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Report No: PAD5003

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

PROJECT APPRAISAL DOCUMENT
ON A
PROPOSED LOAN

IN THE AMOUNT OF US$400 MILLION

TO THE

ARAB REPUBLIC OF EGYPT

FOR A

CAIRO ALEXANDRIA TRADE LOGISTICS DEVELOPMENT PROJECT

September 12, 2022

Transport Global Practice
Middle East and North Africa Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective {August 31, 2022})

	Egyptian Pound (LE)
0.052555374 LE =	US$1.00
US$1.00 =	LE 19.11

FISCAL YEAR
July 1 – June 30

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ABBREVIATIONS AND ACRONYMS

AfDB	African Development Bank
AP	Alexandria Port
CATLDP	Cairo Alexandria Trade Logistics Development Project
CBE	Central Bank of Egypt
CERC	Contingent Emergency Response Component
CPF	Country Partnership Framework
DA	Designated Account
DP	Dry Port
DP6	6th of October Dry Port
E&S	Environmental and Social
EBRD	European Bank for Reconstruction and Development
EIRR	Economic Internal Rate of Return
ENR	Egyptian National Railways
ENRRP	Egypt National Railways Restructuring Project
ESA	Egyptian Survey Authority
ESCP	Environmental and Social Commitment Plan
ESF	Environmental and Social Framework
ESIA	Environmental and Social Impact Assessment
ESMF	Environmental and Social Management Framework
ESRC	Environmental and Social Risk Classification
EXIM	Export-Import
FDI	Foreign Direct Investment
FM	Financial Management
FWSI	Fatalities and Weighted Serious Injuries
FY	Fiscal Year
GARB	General Authority for Roads and Bridges
GCA	Greater Cairo Area
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GoE	Government of Egypt
GRM	Grievance Redress Mechanism
HLO	High-Level Objective
IAC	Infrastructure Access Charging
ICCD	Inland Customs Clearance Depots
IBRD	International Bank for Reconstruction and Development
IFC	International Finance Corporation
IFI	International Financial Institution
IFR	Interim Financial Report
ISR	Implementation Status and Results Report
JICA	Japan International Cooperation Agency
LE	Egyptian pound
KPI	Key Performance Indicator
LMC	Last-mile Connectivity

LMP	Labor Management Procedures
MAIC	Multi-Annual Infrastructure Contract
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
PAD	Project Appraisal Document
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
PMU	Project Management Unit
POM	Project Operations Manual
PPP	Public–Private Partnership
PPIAF	Public–Private Infrastructure Advisory Facility
PPSD	Project Procurement Strategy for Development
PSD	Passenger Short-Distance
PSO	Public Service Obligations
PSOC	Public Service Obligations Contract
PSP	Private-sector Participation
RF	Resettlement Framework
RFM	Results Framework and Monitoring
RISE	Railway Improvement and Safety for Egypt
SA	Subsidiary Agreement
SAP	System Applications and Products (in data processing)
SC	Steering Committee
SEP	Stakeholder Engagement Plan
SORT	Systematic Operations Risk-Rating Tool
STEM	Science, Technology, Engineering and Mathematics
STEP	Systematic Tracking of Exchanges in Procurement
TA	Technical Assistance
TEU	Twenty-foot Equivalent Unit
ToR	Terms of Reference
UNDP	United Nations Development Program
VC	Videoconference
WA	Withdrawal Applications
WB	World Bank

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DATASHEET

BASIC INFORMATION

Country(ies)	Project Name	
Egypt, Arab Republic of	Cairo Alexandria Trade Logistics Development Project	
Project ID	Financing Instrument	Environmental and Social Risk Classification
P177932	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
29-Sep-2022	28-Sep-2029

Bank/IFC Collaboration

No

Proposed Development Objective(s)

To improve the performance and support the decarbonization of the logistics and transport sectors in the Alexandria-6th October-Greater Cairo Area railway corridor.

Components

Component Name	Cost (US$, millions)
1. Railway Sector Reform, Project Delivery, Stakeholder Engagement, Women's Economic Empowerment, and Private Sector Participation	24.00
2. Track extension, railway signaling modernization, and selected track upgrades to create a railway bypass around the Greater Cairo Area	973.00

Organizations

Borrower:	Arab Republic of Egypt- Ministry of International Cooperation Ministry of Finance, Egypt
Implementing Agency:	Egyptian National Railways - Ministry of Transport Ministry of Transport, Egypt

PROJECT FINANCING DATA (US$, Millions)

SUMMARY

Total Project Cost	998.00
Total Financing	998.00
of which IBRD/IDA	400.00
Financing Gap	0.00

DETAILS

World Bank Group Financing

International Bank for Reconstruction and Development (IBRD)	400.00

Non-World Bank Group Financing

Counterpart Funding	598.00
Borrowing Country's Fin. Intermediary/ies	598.00

Expected Disbursements (in US$, Millions)

WB Fiscal Year	2023	2024	2025	2026	2027	2028	2029	2030
Annual	1.74	11.80	20.72	33.98	92.14	146.01	73.43	20.18

Cumulative	1.74	13.54	34.26	68.24	160.38	306.39	379.82	400.00

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

Conditions

I. STRATEGIC CONTEXT

A. Country Context

1. **Egypt enjoyed a strong rebound in economic growth from the Covid period. Still, like other countries and regions across the globe, this was challenged in early 2022 due to the impact of the geopolitical crisis in Eastern Europe on global supply chains and energy prices.** Egypt was one of the few countries with positive annual growth throughout the pandemic. Subsequently, Egypt ranked first in Africa and third in the Middle East on Bloomberg's Covid Resilience Ranking in 2020. A post-Covid rebound was underway, with economic growth of almost 8 percent in the first nine. Still, a combination of adverse global financial developments and the geopolitical situation showcased, especially in the external accounts, and slowed economic growth, bringing the yearly average to 6.6 percent in FY2021/22[1].[2]

2. **In March 2022 Egypt introduced a coordinated set of monetary and exchange rate policy changes in response to macroeconomic developments.** The measures included a change in exchange rate policy that led to a cumulative depreciation of 23 percent during March-August 2022 and an increase in interest rates The movement in the exchange rate and a global increase in prices increased domestic inflation, which heightened to 14.6 and 16.7 percent for headline urban and core inflation rates by August 2022.[3] To mitigate the impact of rising prices and support the economy, the government introduced a fiscal package worth EGP 130 billion—1.5 percent of the FY23 Gross Domestic Product (GDP). This package included expanding social assistance, particularly to people living in vulnerable situations, increasing pension payments and the salaries of civil servants. The Government of Egypt (GoE) introduced another new package of measures to support the population in July 2022.

3. **Fiscal consolidation is expected to slow down through FY23, but improvements in the fiscal position and debt reduction are expected to continue over the medium-term.** While the budget deficit to GDP ratio continued to decline through FY22, the government debt-to-GDP ratio is estimated to have increased by end-FY22 due to the valuation impact of the exchange rate depreciation, as well as the extra-budgetary transactions that drive debt accumulation.[4] The social mitigation packages that the government announced will mainly affect the FY23 fiscal outturns. While crucial for alleviating the impact of the higher prices, it can contribute to slowing the pace of fiscal consolidation. The debt-to-GDP ratio is expected to decline over the medium-term, benefiting from favorable debt dynamics, as real GDP growth might surpass real interest rates during FY2022/23-24.

4. **Alongside these macroeconomic developments, Egypt has been undertaking structural reforms to support increased productivity.** While the economic reforms of 2016 were bold, further efforts are required to maximize export-oriented growth, while the potential for growth of non-petroleum exports is yet to be fully utilized. The GoE is undertaking several initiatives to create a stronger regulatory investment ecosystem, including reforms to business licensing, the operation of the financial sector, digitization of public services, and efforts to enhance the performance of Micro, Small, and Medium Enterprises. The GoE has also improved trade facilitation through reform of the Customs Law, including introducing an online platform to speed up customs processes in

[2] Ministry of Planning and Economic Development data.

[3] CBE and CAPMAS data.

[4] World Bank estimates for FY22 and projections for FY23.
World Bank estimates are based on fiscal data from Ministry of Finance and GDP data from the Ministry of Planning and Economic Development (MPED). The World Bank estimates indicate that the debt to GDP ratio increased to 95 percent (up from 92 percent a year earlier) mainly on the back of the adverse valuation effect of the exchange rate depreciation. It is worth noting that the MPED is currently revising the nominal GDP series and is yet to publish its details. Using the preliminary estimate of the new GDP series, the government debt to GDP ratio would be registered at 81.4 percent at end-FY2020/21 and would increase to 85.8 percent at end-FY2021/22 (according to data received from the Ministry of Finance).

2021. More recently, the GoE announced a plan to raise the private sector engagement in the Economy as part of a new State Ownership Policy. This initiative aims to establish a level playing field between state enterprises and the private sector to support increased private sector development.

5. **Egypt seeks to attract international investors to enhance the economy's overall performance.** Egypt's structural reforms and fast-growing economy increasingly attract the attention of international investors. The country's annual foreign direct investment (FDI) inflows averaged 3.1 percent of GDP during FY2016/17-19, nearly double the average for the Middle East and North Africa (MENA) and higher than Sub-Saharan Africa (1.8 percent).[5] However, FDI inflows to Egypt declined gradually to 1.3 percent of GDP by FY2020/21 due in part to the adverse impacts of the pandemic. In addition to traditional partners—such as the European Union, the United States, and countries in MENA, such as the United Arab Emirates and Saudi Arabia—new investors have emerged as key partners for Egypt in the last decade. Recent high international prices can also help attract FDI inflows to Egypt's oil and gas extractives sector.

6. **Many firms choose Egypt as a trade or investment corridor for the African continent and the Middle East.** This choice occurs in multiple sectors, including medium- and high-tech, such as electronics (for example, Samsung and LG). During 2017-20, Egypt attracted the highest percentage of FDI in electronics and electrical (E&E) manufacturing in Africa (21 percent of the total number of projects) and the second highest of knowledge-intensive ones (14 percent). Egypt has also positioned itself on the global investment map as an attractive location for digital services in Africa, building on traditional business-process outsourcing (BPO) services. As a result, investments increased in emerging areas, such as the Ericsson Artificial Intelligence (AI) and Analytics Hub, established in Cairo. The African Continental Free Trade Agreement (AfCFTA) has the potential to pave the way for creating the largest free trade area in the world, guided by the Africa 2063 Agenda and the 2030 Agenda for Sustainable Development.

7. **Employment growth is needed to meet the needs of a fast-growing population.** The labor market continues to need more development**.** Labor force participation was below its potential at 42.6 percent of the working-age population, demonstrating the pandemic's impact on learning losses and job creation. It intensifies the need to ensure educational outcomes are strategically aligned with market demands. As the public sector is not a sustainable source of employment growth, the private sector will be a crucial driver. Small and micro enterprises' informal employment continues to grow, accounting for more than two-thirds of new entrants into the job market. The high number of informal businesses in the Small and Medium Enterprise (SME) sector distorts competition and limits the total effectiveness of government policies.[6] Unlocking the private sector is a viable solution in infrastructure. Opening up to greater private sector participation, including in freight transport and logistics, could catalyze enhanced service provision. Increased participation in regional and global value chains will be essential to achieve this objective.

8. **Egypt has a solid potential to better integrate into Global Value Chains and expand as a regional trading hub.** Despite Egypt's growing domestic market and proximity to international markets, the country's ability to attract substantial FDI to harness its sizeable domestic market and connect it to global value chain-based international trade has been challenged by the pandemic and the adverse impacts of the geopolitical situation in Eastern Europe. Egypt has an opportunity to act as the trade hub of the Eastern Mediterranean region, providing improved connectivity. Improving connectivity is, therefore, central to enhancing trade.[7]

[5] https://data.worldbank.org/indicator/BX.KLT.DINV.WD.GD.ZS?locations=EG

[6] World Bank Press Release. 2020. Global Value Chains Have Spurred Growth but Momentum Is Flagging, World Bank Press Release No. 2020/051/DEC.

[7] IFC (International Finance Corporation). 2021. *Taking Action on Trade, from Concern to Support*.

9. **As Europe is reducing its gas supply from Russia, new opportunities are materializing for Egypt.** Egypt has developed offshore gas discoveries at an unprecedented pace, with production increasing substantially since 2017. Egypt is attracting more investors to develop underexplored areas and boost oil and natural gas production. The Italian gas company ENI announced in April 2022 new oil and gas discoveries in the Western Desert of Egypt, adding approximately 8500 barrels/day. Furthermore, Egypt has recently secured liquefied natural gas (LNG) supply agreements with Europe, which boosts its fiscal revenues given soaring prices for LNG. The gas extractives sector represented around 10 percent of GDP in FY2019/20-21 and can stimulate activity and production. The sector has a growth rate of 6.7 percent in the second quarter of FY2022 and a positive contribution to GDP growth (by 0.6 ppt). During the first half of FY22, Egypt was a net gas exporter thanks to the surge in price and exported volumes.[8]

10. **Transit through the Suez Canal has increased as the geopolitical situation had a favorable impact on trade routes.** Passing ships and oil tankers increased to 1,402 and 527 in April 2022, respectively, compared to 1395 and 419 a year earlier. Similarly, cargo increased to 114.6 million tons, compared to 110.2 million tons in April 2021. Suez Canal revenues remained resilient at 0.4 percent of GDP every quarter from the first quarter of FY2021 until the second quarter of FY2022. The Suez Canal continues to benefit the Egyptian economy and the global supply chain systems. The Suez Canal revenues represent an important source of income for the Egyptian government. In addition, the Suez Canal Economic Zone (SCZone), is an innovative and self-sustaining industrial development corridor that will transform 461 square kilometers and six maritime ports strategically located along one of the world's leading trading routes into an international commercial hub.

B. Sectoral and Institutional Context

11. **Egypt needs to improve logistics and transport connectivity to expand trade competitiveness.** Within global value chains, Egypt needs to consolidate its multimodal freight transport supply chains—rail, road, and maritime— coupled with streamlining documentation using single waybills. Reducing transport time and cost is vital for improving logistics. MENA countries have achieved a 10 percent reduction in supply chain lead times, resulting in a 4.3 percent increase in exports.[9] On the domestic front, improved logistics will open new opportunities, attract new players into the sector, and help increase stakeholder income. Egypt needs to strengthen its logistics sector by focusing on creating intermodal corridors linking seaports with inland destinations. Egyptian National Railways (ENR) is initiating an advisory study funded by the European Bank for Reconstruction and Development (EBRD) for multimodal transport between logistics services to improve connectivity.

12. **Egypt's rank in the Logistics Performance Index (LPI).**[10] This drop is due to dependence on trucks, limited capacity for freight trains on the rail network, and congestion at ports. Trucks move about 96 percent of the total ton-kilometer (km) of freight, with railways at 1.9 percent and inland waterways at 1.7 percent in 2012.[11] In Europe in 2012, rail accounted for 19.1 percent and inland waterways 7.4 percent (the rest transported by road).[12] In Egypt, the fraction of freight moved by rail dropped below the already low 2012 baseline. By 2020, rail by freight in Europe had also declined, but only to 16.8 percent. In Egypt, capacity constraints on rail, roads, and river

[8] See *https://lpi.worldbank.org/international/global*. 2018 is the latest year for which LPI data is available.

[11] JICA (Japan International Cooperation Agency). 2012. *Master Plan for Nationwide Transport System in the Arab Republic of Egypt*. Final report. More recent data is difficult to find.

[12] *https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Freight_transport_statistics_-_modal_split*, accessed April 26, 2022.

transport hinder the links between ports—and logistic zones—and centers of consumption and production.[13] This inefficiency is costly for the country. While the contribution of the transportation and storage sectors to the country's GDP has increased from 3.8 percent in FY2018 to 4.6 percent in 2022, the Egyptian expenditure on logistics was about 18 percent of GDP[14] (about US$43 billion), compared to 8.5 percent in the United States (2018).[15] To understand the problems, what follows analyzes rail, ports, dry ports, and how the project addresses the issues raised.

Rail

13. **Egypt's rail system is one of the most extensive in Africa, but its focus is on passenger services—not freight logistics.** ENR operates passenger and freight services on a 9,570 km network with 705 stations.[16] ENR trains move roughly 1.4 million passengers per day.[17] ENR's railway operations rules on track use prioritize passenger trains, leading to delays for freight trains and scheduling uncertainty. This priority for passenger trains is especially prevalent in major urban areas such as the Greater Cairo Area (GCA), resulting in a bottleneck for freight trains.

14. **Within the current transport landscape, rail freight cannot compete with trucks—which, moreover, have a higher carbon footprint than rail.** The competitiveness of ENR in providing freight transport services has decreased over the past decade. Freight transport generates about 21 percent of ENR's revenues, incurs about 15 percent of costs, and is responsible for about 10 percent of ENR's deficit.[18] The decrease in rail freight includes outdated and insufficient rollingstock and a lackluster commercial attitude toward freight transport. Furthermore, market distortions from the lack of a robust regulatory framework for road transport falsely depress transport costs and provide an unfair edge for freight by road over rail.

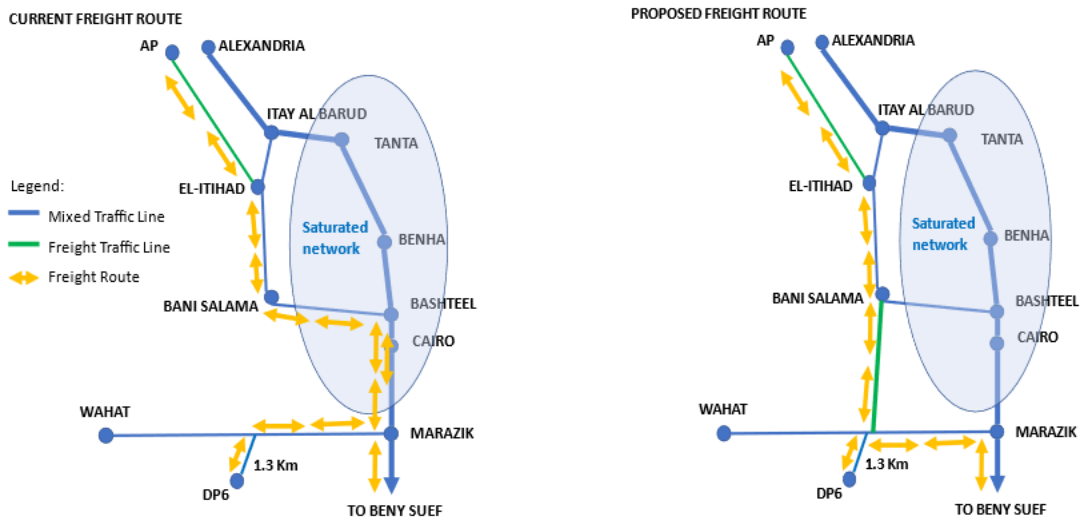
15. **The Ministry of Transport has plans to address this situation by focusing on freight as the lever of growth for the railway market.** ENR targets mining, agriculture, industrial and petroleum products, construction materials, and containers for transport by rail rather than by road. A vital function will be to support the wheat supply chain by transporting imported wheat to silos across the country by rail. ENR is acquiring 1,000 new passenger and freight cars and freight locomotives with more power than passenger locomotives. ENR also wants to involve the private sector in freight transport through a management and operation contract.

16. **Infrastructure bottlenecks, however, may prevent private-sector participation (PSP) in freight transport operations in the ENR network.** These bottlenecks emerge because only three freight trains per direction per day can travel between the Alexandria Port (AP) and the 6th of October Dry Port (DP6) and destinations in the GCA (see Figure 1). Also, as mentioned above, ENR privileges passenger railway services. The left panel in Figure 1 shows the only possible route for the freight trains connecting AP to DP6[19] and Upper Egypt (Southern Egypt), which must enter the GCA. Because of the heavy passenger traffic, the ENR network is saturated. The Cairo Alexandria Trade Logistics Development Project (CATLDP) will implement an operational bypass around the GCA, as shown in the right panel in Figure 1. The operational bypass will allow 15 container trains per day by 2030, and

[13] World Bank. 2015. *A Strategy to Improve Egypt's Trade Connectivity*. Report No: ACS12517.
[14] World Bank. 2016. *Transport Sector in Egypt, The Next Steps*.
[15] State of Logistics – USA 2018.
[16] ENR total network length is 9,570 km because some segments have two and even four tracks.
[17] World Bank. 2021, *Achieving Green, Inclusive, Safe, and Effective Transport for Egypt. Final Report*. Version 2021.07.16.
[18] World Bank. 2019. *Egypt – Enabling Private Investment and Commercial Financing in Infrastructure*.
[19] The 1.3 km last-mile rail connection to DP6 is operational.

as demand increases, 50 trains by 2060 to DP6.[20] Additional freight trains will flow between the AP, the DP6, and Upper Egypt.

Figure 1. Current Routes for Freight Trains from Alexandria Port to 6th October Dry Port and Proposed Solutions for the Bottleneck in the Greater Cairo Area



Current private-sector participation in Egyptian railways and critical barriers

17. **The 2012 Transport Master Plan identified this same bottleneck and ranked implementing a freight corridor between AP, DP6, and the port of Sokhna in the Red Sea as the top priority**. The CATLDP will implement the AP–DP6–GCA segment of this freight corridor. The CATLDP will also design and establish the infrastructure access charging (IAC) regime. IAC allows private operators to pay a charge or toll to ENR for using ENR's tracks. This project also builds on the reforms started by the Railway Improvement and Safety for Egypt (RISE) Project. The CATLDP will, therefore, enable private capital mobilization, as explained below.

18. **On April 2, 2018, the Government issued Law No. 20/2018, which updates the Sector-Specific Law No. 149/2006 for railways.** The new law allows ENR to seek direct participation by private investors in developing the railway system through concessions. The main amendments to the law: (i) ended the ENR monopoly on the establishment, management, operation, and maintenance of the railway networks; (ii) broadened the ENR concession-based system to allow engagement of the private sector on a much broader scale; and (iii) limited the concession period to 15 years. These were groundbreaking reforms, considering that since its inception in 1834, ENR had never allowed private-sector participation in the sector.[21] (See also Box 1 with a general assessment of issues impacting PSP in Egypt, based on the Country Private Sector Diagnostic developed by the International Finance Corporation (IFC) in 2020).

[20] PPIAF (Public–Private Infrastructure Advisory Facility), and World Bank. 2020. *High Level Business Case Report for Railway Freight Project*. Menarail Freight Consultants.
[21] *https://www.sharkawylaw.com/egypts-national-railway-is-now-open-for-business-with-the-private-sector/.*

19. **Despite this law, the private sector has yet to invest in the existing railways operated by ENR.**[22] **The Cascade analysis to prepare this project explains the situation.** The first question in the Cascade analysis asks whether the private sector can undertake the proposed project, and if so, how much of the project can it finance? First, the expected freight volume by rail does not meet what international experience suggests is the threshold for this type of PSP, about 10 million tons per year. Only if traffic exceeded roughly 10 million tons would it be possible to avoid the need for some government funding for railway infrastructure. For comparison, in 2020, ENR shifted no more than 4.4 million tons of freight in total over the entire network. In its first years, the project could move a maximum of 2.5 million tons per year in container traffic by implementing an operational bypass around the GCA.

Box 1. Egypt Country Private Sector Diagnostic

The IFC developed the Country Private Sector Diagnostic (CPSD, 2020) with an analysis of the challenges Egypt is facing regarding PSP. The CPSD also highlighted opportunities for private sector-led economic development, investment, and growth led by job creation. Extensive consultations with experts, private-sector stakeholders, and development partners identified trade and logistics as critical priority areas.

Trade barriers due to many years of fragmentary policy and facilitation up to 2016, exacerbated by transport and logistics systems that are passenger-based rather than freight-logistics, coupled with the adverse impacts of external shocks, such as the Covid-19 pandemic and the geopolitical crisis in Eastern Europe, explain Egypt's underwhelming export performance and FDI in non-extractive sectors. The country has considerable potential to be a regional trade and logistics hub because of its proximity to major markets. However, underdeveloped customs clearance processes, connectivity, and logistics limit the export potential at the sector level.

The growth of the private sector will transition to its full potential if Egypt can harness the benefits of its geostrategic location by enhancing its export competitiveness. Critical actions should reform trade policies and facilitation measures, including the following:

• Improve transport connectivity by (a) implementing a performance scorecard with associated accountability for port efficiency; (b) attracting private investment by improving regulatory efficiency and determining the roles of both public agencies as regulators rather than operators in ports, introducing transparent bidding processes for concessions; (c) accelerating the design and implementation of an integrated multimodal transport strategy; and (d) improving the efficiency and quality of road transport services.

• Streamline nontariff measures, improve transparency around them through an online registry, and eliminate redundant measures to achieve public policy goals.

• Modernize customs by (a) automating customs, simplifying procedures, and fully implementing an electronic single-window system; (b) introducing a risk-based inspection system; (c) improving human resource capacity, and (d) establishing modern inspection facilities.

• Reform the customs tariff to mitigate the most extreme distortive effects.

[22] For new lines, where ENR is not present, the private sector has signed contracts to invest and operate railway services. The National Authority for Tunnels (NAT) awarded a US$4.5 billion rail construction contract under a 15-year, Design, Finance, Build, Operate arrangement to a consortium of Germany's Siemens Mobility and Egyptian firms Orascom Construction S.A.E. and The Arab Contractors for the first phase of a high-speed railway line. This first line will be 660 km of rail, with at least 18 stations, linking the port city of Ain Sokhna on the Red Sea to Marsa Matrouh and Alexandria on the Mediterranean Sea. See https://www.enr.com/articles/52663-egypt-awards-45b-contract-for-first-phase-of-high-speed-rail and https://www.reuters.com/world/middle-east/egypt-signs-445-bln-contract-high-speed-rail-link-2021-09-01/

20. **If the answer to the first question in the Cascade analysis is no, then the second question is: what can the project do to promote private capital mobilization (PCM) in the sector?** The CATLDP also includes reforms establishing an IAC regime. IAC would allow ENR and private operators to share tracks, breaking the ENR's monopoly. The project includes a Performance-Based Condition (PBC) to incentivize the Government of Egypt (GoE) to adopt IAC. The project builds on and deepens the reform effort started by the RISE Project, explained below in detail. If the IAC regime is in place, the project could transport another 2.5 million tons annually, mobilized by the private providers of railway freight services.

21. **Without the IAC regime, private-sector participation is limited to infrastructure and station construction, manufacturing of rolling stock, and ancillary services such as catering (quite apart from the lack of capacity for freight trains caused by the current GCA bottleneck).** Nevertheless, the potential for PSP is far-reaching, as shown in Figure 2. Examples are private investments in railway wagons, passenger cars, locomotives, maintenance depots, equipment, stations, and other rail-related facilities, such as "last-mile" connectivity. ENR is actively pursuing these options and held consultations with potential investors. ENR also wants to open its tracks to private trains, for which the IAC regime must be in place to have fair pricing that levels the playing field between ENR and privately-owned trains. The CATLDP will enable PSP in the railway sector by implementing the IAC and the operational railway bypass for the GCA.

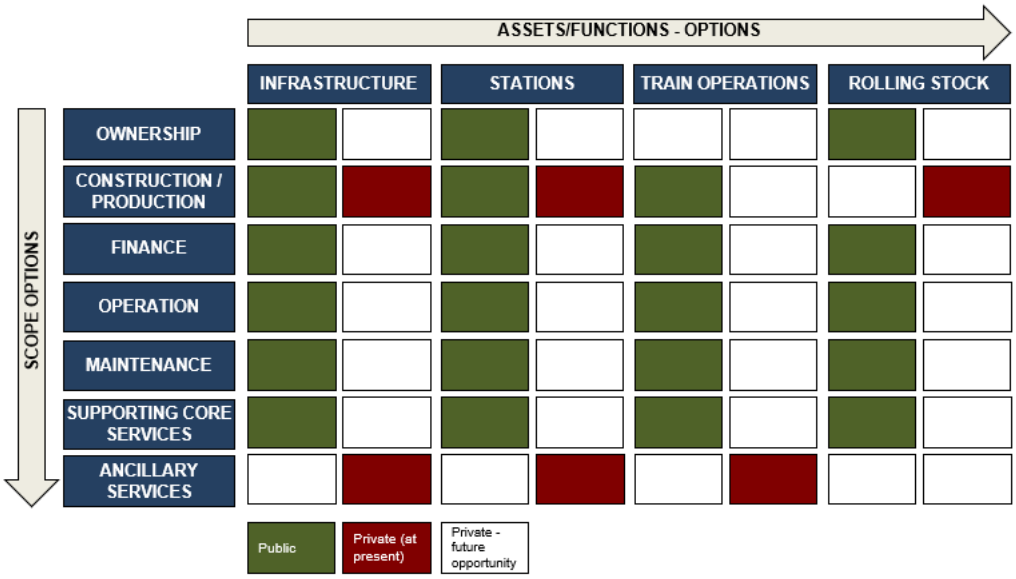
Ports

22. **Alexandria Port (AP), the primary node for Egypt's trade across the Mediterranean with Europe, is under pressure.** The port is one of the largest in the Mediterranean and is congested. Operated by a private firm, Hutchison,[23] AP handles almost 60 percent of Egypt's foreign trade.[24] The port covers 10.5 km^2, including 2 km^2 of land and 8.5 km^2 of water. The Alexandria container terminal's current throughput is 826,994 TEU containers (Twenty-Foot Equivalent Units).[25] Since its original design capacity was only 160,000 TEU, we now see multiple delays during the clearance of goods and increased transport costs.[26] The release of containers at AP takes 11 days on average.[27] Time losses are due to customs limitations, terminal handling, limited stacking and maneuvering areas, and congestion because of over 5,000 daily trucks entering the port. Limited connectivity to and from the AP aggravates the situation. The AP is, in fact, a railway-oriented port because it has 22 km of tracks.[28] Unfortunately, few railway lines currently connect to Egyptian ports, and the AP is no exception. ENR is solving this issue by constructing railway lines to improve railway connectivity to this port, including this project.

23. **The Alexandria Port has an LE 12 billion (approximately US$764 million) investment plan to improve its port services,** including 87 new platforms along a 24.9-km coastline.[29] AP's expansion efforts consider rail links to emerging inland dry ports, particularly the DP6.

[23] *https://hutchisonports.com/ports/world/hutchison-ports-alexandria/* accessed March 16, 2022.
[24] Alexandria Port Authority. *https://apa.gov.eg/en/* accessed March 16, 2022.
[25] World Bank Group. 2018. *Maritime Networks, Port Efficiency, and Hinterland Connectivity in the Mediterranean*. TEU refers to a Twenty-Foot Equivalent Unit and is the minimum container size. Containers can also be Forty-Foot Equivalent Units.
[26] Logistics Capacity Assessments (LCAs). *https://dlca.logcluster.org/display/public/DLCA/LCA+Homepage.* Accessed April 15, 2022.
[27] OECD Data, Container Transport. *https://data.oecd.org/transport/container-transport.htm.* Accessed April 15, 2022.
[28] https://apa.gov.eg/en
[29] Xinhua Net. 2021. "Upgrading Alexandria Port to Help Egypt Become International Trade, Logistics Hub."

Figure 2 – Allocation of Public and Private Responsibilities in the Egyptian Railway System



Based on World Bank[30] and EBRD.[31]

Dry Ports

24. **Egypt's Logistics Master Plan recommends the development of several logistics centers and inland dry ports (DPs) to alleviate constraints at seaports and promote multimodal transport.**[32] DPs will perform as Inland Customs Clearance Depots (ICCD). An ICCD can perform all the customs-related functions whereby each dry port will have a port code that will allow waybills to set a DP as the destination—instead of a seaport. This Logistics Master Plan improves Egyptian capacity for multimodal transport. A ship can deliver a container to a port, then by train to a dry port, and then by truck, under one contract and a single waybill.[33] "Last-mile rail connectivity" is also part of this plan comprising infrastructure and services which connect the main transport arteries and hubs, such as DPs to origins (such as factories) or final destinations (for example, distribution centers, warehouses and so on).

25. **The dry ports strategy of the GoE promotes rail traffic growth via improved rail connectivity**. DPs will develop the logistics sector, strengthen supply chains, reduce freight travel time, and lower transport costs with enhanced rail freight transportation services. The strategy calls for building eight DPs throughout Egypt by 2030.

http://www.news.cn/english/2021-09/11/c_1310180919.htm; "Wazir: Egypt carries out all-out plan to upgrade all harbors," https://sis.gov.eg/Story/165396/Wazir-Egypt-carries-out-all-out-plan-to-upgrade-all-harbors?lang=en-us. These sources do not explain how the MoT will finance this port upgrade strategy. Accessed April 15, 2022.

[30] World Bank. 2018. *Egypt: Enabling Private Investment and Commercial Financing in Infrastructure*.

[31] EBRD: Private Sector Diagnostic, Egypt (2017); EBRD: Egypt Country Strategy 2022–2027

[32] JICA (Japan International Cooperation Agency). 2008. *Multimodal Transport and Logistics Systems of the Eastern Mediterranean Region and Master Plan in Egypt*.

[33] World Bank. 2021. Module 2 "Economic, Transport and Trade Corridors," of the Open Learning Campus (OLC) training "Transport Connectivity, Logistics and Regional Integration."

The environmental and traffic safety impacts of taking freight trucks off the road and onto rail will benefit the country.[34]

26. **A key dry port is the 6th of October Dry Port (DP6), developed through a public-private partnership**. DP6 aims at alleviating pressures currently experienced by traditional seaports, especially at the AP. DP6 is Egypt's first extended gateway to deep-sea ports. DP6 will assist in decongesting the AP, provide storage, and reduce customs clearance times as an ICCD. In January 2020, the Ministry of Transport (MoT) announced plans to build it through a PPP. The resulting PPP is between the General Authority for Land and Dry Ports (GALDP) and a Special Purpose Vehicle (SPV) consisting of; (a) *DB Schenker*, a division of German rail operator Deutsche Bahn AG; (b) *Elsewedy Electric Co S.A.E*, an Egypt-based joint-stock company; and (c) 3A International, an Egyptian-based freight forwarding company. This US$176 million PPP reached financial closure in July 2021.[35] Construction started in late 2021, and operations in July 2022.[36] Covering 420,000 m^2, DP6 is the largest in Africa. DP6 has a maximum daily capacity of 720 TEUs, just over 260,000 TEUs per year. DP6 could create 3,500 direct and indirect jobs. Direct jobs include crane and stacking operators, supervisors, and so forth, at container yards, multipurpose storage warehouses, communication and control systems, and handling and inspection equipment. Indirect jobs relate to the positive economic impacts DP6 will have on existing factories and future ones in the October 6th Industrial Park planned for adjacent land.

27. **The European Bank for Reconstruction and Development (EBRD) is financing DP6.** The EBRD loan of US$29.6 million to the private sector, approved in July 2021, is part of a total investment package by the EBRD of US$60 million to finance the design, development, construction, and operation and maintenance of DP6. The EBRD sees this as a "trigger investment" under EBRD Green Cities Framework 2 Window 2 (GrCF2 W2), enabling the start of the development of the Green City Action Plan (GCAP) with the New Urban Communities Authority (NUCA) for the 6th of October City. The 6th of October City also has an important industrial area, which will benefit from DP6's role as an ICCD and container terminal. DP6 also follows EBRD safeguards.[37]

28. **The GoE is contractually committed to delivering a railway service to DP6.** This commitment comprises providing railway connectivity and railway traffic to the private operator of DP6. With a direct rail connection to AP, DP6 will function as an inland container port while also servicing the 6th of October City industrial area and the GCA. DP6 is about 300 km from AP, a distance that may give trucks an advantage.[38] However, DP6 is a railway-oriented port that counts on attracting a large volume of containers with transfers to trucks only for the short last-mile, final delivery journey. Demand projections by a study financed by the Public–Private Infrastructure Advisory Facility (PPIAF), completed in 2020, indicate that DP6 could generate 15 container trains per day by 2030 and 50 by 2060.[39] These estimates assume the rail service will capture 20 percent of the demand. The remaining containers will travel by truck. With the development of railway services, this share could increase the number of

[34] MiNTS – Misr National Transport Study: The Comprehensive Study on the Master Plan for Nationwide Transport System in the Arab Republic of Egypt, March 2012.

[35] "Financial Close – 6th October Dry Port PPP, Cairo," https://www.rendel-ltd.com/news/view/financial-close-6th-october-dry-port-ppp-cairo

[36] As part of project preparation, the task team visited DP6 to assess the construction progress and confirm service will start by July 2022. See also *https://www.odpeg.com/facility*

[37] *https://www.ebrd.com/work-with-us/projects/psd/51830.html*

[38] "World Bank. 2017. Railway Reform : Toolkit for Improving Rail Sector Performance. World Bank, Washington, DC. © World Bank. https://openknowledge.worldbank.org/handle/10986/30734 License: CC BY 3.0 IGO."

[39] PPIAF (Public–Private Infrastructure Advisory Facility), and World Bank. 2020. *High Level Business Case Report for Railway Freight Project*. Menarail Freight Consultants.

trains carrying containers. The number of trains carrying bulk cargo will also increase, as shown by the PPIAF-financed study.

Gender aspects

30. **Many countries exhibit significant gender gaps in the labor market, especially in the transport sector, and Egypt is not an exception**. Only about 18.5 percent of females aged 15 and above participate in the labor force compared to a male rate of 71.2 percent.[40] In both absolute and relative terms, these figures indicate a disparity in economic opportunity for women compared to men and illustrate the magnitude of the economic potential that bridging this gap represents for the country. Interestingly, women constitute a very reasonable share (48 percent) of university graduates from Egypt's Science, Technology, Engineering, and Mathematics (STEM) faculties.[41/42] However, this proportion does not translate into the labor market. Only about three percent of approximately 45,000 ENR employees are women, most of whom work in the human resource and finance departments.[43] The CATLDP provides an excellent opportunity to promote women's employment in rail by building on the gender commitments made in the RISE project that aim to improve women's employment, retention, and career advancement in ENR.

Railways and Climate Change Risks

31. **Given that the project is in an area subject to high climate change risks, the project will accelerate adaptation to climate-change-related impacts by improving the resiliency of railway service.** The project corridor stretches from Alexandria Port in the humid and fertile Delta region to DP6 and other dry ports in Greater Cairo, a desert area. The freight rail services will serve Upper Egypt and Red Sea destinations. The Task Team conducted a disaster risk screening. The analysis showed that the project area is subject to significant risks of extreme weather events.

32. **The risks of these climate events will be higher in the future.** By 2050, the mean annual temperature could increase by 2°C to 3°C (more rapidly in the interior regions). Extreme storm events could increase with significant flooding and storm damage. The frequency of sandstorms will also increase. Egypt is classified as "highly vulnerable" to climate change effects according to the 2021 Notre Dame-Global Adaptation (ND-Gain) index, ranking Egypt 110 out of 182. Critical vulnerabilities include the following. First, the poor are vulnerable and often the most severely affected by the impacts of climate change while possessing fewer resources to cope with and respond to climate change risks. Second, climate change presents water scarcity risks and lower agricultural productivity. The Delta could lose up to 30 percent of its food production by 2030. In contrast, the decreased water allocated for agriculture will negatively impact the livelihoods of more than 25 percent of the labor force in Egypt in agriculture, including women and the rural population.[44] Improved railways must, therefore, incorporate measures to mitigate climate- and disaster-related risks. Railways also help with adaptation because they facilitate multimodal logistics transport and build resilient access for agricultural goods to domestic, import, and export markets.

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[40] World Bank. 2019. *Gender Data. Modelled ILO estimates* https://genderdata.worldbank.org/countries/egypt-arab-rep

[41] World Bank. 2018. *Egypt: Women Economic Empowerment Study.* *https://www.worldbank.org/en/country/egypt/publication/egypt-women-economic-empowerment-study*

[42] British Council. 2020. *Women in STEM in Egypt Case Study*. https://enterprise.press/wp-content/uploads/2021/06/505570207-Women-in-STEM-in-Egypt-British-Council-Booklet-2021.pdf

[43] Menarail. 2020. *Preliminary Gender Assessment.* Railway Freight Project. Cairo.

[44] The Government of Egypt (2022). Egypt's First Updated Nationally Determined Contributions. Available at: https://unfccc.int/sites/default/files/NDC/2022-07/Egypt%20Updated%20NDC.pdf.pdf

How the project contributes to solving the problem

33. **The GoE seeks to cooperate with the World Bank Group to solve the infrastructure bottleneck by implementing the railway bypass around the GCA.** The GoE, following the 2012 Transport Master Plan,[45] wishes to create a rail freight corridor between AP, DP6, and beyond. The railway bypass includes constructing a greenfield link, associated track and signaling, and upgrading track and signaling in the other sections to achieve an operational bypass (figure 1 and map in Annex 2). The CATLDP also includes railway sector reform to introduce IAC, PSP for last-mile rail connectivity and freight terminals, and decarbonization of the railway sector. These objectives are pivotal to improved logistics in Egypt, allowing connections to other quadrants of the national railway network, including Sokhna Port, the Suez Canal Economic Zone, and other Egyptian ports on the Mediterranean, such as Damietta and Port Said.

34. **In addition to the World Bank loan, the CATLDP requires significant contributions by the GoE or ENR.** A World Bank guarantee can help lower the financial cost of raising these funds. If the GoE submits the request for this guarantee, the Bank is ready to prepare it via a separate but linked operation in FY24.[46] The guarantee for US$100 million could leverage future green or ESG-linked[47] commercial financing for US$200 to 250 million with a lower interest rate and better maturity. For this separate but linked operation, trust funds or GoE funds can hire a transaction advisor to assess various commercial financing options that an IBRD guarantee could support.[48] This assessment will help determine the optimal structuring (regarding the terms of the financing) for GoE and ENR. With its leading role in COP 27 in 2022, Egypt is attracting green financing for its economy and wants to demonstrate its leadership in the green economy—the country currently has an ESG rating in the bottom 23 percent.

35. **Additional Private Capital Mobilization.** The GoE and the MoT are keen on increasing private-sector investment in the transport sector. Egyptian ports have terminals run by private-sector operators, and the dry ports will be privately-operated. For railways, Law No. 20/2018 allows ENR to seek direct participation from private investors in developing the railway system through concessions. However, despite this law, the private sector has yet to invest in the existing railway operated by ENR. Infrastructure bottlenecks may affect PSP in the existing railways.[49] The project directly furthers the GoE's objective by removing barriers that prevent private-sector participation (PSP) in the railway sector. The project will build the railway bypass around the GCA and implement the Infrastructure Access Charge. The project will also prepare last-mile connectivity and other options that attract PSP.

36. **The project will contribute to climate change adaptation by improving resilient railway services.** Freight and logistics in Egypt rely on road-based transport, mainly by trucks. The ENR network serves urban regions of Greater Cairo (population: 20 million), Alexandria (5 million), and Asyut (4 million), as well as rural regions, thanks to over 9,000 km of tracks. The rural population in the 13 governorates along the ENR network is over 32 million (2016). The project will improve the resiliency of the railway infrastructure and services with technologies to

[45] JICA (Japan International Cooperation Agency). 2012. *Master Plan for Nationwide Transport System in the Arab Republic of Egypt*. Final report. March. This master plan identified a three-prong strategy: Hardware (development of logistics infrastructure such as the freight corridor); Software (development of regulatory and institutional measures); and Humanware (human resource development and training).

[46] Upon request, the Bank can prepare this Guarantee under P178803, linked to the current project.

[47] Environmental, Social, and Governance.

[48] The task team is applying for trust funds to help finance this activity.

[49] See *https://www.enr.com/articles/52663-egypt-awards-45b-contract-for-first-phase-of-high-speed-rail* and *https://www.reuters.com/world/middle-east/egypt-signs-445-bln-contract-high-speed-rail-link-2021-09-01/*

ensure operational continuity and safety even during disruptions. The project will build a resilient railway network with last-mile connectivity provided by other modes. The project will lower the costs of transporting imported essential goods such as wheat (of which Egypt is the world's largest importer). If the highway network experiences climate-related disruptions, the railway will have capacity. The project will further alleviate the stress of freight services on the heavily used Cairo–Alexandria corridor, creating room for passenger railway services. The project will build resilience by improving access for vulnerable people to economic opportunities (jobs), educational opportunities (universities), and services (hospitals) in large cities.

C. Relevance to Higher Level Objective

Relationship to Country Partnership Framework (CPF)

37. **The proposed project aligns with the Egypt Country Partnership Framework (CPF) (FY2015–19), extended to 2021.** [50] The Performance and Learning Review for Egypt (2019) noted logistics as one of the critical constraints in competitiveness and low productivity in Egypt. To strengthen economic growth and productivity, enabling public infrastructure investments between the freight corridor of Alexandria port and the 6th of October Dry Port would be undertaken to develop Public Private Partnership for the operation and management of this freight railway corridor.[51] The CATLDP will build a bypass to the bottleneck on the GCA and introduce the IAC. The project will create opportunities for freight trains along the AP-DP6 corridor, Upper Egypt, and private sector participation.

38. **The proposed project aligns with the Egypt Country Partnership Framework (CPF) (FY23-27, under preparation).** The overarching objective of the upcoming CPF will be to support Egypt in achieving its sustainable development agenda to alleviate poverty, enhance shared prosperity, and create conditions for green, resilient, and inclusive development. The CPF puts the people of Egypt at the center of the strategy in pursuit of three high-level objectives (HLOs): (1) more and better private sector jobs; (2) stronger human capital outcomes; and (3) improved resilience to shocks. Underpinning these HLOs are two interlinked cross-cutting themes: governance, citizen engagement, and women's empowerment. These HLOs will enhance trade competitiveness, support export diversification, and improve value chain linkages and access to logistics zones and commercial markets in Sudan and other Nile Basin countries. The project will also help leverage the rate of industrial development and link small and medium enterprises (SMEs) to large industries by moving freight from road to rail.

39. **The proposed project will contribute to the Twin Goals of the World Bank** through efficiency gains by reducing the costs of transporting goods and people. These effects will enhance the Egyptian economy's competitiveness while improving the ENR network's freight and passenger services capacity, primarily for the low-income population.

40. **The project supports the GoE in implementing its 2012 Transport Master Plan, which prioritized building a freight corridor between AP, DP6, and the port of Sokhna in the Red Sea.** The project will implement the missing segment of the Bashteel–El Itihad section and improve the Marazeeq–Wahat section, improving tracks and signaling between AP, DP6, and the GCA. The project is part of ENR's comprehensive infrastructure upgrading plan, financed by several multilateral and bilateral agencies (see Table A.5, Annex 1).

31. **The proposed project builds on the World Bank's close engagement with the GoE on policy dialogue in the transport sector, including the institutional structure and governance arrangements, while enhancing safety and regulatory aspects and increasing connectivity to employment opportunities, markets, and services.** Strengthening the institutional capacity within the sector will positively impact trade logistics and help unlock

[50] (Report No.: 94554-EG), discussed by the board on November 20, 2015.
[51] (Report No. 135709-EG), discussed by the Board on April 3, 2019.

opportunities for PSP and economic growth, as stated in Egypt's sustainable strategy under Egypt 2030 vision. The proposed project will continue the reform effort of the ENR started by the RISE Project, as explained in the Appraisal section.

32. **More than a decade of analytical work by the World Bank and related transport engagement underpins the proposed project.** The report entitled "Egypt: Enabling Private Investment and Commercial Financing in Infrastructure" points out the urgent need to invest in infrastructure for sustainable economic development, calling for an institutional and regulatory environment that enables private-sector investment in the infrastructure sector.[52] With support from the UK-funded Strategic Partnership for Egypt's Inclusion Growth Trust Fund (SPIEG-TF), the World Bank developed the study "Achieving Green, Inclusive, Safe, and Effective Transport for Egypt." This study identified strategies for multimodal freight transport and logistics, including ports, airports, railways, and inland waterways, proposing a set of institutional, regulatory, and implementation recommendations. These strategies build on maximizing finance for development (MFD) to generate PSP.[53] The project develops these recommendations, including the railway reform and supporting plans by the MoT to seek PSP in freight railway operations.[54]

41. **The proposed project, therefore, builds on the World Bank's close engagement with the GoE on policy dialogue in the transport sector, including the institutional structure and governance arrangements, while enhancing safety and regulatory aspects and increasing connectivity to employment opportunities, markets, and services.** Strengthening the institutional capacity within the sector will positively impact trade logistics and help unlock opportunities for PSP and economic growth, as stated in Egypt's sustainable strategy under Egypt Vision 2030. The proposed project will continue the ENR reform effort started by the RISE Project, as explained in the Appraisal section.

Relationship to Regional Strategies

42. **The proposed project aligns with the World Bank MENA Regional Strategy, the MENA Strategy for Smart, Green, Inclusive, and Sustainable Infrastructure 2021, and the Egypt Systematic Country Diagnostic Update[55] promoting PSP.** The proposed project will remove the two critical bottlenecks—one infrastructure-related, the other a regulatory one—to PSP as identified in the Cascade Analysis (appraisal section). The project will open last-mile rail c hook-and-haul traction services, leasing or purchase of wagons, and operation of dedicated marshaling yards (shunting yards, serving as The World Bank-IFC teams will continue supporting the objective of promoting private participation in railways.

43. **The project responds to the World Bank's Gender Strategy (2016–2023) and the MENA (FY18-23) Regional Gender Action Plan.** The project will upgrade the ENR childcare facility and offer training opportunities to female final-year students and recent graduates from engineering faculties. The project is also well aligned with the World Bank's MENA (FY18–23) Regional Gender Action Plan, prioritizing empowering women economically.

[52] World Bank. 2018. Egypt – Enabling Private Investment and Commercial Financing in Infrastructure (Vol. 2). http://documents.worldbank.org/curated/en/588971544207642729/Report

[53] World Bank. 2021. *Achieving Green, Inclusive, Safe, and Effective Transport for Egypt*. The Bank team carried out consultations on this study with transport-related government agencies in Egypt, which gave feedback. The report is not yet disclosed.

[54] See *https://www.al-monitor.com/originals/2021/05/can-privatization-save-egypts-railways*

[55] World Bank Group. 2021. *Egypt – Systematic Country Diagnostic Update : Unlocking Egypt's Potential for Poverty Reduction and Inclusive Growth*. https://openknowledge.worldbank.org/handle/10986/36437

44. **The proposed project will contribute to the World Bank Group's Climate Change Action Plan (CCAP) 2021–2025, the Green Resilient Inclusive Development (GRID), and the Approach for COVID-19 response.** Aligned with the CCAP, the project will implement interventions to decarbonize the transport sector using freight railways. This shift to low-carbon transport will improve connectivity and reduce emissions cost-efficiently. The project will also promote resilient transport systems through multimodal freight transport, including railways with climate-resilient infrastructure. The proposed project aligns with adjustments in response to the COVID-19 pandemic (Egypt COVID-19 Response Strategy) to support the highly impacted sectors by accelerating post-pandemic economic recovery, per the strategic direction of the GoE. The project will inject capital into the Egyptian economy and generate direct short-term employment.

45. **The project will help the GoE meet its sustainable development goals and Vision 2030.**[56/57] Egypt is vulnerable to climate change globally, mainly because of its dependence on water from the Nile. The transport sector is the second largest contributor to Egypt's overall greenhouse gas (GHG) emissions—contributing approximately 19 percent. The project supports low emission development by encouraging the shift of freight transport to low-carbon railways. The project will also build logistics and freight transport resilience by strengthening multimodality and the climate resilience of railway infrastructure, an essential aspect of the country's climate change adaptation effort. The emphasis on enabling private-sector participation and support to mobilize private investment in a sustainable railway sector accelerates Egypt's ambitious effort to promote innovative finance mechanisms, including green bonds. Finally, the project will pave the way for decarbonizing the railway sector in Egypt, contributing to the 2050 Climate Change Strategy's pillar of enhancing research technology transfer and knowledge and awareness management to combat climate change.

46. **The project will continue the ongoing dialogue with the GoE on the national railway's role in climate-proofing the Egyptian economy.** Shifting freight from road to rail will lead to lower GHG emissions thanks to rail's lower carbon intensity per ton-km. Nevertheless, the long-term goal is to fully decarbonize the Egyptian economy, including its freight transport sector. The project will develop decarbonization scenarios for the national railway sector. These appear highly beneficial in two ways. First, the scenarios will prepare Egypt for a global decarbonizing economy. For example, European Union countries are increasing carbon border adjustment mechanisms.[58] These adjustments will make carbon-intensive goods and services—including transport services—increasingly uncompetitive. Second, the decarbonization scenarios will identify potential green business opportunities where Egypt has the advantage due to extensive renewable energy resources to produce low-carbon fuels such as green hydrogen.[59] Railway and trucking sectors and iron, steel, and chemical industries can use these low-carbon fuels. Egypt could also export these fuels for international shipping, aviation, or industrial off-takers in Europe.[60]

47. **The Cascade analysis showed the following: (i) the bottleneck in the railway network in the GCA, (ii) the lack of an IAC regime that allows private operators to share tracks with ENR, and (iii) the low volume of freight.** The proposed project will increase the capacity for freight trains by building a bypass around the GCA. The project will create a transparent railway IAC system for the Egyptian network to establish the specific charges railway

[56] Global Carbon Atlas. CO_2 emissions in 2020.
[57] UNDP (United Nations Development Program). 2019. *INDC Project Actions and Plans: Egypt, NDC Support Program*.
[58] European Union, Carbon Border Adjustment Mechanism, July 14, 2021, *https://ec.europa.eu/taxation_customs/green-taxation-0/carbon-border-adjustment-mechanism_en*
[59] ESMAP. 2020. Green Hydrogen in Developing Countries. Washington, DC: World Bank. *http://documents.worldbank.org/curated/en/953571597951239276/Green-Hydrogen-in-Developing-Countries*
[60] Englert, Dominik; Losos, Andrew; Raucci, Carlo; Smith, Tristan. 2021. "The Potential of Zero-Carbon Bunker Fuels in Developing Countries." World Bank, Washington, DC. © World Bank. *https://openknowledge.worldbank.org/handle/10986/35435*

operators will pay for using the tracks. A possible future IBRD guarantee to support commercial financing to lower the costs of the Egyptian funds could be provided based on receiving the request from the GoE.

48. **Private Capital Mobilization.** The project will enable private railway operators to run trains on ENR tracks by building the GCA's railway bypass and introducing the IAC regime. In addition, the project could enable an additional US$75 million "according to the estimation of the World Bank team" by preparing last-mile connectivity and other options that the private sector can contribute. The additional capacity is also critical if more freight trains use ENR tracks.

49. **Donor coordination.** The GoE seeks to improve the railway network by partnering with other international finance institutions (IFIs). The proposed project is part of a comprehensive set of projects financed by multilateral and bilateral institutions, including the African Development Bank (AfDB), Arab Fund, European Bank for Reconstruction and Development (EBRD), Export Development Canada (EDC), EXIM (Hungary), and the Kuwait Fund. These projects include the acquisition of locomotives and wagons and the next step in railway signaling. The World Bank loan and Egyptian funds will finance the CATLDP, with no other multilateral contributing funds.

II. PROJECT DESCRIPTION

A. Project Development Objective

PDO Statement

50. To improve the performance and support the decarbonization of the logistics and transport sectors in the Alexandria–6th October–Greater Cairo Area railway corridor.

PDO Level Indicators

51. Containers handled by rail between AP and DP6: This indicator measures the "improved performance of the logistics sector" aspect of the PDO. The unit is containers moved by rail. Baseline, zero; target: 184,000 containers (TEU) per year.

52. Freight traffic volumes between AP and the GCA and Upper Egypt: This indicator measures the "improve the performance of the railway sector" aspect of the PDO. The unit is million net ton-km. Baseline 500, target 1,110.

53. Greenhouse gas emissions: This indicator measures the decarbonization aspect of the PDO. The indicator will use standard methodologies for GHG accounting. The unit is metric tons per year of GHG CO_2 equivalent. The baseline is 0, and the target is a reduction of 1,119 metric tons per year of CO_2 equivalent.

B. Project Components

54. The text that follows describes each component. Table A.1 in Annex 1 contains more detail on the components' costs and the share the loan and GoE funds will finance.

55. **Component 1. Railway Sector Reform, Project Delivery, Stakeholder Engagement, Women's Economic Empowerment, and Private Sector Participation (Total cost: US$24 million; IBRD: US$20 million, GoE: US$4 million)**.

1.1 Railway sector reform (Total cost: US$1 million; IBRD: US$1 million): (a) Developing and adopting a transparent railway Infrastructure Access Charging (IAC) scheme for the Egyptian railway network including (i) drafting and adopting the regulations to support introduction of the IAC regime; (ii) determining the specific charges to be paid for access and use of infrastructure by public and private

railway operators and (iii) supporting the PIE in the preparation of IAC Contracts for railway operators; (b) developing a regulatory framework including, identifying the detailed scope and responsibilities of a railway regulator and the associated governance framework; and (c) identifying and developing additional rail-friendly policies to increase traffic on the railway network.

1.2 Project-delivery activities (Total cost: US$19.0 million; IBRD: US$17.0 million, GoE: US$2 million): (a) Recruiting a Works Integrator and Supervisor to supervise, manage and integrate the design and construction of works financed by the Ministry of Transport (MoT) and works financed with Loan proceeds under Part 2 of the Project; and (b) financing of a technical audit for the works financed with Loan proceeds under Part 2 of the Project.

1.3 Promotion of Women's Employment and Stakeholder Engagement (Total cost: US$1 million; GoE: US$1 million): (a) Promoting women's employment in the PIE's workforce through: (i) upgrading its childcare facility to meet the applicable national standards, ii) supporting the female training program and (b) implementing activities under the Stakeholder Engagement Plan to strengthen meaningful stakeholder engagement under the Project.

1.4. Enabling private capital mobilization (PCM) for the railway sector (Total cost: US$2 million; IBRD: US$2 million). Transaction support to ENR in dealing with private parties concerning the private sector participation opportunities in the rail sector.

1.5 Decarbonization study (Total cost: US$1 million; GoE: US$1 million): Conducting a technical study for developing a decarbonization roadmap for the PIE.

56. **Component 2: Track extension, railway signaling modernization, and selected track upgrades to create a railway bypass around the Greater Cairo Area (Total cost: US$973 million; IBRD: US$379 million, GoE: US$594 million).**

2.1 Greenfield Link (Total cost, including 2.2): US$379 million; IBRD: US$143 million, GoE: US$236 million). Construction of a greenfield link from the Bashteel–Itay El Baroud section to the Marazeeq-Wahat section, including (a) constructing structures (bridges, viaducts) and laying track foundation; (b) installation of track and signaling; and (c) providing retention money for Part 2.1 (b) immediately above (PBC Eligible Expenditure).

2.2 Marazeek–Wahat Section Upgrade (Total cost: included in 2.1). Upgrading of existing track and signaling modernization from Marazik for an estimated distance of 70 km on the Wahat line.

2.3 El Bashteel-Itay El Baroud Section (Total cost: US$428 million; IBRD: US$144 million, GoE: US$284 million): (a) constructing structures (bridges, viaducts) and laying track foundation for a parallel track from El Bashteel to El Itihad, (b) installation of new tracks and signaling on both tracks on the segment from El Bashteel to El Itihad; and (c) upgrading of the existing single track and signaling on the El Itihad-Itay El Baroud segment.

2.4 El Itihad-Tafaroa Section (Total cost: US$166 million; IBRD: US$92 million, GoE: US$74 million): Upgrading the existing single track and signaling on the El Itihad-Tafaroa section.

57. **The project includes a PBC to incentivize introducing the Infrastructure Access Charge regime.** The PBC is described in the results framework. In short, the PBC is linked to the GoE achieving the intermediate indicator "Infrastructure Access Charging Regime (IAC) on ENR's railway network" in the Results Framework (Baseline: no, Target: yes). The MoT and ENR will develop IAC thanks to the technical study in Subcomponent 1.1.

C. Project Beneficiaries

58. **Bypassing the bottleneck in the GCA will facilitate rail freight transport and logistics services to upper Egypt (south) and between AP and other ports such as Sokhna (east) and dry ports such as DP6 and 10th of Ramadan thanks to enhanced reliability, security, and safety.** This efficient railway connectivity will enable both national and regional trade. Railways will transport cement, fertilizers, and raw materials to manufacturing hubs, local markets, or maritime ports for export. The advantages of moving freight from road to rail are reducing the carbon footprint of transport while improving safety and extending the useful life of paved roads due to lower truck-related traffic.

59. **The railway bypass is suitable for facilitating the transportation of foodstuffs for the whole country.** National wheat imports are nearly 900,000 tons per month.[61] With the project implemented, the imported grains through AP and other ports will be transported efficiently to storage silos across the country.[62]

60. **Reforming the regulatory environment to introduce the IAC regime will enable private capital mobilization (PCM) and private-sector participation (PSP).** Consequently, the Ministry of Transport will open the door for private sector investments in railway and logistics.

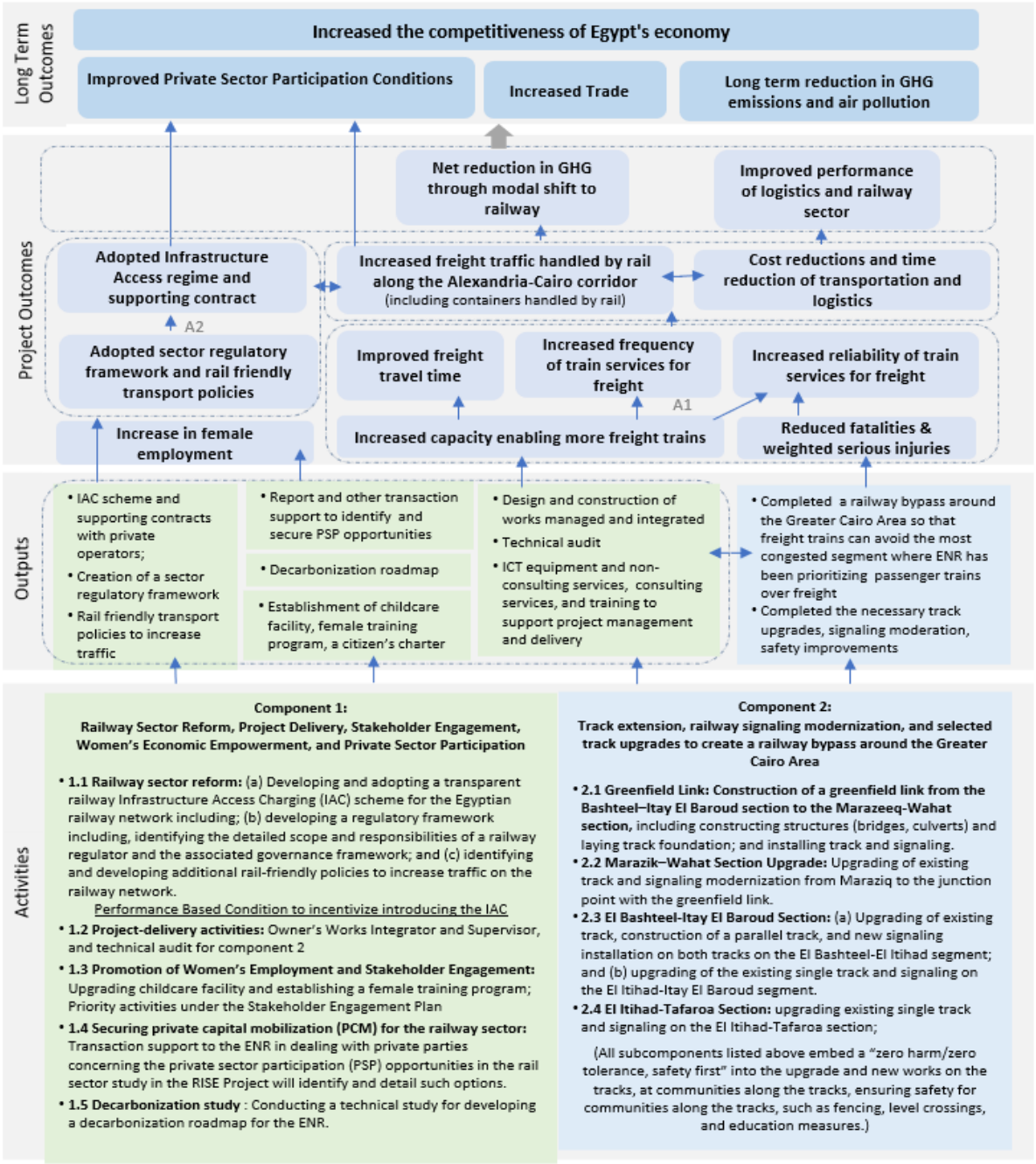
61. **The project provides a significant transformative development for Egypt's trade facilitation.** The project promotes logistics and multimodal transport to ensure DP6 delivers as expected. At the AP, expansion plans include deepening berths to 19 meters to increase capacity from 66 million tons to 100 million tons. Providing a railway bypass around the GCA bottleneck will allow shipping companies to call DP6 directly, thus allowing AP to streamline handling of the expected additional capacity.

62. **Gender: Activities to promote women's employment will first and foremost benefit those women who will be entering the ENR workforce as employees and trainees.** Besides women, who will benefit from improved childcare, men, children, and the overall rail industry will also benefit. Upgraded childcare will contribute to good early development outcomes in children and help female and male partners of ENR employees who use childcare. Available childcare will relieve their partners' burden and give them more time and hence more opportunities to engage in income-generating activities. At the industry level, with the current transport workforce growing globally and the complexity of the jobs in the sector increasing, employment in the industry is becoming more challenging to fill. ENR could have significant positive impacts on the rail industry if it tried to diversify its workforce, promoted women, and prepared a female talent pipeline through its training program. Efforts to promote women's employment will signal to educational institutions and the broader society that ENR is an equal opportunities employer and counter outdated perceptions about the prospects of seeking job opportunities in the sector.

[61] https://farmpolicynews.illinois.edu/2022/04/egypt-wheat-supplies-in-focus-while-usda-reports-highlight-u-s-wheat-exports-south-american-production/. Calculations by task team.

[62] The National Project of Silos includes building 50 grain and wheat storage silos in 17 selected and distributed governorates with a storage capacity of 1.5 million tons, State Information Service Authority. (https://www.sis.gov.eg/Story/161656/National-Projects-of-Silos).

D. Results Chain



Assumption 1: The ENR or private sector needs to deploy the additional locomotives to utilize the enhanced capacity

Assumption 2: The reforms related to Public Service Obligation Contract & Multi Annual Infrastructure Contract under RISE project are completed

F. Lessons Learned and Reflected in Project Design

63. **The project design builds on experience implementing the ENRRP (P101103)[63] and the RISE Project (P175137).[64]** The project is a top priority of the 2012 Transport Master Plan, which proposed a freight corridor between AP, DP6, and the Red Sea port of Sokhna. The implementation period is only seven years to achieve a functional railway bypass around the GCA. Procurement processes are complex and can take time. ENR is learning about complicated procurement thanks to the Egyptian National Railway Restructuring Project (ENRRP) and the Railway Improvement and Safety for Egypt (RISE) Project. In the ENRRP, procurement for the first signaling upgrade contract took 44 months, down to 22 months for the last such contract.[65] ENR will likely complete the procurement for an even more complex track and signaling upgrade contract in 24 months in the RISE Project.

64. **A project supervisor with project management capabilities will be essential for successful implementation.** The Quito Metro Line One Project (P144489)[66] and the Upgrading and Greening the Rio de Janeiro Urban Rail System (P111996)[67] are examples of what successful project managers and supervisors can do. The project managers and supervisors ensure that construction meets quality standards and proactively, swiftly, and reliably solve emerging technical issues to prevent construction delays. Although the bidding documents for the RISE Project offer an excellent general template for the CATLDP, the project supervisor must still help ENR tailor bidding documents to the project's needs. The bidding documents use a single bidding process with several lots or packages to gain time to evaluate and lower prices through competition[68]. The project supervisor must synchronize and integrate the works under the General Authority for Roads and Bridges (GARB) with the permanent way and signaling provision under ENR. ENR must start the procurement soon for the project supervision. In addition to the project integrator and supervisor, the RISE project includes a technical audit to guarantee meeting quality standards and schedules. The CATLDP will also have a technical audit.

65. **Bidding documents must establish clear implementation timelines.** The tight implementation period calls for bidding documents that inform bidders about the tight timeline. The Quito Metro Line One Project allowed only three years to construct a 21-km subway line with 15 stations. The tunneling boring machines—three working in parallel—had to contend with few urban interactions that might have slowed them down, and were, therefore, able to advance at record-breaking speed. By contrast, station construction started at the street level, which meant interactions with streets, pedestrians trying to access shops, and vehicles. GARB will have two years

[63] The PDO of this project is "to improve the reliability, efficiency and safety of the railways' services on targeted sections of the rail network." The ICR gave a Moderately Unsatisfactory rating to the implementation of this project.
[64] The PDO of this project is "to improve safety and service quality of the railway services along the Alexandria-Cairo-Nag Hammadi corridor." Progress toward achievement of the PDO is rated Satisfactory.
[65] See Implementation Completion Report (ICR) for the Egypt National Railway Restructuring Project ENRRP, P101103. *https://documents.worldbank.org/en/publication/documents-reports/documentdetail/367961628584958285/egypt-railways-restructuring-project*
[66] The PDO of this project is "to improve urban mobility in the city of Quito serving the growing demand for public transport. The Project will reduce travel times, decrease operational costs of the transport service, improve connectivity, security, and comfort of the current system, and reduce emissions of pollutants and greenhouse gases." Project implementation rating is currently MU. However, the lessons pertain to the time then the rating was Satisfactory.
[67] The PDO of this project is "a) to improve the level of service provided to suburban rail transport users in the RJMR (Rio de Janeiro Metropolitan Region) in a safe and cost-efficient manner; (b) to place the suburban rail transport system on a lower carbon growth path; and (c) to improve the transport management and policy framework in the Borrower's territory and in the RJMR." The current implementation rating is Moderately Satisfactory.
[68] See also the implementation arrangements section of this PAD.

to build the civil and industrial works for Subcomponents 2.1 and 2.3. For the greenfield segment in 2.1, the construction will face few interactions; therefore, the two-year timeline for GARB-related works is feasible. For 2.3, track dualization, the works will parallel an active railway line. The bidding documents must also specify how ENR will manage train operations to allow the contractors to work productively. The ENRRP offers lessons for ENR on how to work while the lines are operational. The bidding documents must also incentivize higher production rates that become contractual commitments, as used in the Bogota Urban Transport Project (P006872)[69] to construct the Transmilenio Bus Rapid Transit system in two years.

66. **The project also incorporates lessons on safeguards implementation from the ENRRP.** Specifically, the works supervisor must also oversee safeguards to ensure better compliance. The works supervisor in the ENRRP did not have this responsibility. The capacity for managing safeguards at ENR is increasing but needs strengthening.

67. **The Serbia Railway Sector Modernization Project (P170868)[70] shows new institutional arrangements add to the predictability of funding for the railway infrastructure manager.** International experience has shown that the IAC is a mandatory precursor for an "open access" regime that welcomes other operators, public or private. The IAC regime and supporting contracts between the railway operators and infrastructure manager allocate roles in purchasing and delivering the service. Adopting an IAC regime is critical in establishing the infrastructure manager as a business unit as the IAC contract articulates its obligations toward the railway operators. The IAC regime forces the railway company to maintain and renew tracks considering operators' needs. The IAC regime also creates a funding stream for the railway infrastructure manager's operations. The IAC regime allows the infrastructure unit to recover a certain level of the total costs from users and promotes the ENR infrastructure unit as a financially stable entity. Long-term, once new operators access the network, the IAC allows decreased publicly financed support to the railway sector based on infrastructure cost recovery passed on to the new operators.

68. **Incremental reform in parallel with traffic growth is the right way to attract private-sector participation to the railway sector.** The reform effort starts with developing plans and supporting reform capacity within ENR. The RISE Project included a steering committee including members from the MoT, Ministry of Finance (MoF), and the Ministry of International Cooperation (MoIC), plus a PBC to ensure the implementation of reforms embodied in the Public Service Obligation Contract (PSOC and a Multi-Annual Infrastructure Contract (MAIC. The CATLDP also uses a PBC to incentivize the GoE to adopt the IAC regime. The CATLDP reform effort also promotes establishing a railway safety regulatory body and rail-enabling transport policies. The proposed reform builds traffic on the railway network and attracts private participation in the sector.

III. IMPLEMENTATION ARRANGEMENTS

A. Institutional and Implementation Arrangements

69. ENR will implement the project in seven years.

70. **Responsibilities and Executing Agency:** The overseeing power and associated responsibility lie with the

[69] The PDO of this project was to improve transport and traffic conditions in Bogota, and includes (a) busways, (b) traffic management, (c) access roads to low-income areas, and (d) institutional strengthening. The project received a Highly Satisfactory rating. *https://projects.worldbank.org/en/projects-operations/project-detail/P006872*

[70] The PDO of this project is to enhance the efficiency and safety of existing railway assets and improve governance and institutional capacity of the railway sector. The current implementation rating is Satisfactory.

MoT. ENR will act as the Project Implementation Entity (PIE) and manage the implementation of all components in close coordination with the MoT. ENR will carry out procurement, financial management (FM), and internal auditing for the project. ENR will oversee safeguards implementation and report on all environmental and social framework (ESF) requirements.

71. **ENR (or PIE) will implement the CATLDP Project through the Project Management Unit (PMU) created initially for the implementation of the ENRRP (closed) and now implementing the RISE Project.** The PMU will coordinate with six ENR departments: signaling system, track renovation, telecommunication system, power supply system, centralized train control, and the environment department. As critical risk mitigation, ENR will reinforce the PMU with the necessary resources for the CATLDP Project and make arrangements to tap into a wider pool of ENR experts during implementation.

72. **The PMU will be responsible for fiduciary management and monitoring and evaluation (M&E) of project activities.** ENR will provide staff and equipment to the PMU to fulfill its obligations. The PMU must strengthen its fiduciary skills (financial management and procurement) and technical skills needed to manage the project, including monitoring the implementation of environmental and social requirements and gender activities. Training will increase the capacity of the PMU. The implementation of the RISE project outlines a positive pathway for the PMU for the CATLDP to follow.

73. **The PMU at ENR and the MoT will implement Component 1:**

a) The MoT will direct the implementation of Subcomponent 1.1, Railway Sector Reform. The MoT and ENR will design the ToR, coordinate day-to-day work, and approve the consultant's deliverables. ENR will carry out the procurement for Subcomponent 1.1. The Steering Committee (SC) the MoT created for the RISE project will also steer the reform effort in the CATLDP. The SC includes representatives from MoT, MoF, and ENR. The SC will: (i) provide strategic guidance for the strategic study of the reform to introduce the IAC regime, and (ii) recommend approving authorities to implement the reforms. The RISE Project Operations Manual details the functions of the SC. Because the project includes reforms with impacts on different stakeholders, a stakeholder working group may provide input on the regulatory framework under Subcomponent 1.1 by giving feedback to the SC. ENR will form the stakeholder working group with representatives that may include the AP, DP6, Customs, Immigration, freight forwarders, logistics operators and other stakeholders/authorities. The Results Framework and Monitoring (RFM) includes intermediate indicators to track SC performance, building on lessons from many World Bank-financed projects.
b) The PMU, with the relevant sectors of ENR, will procure and supervise all elements of Subcomponents 1.2, 1.3, 1.4, and 1.5.

74. **The PMU at ENR will implement Component 2.** Egyptian government funds and the loan proceeds finance this component. Government funds will finance the civil works such as viaducts, "industrial structures," and track foundations needed in this component. To implement these elements, ENR signed an agreement with GARB, an entity with ample experience procuring and implementing major transport infrastructure projects in Egypt. As part of this agreement, ENR will provide the funding for GARB to implement these works. ENR will ensure GARB follows the CATLDP safeguards instruments.

75. **For the loan-financed scope in Component 2, the PMU at ENR will select the track and signaling contractors following World Bank Procurement Framework.**

76. **ENR will prepare a Project Operations Manual (POM), due three months after effectiveness.** The POM will outline the internal procedures to be followed by the PMU to implement the project. The POM will include

procurement, financial management, safeguards policy, M&E, and reporting mechanisms. ENR will build on the POM for the RISE Project, which contains similar procedures.

B. Results Monitoring and Evaluation Arrangements

77. The PMU at ENR will be responsible for the overall project implementation and for preparing technical and financial progress reports. The PMU will be responsible for data aggregation and periodically reporting progress to achieve the PDO. The PMU will also have expertise in M&E. The PMU will follow the methodologies established in the Results Framework and Monitoring (RFM). The RFM builds on lessons from the RISE project, such as additional intermediate indicators that track implementation progress. The RFM also incorporates indicators already used at ENR, for example, the containers handled, greenhouse gas emissions, and signaling towers commissioned. ENR and the World Bank will conduct a Mid-Term Review to assess changes to the project during implementation. At project closing, ENR and the Bank team will conduct an Implementation Completion and Results review of the project. Overall, the RFM will help ENR develop the capacity to measure results and bring its practices to international standards, thus allowing benchmarking and comparability. Finally, the PMU will have to gather data in conjunction with other units at ENR, such as permanent way and freight services arrangements.

C. Sustainability

78. **The GoE is fully committed to implementing this project because the project is a top priority of the 2012 Transport Master Plan.** The GoE is keen to advance trade movement and logistics by rail. The project is the railway element of the freight corridor between AP, DP6, and the Red Sea port of Sokhna. The project will implement an operational railway corridor that bypasses the GCA. In addition, the project includes institutional and regulatory reforms to improve incentives at ENR and allow PSP in freight railway services. Stakeholders will voice their opinions to enrich the reform and project implementation thanks to the stakeholder committee that is part of the implementation arrangements.

79. **The project incorporates measures to mitigate climate and disaster risks facing the railway infrastructure of the ENR.** The project will incorporate design, engineering, and institutional considerations to mitigate the risks of extreme climate conditions such as extreme temperature and precipitation events, floods, and strong winds. Subcomponent 1.1 (US$1 million) will design the IAC regime. The resulting charge will anticipate climate risks (for example, adequate force majeure clauses). Subcomponent 1.2 (US$19.0 million) works integration and supervision, and technical audit will ensure the activities under Component 2 incorporate measures to mitigate climate and disaster risks. Subcomponent 1.3 (US$1 million) includes stakeholder engagement to capture views on climate-related risks and mitigation measures to include in the project. Subcomponent 1.4 (US$2 million) will design the structuring and detailing of private-sector participation in ways responsive to anticipated climate risks, such as adequate contingency plans. Subcomponent 1.5 (US$1 million) will develop the railway decarbonization roadmap. This roadmap will help mitigate future GHG emissions from rail transport. Lastly, the design for the railway bypass around the GCA will consider climate change effects and prepare the railway infrastructure and ENR operation for climate-related risks. Excessive heat damages electric wiring and circuits. The project will use state-of-the-art, efficient, and reliable insulating and fire-retardant materials to ensure greater resilience and adaptation to the effects of climate change.

80. **The project continues the railway reform started by the RISE Project to improve incentives and promote PSP.** The project introduces the IAC regime to allow ENR to share its tracks with private actors. The IAC is a transparent pricing regime. IAC targets PSP for freight services primarily because large freight generators will be interested in using their freight railway wagons. The RISE project targets passenger services thanks to the PSOC, which applies to cases where tariffs do not cover costs, but train service is still needed. Nevertheless, thanks to

IAC, private actors could provide passenger services at higher tariffs for a different market segment. By opening the door to PSP, the CATLDP will generate multiple relatively resilient operators rather than just having one.

IV. PROJECT APPRAISAL SUMMARY

A. Technical

81. **First, the 2012 Transport Master Plan identified this Project as a critical priority for Egypt to increase capacity, lower transport costs, and improve logistics.** The project will implement a bypass with a greenfield segment, double tracking another one, and upgrade tracks in the remaining segments. The current railway network capacity between the AP, DP6, and the GCA is constrained to three freight trains per direction per day. The constraint is due to the heavy passenger traffic that creates a bottleneck. The bypass will increase capacity. Demand estimates indicate that 50 trains per day will be needed by 2060, and those are just the trains bound to a key destination, DP6. Other freight trains will use the additional capacity, some bound for Upper Egypt.[71]

82. **Second, the rail freight corridor will reduce the economic distance to markets by lowering transport and logistics costs and facilitating and catalyzing regional trade.** The project will accelerate the design and implementation of a seamless multimodal transport system across multiple modes of transport (ports, rail, and DPs), a vital element of a vibrant logistics sector. The freight rail corridor will increase trade volume between the AP and the DP6 industrial zone. These initiatives also strive to generate net benefits for households and firms from the increased economic opportunities these corridors could generate.[72]

83. **Third, the project will reduce logistics costs by lowering idle times and delays due to congestion and other barriers.** The increasing movement of freight trucks along Egypt's busiest corridor, the Cairo–Alexandria Desert Road, causes congestion and road traffic accidents. Rail offers a safer alternative. Reducing the number of freight trucks on the road will lower the pavement (road surface) distress caused by the overloading of trucks above the design axle load. The project will help the GoE alleviate road congestion, reduce road traffic incidents, and extend the lifetime of existing road infrastructure.

84. **Therefore, the project will catalyze international and regional trade by reducing transport and logistics costs, thus reducing economic distance.** Generated trade could be up to US$0.5 billion annually, of which about one-third will be for export. These initiatives will also generate net benefits for households and firms through reduced costs of imports and increased export opportunities.[73]

85. **The project will enhance ENR's collaboration with the private sector.** The project will open opportunities for private investors because of the IAC regime and the expanded capacity to accommodate ENR and private trains. Egypt is planning further PPPs under its Dry Port Master Plan. The project will help deliver needed regulatory, institutional, and operational know-how to accelerate private investment in railways, as explained below in detail in the section on private-sector participation in railways.

86. **The project scope is technically adequate, given the problem it addresses and the budget constraint.** First, the project scope is adequate to complete a railway bypass around the GCA with modern railway signaling that safely increases capacity. Second, the project does not include the acquisition of locomotives or wagons because other multilateral and bilateral agencies finance this part. Third, the RISE project will improve safety and

[71] PPIAF (Public–Private Infrastructure Advisory Facility), and World Bank. 2020. *High Level Business Case Report for Railway Freight Project*. Menarail Freight Consultants.
[72] Roberts, et al. 2019. *Transport Corridors and their Wider Economic Benefits. https://doi.org/10.1111/jors.12467.*
[73] Roberts, et al. *(as previous footnote).*

asset management practices at ENR by establishing a Safety Management System and an Asset Management System. A safe asset is a well-maintained one. The RISE project also seeks to implant a "zero harm/zero tolerance, safety first" culture that will permeate the implementation of Component 2 of the CATLDP.

Railway Reform

87. **The project will continue the railway reform efforts started by the RISE Project to enable PSP and PCM in the railway sector.** The GoE's objective is to substantially improve the operational and financial performance of ENR and allow PSP in the railway sector. The proposed Project is the natural continuation of the railway reform process started by the RISE Project. These reforms included identifying railway infrastructure costs and establishing transparent financing of railway infrastructure and passenger service provision. Specifically, the RISE Project incentivizes the adoption of a PSOC and MAIC. The RISE project includes a performance-based condition (PBC) to incentivize the adoption of this first step in the reform. These contracts make ENR accountable and incentivize good service provision through key performance indicators (KPIs). The PSOC and MAIC also level the playing field for PSP in rail service. The PSO applies to passenger services where the farebox revenue does not recover costs. Hence, a subsidy is needed to deliver the socially necessary services that a private operator, driven by commercial pressures, would not undertake. The PSO contract provides necessary subsidies and includes KPIs that generate positive incentives and accountability. Coupled with the amended Railway Law, the existence of a PSO contract allows a private provider to offer railway passenger services on the same contractual terms as ENR. The RISE project will identify and prioritize opportunities for private-sector involvement in the railway sector, such as constructing last-mile connectivity (LMC) links and supporting train operation, LMC to freight terminals, etc.[74] Figure 3 illustrates how the reforms in the RISE Project relate to the CATLDP and lead to PCM.

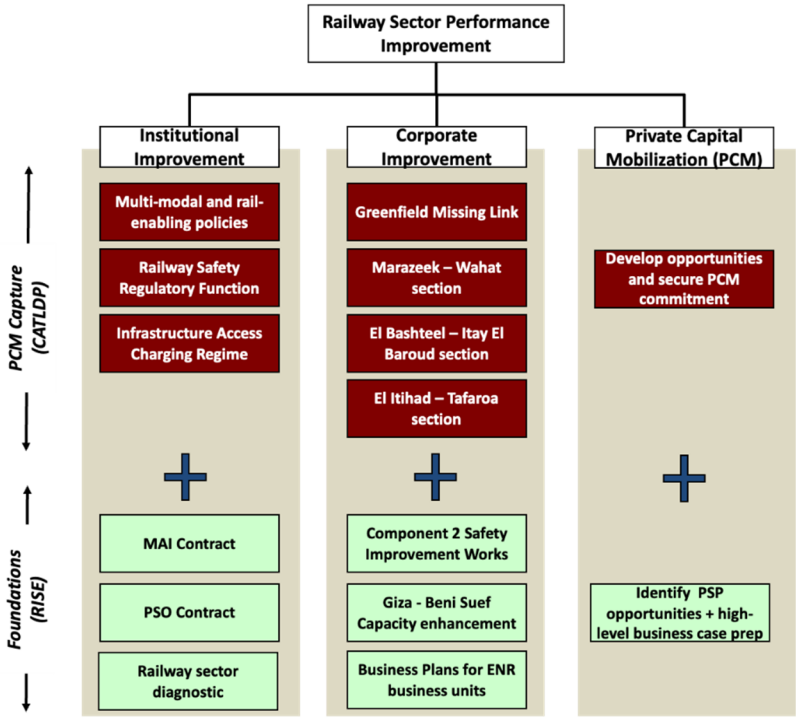
88. **The CATLDP builds on these reforms to establish the IAC regime needed so that private freight railway operators can share the existing tracks with ENR.** A technically designed and economically efficient IAC regime needs the existence of the MAIC because to prepare the MAIC, it must specify the infrastructure costs. IAC also needs a clear policy. Specifically, the policy will establish the share of the infrastructure cost covered by the MAIC and the percentage by private operators. The IAC regime will also incentivize private participants to invest in railway operations because it will give them predictability over the fees they must pay for using ENR's existing network. Under this scenario, private freight railway service providers will pay an access charge to ENR to operate their trains on ENR's network. Similarly, private passenger railway providers can offer services where the tariff users pay to cover costs—including the access charge. Implementing the IAC regime in Egypt will, following the path of introducing the PSOC and the MAIC in the RISE Project,[75] require additional regulations by the MoT. These will fit within the existing legal framework for the sector, particularly Law No. 20/2018, which opens the gates for PSP.[76]

[74] Specifically, the PAD for the RISE Project stated the following in the project description: "3.2 (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."

[75] The expert legal advice for the RISE project, commissioned by the World Bank, identified two possible paths for implementing PSO and MAI contracts: (1) changes to the Railway Law and (2) enabling regulations the MoT would adopt. The outputs of the Strategic Railway Study in RISE include drafting of these enabling regulations required for implementation of the two contracts. The Task Team considers that the two paths offer sufficient flexibility regarding the implementation of the IAC regime.

[76] See the legal analysis for PSP in PPIAF (Public–Private Infrastructure Advisory Facility), and World Bank. 2020. *High Level Business Case Report for Railway Freight Project*. Menarail Freight Consultants.

Figure 3: Railway Sector Performance Improvement



Source: task team.

Private-sector participation in railways

89. **The project enables private-sector participation in railway service provision. First, the project will remove the railway infrastructure bottleneck around the GCA.** Second, the project will develop a clear and transparent railway IAC regime for the Egyptian railway network, determine the specific charges to be paid for access and use of infrastructure by all railway operators, and prepare the supporting contractual arrangements. The project includes a PBC to incentivize the adoption of the IAC regime. Additionally, the project will help establish a functional railway safety regulatory function. The project will also provide a roadmap for private-sector investors interested in participating in the growing railway traffic. Coupled with the ongoing improvements to the railway lines between Cairo and Nag Hamadi under the RISE Project, freight trains can efficiently reach Upper Egypt from AP and DP6. Freight trains will move goods such as molasses, clay, and containers, thus improving the possibilities of establishing a regional economic corridor with Sudan. In addition, the bypass will provide clear access to ports having a railway connection, such as the ports of Damietta and Port Said to the east and Sokhna on the Red Sea. Therefore, the project will allow freight trains to serve many market segments, from containers to bulk—which opens opportunities for private railway operators to provide service.

90. **The project will also build on the shortlist prepared under the RISE Project of possible projects suitable for PSP.** ENR will screen opportunities involving last-mile connectivity, hook-and-haul traction services, leasing or purchase of wagons, operation of dedicated marshaling yards (transfer points), and so on. The CATLDP will narrow down this shortlist to the most feasible ones and develop a detailed commercial proposition in scope, capital expenditure (CAPEX) and operational expenditure (OPEX) projections, public/private commitments, and the timing of such cash outlays. The project will also support ENR if a contract with the private sector materializes and mobilizes private capital.

91. **The following preliminary estimates by the World Bank task team for this project show the potential investments by the potential private sector investments with ENR, expected to be US$75 million for PCM**:

i. US$20 million: Two last-mile rail connectivity projects totaling 60 km of new infrastructure, where the private sector contributes 10–25 percent of the CAPEX required for the rail links.
ii. US$15 million: Upgrade and operation of a terminal/yard facility along the AP–DP6 corridor.
iii. US$20 million: Refurbishment and commercial real estate operation of one major railway station in Egypt.
iv. US$20 million: for the AP to DP6 corridor locomotives and wagons for containers and wheat plus maintenance workshops once trains use the project and the IAC regime is in place. The GoE confirms direct and indirect support for private operations.

92. Although not part of the US$75 million targets, there is potential for private investment of up to U$ 200 million in wagons and locomotives. These trains will transport phosphate from the expanded mine and processing plant at Abu Tartour to the port of Safega.[77]

Climate Change and Decarbonization

93. **The project will contribute to climate change mitigation by improving existing infrastructure and constructing new infrastructure.** This improvement will lead to a modal shift of freight and transport from road to rail. The following World Bank-financed components will improve the railways: 1.1 Advancing railway sector reform through designing the IAC regime, US$1 million; 1.2 Works Integrator and Supervisor for Component 2, US$15 million; and track extension, railway signaling modernization and selected track upgrades to create a railway bypass around the Greater Cairo Area for 2.1 Greenfield link and 2.2 Marazeek–Wahat section (US$143 million), 2.3 El Bashteel–Itay El Baroud section (US$144 million), and El Itihad–Tafaroa (US$92 million). The increased railway capacity of the AP–DP6 corridor will lower the cost of freight rail services, encouraging a modal shift from trucks. Railways are more carbon-efficient than trucks per unit transported, hence will contribute to mitigating climate change from the freight corridor.

94. **The project will support the GoE's ambition to lead the global climate dialogue as the host country of the UNFCC COP27 to be held in Sharm El-Sheikh in November 2022 by developing a long-term decarbonization plan for Egypt's railway sector.** The proposed Project will enable the GoE to showcase current efforts to mitigate GHG emissions from freight transport through the modal shift from road to rail, with a view to ultimately decarbonize all transport modes, including rail. Decarbonizing railways can happen through two approaches. First, electrifying the power supply in high-throughput corridors. Second, track-independent power supply through hydrogen and battery-electric locomotives where throughput appears insufficient to make track electrification economically viable. The project will develop a vision for the Egyptian railway sector to align with the global vision toward 2050 when projections indicate the fuel mix will reach 90 percent electricity and five percent diesel globally.[78] The Results Framework has the intermediate indicator “Decarbonization Roadmap for the ENR,” which explains in detail the scope.

95. **Moving goods on rail and away from the road is instrumental in Egypt's efforts to decarbonize the transport sector, reduce road traffic incidents, and road damage caused by freight trucks using the road network.** The project can potentially reduce the number of large trucks transporting containers between

[77] World Bank estimate based on ENR press release of November 11th, 2011.
[78] International Energy Agency. 2020. *Net Zero by 2050: A Roadmap for the Global Energy Sector*.

Alexandria and Cairo by up to 25 percent[79] (currently, about 5,000 enter and leave AP each day,[80] of which just under half are for containers). For example, in the European Union, the costs of passenger rail accidents per ton-km are only about eight percent of the cost of analogous road traffic accidents.[81] GHG emissions from rail transport of freight are only about 12 percent of those from analogous road transport.[82] Therefore, the 25 percent reduction in truck traffic can reduce transport emissions of container traffic by about 22 percent.

96. **The proposed project will reduce air pollution for the City of Alexandria, a co-benefit of the low-carbon freight and logistics transport transition.** Alexandria is one of the cities mentioned during COP26 expected to suffer from the ramifications of global warming and the complexities of climate change. Reducing the number of trucks entering and exiting the AP will positively impact the air quality of the City of Alexandria. The AP is at the center of the city's coastline. The considerable number of trucks accessing the port in both directions harms the AP's air quality. Air quality is poor, illustrated by PM_{10} and $PM_{2.5}$ values of 805 µg/m^3 and 368 µg/m^3, respectively.[83] The proposed Project will shift freight from road to rail. The number of trucks accessing the AP and the congestion will decrease. This reduction in truck numbers and corresponding congestion will positively impact the air quality of the AP and the city, resulting in improved health conditions and quality of life for residents. Commensurate impacts will benefit 6th of October City and the GCA.

Gender and Transport

97. **Approximately three percent of 45,000 ENR employees are women, with about 42 percent working in the human resources and finance departments and 24 percent of engineers being women (215 out of 886)**.[84] Common issues that impede women's access to employment in the sector globally typically include: (a) perceptions and gender stereotypes about the specific roles and capabilities of men and women; (b) lack of adequate childcare; and (c) workplace health and safety issues, which commonly stem from a lack of appropriate facilities and equipment for women, for example, changing rooms, or gender-specific personal protective equipment.

98. **Gender stereotypes are one of the significant challenges to employing women in general and especially in the transport sector globally.** The highly male-dominated image of the sector and the idea of physically strenuous work dissuade women from applying for a job in the sector. Stereotypes about men's and women's roles and capabilities influence their educational choices, and transport positions all too often seem to be a male occupation. A solution is formally training women to prepare them for such jobs. Also, today's transport sector is evolving to encompass jobs beyond putatively traditional employment in the industry. For example, intelligent transport systems (ITS) are not physically strenuous. Instead, ITS requires qualified workers with technical skills to fill planning and management positions.

[79] Cost-Benefit Analysis model built for the project.
[80] Egypt Today, Jan 30, 2019. *https://www.egypttoday.com/Article/1/64080/%E2%80%98Let-it-rust%E2%80%99-did-not-cause-cars-accumulation-in-ports#:~:text=Egypt%20Today%20talked%20to%20the,at%20Alexandria%20and%20Dekhela%20ports*.
[81] European Commission. 2019. *Handbook on the External Costs of Transport*. *https://op.europa.eu/en/publication-detail/-/publication/9781f65f-8448-11ea-bf12-01aa75ed71a1*
[82] European Environment Agency. 2017. *Specific CO_2 Emissions Per Ton-km and Per Mode of Transport in Europe*. *https://www.eea.europa.eu/data-and-maps/daviz/specific-co2-emissions-per-tonne-2#tab-chart_1.*
[83] Air Quality Indices, Sources, and Impact on Human Health of PM_{10} and $PM_{2.5}$ in Alexandria Governorate, Egypt. Journal of Environmental Protection, Vol. 9, No. 12 (Nov. 2019).
[84] Menarail. 2020. *Preliminary Gender Assessment – Railway Freight Project*. Cairo.

99. **Another critical barrier to female labor force participation is inadequate formal childcare—inadequate because facilities (if available at all) are neither accessible nor affordable. Women, on average, spend twice as much time as men on domestic and care work (7.3 versus 3.5 hours a day)**. This discrepancy indicates the critical role of adequate childcare near work in alleviating women's burden and increasing female labor force participation.[85] The Egyptian Labor Code requires employers to provide child nurseries when they employ 100 or more women employees. Interestingly, ENR used to operate its childcare facility—open for children from the age of three months until the school-age of six—in one of its buildings near some of its offices in a prime location in central Cairo. However, ENR had to close the facility some time ago as the space did not meet certain health and safety standards. Prior to its closure, only 14 children attended the facility despite the high overall demand for childcare. This low enrollment number was a consequence of the acceptance criteria: (i) ENR must employ one parent; or (ii) the parent must work in the immediate vicinity. This limited eligibility to only a few staffers from a few ENR buildings near the facility. In any case, there was physical space for only up to 20 children. ENR wishes to re-establish childcare in the previous location or another one. ENR wants to provide better infrastructure and service (for example, air conditioning, better space for play, regular meetings with parents), more space to accommodate a higher number of children, and better staffing that meets all the required health and safety standards.

100. **The CATLDP will allow ENR to build on the gender commitments made in the RISE Project and take further steps to improve the gender diversity of its workforce. First, the project will reinstate ENR's childcare facility, ensuring it meets national health and safety standards.** ENR may consider, but not be limited to: (i) undertake an employee survey to assess childcare needs; (ii) expand the current legal setup of the facility to allow non-ENR employees (such as those at the National Authority for Tunnels) to benefit from it; (iii) identify policy and regulatory requirements to meet childcare service standards; (iv) identify investment and operational costs for space refurbishment and operations; (v) suggest an optimal employer-supported childcare model; and (vi) implement the chosen model and relaunch the facility.

101. **In addition, the project will also provide a minimum of 210 female final-year students and graduates from engineering faculties with one-month training opportunities at ENR.** ENR will take in trainees from national universities that prepare graduates with transport and logistics profiles. These concerted efforts will help ENR increase the number of female employees by at least 50 women, from 1,521 to 1571.[86] This 3.3 percent increase is modest, but it is realistic, given the very low baseline within a challenging sector for women's recruitment. Furthermore, ENR is not currently actively recruiting any new staff (male or female).[87]

102. **Citizen Engagement.** Thanks to the subcomponent for implementing the stakeholder engagement plan, the project embeds citizen engagement. Moreover, the results framework has two indicators to capture stakeholder feedback: i) meetings of the working group on project-affected people will ensure that implementation on the ground coordinates with the relevant population; and ii) the project stakeholders working group will meet regularly to ensure that project stakeholders provide input.

B. Economic Analysis

103. **This section discusses the economic analysis for the project.** Aligned with the World Bank guidelines for economic appraisals of investment project financing operations, the analysis estimated the Net Present Value (NPV) and the Economic Internal Rate of Return (EIRR) over 30 years. The analysis compared without-project and

[85] United States Agency for International Development (USAID). 2020. *Gender Analysis and Assessment. USAID/Egypt Final Report https://pdf.usaid.gov/pdf_docs/PA00X46M.pdf*

[86] Statistics based on Menarail. 2020. Preliminary Gender Assessment. Railway Freight Project. Cairo.

[87] Women are being trained as train operators for Cairo metro, which is under the National Authority of Tunnels.

with-project scenarios of economic costs and benefits. Economic costs of the project include investment costs during project implementation, and operating and maintenance costs of railways and road infrastructure for the competing freight truck traffic. The analysis focused on the following economic benefits: i) changes in utility gains of the container and freight traffic and passenger traffic; ii) surplus of rail and truck operators; and iii) the residual value of rail infrastructure at the end of the analysis horizon. The analysis also accounted for the following externalities resulting from a shift of freight traffic from trucks to rail: net changes in traffic accidents, air pollution, noise, congestion, and damage to natural habitats.

104. **The economic analysis included a Greenhouse Gas (GHG) emission accounting analysis following the World Bank's Guidance Note for Rail projects**. The analysis found that the project's economic life gross emissions are 1.22 $MtCO_2e$. The net emissions reduction was 0.97 $MtCO_2e$ compared with the without-project scenario. The net decrease is primarily due to freight traffic from trucks to railways. The analysis estimated the economic gain of the carbon emission reduction using the Shadow Price of Carbon, in alignment with the World Bank's 2017 Guidance Note on Shadow Price of Carbon.[88] The economic analysis included changes in the economic costs of carbon emissions. The NPV of the economic savings from carbon emission reduction would amount to US$20 million, assuming a six percent discount rate.

105. **The Cost-Benefit Analysis (CBA) found that this project will generate a net positive economic impact**. Assuming a discount rate of six percent (base scenario), the NPV of the project is US$86 million. The EIRR is 6.7 percent. The analysis included a series of sensitivity tests, as follows. Assuming four percent and eight percent discount rates, the NPV was US$420 million and US$-102 million, respectively. Taking an increase in the investment costs by 25 percent, the EIRR decreased to 5.3 percent and the NPV to US$-96 million. Assuming zero percent import and export freight traffic growth from 2027, the EIRR and the NPV decreased to 5.8 percent and US$-21 million, respectively. The CBA shows that the project will have a positive net present value, but this could be sensitive to significant changes in key variables.

106. **Although this is not accounted for in the economic appraisal, the project will enhance the global value chains.** The benefits include lower costs of essential goods for households, higher productivity for firms, increased employment opportunities, and resilience of freight transport through facilitating multimodal networks. The trade facilitation and logistics enhancement activities aim at reducing idle times and stoppage times due to congestion and other barriers along the corridor, thus generating wider economic benefits and spillover effects.

107. **Another aspect not mentioned in the economic appraisal is that the project will expand economic opportunities for the neighboring 6th of October Industrial City.** Egypt has 15 industrial zones, contributing 82.83 percent of the total enterprises operating in towns and industrial areas.[89] Located a few kilometers away from DP6, the 6th of October Industrial City is preeminent, with almost one-fifth of the facilities overall. The AP–DP6 freight rail corridor development will directly impact the Industrial City, including potential placement on the global value chains map. The 6th of October Industrial City will benefit, thanks to its proximity to the DP6, from just-in-time deliveries of raw materials coming in, and products and inventory shipped out. This direct access to global markets could attract investors' attention, heralding economic opportunities and jobs.

C. Financial Management

108. **The envisaged operation will capitalize on the cumulative expertise created during the previous**

[88] Guidance notes on shadow price of carbon in economic analysis. Washington, D.C. : World Bank Group. http://documents.worldbank.org/curated/en/621721519940107694/Guidance-note-on-shadow-price-of-carbon-in-economic-analysis

[89] Ministry of Trade and Industry (http://www.mti.gov.eg/English/Pages/default.aspx).

operations, the ENRRP and the RISE Project, and use similar arrangements for disbursements and reporting. ENR will implement the project through the PMU. The Bank FM team will provide initial training and regular support to the PMU FM staff (both virtual and in-person) before the project start-date. The training will cover: (i) financial performance and financial data reports; (ii) cash control using information from financial data; and (iii) budgeting. The latter will involve a disciplined approach to developing budgets, quantitative and qualitative methods to forecast results, and effective use of variance analysis to track performance.

109. **The financial management team will prepare the quarterly Interim Financial Reports (IFRs) and annual Project Financial Statements (PFSs) required under the Loan Agreement.** The Bank and ENR agreed on the system output and related levels of details the SAP system will generate. Three months after effectiveness, the PMU will develop a Project Operations [Policies and Procedures] Manual (POM), acceptable to the Bank. The POM will show the staff reporting system and indicate the separation of responsibilities among PMU staff, including the authorized signatories to the withdrawal applications (WAs), for safeguarding assets, record keeping, monthly account reconciliation, and so forth. The POM is a living document; hence, ENR and the Bank can agree to amend it to reflect the actual activities of the PMU. The Bank FM team will provide clearance on the FM chapter in the POM and supervise the implementation of the POM. ENR will depend chiefly on the Direct Payment method of disbursements. Other disbursement methods will be available to be used by the PMU as needed. These arrangements include the Advance Method, that is, opening a Designated Account (DA), Special Commitments, and Reimbursements. Reviewed quarterly IFRs are due 45 days after the end of each quarter, and audited PFSs due six months after the end of each fiscal year.

D. Procurement

110. **Procurement arrangement: ENR will implement the project following the World Bank's Procurement Regulations for IPF Borrowers for Goods, Works, Non-Consulting and Consulting Services, 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, October 15, 2006, revised in January 2011 as of July 1, 2016.

111. **Implementing agency:** ENR will carry out all project procurement activities via the dedicated PMU. The procurement performance in implementing the RISE Project by ENR was rated Satisfactory (S) due to the progress in the implementation of procurement activities such as: (i) the procurement process for the Design, Supply, and Installation for the modernization of the signaling system and tracks of the Cairo–Beni Suef Corridor; (ii) hiring an individual consultant to provide procurement technical assistance; (iii) contracts rolled over from the ENRRP project; and (iv) the procurement process for the project manager (Supervision) for the Cairo–Beni Suef section. Therefore, ENR is performing better than the ENRRP project, where similar procurement for signaling took between 22 and 44 months. In the RISE project, the procurement for the Cairo–Beni Suef section will take about 24 months (but it embeds higher complexity than analogous elements of the ENRRP).

112. **Key procurement items under the project**:

- Track Installation, Signaling System Installation for the Greenfield Link from Bashteel–Itay El Baroud section to the Marazeek–Wahat section (US$379 million);
- Track Upgrade and Signaling Modernization for three sections: (i) Marazeek–Wahat (included in the estimate for the greenfield); ii) El Bashteel–Itay El Baroud (US$428 million); and (iii) El Itihad–Tafaroa (US$166 million);
- System Integration and Supervision of the Component 2 works financed by the MoT and the WB Loan (US$17.5 million);
- Technical audit for the works under Component 2 (US$1.5 million); and

- Consultant services contracts.

113. **Project Procurement Strategy for Development (PPSD):** ENR, with the assistance of the task team, developed a long-form Project Procurement Strategy for Development (PPSD). The PPSD addresses how procurement activities support the project's development objectives and deliver the best value for money under a risk-based approach. The PPSD provides adequate justification for the selection methods in the Procurement Plan. ENR will implement through GARB, as explained in the implementation arrangements, the viaducts, "industrial structures," and track foundations needed for Subcomponents 2.1, 2.3(a), and 2.3(c) following its procurement procedures. No loan proceeds will finance these works. The PPSD will analyze these items also and confirm that: (a) the rules and procedures will fulfill ENR's obligations to carry out the project diligently and efficiently, and (b) the specifications for these works will ensure: (i) satisfactory quality, compatibility with the other elements of the project, and consistency with the project objectives; (ii) on-time completion; and (iii) prices that preclude any adverse effect on the economic and financial viability of the project.[90]

114. **STEP:** Following paragraph 5.9 of the Procurement Regulations, ENR will use the World Bank's Systematic Tracking of Exchanges in Procurement (STEP) system for procurement planning and procurement exchanges with the Bank. ENR will use STEP to monitor performance, manage and store related documentation for all phases of procurement activity regardless of the Bank's prior or post review, and handle complaints received on all contracts.

115. **Procurement risks and mitigation measures:** The task team assesses the procurement risk rating before mitigation measures as High. The contracts ENR will procure are complex and include high-value supply and installation. ENR has capacity constraints to implement the procurement processes. Also, GARB will implement works ENR must integrate with the track and signaling upgrades financed by the loan. After implementing the following mitigation measures, the task team assesses the residual procurement risk as "Substantial." First, ENR must appoint two junior engineers as procurement staff for the PMU to ensure smooth and timely project implementation. They will learn from the procurement expert hired under the RISE project. Second, ENR will amend the TORs of the hired international procurement expert under the RISE Project to include assistance in procuring the project "if needed." Third, ENR will elaborate and adopt the POM, including the procurement section. The procurement section of the POM will include operational procedures on how ENR will reduce delays in finalizing the procurement processes, handling contract management issues, and effective complaints management to handle procurement complaints.

E. Legal Operational Policies

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

[90] ENR must update the PPSD if changes to the procurement plan render the current one no longer valid. See Project Procurement Strategy for Development: Long Form Detailed Guidance, July 2016. *https://thedocs.worldbank.org/en/doc/847531467334322069-0290022017/original/PPSDLongForm.pdf*

F. Environmental and Social

116. The project's overall environmental and social (E&S) outcomes are expected to be positive if appropriate E&S mitigation measures are well designed and implemented. The E&S benefits include (1) lower GHG emissions from freight and passenger transportation and support Egypt in meeting the Nationally Determined Contributions, (2) improvements in the overall safety performance of ENR, with resulting benefits for public safety, and (3) Shifting from road to tracks will contribute to fewer traffic accidents, air pollution, noise, traffic congestion and road damages, (4) Increase safe mobility of people. Environmental and Social Risk Classification (ESRC) for the project is Substantial for E&S risks. This classification is based on assessing E&S risks and impacts of the Project's planned interventions, nature and scale, and the institutional capacity of the PMU to manage the anticipated E&S risks and impacts. At this stage, the relevant Environment and Social Standards (ESSs) are determined to be: ESS1, ESS2, ESS3, ESS4, ESS5, ESS6, ESS8 & ESS10.

117. The project interventions will cover 376.5 km of linear segments extending from Giza to Alexandria through the Monufia and Behira governorates. The project will upgrade about 301 km, mainly within the same footprint of the existing railway infrastructure. The existing railway infrastructure is primarily located in rural and dense urban, peri-urban, and desert areas. ENR analyzed five alternatives from an E&S risk perspective for the greenfield segment to select the alignment that minimized and avoided impacts. The greenfield alignment is mainly located within the Right of way (RoW) of the existing regional ring road (RRR) and intersects with several highways and local roads; however, it will encounter privately owned cultivated lands and very few structures in some areas. None of the project sites are considered protected areas or areas of high biodiversity value. The project will not expect any impact on the closest protected area, located around 25 km from the project.

118. Before the appraisal stage and based on the developed scope of the Project, the ENR developed E&S instruments covering all the components of the project, including (1) a Draft Environmental and Social Impact Assessment (ESIA) for sub-components 2.1 and 2.2, (2) an Environmental and Social Management Framework (ESMF) for the project, (3) Resettlement Framework (RF), (4) Stakeholder Engagement Plan (SEP), (5) Labor Management Procedures (LMP) and (6) Environmental and Social commitment Plan (ESCP). The E&S instruments assessed the risks and impacts of the identified components and proposed a set of mitigation measures per the ESF mitigation hierarchy. For interventions not identified at this stage, the ESMF sets out the principles, rules, guidelines, and procedures to assess the E&S risks and impacts of the activities under components 1 and 2. ENR will implement the E&S instruments to manage the project E&S risks throughout the project implementation.

119. The project E&S main risks identified in the E&S instruments include (1) Occupational Health and Safety (OHS) hazards during construction, maintenance, and operation. (2) Potential generation of wastes and hazardous wastes during construction and operation, with potentially large quantities of inert waste, metal, and potentially hazardous waste, including wooden ties, which might be coated by benzopyrene or ballast contaminated with oil and grease. (3) Cumulative impacts of sourcing quantities of borrow materials such as waste generation, increased dust, noise, and vibrations, and increased truck traffic. (4) Traffic impacts, including disruption of vital highways in Giza. (5) Community health and safety impacts during construction and operation phases, including noise, vibration, and dust emissions, accidents along the rail corridor and structural integrity, community interactions with work crews, and resulting potential risks of gender-based violence. (6) Typical construction-related impacts include air and noise emissions, unloading/uploading of ballast and sand, soil, and adjacent water bodies' pollution in case of leakage of fuel and wastewater or waste mismanagement. (7) Soil and water contamination and community risks associated with transporting dangerous goods along the lines in case of accidents. (8) Permanent and temporary acquisition of private, rented, or encroached-on land is anticipated for the new line and the construction of the parallel tracks, and therefore impacts on livelihood may also apply. (9) Noise and vibrations associated with trains movement, in areas with sensitive receptors. (10) Risk of unaddressed/unresolved community complaints and potential escalation and/or

conflict. (11) Potential devaluation of the market price of land and structures. (12) Risks related to disturbance of farming activities during construction works, from the generated waste and dust. This risk should be temporary but may lead to long-term implications if left unmitigated. (13) Given that the new alignment will pass parallel to the RRR, it is anticipated that certain groups of landowners may encounter accumulated impacts if the GoE expropriates land under this project in addition to past expropriation for the RRR from the same owners. (14) Risks related to infrastructure integrity during construction or damaging utilities, primarily underground. Construction and operation of the project, if improperly managed, will likely result in large adverse impacts on air, soil, communities, and workers. Most of these adverse impacts will be temporary, predictable and/or reversible and will be managed. Component 1 will support the implementation of the SEP, capacity-building activities, technical studies, supervision, and management of the project. Therefore, the Terms of References (TORs) for the technical studies will include E&S objectives as indicated in the project's ESMF and ESCP. For Component 1.3, which entails small-scale civil works to upgrade the childcare facility, the impacts can be easily mitigated. Therefore, those activities will be subject to the screening process indicated in the project's ESMF to determine the adequate E&S instrument to assess the risks and propose proportionate mitigation measures.

120. MoT and the ENR will implement the project. The PMU will implement the project. The project ESCP will substantially strengthen the current PMU to cover the new project's scope. ENR has an agreement with the GARB to implement the civil works and track foundations needed for subcomponents 2.1 and 2.3(a), among other projects. The ENR will collaborate with other entities, including the Egyptian Survey Authority (ESA), the national entity in charge of applying the country's public interest and eminent domain law. Adequate coordination between GARB, ESA, and ENR is crucial to ensure that the different activities follow ESF requirements.

121. ENR has an Environmental Affairs Department (EAD) to manage safeguards. EAD's capacity to manage E&S risks has improved throughout the WB's support, specifically in gaining additional staff and benefitting from ongoing support from WB E&S specialists and capacity building, including on ESF. However, recurring performance shortfalls are mainly related to the implementation of the ESCP of the RISE Project. Despite the improvements in ENR capacity in dealing with E&S aspects, this project brings a whole spectrum of more sophisticated risks and institutional complexity that might be challenging for ENR to address.

122. The project's ESCP includes important measures to address capacity challenges through an appropriate institutional setup and allocation of adequate resources to the EAD to properly function. The ESF applies to all activities under the project, and ENR prepared relevant ESF instruments. The risks related to the implementation and supervision of those activities and the associated possible fragmentation of responsibilities still apply. To minimize the project risks, including E&S risks: (1) sub-component 1.2 a will finance setting up an owner's Works Integrator and Supervisor to manage and integrate to ensure that all the E&S requirements in the project's instruments are well implemented on the ground and integrated into the contractual arrangements with the different contractors. (2) ENR will hire an Owner's Representative firm to supervise component 2.1. and 2.3. (3) All the project contractors will implement the project following the ESCP requirements.

V. GRIEVANCE REDRESS SERVICES

128. Communities and individuals who believe that they are adversely affected by a project supported by the World Bank may submit complaints to existing project-level grievance mechanisms or the Bank's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed to address project-related concerns. Project-affected communities and individuals may submit their complaint to the Bank's independent Accountability Mechanism (AM). The AM houses the Inspection Panel, which determines whether harm occurred, or could occur, because of Bank noncompliance with its policies and procedures, and the Dispute Resolution Service, which provides communities and borrowers with the opportunity to address

complaints through dispute resolution. Complaints may be submitted to the AM at any time after concerns have been brought directly to the attention of Bank Management and after Management has been given an opportunity to respond. For information on how to submit complaints to the Bank's Grievance Redress Service (GRS), please visit *http://www.worldbank.org/GRS*. For information on how to submit complaints to the Bank's Accountability Mechanism, please visit *https://accountability.worldbank.org*.

VI. KEY RISKS

129. **The overall risk is substantial due to risks associated with:** (i) political and governance aspects; (ii) macroeconomics; (iii) technical design of the project; (iv) institutional capacity for implementation; (v) fiduciary aspects; (vi) environmental and social, and (vii) other risks.[91] Benefiting from the ongoing operation with ENR, the residual risks to the project have been assessed by applying well-identified mitigation measures to the inherent risks.

130. **Political and Governance:** Substantial because the war Russia-Ukraine increased the price of wheat, fertilizer, and fuel, thus impacting the Egyptian economy. The government responded by securing funds to buy wheat.

131. **The macroeconomic risk is Substantial** because of the current headwinds that the country is facing following the adverse global consequences of the war in Ukraine, which aggravated pre-existing challenges related to the fiscal and external accounts. One partial mitigating factor is that all significant contracts financed by the loan will be in U.S. dollars.

132. **Sector strategies and policies risk is Moderate.** The project aligns with the government's transport master plan that calls for implementing this railway bypass around the GCA. The GoE will contribute significant funds to the project in addition to the World Bank loan. The GoE can request that the Bank mobilize a guarantee to help lower the financial cost of these funds.

133. **The Technical Design of Project risk is Substantial.** The technical complexity of the infrastructure construction is substantial because of the greenfield link and the dualization of another section. ENR must coordinate with GARB to implement the foundational works. ENR has experience in track and signaling upgrades. Although ENR lacks prior experience directly applicable to operating the corridor after upgrading the signaling on the project segment of the network, the RISE project will provide experience.

134. **Institutional capacity risk for implementation and sustainability is Substantial.** ENR's institutional capacity has grown significantly over the past few years, thanks to the ENRRP and the RISE projects. However, challenges remain in managing safeguard risks. The project will strengthen the institutional strategic environmental and social risk assessment following a systematic approach. Capacity building will be necessary to ensure sustainability. Enabling PSP-related arrangements of the railway corridor will require appropriate institutional and monitoring capacity in ENR. ENR will reinforce the PMU with resources for the CATLDP Project and tap into a wider pool of ENR experience during implementation.

135. **Fiduciary Risk is Substantial.** The task team assesses the procurement risk rating before mitigation measures as Substantial. The contracts to be procured are complex and include high-value supply and installation. The ENR has capacity constraints that negatively affect the implementation of the procurement processes. After implementing the mitigation measures described above, the task team assesses the residual procurement risk as Moderate. The financial management risk rating is Substantial. The Bank's experience with ENR demonstrated several challenges,

[91] The risk assessment is based on the "Guiding Principles in Risk Assessment and the Application of the Systematic Operations Risks-Rating Tool (SORT) in World Bank Operations (May 11, 2020, version)."

some of which are particularly relevant to the considerable size and complexity of the envisaged operation. ENR has benefitted from preparing and implementing the previous Bank-financed operations—the ENRRP and the RISE Project. The PMU drew lessons on FM aspects, such as high-quality reporting and proper documentation of internal controls, as indicated by the FM part of the POM.

136. **Environmental and Social risks are rated Substantial.** This assessment reflects the environmental and social (E&S) risks and impacts of the project's planned interventions, nature and scale, and the institutional capacity of the Environmental Affairs Department to manage the anticipated environmental and social risks and impacts. Please refer to the Environmental and Social section above.

137. **Environmental and Social coordination risk.** The MoT and ENR will implement the project. The technical and institutional capacity of ENR's environmental and social (E&S) unit has improved over the long engagement with the World Bank. Component 2 includes the main activities which entail significant E&S impacts. Financed through the Government's funds, GARB will implement the foundational works for part of Component 2. The coordination between GARB and ENR will be crucial for project implementation and managing E&S risks. See below for more on integration.

138. **Stakeholder risk is Moderate:** the project includes two citizen engagement tools to manage stakeholder risks. The first mechanism is the project-affected people working group, and the second is the project stakeholders working group..

139. **Other risks are Substantial. This group has several aspects: project integration, completion, climate, and disaster risks.**

140. **Project Integration risk is Substantial.** Integration risks occur because of the need to integrate two sets of works that will be implemented at different times and managed by various parties. ENR, through GARB, will implement civil works such as viaducts, "industrial structures," and track foundations. ENR will use the loan to implement new track, track upgrades, and signaling. The implementation period is also tight. For the signaling and track contractors to deliver efficiently, construction of the loan-financed works can only start once GARB completes a substantial amount of its work. ENR and GARB must design specifications in the bidding documents to integrate these two parts and incentivize speedy implementation. The ENR must also generate an Integrated Plan to Completion for the entire project that considers integrating these two parts. Therefore, managing this risk requires significant time, effort, and dedicated resources at the ENR. The project requires a dedicated works supervisor with project management and integration responsibilities to focus on system integration. The works supervisor will work with ENR. ENR has already appointed a general consultant for the project, and a supervision and system integration consultant, who will prepare specifications and procurement of the works in Component 2. Using the RISE Project example, ENR will prepare the TORs for the works supervisor and project manager. The task team will review these TORs. The works supervisor will provide the information to ENR to update the Integrated Plan to Completion for the project.

141. **Completion risk is substantial:** the timeline to complete the project is tight. Specifically, GARB will have only two years to build the civil works for the greenfield segment (Subcomponent 2.1) and the second track in Subcomponent 2.3.a. The loan will finance the permanent ways and signaling for these subcomponents, plus the track and signaling upgrades for the rest of Component 2. As explained in the previous paragraph, ENR will produce an Integrated Plan to Completion for the project.

142. **Climate and Disaster Risks.** The team conducted a Country Climate and Disaster Risk screening assessment, finding that the project area faces significant risks of extreme weather events. The risks of these climate events will be greater in the future. The mean annual temperature could increase by 2°C to 3°C by 2050 (more rapidly in the interior regions); the frequency of extreme storm events could increase with greater flooding and storm damage;

likewise for the frequency of sandstorms. Improving freight railways will strengthen the resilience of the Egyptian economy and particularly the movement of essential goods between domestic (rural and urban) and global markets. Preparation of the project will therefore include designs to mitigate these risks to the infrastructure assets and build resilience for the vulnerable population to maintain accessibility.

143. **Other risks may involve the COVID-19 pandemic**, which could impact the project if new waves of the pandemic result in a prolonged shut-down of the construction activities or restrictions on mobilizing international staff and equipment. The contractor's workers must be vaccinated. The team will support the client with project procurement, including risk mitigation on contingencies arising from the pandemic and best practices such as ventilation. Therefore, this risk is moderate.

VII. RESULTS FRAMEWORK AND MONITORING

Results Framework

COUNTRY: Egypt, Arab Republic of

Cairo Alexandria Trade Logistics Development Project

Project Development Objectives(s)

To improve the performance and support the decarbonization of the logistics and transport sectors in the Alexandria-6th October-Greater Cairo Area railway corridor.

Project Development Objective Indicators

Indicator Name	PBC	Baseline	Intermediate Targets			End Target
			1	2	3	
Improving the performance of the logistics sector on the Alexandria-6th October-GCA railway corridor						
1. Containers handled by rail between AP and DP6 (Number)		0.00				184,000.00
Improving the performance of the railway sector on the Alexandria-6th October-GCA railway corridor						
2. Freight traffic volumes between AP, the GCA and Upper Egypt (Number (Thousand))		500,000.00				112,000.00
Lowering GHG gas emissions of the logistics and railway sectors in the Alexandria-6th October-GCA						
Net greenhouse gas (GHG) emissions (CRI, Metric tons/year)		0.00	965.00	1,050.00	1,106.00	1,136.00

Intermediate Results Indicators by Components

Indicator Name	PBC	Baseline	Intermediate Targets						End Target
			1	2	3	4	5	6	
Railway Reform, Project Delivery, Stakeholder Engagement, Women's Economic Empowerment, and PSP									
1.1 Steering Committee established and meets periodically (Yes/No)		No							Yes
1.2 Project-affected people working group to meet regularly (Number)		0.00							20.00
1.3 Project Stakeholders working group to meet regularly (Number)		0.00							20.00
1.4 Grievances registered related to the delivery of project benefits that are addressed (Percentage)		0.00	100.00	100.00	100.00				100.00
1.5 Women employed in ENR after ENR upgrades its childcare (Number)		0.00	25.00						50.00
1.6 Female last-year university students and/or recent graduates from engineering faculties trained by the ENR in a one month training program (Number)		0.00	30.00	30.00	30.00	30.00	30.00	30.00	210.00
1.7 Policy reform preparatory analysis for IAC (Yes/No)	PBC 1	No							Yes
1.8 Independent Safety Regulator (Yes/No)		No	No						Yes

Indicator Name	PBC	Baseline	Intermediate Targets						End Target
			1	2	3	4	5	6	
1.9 Enabling private capital mobilization (PCM) for the railway sector (Yes/No)		No							Yes
1.10 Decarbonization roadmap for the ENR& Green investment study (Yes/No)		No							Yes
2: Creation of a railway bypass around the Greater Cairo Area									
2.1 Construction progress works implemented through GARB (Percentage)		0.00							100.00
2.2 Signaling towers commissioned on the railway bypass around the Greater Cairo Area (Percentage)		0.00							100.00
2.2.1 Signaling towers commissioned in the Greenfield segment linking the Bashteel–Itay El Baroud segment to the Marareek-Wahat line (Percentage)		0.00							100.00
2.2.2 Signaling towers commissioned in the Marazik–Wahat section (Percentage)		0.00							100.00
2.2.3 Signaling towers commissioned in the		0.00							100.00

Indicator Name	PBC	Baseline	Intermediate Targets						End Target
			1	2	3	4	5	6	
El Bashteel-Itay El Baroud segment (Percentage)									
2.2 4. Signaling towers commissioned in the El Itihad-Tafaroa segment (Percentage)		0.00							100.00
2.3 Centralized Traffic Control Centers (CTC) commissioned in Alexandria – October 6 - Greater Cairo (Number)		0.00							3.00
2.4 Safety culture in railway design and operation (Number)		0.00							120.00
2.5 Safety culture adoption as FWSI (Fatalities and Weighted Serious Injuries) data (Number)		2.26							1.70

Monitoring & Evaluation Plan: PDO Indicators

Indicator Name	Definition/Description	Frequency	Datasource	Methodology for Data Collection	Responsibility for Data Collection
1. Containers handled by rail between AP and DP6	This indicator measures the "improve performance of the logistics sector" aspect	Annual	Egyptian National Railways	ENR Freight will use its statistics to measure the indicator and report	The PMU at the ENR

	of the PDO. The indicator uses container traffic using the AP-DP6 rail corridor from the Cairo Alexandria Trade Logistics Development Project (CATLDP) actions. The project aims to create infrastructure capacity, establish an infrastructure access charging (IAC) regime, and pass rail-friendly policies. These are all enablers that attract shippers to shift their traffic to rail. The twenty-foot equivalent unit, abbreviated as TEU, "is a unit of volume used in maritime and rail transport statistics, equivalent to a 20-foot ISO container."(1) Each freight wagon can move up to two TEU-equivalent or a 40-foot container. A 40-foot container counts as two TEUs. (1) Twenty-foot equivalent unit (TEU) is a unit of volume used in maritime		(ENR) will use its statistics on freight transport in the corridor to report container traffic.	the container traffic that uses the AP – DP6 route. ENR will also report the percentage of containers loaded with cargo; the rest will be empty.	

	and rail transport statistics, equivalent to a 20-foot ISO container.				
2. Freight traffic volumes between AP, the GCA and Upper Egypt	This indicator measures the "improve the performance of the railway sector" aspect of the PDO. The measurement is in million net-ton-km as per this definition that ENR currently follows: A net ton-kilometer equals cargo weight transported times distance transported. Net ton-kilometer (ntkm) does not include the weight of wagons and locomotives used to haul the freight by rail. The measurement is per year. ENR will count all types of freight on the intervened corridor, from containers to bulk and general cargo. The indicator will measure freight flows between the AP, DP6, and Upper Egypt. ENR informed the baseline value using the current	Yearly	ENR will provide information on freight traffic on the corridor for the indicator, per the above description.	ENR will use data from ENR Cargo Unit to calculate the net-ton-km generated per each type of freight (bulk, containers, and others) and the total value of ntkm generated on the corridor.	The PMU at the ENR using ENR Infrastructure data.

	route that goes through the GCA as 500 million nktm per year. The ENR and the Bank agreed on a model to project growth in the ntkm. The model assumes 3% annual growth for existing freight, increasing to 614,934,933 ntkm by year 7. The model also projects that container traffic between AP and DP6 will materialize once the freight railway bypass is operational. This increase adds 495,249,408 ntkm, which results in a forecasted total of 1,110 million ntkm when the greenfield link becomes operational.				
Net greenhouse gas (GHG) emissions	Project net greenhouse gas (GHG) emissions are calculated as an annual average of the difference between project gross (absolute) emissions aggregated over the economic lifetime of the project and the emissions of a baseline (counterfactual) scenario aggregated over	Yearly	"Project net greenhouse gas (GHG) emissions are calculated as an annual average of the difference between project gross	The ENR will use in-house data on fuel consumption and travel demand (e.g., ton-km), as well as literature on model coefficients (e.g., emission factor and calorific value for consumed fuel). Methodology: The ENR has in-house methods	The ENR will use in-house data on fuel consumption and travel demand (e.g., ton-km), as well as literature on model coefficients (e.g., emission factor and calorific value for consumed fuel).

	the same time horizon. They are reported in metric tons of carbon dioxide equivalent per year.		(absolute) emissions aggregated over the economic life of the project and the emissions of a baseline (counterfactual) scenario aggregated over the same time horizon. They are reported in metric tons of carbon dioxide equivalent per year." This indicator measures the "lowering the greenhouse gas emissions of the railway and logistics sectors" part of the PDO.	to assess GHG emissions reductions based on traffic demand of railways and competing modes of transport and carbon emissions from fuel consumption of respective modes. The methodology makes assumptions that allow estimating the baseline and the target. The ENR will periodically run the model to report yearly. The target date is when the project closes and the railway bypass to the GCA is operational. 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	

			The unit of this indicator is ton CO2-equivalent per annum, along the project corridors from Alexandria through October 6 City and Greater Cairo Area. The project will reduce GHG emissions because of improved operational efficiency in the ENR freight services and thanks to modal shift trucks. The intermediate and final values shown are	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 fuel calorific value. An *ex-ante* assessment found the project expected to reduce CO2-equivalent emissions per annum by 1,099 tCO2e in Year 7 compared with a project against without the project situation during the seven-year implementation. This	

			reductions in emissions.	methodology assumes the following. First, DP6 begins operation in July 2023. Second, until Component 2 works complete, one train per day can serve AP-DP6 using the congested existing railway network. Third, each train will have an 81 TEU/train carrying capacity. The target values of Years 1-2, 3-4, and 5-6 are averages of yearly emission projections from the GHG Accounting analysis conducted as part of the project economic appraisal.	

Monitoring & Evaluation Plan: Intermediate Results Indicators

Indicator Name	Definition/Description	Frequency	Datasource	Methodology for Data Collection	Responsibility for Data Collection
1.1 Steering Committee established and meets periodically	The Ministry of Transport (MoT) will establish a steering committee (SC) that will include the Ministry	Yearly.	The SC will write minutes of the meetings	MoT will share the minutes with the Bank.	The PMU at the ENR

	of Finance (MoF) and the Ministry of International Cooperation (MoIC). This SC is the same for the RISE project. In the CATLDP, the SC will lead the reform effort at the ENR, resulting in adopting the Infrastructure Access Charge (IAC) regime. In the RISE project, the SC oversees adopting the Public Sector Obligation (PSO) and Multi-Annual Infrastructure (MAI) contracts, part of the comprehensive railway reform effort. The SC will meet at least twice per year and will keep minutes.		it holds.		
1.2 Project-affected people working group to meet regularly	The indicator tracks the number of project-affected people working group meetings that provided inputs on project processes and reforms supported by the project. This indicator capitalizes on component 1.3 by establishing a working group composed of project-affected people along the rail corridor, the Greenfield segment, and	Bi-yearly	See methodology	This project-affected working group will develop the topics it will cover to fit the project implementation stage. The ENR and the World Bank team will suggest a long list of possible topics. The project-affected working group will also prepare meeting minutes after each	The Environmental Department of ENR

	relevant civil society representatives, as described in the Stakeholder Engagement Plan (SEP). This working group will comment on the project implementation process, starting with land acquisition. The working group will prepare meeting minutes for each meeting and share them with the head of the Project Management Unit (PMU) and the project department. The PMU will then communicate how it incorporated these comments into the project implementation through a letter to the working group. This indicator, therefore, tracks if the feedback loop is closed.			working group meeting and share them with the head of the PMU and the project department. Then the PMU will communicate the latest advancements in a letter, including how it considered the information from the last stakeholder working group meeting. If the PMU did not consider this information, it will explain the reasons. The PMU will appoint focal points for communication with each working group, help prepare the first meeting, and then be responsible for inviting stakeholders to future working group meetings.	
1.3 Project Stakeholders working group to meet regularly	The indicator tracks the number of multi-stakeholders working group meetings that provided	Twice per year	See methodology .	This stakeholder working group will develop the topics it will cover to fit the	The PMU at the ENR

	inputs on project processes and reforms supported by the project. The project includes reforms with impacts on different stakeholders. This indicator tracks the meetings of a stakeholder working group composed of representatives of AP, DP6, customs, immigration, freight forwarders, logistics operators, and other stakeholders/authorities. This working group will provide input on the regulatory framework under subcomponent 1.1 by giving minutes to the steering committee. Before each working group meeting, the steering committee will inform how it considered the input from the last working group meeting or explain why it did not consider the input. Therefore, frequent communication between the working group and the steering committee will occur. This indicator,			project implementation stage. The ENR and the World Bank team will suggest a long list of possible topics. The stakeholder working group will prepare meeting minutes after each working group meeting and share them with the steering committee for input. Then, the steering committee will communicate the latest advancements in a letter, including how it considered the information from the last stakeholder working group meeting. If the SC did not consider this information, it will explain the reasons. The PMU will appoint focal points for communication with each working group, help prepare the first meeting, and be responsible for inviting	

	therefore, tracks if the feedback loop is closed.			stakeholders to future working group meetings.	
1.4 Grievances registered related to the delivery of project benefits that are addressed	The ENR will establish a channel to receive, register, and address concerns and grievances related to project implementation. The ENR will report on the total number of grievances, how it solves them, and, if not, the reasons for postponing. The target is for the ENR to address 100 percent of the grievances it receives positively.	Quarterly	The ENR will establish the grievance redress channel and record how it solved the grievance.	The ENR will report the total grievances received and the percentage of positively addressed grievances.	The PMU at the ENR
1.5 Women employed in ENR after ENR upgrades its childcare	This indicator tracks the increase in female employment after ENR upgrades the childcare facility for its employees. ENR will upgrade the childcare by the fourth year of the project implementation.	Yearly	The ENR human resource statistics on the number of females employed after ENR upgrades the childcare. Both full-time and part-time employees will count	The ENR will use its human resource statistics to report on this indicator. See data source.	PMU at ENR

			towards this indicator.		
1.6 Female last-year university students and/or recent graduates from engineering faculties trained by the ENR in a one month training program	Each year of the project, the ENR will train at least 30 female last-year university students and recent graduates from engineering faculties to a total of 210 trainees by the end of the project. The trainees will be awarded completion certificates affirming the organization (ENR) where the trainees have undergone training and indicating the duration of the training (minimum one month) and the particular field/department where the training took place.	Yearly	Statistics by the ENR Training Department on the number of females completing the training program.	The PMU will use the statistics from the ENR training department to report yearly on the number of females trained in the program.	The PMU at thje ENR
1.7 Policy reform preparatory analysis for IAC	The project will continue the railway sector reform started by the RISE Project to create an attractive environment for Private Sector Participation (PSP). The Infrastructure Access Contract (IAC) will allow the ENR to charge a fee for using its tracks. This approach will level the	Yearly	See Verification Protocol Table: Performance -Based Conditions.	See Verification Protocol Table: Performance-Based Conditions.	See Verification Protocol Table: Performance-Based Conditions.

	playing field for the private sector to offer railway services in similar conditions to ENR. Implementing the IAC regime will present the "user pays" principle. The MOT and the ENR will develop the IAC thanks to the technical study in subcomponent 1.1. This document will summarize the characteristics of the network, the approved infrastructure maintenance and new construction programs for the specified period, the structure and level of charges, the capacity allocation methodology and procedures, and draft the content of the enabling regulations for the MoT to put in a suitable legal form for approval. The GoE will achieve this indicator when it passes the enabling regulation supporting the IAC regime. The ENR can also sign this				

	IAC contract with private sector providers that want to use the ENR tracks. Achieving this intermediate indicator means that the GoE met the Performance-Based Condition (PBC). Please see "Verification Protocol Table: Performance-Based Conditions" for more details. Annex 1 of the PAD also presents more information.				
1.8 Independent Safety Regulator	The CATLDP project will continue the railway sector reform started by the RISE Project to create an attractive environment for Private Sector Participation (PSP). This reform demands Safety Regulation will guarantee all service providers meet minimum requirements. The private sector will not want to become involved if ENR were to regulate private sector operations' safety. Therefore, a robust	Yearly	The MOT will indicate that the Safety Regulator conducted a safety audit, including the gap analysis, of the SMS at the ENR. The audit will show where ENR must strengthen its SMS so the Safety Regulator to	The audit by the Safety Regulator will reveal gaps in ENR's SMS that need strengthening. The MOT will inform the ENR of the audit results, and the ENR and the Safety Regulator will agree on an Action Plan to close the gaps and achieve the required safety standards. The same procedure will apply to any private sector railway operator that wishes to run	MoT indicating the audit of ENR is complete

	Independent Safety Regulator will be responsible for licensing operators, approving Safety Management Systems (SMS), carrying out investigations, and making government-level recommendations. The Regulator will need to be independent of ENR and any influence of a financial nature from an operator and other vested interests. Government can then make and be accountable for decisions relating to the safe operation of the railways based on unfettered advice. The Independent Safety Regulator will also benefit ENR by providing "mentor" advice and mandate operations where necessary. ENR will have to earn the continuation of its license during a transition period where it is developing its SMS. New operators will need a fully informed SMS. The Study on Railway Sector Reform (in sub-component		extend the ENR's operating license. ENR will prepare an action plan to close the gaps.	trains on the ENR tracks.	

	1.1) will review the strength of independent safety regulation that will be required to provide the private sector confidence that they will be treated equally in safety matters as the ENR. This review is in addition to a summary of the characteristics of the network, the approved infrastructure maintenance and new construction programs for the specified period, the structure and level of charges, and the capacity allocation methodology and procedures. In particular, the review of Safety Regulation will examine the independence and capacity of the current Safety Regulator to become a proactive Regulator that will license operators, set standards and mandatory procedures where required, and audit and approve railway operators' Safety Management Systems. The Regulator will regularly				

	inspect field operations and documentation to ensure that the operator complies with its SMS. If, after a reasonable period, an operator continues to not abide by its SMS or the Regulator's instructions, the Regulator will withdraw the operator's license, and the operator will not be able to operate. This intermediate output indicator comprises five milestones of preparatory activities which track progress towards appointing an Independent Safety Regulator. The milestones are 1. Milestone (1): Study on Railway Sector Reform (as per sub-component 1.1) complete. This study will review the strength of independent safety regulation that will be required to provide the private sector confidence that they will be treated equally in safety matters as the ENR.				

	2. Milestone (2): The Steering Committee (SC) for the railway reform effort will present to the MOT, the ENR, and other relevant agencies through a workshop/seminar/webinar the key recommendations from the Study on Railway Sector Reform safety regulations. 3. Milestone (3): The SC, the MOT, the ENR, and other relevant agencies on safety regulation will detail the next steps, including areas for improvement in the current Safety Regulator. 4. Milestone (4): The current Safety Regulator will conduct a gap analysis and audit of the ENR by identifying which elements ENR must strengthen in its Safety Management System (SMS). These activities constitute evidence that the current Safety Regulator has been strengthened, thus providing the conditions for extending ENR's licensing.				

	The Regulator will also be able to approve and license other operators if they have provided evidence through their SMS. 5. Milestone (5): Plan of action to rectify shortcomings in ENR's SMS.				
1.9 Enabling private capital mobilization (PCM) for the railway sector	This indicator tracks the implementation of the study in subcomponent 1.4, titled "Enabling private capital mobilization (PCM) for the railway sector." This study is related to the study in the RISE Project that will identify and preliminary select the opportunities for PSP. The study in CATLDP will help ENR develop these opportunities to the level required for the private sector to commit to invest in the national railway sector formally. The study will explore "last mile railway connectivity," hook-and-haul traction services, leasing/purchasing wagons, and the operation of dedicated marshaling yards ("transfer points")	Yearly	The PMU will send the Terms of reference for this study for review by the Bank. The PMU will report on the study results and send a copy to the Bank.	The ENR will procure the study and supervise the consultant to ensure the outputs lead to PSP options valid for the ENR and implementable. The ENR will report on the status of the study to the Bank.	PMU at ENR

	The consultant will provide direct analytical and operational assistance to the ENR in dealing with private parties. The study will propose the private-sector commitments concerning the railway sector. ENR will prepare suitable agreements (at the Heads of Terms level, for example) outlining who does what and who pays what. In terms of the specific opportunities, the indicator measures the completion status of the study.				
1.10 Decarbonization roadmap for the ENR& Green investment study	The project aims to develop a decarbonization roadmap for the ENR to put this part of the Egyptian transport infrastructure development on a pathway consistent with the Paris Agreement temperature goals. The objective is to identify and assess the most viable options from a technical, social, economic, and	Yearly	The PMU will send the Terms of reference for this study for review by the Bank. The PMU will report on the study results and send a copy to the	The PMU will collect data through engagement with key stakeholders such as the Ministry of Transport, Ministry of Electricity and Energy, and Ministry of Industry, Trade, and Small Industries, which are most likely to have relevant	The PMU at the ENR

	financial perspective) for ENR. The study will maximize synergies with decarbonization efforts in other sectors, such as power generation, industry, shipping, aviation, etc., and create business and development co-benefits for Egypt. The scope of this study to develop a decarbonization roadmap for the ENR could include (a) assessing Egypt's railway network against its techno-economic suitability to be electrified or operated with hydrogen-powered trains or operated with battery-powered trains; (b) determining the best decarbonization approach (track electrification, hydrogen, batteries, or hybrid) for each of Egypt's main railway corridors, (c) exploring synergies with parallel decarbonization plans in Egypt's related sectors (for example, power, industry, shipping, aviation,		Bank. The relevant data to be collected for developing this decarbonizati on roadmap include, amongst others, stocktaking (baseline data) as well as forecasts (projected data until 2050) for the following parameters in Egypt: rail transport demand and supply, electrical power generation demand and supply, hydrogen demand and supply (incl.	baseline/projected data. The consultant will compile this data, verify, process and use it to develop decarbonization scenarios for ENR under various assumptions. The PMU will report on the study results and send a copy to the Bank.	

	and so on); (d) providing preliminary cost estimates for example, for new/retrofitted infrastructure and rolling stock) and estimate potential benefits (for example, reduced air pollution and public health); and (e) recommend to the ENR short-term, mid-term, and long-term actions to achieve full decarbonization over the coming decades.		from/to foreign countries, in particular in Europe).		
2.1 Construction progress works implemented through GARB	This indicator measures the progress in the works implemented through GARB as per the agreement with the ENR. These works are for the greenfield segment in 2.1 and the track dualization in 2.3(a) in the El Bashteel-El Itihadsegment.	Quarterly	Works supervisor progress reports.	The works supervisor will report the progress, as a percentage, of the works under the responsibility of the GARB. The supervisor will report on each scope element in the contract signed between the ENR and GARB, separating progress by segments 2.1 and 2.3(a). The overall percentage will capture the sum for the two segments, weighted by segment	The PMU at the ENR

				length, divided by the total length of the two segments.	
2.2 Signaling towers commissioned on the railway bypass around the Greater Cairo Area	This indicator measures the progress in implementing the signaling towers in the project. There are sub-indicators by segments. The description and methodology are in the parent indicator and apply to the sub-indicators. A signaling tower refers to (1) the building or structure hosting the signaling control room; (2) all related signaling, control, and other relevant equipment; and (3) all signaling equipment on the tracks and at stations controlled by the signaling tower. Commissioning refers to installing modernized signaling and ancillary equipment such as cables, computers, software, point machines, signals, power supply, telecommunication equipment, rehabilitated	Quarterly	Works' Supervision Reports.	Three elements of reporting through the Works' Supervision Reports: • Periodic reports of the number of commissioned towers as project implementation are supervised and tracked. • Final report when ENR commissions all towers. 1. Report for each sub-indicator. To aggregate for the parent indicator, weigh each segment by the number of towers in each segment.	The PMU at the ENR

	track, and turnouts in all stations and along the entire lengths of track controlled by the signaling tower. One segment has new signaling installed (2.1) Greenfield segment linking the Bashteel–Itay El Baroud section to the Marazeeq-Wahat line. Three segments have track and signaling upgrades: (2.2) Marazik–Wahat, (2.3) El Bashteel-Itay El Baroud, and (2.4) El Itihad-Tafaroa.			Divide by the total number of towers in the four segments. That percentage is the overall progress of implementing towers for the parent indicator.	
2.2.1 Signaling towers commissioned in the Greenfield segment linking the Bashteel–Itay El Baroud segment to the Marareek-Wahat line	See parent indicator.	Quarterly	See parent indicator.	See parent indicator.	PMU at ENR
2.2.2 Signaling towers commissioned in the Marazik–Wahat section	See parent indicator.	Quarterly	See parent indicator.	See parent indicator.	PMU at ENR
2.2.3 Signaling towers commissioned in the El Bashteel-Itay El Baroud segment	See parent indicator.	Quarterly	See parent indicator.	See parent indicator.	PMU at ENR
2.2 4. Signaling towers commissioned in the El Itihad-Tafaroa segment	See parent indicator	Quarterly	See parent indicator	See parent indicator	PMU at ENR
2.3 Centralized Traffic Control Centers (CTC) commissioned in Alexandria –	The Centralized Traffic Control (CTC) represents a	Yearly	Supervision reports.		The PMU will use the supervisor report to

October 6 -Greater Cairo	centralized office that remotely controls all railways interlockings and the traffic flows on a railway segment (usually 100 – 250 km). All signaling towers installed along the respective railway section are connected to the CTC, which controls them for traffic management. The signaling towers are therefore subordinated to the CTC. Commissioning of CTC means the CTC and all subordinated signaling towers are interconnected and operational according to the project specifications. There are three CTCs in the entire alignment: (1) Marazeek-Wahat-greenfield segment to Bani Salamah station on the Bashteel–Itay El Baroud section; (2) El Bashteel-Itay El Baroud, and (3) El-Itihad – Tafaroa. The indicator is not disaggregated, given its simplicity in reporting by segment.				inform the number of commissioned CTCs.

2.4 Safety culture in railway design and operation	This indicator measures the number of safe treatments for pedestrians and vehicles to cross the railway tracks that EN R designed and implemented on-site. The ENR will design and implement safety solutions for the formal and informal at-grade level crossings of all sections of railway track in Sub-Components 2.1, 2.2, 2.3, and 2.4. These solutions may comprise but not be limited to a range of solutions, including: 1. Improved safety design of existing vehicle level crossings; 2. Improved safety design of existing pedestrian level crossings; 3. New vehicle level crossings – transforming informal sites to formal sites; 4. New pedestrian level crossings – transforming informal crossings to formal ones; 5. Integration of	Semi-annually	Supervisor report on the designs by contractors, which will include these safety measures.	The methodology comprises: 1. The ENR will list and present a map that coordinates the existing number of the formal and informal vehicle, pedestrian, and combined vehicle/pedestrian at-grade level crossings. 2. The ENR will show the vehicle and pedestrian "desire lines" along with land use and existing and proposed residential, commercial, and industrial developments on this map. 3. The ENR presents its plan for	The PMU at the ENR and supervisor consultant.

	pedestrian facilities to cross at vehicle level crossings; 6. Closure of selected informal pedestrian crossings through fencing. 7. Footbridges with ramps for non-motorized vehicles and animals to ensure safe passage. The above improvements include signaling, physical works, fencing, and signing. The listing order does not imply a ranking by importance. The solutions presented and implemented by the ENR should be comprehensive packages of elements where each site implemented will count as one to count towards the sub-indicator.			upgrading showing the sites on a map 4. The ENR will present its designs for each site needing upgrading/improvement, detailing the interventions signaling, physical works, fencing, and safety signing. 5. The ENR will implement each safe treatment, whether an upgrade of an existing crossing, the conversion of an informal crossing to a formal crossing, implementation of new crossing sites, and closure by	

				fencing and other physical works of informal crossings. The ENR will show on an ongoing map regularly updated the location and type of safety interventions with a legend showing each measure used (signals, physical works, fencing for closure, safety signing).	
2.5 Safety culture adoption as FWSI (Fatalities and Weighted Serious Injuries) data	This indicator measures the improvement in safety culture through the FWSI (Fatalities and Weighted Serious Injuries). The unit of measurement is the FWSI, which is fatalities and weighted severe injuries per trillion (10^12) passenger kilometres defined in the EU (European Union) by the ERA (European Rail Agency). FWSI is a measure of the safety culture because it addresses the way an organization addresses	Yearly	The ENR Safety Group will inform the PMU at the ENR, which will report.	The ENR Safety Group will collect relevant safety data from incident reports on fatalities, severe injuries, and passenger-kms in sections 2.2, 2.3, and 2.4 of the project. ENR will utilize various collection methodologies, including but not limited to a sampling strategy, analysis of data, and application of insights and lessons	PMU at ENR

	safety. The lower the FWSI, the higher the safety culture. The target is derived from the baseline by applying a 4% year on year improvement, which is the current rate of improvement seen in the EU. The current (2021/2022) FWSI performance (baseline) on the Cairo to Al Itay corridor is 2.26 and the target is thus 1.7. The greenfield segment 2.1 and Wahat corridors do not have baselines because they are not operational yet and there will also be no target for 2.1. The baseline is temporary while ENR confirms ridership, which has not historically been recorded, and will be confirmed at the first ISR of the project. The FWSI per trillion passenger km is needed so that the Bank's operations portal captures the number. The operations portal only accepts two decimal places. If this indicator in the CATLDP is			learned from these data. ENR will present these data in an accessible and standard format compatible with the EU standard of FWSI.	

	per billion passenger-km, as in the RISE project, then the baseline and target will be 0.00, due to the two decimal place issue. In the RISE Project, this indicator is measured in FWSI per billion (10^9) passenger-km. The baseline and target achieve meaningful values with the two decimal places of the Bank's portal. The RISE project corridors have higher FWSI than the CATLDP corridors. To avoid this situation, the CATLDP indicator is per trillion passenger-km. The key point, however, is that the FWSI per trillion-km will be lower by 4% per year for a 25% reduction during the project.				

Performance-Based Conditions Matrix				
PBC 1	Policy Reform Preparatory Analysis for IAC			
Type of PBC	**Scalability**	**Unit of Measure**	**Total Allocated Amount (USD)**	**As % of Total Financing Amount**
Intermediate Outcome	Yes	Yes/No	10,000,000.00	2.50
Period	**Value**		**Allocated Amount (USD)**	**Formula**
Baseline	No			
At any point during project implementation.	Yes		10,000,000.00	No

Verification Protocol Table: Performance-Based Conditions	
PBC 1	Policy Reform Preparatory Analysis for IAC
Description	The project includes a PBC to incentivize introducing the Infrastructure Access Charge regime. The PBC is linked to the GoE achieving the intermediate indicator "Infrastructure Access Charging Regime (IAC) on ENR's railway network" in the Results Framework (Baseline: no, Target: yes). The MOT and the ENR will develop the IAC thanks to the technical study in subcomponent 1.1. This document will summarize the characteristics of the network, the approved infrastructure maintenance and new construction programs for the specified period, the structure and level of charges, and the capacity allocation methodology and procedures and draft the content of the enabling regulations for the MoT to put in a suitable legal form for approval. The GoE will achieve this indicator when it passes the enabling regulations supporting the IAC regime. The PBC is for US$ 10 million of loan proceeds associated with the final payments to the contractor(s) the ENR will hire using loan proceeds for the retention money for work undertaken on the Greenfield Link in subcomponent 2.1 (b). Specifically, the successful completion of the condition will allow the loan to finance a US$ 10 million fraction of 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 completing the works. The retention is typically 10 percent of the work contracts budget. The bidding documents can also establish that the ENR can pay the retention amount after completing the works but before the defect liability period. In that case, the contractor will issue a guarantee to the ENR. The PBC is capped at US$ 10 million of loan proceeds. If the works' completion has met the PBC, the loan can finance the retention funds. If still, the PBC is pending, then the amount associated with completing the PBC is capped at US$ 10 million. Meeting the condition will allow the loan to finance the retention money in the contract for 2.1 (b). The related expenditures must meet all eligibility criteria, including safeguards for triggering the disbursement. If the GoE does not meet the PBC, the ENR will pay the retention amount to the contractors, as reflected in the Loan Agreement and Project Agreement.
Data source/ Agency	MoT, MoF, ENR, copies of the standard contract developed for the Egyptian railway network, and monitoring of activities under Component 2 of the Project.
Verification Entity	The Independent Verification Agent (IVA) will be the Technical Audit consultant (sub-component 1.2(b)) for the activities under subcomponent 2.1 (b) of the Project. The scope of this task will include: First, developing and adopting a detailed Verification Protocol in form and substance satisfactory to the Bank. Second, determine whether the GoE met the PBC following the Verification Protocol. Third, submit to the World Bank the corresponding verification report on time and in form and substance satisfactory to the Bank for final review.
Procedure	The GoE will meet the PBC in this project when the intermediate indicator "Introduction of the IAC on the Egyptian Railway Network" is yes. The PBC is linked for disbursement purposes with the retention money for works in subcomponent 2.1(b), which must meet all eligibility criteria. Annex 1 of this PAD presents the definition of the IAC and minimum scope. The IVA will contrast the IAC contract against the description in Annex 1 of this PAD. As a legal agreement, the Infrastructure Access Contract will be in form and substance satisfactory to the Bank. Secondly, the IVA will demonstrate that the related expenditures are eligible for financing from the loan in quality and safeguards. These eligibility requirements are the same as for the rest of Component 2. While preparing the bidding documents for Component 2, the Bank task team will ensure the contracts for works in the bidding documents reflect the defect liability period and retention funds. Thirdly, the GoE can meet the PBC anytime during project implementation. The condition is associated with the retention money due at the contract's end of the defect liability period. This timeline is essential if the GoE does not meet the condition in the first years. The idea is to enable the ENR to procure the contractor(s) as planned in the first year of implementation of the CATLDP Project. The approach provides ample time for the CATLDP sub-component 1.1 to prepare the IAC regime and supporting contract and therefore meet the. ENR will procure the supervision/IVA consultant in

	alignment with the commencement of site works under subomponent 2.1 (b). If the GoE does not meet the PBC, ENR will pay instead, as reflected in the Loan and Project Agreements.

ANNEX 1: Implementation Arrangements and Support Plan

COUNTRY: Egypt, Arab Republic of
Cairo Alexandria Trade Logistics Development Project

1. Further to the project description provided in the main body of the PAD, this annex offers more detail on the proposed CATLDP. Table A.1 presents the segment lengths included in Component 2 and some key characteristics. Table A.2 shows the estimated costs by component in the CATLDP, showing IBRD and GoE contributions. See also Annex 2 with the map of the project.

Table A.1. Length, Train Capacity, Current Traffic, and Number of Tracks Per Segment in Component 2 of the CATLDP

Component No.	Name of Segment	Length (km)	Capacity (trains per day, both directions)	Current trains/day		Current Tracks	Tracks with project
				Passenger	Freight		
2.1	Greenfield linking the Bashteel–Itay El Baroud segment to the Marazeek–Wahat line	68.5	57	N.A.	N.A.	N.A.	1
2.2	Marazeek–Wahat Line	70.0	3	0	3	1	1
2.3	El Bashteel–Itay El Baroud	115.0	82	36	4		
2.3.1	- Bashteel – Bani Salamah	48.0	82	36	4	1	2
2.3.2	- Bani Salamah – El Itihad	40.0	82	36	4	1	2
2.3.2	El Itihad–Itay al Baroud	27.0			4	1	1
2.4	El Itihad–Tafaroa	108.0	50		4	1	1
	Total	**361.5**					

Source: ENR.

Table A.2. CATLDP Detailed Project Cost Estimate and Financing

Components	Total Estimated cost (US$million)	**IBRD financing (US$million)**	GoE financing (US$million)
Component 1-Railway Sector Reform, Project Delivery, Stakeholder Engagement, Women's Economic Empowerment, and Private Sector Participation	24.0	**20.0**	4.0
1.1 Railway sector reform	1.0	**1.0**	0

Components	Total Estimated cost (US$million)	IBRD financing (US$million)	GoE financing (US$million)
1.2a Works Integrator and Supervisor for Component 2	17.5	**15.5**	2.0
1.2b Technical audit for the works under Component 2	1.5	**1.5**	0.0
1.3 Promotion of Women's Employment and Stakeholder Engagement	1.0	**0.0**	1.0
1.4. Enabling private capital mobilization (PCM) for the railway sector	2.0	**2.0**	0.0
1.5 Decarbonization study	1.0	**0.0**	1.0
Component 2: Track extension, railway signaling modernization, and selected track upgrades to create a railway bypass around the Greater Cairo Area	973.0	**379.0**	594.0
2.1 Greenfield Link and 2.2 Marazik – Wahat Section Upgrade - Track Upgrade and Signaling Modernization	379.0	**143.0**	236.0
Structures, Bridges, Viaducts, and Track Foundations	150.0	**0.0**	150.0
Installation of new track and new signaling system	229.0	**143.0**	86.0
2.3 El Bashteel – Itay El Baroud Section Upgrade (117 km):	428.0	**144.0**	284.0
Structures, Bridges, Viaducts, and Track Foundation for 90 km (Bashteel - El Itihad)	195.0	**0.0**	195.0
Installation of 117 km new track, selective upgrade of existing track, and installation of new signaling system (El Bashteel-Itay El Baroud)	233.0	**144.0**	89.0
2.4. El Itihad – Tafaroa Section Upgrade (108 km) Track Upgrade and Signaling Modernization	166.0	**92.0**	74.0
Front end fee	1.0	**1.0**	0.0
TOTAL BUDGET	998.0	**400.0**	598.0
TOTAL PROJECT COST		**998.0**	

Source: task team estimate with ENR data.

Implementation period: The implementation period for the project is estimated to be 84 months (7 years). Table A.3 presents the estimated completion dates of individual components.

Table A.3. Estimated Completion Date by Component

Components	Completion Calendar Year
Component 1: Railway Sector Reform, Project Delivery, Institutional Development	
1.1 Railway sector reform "IAC"	June 2025
1.2 System Integration and Supervision of the works of Component 4 financed by the MoT and by the WB Loan	June 2029
1.2 Technical audit for the works under Component 4	December 2028
1.3 Promotion of Women's Employment and Stakeholder Engagement	September 2029
1.4. Securing private capital mobilization (PCM) for the railway sector	September 2029
1.5 Decarbonization study (ENR-financed):	June 2026
Component 2: Track extension, railway signaling modernization, and selected track upgrades	
2.1 Greenfield Link: Structures, Bridges, Viaducts, and Track Foundations, Track Installation; Signaling System Installation	September 2029
2.2 Marazeek–Wahat Section Upgrade: Track Upgrade and Signaling Modernization	September 2029
2.3 El Bashteel–Itay El Baroud Section: Selected Track Upgrades and Signaling Modernization	September 2029
2.4 El Itihad–Tafaroa Section: Selected Track Upgrades and Signaling Modernization	September 2029

Financial Management

11. **Implementing Entity.** ENR will implement the project through a PMU. The PMU is responsible for day-to-day operations in cooperation with other departments at ENR, as explained in the implementation arrangements.

12. **Staffing.** The PMU will include two accountants. The FM Team will report to the PMU Director. The FM Team will be responsible for budget coordination, report consolidation, progress reporting, liaising with the external auditor, and handling the project flow of funds (disbursements to project contractors or suppliers and withdrawals from the loan account).

13. **Accounting, Recording, and Reporting.** To report on the project funds, ENR uses the SAP system in parallel to the existing manual books and the Excel spreadsheet for tailored project related reporting. The project's financial management system is capable of demonstrating the following features.

At the accounting level:

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

(b) Expenses are captured by the source of financing. The system differentiates expenses financed by the World Bank 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;

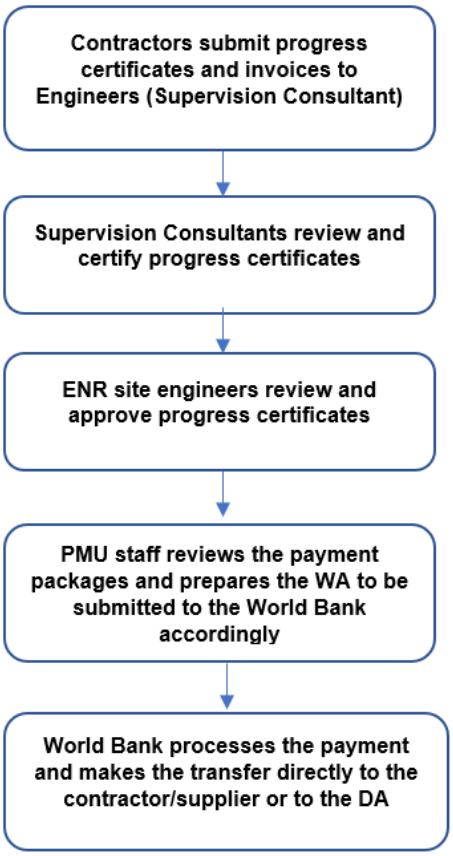
(c) Ability to track actual, budget, and forecasts data; and

(d) ENR will depend chiefly on the Direct Payment method of disbursements. Other disbursement methods will be available to be used by the PMU as needed. These arrangements include the Advance Method (that is., opening a Designated Account, DA), Special Commitments, and Reimbursements. On requesting the funds from the Bank, Withdrawal Applications (WAs) will be prepared and sent by the PMU and signed by authorized signatories. The name(s) and corresponding signature specimen 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 its withdrawal applications and reconcile its records with the World Bank records. The following chart describes the flow of documents of the project until the disbursement reached either the DA or the supplier's account.

14. **Internal Controls.** The PMU at ENR will prepare a financial procedure manual to underpin the POM. The manual should illustrate the documentation of the various types of financial transactions, approval and authorization steps, the flow of documents within and between the PMU and the Financial Department of ENR and the World Bank, along with the retention of original documents and copies and a job description of each member of staff. Also, it will put 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).

15. **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 reviewing 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 fiscal year. The ENR and Bank teams agreed on the content and format of the external audit reports.

Figure A.1. The Flow of Documents Until Loan Payment is Concluded



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

Table A.4 Risks Before and After Mitigation Measures

Risk	Risk Before MM	Mitigation Measures (MM)	Risk After MM
Several challenges exist in the fiduciary system within ENR.	High	1. ENR will implement the project 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
Overall Inherent Risk Before MM	**High**	**Overall Inherent Risk After MM**	**Substantial**
Risk	**Risk Before MM**	**MMs**	**Risk After MM**

Risk	Risk Before MM	Mitigation Measures (MM)	Risk After MM
Lack of sufficient dedicated staff at ENR to carry out the envisaged operation.	Substantial	1. ENR will establish a PMU through a formal administrative decree, and ENR will second, from ENR's Finance Department, fully dedicated staff to the PMU. 2. ENR will 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
ENR will need to report separately on the project's financial data and issue reports periodically.	High	1. ENR uses the SAP system to report on donors' projects. ENR will use this system under the umbrella of the project. 2. The system can generate the quarterly IFRs and annual PFSs required under the Loan Agreement. 3. ENR and the Bank team will agree to the system output and the related levels of details generated by the system.	Substantial
Absence of applicable Financial Management manual tailored to the operation to reflect the adequate internal control setup.	High	1. 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 will frequently be revisited and amended to reflect the actual activities of the PMU. 2. The World Bank FM will provide clearance on the FM chapter in the POM and follow up on the regular implementation.	Substantial
Project funds are not channeled in a timely manner to meet disbursement needs.	High	ENR will depend chiefly on the direct payment method however, will open a Designated Account (DA) in a bank acceptable to the World Bank. The Bank will transfer the loan proceeds to this DA. ENR will use the DA mainly to manage the financing of eligible expenditures under the project's component(s) to implement the project activities.	High
Lack of tailored timely audit/review reports on the envisaged operation's	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 reviewing the	Substantial

Risk	Risk Before MM	Mitigation Measures (MM)	Risk After MM
FS/IFRs		quarterly IFRs. The reviewed quarterly IFRs are due 45 days after each FY, and the audited PFSs are due six months after each FY.	
Overall Control Risk Before MM	**High**	**Overall Control Risk After MM**	**Substantial**

Performance-Based Condition:

17. This project includes a PBC for the IBRD loan explained in the main text in the Project Description section and the Verification Protocol Table: Performance-Based Conditions. The GoE will achieve the PBC when it meets the Infrastructure Access Charging (IAC) intermediate indicator. The Infrastructure Access Charging Study will allow ENR to charge a fee for using its tracks. Two units—Passenger Short-Distance (PSD) and Passenger Long-Distance (PLD)—are planned to pay the charge as private railway operators. This approach will level the playing field for the private sector to offer railway services in similar conditions to ENR.

18. The MoT and ENR will develop the IAC regime thanks to the technical study in Subcomponent 1.2. This document will summarize the characteristics of the network, the approved infrastructure maintenance and new construction programs for the specified period, the structure and level of charges, and the capacity allocation methodology and procedures.

19. The Infrastructure Access Contract, as a legal agreement, will be developed by this same consultant and approved by MOT and ENR. This contract will include the following:

a. ***General information*** on the legal framework governing railway operations.
b. ***Access conditions and application procedures***: ENR operational rules apply to passenger and freight services, rolling stock, and staff acceptance processes.
c. ***Network statements*** present all the information that Applicants need to know to place requests for infrastructure capacity, mainly the commercial, technical, and legal access conditions. Network statements aim to provide Applicants wishing to operate services on a given rail network with a single source of up-to-date, relevant, transparent, and nondiscriminatory information.[92]
d. ***Details and criteria applied during the capacity allocation process***, including use of the capacity for maintenance and modernization, rules for cancellations, and descriptions of any measures applied in the event of disturbance events.
e. ***Services are available to operators*** on different assets, such as rolling stock maintenance.
f. ***Charging principles and tariffs***, including a structure of charges broken down into critical elements such as: (a) charges for the use of infrastructure (line sections and stations); (b) charges for the use of facilities; and (c) charges for other services to railway operators, and billing arrangements. For predictability of cost for the railway operators, periodic, transparent reviews show: i) how well the IAC regime serves the policy goals of growing freight and passenger railway traffic; ii) whether the charges reflect the costs incurred by the ENR infrastructure; and iii) whether the quality of infrastructure services delivered to the operators meets their needs.

[92] *https://rne.eu/organisation/network-statements/*, accessed April 28, 2022.

20. It is planned that ENR Infrastructure, as the provider of infrastructure services, will sign IAC agreements with the ENR operating units, PLD and PSD (as buyers of infrastructure services), and any private railway operator. Given the pioneering nature of the IAC contract, the Terms of References for the technical study in Subcomponent 1.1 will target simplicity of use. This simplicity will be necessary given the first application of the contract, which will have to be easy to use for the ENR infrastructure and the PSD and PLD staff.

21. Three ENR units—ENR Infrastructure, PSD, and PLD—are part of the same integrated company and it is planned that they sign the first IAC contracts. The private railway providers will follow. The ENR Infrastructure unit should account for the revenue from the IAC system.

Capacity Building at ENR

22. The strategy for supporting project implementation follows a two-prong approach. First, the task team will interact face-to-face or virtually to support, provide technical assistance, and on-the-job training, mainly in weak areas or with new approaches and technologies. Second, the task team will ensure the successful and timely implementation of the proposed mitigation measures in the Systematic Operations Risk-Rating Tool (SORT). The strategy also ensures maximum benefit to the PMU and its staff. If needed, short- and long-term consultants hired by the project or the World Bank will provide additional support, supplemented by other resource persons.

23. **Implementation support missions.** In support of the capacity building of ENR, the Bank implementation support missions will be quarterly during year 1 of the CATLDP Project and on a semi-annual basis after that. Short visits by individual specialists to follow up on specific thematic or technical issues will happen as needed. Monthly progress meetings could take place via videoconference (VC) with the PMU. A Midterm Review (MTR) will be carried out during implementation in year 3. Should monitoring the CATLDP Project's performance be required, 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 (for the IBRD loan) that also demands attention from the World Bank, as explained above.

24. **Environmental and Social Framework (ESF).** The World Bank Environmental and Social Development Specialists will support the PMU to ensure proper implementation of the ESF instruments. They will join the implementation support missions or undertake separate missions as needed. They will: (a) assess the level of compliance with the Environmental and Social Commitment Plan (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 legal project 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 countries, and propose good practices to the implementing agencies to help improve ESF compliance and environmental and social sustainability.

Safety Management

25. **Safety for Communities.** The new and upgraded railways will transport many more trains than present, and the risks for pedestrians will increase in high foot-traffic areas. The project will incorporate selective treatment in those high foot-traffic areas into the design. Options include fencing, controlled gate access across tracks, and grade separation using footbridges or underpasses. The project will address road safety by providing selectively upgraded road crossings.

26. **Application of Fatality and Weighted Serious Injury (FWSI) calculation.** The RISE Project already uses the FWSI calculation in its results framework. The CATLDP will also use this intermediate indicator. The indicator formulation recognizes that the upgraded signaling systems are very advanced, even capable of stopping a train

that goes past a safe location. The target for this indicator is equal to a 4% year on year improvement from the current performance of 0.00226 as baseline, to a target of 0.0017.

Other projects at ENR and sources of financing

27. The following table presents the list of projects at ENR financed by multilateral and bilateral agencies.

Table A.5: Other Projects at ENR Financed by Multilateral and Bilateral Agencies

No.	IFI	Amount (in millions)	Project Description
1	EBRD	EUR 126	Supply of 6 complete trains The first train has been supplied, operating tests are being conducted, and the remaining five trains will be supplied after the success of the first train tests.
2	EBRD	EUR 290	Supply of 100 new locomotives The tender has been awarded to the US company WABTEC "GE", the supply contract has been signed, and technical designs are being prepared.
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 March 2023.
4	Kuwait fund	KWD 30	
5	Korean governmental loan	US$115	Signaling modernization on Nag Hammadi–Luxor corridor - The Korean Company "Korna" was appointed as a consultant for the project and the contract was signed. - The Korean company "Hyundai Rotem" was appointed as the contractor for the project and the contract was signed. - Implementation of the project has started and is expected to be completed in 2024.
6	Export-Import (EXIM) Bank, Hungary	EUR 1,016	Supply of 1,300 passenger coaches The project is in the implementation phase; 658 coaches had already been 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; The project is in the implementation phase. All 110 locomotives were supplied. 45 locomotives have been rehabilitated so far.
8	AfDB	EUR 145	Installation of ETCS-1 on Alexandria–Nag Hammadi and Benha–Port Said corridors and equip 100 locomotives with the system The project is in the tendering phase; two tenders were launched to appoint a supervision consultant and a contractor, and the technical and financial review of the companies in both tenders is underway. The contracts are expected to be awarded in the fourth quarter of 2022.

ANNEX 2: Project Map