack of gender-responsive transport services and lack of women in the sector reinforce each other. Lack of women contributes to women's safety concerns and their voices as transport users not being heard, with often little incentive for transport services to respond to the particular needs of women service users. Employing more women in the

[9] World Bank. (2018b). Egypt: Women Economic Empowerment Study. Retrieved from https://www.worldbank.org/en/country/egypt/publication/egypt-women-economic-empowerment-study
[10] World Bank. (2019). Gender Data (ILO Estimates). Washington D.C. Retrieved from https://data.worldbank.org/topic/gender.
[11] Mena Rail Transport Consultants. (2020). Preliminary Gender Assessment - Railway Freight Project. Cairo.
[12] World Bank. (2018b). Opus Cit.

transport sector in those roles that are traditionally male dominated can lead to more inclusive transport service development, in addition to the obvious benefits of providing women with income-generating opportunities.

Railways and Climate Change Risks

25. **The project area is exposed to high climate change risks, and the project will accelerate climate change adaptation by improving resilient railway service.** The project extends from the humid and wet Nile River Delta region in the north to the dry desert areas along the Nile River in the south, and the railway service benefits broader areas beyond the corridor itself. The ENR network connects dense urban areas of Greater Cairo (population: 20 million), Alexandria (5 million), Asyut (4 million), and rural cities along the corridor running parallel to the Nile to economic opportunities, and government and social services. The World Bank conducted a disaster risk screening which resulted in a rating of 'high' for extreme climate conditions, including extreme temperature, extreme precipitation and flooding, drought, and strong winds, as well as 'moderate' risk for earthquakes. The risks of these climate events will be higher in the future: the mean annual temperature is expected to increase by 2 to 3°C by 2050 (more rapidly in the interior regions); the frequency of extreme storm events is projected to increase with greater flooding and storm damage, and an increase in the frequency of sandstorms. The rural population of the 13 governorates along the corridor exceeded 32 million (or 49.7 percent of the population) as of 2016, and climate change will also affect some traditional professions in rural areas, notably agriculture. Women are identified as particularly vulnerable to impacts from climate hazards: the agriculture sector, known for its low and unstable earnings, employs over 40 percent of Egypt's working women. Thus, rural women in agriculture, usually seasonal workers with unstable earnings, are vulnerable to food insecurity, particularly in light of the expected impact of climate change on the sector.[13] With the World Bank's support to improve ENR's safety and inclusiveness, it can provide reliable and resilient means of transport to the population at risk, since technologies have evolved to ensure operational continuity and safety even in the event of disruptions caused by excessive heat events and floods. The project will adapt to climate change by improving the safety of the railway network to ensure that the rural population will have resilient access to medical specialists and doctors at large hospitals, education opportunities at universities, and government services. The project will also strengthen the resiliency of access to economic opportunities, such as farmers' ability to transport goods to broader markets.

The Proposed RISE Project

26. **The GoE requested a new loan from the IBRD in the amount of US$440 million for the "modernization of railway signaling and communication on the Cairo–Giza–Beni Suef segment of the ENR network."** The loan request for US$440 million includes completing activities that were on-going at the closing date of the ENRRP, as well as additional activities. The ENRRP and the RISE Project loans will be accounted separately, and no funds will be rolled over. The rolled over activities will be eligible for financing under the RISE Project, as they are (or will be) in compliance with the World Bank procurement, financial management (FM), and safeguards requirements. For example, the ongoing contracts for signal upgrades will be amended to include the safeguard instruments for the RISE Project that reflect the Environmental and Social Framework (ESF). In the case of procurement, retroactive financing will facilitate the rolled over contracts to be eligible for RISE Project financing. Finally, the gap between the closing of the ENRRP and the effectiveness of the RISE Project will not preclude supervision of the ongoing works. More details on these transitions are in the Lessons Learned, FM, and Procurement sections.

27. **Transferring of the unfinished signaling works and continuing the reform effort started under the ENRRP to the proposed RISE Project is vital and time sensitive.** The RISE Project is proposed to complete the signal

[13] Kandeel, A. (2017, October 19). Millions of Rural Working Women in Egypt at Risk from Climate Change. Retrieved from Middle East Institute: https://www.mei.edu/publications/millions-rural-working-women-egypt-risk-climate-change.

modernization works started by the ENRRP, and to modernize the Cairo–Giza–Beni Suef section (see Annex 4 Map). The RISE Project includes a comprehensive approach to improve safety and asset management, as well as to bring a state-of-the-art approach for the use of Big Data and other analytics. The project seeks to create an enabling environment for changing ENR's culture around safety by introducing a systemic vision of safety. Gender, disability, as well as resilience and adaptation to climate change are also included. Interrupting World Bank support at this time would leave the ENR with a poorer safety standard than before the ENRRP's inception, because the previous control systems were dismantled to allow the installation of the new system which is not yet operational. Halting works now will carry significant economic costs, because train operations will be disrupted as a result of *de facto* manual signaling. The cost of intercity travel will increase, and users will lose time, thus affecting the economic welfare of the poor. Some users might switch to more polluting modes, such as motorcycles or cars. Moreover, in October 2020 the AfDB approved a EUR 145 million loan to install the European Train Control System Level 1 (ETCS-1) on the same segments that the RISE Project plans to upgrade the railway signals. ETCS-1 needs the upgraded signals to function properly. The proposed RISE Project thus becomes indispensable for the sustainability of the ENR's network safety, as the installation of ETCS-1 is only possible on railway segments where the signals have been upgraded. The MoT will coordinate these two key investment activities, plus others shown in Table 6 in Annex 3.

28. **The proposed RISE Project will help the MoT to deepen reform efforts by introducing performance-based funding, in accordance with best international practices** (see box 1). The RISE Project includes a strategic study that will design this reform to allow the GoE to transition from making discretionary contributions to the ENR to the modern practice of procuring railway and infrastructure services under a Public Service Obligation Contract (PSOC) and a Multi-Annual Infrastructure Contract (MAIC) with the ENR. The goal of the railway reform is to have the MoT, for example, buy services from the ENR. In this allocation of roles, the MoT will specify the services it needs (infrastructure availability, annual timetable—all or some of its parts) and the ENR will assume responsibility for developing a commercially sustainable plan and define the most advantageous way to provide such services, and deliver the specified services.

29. **The GoE will thus ensure the delivery of socially beneficial services which are otherwise unprofitable.** In addition, funding of the ENR's non-commercial activities (funding of railway infrastructure and necessary services for passenger transport) will no longer be perceived as a subsidy, because public funding to the ENR will be partially linked to the PSOC and MAIC to cover the capital, operation, and maintenance costs of the fleet and the infrastructure. The PSOC and MAIC will include key performance indicators (KPIs) to incentivize good performance. The ENR will therefore be funded through a performance-based mechanism. These incentives will generate better management of the ENR's operations, demand-based investments, and transparency of public expenditures. The operation of unprofitable but socially beneficial railway passenger services will be contracted to service providers such as the ENR under a PSOC. While the ENR is the single operator at the moment, private providers could also be contracted in the future, as the playing field will be leveled. The related contracts will be a part of government policy to make the mobility of people financially more sustainable, which will eventually reduce public funding for the PSOC. The RISE Project will help the modernization reach international best practices that have shown positive results in Europe and elsewhere. To ensure the implementation of this reform, the RISE Project includes a Steering Committee (SC) with the MoT, MoF, and the Ministry of International Cooperation (MoIC), plus a Performance-Based Condition (PBC).

30. **The RISE Project will improve the safety and quality of service in ENR's Alexandria-Cairo-Nag Hammadi corridor.** It will introduce performance-based funding to complement the modernization efforts led by the MoT. The project includes gender considerations, stakeholder engagement, and contributions to mitigation and adaptation to climate change.

C. Relevance to Higher Level Objectives

31. **The World Bank Group (WBG)'s Egypt Country Partnership Framework (CPF) for FY2015–FY2019 was discussed by the Board of Executive Directors December 17, 2015 and was extended in 2019 for two additional years to FY2021** (Report No.: 94554-EG)**.** Enhanced capacity and safety of key transport infrastructure are key objectives under the CPF Focus Area 2 - Improved Opportunities for Private Sector Job Creation and CPF Objective 2.3 **- Enhanced Capacity and Safety in Key Transport Infrastructure.** Transport infrastructure bottlenecks currently serve as key constraints to trade, mobility, job creation, service delivery, and low rates of women's participation in the labor force. The challenges posed by the COVID-19 pandemic reconfirm these CPF pillars with a focus on structural reforms of the highly impacted sectors while supporting the poor, and through strengthening the social safety net as well as enabling private sector investment and job creation.

32. **The proposed project aligns with adjustments made to the Egypt CPF in response to the COVID-19 pandemic (Egypt COVID-19 Response Strategy, see also Annex 2)** to support the poor and highly impacted sectors by accelerating post-pandemic economic recovery, as per the strategic direction of the GoE. The project will inject capital into the Egyptian economy and generate direct short-term employment, which will trigger a multiplier effect in the economy and add to a V-shaped recovery that the country hopes to achieve. Tourism is an important sector of the Egyptian economy that has been hard-hit by the pandemic and the prolonged lockdown; the project will significantly increase the capacity of the ENR trains to destinations popular among international tourists and will accelerate economic recovery. The project will further improve the access of the population in rural regions to economic opportunities and services, and increase the productivity of the economy.

33. **The proposed project builds on the World Bank's rich policy dialogue with the GoE in the transport sector, including the institutional structure and governance arrangements; safety and regulatory aspects; and increasing connectivity to employment opportunities, markets, and services, which link to CPF Objective 2.3.** Strengthening institutional capacity within the sector will positively impact trade logistics and help unlock opportunities for private sector participation (PSP) and economic growth, as stated in Egypt's sustainable strategy under the Egypt 2030 vision. The project will also improve safety and introduce performance-based funding for the ENR, with better incentives that will improve institutional performance.

34. **The proposed project aligns with the WBG's twin goals of ending extreme poverty and promoting shared prosperity in a sustainable manner through the provision of adequate, reliable, and gender-inclusive modes of transport.** The project is consistent with the United Nations (UN) Sustainable Development Goals (SDGs) 9, 10, and 11: To build resilient infrastructure, promote inclusive, sustainable industrialization and foster innovation; reduce inequalities within and among countries; and make cities and human settlements inclusive, safe, resilient, and sustainable.

35. **The proposed project aligns with the WBG COVID-19 Crisis Response Approach Paper ('Approach Paper').** The project aims to contribute to mitigating the impact of the COVID-19 pandemic during the resilient recovery stage and is also in line with the MENA-wide platform supporting a coordinated response. It will inject funds into the Egyptian economy to contribute to a V-shaped recovery of the economy. The project will also benefit local economies through a multiplier effect, as a result of salaries paid, and materials bought. The Approach Paper also emphasizes the need for new approaches for Rebuilding Better to focus on Green Infrastructure, Social Inclusion, Digital Development, and Private Sector Solutions. The proposed project will strengthen low-carbon railway service in Egypt with thoughtful approaches to address accessibility gaps for women and the disabled to opportunities where the railways can play an important role. It will upgrade the decades-old mechanical and even manual signaling system in some areas to a modern electrical system with a variety of digital enhancements, while building the foundation to level the playing field to unlock PSP and the private capital mobilization (PCM) potential of the sector.

36. **The proposed project aligns with the WBG's Middle East and North Africa (MENA) enlarged Strategy (March 2019), which aims at economic and social inclusion by focusing on renewing the social contract and building on regional cooperation, including PSP.** The proposed project enables modernizing a service of critical importance to the Egyptian economy, while strengthening the ENR as an institution and accelerating reform initiatives to improve the governance of the railway sector. As the MoT aggressively implements its investment program to address safety issues in the railway sector, the ENR is working with several development partners in renewing rolling stock and introducing a state-of-the-art signaling system. The proposed project will modernize the signaling equipment for the main railway corridor in Egypt. This modern signaling will serve as the foundation for further investments. The proposed project will also advance the ENR's investment program by focusing on opportunities suitable for PCM. An IBRD-International Finance Corporation (IFC) joint team has been supporting the GoE with the objective of promoting private participation in railways and urban transport. The project directly responds to the World Bank's Gender Strategy (2016–2023), and more concretely on the pillars of removing constraints for more and better jobs and enhancing women's voice and agency. Lastly, the project is also well aligned with the World Bank's MENA Regional Gender Action Plan.

37. **The proposed project aligns with the 2020 MENA Smart, Green, Resilient, Inclusive, Sustainable Infrastructure Strategy.** This strategy envisions infrastructure operations to provide hard and soft infrastructure to support MENA's transformation and leapfrog toward green, inclusive, and sustainable growth –the guiding principles. The project follows these guiding principles by delivering: (i) Inclusive infrastructure through measures to improve the rider experience for 1.1 million users per day and address accessibility gaps for women and the disabled to railway service; and (ii) Sustainability, by incorporating designs to strengthen resilience to withstand climate and other shocks. The project includes hard infrastructure –modern signaling system and railway safe system– and soft investments such as institution building and leveling the playing field for PSP. Furthermore, the project supports the strategy's pillars of Connectivity by improving railway services along the Alexandria-Cairo-Nag Hammadi corridor; Transition to Low Carbon Economy by strengthening railways, a low carbon mode of transport; and Reforms and PCM by laying the foundation for public-private partnerships (PPPs) in the future through supporting reform measures. The actions supported by the RISE Project on the PSOC, MAIC, and reform study will improve the ENR's performance and creditworthiness, and eventually open the railway sector for PSP. Lastly, the project is aligned with the strategy's actions of: (i) Collaboration through laying the groundwork for a future project involving PSP, in which IFC might invest; (ii) Partnerships, by coordinating investment activities with development partners; and (iii) Analytics, by using robust analytics to inform reform measures to enhance sector sustainability.

38. **The proposed project includes funds to prepare a future transport operation that involves PSP. In this way, the RISE Project will advance the Mobilizing Finance for Development (MFD) agenda.** This future operation will be defined according to the preferences of the MoT. PSP is more likely to materialize once feasibility studies and environmental and social impact assessments (ESIAs) have been completed. Proper preparation leads to an adequate understanding of costs, benefits, and risk allocation. The analysis will also include optimizing the procurement approach. This approach will address one of the weaknesses that has hindered PSP in transport infrastructure in Egypt: lack of adequate project preparation.[14] The main intent is therefore to prepare a future operation to meet international best practice so that the private sector and other multilaterals, including the WBG, can finance. While this potential project is not yet in the WBG pipeline, the World Bank is regularly coordinating with the MoT. In addition, IFC is aware of this aspect of the RISE Project and can get involved, if appropriate.

II. PROJECT DESCRIPTION

[14] World Bank. (2020b). *Egypt: Achieving Green, Inclusive, Safe, and Effective Transport.* Washington DC: World Bank.

A. Project Development Objective

39. **The project development objective (PDO) is to improve safety and service quality of the railway services along the Alexandria-Cairo-Nag Hammadi corridor.**

40. **PDO Level Indicators:** The key results that will measure the achievement of the PDO are as follows:

- Railway Accident Risk (safety): The project will reduce the Fatalities and Weighted Serious Injuries (FWSI) per billion passenger kilometers (km) from 0.562 to 0.440. FWSI is the way EU railways measure the railway accident performance and this is a measure of risk. By reducing risk, the project improves safety in the Alexandria-Cairo-Nag Hammadi corridor.
- Occupational Health & Safety Risk for ENR employees (safety): The project will reduce the Lost Time Injury Frequency Rate (LTIFR) from 0.303 to 0.237 per 100,000 hours worked. By reducing risk to ENR employees, the project improves safety. This indicator also reflects the holistic and systemic view of safety embedded in the project.
- Train Punctuality (service quality): The project will improve the punctuality of trains by increasing on-time arrivals from 75 percent to 90 percent by improving the reliability of line infrastructure.
- User Satisfaction with ENR passenger services (service quality): The project will increase user satisfaction levels from 60 percent to 80 percent because of a safer and more punctual service.
- Performance-based funding for the ENR (safety and service quality): The project will promote a major reform to improve the efficiency and accountability of the ENR through the implementation of the PSOC and MAIC, which will lead to performance-based funding for the ENR by the MoF. Better incentives will improve safety and service quality. A PBC is linked to the achievement of this indicator. See project description and Results Framework.

B. Project Components

41. The project has three components: Component 1: Safe System Signaling Modernization; Component 2: Safe System Asset Management Improvement; and Component 3: Project Delivery, Institutional and Human Resource Development. The description of each component is presented below, including the activities and amounts to be rolled over from the ENRRP to the RISE Project. In addition, Table 3 in Annex 1 contains more detail.

42. **Component 1: Safe System Signaling Modernization (Total cost: US$602 million; IBRD: US$402 million, GoE: US$200 million. Works not completed under the ENRRP are included in Subcomponent 1.2)**:

Subcomponent 1.1. (a) Upgrading of the railway signaling system along the Cairo-Giza-Beni Suef line, and consisting of: (i) an automatic block signaling system (on an open line); (ii) electronic interlocking systems (in stations); (iii) a level-crossing protection system; (iv) installation of additional automatic train control wayside equipment; and (v) track upgrades at priority stations for the safe functioning of the upgraded railway signaling system; and (b) retention money for Part 1.1 (a) immediately above ('PBC Eligible Expenditure').

Subcomponent 1.2. Completion of upgrades of the railway signaling system along the Cairo-Alexandria line: including the Cairo-Benha/Arab El Raml; and Arab El Raml-Alexandria sections, the Beni Suef-Asyut line; and the Asyut-Sohag-Nag Hammadi lines commenced under the ENRRP, and consisting of: (a) an automatic block signaling system (on an open line); (b) electronic interlocking systems (in stations); (c) a level-crossing protection system; and (d) installation of additional automatic train control wayside equipment, all through the carrying out of works, provision of goods and consulting services for supervisory engineering.

Subcomponent 1.3. Completion of track upgrades at priority stations for the safe functioning of the upgraded railway signaling system along the Alexandria-Arab El Raml; Beni Suef-Asyut; and Asyut-Nag Hammadi lines commenced under the ENRRP.

43. **Component 2: Safe System Asset Management Improvement (Total cost: US$54 million; IBRD: US$14 million, GoE: US$40 million):**

Subcomponent 2.1. Carrying out of the following safety improvement works at stations, tracks, crossroads, and on locomotives, namely: (a) upgrading critical infrastructure in railway stations so as to improve the safety of all rail users such as: physical improvements to platforms, station buildings and their environs; operationalization of separate, well-lit, stocked and secure toilets; improving existing surveillance systems; and improving reporting and enforcement mechanisms, all designed to improve the safety of all rail users; (b) upgrading level pedestrian and vehicular crossings (in coordination with signaling installation in Part 1); (c) upgrading visibility of railway assets such as improvements in lighting at stations and their environs as well as at level crossings together with improved visibility of rolling stock; (d) development of a railway asset management system with a view to improving the existing ENR system; (e) supporting the implementation of the safety management system including proper data management as well as safety and security protocols; and (f) provision of sensitivity training to security personnel on effective handling of sexual harassment and other complaints, and enhancing patrolling of platforms by well-trained personnel, all with a view to improving service delivery.

Subcomponent 2.2. Implementing priority activities under the Stakeholder Engagement Plan with a view to strengthening stakeholder engagement, such as the establishment and operationalization of user committees along the railway lines and development of a citizen's charter.

44. **Component 3: Project Delivery, Institutional and Human Resource Development (Total cost: US$24 million; IBRD: US$22.9 million, GoE: US$1.1 million. Supervision of works under the ENRRP is included in Subcomponent 3.1)**:

Sub-component 3.1. Implementing the following Project-delivery activities: (a) financing of the project management consultant (PMC) for supervision, management and monitoring of activities under Subcomponent 1.1. of the project; (b) financing of the owner's engineer for supervision, management and monitoring of activities under Subcomponent 1.2. of the project; (c) financing of a technical audit, under terms of reference satisfactory to the Bank, of the implementation of activities under Subcomponent 1.1. of the project; (d) financing of a procurement support consultant and an external auditor for the project; and (e) undertaking a comprehensive assessment of ENR human resource policies and practices such as skills management and career development opportunities, development of the talent pipeline, and suitability of workplace facilities for men and women, all with a view to establishing equal employment and career advance opportunities for men and women.

Sub-component 3.2. Supporting institutional development of the railway sector through: (a) (i) undertaking a policy reform study under terms of reference satisfactory to the Bank, with a view to developing and operationalizing a Public Service Obligations Contract as well as a Multi-Annual Infrastructure Contract between the Borrower and ENR, all in form and substance satisfactory to the Bank; (ii) development of key performance indicators for said contracts in form and substance satisfactory to the Bank; and (iii) development of rolling business plans for each ENR unit including, *inter alia*, human resource training needs; and (b) supporting the preparation of priority public private partnerships investments in the transport sector such as dedicated freight lines, last mile railway infrastructure connectivity or right of way all through the carrying out of feasibility studies, carrying out of environmental and social impact assessments and preparation of detailed designs.

45. **To strengthen the project's support for institutional reform and to specifically motivate the introduction of performance-based funding at the ENR the project includes a PBC.** The PBC is linked to the GoE achieving the outcome indicator "Performance-based funding for the ENR" in the Results Framework (Baseline: no, Target: yes). This indicator will be achieved when the ENR and the MoT and/or MoF sign PSOCs and MAICs that meet the intended scope and KPIs. Subcomponent 3.2 (a) will finance the study that will help design these contracts. The PBC is for US$29 million of loan proceeds associated with the final payments to the contractor the ENR will hire for the works in Subcomponent 1.1 for the railway signaling system upgrade along the Cairo-Giza-Beni Suef line. Specifically, the successful completion of the condition will allow the loan to finance the retention money due at the end of the defect liability period in this contract, as defined in the bid documents. The defect liability period ends one or two years after completion of the works. The retention is typically 10 percent of the contract value, currently estimated at US$277 million. The contract value can increase due to price escalation during implementation. Hence the 10 percent is approximately US$29 million. The PBC is capped at US$29 million. The bid documents can also establish that the ENR can pay the retention funds at the completion of the works, but before the defect liability period is over. In that case, the contractor will issue a guarantee to the ENR. In this case, the loan can finance the retention funds only if the PBC has been met by the completion of works. If 10 percent of the contract value is less than the US$29 million, then the amount associated with the completion of the PBC is that lower value. In sum, the GoE will meet the condition if it introduces performance-based funding for the ENR. Meeting the condition will allow the loan to finance the retention money in the signaling upgrade contract. For the disbursement to be triggered, these expenditures must meet all eligibility criteria, including safeguards. If the PBC is not met, the ENR will pay these funds to the contractor instead, as reflected in the Loan Agreement and Project Agreement (please see the Verification Protocol in the table at the end of the Results Framework below).

C. Project Beneficiaries

46. **Approximately 1.4 million people ride ENR trains on an average weekday.** The most heavily patronized segment is the Alexandria–Cairo–Nag Hammadi corridor. This corridor offers commuter railway services for Cairo and Alexandria. These users will benefit from a safer and more reliable service, thanks to the improved railway signaling. The safe system to be introduced in Component 2 will further benefit all users and additionally non-users who interact with the railway at a crossing. Women will benefit in particular, because they rely more on public transport than men. Safety improvements and female guards will also give confidence to women that they can ride ENR trains.

47. **ENR employees will also benefit from an improved safety culture that permeates to health and safety practices.** The project will generate a 'zero harm/zero tolerance, safety first' culture with incentives for safe behavior. For instance, an intermediate indicator encourages ENR employees to report precursors to incidents as an early detection mechanism.

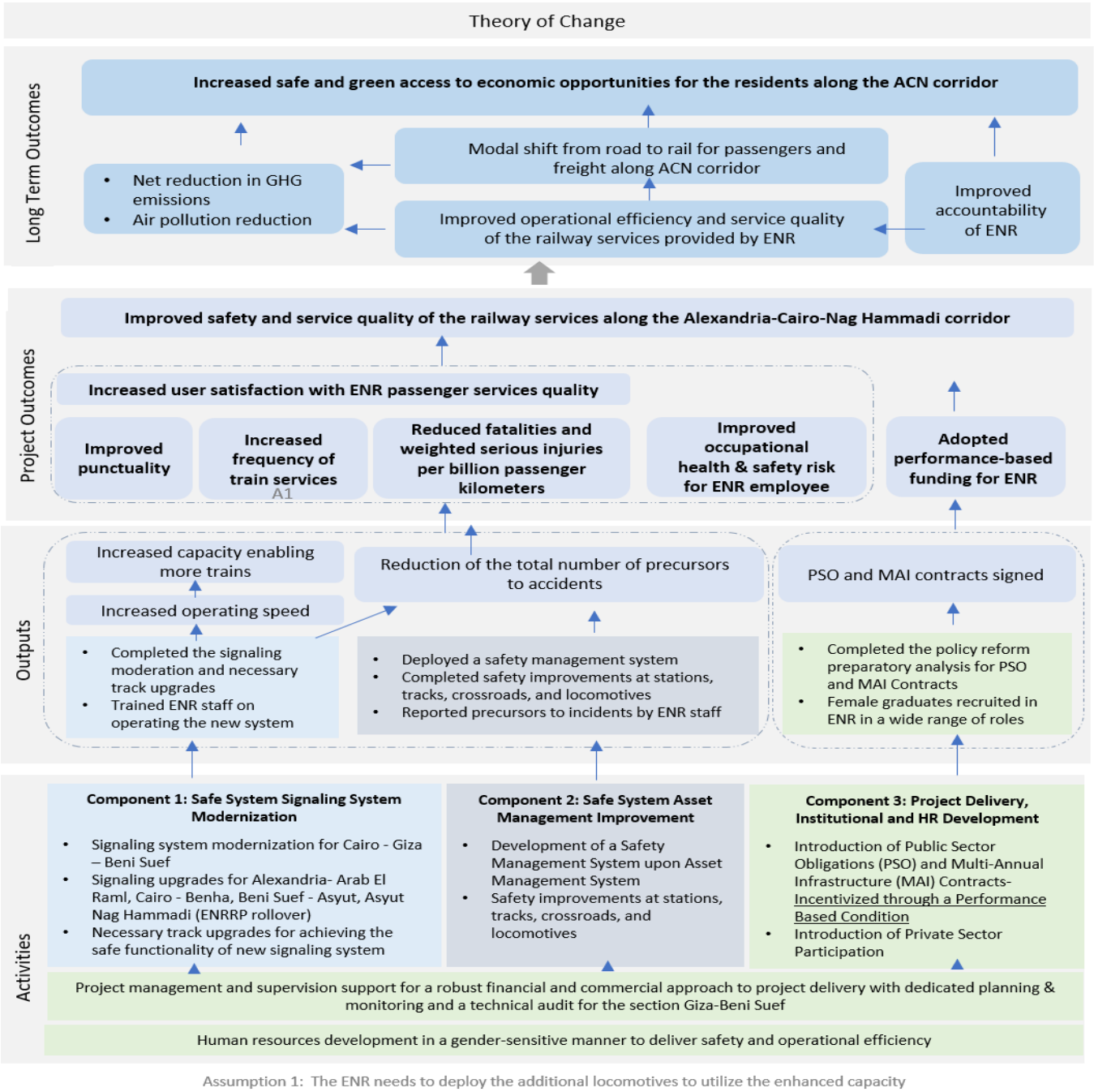
48. **Reliability of service will improve along with speeds and safety.** Due to its capacity and speed, railways provide a sustainable form of transport that can serve millions of passengers on a daily basis. The provision of a safe railway encourages its use, and will limit dependence on road transport, reduce pollutants, and provide equitable transport options. Reliability—coupled with safety—is a key requirement in user confidence.

49. **Improving safety performance within the ENR using the safety and asset management system proposed in Component 2 will have direct benefits in the quality of decision making and the efficient use of resources.** Attention to areas of need in safety prevention and maintenance management will provide the best value for money. The project incorporates lessons from prior experience with the ENR, and Component 3 focuses on introducing good project management practices and enhancing institutional capacity at the ENR.

D. Results Chain

50. **The following figure presents the Theory of Change (ToC) for this project.**

Figure 1. RISE Project Theory of Change



E. Rationale for Bank Involvement and Role of Partners

51. **The World Bank has a rich engagement in transport lending and analytical activities.** The World Bank supported

the ENRRP at a time when other multilateral banks did not venture into railway signaling—a critical aspect of safe and proper functioning—because of the associated complexity. Most multilaterals prefer to finance rolling stock, which the World Bank has also financed in other projects in Brazil and India, for example. Absent the signaling, other investments will not deliver the expected results. The World Bank also hosts the Global Road Safety Facility that is founded on the safe systems approach. The RISE Project, with its emphasis on several dimensions of safety, brings together experience ranging from railway signaling to a safe system approach applied to a railway system. The proposed approach to safety also includes health and safety, which is seen as a safeguard but is value added related to a comprehensive and systemic approach to railway safety under which both passengers and workers should be safe. The project incorporates best practices from World Bank-financed projects as described in the Context section.

52. **The ENR operates at a deficit, as explained in the Context section.** The World Bank has experience in railway reform. The RISE Project will introduce the PSOC and MAIC to generate a performance-based funding for the ENR. Upgrading railway signaling must be financed by the public sector, because there are no opportunities for revenue generation from the signaling upgrade; nor are there opportunities for PSP, because the playing field favors the public operator. However, the project seeks to implement the PSOC and MAIC to generate better incentives, that in turn improve efficiency and financial sustainability of the ENR. These improvements, in turn, will begin to level the playing field for PSP in railway operations, because there is more transparent accounting and better accountability. In addition, the project includes a subcomponent to prepare transport projects that meet private and multilateral standards. These projects could materialize PSP as they will be properly prepared with lower risk.

F. Lessons Learned and Reflected in the Project Design

53. **The proposed RISE Project builds on and incorporates lessons from the implementation of the ENRRP.** The first lesson is that for the introduction of the PSOC and MAIC to materialize, implementation arrangements in the RISE Project need to be different. Specifically, in the RISE Project an SC has the responsibility for the strategic design of the PSOC and MAIC, and their subsequent implementation. The SC will include the MoT, MoF, and MoIC. In the ENRRP this responsibility lay with the ENR. However, a public railway rarely reforms itself significantly. The reform must therefore be led by the overseeing authority, in agreement with the railway (see Box 1).

Box 1: Reform of ONCF in Morocco

The Moroccan National Railways Office (ONCF) is Morocco's national railway operator. A state-owned company under the control of the Ministry of Equipment, Transport and Logistics, the ONCF is responsible for all passenger and freight traffic on the national railway network. The company is also responsible for building and maintaining rail infrastructure. At the start of 1980s, the ONCF's financial situation was seriously deteriorating and by 1986, the deficit amounted to 30 percent of traffic revenues. The railway increasingly relied on substantial transfers from the government, which were unsustainable and insufficiently transparent. Moreover, competition was increasing from the deregulated road sector and ONCF's competitiveness was seriously hampered by a 'technically oriented' internal organization, bureaucratic management procedures, and strict government approvals of many aspects of railway operations. In 1988, the ONCF suffered a serious financial crisis that threatened its technical performance.

The Reform

The restructuring goal was to adapt railways to improve its competitiveness and financial performance, and reduce government financial transfers. The reform transformed the way railway activities were managed and the ONCF's relationship with customers, government, and staff. The reform did not aim to transfer core railway activities to the private sector, as this was considered non-viable both economically and politically. However,

private sector involvement in support activities was considered favorably. The core restructuring reform 1994–2002 included six key elements:

1. ***Adapting to a more competitive transport market***: The government allocated the responsibility for determining service configurations and tariffs to the ONCF. The railway then adjusted its phosphate rates, which were kept low to support the mining sector. The ONCF also targeted improvement to customer services as a priority. Most of the initial effort focused on passenger operations, which resulted in a tailored investment program.
2. ***Reduction of operating costs***: As a result of the short-term ONCF management action program, the 1995 operating costs were reduced by 20 percent against the 1994 baseline. The restructuring program included a variety of cost reduction measures.[15]
3. ***Introduction of a new HR policy and pension system***: The new HR policy introduced multidisciplinary skillsets of ONCF staff and personnel rules and regulations based on private sector models, all adopted via negotiations with unions. The new pension system, negotiated with an external pension fund, enabled a sustainable solution for ONCF pension contributions.
4. ***Financial restructuring of the ONCF***: The reform included four key steps: (a) a debt-to-equity 'rehabilitation' of the ONCF balance sheet to address the railway's 'historic' debt'; (b) two streams of reimbursements to the ONCF for costs incurred (i) in transferring the pension system to a private pension fund, and (ii) in operating the explicit Public Service Obligation-type services; (c) an investment program agreed between the ONCF and the government; and (d) financing of the investment program during the period 1995–2002 through internal ONCF cash generation and loans subscribed directly by the ONCF and supported by a government-subscribed ONCF equity injection.
5. ***Corporate reorganization***: The ONCF shifted from traditional technical functions (infrastructure, rolling stock, and locomotive power) to an architecture, similar to North American railways, whereby the business units covered infrastructure, phosphate transport, freight transport, and passenger transport, and are supported by a general management unit, which included all the shared services. The new organization was instrumental in improving customer relations, encouraging innovations in service design and quality, and developing traffic volumes and profitability.
6. ***New legal framework***: In parallel with the ONCF, work on the legal framework commenced. The new Railway Law enacted in 2005, allowed not only the separation of infrastructure and operations but also the vertical integration of railway activities. The law distinguished between 'commercial' railway services and Public Service Obligation services operated at a specific government request. Establishment of the ONCF as a joint-stock company (to replace its previous legal form of a public industrial and commercial enterprise) will then result in railway operations on the Moroccan network under a concession agreement with the government.

Results

The railway reform is assessed as successful, despite the delay in creating the joint stock company. Compared to 1994, the ONCF's traffic volumes increased noticeably, its modal share increased compared to freight carried by road, and staff productivity almost doubled. The World Bank assessed the ONCF's financial recovery as "spectacular." This outcome was primarily achieved by generating substantially higher net income that improved the ratio of staff costs to traffic revenue. By 2004, these achievements had laid a solid foundation of commercial, technical, and financial success for future sector improvements, as demonstrated by excellent

[15] Improved control of staff costs, rationalization of spare parts management, review of maintenance procedures, rationalization of passenger services, and so on.

results in 2006.

54. **The second lesson from the ENRRP is to follow an integrated approach, where a single contractor will upgrade signaling and tracks at stations.** For the Cairo–Giza–Beni Suef segment, advanced procurement is taking place under the Bank's procurement framework under a two-stage bidding process. Unlike in the ENRRP, where the ENR contracted the signaling and the associated track upgrade at stations separately, these two elements will be integrated in a single contract in the RISE Project. This integrated approach will make a single contractor responsible for the integration of track upgrade and signaling works. This contractor will be accountable for meeting the implementation schedule.

55. **Third, the project seeks to strengthen the implementation of the signaling works through the supervisor, also incorporating PMC functions.** The PMC will focus on forward-looking tasks, such as the impact of the project on cost and timescale targets, in addition to backward-looking tasks such as progress review and monitoring. The Cairo Airport Development Project (P101201), the Quito Metro Line One Project (P144489), and the Upgrading and Greening of the Rio de Janeiro Urban Rail System (P111996) show the value-added of an independent PMC accompanying implementation coupled with a separate supervisor. Quito metro works for example had few cost overruns due to timely solutions of implementation problems by the PMC.

56. **Fourth, rolled over signaling and supervision contracts will be updated to reflect ESF requirements.** In most cases, this involves formalizing practices that the contractors have already in place. Under these amendments, contractors as well as a Supervision Consultant will augment Environment, Social and Health and Safety (ESHS) staffing. New contracts under the RISE Project will use the updated Standard Procurement Documents (SPD) with ESF requirements already built in. The RISE Project's updated Resettlement Framework (RF) incorporates clear screening and land management protocols that address previous procedural deficiencies.

57. **Through the RISE Project, the ENR can benefit from the latecomer advantage of recent advances in Big Data and Smart Mobility.** Big Data development provides the foundation for smart transport planning, management, and monitoring, with a focus on data analytics and evidence-based decision making. Big Data can enhance transport network design and operational planning and management, as well as system performance monitoring by local and national governments, agencies such as the ENR, and system users. Big Data measures aim to link different databases across sectors and agencies. In this way, new knowledge is possible, and innovative ways of looking at problems and issues may emerge. Examples could include database linkages for: (a) a geographical information system database containing all railway infrastructure assets to a safety performance database accounting for collisions and crash events; (b) an infrastructure assets database to passenger ridership database, concentrating on boarding/alighting volumes from ticketing or other sources; and (c) an asset management database to system performance conditions log, including information on passenger crowding on tracks, at level crossings, and at stations, obtained through mobile phone location meta-data (that are anonymized and meet Egyptian personal data management regulations). Similarly, Smart Mobility coupled with improved analytics can optimize information flows and accountability. For example, sensors in different ENR assets can report to the safety and asset management system, which in turn will store data that analytical tools can better interpret to reduce the failure rate of train engines or identify patterns that lead to track deterioration, in line with maintenance and repair protocols. Open Data protocols can use Big Data to allow developers to produce trip planners and other applications.

58. **The RISE Project incorporates additional lessons from the World Bank's international experience.** The project incorporates gender analysis and actions to help level the playing field and make traveling safer for women. The project reflects lessons on Smart Mobility, Big Data, and machine learning from Smart Mobility projects, such as the Wuhan Integrated Transport Development Project (P148294). The project involves the part of the ENR network that operates like a commuter railway for the Greater Cairo Area (GCA). The ENR is, therefore, a critical part of the GCA

public transport network. Improved, reliable, and more frequent services can lead to passengers staying with public transport and not opting for cars. Some car users are expected to switch to public transport. A modal shift to public transport and keeping the ridership levels can contribute to the reduction of the carbon footprint of transport. The project also incorporates COVID-19 safe practices, ranging from frequent cleaning to increased frequency of services that are already in place in ENR. Higher frequency reduces crowding inside rail cars, which is a way to lower the spread of the virus, coupled with mask wearing. In addition, lower occupancy also has gender benefits. The ENR makes frequent announcements on loudspeakers to remind users of physical distancing and mask wearing. The project will promote inclusion and safety by engaging with stakeholders—including the elderly and people with disabilities—from the very beginning, where stakeholders will be able to provide feedback during the design phase. The two-way communication will continue during the project life cycle and will promote transparency and provide channels for receiving feedback. Finally, the project includes funds to advance the preparation of projects prioritized by the MoT. Weak project preparation is one of the reasons projects in Egypt take a long time to mature and implement. Good project preparation will address these weaknesses. In addition, this will attract the private sector to participate in complex transport projects, as demand and costs will be known with greater certainty.

59. **The supervision of projects such as in the RISE Project that covers 765 km requires the use of state-of-the-art applications, such as the World Bank's Geo-Enabling Initiative for Monitoring and Supervision (GEMS).** The GEMS application allows the World Bank to define items for which a third party in the field should input data in the application. The application is geo-referenced and tags pictures and data. The application uploads the data, once internet service is available. The World Bank can then see the data collected from a desktop. This approach will also be more relevant during the time of pandemics. This approach will also lower the number of visits required by the World Bank during implementation support, but not eliminate visits altogether. This approach will be introduced gradually through learning-by-doing, until the entire alignment is covered. Project supervision by the World Bank also needs to include experts in signaling, railway safety, railway reform, safeguards, and fiduciary aspects. Supervision needs to be proactive and help the ENR solve implementation problems (see Annex 1 for more discussion on the supervision approach).

III. IMPLEMENTATION ARRANGEMENTS

A. Institutional and Implementation Arrangements

60. Implementation of the project is estimated to take 78 months (6.5 years). The estimated completion dates of individual components are presented in Table 4 in Annex 1.

61. **Responsibilities and Executing Agency:** The overseeing power and associated responsibility lie with the MoT. The ENR will act as the Project Implementation Entity (PIE) and manage the implementation of all components in close coordination with the MoT. The ENR will carry out procurement, FM, and internal auditing for the project. The ENR will be in charge of safeguards implementation and will report on all ESF requirements.

62. **The ENR (or PIE) will implement the RISE Project through the Project Management Unit (PMU) created originally for the implementation of the ENRRP.** The PMU will work in coordination with five ENR departments: signaling system, track renovation, telecommunication system, power supply system, and centralized train control. As a key risk mitigation, the ENR will reinforce the PMU with the necessary resources exclusively dedicated to the RISE Project and arrangements to tap into a wider pool of ENR experts during the delivery of the RISE Project. The PMU will need to strengthen its capacity in procurement, FM, and safeguards. Implementation arrangements for Subcomponent 3.2 include the MoT and an SC created to help prepare and implement this part. The paragraph below

clarifies some responsibilities. The FM and Procurement sections offer more details in those areas.

63. **Components 1 and 2 will be implemented by the PMU.** The PMU will: (a) select the signaling contractor for Subcomponent 1.2; (b) manage implementation of this contract and the rolled over contracts (Subcomponents 1.2 and 1.3); and (c) procure safety improvement works at stations, tracks, crossroads, and locomotives in Component 2.

64. **Component 3 will be implemented by the PMU at the ENR and the MoT as follows**:

(a) The PMU will carry out the procurement and supervision of all elements of Subcomponent 3.1.

(b) The MoT will be responsible for the direction of Subcomponent 3.2, design of the ToR, day-to-day coordination of their work, and approval of the deliverables. The ENR will carry out procurement for Subcomponent 3.2, using the ToR provided by the MoT. The MoT will arrange for establishing an SC for overseeing the reform and modernization of the ENR. The SC, under the direction of the MoT, will include representatives of the MoF and MoIC. The SC will be created within three months after loan effectiveness. The SC will be responsible for: (i) providing strategic guidance for the strategic study of the reform, and (ii) recommending approving authorities for the implementation of the reforms, including the PSOC and MAIC. The Project Operational Manual will further develop the tasks and responsibilities of the SC. The Results Framework and Monitoring (RFM) also includes an intermediate indicator to track SC performance, and builds on lessons from many World Bank-financed projects where the SC is not functional. In parallel, the PMU will work with the consultant to develop rolling business plans for the ENR business units that align with the objectives set by the PSOC and MAIC. In addition to leading the SC, the MoT will establish its own dedicated team to support the reform. Since the MoT lacks practical experience in railway reform, the project will provide support by: (i) developing capacity within the MoT, (ii) identifying the reform champion and reform agents in the MoT, and (iii) deploying them on catalyzing the reforms agreed with the MoT.

B. Results Monitoring and Evaluation Arrangements

65. **The PMU is responsible for data collection and gathering.** The PMU will follow the methodologies established in the RFM. The Monitoring Plan contains additional indicators by component, that are not present in the project's RFM. The ENR and the World Bank developed the methodologies jointly, ensuring replicability by the ENR in particular, and by subsequent teams at the ENR and at the World Bank. The RFM builds on lessons from the ENRRP, such as additional intermediate indicators that track implementation progress which the ENRRP did not have. The RFM also builds on practices used at the ENR, for example it will use the punctuality indicator and the user satisfaction survey, which the ENR regularly carries out. Moreover, the project seeks to introduce the ENR to international best practices, such as the Railway Accident Risk and the LTIFR as outcome indicators and the Precursor to Incidents as an intermediate indicator. Other indicators are on GHGs, gender-related, and to properly follow the SC. Overall, the RFM will help the ENR to not only develop capacity in measuring results, but also bring its practices to international standards, thus allowing benchmarking and comparability. Finally, the SMS that the project will implement will help the ENR measure several indicators. The PMU will have to gather data in conjunction with other units at the ENR, such as permanent way and passenger services.

C. Sustainability

66. **The institutional environment in which the project will be implemented features strong support from the GoE to advance the ENR's safety improvements, and the World Bank's engagements with the MoT and the ENR are converging to ensure institutional sustainability of the project.** The GoE is committed to improving the ENR's safety

performance because major accidents, which are not infrequent, have serious consequences in terms of lives lost and people injured. Accidents also have reputational consequences for the ENR. For instance, when the ENRRP experienced delays in permanent way upgrades—thus delaying the signaling upgrading—the GoE contracted additional civil contractors. Also, the project builds on the lessons learned from the implementation of the ENRRP and includes substantial support, for example, in Component 3 for capacity building and project implementation by the ENR. The RISE Project will also introduce performance-based funding that will include KPIs on asset management. The RISE Project will introduce an asset management system that will allow the ENR to report on the KPIs. This incentive contributes to the sustainability of the signaling systems. The expected positive results of using performance-based financing will generate support for this approach, as has happened internationally.

67. **The ENR is implementing a complex investment program with support from multiple development financing institutions, and the World Bank is coordinating with its partners to ensure the sustainability of these investments.** Under the strong leadership of the GoE to improve safety performance, the ENR is implementing a number of investment projects, including the acquisition of 100 diesel locomotives (for EUR 290 million) financed by the EBRD, installation of ETCS-1 (for EUR 145 million) financed by the AfDB, a feasibility study funded by a grant from the EIB for double-tracking and upgrading the Tanta-El Mansoura-Damietta line (for EUR 1.5 million), and an overhaul of 1,300 railcars (for EUR 1.16 billion). See Table 6 in Annex 3 for the projects at the ENR financed by multilateral and bilateral agencies. The World Bank has engaged with development partners to share experiences with the ENR and exchange information to ensure the sustainability of investments through effective coordination.

68. **The project is designed to ensure the operational sustainability of modern signaling equipment.** In line with international standards, the signaling system and works will be covered under a limited warranty, and the ENR's units responsible for signal operations and asset maintenance will assume responsibility once the project is complete. The modern signaling system will feature resilience with multiple layers of back-up systems and redundancies to ensure seamless operation even during system failures, operational emergencies, and/or other shocks. Furthermore, the project will support the introduction of performance-based funding via the adoption of the PSOC and MAIC to improve financial sustainability and accountability, enabling the ENR to properly maintain the signaling system and related assets, such as permanent ways and signaling towers.

69. **The project will incorporate measures to mitigate climate and disaster risks.** The ENR's railway infrastructure is exposed to extreme climate conditions, such as excessive heat events and floods as well as earthquakes that occasionally hit Egypt. Disruptions to safe operations of the transport system will undoubtedly threaten this vital lifeline for the affected population. The project will therefore incorporate climate and disaster risk mitigation considerations into the designs to build resilience and sustainability of the investments. All activities under Component 1 and Component 2 (IBRD financing of US$402 million and US$14 million, respectively), will be implemented with due consideration for the anticipated climate change effects (extreme heat, floods, sandstorms), and will serve a dual purpose of safety and better preparedness for climate-related hazards/risks. Designs of signaling equipment and permanent ways (Component 1) and safety system (Component 2) will feature measures to mitigate identified climate and disaster risks. For instance, excessive heat is damaging for electric wiring and circuits, as old wiring and equipment currently in use are beyond their useful life. Since the time they were installed in early and mid-20th century, many new efficient and reliable insulating and fire-retardant materials have entered the market. Therefore, rehabilitating the railway and replacing the old elements will ensure greater resilience of the railway safety switches and electric circuits to extreme ambient heat, and will thus play the dual role of improved safety and adaptation to the effects of climate change. Component 3 will also include activities to strengthen the resilience of the investments to climate and disaster risks: project management and supervision support to ensure that the ENR will address this aspect in project design and delivery (IBRD financing of US$16.9 million), and for detailed design to include climate and disaster risk mitigation measures (Sub-component 3.2 (b), IBRD financing of US$3 million). These

measures are incorporated in the design to ensure resilience in the access of the vulnerable population in rural areas to economic opportunities and government and social services in urban areas in the increasing climate change risk contexts.

70. **The project will contribute to climate change mitigation.** Component 1 of the project will improve the safety of railway operations and increase the capacity of the railway service along the Alexandria-Cairo-Nag Hammadi corridor, which is the backbone of the country's economy. The increased railway service capacity will lower the generalized cost of railway trips for passengers and freight, and encourage a modal shift from cars and trucks. Railways feature low GHG emissions per unit transported and hence the project will reduce GHG emissions from the transport sector. Component 3, institutional development of ENR to introduce reform measures (Sub-component 3.2 (a), IBRD financing of US$3 million) will also improve financial sustainability and service quality of railways to encourage modal shift, contributing to GHG emission reduction from the transport sector.

IV. PROJECT APPRAISAL SUMMARY

A. Technical, Economic and Financial Analysis

Technical Analysis

71. **Egypt operates one of the densest traffic railway networks in the world.** The network measures 5,135 km (in 2016) and many new lines are planned. The track is standard gauge (1,435 mm) and lines with the highest traffic intensity are doubled. There are no electrified lines in Egypt, and all locomotives run on diesel. The railway is preponderantly oriented for passenger transport, as more than 90 percent of the volume of traffic is provided by the passenger trains. The existing signaling dates to 1910 in some segments and to the 1960s in the most modern ones. Considering the high passenger traffic intensity and the high level of safety imposed by this type of traffic, the modernization of the signaling with state-of-the-art technology will increase the safety, capacity, and reliability of the system.

72. **The RISE Project includes the modernization of the signaling system on the Cairo–Giza–Beni Suef double line (125 km).** The Cairo–Giza–Beni Suef line is part of the Alexandria–Aswan railway corridor (about 900 km). This corridor is the main axis of the railway network in Egypt and is the subject of modernization of signaling and track rehabilitation investments on almost its entire length. Signaling system modernization works launched by the ENRRP are currently at various stages of implementation along Cairo–Alexandria and Beni Suef–Asyut–Nag Hammadi, on a total length of 638 km of track. By adding the modernization of another 125 km of track of the Cairo–Giza–Beni Suef line, about 85 percent of the entire length of the Alexandria–Aswan corridor will be modernized (763 km). The remaining part of the corridor, between Nag Hammadi and Aswan, is operating under much lower traffic density and is planned to be modernized at a later stage. The modernization works along the Alexandria–Aswan corridor are being implemented without traffic interruption and all activities are carefully planned to ensure safety in the execution of works and train circulation.

73. **The modernization of the Cairo–Giza–Beni Suef line is based on state-of-the-art railway signaling systems.** The modernization includes the installation of automatic blocks along the track and electronic interlocking systems at stations in a structure which will easily allow the subsequent installation of ETCS-1 as the automatic train protection layer. The manual working methods will be replaced by automatic control of signals, switches, and level crossings managed by redundant computers installed in all major stations and interconnected with the Operation Control Centers via fiber optics, enabling real-time railway line traffic management capabilities. These concepts are meant to bring significant enhancements to railway safety, higher transport capacity, and better-quality transport services in

Egypt. A similar approach of adopting state-of-the-art solutions will be followed for the realization of all works related to the safe functionality of the new signaling system. The upgraded signaling includes the installation of modern fiber optic cables for telecommunications, uninterruptable power supply equipment for non-stop functionality of the system, and the rehabilitation of tracks and turnouts in stations. The implementation of such modern solutions may be challenging for the ENR, as it would require the management and staff to familiarize themselves with innovative technologies and to transform existing operational practices. This change can be achieved with support from highly skilled staff and trained operating agents, and by putting in place a new institutional culture. The ENR's transformation toward the management of new technologies began under the ENRRP. Currently, the ENR is more prepared to face the modernization challenges; young engineers have been hired and trained by signaling systems suppliers (Thales and Alstom) and the operating staff have been trained and now operate the new electronic interlocking systems in a number of stations along the Alexandria–Nag Hammadi corridor.

74. **The safe system approach will lead to a cultural change at the ENR toward "zero harm/zero tolerance, safety first."** The project will also improve safety by introducing fire extinguishers at stations to improving the color of locomotives to make them more visible. Stations will also have podotactile surfaces to help people with disabilities. The project involves citizen engagement to ensure community input in these improvements. This safety culture should also permeate to the neighboring communities. A user satisfaction survey will be conducted regularly, and survey results will be considered throughout implementation of the project, generating a positive feedback loop.

75. **The introduction of performance-based funding via the PSOC and MAIC will be based on a strategic study that will include, among others, the following outputs:** (a) costing and revenue systems at the ENR, starting with baseline cost models for each of the PSD, PLD, and cargo services that accurately reflect utilization of resources in the ENR's delivery of services to customers; (b) specific reform strategy for the railway sector, including governance of the ENR; (c) a corporate recovery plan for each of the business units in the ENR (infrastructure, passenger, freight) toward operational and financial sustainability; (d) scope, targets, and KPIs for each of the performance-based obligations on future demand projections (PSOC and MAIC); (e) an assessment of enabling legislation and regulations required to undertake the reform actions; (f) business planning based on future demand and targets and its use to understand the opportunities and trade-offs in serving target customers; (g) estimation and allocation of resources needed (capabilities, staff numbers, investments, and financing needs); (h) identification of opportunities to help the ENR focus on core railway services through a combination of the introduction of PSP and asset recycling to extract revenue from existing assets; and (i) identification of ways to achieve physical and tariff integration with the metro, buses, and other modes in Cairo and Alexandria. Affordability considerations will be critical in this part, given the nature of public transport users in Cairo.

76. **The main benefits of this reform will be: (a) At the institutional level: the relationship between the MoF and the ENR will be more transparent and predictable.** Accountability will also improve. The service-driven obligations will have a positive effect that will allow the ENR to be comparable to the best railways in the world because of the use of KPIs. (b) At the corporate level: the ENR will improve its governance, financial planning, and control of operations, which will introduce a culture of performance. (c) At the user level: the KPIs included in the PSOC and MAIC will incentivize the ENR's actions toward the provision of more efficient and better-quality service to customers and improved safety at an acceptable level of financial cost to the GoE. (d) PSP: A better understanding of the railway cost drivers and stability, transparency, and predictability of sector funding act as strong incentives for increased PSP. The playing field will be leveled as a result of the transparent contractual relationship that could include a private operator in the future.

77. **The RISE Project also brings international best practices to the ENR, such as the Technical Audit for the Cairo–Beni Suef section.** The scope of the audit of the new signaling project will cover periodic monitoring of the implementation of the signaling and civil works as part of the signaling upgrade, including compliance with the

Safeguard Documents. Monitoring of project implementation by a third party will be designed to reasonably ensure that quality and safety standards and guidelines, as stated in various contract agreements, are being adhered to and resources are available as required to achieve the implementation schedule. The scope of services will include the examination of the quality of delivered works, delivery of commitments under the environmental and social documentation, and conformity with the requirements of the Loan Agreement and Project Agreement and the Contract for Works as follows: (a) quality norms and performance criteria as described in the technical specifications; (b) all safety requirements; and (c) organizational arrangements and resource availability. The implementation audit will also cover the quality control documentation for goods purchased and works constructed on a sampling basis, commensurate with the need to achieve reasonable confidence in the adequacy and quality of such documentation and controls. A second example of international best practice is the PMC for supervision, management, and monitoring of activities for the Cairo–Beni Suef railway upgrade (Subcomponent 1.1), as explained under lessons incorporated in the project; this consultant will be the Independent Verification Agent (IVA) for the PBC.

Economic Analysis

78. **An economic analysis has been completed for the project. In alignment with the World Bank[16] and the EIB[17] guidelines, the Net Present Value (NPV) and the Economic Internal Rate of Return (EIRR) have been calculated over a 30-year period.** The COVID-19 pandemic triggered an economic crisis where MNA economies will shrink by 7.5 percentage points in FY2020 and the contraction is anticipated to persist in the coming years.[18] The discount rate reflects the declining marginal benefit of an investment in future years in part due to economic growth, whereas the project context today implies the marginal benefit of the investment may be smaller. Considering this uncertainty, the economic analysis conservatively used 1 percent (slow recovery), 3 percent (base scenario), and 5 percent (fast recovery) discount rates.

79. **The economic analysis found that the investments that the RISE Project will support will generate a net positive economic impact.** Old railway signaling infrastructure assets are far beyond their useful life. Without intervention and maintenance, continuing train operations will necessitate operational measures such as manual signaling and slow operation to maintain basic safety level, which will impose an economic cost on users including longer travel time. A corollary is that for the ENR to continue offering the current level of railway service, the costs of operational and maintenance activities will become prohibitive. Assets depreciate and need to be replaced by those that incorporate the latest safety and functional technology. Factors driving the economic benefits include: (a) reduced cost of railway accidents, including fatalities and serious injuries; (b) time savings for railway customers; and (c) reduced GHG emissions. For the entire project, when assuming a 3 percent discount rate, the NPV is US$329.8 million and the EIRR is 13.2 percent; the EIRR is above even the highest discount rate used. Following the principles of economic appraisal, the analysis considered railway tariffs (farebox) as a transfer which did not change social welfare.[19] The analysis further made the following assumptions: (a) without project, the costs of railway operations and maintenance of infrastructure assets would increase due to the aging assets and their inability to meet the current operational levels; and (b) with project, the costs will be proportional to the increased level of operations and renewed asset conditions.

80. **Sensitivity Analysis indicates the robustness of the net positive impact of the project.** The sensitivity tests

[16] World Bank. (2016). Discounting Costs and Benefits in Economic Analysis of World Bank Projects. Washington, D.C.: World Bank.
[17] European Investment Bank. (2005). *RAILPAG - Railway Project Appraisal Guidelines.* European Commission.
[18] World Bank. (2020, May 11). Guiding principles in risk assessment and the application of the Systematic Operations Risk-Rating Tool (SORT) in World Bank Operations. Washington, D.C.
[19] U.S. Federal Railroad Administration. (2016). *Benefit-Cost Analysis Guidance for Rail Projects.* Washington, D.C.: U.S. Department of Transportation.

considered the following: (a) a 5 percent capital cost overrun; (b) a three-year delay in system opening; and (c) these risks combined. Under all of these scenarios, the NPV at the three discount rates remains positive in all scenarios.

81. **GHG accounting for the RISE Project was carried out. Railway signaling improvements the Cairo-Alexandria, Cairo-Beni Suef, and Beni Suef-Nag Hammadi segments will increase passenger and freight railway service capacity and lower generalized costs of travel via railways, and encourage a modal shift from private cars and trucks to railways which will lower carbon emissions.** The project is expected to reduce GHG emissions by 651,000 tons over the project life of 30 years. The estimated reduction in the social cost of GHG emissions has an NPV of US$40.4 million at a discount rate of 3 percent, under the high scenario for Shadow Price of Carbon US$80/ton in 2020.[20]

82. **ENR revenues from fares and government contributions do not cover all fixed and variable costs, as explained above.** In that context, no financial analysis was carried out. In addition, railway signaling is necessary for the safe operation of trains, making it necessary in all cases. In parallel, international experience with railway reform shows that introducing performance-based funding gradually improves the financial situation of the railway operator, because of the improved incentives, including the KPIs.

Gender

83. **Gender actions are included in several parts of the project.** Component 2 emphasizes gender aspects when planning infrastructure and service upgrades to improve safety at stations, which include (a) providing well-lit and separate toilets for men and women; (b) improving existing surveillance systems in the stations and reporting and enforcement mechanisms; and (c) allocating more and better trained security personnel, including females, to ensure platforms are patrolled thoroughly. Recruiting more females among security will serve two purposes: first, it will provide women with income-generating opportunities, raising the overall number of employed women in the ENR, and second and importantly, it will affect riders' perceptions of transport safety and actual incidence of sexual harassment as more and more women will start taking up roles in customer front-facing roles.

84. **Component 3 includes a range of institutional measures to improve employment, retention, and career advancement opportunities for women.** The activities proposed under this component are grouped into following four main categories: (a) HR Policies and Practices, (b) Skills Management and Career Development, (c) Developing the Female Talent Pipeline, and (d) Workplace Facilities. The HR Policies and Practices component will include activities such as conducting a staff satisfaction survey to inform the development of some of the envisaged activities; reviewing and improving, as necessary, existing grievance mechanisms for employees and rail users to allow them to raise their workplace and service-related concerns including issues of sensitive nature, such as sexual harassment; as well as creating the Gender Coordination Group to drive the gender equality agenda forward. Under Skills Management and Career Development, the project will propose pathways for career development by ensuring that both women and men benefit from training and promotion opportunities, including to senior roles and roles that are traditionally male dominated such as engineering. The Developing the Female Talent Pipeline category will include a range of outreach and communication activities such as organizing an 'open day', where potential candidates (both women and men graduates with relevant profile) will be invited to visit the workplace and talk to staff, which will challenge or demystify some of the aspects of railway careers, in addition to bringing potential reputational benefits to the ENR. The Workplace Facilities category will conduct a workplace audit to identify and address gender-specific needs for workplace facilities and equipment, such as separate toilets for women and men, changing rooms, prayer rooms, and gender-sensitive Personal Protective Equipment that fits both women and men. With the help of these concerted efforts, the ENR committed to increasing the share of female engineers by about 10 percent from 215 to 240. While this may seem a modest increase, this is in fact substantial since the ENR is not planning to create new

[20] High-Level Commission on Carbon Prices. (2017). Report of the High-Level Commission on Carbon Prices. Washington, D.C.: The World Bank.

jobs in the years to come.

85. **Finally, women's gender roles and associated travel patterns often require them to make shorter, more frequent journeys with multiple stops.** The study in Component 3 to introduce performance-based funding for the ENR will scope for feasibility the fare integration between the ENR, metro, and buses. Seamless transfers will help women use public transport, since they pay less for numerous transfers throughout their chained trips. Since several ENR stations intersect with those of the metro in Cairo, undertaking a study to analyze the feasibility of fare integration between the ENR and metro service has a clear benefit for all but particularly for women and girls who juggle multiple chained trips.

B. Fiduciary

Financial Management

86. **Fiduciary risk is rated as Substantial because of project FM risks.** This assessment is based on the existing fiduciary arrangements within the ENR, the inherent risks, the nature of the project, and the involved stakeholders' interests.

87. **There are several systematic risks associated with project FM in Egypt. Egypt's FM strategy (issued January 2016) identified several weaknesses in Egypt's financial accountability in the public and private sectors.**

88. **Other challenges and risks have been identified at the project implementation level.** First, project activities will be related to the closing of the ENRRP and the grace period for disbursements. This period requires fiduciary vigilance, particularly pertaining to overlapping activities, and detailed meticulous reporting which can be challenging for the ENR. Second, the ENR follows traditional Egyptian governmental systems. The FM system will need to be reconfigured to be able to compile the project financial data and issue reports on a quarterly basis. Third, financial compliance control is uneven and is characterized by variation in performance, cumbersome procedures, and deficient controls on budget commitments. Fourth is the lack of timely audit and review reports on Project Financial Statements (PFS) and Interim Financial Reports (IFRs).

89. **A series of measures will mitigate the various FM risks identified.** First: The project will be implemented by the ENR in a ring-fenced mode through a dedicated PMU. Second: The World Bank FM team will provide initial training and regular support to the PMU FM staff (both virtual and in person) before effectiveness of the project. Furthermore, to ensure the capacity of FM staff, it was agreed that: (a) the ENR management will second fully dedicated staff from the ENR's Finance Department to the PMU; and (b) when needed, and as agreed with the World Bank, the PMU will appoint an experienced FM consultant (according to a ToR acceptable to the World Bank) to work, train, and transfer knowledge to the appointed staff. Third: the ENR uses the SAP system to report on donors' projects, which will be used for the RISE Project. The system can generate the quarterly IFRs and annual PFS required under the Loan Agreement and Project Agreement through a unique module. The system output and the related details to be generated by the system are yet to be agreed with the client. Fourth: The PMU will develop a Project Operations Manual (POM) that will clearly show the staff reporting system and will indicate the separation of responsibilities among PMU staff, including the authorized signatories to the Withdrawal Applications (WA), safeguarding assets, record keeping, and monthly account reconciliation. The POM will be frequently revisited and amended to reflect the activities of the PMU. The World Bank FM will provide clearance on the FM chapter in the POM and follow up on its implementation. Fifth: The proceeds of the loan will be transferred to a Designated Account (DA), which will be opened in a bank acceptable to the World Bank. The project will use the DA to manage the financing of eligible expenditures and will be used for the sole purpose of implementing the project activities. Sixth: The PMU will appoint an independent external auditor according to a ToR acceptable to the World Bank to audit the annual PFSs and review quarterly IFRs. The quarterly IFRs are due 45 days after the end of each quarter and the audited PFSs are due six months after the end of each FY.

90. **The detailed FM arrangements are presented in Annex 1.** The allocation of loan proceeds is the following (Table 1).

Table 1. Disbursement Categories, amounts and percentages of eligible expenditures

Category	Amount of the Loan Allocated (expressed in US$)	Percentage of Expenditures to be financed (exclusive of Taxes)
(1) Goods, Works, Non-Consulting Services, Consulting Services, Training and Operating Costs under Parts 1.1 (a), 1.2, 2, and 3 of the Project	409,900,000	100%
(2) PBC Eligible Expenditure under Part 1.1(b) of the Project	29,000,000	100% of the PBC amount (or such lesser percentage as represents the total PBC eligible expenditure incurred by the PIE as of the date of withdrawal)
(3) Front-end Fee	1,100,000	Amount payable pursuant to Section 2.03 of this agreement in accordance with Section 2.07 (b) of the General Conditions
(4) Interest Rate Cap or Interest Rate Collar Premium	0	Amount due pursuant to Section 4.05 (c) of the General Conditions
TOTAL AMOUNT	440,000,000	

Procurement

91. **Procurement arrangements:** Procurement under the project will be carried out in accordance with the World Bank's Procurement Regulations for IPF Borrowers, fourth edition November 2020 ('Procurement Regulations'). The project will be subject to the World Bank's Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants, dated October 15, 2006, revised in January 2011, and as of July 1, 2016. The project will use the Systematic Tracking of Exchanges in Procurement (STEP) to plan, record, and track procurement transactions.

92. **Implementing agency:** The ENR will carry out all project procurement activities via the dedicated PMU, which is implementing the ENRRP since 2010. The PMU procurement performance in implementing the ENRRP was rated satisfactory after mitigating measures (MMs) were taken and all procurement under the project was concluded.

93. **Staffing:** All procurement under the project will be undertaken by the existing PMU for the ongoing ENRRP in coordination with all relevant ENR departments. The PMU has a qualified Project Manager in place responsible and accountable for project activities, including procurement. The PMU has procurement staff with good experience in Bank projects. However, this staff lacks experience in the new procurement framework. As the main contract will be a complex turnkey contract for the Cairo–Giza–Beni Suef signaling system modernization, a capable and

knowledgeable engineering consultant is in place to assist the ENR in the procurement process for this contract.

94. **Project Procurement Strategy for Development (PPSD)**. To determine the best fit for purpose procurement approach, the client, with World Bank assistance, has prepared a PPSD that includes thorough market analysis, procurement/implementation arrangements, packaging, risks and corresponding mitigation measures, implementing agency(ies) capacity assessment, and the procurement plan (PP) that defines the prior review and procurement methods for main activities. The PPSD has been reviewed and PP approved by the World Bank.

95. **Key procurement under the project.** The main procurable activities are: (a) Cairo–Giza–Beni Suef signaling system modernization (US$277 million); (b) the PMC who will handle the above contract supervision; (c) safety improvement works at stations, tracks, crossroads, and locomotives (US$14 million); (d) Technical Audit for Cairo-Giza–Beni Suef (US$1.4 million); (e) institutional development of the ENR to allow the introduction of the PSOC and MAIC (US$3 million); and (f) contracts not completed under the ENRRP and transferred to the RISE Project (valued at US$135 million, as described below in Table 2, of which US$88 million is subject to retroactive financing).

96. **Retroactive financing.** Contracts listed in Table 2 were not completed by the closing date of the ENRRP-P101103 (December 31, 2020), and the remaining works and consultant services will be financed under the proposed RISE Project (P175137). These contracts are eligible for retroactive financing,[21] as all rolled over contracts have been subject to the World Bank's prior review (at the Operational Procurement Review Committee, OPRC, level) for three works contracts and at the Accredited Practice Manager, APM, level for others). Although these contracts have been procured under the old Procurement Guidelines and Consultants Guidelines, the contract terms have been cleared by the World Bank and SPDs have been used. Throughout project implementation, the Procurement Guidelines dated 2011 and the Consultants Guidelines dated 2011 would continue to apply to these ongoing contracts (Table 2), as well as the Anti-Corruption Guidelines dated October 15, 2006, as stipulated in the ENRRP loan agreements.[22] The Procurement Regulations will apply to new contracts under the RISE Project. In addition, the ENR is the contracting party of these ENRRP contracts and is the same implementing agency under the RISE Project.

97. **Advance procurement. Advance procurement is taking place for the main contract under the project, the Cairo–Giza–Beni Suef, following two-stage bidding procedures without initial selection.** The two-stage bidding process is based on functional requirements as evaluation criteria. Stage 1: Request for, and assessment of, technical proposals. During this stage the ENR undertakes discovery meetings with each proposer and has the ability to refine the functional performance requirements. Refined requirements are shared with all proposers simultaneously. The ENR examines the technical proposals and may seek clarifications from proposers in writing and conducts one-on-one meetings with each proposer to probe, challenge, and clarify the proposed technical proposal. Following clarifications and one-on-one meetings, the Borrower shall: (a) prepare an Addendum of Changes to the request for proposals document and issue it to all proposers, as required; (b) prepare a Memorandum of Changes in relation to an individual proposal and issue it to the relevant proposer as required; and (c) issue the invitation to submit second stage technical and financial proposals to all qualified proposers with responsive stage 1 proposals. Proposers have an opportunity to submit modified proposals based on these refined needs during stage 2 when the ENR requests for and assesses full technical and financial proposals. The bidder who offers the most advantageous proposal will be awarded the contract.

[21] Up to an aggregated amount not to exceed EUR 72.58 million (US$88 million equivalent) may be made for payments made prior to the signature date but on or after January 1, 2021, for eligible expenditure under the category 1 of the Loan Agreement.
[22] The Anti-Corruption Guidelines were updated in 2016 for the purpose of aligning them with new procurement framework, principally to refer to the Procurement Regulations rather than the Procurement and Consultant Guidelines.

Table 2: Physical and financial progress of on-going contracts under the ENRRP

STEP Reference	Contract description	Contractor / Consultant	Amount in US$ million	Duration (months)	Physical Progress	Financial Progress	Amount that will be financed under the RISE Project (US$ million)
1039	Signaling modernization on Cairo / Alexandria corridor	Thales	164.5	100	77%	85%	28
1045	Signaling modernization on Beni Suef / Asyut corridor	Alstom	117.3	83	66%	87%	17
1057	Signaling modernization on Asyut / Nagh Hammadi corridor	Thales	152	57	47%	62%	62
ENR-ZUB COILS-01-2020	Supplying of 2000 coupling coils for ZUB system	Siemens	28	12	0%	0%	18
1038	Supervision of signaling modernization on Cairo / Alexandria corridor	Systra	3.5	102	77%	63%	3
1046	Supervision of signaling modernization on Beni Suef / Asyut corridor	Systra	2.1	85	66%	57%	3
1058	Supervision of signaling modernization on Asyut / Nagh Hammadi corridor	Systra	3.1	59	47%	71%	4

98. **STEP.** STEP is the World Bank's online procurement planning and tracking tool to prepare, clear, and update procurement plans and conduct procurement transactions as referred to in the Procurement Regulations Section V, Article 5.9. The procurement plan was approved by the World Bank and its updates will be uploaded in STEP. STEP shows the market approach options, the selection methods, and contractual arrangements, and determines the World Bank's prior/post reviews. Any contract not uploaded in STEP, with award notification not being uploaded before the signing of contracts, may not be eligible for financing.

99. **Procurement Risks.** Procurement risk was assessed as High before mitigation measures and the residual risk was assessed as Substantial. The procurement risk is rated High before mitigation due to the nature and complexity of the contracts to be procured, including high-value design, supply, and installation contracts, coupled with the ENR's weak capacity. The following risk mitigation measures have been identified: (a) the ENR will appoint to the PMU their most experienced staff and in sufficient numbers to ensure a smooth and timely implementation of the project; (b) the ENR management will be fully involved in all the critical stages of the procurement process; (c) the ENR will closely monitor and follow up on all procurement activities under the project in close coordination with the World Bank; (d) a consulting firm will be appointed to support the ENR through the procurement process for Cairo–Giza–Beni Suef;

and (e) the PMC will be in place as soon as possible (at least before signing the contract) and will be in charge of supervision. For this contract, the ENR may explore amending and extending the ongoing PMC contract to cover the Cairo–Giza–Beni Suef contract, if is justified technically and financially, and subject to satisfactory performance under the current contract.

C. Legal Operational Policies

100. This project does not trigger any legal operational policies, including the policies on projects on international waterways OP 7.50 or projects in disputed areas OP 7.60.

	Triggered?
Projects on International Waterways OP 7.50	No
Projects in Disputed Areas OP 7.60	No

D. Environmental and Social

101. **Environmental and Social Risk Classification (ESRC) for the project is Substantial for both environmental and social risks.** This classification is based on the assessment of environmental and social risks and impacts of the project's planned interventions, nature, and scale, as well as the institutional capacity of the PMU to manage the anticipated environmental and social risks and impacts. At this stage, the relevant Environmental and Social Standards (ESSs) are determined to be: ESS1, ESS2, ESS3, ESS4, ESS5, ESS6, ESS8, and ESS10.

102. **The project will have several positive environmental and social impacts through improvements in overall safety performance of the ENR, with resulting benefits for public safety.** There are measures specifically designed for safety of women and people disabilities through Component 2. The project will also reduce: (a) fatalities and serious injuries from railway accidents and (b) GHG emissions compared to other freight and transport models.

103. **Environmental risks:** The civil works and activities will take place within the same footprint of existing railway infrastructure and is not anticipated to extend beyond the ENR's existing Right of Way. The main contributing risk factors during the construction phase of the project are: (a) Occupational Health and Safety (OHS) risks for workers including physical and chemical hazards; there is medium probability of OHS risks due to the accidents but reliable mechanisms are available to prevent or minimize such incidents; (b) hazardous material management and hazardous waste disposal generated from different activities and especially track renewal; (c) traffic impacts associates with level crossing upgrades; and (d) waste and wastewater disposal. Most of the identified impacts are site specific and short term (that is, limited to the construction phase) and reliable mechanisms are available to prevent and mitigate those impacts, given the PMU's and contractors' experience in the ENRRP. During the implementation of the ENRRP (P101103), four fatalities occurred; one fatality in 2015, two off-site fatalities in February 2020 in a traffic crash, and one fatality in November 2020. The Root Cause Analysis and Safeguard Corrective Action Plan (SCAP) were prepared for February 2020 fatalities and most of the agreed actions have been implemented. Currently the RCA and SCAP preparation is underway for the latest fatality.

104. **Social Risks:** Acquisition of new land is not anticipated under the RISE Project and land impacts within the ENR's Right of Way are limited in scale. Social risks for the RISE Project relate to the ENR's track record for screening and

managing land-related risks to land tenants and informal users within the ENR's Right of Way over a large project area. Outstanding land issues from the ENRRP, that will carry forward to the RISE Project, include retroactive documentation, and corrective actions where necessary, for three sites for the economic displacement of 53 land tenants who partially lost rented plots without adequate prior assessment and documentation of the livelihood impact in accordance with the ENRRP RPF. The World Bank has also received documentation for three other sites for the economic displacement of eight Project Affected Persons (PAPs), and these are under review by the World Bank, while issues at one site (six PAPs) have been resolved. All remaining land issues under the ENRRP will continue to be supervised beyond the ENRRP closing date. The outstanding Resettlement Plans are also reflected as commitments in the Environmental and Social Commitment Plan (ESCP) for the RISE Project. The updated Resettlement Framework for the RISE Project addresses procedural deficiencies for screening of impacts.

105. **Other social risks for the RISE Project include** labor and working conditions, particularly for contracted workers and community health and safety risks for communities living adjacent to physical works, as well as contextual risks stemming from the ENR's operations and current safety performance (to which the project contributes improvements). The COVID-19 pandemic also introduces potential risks of community exposure through contagion pathways such as meetings, stakeholder engagement sessions and construction sites, and train travel in general.

106. **Environmental and social instruments:** The ENR hired an independent consultancy firm to prepare the following project environmental and social instruments which consist of: (a) Environmental and Social Assessment (ESA) consisting of ESIA and Environmental Social Management Plans (ESMPs) for Component 1, and Environmental and Social Management Framework (ESMF) for Component 2; (b) updated RF; (c) Stakeholder Engagement Plan (SEP), including the project's Grievance Mechanism (GM) designed to respond to concerns and grievances of project-affected parties; (d) Labor Management Procedures (LMP); and (e) ESCP. The environmental and social risks and impacts of the project were identified, and mitigation measures are proposed for the identified interventions. For interventions that are not identified at this stage, the ESMF sets out the principles, rules, guidelines, and procedures to assess the environmental and social risks and impacts of the activities to be implemented under Component 2. The prepared documentation was consulted upon and disclosed in-country in December 2020.

107. **Technical Assistance (TA) under the project will focus on capacity-building activities as well as identifying future investments to enable institutional reforms in the ENR and enhance ENR staff capacity to deliver safety and operational efficiency.** At this stage, the type and scale of the projects, which the TA will support developing their feasibility studies and Environmental and Social (E&S) instruments, are not identified. The application of the outcomes of the TA outcomes, if implemented, might entail environmental and social implications depending on the scale, type, and location of the future projects. Therefore, the ESCP includes a commitment to undertake the TA according to the World Bank requirements. The ToR will include the requirement of assessing the environmental and social risks associated with the application of the TA in accordance with the relevant ESSs.

108. **The ESCP lists all environmental and social instruments to be prepared, adopted, and implemented during project implementation, the timeframe for their completion, and the assigned responsibilities.** The ESCP requires commitments for adequate environmental, social, and health and safety staffing within a dedicated PMU to manage the environmental and social risks and impacts. As listed in the ESCP, all contractors involved in the project implementation will update or prepare and implement Contractors ESHS Management Plans that meet ESF requirements. Also, the ENR will include the relevant E&S requirements derived from the cleared instruments into the ESHS specifications of the procurement documents with contractors through amending the existing works and supervision contracts under Component 1 and including the requirements in the procurement documents for future contractors.

109. **A gender-based violence (GBV) analysis was carried as part of preparation.** This assessment indicated a

moderate risk for GBV. Safeguards instruments considered GBV aspects.

V. GRIEVANCE REDRESS SERVICES

110. Communities and individuals who believe that they are adversely affected by a WBG supported project may submit complaints to existing project-level grievance redress mechanisms or the WBG's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project affected communities and individuals may submit their complaint to the WBG's independent Inspection Panel which determines whether harm occurred, or could occur, as a result of WBG non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank's attention, and Bank Management has been given an opportunity to respond. For information on how to submit complaints to the World Bank's corporate GRS, please visit *http://www.worldbank.org/en/projects-operations/products-and-services/grievance-redress-service*. For information on how to submit complaints to the World Bank Inspection Panel, please visit www.inspectionpanel.org.

VI. KEY RISKS

111. **The overall risk of the project is Substantial, following recent guidance on residual risk after mitigation.**[23] Benefiting from the ongoing ENRRP, the residual risks to the project have been assessed by applying well-identified mitigation measures to the inherent risks. The detailed rating for each risk rated Substantial or High is described below.

112. **Sector Strategies and Policies is Substantial.** The PDO is fully aligned with the sector strategy and policies. However, the project also targets changing the safety culture and initiating reforms. The inherent risks to achieve the intended culture change and reform are high due to potential changes in the government's long-term commitment. The experience under the ENRRP also shows the complexity of initiating reforms. Therefore, a laddered reform approach with a PBC has been designed to assist the ENR and MoT in embarking on this long-term agenda. The residual risk is rated Substantial.

113. **Institutional Capacity for Implementation and Sustainability is Substantial.** The inherent risk of institutional capacity for implementation is High as observed under the ENRRP. However, the following measures are designed to mitigate the risk: (a) organizational strengthening of the ENR's PMU; (b) deployment of the risk-based project management approach; (c) strengthening of the partnering culture between the employer and the supply chain; (d) re-establishment of the contractually allocated project management role; (e) integration of the track renewal and signaling upgrades in one procurement package; (f) establishment of the SC to drive the long-term reform in the ENR; and (g) integration of human resource development activity in the project. The intended reform will improve the overall sustainability of the project. Therefore, the residual risk is Substantial.

114. **Fiduciary Risk is Substantial.** The procurement risks were assessed under the Procurement section, as High before mitigation measures and residual risk as Substantial. Mitigation measures are discussed under the Procurement section above. FM risk rating is found to be Substantial. The World Bank's previous experience with the ENR demonstrated several weaknesses in committing resources for project implementation and lack of a stable project management organizational structure combined with the considerable size and complexity of the envisaged project. The ENR will benefit from the preparation and implementation of the previous World Bank-financed operation and the associated lessons learned in establishing a stable and competent PMU, establishing an

[23] World Bank. (2020, May 11). Guiding principles in risk assessment and the application of the Systematic Operations Risk-Rating Tool (SORT) in World Bank Operations. Washington, D.C.

operational and efficient internal control apparatus, consistent and high-quality reporting, and proper documentation of internal controls in the FM Manual.

115. **Environmental and Social risks are Substantial.** Component 1 of the project takes place over a large geographically dispersed area and comprises ongoing works and planned works. Anticipated environmental risks are: (a) OHS risks for workers during construction and operation including physical and chemical hazards, (b) hazardous material management and hazardous waste disposal including potential use of pesticides to control vegetation along with the cables, (c) traffic impacts associates with level crossing upgrades, and (d) waste and wastewater disposal from construction. Most of the identified impacts are site specific and short term (that is, limited to construction), and mechanisms are available to prevent and mitigate those impacts. However, there is still a medium to low probability of OHS risks due to accidents. Social risks include: (a) the ENR's track record for screening and managing land-related risks to land tenants and informal users within the ENR's Right of Way over a large project area; (b) labor and working conditions, particularly for contracted workers; and (c) community health and safety risks for communities living adjacent to physical works, as well as contextual risks stemming from the ENR's operations and current safety performance notwithstanding the broad expected benefits from introducing safe systems under Component 2. The COVID-19 pandemic also introduces potential risks of community exposure through contagion pathways such as meetings, stakeholder engagement sessions and construction sites, and train travel in general.

116. Other risks that may involve the COVID-19 pandemic are Moderate, which could have an impact on the project if the pandemic results in a prolonged shutdown of the construction activities or restrictions on mobilizing international staff and equipment. Given that the signaling upgrades are less labor intensive than other civil works and are built on the experience under the ENRRP, the World Bank will support the client with project procurement including consulting and advisory services to mitigate the risks including providing text for bidding documents pertaining to contingencies arising from the pandemic for which standards are available. Therefore, the risk under the Other category is Moderate.

VII. RESULTS FRAMEWORK AND MONITORING

Results Framework

COUNTRY: Egypt, Arab Republic of

Railway Improvement and Safety for Egypt Project

Project Development Objectives(s)

To improve safety and service quality of the railway services along the Alexandria-Cairo-Nag Hammadi corridor.

Project Development Objective Indicators

Indicator Name	PBC	Baseline	End Target
To improve safety on the Alexandria - Nag Hammadi corridor			
1. Railway Accident Risk (Number)		0.56	0.44
1.1 FWSI per billion passenger km caused by train colliding with another train or fixed structure (Number)		0.45	0.35
1.2 FWSI per billion passenger km caused by train colliding with a pedestrian (Number)		0.08	0.06
1.3 FWSI per billion passenger km caused by train colliding with a road vehicle (Number)		0.04	0.03
2. Occupational Health & Safety Risk for ENR employees along the Alexandria - Nag Hammadi line (Number)		0.30	0.24
To improve rail service quality along the Alexandria-Cairo-Nag Hammadi corridor.			
3. Train Punctuality (Percentage)		75.00	90.00

Indicator Name	PBC	Baseline	End Target
3.1 Train Punctuality Passenger Long Distance Cairo Alexandria and Cairo - Nag Hammadi (Percentage)		75.00	90.00
3.2 Train Punctuality Passenger Short Distance Cairo Alexandria and Cairo - Nag Hammadi. (Percentage)		75.00	90.00
4. User Satisfaction with ENR passenger services (Percentage)		60.00	80.00
4.1 User satisfaction female users of ENR services (Percentage)		60.00	80.00
5. Performance-based funding for ENR (Yes/No)	PBC 1	No	Yes

Intermediate Results Indicators by Components

Indicator Name	PBC	Baseline	End Target
1. Safe System Signaling Modernization			
Functioning GRM for project related complaints (Number)		0.00	0.00
Signaling towers commissioned in Alexandria – Cairo – Nag Hammadi (Number)		21.00	70.00
Centralized Traffic Control Centers (CTC) commissioned in Alexandria-Cairo-Nag Hammadi (Number)		0.00	4.00
GHG emissions from transport on the Alexandria – Nag Hammadi corridor (Percentage)		0.00	-6.90
2. Safe System Asset Management Improvement			
Design and deployment of the Safety Management System (SMS) at ENR. (Percentage)		0.00	80.00
Fire safety at stations (Number)		0.00	10.00

Indicator Name	PBC	Baseline	End Target
Pedestrian barriered level crossings installed and operational (Number)		0.00	10.00
Precursors to Incidents Reported by ENR Staff (Number)		0.00	1,000.00
Length of Cairo-Giza-Beni Suef corridor segment served by signaling system with mitigation measures to identified climate and disaster risks (Kilometers)		0.00	125.00
3. Project Delivery, Institutional and Human Resource Development			
Female graduates recruited in ENR in a wide range of engineering roles (Number)		215.00	240.00
Steering Committee established and meets periodically (Yes/No)		No	Yes
Policy Reform Preparatory Analysis for PSOC and MAIC (Yes/No)		No	Yes

Monitoring & Evaluation Plan: PDO Indicators

Indicator Name	Definition/Description	Frequency	Datasource	Methodology for Data Collection	Responsibility for Data Collection
1. Railway Accident Risk	The project will reduce from 0.562 to 0.440 the Fatalities and Weighted Serious Injuries (FWSI) per billion passenger kilometers (km). By reducing risk, the project improves safety in the Alexandria to Nag Hammadi corridor. FWSI is the way	Quarterly	ENR Statistics	Methodology: The indicator is measured by summing the number of FWSI divided by the number of billion passenger kilometers on the Alexandria-Nag Hammadi corridor. For	PMU / ENR

	modern railways measure the railway accident risk. The rational for using this indicator is to align the ENR with good international practice as showcased by the European Union (EU) standard. This standard EU definition is calculated by adding the number of fatalities to 0.1 times the number of serious injuries divided by billion passenger-kms. The baseline is based on 2019 data from ENR and comprises: (a) data on fatalities and serious injuries where ENR's procedures have failed; and (b) 1% of fatalities and serious injuries where other factors have been involved. This indicator is a composite hybrid formulation to enable the ENR to work toward the EU standard. The target is to reduce the baseline indicator by 4% per annum over the project			the baseline, a moving average of the data over the last five years has been used because the safety data is lumpy. Currently ENR logs two types of casualty data—those fatalities and serious injuries in which the ENR procedures have failed and those influenced by other factors. Data for the latter are much greater than for the former, in most cases over 10 times greater. Thus, the ideal indicator would comprise both cases but discussions with the ENR have resulted in a compromise here which will enable the ENR to start their journey towards EU standards. The compromise is that 1% of "other factor" casualties will be used in the indicator and reflects the influence of	

	duration. This indicator has three sub-indicators by type of collisions that can lead to fatalities and serious injuries: (a) train colliding with another train or fixed structure (buffer or end block); (b) train colliding with a pedestrian, typically reported as “hit by train;” and (c) train colliding with a road vehicle, typically reported not as a standard rail collision but as “collision with road vehicle.” This disaggregation seeks to enrich the root analysis that ENR can perform to learn how to further improve its safety levels.			the RISE project focusing on the Cairo-Beni Suef section will have on the overall corridor Nag Hammadi-Alexandria. Furthermore, a fatality in the railway sector is normally defined as death within 12 months of a collision, which is current practice in the EU, excluding suicides. However, these data are not easily obtained from Egyptian hospitals so the methodology will remain with the current practice which is, that recorded at the time of the accident. A serious injury is one which requires hospitalization. Consistency in methodology will provide robustness to the trend. The target is determined by matching with the observed EU and	

				Japanese improvement rate over the last 20 years, of 4% per annum.	
1.1 FWSI per billion passenger km caused by train colliding with another train or fixed structure	This sub-indicator captures collisions between a train and another train or fixed structure that lead to a fatality or serious injury, measured per billion passenger-km. The indicator measures a failure in the ENR's procedures.	Quarterly.	ENR Statistics	See methodology in parent indicator. Focus on fatalities and serious injuries caused by train – train collisions.	PMU / ENR
1.2 FWSI per billion passenger km caused by train colliding with a pedestrian	This sub-indicator captures collisions between a train and a pedestrian that lead to a fatality or serious injury, measured per billion passenger-km. Railways typically report this collision as "pedestrian hit by a train." This indicator is not derived from a failure in ENR's procedures but from other factors. Consequently, its contribution to the FWSI calculation is factored with a 1% loading.	Quarterly.	ENR Statistics.	See methodology in parent indicator. Focus on fatalities and serious injuries caused by train – pedestrian collisions.	PMU / ENR
1.3 FWSI per billion passenger km caused by train colliding with a road vehicle	This sub-indicator captures collisions between a train and a road vehicle that lead	Quarterly.	ENR Statistics.	See methodology in parent indicator. Focus on fatalities and serious	PMU / ENR.

	to a fatality or serious injury. Railways typically report this collision not as a standard rail collision but as "collision with road vehicle."			injuries caused by train – road vehicle collisions. This indicator is not derived from a failure in the ENR's procedures but from other factors. Consequently, its contribution to the FWSI calculation is factored with a 1% loading.	
2. Occupational Health & Safety Risk for ENR employees along the Alexandria - Nag Hammadi line	The Project will reduce the Lost Time Injury Frequency Rate (LTIFR) from 0.303 to 0.237 per 100,000 hours worked in the Alexandria – Nag Hammadi line. The LTIFR is the way modern railways measure the health and Safety (H&S) risk. By reducing risk to ENR employees, the project improves safety. This indicator also reflects the holistic and systemic view of safety embedded in the project. The LTIFR is a standard industry good practice and it is the number of incidents	Yearly.	ENR Statistics	Person hours are as per timesheet and comprises working time and excludes holiday time, leave time and sickness/injury absence. The indicator is measured from time sheets with information on: (a) whether pay is docked (reduced) or not; (b) whether the absence occurs in the last hour of work and comes back the next day; and (c) whether the person is not hospitalized or not and comes back to work the	PMU / ENR

	where a worker/employee has lost time at work (1 hour and above) due to an injury sustained at work. The rational for using this indicator is to align the ENR with international good practice as showcased by the European Union (EU) standard. The indicator is normalized per 100,000 hours worked. The calculation for the baseline assumes the ENR's 47,000 employees working 1600 hours per year (excludes public holidays, religious festivals, weekends, annual leave). Further refinement to this data may be available at a later date. This is a total of 75,200,000 working hours.			next day. The person does not have to be hospitalized, but has to just give evidence (maybe from a GP) that an injury has occurred. The indicator is normalized per 100,000 hours worked. In this calculation it will be important that the method for determining a reportable employee accident be held constant during the period of the RISE Project. In such a diverse organization it is likely that the criteria for reporting may differ geographically or between organizational units and the implementation of the SMS over the period will incorporate introducing or reinforcing consistency in measuring criteria. The target is determined by using a	

				long term trend experienced in the industry.	
3. Train Punctuality	Punctuality is an internationally used measure of the timeliness in train running in compliance with the timetable. Punctuality is generally measured taking into account a time margin of arrival, especially for longer distance trains, although that definition is not universal. As long as the same definition is used, a comparison over time can be made. For network reliability, train punctuality will be used as a proxy pending more accurate data from the ENR. Train punctuality is therefore the arrival within a certain number of minutes of planned arrival time of the train to the terminal station, 15 minutes for long-distance (PLD) trains and 10 minutes for short-distance (PSD) trains, as indicated by the	Quarterly	ENR routinely makes punctuality available. Punctuality was actually an indicator in ENRRP.	Infrastructure can fail in such a way as to delay trains due to either a blockage or a signal indication showing that it is not safe for the next train to proceed. The structure of the track may have failed causing a trigger in the signal system to be activated or the signal system itself may have failed. These events are logged by the Train Controllers so that they can report on the instances and reasons why trains and passengers have been delayed as well as mobilize maintenance resources to correct the fault. The ENR has chosen to change the method of the recording. Instead of	PMU / ENR

	ENR. The upgraded signaling will improve schedule recovery time also. During the implementation of the modernization of signaling system (first 4-5 years of the project), the timetable will need to be adapted to accommodate the execution of works in parallel with the train circulation. The works will impose speed restrictions and extended duration of travel from origin to destination station. The updated timetable issued for the periods of works on each railway line will be used as reference for an accurate calculation of the punctuality of trains. The ENR will also measure the time of delay over the timetable excluding any effect of the signaling and track upgrade works. They will do this by calculating the difference in time between a hypothetical unaffected train compared to the actual delay incurred by the works.			recording delays against the original timetable, the ENR have suggested recording against a modified time that is calculated. The ENR will use a margin of delay for “on-time” as 10 minutes for PSD Trains and 15 minutes for PLD Trains as the measuring benchmarks. In the measurement the ENR will exclude the delays caused by the upgrading works by calculating the time difference between the actual time incurred and the time that would have been occurred for a train not delayed by the works.	

3.1 Train Punctuality Passenger Long Distance Cairo Alexandria and Cairo - Nag Hammadi	Train punctuality is measured by the number of times the timetabled trains reach their destination (arrival) within a margin (PLD 15 minutes). The calculation excludes the delays caused by the upgrading works on the railway and this is done by calculating the difference between a hypothetical "no-delay" train with the actual delay caused by the works and subtracting that value from the delay actually observed at arrival. The indicator is disaggregated into two segments in the Monitoring Plan: Cairo Alexandria and Cairo - Nag Hammadi.	Quarterly	ENR Statistics	Same as parent indicator but focusing on PLD.	PMU / ENR
3.2 Train Punctuality Passenger Short Distance Cairo Alexandria and Cairo - Nag Hammadi.	Train punctuality is measured by the number of times the timetabled trains reach their destination (arrival) within a margin (PSD 10 minutes). The calculation excludes the delays caused by the upgrading works on the railway and this is done by	Quarterly	ENR Statistics	Same as parent indicator but focusing on PSD.	PMU / ENR

	calculating the difference between a hypothetical "no-delay" train with the actual delay caused by the works and subtracting that value from the delay actually observed at arrival. The indicator is disaggregated into two segments in the Monitoring Plan: Cairo Alexandria and Cairo - Nag Hammadi.				
4. User Satisfaction with ENR passenger services	This indicator has two parts. The first part measures user satisfaction with railway service on the intervened corridor and therefore is related to the improving quality of service part of the development objective. The ENR carries out periodic surveys that ask users to rate attributes such as air conditioning, cleanliness, ticket availability, customer service and staff, train time, and service level. In other surveys the ENR asks about delay in train arrival, overall trip evaluation, and staff attitude. The project has direct influence on train	Yearly for part one, and for part 2 at baseline, mid-term review, and at closing.	Surveys to railway passengers that ENR already carries out plus new survey at stations as explained in description.	Surveys to railway passengers that ENR already carries out plus new survey at stations as explained in description. Methodology: Part 1 of the indicator will follow ENR current practices, ensuring that surveys were on the Alexandria – Cairo – Nag Hammadi Corridor. ENR will guarantee sample size ensuring statistical significance. For part 2 of the indicator, about 150 surveys per station to achieve overall	PMU / ENR

	time or late arrival (punctuality) and on service level or trip quality. These two categories –train time, delay in arrival; and service level, overall trip evaluation– are the main attributes to examine for rating purposes with equal weight. The survey will use a 5-point Likert scale (1: highly unsatisfied; 2: moderately unsatisfied; 3: neutral; 4: moderately satisfied; 5: very satisfied), asking whether the user is satisfied with each of the attributes measured. Those who answer 4 or 5 would be counted as "satisfied." The project will improve the rating for 60% to 80% for these two attributes. Survey must report the respondents' gender. For overall quality assessment including gender considerations, evaluators will also examine			statistical significance. Number of stations will include all stations that will be included as part of component 2, about 10 stations. Survey instruments must be consistent for the baseline year and the project years, for comparison purposes, such as trends. After obtaining result for each survey, ENR will publish a summary or a detailed version of the survey results, both for rail service and for station conditions.	

	the ratings in cleanliness, ticket availability, and customer service and staff. Trends in the ratings are particularly important to analyze changes. Hence reporting is yearly for this part. ENR will publish the results of the analysis of the surveys and indicate next steps to improve quality where needed. The second part of the indicator measures user perception with the quality of improvements at stations (component 2) and will designed with Bank support prior to commencement of works in this component to establish the baseline. This survey will be repeated at Mid-Term Review and at closing. This survey will also use a 5-point Likert scale (1: highly unsatisfied; 2: moderately unsatisfied; 3: neutral; 4: moderately satisfied; 5: very satisfied) in the questionnaire, asking whether the user is satisfied				

	with attributes the project intervenes at stations. Those who answer 4 or 5 would be counted as "satisfied." The target value for this indicator is specified in the range of 90 percent of passengers responding to a 4 or 5 to the survey on satisfaction of project's activities of the pilot stations. Survey must report the respondents' gender. These surveys must also capture stakeholder engagement and their satisfaction with the works at stations financed by the project. During implementation, the ENR will also publish the results of the analysis of these surveys at baseline, MTR, and project closing. The ENR will indicate next steps to improve implementation of this component and quality of works.				

4.1 User satisfaction female users of ENR services	This sub-indicator will report the answers by females to the survey described above. The Monitoring Plan also contains a sub-indicator for male users that will be reported, but is not shown in the results framework to accommodate space constraints in the printout.	Baseline, mid-term review (MTR) and at closing for Implementation Completion and Results Report.	Surveys	Same as parent indicator.	PMU / ENR
5. Performance-based funding for ENR	The project will promote a major reform to improve the efficiency and accountability of the ENR through the adoption of Public Sector Obligations (PSO) and Multi-Annual Infrastructure MAI Contracts. The implementation of the PSO and MAIC mean that the ENR receives performance-based funding. Currently, the Ministry of Finance pays contributions (subsidies) to ENR with no linkage to performance. This indicator will be achieved when the ENR and the MOT and/or the MoF sign PSO and MAI contracts	Yearly supervision to assess when indicator and therefore PBC are met.	See Verification Protocol Table: Performance-Based Condition.	See Verification Protocol Table: Performance-Based Condition.	See Verification Protocol Table: Performance-Based Condition.

	that meet the intended scope and KPIs. The achievement of this outcome indicator means that the Performance-Based Condition was met. See please section "Verification Protocol Table: Performance-Based Conditions" for more details. Annex 1 of the PAD also presents more details.				

Monitoring & Evaluation Plan: Intermediate Results Indicators					
Indicator Name	**Definition/Description**	**Frequency**	**Datasource**	**Methodology for Data Collection**	**Responsibility for Data Collection**
Functioning GRM for project related complaints	This indicator assesses the efficiency and the functionality of the grievance mechanism system in place for the project by measuring the grievances received, the solution given, and the time taken to solve the issue. The indicator reports the grievances not solved after three months to track deficiencies in the GRM. The	As per the requirement of the ESCP, this should be reported in the regular quarterly progress reports.	Action plan and yearly report described in methodology.	In year 1, ENR, with support from the Bank, will conduct a self-assessment against the guiding principles of the grievance mechanism as per ESS10. The findings of the assessment will take the form of an Action Plan that will be discussed with the Bank. The Action Plan	PMU / ENR

	indicator also tracks the number of grievances received. The indicator also tracks the number of grievances received. The baseline and target are zero to reflect that zero grievances should be outstanding after three months. A positive number will indicate the GRM needs improvement. This indicator will also measure that a self-assessment of ENR grievance mechanism against the guiding principles of the grievance mechanism as per ESS10 has been conducted and based on the assessment, and with support from the World Bank, that the ENR has developed an Action Plan that addresses the root causes of the grievance to prevent repetition.			will receive clearance from Bank team and implementation will start right away. On yearly basis, the Bank will supervise the implementation of the Action Plan. The Action Plan will include mechanisms to measure the grievances, the solution given, and the time taken. The report should track the number of indicators related to the implementation of the GRM such as number of complaints received; time to process the complaints; satisfaction rate of plaintiffs regarding the efficiency of the process [not about outcomes of the request]; percentage of complaints responded to and closed from the total received, nature of complaints filed to	

				be categorized by topic, and complaints to be desegregated by gender of the complainant. The ENR will publish online this report with the nature of the grievances received (anonymized), the solution given, and the time needed to solve the issue. The report will also state the number of grievances that were not solved within three months. The report will also include actions to prevent repetition of the grievances.	
Signaling towers commissioned in Alexandria – Cairo – Nag Hammadi	Signaling tower refers to the technological building hosting the signaling control room with all related equipment and all stations and the tracks between stations controlled by the respective signaling tower. Commissioning refers to putting into operation the	Quarterly	Works' supervision reports.	Periodically report the number of commissioned towers to track project implementation. Report in particular when all 51 towers for the ENRRP rolled-over segments are commissioned. Report	PMU / ENR

	modernized signaling and ancillary equipment such as cables, computers, software, point machines, signals, power supply, telecommunication equipment, rehabilitated track and turnouts in all stations and along the entire lengths of track controlled by the respective signaling tower, and so on. The four segments rolled over from the ENRRP have 51 signaling towers and the Cairo – Beni Suef segment has 19. In the Monitoring Plan the indicator is disaggregated by segment.			also when 19 towers for Cairo – Beni Suef are commissioned.	
Centralized Traffic Control Centers (CTC) commissioned in Alexandria-Cairo-Nag Hammadi	The Centralized Traffic Control (CTC) represents a centralized office that controls remotely all railways interlockings and the entire traffic flows along a part of the railway network (usually a railway section of 100-250 km). All signaling towers installed along the respective railway section are connected to the	Yearly.	Supervision reports.	Report number of commissioned control centers. Report when CTCs for rolled over segments are commissioned. Report later when CTC for Cairo-Beni Suef is commissioned.	PMU/ENR and supervision consultant.

	CTC and are subordinated to it for traffic management purposes. Commissioning of the CTC means the CTC and all subordinated signaling towers are interconnected and operational according to the project specifications. There are five CTCs in the entire alignment, four belong to the rolled over segments from the ENRRP, and one for the Cairo-Beni Suef segment. Indicator is disaggregated accordingly.				
GHG emissions from transport on the Alexandria – Nag Hammadi corridor	Green House Gas (GHG) emissions of railways and competing intercity transport modes (e.g., cars, buses and trucks) in CO2 equivalent, along the project corridors from Alexandria through Nag Hammadi. The project will reduce GHG emissions because of improved operational efficiency in ENR passenger and freight services and thanks to a modal shift from cars and trucks.	At baseline, mid-term review and closing	ENR inhouse data on fuel consumption and travel demand (e.g., passenger-km), as well as literature on model coefficients (e.g., emission factor and calorific value for consumed	ENR has an inhouse methodology that focuses on emission reduction include railway service efficiency gains and modal shift from cars, buses and trucks. The methodology makes assumptions that allow to estimate the baseline and the target. At outcome date, the analysis will run again the model updating all values and assumptions.	PMU / ENR

			fuel).	The ENR methodology consists of the following steps: 1. CO2 emission (ton) = quantity of fuel consumption (ton) X emission factor (ton CO2/TJ) X calorific value (TJ/ton of fuel). 2. Annual savings of fuel consumption (ton) = passenger-km (annual passengers X average travel distance) X Savings of fuel consumption (ton) 3. Annual CO2 emission reduction = annual savings of fuel consumption	

				emission factor of CO2 for fuel X calorific value for fuel. An *ex ante* assessment found the project expected to reduce CO2-equivalent emissions by 6.9%, by comparing with project against without project during the seven year implementation (see Table in Monitoring Plan). Emission reductions during project implementation can be attributed to completion of Sub-component 1.3 Cairo-Alexandria and Beni Suef-Nag Hammadi segments signaling works and track upgrades, expected to complete in 2022 and begin operation in 2023.	
Design and deployment of the Safety Management System (SMS) at ENR.	This indicator measures the progress of the establishment of a safety	Yearly.	ENR systems.	At years 1, 3 and at year 6 an external auditor will be engaged	PMU/ENR

	culture at the ENR through the design and deployment of a SMS and training of staff in safety culture through the SMS which has already begun but has had difficulty with implementation. An effective SMS designed and implemented, will have a positive impact on safety issues at stations and other parts of railway operations. Safer operation of the railway is the higher level outcome and is one that will generate public, political and staff confidence in the ENR, through better safety and asset management outcomes, and will lead to a sustainable railway. The SMS includes an Asset Management System embedded within it. Higher rates of equipment reliability which will support the change in the ENR personnel's attitude to current technology work-			to report on the progress of implementation. The audit contractor will report on the gap between "perfect" implementation and current progress. Overall, it is expected "perfect" implementation is a 10-year journey as procedures, standards, conformance, training and policies are put in place.	

	arounds that lead to unsafe practices. In the Monitoring plan there is one sub-indicator for this indicator: Number of ENR staff trained on the structure, objectives, and main tenets of a Safety Management System (SMS) that should also be tracked.				
Fire safety at stations	This indicator measures the implementation of comprehensive fire safety plans at stations and workshops in accordance with the ENR fire safety department standards on the alignment. The fire safety plan includes, among other things, fire extinguishers, sprinklers, and training of the station head and other station personnel so the plan can be implemented. The training will include drills.	Yearly.	ENR statistics using SMS and asset management system.	Review statistics and report.	PMU/ENR
Pedestrian barriered level crossings installed and operational	This indicator measures the number of pedestrian barriered level crossings that are operational. This	Yearly.	ENR statistics using SMS and asset management	Review statistics and report.	PMU/ENR

	indicator measures a key element of physical safety equipment installed on the track. The objective is to increase the number of operational pedestrian barriered level crossings. Pedestrian barriers are different to road barriers because they provide a specific pedestrian path across the railway track which avoids the use of the roadway for pedestrians. Pedestrian barriers are usually immediately adjacent to road barriers but can also be installed at separate locations of high foot traffic.		system.		
Precursors to Incidents Reported by ENR Staff	The reporting of these precursor occurrences indicates the potential risks of future accidents. Some precursors are: broken rails, track buckles, signals passed at danger, wrong side signaling failures, broken wheels, and broken axles. The rationale for using this indicator is to align the ENR with good international	Yearly	ENR statistics using SMS and asset management system.	Data for these precursors are not currently available. However, the SMS implementation encourages reporting of these precursors to prevent catastrophes. The indicator shows an improvement during the project when reporting on these	PMU/ENR

	practice as showcased by the EU standard. The objective is to reduce the number of precursors to incidents. Precursors to collisions are events that could lead to a fatal collision if some other form of intervention was not applied. Precursors to derailments are events that could lead to a fatal derailment where all wheels of the train stay on the track but that the circumstances could very easily lead to a fatal derailment. The indicator ensures that all precursors are reported and are given equal weight. The idea is to encourage ENR staff to report to reflect a culture of safety.			events increases and the data becomes robust. That is, it is expected that the numbers will rise due to increased reporting rather than due to the incidence of events. In the longer term, after reporting becomes routine, it is expected the numbers will fall as the number of events reduce, but this is likely to happen only after the finish of the project. The target of 1,000 indicates an average of approximately 3 events per day and on a corridor of this size could be expected to occur.	
Length of Cairo-Giza-Beni Suef corridor segment served by signaling system with mitigation measures to identified climate and disaster risks	The project upgrades track and signaling systems including signaling towers on the Alexandria-Nag Hammadi corridor. The	Yearly	Supervision reports (commissioned signaling towers) and	Aggregate of the length of Cairo-Giza-Beni Suef segment in kilometers served by commissioned signaling	PMU / ENR

	technical specifications for all these assets must embed climate and natural disaster resilience parameters. Known risks for the project area include extreme temperature, extreme precipitation and flooding, drought, strong winds and earthquakes. Bidding documents for track and signaling works for the Cairo-Giza-Beni Suef segment will address measures to mitigate these climate and disaster risks. Signaling towers control traffic of assigned railway segments, typically several stations per control tower. The indicator is defined as follows: when works complete that is, a signaling tower is commissioned and the modern signaling system becomes functional for the particular segment of the corridor, then climate and disaster risk-resilient signaling system now serves the segment. The length of the corridor segment		ENR system (km of line segment served by each signaling tower)	towers.	

	covered by the signaling tower will be added to the indicator to be reported. The Cairo-Giza-Beni Suef corridor is 125km in length, and the baseline value is 0, and the target value is 125. Design and works will occur during the first several years of implementation, and climate and disaster resilient signaling system will be in place toward the end of project implementation showing an S-shaped progress curve.				
Female graduates recruited in ENR in a wide range of engineering roles	This indicator measures the number of female graduates recruited by the ENR for a wide range of engineering roles from civil to electrical to mechanical to signal engineer. The rationale for this indicator is to encourage women's recruitment in roles that tend to be male dominated in the ENR and broadly in the transport sector, one of which is engineering, and aims to facilitate education to job transition of female	Yearly	Human resource statistics at the ENR on number of engineers disaggregated by gender, both full-time and part time employees count toward this indicator.	Extract the total number of female engineers and their increase over years and record.	PMU / ENR

	graduates with relevant education profile.				
Steering Committee established and meets periodically	The MoT will establish a steering committee that will include MoF and MoIC. The SC will lead the reform effort at ENR that will result in the adoption of the PSOC and MAIC.	Yearly.	MoT reports.	MoT reports.	MoT.
Policy Reform Preparatory Analysis for PSOC and MAIC	The scope of the preparatory analysis will include three key elements: (a) preparatory analytical work and help with adoption of the PSO contract; (b) preparation work and help with adoption of the MAIC; and (c) preparation of supporting business plans for each of the business units in ENR.	Yearly.	MoT	The MoT will design the TORs for the Policy Reform Analysis that will study the introduction of the PSOC and MAIC. Thje ENR will carry out the procurement, but MOT will supervise.	MoT

Performance-Based Conditions Matrix				
PBC 1	5. Performance-based funding for ENR			
Type of PBC	**Scalability**	**Unit of Measure**	**Total Allocated Amount (USD)**	**As % of Total Financing Amount**
Outcome	No	Yes/No	29,000,000.00	4.40
Period	**Value**		**Allocated Amount (USD)**	**Formula**
Baseline	No			
Any time during project implementation	Yes		29,000,000.00	See procedure

Verification Protocol Table: Performance-Based Conditions	
PBC 1	5. Performance-based funding for ENR
Description	To strengthen the project's support for institutional reform and to specifically motivate the introduction of performance-based funding at the ENR the project includes a PBC. The PBC is linked to the GoE achieving the outcome indicator "Performance-based funding for the ENR" in the Results Framework (Baseline: no, Target: yes). This indicator will be achieved when the ENR and the MoT and/or MoF sign PSOCs and MAICs that meet the intended scope and KPIs. Subcomponent 3.2 (a) will finance the study that will help design these contracts. The PBC is for US$29 million of loan proceeds associated with the final payments to the contractor the ENR will hire for the works in Subcomponent 1.1 for the railway signaling system upgrade along the Cairo-Giza-Beni Suef line. Specifically, the successful completion of the condition will allow the loan to finance the retention money due at the end of the defect liability period in this contract, as defined in the bid documents. The defect liability period ends one or two years after completion of the works. The retention is typically 10 percent of the contract value, currently estimated at US$277 million. The contract value can increase due to price escalation during implementation. Hence the 10 percent is approximately US$29 million. The PBC is capped at US$29 million. The bid documents can also establish that the ENR can pay the retention funds at the completion of the works, but

	before the defect liability period is over. In that case, the contractor will issue a guarantee to the ENR. In this case, the loan can finance the retention funds only if the PBC has been met by the completion of works. If 10 percent of the contract value is less than the US$29 million, then the amount associated with the completion of the PBC is that lower value. In sum, the GoE will meet the condition if it introduces performance-based funding for the ENR. Meeting the condition will allow the loan to finance the retention money in the signaling upgrade contract. For the disbursement to be triggered, these expenditures must meet all eligibility criteria, including safeguards. If the PBC is not met, the ENR will pay these funds to the contractor instead, as reflected in the Loan Agreement and Project Agreement.
Data source/ Agency	MoT, MoF, ENR, copies of signed PSOC and MAIC, reports on works' progress by PMC for supervision, management and monitoring of activities under sub-component 1.1 of the project.
Verification Entity	The Independent Verification Agent will be the project management consultant (component 3.1 (a)) for supervision, management and monitoring of activities under Part Sub-component 1.1 of the project. The scope of this task will include: developing and adopting a detailed Verification Protocol in form and substance satisfactory to the Bank; (b) carrying out verification processes in accordance with the adopted Verification Protocol to determine whether the PBC has been met; and (c) submitting to the Bank the corresponding verification report on time and in form and substance satisfactory to the Bank for final review.
Procedure	First, the PBC in this project is linked to achieving the target in the outcome indicator Performance-Based Funding at ENR. The PBC is associated for disbursement purposes to the retention money for works in component 1, which must meet all eligibility criteria. Below are basic definitions of the PSOC and MAIC, which are expanded in Annex 1 of this PAD in order to help craft the TORs for the policy reform study that will develop the PSOC and MAIC (sub-component 3.2 (a)) and for the project management consultant for supervision, management and monitoring of activities for sub-component 1.1 of the project, that will be the IVA for the PBC (sub-component 3.1 (a)). "Public Service Obligations Contract" means the performance-based public service obligations contract, in form and substance satisfactory to the Bank, to be entered into between the Borrower (as buyer) and the project Implementing Entity (as service provider of railway services and fare concessions), setting forth terms and conditions such as: public service obligations of the service provider; principles of compensation for services received by the buyer; reporting lines of the service provider, among others; all with a view to enhancing transparency and accountability in public governance and organizational performance of the service provider. "Multi-Annual Infrastructure Contract" means a performance-based long-term financing arrangement for the regular upkeep and maintenance of railways infrastructure, in form and substance satisfactory to the Bank, to be entered into

	between the Borrower and the project Implementing Entity as infrastructure manager. Second, the IVA will also show that the related expenditures are eligible for financing from the loan in terms of quality and safeguards, among others. These eligibility requirements are the same as for the rest of sub-component 1.1. During preparation of the bidding documents for sub-component 1.1 the Bank task team will ensure there is a defect liability period and retention funds. The condition can be met at any time during project implementation. As explained, the condition is associated the retention money due at the end of the defect liability period in this contract. This timeline is important in case the condition is not met in the first years. The idea is to allow ENR to hire the contractor as planned in the first year of implementation of the RISE Project. Further, the idea is to allow the contractor to implement the works which follow typically a S-shaped pattern. This approach also gives time for the RISE Project component 3.2 (a) to prepare the introduction of performance-based funding (PSOC and MAIC) and therefore meet the PBC if the contracts are signed and become effective. The IVA/project management consultant for supervision will be hired prior to commencement of the works in 1.1 (a). If the PBC is not met, ENR will pay instead, as reflected in the Loan and Project Agreements.

ANNEX 1: Implementation Arrangements and Support Plan

1. Further to the project description provided in the main body of the PAD, this annex provides more details on the proposed the RISE Project. The estimated costs by component in the RISE Project are presented in the table below, showing IBRD and GoE contributions. The description and table also show the items and amounts to be transferred or rolled over from the ENRRP to the RISE Project. See also Annex 4 with the map of the project.

Table 3. Detailed Project Financing

Components	Estimated cost (US$ million)	IBRD financing (US$ million)	Counterpart financing (US$ million)
Component 1: Safe System Signaling Modernization (including track renewal and signaling upgrade)	**602.00**	**402.00**	**200.00**
1.1 Cairo - Giza – Beni Suef Signaling System Modernization	277.00	277.00	0.00
1.2 Rollover of pending signaling upgrades from the ENRRP* (World Bank loan)	125.00	125.00	0.00
1.3 Rollover of ENRRP permanent way upgrade** (ENR funds)	200.00	0.00	200.00
Component 2: Safe System Asset Management Improvement	**54.00**	**14.00**	**40.00**
Component 3: Project Delivery, Institutional and HR Development	**24.00**	**22.90**	**1.10**
3.1 Project Delivery support	**18.00**	**16.90**	**1.10**
3.2 Institutional Development of the railway sector	**6.00**	**6.00**	**0.00**
Front-end fee (0.25%)	**1.10**	**1.10**	**0.00**
Total	**681.10**	**440.00**	**241.10**
ENR Own Funds	**241.10**		
IBRD Loan	**440.00**		
Financing Gap	**0.00**		

Components	Estimated cost (US$ million)	IBRD financing (US$ million)	Counterpart financing (US$ million)
***Amount from rolled over activities from ENRRP financed by the World Bank (activity 1.2 and part of 3.1)**	**135.00**		
**** Amount from rolled over activities from ENRRP financed by ENR (activity 1.3)**	**200.00**		

2. **Implementation period:** The implementation period for the project is estimated to take 78 months (6.5 years). The completion dates of individual components are estimated and presented in Table 4.

Table 4. Estimated completion date by component

Components	Completion Calendar Yr.
Component 1: Safe System Signaling Modernization	
Subcomponent 1.1: Cairo–Giza–Beni Suef signaling modernization	Q1 2027
Subcomponents 1.2 and 1.3: Rollover of remaining signaling and track renewal scope of the ENRRP	Q4 2022
Component 2: Safe System Asset Management Improvement	Q4 2026
Component 3: Project Delivery, Institutional and Human Resource Development	
Subcomponent 3.1: Project Delivery support: - Project management and supervision support (Cairo–Giza–Beni Suef section) - Rollover of ENRRP-related project supervision - Technical audit (Cairo–Giza–Beni Suef section) - Human resources development	 Q1 2027 Q1 2023 Q1 2027 Q4 2022
Subcomponent 3.2: Institutional development of the railway sector - Introduction of PSOC and MAIC - Introduction of PSP	 Q4 2023 Q4 2023

Implementation Arrangements

3. To achieve a self-contained annex, the following three paragraphs repeat the implementation arrangements in the main body of the PAD.

4. **Responsibilities and Executing Agency:** The overseeing power and associated responsibility lie with the MoT, as the head of the transport sector in Egypt. The ENR will act as the PIE and manage the implementation of all components, in close coordination with the MoT. The ENR will carry out all procurement, FM, and internal auditing for the project. The ENR oversees safeguards implementation and will report on all ESF requirements.

5. **The ENR will implement the RISE Project through the PMU created originally for the implementation of the ENRRP.** The PMU will work in coordination with five ENR departments: signaling system, track works renovation, telecommunication system, power supply system, and centralized train control. The RISE Project incorporates lessons learned from the ENRRP on procurement, project implementation, FM, and safeguards. As

key risk mitigation, the ENR will reinforce the PMU with the necessary resources exclusively dedicated to the RISE Project and arrangements to tap into a wider pool of ENR experts throughout the period of delivery of the RISE Project. The PMU will need to strengthen its capacity in procurement, FM, and safeguards. The implementation arrangements for Subcomponent 3.2 include the MoT and an SC created to help prepare and implement this part. The following paragraph clarifies some responsibilities.

6. **Components 1 and 2 will be implemented by the PMU.** The PMU will (a) select the signaling contractor for Subcomponent 1.2 whose bid matches the ENR needs in a most advantageous way; (b) manage the implementation of this contract and of the contracts rolled over (Subcomponents 1.2 and 1.3), according to the contracted scope; and (c) procure safety improvement works at stations, tracks, crossroads, and locomotives in Component 2.

7. **Component 3 will be implemented by the PMU at the ENR and the MoT as follows:**

(a) The PMU will carry out the procurement and supervision for all elements of Subcomponent 3.1.

(b) The MoT will be responsible for the direction of Subcomponent 3.2, design of the ToR, day-to-day coordination of their work, and approval of their deliverables. The ENR will carry out procurement for items in Subcomponent 3.2 using the ToR provided by the MoT. The MoT will arrange for establishing an SC for overseeing the reform and modernization of the ENR. The SC, under the direction of the MoT, will include representatives of the MoF and MoIC. The SC will be created soon after effectiveness. The SC will be responsible for: (i) providing strategic guidance for the strategic study of the reform and (ii) recommending to approving authorities the implementation of the reform including the PSOC and MAIC. The Project Operational Manual will further develop the tasks and responsibilities of the SC. The RFM also includes an intermediate indicator to track SC performance, building on lessons from many World Bank-financed projects where the SC is not functional. In parallel, the PMU will work with the consultant to develop rolling business plans for its business units, which align with the objectives set by the PSOC and MAIC for the ENR. In addition to leading the SC, the MoT will establish its own dedicated team to support the reform. Since the MoT lacks practical experience in railway reform, the project will support with: (i) developing capacity within the MoT, (ii) identifying the reform champion and reform agents in the MoT, and (iii) deploying them on catalyzing the reforms agreed with the MoT.

Financial Management

8. **Implementing Entity.** The project will be implemented by the ENR through a dedicated PMU. The envisaged PMU is responsible for the day-to-day operations and will include staff seconded from within the ENR. For capacity-building purposes, external support can be resorted to, as needed.

9. **Staffing.** The PMU will include two accountants and will resort to hiring an experienced FM consultant, as needed and agreed with the World Bank, according to a ToR acceptable to the World Bank to work, train, and transfer knowledge to the appointed staff. The FM Team will report to the PMU Director. The FM Team will be responsible for budget coordination, reporting consolidation, progress reporting, liaising with the external auditor, and handling the project flow of funds (disbursements to project contractors/suppliers and withdrawals from the loan account). The FM Team, who manage the SAP system, will manage the asset management modules that will be used to monitor the maintenance condition of safety assets such as signaling, where data will be input by the engineering teams in Infrastructure. This data will then be used by the maintenance teams in Infrastructure and also be useful to FM for depreciation calculations, write-offs, and acquisitions using the Asset Register that is embodied in the SAP.

10. **Accounting Recording and Reporting.** The ENR uses the SAP system to report on donors' projects; hence,

it is going to be used for this project. The system is considered to be acceptable due to (a) its internal security features (for example, cannot delete posted transactions, controlled access, password protection, back-up and system maintenance procedures, self-diagnostic checks to ensure integrity); (b) its ability to account under the different comprehensive basis of accounting (cash, modified cash); and (c) being capable of issuing reports required under the umbrella of the project. It was agreed that a separate module would be established under the SAP system for the sole purpose of implementing the envisaged project. Under the project's module, the following features will be ensured:

At the accounting level:

(a) Expenses are captured by project component, category, and contract

(b) Expenses are captured by the source of financing, that is, the system differentiates between expenses financed by the World Bank separately from those financed by any other source under the same project

At the reporting level:

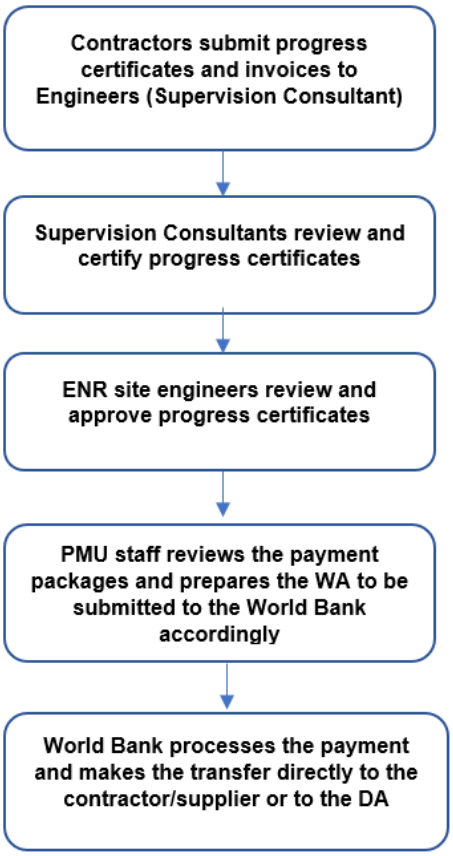
(a) Ability to track and report by project funding entity (sources of funds), credit agreement category, and project component (uses of funds)

(b) Ability to monitor commitments under each contract

(c) Ability to track actual, budget, and forecasts data

11. **The Flow of Funds.** A DA will be opened at the CBE. Advances will be made by the World Bank to the DA according to a disbursement forecast. Replenishment of the DA will be made as the project disbursements progress. Also, other methods of disbursements will be available to be used by the PMU as needed including Direct Payment, Special Commitments, and Reimbursements. Payment requests will be prepared and sent by the PMU, signed by authorized signatories. The name(s) and corresponding specimen of signature of authorized signatories will be submitted to the World Bank office in Cairo through the MoIC. The project shall apply for access to the World Bank's disbursement website (Client Connection) to follow up on the status of its withdrawal applications and to reconcile its records with the World Bank records. The following chart describes the flow of documents pertaining to the project until the payment is concluded.

Figure 2. Flow of documents until payment is concluded



12. **Internal Controls.** A financial procedure manual will be developed by the PMU as part of preparing the POM. The manual should illustrate the documentation of all the various types of financial transactions, approval and authorization steps, the flow of documents within and between the PMU and the Financial Department of the ENR and the World Bank, along with the retention of original documents and copies and a job description of each staff. Also, it puts in writing all the financial aspects of the project at hand including but not limited to: (a) the Project and its Context (that is, project purpose, deliverables, donors, and so on); (b) Internal Controls (that is, Roles and Responsibilities); (c) Disbursing Arrangements (that is, method(s) adopted by the project for disbursing the donated funds); (d) Bookkeeping and Reporting; (e) Reporting (that is, Reports Periodicity and Contents); and (f) Audit (that is, Project Audit Arrangements).

13. **Auditing.** The PMU will appoint an independent external auditor according to a ToR acceptable to the Bank. The auditor will be responsible for auditing the annual PFSs and review of the quarterly IFRs. The reviewed quarterly IFRs are due 45 days after the end of each quarter and the audited PFSs are due six months after the end of each FY.

- The content and format of the external audit reports were agreed with the borrower and it was agreed that the audit reports will act as a reasonable MM for the risk of double dipping as follows: (a) the final external audit of the ENRRP will include an annex with all the contracts under the umbrella of the project by supplier/contractor; (b) contractor/supplier detailed account will be included in this annex and will show (i) contracts number, (ii) amount, (iii) duration, and (iv) submitted invoices by invoice number,

amount, and date; and (c) closing balance which should be the opening balance in the first audit report submitted under the RISE Project.

14. **Fiduciary risk is rated as Substantial because of project FM risks.** This is based on the existing fiduciary arrangements within the ENR, the inherent risks, the nature of the project design, and the involved stakeholders' interests.

Risk	Risk *Before MM*	MMs	Risk After MM
The Egypt Public Financial Management (PFM) strategy (issued January 2016) identified several weaknesses in the Egyptian financial accountability, in both the public and the private sector.	High	1. The project will be implemented by the ENR in a ringfenced mode through a dedicated PMU. 2. The PMU will be responsible for the day-to-day implementation of the project. 3. The World Bank FM team will provide initial training and regular support to the PMU FM staff.	Substantial
The project activities will be significantly affected by the closing of the ENRRP. This requires fiduciary vigilance particularly pertaining to overlapping activities and detailed meticulous reporting.	High		Substantial
Overall Inherent Risk Before MM	**High**	***Overall Inherent Risk After MM***	***Substantial***
Risk	**Risk *Before MM***	**MMs**	**Risk After MM**
Lack of experienced staff with World Bank-financed projects	Substantial	- It was agreed that a PMU will be established, and the ENR will second, from the ENR's Finance Department, fully dedicated staff to the PMU. - It was agreed to appoint an experienced FM consultant, as needed and as agreed, according to a ToR acceptable to the Bank to work, train, and transfer knowledge to the seconded staff.	Moderate
The ENR follows traditional Egyptian governmental systems. The FM system will need to be	High	- The ENR uses the SAP system to report on donors' projects. The system will be used under the umbrella of the project. - The system is capable of generating	Substantial

Risk	Risk *Before MM*	MMs	Risk After MM
reconfigured to become able to compile the project financial data and issue reports on a quarterly basis.		the quarterly IFRs and annual PFSs required under the Loan Agreement. - The system output and the related levels of details to be generated by the system are still to be agreed with the client.	
Financial compliance control is uneven, with variation in performance, cumbersome procedures, and deficient controls on budget commitments.	High	- The PMU will develop and maintain a POM which will clearly show the staff reporting system in the project and will indicate the separation of responsibilities among staff in the PMU, including the authorized signatories to the WA, safeguarding assets, record keeping, monthly account reconciliation, and so on. The manual is a living document and hence will frequently be revisited and amended to reflect the actual activities of the PMU. - The World Bank FM will provide clearance on the FM chapter in the POM and follow up on the regular implementation.	Substantial
Delays in flow of funds	High	The proceeds of the loan will be transferred to a DA which will be opened in a bank acceptable to the World Bank. The project will use the DA mainly to manage the financing of eligible expenditures under the project's component(s) and will be used for the sole purpose of implementing the project activities.	High
Lack of timely audit/review reports on project FS/IFRs	Substantial	The PMU will appoint an independent external auditor according to a ToR acceptable to the World Bank. The auditor will be responsible for auditing the annual PFSs and review of the quarterly IFRs. The reviewed quarterly IFRs are due 45 days after the end of each FY and the audited PFSs are due six months after the end of each FY.	Substantial

Risk	Risk *Before MM*	MMs	Risk After MM
Overall Control Risk Before MM	**High**	**Overall Control Risk After MM**	**Substantial**

Performance Based Condition:

15. This project includes a PBC explained in the main text in the Project Description section and in the Verification Protocol Table: Performance-Based Conditions at the end of the RFM. The PBC is linked to the GoE achieving the outcome indicator titled Performance-based funding for the ENR in the Results Framework (Baseline: no, Target: yes). The Verification Protocol Table contains basic definitions of the PSOC and MAIC, which are expanded here to help craft the ToRs for the policy reform study that will develop the PSOC and MAIC (Subcomponent 3.2 (a)) and for the PMC for supervision, management, and monitoring of activities under Part Subcomponent 1.1 of the project, that will be the IVA for the PBC (Subcomponent 3.1 (a)). These lists are indicative and will be defined by the policy reform study.

16. **PSOC:**[24] The PSOC, satisfactory to the World Bank, shall be signed between the ENR and the MoF/MoT based on fair allocation of risks and costs among the parties signing the agreement and shall contain provisions addressing among others the following major groups of topics:

1. Scope of the contract
2. Service requirements
    a. Capacity provision
    b. Timetable
    c. Obligations to passengers (delivering service to passengers, dealing with disruptions and related provision of alternative services, customer satisfaction surveys)
    d. Fares
    e. Stations
    f. Changes to service provision
    g. Industry arrangements (licences, use of stations, use of rolling stock, major infrastructure projects)
    h. Covenants (financial and other)
    i. Contract monitoring arrangements (maintenance of records, provision of accounts, passenger statistics, other information, right of audit and inspection, performance review, performance improvement plan)
3. Financial provisions
    a. PSO payments (structure and breakdown per type of service from the timetable)
    b. Contract review
4. Term and termination
    a. Contract term
    b. Early termination
    c. Events of default

[24] The PSOC is the mechanism for the GoE to: (a) procure socially necessary railway transport services, (b) establish the institutional relationship with the ENR on a commercial footing, and (c) enable the GoE to stipulate the scope of services that are purchased in exchange for a PSO compensation.

5. General provisions
    a. Compliance with laws
    b. Exclusions of liability
    c. Confidentiality
    d. Disputes
6. Appendices (Contract schedules)
    a. PSOC scope (timetable identifying the services covered)
    b. Performance targets (operational KPI, financial KPI)
    c. Other obligations (discount fares and concessionary schemes)
    d. Contract administration (reporting frequency, reporting pro-forma)
    e. Financial model (detailing on revenue and qualifying expenditure)
    f. Business plan for the duration of contract[25]
    g. Rolling stock investment plan (where such investment funded by the GoE is relied upon in section 2 above, Service requirements).

17. **MAIC:** [26] The MAIC, satisfactory to the World Bank, shall be signed between the ENR and the MoF/MoT based on fair allocation of risks and costs among the parties signing the agreement and shall contain provisions addressing among others the following major groups of topics:

1. Scope of the contract
2. Service requirements
    a. List of assets covered by the contract
    b. Infrastructure availability provision
    c. Obligations to users (delivering service to users, dealing with disruptions)
    d. Changes
    e. Industry arrangements (licences, use of stations, use of rolling stock, major infrastructure projects and access requirements)
    f. Covenants (financial and other)
    g. Contract monitoring arrangements (maintenance of records, provision of accounts, network statistics, other information, right of audit and inspection, performance review, performance improvement plan)
3. Financial provisions
    a. Multi-Annual Infrastructure (MAI) payments (structure and breakdown per element of infrastructure management)
    b. Contract review
4. Term and termination
    a. Contract term
    b. Early termination
    c. Events of default
5. General provisions

[25] The MoT will want to have the ENR's business plan that confirms deliverability of PSO targets. This will be delivered by Component 3 (Strategic Study).
[26] The MAIC is being introduced as a vehicle to establish long-term commercial agreement between the ENR and the GoE. The ENR will need to be given clear guidance in respect of the level of support over a control period, for example, five years, and the quality to which this infrastructure will need to be maintained, along with incentives for better performance. For maximum effect, these long-term commitments need to be articulated in the MAIC.

a. Compliance with laws
b. Exclusions of liability
c. Confidentiality
d. Disputes

6. Appendices (Contract schedules)
    a. MAICC scope (identifying the activities covered such as maintenance, renewal, and construction of new infrastructure if appropriate)
    b. Performance targets (operational KPI, financial KPI)
    c. Other obligations
    d. Contract administration (reporting frequency, reporting pro-forma)
    e. Financial model (detailing on revenue and qualifying expenditure)
    f. Business plan[27]
    g. Infrastructure investment plan (where such investment funded by the GoE is relied upon in section 2, above, Service requirements).

Capacity Building of the ENR

18. The strategy for supporting project implementation follows a two-prong approach: (a) provision of continued, face-to-face or virtual support, TA, and on-the-job training, mainly in areas of weakness or where new approaches and/or technologies are introduced and (b) ensuring the successful and timely implementation of the proposed mitigation measures in the Systematic Operations Risk-Rating Tool (SORT). The strategy is also to ensure maximum benefit to the PMU and its staff. Support activities will be provided either by short- and long-term consultants hired by the project or by the World Bank, supplemented by other resource persons as needed.

19. **Implementation support missions.** In support of capacity building of the ENR, the Bank implementation support missions will be on a quarterly basis during year 1 of the RISE Project, and thereafter on a semi-annual basis. The support mission may be complemented by short visits by individual specialists to follow up on specific thematic or technical issues as needed. Following the good example set during the final year of the ENNRP, regular progress meetings via videoconference (VC) will be held with the PMU on a monthly basis, including during the gap in time between the closing of the ENRRP and the effectiveness of the RISE Project. These VCs started before the pandemic to maintain frequent contact. An MTR will be carried out midway during implementation, in year 3. Should monitoring of the RISE Project's performance require, the MTR will be brought forward to year 2. The MTR will include a comprehensive assessment of progress in achieving the project's objectives as laid out in the Results Framework. The project includes a PBC that also demands attention from the World Bank, as explained above.

20. **ESF.** The World Bank Environmental and Social Development Specialists will provide support to the PMU to ensure proper implementation of the ESF instruments. They will join the implementation support missions, or undertake separate missions as needed, to (a) assess the level of compliance with the ESCP; (b) assess the level of compliance with the cleared environmental and social instruments (including mitigation, monitoring, and management measures); (c) review environmental and social progress reports; and (d) ensure that procurement arrangements are consistent with the ESF requirements set out in the project legal agreements. The specialists will also discuss the findings with the implementing agencies to help identify and address any shortcomings, share lessons learned from other projects and other countries, and propose good practices to the implementing

[27] The MoT will want to have the ENR's business plan that confirms deliverability of MAIC targets. This will be delivered by Component 3 (Strategic Study).

agencies to help improve ESF compliance as well as environmental and social sustainability.

21. **The rolling over of the pending works in the ENRRP to the RISE Project requires special attention during the gap in time between the closing of the ENRRP and the effectiveness of the RISE Project.** The World Bank must pay attention to the pace of works to ensure progress happens as planned. These works should be completed in two years (Q4 2022). On safeguards, the rolled-over contracts must be amended to reflect the safeguards developed for the RISE Project. The RISE Project includes retroactive financing to cover the rolled-over contracts. For the RISE loan to finance these expenses, they must meet all eligibility criteria, including safeguards. Therefore, the World Bank needs to provide implementation support also during the gap in time between closing and effectiveness.

Safety Management

22. **Staffing.** The ENR Railway Safety Team will be equipped with skills enabling detailed analysis of safety data so that recommendations can be provided to the ENR senior management for improvement focus, including funding, where necessary. This analysis will quantify the risk associated with the hazards identified and the human and financial consequences of safety catastrophes. To obtain these skills, the Safety Team will become well versed in root cause analysis and Reliability, Availability and Maintenance (RAM) methodology in the context of the SMS.

23. The Safety Team will lead the training necessary of the workforce more widely to raise awareness of the hazards in the operation so that local management at depots, stations, and mechanical workshops can implement their own actions to reduce the risks coming from hazards. The Safety Team itself will continue to learn of the requirements of the SMS and continue to learn from other railways through attendance at safety events. The Bank will assist the Safety Team in creating training resources and provide workshops for other ENR teams, such as at depots, stations, and mechanical workshops. The Engineering teams in Infrastructure will use the SAP asset management modules to detail the assets of the signaling system so that maintenance requirements, procedures, and standards are fully documented, and preventative maintenance regimes are enacted.

24. **Equipment**. The Safety Team will install computer software and hardware to enable detailed analysis of safety data including root cause analysis and interfacing with the SAP system that is managed by the Finance team. This computer software could be Excel type software but with interfaces to the SAP system where details can be securely housed. If required, the SAP system will be enhanced with maintenance modules so that safety assets such as signaling can be maintained in accordance with original equipment manufacturer (OEM) standards. These maintenance modules require a detailed list of assets at the component level with each component tracked for its installation, maintenance, and disposal according to the standards. This type of system will capture the cost of maintenance as well as the replacement cost of the components and be used for budget purposes.

25. **Auditing.** The progress of SMS implementation during project implementation will be subject to audit at the one-year, three-year, and six-year milestones. These audits will identify the gaps in the system implementation so that a program of activity can be created for the finalization of the implementation, which is expected to take a total of 10 years (as in other railways), which is beyond the period of the project. Audits are regular even for railways who believe they have fully implemented the SMS.

ANNEX 2: Adjustments to the Country Program in Response to COVID-19

1. **Approach to country COVID-19 response and impact on Country Program.** The WBG's CPF for FY2015–FY2019 (extended to FY2021) is organized under three closely interconnected strategic focus areas, supporting transformational changes to the economic and social space in Egypt: (a) improving governance; (b) promoting private sector led job creation and (c) fostering social inclusion. The challenges posed by the COVID-19 crisis reconfirm these CPF pillars with a focus on structural reforms, while supporting the poor and highly impacted sectors through strengthening the social safety net and enabling private sector investment and job creation.

2. **Impact of the COVID-19 pandemic on the country and government response.** The economic and human impact of the COVID-19 pandemic on Egypt will be severe. As of early February 2021, Egypt had recorded 170,207 cases and 9,699 deaths;[28] Egypt's new cases and fatalities began to decline in mid-June. The COVID-19 pandemic and its disruptive repercussions have impacted the macroeconomic environment, which was at a comfortable level of foreign reserves. At the same time, the COVID-19 crisis hit when structural challenges continued to persist, notably the still-elevated government debt-to-GDP ratio, feeble revenue mobilization, sluggish private sector activity and job creation, and underperformance of critical foreign income-earning activities. The current crisis is causing an uptick in unemployment and threatens to undermine the recent economic recovery and exacerbate the pre-existing structural challenges. Growth is projected to decline from 5.6 percent in FY2019 to 3.4 percent in FY2020. The budget deficit is also forecast to widen to 8.2 percent of GDP in FY2020. Reserves remain ample, at US$38.2 billion end-FY2020, although buoyed by substantial external financing, notably from the IMF as well as a sovereign Eurobond issuance. Nevertheless, ongoing pressures on Egypt's external accounts are expected to persist due to the disrupted international trade and the global recession which will further weaken Egypt's exports and FDI. While remittances may initially react countercyclically and rise to support Egyptian households' consumption, they are expected to decline, especially with the downturn in Gulf countries (due to the oil price crash). Thus, the external financing gap for FY2021 remains substantial (around 2 percent of GDP); this gap is being covered by Eurobond issuances as well as loans from development partners.

3. **In response to this crisis, Egypt has undertaken measures to curb the spread of COVID-19 and mitigate its adverse implications for the economy.** The emergency response included (a) enforcing a partial lockdown and suspending air traffic between mid-March and end-June; (b) allocating an emergency response package worth EGP 100 billion (1.7 percent of GDP), in part to scale up health expenditures; (c) easing monetary policy and liquidity conditions to enable individuals and firms to continue accessing credit at better terms, as well as introducing forbearance measures in the form of delayed tax and loan payments, to alleviate immediate financial pressures on individuals and businesses; (d) augmenting social protection programs, to partially shield the most vulnerable groups from the economic fallout resulting from the pandemic; and (e) providing targeted support to specific sectors, including through the CBE's initiative to allocate resources to extend soft loans at a preferential discount rate, and providing subsidized electricity tariffs to all industries. Furthermore, short-term measures to mitigate the health and environmental hazards associated with the handling of waste resulting from COVID-19 extended health care services include: (a) allocation of dedicated transfer stations for health care waste; (b) immediate removal and disposal of health care waste from large hot spots; (c) enforcement of the OHS guidelines for cleanliness/waste workers; and (d) imposing of the use of Personal Protective Equipment in public places, administration spaces, and in public as well as private mass transportation.

4. **WBG support for responding to the crisis.** To strengthen Egypt's resilience in response to such severe shocks, it will be crucial to sustain macroeconomic stability and initiate the second wave of structural reforms that would resolve binding constraints to greater private sector activity and job creation. The WBG support for

[28] *https://covid19.who.int/region/emro/country/eg accessed February 9*, 2021.

responding to the crisis include the following:

(a) **Support to health for saving lives.** Early in the pandemic, and responding to a GoE request, the World Bank activated a Contingent Emergency Response Component (CERC) under the Transforming Egypt's Healthcare System Project (P167000), reallocating US$7.9 million to support country preparedness and to finance the non-procurable costs associated with the clinical screening and detection of suspected COVID-19 cases by physicians and nurses. In parallel, IFC offered a TA grant to advise on contracting the private sector in the COVID-19 response, including through tariff guidelines and contracts.

As part of the Fast Track Facility, the World Bank supported the Egypt COVID-19 Response Project (US$50 million) that will focus on the immediate operational challenges and critical areas of Egypt's national COVID-19 response. Project funds will complement the national response plan through (a) procurement and distribution of medical equipment necessary for the COVID-19 response; (b) 'corona incentive pay' for health care personnel working at COVID-19 facilities or COVID-19-related tasks; (c) health worker training; (d) operations of specifically designated quarantine, isolation, and treatment centers; (e) mobilization of rapid response teams in contact tracing of COVID-19 cases; (f) development of messaging platforms and tools; (g) innovative monitoring and evaluation of social distancing strategies; and (h) adoption of proper policy tools to optimize the COVID-19 response.

(b) **Social response for protecting poor and vulnerable people.** The US$400 million Supporting Egypt's Universal Health Insurance System Project will provide temporary support for three FYs to the most vulnerable segments of the society affected by the COVID-19 pandemic, and finance the costs associated with their utilization of the Payment on The Expense of the State (PTES). The PTES is fully funded by the Treasury and covers Egyptians who are not able to afford private treatment and are not affiliated with public and/or private insurance systems. Through the US$500 million Strengthening Social Safety Nets AF Project the government added 160,000 new households to the Takaful and Karama Program (TKP), bringing the total number of people under the TKP to 3.11 million households (approximately 11 million individuals). The TKP budget will also increase from EGP 18.5 billion to EGP 19.3 billion and coverage will reach a total of 3.5 million households. The Bank also prepared a Social Protection Response and Recovery Policy Note including options and innovations in digital payments for the poor and the vulnerable.

(c) **Economic response for saving livelihoods, preserving jobs, and ensuring more sustainable business growth and job creation**. The World Bank has prepared a Country Private Sector Diagnostic assessment which identifies the current constraints and the reforms needed to unlock the potential of the private sector. Under the United Kingdom Government-supported Strategic Partnership for Egypt's Inclusive Growth Trust Fund, the World Bank is supporting the GoE in drafting the co-existence procedures for some vital economic segments. IFC is supporting the private sector with emergency funding. IFC provided liquidity support to Financial Institutions Group clients under IFC's COVID-19 Fast Track Facility: US$100 million and US$50 million working capital facilities to the Commercial International Bank and Al-Watany Bank of Egypt, respectively.

(d) **Strengthening policies, institutions, and investments for resilient/sustainable recovery.** The World Bank is discussing reforms for the immediate COVID-19 response, and structural reforms for longer-term economic recovery. IFC provided portfolio stress testing advice and training for IFC banking and Monetary Financing Institution clients to assess the resilience of financial institutions. The proposed Greater Cairo Air Pollution and Climate Change Project (US$200 million) will contribute toward resilient and sustainable recovery which includes specific COVID-19 response in support of government efforts to mitigate health and environmental hazards. The activities are focused on building responsiveness and resilience into

institutions and systems with an emphasis on the health sector in treating and minimizing contaminated waste, the service sector in enhancing worker safety, as well as awareness-raising on the links between increased risk of respiratory infection and air pollution.

5. **Selectivity, complementarity, partnerships.** Plans for portfolio restructuring and new lending have been discussed with authorities and shared with development partners through the existing donor coordination platform led by the MoIC. Support to the health sector was closely coordinated with key partners (including the World Health Organization [WHO], United Nations Development Programme [UNDP], and UK-Foreign Commonwealth and Development Office) to ensure complementarity. Dialogue and coordination with the UNDP, United Nations Population Fund, and United Nations Children's Fund on the social response is underway, and the Bank is systematically exploring partnerships for its new operations: Japan International Cooperation Agency (JICA) and the AFD are expected to join the Universal Health Insurance project, and options for jointly financing the potential follow-up social insurance operation are under discussion with JICA and the AfDB. While the EBRD and the EIB mobilized emergency lines of credit for small and medium enterprises (SMEs) through commercial banks, the World Bank capitalized on its ongoing operation, Catalyzing Entrepreneurship for Job Creation, to accelerate disbursements. The IMF's Executive Board approved Egypt's 12 months US$5.2 billion loan under the Stand-By Agreement (SBA) instrument. The loan program supports the second wave of Egypt's economic reform, with special focus on structural reforms. This includes allocations for health spending, an expansion of the TKP cash transfer social programs, and temporary support for the most harshly impacted sectors. It also targets maintaining Egypt's macroeconomic stability, prioritizing necessary social spending.

6. **Alignment of the RISE Project to the World Bank support for crisis response.** The project will support structural reforms and investments targeted to protecting lives thanks to improved railway safety, accelerating economic recovery of Egypt through job creation and unlocking private sector activities with primary focus on the poor. The project will inject funds into the Egyptian economy through the implementation of the signaling upgrade works. This injection will spur economic growth through the multiplier effect thanks, for example, to the salaries earned by local labor. This economic impact will contribute to the recovery from the negative impacts of the pandemic. Safety and reliability improvements of railways, which predominantly serve the bottom 40 percent in connecting rural and urban areas of Egypt, will provide resilient access to services and opportunities, sustaining economic activities to save livelihoods and preserve jobs. The project emphasizes sector reforms, institution building, and advancing investment preparation to unlock private investments, which will enable freeing up public resources to encouraging sustainable business growth and job creation. The underlying theme of the project is reforming railways to improve their efficiency and efficacy while improving service quality. Railways in addition are a low emission mode of transporting people and goods, contributing to climate change mitigation and adaptation of Egypt to accelerate resilient and sustainable recovery. Finally, as explained in the main body of the PAD, ENR passenger services include safe practices to prevent the spread of the pandemic such as passengers wearing masks, frequent cleaning of cars, and frequent announcements at stations and trains to promote safe behaviors. The project will allow the ENR to provide safer, more reliable service and even increase service provisions which are also important to prevent the spread of the pandemic.

ANNEX 3: ENRRP – Project Achievements, Lessons Learned, and the Way Forward

BACKGROUND

1. **The ENRRP is financed through two IBRD loans totaling US$600 million.** The original loan in the amount of US$270 million (Loan IBRD-76560) was approved by the Board of the Executive Directors on March 17, 2009. This loan became effective on June 24, 2010. The original project objective was to assist the government in improving the reliability, efficiency, and safety of the railways' services through signaling and track renewal investments by the ENR and the modernization of its management and operating practices to enhance the railways' sector responsiveness to economic and social needs and to strengthen the financial viability of the PIE. To increase the project scope, an AF in the amount of US$330 million was approved soon after, on December 14, 2010 (Loan IBRD-79820). The AF loan achieved effectiveness on March 28, 2012. The AF kept the same PDO, which was simplified through a 2014 restructuring to the current PDO, which is to improve the reliability, efficiency, and safety of the railways' services on targeted sections of the rail network. To date, the parent loan has disbursed US$258.66 million and the AF loan disbursed US$241.63 million.

2. **The ENRRP focused on the ENR's efforts to improve railway safety.** Poor signaling and infrastructure systems and outdated operational practices which rely heavily on human judgment and interference hindered the safety of railways operations. During the preparation of the original project in 2007, the MoT and ENR had identified a series of priority corridors where signaling systems needed to be modernized, based on a multi-criteria assessment of the railway network, which gave special attention to safety conditions and congestion levels. Following the assessment, the modernization of signaling on the Cairo–Alexandria line, financed by the ENRRP original loan, was identified as the highest priority, followed by the modernization of signaling on the Beni Suef-Asyut line, which is supported by the additional loan, as this line is part of the busiest corridor of the ENR network. With the World Bank's assistance during the preparation of the ENRRP, the ENR had carried out studies to assess the technical and safeguards aspects of the Beni Suef–Asyut line. However, the GoE did not include this line in the original loan to not delay the project and intended to seek other financing options. These efforts were largely unsuccessful and the GoE requested an AF for the modernization of the Beni Suef–Asyut signaling system soon after the approval of the original loan. With the AF, during the preparation of the scale-up activities, the ENR also expanded the scope of the ENRRP component on strengthening of management and operating practices.

3. The closing date was extended by two years with the AF, from September 30, 2015, to March 31, 2017, and twice more during the project implementation. The project closed on December 31, 2020, with unfinished civil works under Component 1: Signaling Modernization. The unfinished works will be transferred to the proposed RISE Project. The last Implementation Status and Results Report (ISR) (February, 2021) had the following ratings: progress toward achievement of PDO: Moderately Satisfactory; overall implementation progress: Moderately Satisfactory; overall safeguards: Moderately Satisfactory; overall risk: Substantial; FM: Moderately Satisfactory; project management: Moderately Satisfactory; procurement: Satisfactory; and monitoring and evaluation: Satisfactory. There were no significant financial management or procurement issues in the implementation of the ENRRP.

4. The ENRRP is a very complex project which generated major improvements in the railway transport sector in Egypt. Despite important achievements, however, as with many complex projects involving reform agenda, complex civil works, and change of culture, the overall implementation was not always smooth, the project faced a number of challenges along the way, and the ENR's signalling modernization works experienced significant completion delays. These delays were not caused by a single event, but by a combination of sometimes unrelated circumstances and failures. The purpose of this annex is to summarize major achievements under the ENRRP, as well as outline the challenges and the lessons learned. The design of the proposed the RISE Project builds on this invaluable experience from the implementation of the ENRRP.

PROJECT STATUS AND ACHIEVEMENTS

5. The ENRRP included three components: Component 1 - Signaling Modernization; Component 2 - Renewal of Track; and Component 3 - Modernization of Management and Operating Practices.

6. **Component 1 - Signaling Modernization**. This complex component of the project raised the highest difficulties in the implementation. One of the most advanced signaling systems existent on the market was selected for the ENR, motivated by the high density of passenger traffic on the railway system in Egypt and the poor safety history. The adopted solution for the modernization of the signaling system involves state-of-the-art technologies based on fiber optics; computers; sensors on track; and automatic control of signals, level crossings, and switches.[29] A highly redundant number of components controlled by multiple computers installed on different layers of the system provides the highest safety of traffic on the modernized sections along the corridor Alexandria–Nag Hammadi. The safety critical decisions are taken by a system of interconnected computers installed in all major stations which are programmed to reject any unsafe pathway for trains (a combination of the positioning of switches and/or signal commands). A number of CTC centers supervise the activities of clusters of stations along the corridor.

7. Migration to the new computer-based signaling system required the redesign of all operating rules which were previously manually executed and their coding on dedicated software for automatic execution of commands. The modern signaling offer enhanced operational possibilities that meant the safety and operating procedures needed a complete revamp, which demanded complex analysis and major cultural change within the ENR. For example, the block length—where one and only one train can be there at one point in time—was equal to the distance between stations on many parts of the railway corridor before the implementation of this component of the ENRRP. The modern signaling reduces the block length to 600–800 m, allowing many more trains to circulate across the corridor (thus increasing the overall capacity of the line)—but still only one train in each block, albeit of shorter length. The contractors, in cooperation with the ENR, designed the new operating rules considering the updated track configuration, developed the software for traffic management, tested it in laboratories to ensure safety, and then installed the new signaling in situ.

8. The implementation of this component faced significant difficulties and was seriously delayed, the works were not finalized by the closing date of December 31, 2020. Some of the systematic delays related to project management are discussed below under the Lessons Learned section. However, there were also procurement, technical, and political challenges that were outside of the ENR's control, including:

- The preparation of bidding documents and procurement took longer than planned because of the precarious starting point with signaling in some segments dating to 1910.
- The Arab Spring crisis delayed the already complex procurement process for the Alexandria–Arab El Raml (44 months) and for the Beni Suef–Asyut (31 months) lines and overall project implementation by about 18 to 20 months.[30] In contrast, the procurement for the Asyut–Nag Hammadi took place during stable conditions lasting only 21 months.
- The ENR's outdated safety procedures and operating rules manuals, circa 1903, delayed the installing of modern railway signaling which requires the revamping of safety and operating procedures, thus demanding intense analysis and cultural change within the ENR.
- The ENR initially preferred to execute part of the modernization works in-house, such as welding of rails and track

[29] Switch (turnout) = mechanical installation which enables railway trains to be guided from one track to another

[30] The Railway Restructuring Project implemented in Turkey (P077328) also encountered procurement-related challenges. Indeed, the ICR for this project explains that the PMU had limited experience with international procurement of large and complex investments such as signaling (see paragraphs 28 and 74 of this ICR. This ICR also acknowledges challenges associated with the procurement of signaling systems, especially when associating both design and implementation into one contract (paragraph 79).

renewal works in stations, to reduce project costs. However, the quality of works was not always acceptable or on schedule, which subsequently delayed signaling works.

- Unforeseen and previously unaccounted for track and supporting systems upgrades (800 switches and 120 km of tracks and ballast, mostly at stations), amounting to US$200 million, triggered delays in some stations' signaling installation. First identified by contractors in early 2019, these upgrades and the omission in diagnosing the problem are a direct consequence of the lack of a proper asset management system in place, which would have informed about their defective conditions under normal circumstances on time. Funds for the upgrades, provided by the MoF, appear in Table 3 in Annex 1 as counterpart contributions in the RISE Project. Track upgrades were initially conducted by the ENR's two maintenance subsidiaries. In late 2019, and to speed up implementation, the ENR launched a bidding process to engage two additional contractors. Contracts were awarded and signed in May and July 2020. While the ENR and its subsidiaries have prioritized ENRRP tracks, resulting in an accelerated pace of track upgrades as of June 2020, the overall scope is too large and was not completed by December 2020. The installation of signaling cannot be properly completed without the necessary upgrades and essential complementary track infrastructure. Should installation be pursued under current circumstances, crashes will likely occur, which goes against the key benefits of the project: safe operations at high speeds, improved reliability, higher capacity, and overcrowding reduction.

9. The positive fact is that the impact of the modernization of the signaling system already produced an ample change in the management of the traffic and significantly increased the safety of railway traffic in Egypt. The obsolete generation of mechanical signaling based on manual operation of switches and of signals was eliminated and all traffic management activities are automated and remotely executed in front of computer displays installed in the station and at the CTCs. The safety of traffic management in stations is permanently supervised by computers and human errors are eliminated. The utilization of such complex systems required hiring and training of highly skilled staff at the ENR (new traffic controllers and new engineers skilled in electronics and computer science). Presently, the ENR is modernized than where it was before at the start of the ENRRP.

10. The new system is in various stages of implementation across the corridor and the system is fully operational on more than half of the number of stations and of the total length of 640 km. See Table 5 below, which uses signaling towers, each of which groups some stations. The Results Framework for the RISE Project also uses signaling towers in the output indicators, for the transfer of the remaining works to the RISE Project will ensure the finalization of this sophisticated system on the entire length of 640 km and 120 stations in two years.

11. **Component 2 - Renewal of Track**. This component on the rehabilitation of 200 km of track was finalized successfully in April 2016. Due to important financial savings from the execution of works, the initial goal was exceeded, and 296 km of track were modernized. For the first time in Egypt, this component introduced modern technology and state-of-the-art management of track renewal projects, as are presently used by the advanced railways in the world. Highly mechanized equipment was brought from Europe for the execution of works, and the logistic chain (procurement, transport at the working places, installation, evacuation of old materials, and so on) has been very well organized, allowing the full rehabilitation of about 500 m daily. The infrastructure department of the ENR was familiarized with the best international practice in the track renewal works. As a result of the track renewal component of the ENRRP, the ENR management introduced new methodologies for the rehabilitation of the railway track and promoted stronger relationship with private companies. More and more the private companies are hired to execute these works at high quality standards and with high productivity.

Table 5: Modernization of the Signaling System: Status of Works

Section		Signaling towers where the signaling upgrade works are finalized and commissioned			
		February 2020	October 2020	December 2020	Total needed in segment when works are completed
Alexandria	Arab El Raml	6	7	8	10
Benha	Cairo	2	3	4	9
Beni Suef	Asyut	4	6	6	15
Asyut	Nag Hammadi	0	2	3	17
TOTAL ENRRP		12	18	21	51

12. **Component 3 - Modernization of Management and Operating Practices.** Before starting the ENRRP, the ENR was organized by technical branches, on directorates for railway lines, signaling systems, rolling stock maintenance, traction, traffic management, and corporate administrative services for finance, human resources, legal, procurement, and so on. No commercial structures existed in the ENR and the market needs were ignored. An important contribution to the modernization of management and operating practices played a twinning program signed by the GoE with the government of Italy. Based on this agreement, a team of 11 Italian experts were in Cairo for a period of more than five years. They acted as a shadow management team and assisted the key managers of the ENR (Chairman, Operation Vice-Chairman, Long and Short Distance Vice-Chairman, Freight Vice-Chairman, Permanent Way Vice-Chairman, Humane Resources Directorate, and so on). The Italian experts implemented valuable operating practices at the ENR and trained the managers of the ENR in some of the best international practices in management. The ENRRP continued supporting the introduction of important organizational changes and currently, the ENR is structured along business lines (transport of passengers by short distance and long distance, transport of freight, management of infrastructure) which are supported by the specialized sectors for the maintenance of rolling stock and corporate directorates. The practice of periodical training programs has been put in place and annually the staff participates in at least one training program on various topics relevant for the specific categories of staff (for example, new technologies implemented by the ENR, new commercial organization of transport activities). As a direct result of the project, all managers in the ENR must participate in one annual training program on management aspects and undergo an annual evaluation system for managers.

13. Some other notable achievements in the ENR under this component include an implementation of a modern system comprising of modules for FM, human resources management, inventory of assets, and so on. To enhance the professional skills of locomotive drivers, a modern simulator was installed for training and testing of their capabilities to manage various driving scenarios. All locomotive drivers undergo mandatory annual training, medical evaluation, and must pass a test at the simulator to be authorized to continue to work as drivers. A study tour was organized for key managers of the ENR, the MoT, and the MoF to get them familiarized with the railway reform strategies and results in Morocco and Tunisia, and a study on the railway reform principles in Egypt have been elaborated.

14. The progress in the modernization of the management practices at the ENR is significant compared with the moment when the ENRRP started, but not all targets of this component have been achieved. The cost control system is not yet implemented, and the ENR's budget is not allocated to each line of the business units for making the management

accountable for the operational and financial performance. Also, the implementation of bolder railway reform actions (for example, implementation of the PSOC and MAIC) has been systematically delayed.

CHALLENGES AND LESSONS LEARNED

15. **Key challenges to the timely delivery of the ENRRP.** There were four main challenges to the ENRRP delivery: (a) insufficient project ownership by the ENR's PMU; (b) insufficiently robust deployed project management approach; (c) lack of partnership between the ENR and its contractors; and (d) limited scope for the Project Manager to exercise their contractually allocated role. These challenges are discussed in more detail below.

(a) **Insufficient project ownership by the ENR's PMU.** The employer's role requires that the PMU acts as an informed client toward the supply chain and discharges its own responsibilities in an efficient manner, including the following: project management responsibilities toward the supply chain by making timely and forward-looking project's technical-related decisions; third party interface management responsibilities, to secure various approvals and permits, in support of the execution of contractors' works; and communication responsibilities toward all stakeholders. The ENR's PMU established for the project performs the sizeable task of communicating with all stakeholders within the ENR; externally with the Project Manager, contractors, and the World Bank; and project FM and administration toward the supply chain and the World Bank, whereby it approves contractors' invoices and other requests on time.

The PMU is lightly staffed, just enough to serve its communication role, as confirmed by current hands-on experience of the ENR signaling project. As a result, the size of the ENR's communication scope takes over the PMU's activities, with a detrimental effect on the delivery of its remaining scope. The PMU's ability to successfully manage the project is further compromised by its design, whereby the unit has no technical resources under its control but is required to reach out to the ENR functional departments, such as permanent way and operations, for any support. This introduces a delay in decision making as any technical decision making and support is effectively outsourced outside the PMU. The introduction of additional track renewal contractors by the ENR will further require additional logistics arrangements, including various approvals by the ENR and the third parties. This will require dedicated resources in place as well as organizational arrangements to speed up decision making within the ENR, none of whom are visible now.

In consequence, the PMU performs the role of an enabler to the ENR decision making but without any power for making project-related decisions, even those at the very operational level. Therefore, the RISE Project will need to be empowered with additional staff for the PMU to act and make project decisions.

(b) **The deployed project management approach is insufficiently robust.** Good commercial and contract governance lies at the heart of the successful delivery of major investment projects. Implementation of a sound approach to strategic contract monitoring requires the employer to be familiar with what good performance looks like. Without the full scope of project management being deployed, including a robust warning system based on risk management and ongoing assessment of project cost and schedule projections, all project stakeholders carry a high risk of project's creeping failure as they may not be able to assess the point at which project remedies should be activated. Two project management issues are characteristic examples of this in the ENR environment—incomplete project baseline and narrow focus of project management.

(i) **Incomplete project baseline.** Hands-on experience of implementation of the ENR signaling projects highlighted that program baseline was incomplete as it excluded an integrated program to completion (IPC) and the corresponding risk register, including: (1) Lack of IPC: The ENR and its Project Manager did not fully understand the critical path for the project; this situation is unsurprising, as the IPC for the whole project was never assembled. World Bank implementation support also missed this element; (2) Lack of agreed

project risk registers: Without project risk registers agreed by all parties, as the basis for determining the level of contingency required for the employer and its supply chain, it becomes unclear what risk profiles each signaling contract is being implemented against. Project evidence showed that in the absence of complete project baselines, the Project Manager was unable to provide enough assurance to the ENR regarding the contractors' abilities to achieve the contractual targets.

(ii) **The narrow focus of project management.** The review by the World Bank identified several issues related to project management, including fragmented progress reports, preference for audit style contract management, and insufficient interpretation of impact on the contract. Periodic reports from the PMC and the contractors were relatively fragmented and insufficiently coordinated. They provided many detailed data but did not provide an interpretation of implications on the project outcomes, nor provide the ENR senior management with appropriate briefing and alerts to enable informed debates on strategic opportunities and risks related to the management of its signaling contracts. In consequence, the scope for informed challenges of the contractors' actions toward meeting the project targets was reduced. These are discussed in more detail below:

- ***Fragmented progress reports*:** Periodic reports from the contractors provided many detailed data but did not provide an interpretation of implications on the contract, and any overview of trends or benchmark comparisons of KPIs, which would allow informed challenges of the contractors' actions in the context of confidence behind achieving the ENR's targets. Systra produced detailed monthly reports that covered the physical aspect of project delivery. The time-space diagram that was part of monthly reports is of limited use as they do not show activities that are executed off-site, such as design, acceptance testing, shipping of key items, bulk ordering, permits and approvals, and so on.
- ***Preference for audit style contract management***: Management of the signaling contracts was executed as an audit and compliance effort, with tightly defined responsibilities. Systra's prime focus, as it could be inferred from the limited sample of reviewed progress reports, seemed to be backward focused on assessing past performance. As a result, the employer, who did not have the full range of organizational requirements for contract management—information, skills, and capabilities—was unable to act as an informed client in relation to the management of the delivery of the contracts.
- ***Insufficient interpretation of impact on the contract***: A significant amount of data on the contract was collected regularly, but with no single responsible individual for understanding and managing the contract. The narrow project management and supervision view involved measurements and administration but excluded interpretation of results and understanding project implications on the current situation to explain the current health of the project for the benefit of the ENR and the World Bank. Without appropriate interpretation, data cannot be used as useful information to inform the ENR how it progresses toward completion. Risk increased consequently because small but cumulative divergencies from budgets and plans could become a serious issue before any warning signs are spotted.

(c) **Lack of partnership between the ENR and its contractors.** Although the responsibilities and supporting arrangements and procedures for contract management have been clearly defined, allocated between the parties, and agreed, firsthand discussions with the ENR, Systra, and the contractors indicated that management style and behaviors have not converged toward a partnering culture. There does not seem to have been an incentive for the ENR and its supply chain to (i) collectively move toward a joined-up/cooperative (partnering) type of engagement and (ii) identify and implement cost reduction and schedule compression opportunities for mutual benefit.

(d) **Limited scope for the Project Manager to exercise is a contractually allocated role.** The PMC (Systra) was

contracted for all three ENR signaling contracts. Systra's project management role was defined in the ToR for the related services and was also referred to in the contracts between the ENR and the signaling contractors, Thales and Alstom. Successful delivery of the landmark investment required robust project management arrangements to be established and applied. While correctly identified as the necessary project support, at the appraisal stage, robust on-the-ground arrangements have not been successfully implemented for the benefit of the ENR. In addition to the issues related to the type of approach deployed, there was also the issue of a limited playing field area available to the PM, due to the ENR's sporadic interference with the operational duties of the PM.

International experience suggests that employers are gradually gaining a greater appreciation of the role of Project Manager on IFI-funded contracts and slowly acquiring a hands-off approach to contract management. This experience was fully replicated on the ENR signaling projects where the ENR found it more comfortable to operationally find a way to get involved with the PM tasks on matters that are the PM's scope, such as invoice approval, technical analysis, and contract management, instead of focusing its efforts on the responsibilities it needs to discharge as an employer under the International Federation of Consulting Engineers (*Fédération Internationale Des Ingénieurs–Conseils)* (FIDIC)-type contract.

WAY FORWARD: IMPROVEMENTS TO DELIVERY ARRANGEMENTS

16. For the ENR to meet all financial and performance targets it must improve its project management. This relies on the ENR's abilities to: (a) understand the critical path for each of the signalling projects, (b) identify risks on time and devise appropriate mitigation measures to remedy deficiencies, and (c) execute the mitigation measures in a timely fashion. Without an improved approach to project management, the ENR will be unable to build confidence in its delivery and to demonstrate to the MoT and its development partners that it is able to manage its signaling projects on an informed basis. Without a realistic IPC that is a proxy for a project health warning system based on project risk-assessed costs and schedule projections, the ENR is exposed to failure as it is unable to assess the point at which it should activate suitable contract remedies. In the absence of a robust project governance setup in support, the ENR's ability to execute the required management actions is compromised.

17. The ENR's commitment to implement practical measures and strengthen its project delivery arrangements requires the following support: (a) organizational strengthening of the ENR's PMU, (b) deployment of risk-based project management approach, (c) strengthening of the partnering culture between the employer and the supply chain, and (d) re-establishment of the contractually allocated project management role. Each of these project management dimensions is discussed in more detail below.

(a) **Organizational strengthening of the ENR's PMU.** This measure includes two activities:

- *Empowering the PMU to make operational decisions*: The idea behind a strengthened PMU is that it becomes a dedicated Project Task Force with all the necessary powers delegated to it by the Chairman of the ENR to take all signaling and track upgrade related operational decisions on behalf of the ENR, and without resorting back to the ENR technical functions for approval.
- *Strengthening the PMU with additional resources*: The ENRRP PMU needs to be augmented with additional resources exclusively dedicated to PMU tasks to (i) manage the delivery of signaling scope and the supporting track renewal works and (ii) manage operational interfaces with ENR Operations and third parties, so that vital decisions and/or approvals are made on the spot by the people with suitable capability and authority.

(b) **Deployment of risk-based project management approach.** Effective project management should be

able to spot the project's health warnings, which create the potential for an event of default or deviation from the targeted outcomes, through the normal process of financial and operational monitoring. This would then alert the ENR to the appropriate degree of stand-by, which enables a timely and appropriate decision to be made about the need to activate suitable recovery measures. Without such a mechanism and a full scope of project management work deployed, the ENR carries a disproportionately high risk of contract creeping failure as it may not be able to assess the point at which contract remedies should be activated. This approach requires the implementation of three practical measures:

- *Establish a health warning system based on an IPC and risk register*: Realign the contractual relationship with the supply chain to a more mature relationship which focuses on what the ENR needs to do to act as an informed client. This requires that all reporting mechanisms and project submissions are designed with a view to gain a good overall view of the project health. A system of 'green', 'amber', and 'red' zones is required as a tool in channeling the ENR's and the PM's actions on how deviations from the targeted outcomes could be avoided on time. This would provide both parties the foundation for informed challenges of the contractors' plans and the early warning mechanism of potential issues on the horizon. In support, the ENR will need to develop an IPC in specialized software for each of its signaling contracts. The IPC and the related risk register will enable contractors' S-curves to be fully understood and any of their proposed actions explained in terms of impact on the contracted outputs. The IPC would also enable the identification and assessment of opportunities to accelerate completion. For clarity, a robust IPC[31] will cover all project-related activities regardless of their location and will exclude the impact of COVID-19. Communication of the IPC to all project stakeholders will be the first step on the road to the successful completion of the project.
- *PM focus toward completion*: Reinforce the need for PM's focus between compliance-based audit and forward-looking interpretation work, to be skewed toward the latter.
- *Align PM resources in support:* Execution of the above requires a review of the current allocation of resources within the PM team, both in terms of skills and competencies, against the future needs, so that the ENR's efforts are adequately supported. In early 2019, the ENR developed a ToR for completion support services to enable the PM to augment its then team. Depending on the current status of resources in the PM team, any additional resources would need to be considered in the context of the existing ToR.

(c) **Strengthening of the partnering culture between the employer and its contractors.** In support of aligning efforts toward successful completion, the ENR should work toward:

- *Assuming the role of a mature and informed client*: On the basis of improved project management, the ENR should take a strategic decision on a contract management model and (i) move away from the audit end of the spectrum and strike a better balance between audit and a more mature relationship and (ii) focus on what the employer needs to do to act as an informed client. This is particularly important in cases where a practical yet contract-compliant approach to the resolution of cash flow issues is required because project delivery became cash-constrained. On the other hand, international best practice experience also suggests that contracts are living documents that may change over the course of their life provided the changes

[31] The ENR and the PM commenced work on the IPC and submitted a high-level document to the World Bank for review.

(i) are agreed by the contracted parties and (ii) do not impact the results of the procurement procedure that resulted in the award of the contract being changed.

- *Supporting project partnering*: As part of the partnering approach, monthly meetings between teams of senior decision makers from the ENR, PMU, and the contractors should be established as a way of stepping away from the non-partnering relationships. Consideration could also be given to holding planning and training days involving the same stakeholders to encourage better understanding of their respective operations and the contractual interfaces between the parties. While experience shows that developing a partnering culture requires a dedicated effort previously not budgeted for, future productivity gains from better-working relationships should outweigh this cost.

(d) **Re-establishment of the contractually allocated project management role.** Re-establishing the PM role involves several activities:

- *The employer needs to assume a 'project steering role'*: The ENR will need to step away from being involved with the project and contract management duties contractually assigned to the PM and focus on a project steering role so it becomes an employer-enabler.
- *The PM needs to assume full ownership of its contractually assigned duties*: This requires a confirmation that its team has the right quality (skills/experience) and quantity (headcount) required to successfully manage the ENR signaling contracts to completion.

  In support, the works supervisor will:
  - Develop and maintain the employer's IPC, with support from the ENR and the contractors.
  - Use IPC to forecast completion, and on a monthly basis, take the lead role and present the IPC as part of project progress updates, along with its own interpretation and control mechanism on how it sees the contractors' adherence to project completion targets.

Table 6: Other projects at the ENR financed by multilateral and bilateral agencies

No.	IFI	Amount (in millions)	Project Description
1	EBRD	EUR 126	Supply of 6 complete trains The project is in the implementation phase and the 1st train delivery is expected to be in the 2nd quarter of 2021.
2	EBRD	EUR 290	Supply of 100 new locomotives The project is in the tendering phase; the ENR just finished the 1st stage (technical), and the contract awarding is expected to be in the 1st quarter of 2021.
3	Arab fund	KWD 44	Co-finance: signaling modernization on Benha/Port Said corridor The project is in the implementation phase and is expected to be completed by December 2022.
4	Kuwait fund	KWD 30	
5	Korean governmental loan	US$115	Signaling modernization on Nag Hammadi–Luxor corridor The project is in the tendering phase. The evaluation report of the technical/financial proposals is being finalized; the contract awarding is expected to be in 1st quarter of 2021.
6	Export-Import (EXIM) Bank, Hungary	EUR 1,016	Supply of 1,300 passenger coaches The project is in the implementation phase; 121 coaches had been already supplied. The other coaches are in progress.
7	Export Development Canada (EDC) Bank, Canada	EUR 226	Supply of 110 new GE locomotives + Rehabilitation of 81 old locomotives The project is in the implementation phase; 100 locomotives had been already supplied and the remaining 10 locomotives will be delivered in the 1st quarter of 2021. The rehabilitation process is in progress.
8	AfDB	EUR 145	Installation of ETCS-1 on Alexandria–Nag Hammadi and Benha–Port Said corridors and also equip 100 locomotives with the system The project is in the tendering phase; the prequalification applications are being evaluated and the contract is expected to be awarded in the 3rd quarter of 2021.

ANNEX 4: RISE Project Map and Segment Lengths

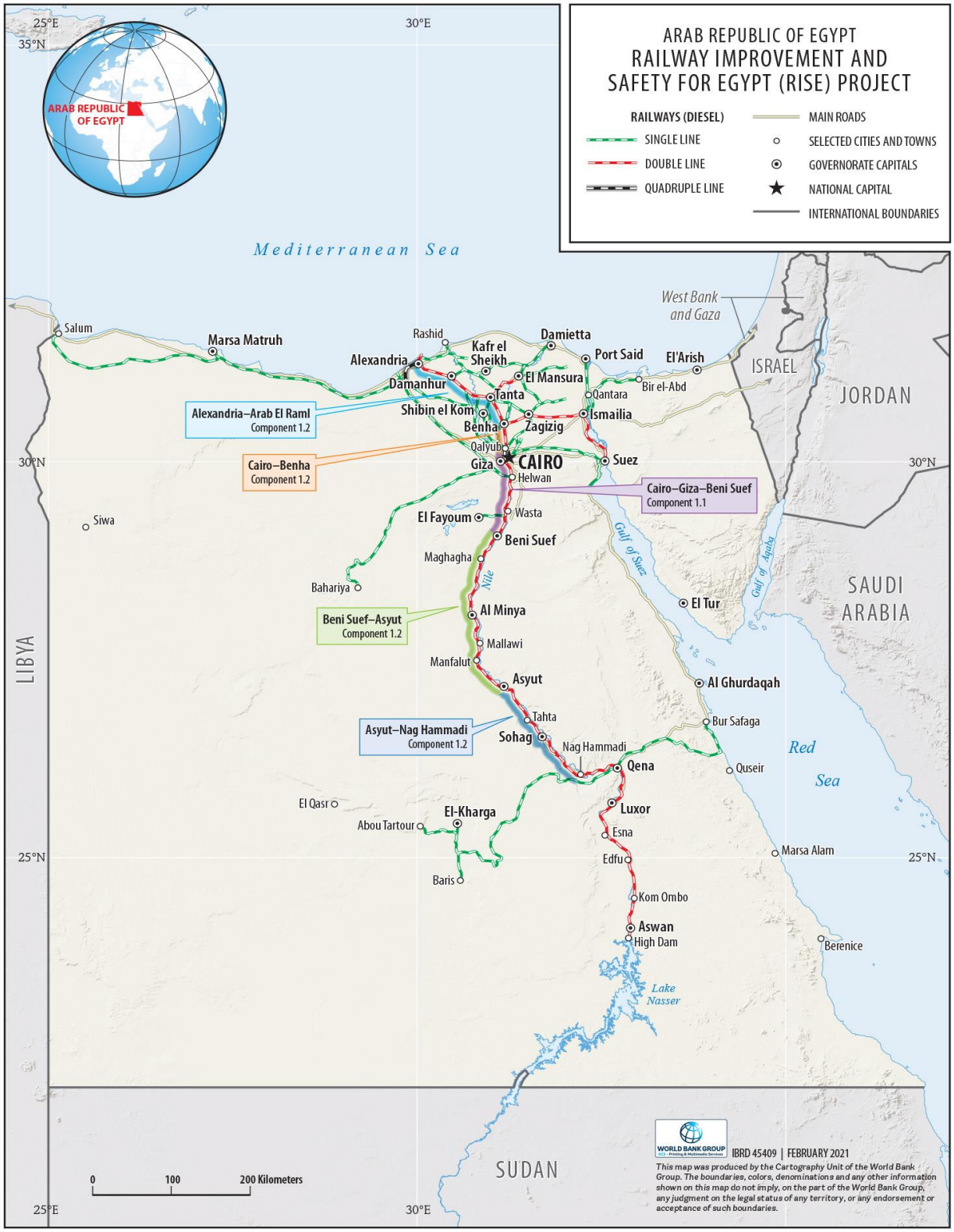


Table 3: Segments per Subcomponent in the Cairo – Giza – Nag Hammadi Corridor

No.	Component of the RISE Project	Line segment name	Length of the line (km)	No. of Signaling Towers	Contractor
1	Subcomponent 1.1	Cairo–Giza–Beni Suef	125	19	Ongoing bidding
2	Subcomponent 1.3	Alexandria–Arab El Raml	163	10	Thales
		Cairo–Benha	45	9	Thales
		Beni Suef–Asyut	250	15	Alstom
		Asyut–Nag Hammadi	180	17	Thales
Total			763	70	