



The World Bank

Second Tanzania Intermodal and Rail Development Project (P176682)

f

Project Information Document (PID)

Appraisal Stage | Date Prepared/Updated: 26-Oct-2023 | Report No: PIDA34559



BASIC INFORMATION

A. Basic Project Data

Country Tanzania	Project ID P176682	Project Name Second Tanzania Intermodal and Rail Development Project	Parent Project ID (if any)
Region EASTERN AND SOUTHERN AFRICA	Estimated Appraisal Date 01-Nov-2023	Estimated Board Date 11-Jan-2024	Practice Area (Lead) Transport
Financing Instrument Investment Project Financing	Borrower(s) The United Republic of Tanzania	Implementing Agency Tanzania Railways Corporation (TRC), National Irrigation Commission (NIRC)	

Proposed Development Objective(s)

To improve safety, climate resilience and operational efficiency of the railway along the Dar es Salaam to Isaka segment in Tanzania.

Components

Component A: Strengthening of railway infrastructure and support of transport studies

Component B: Strengthening Climate Resilience of Kilosa-Gulwe-Igandu section

Component C: Operational and Institutional support

Component D: Contingent Emergency Response

PROJECT FINANCING DATA (US\$, Millions)

SUMMARY

Total Project Cost	220.03
Total Financing	200.00
of which IBRD/IDA	200.00
Financing Gap	20.03

DETAILS

World Bank Group Financing



International Development Association (IDA)	200.00
IDA Credit	200.00

Environmental and Social Risk Classification

Substantial

Decision

The review did authorize the team to appraise and negotiate

Other Decision (as needed)

B. Introduction and Context

Country Context

1. **Tanzania is a geographically large, culturally diverse, and well-endowed lower middle-income country (LMIC).** Out of 54 African countries, Tanzania is the fifth largest in terms of population, ninth largest in terms of the size of economy, and thirteenth largest in terms of geographical area. Solid income growth over two decades led the country to reach LMIC status in July 2020.

2. **The graduation from low-income status reflects sustained macroeconomic and political stability as well as the country's rich natural resources endowment and strategic geographic position.** Macroeconomic stability has been crucial to Tanzania's growth; inflation rates have been low—below 5 percent since 2018—and sustainable fiscal and current account deficits have been financed by a combination of domestic and external sources. Over the past two decades, investment has been a key driver of economic growth. The rise in overall investment translated into a sustained accumulation of capital stock and has consistently accounted for roughly two-thirds of real gross domestic product (GDP) growth.

3. **The poverty rate in Tanzania has been declining gradually.** The national poverty headcount has improved from 34.4 percent of the population in 2007 to 28.2 percent in 2012 and further to 26.4 percent in 2018.^[1] However, the number of poor people living in poverty has increased due to population growth.^[2] Despite Tanzania's impressive GDP growth between 2012 and 2018, poverty reduction slowed, and growth has become less inclusive. Inequality has also risen during this period. The international poverty headcount (US\$1.90 per day in 2011 purchasing power parity) remained high and unchanged during this period, at 49 percent. Currently, the poverty rate for mainland Tanzania has been projected to drop from 27.0 percent in 2021 to 26.8 percent in 2022 whereas for Zanzibar it dropped from 34.9 percent in 2009 to 25.7 percent in 2019 with the fastest dropping rates in the urban areas.^[3]

¹ Ministry of Finance and Planning - Poverty Eradication Division (MoFP-PED) [Tanzania Mainland], National Bureau of Statistics (NBS), and the World Bank. 2020. *Tanzania Mainland Household Budget Survey 2017/18*. Final Report Dodoma, Tanzania MoFP-PED, NBS, and Washington, DC USA, and World Bank (page 102). <https://www.nbs.go.tz/index.php/en/census-surveys/poverty-indicators-statistics/household-budget-survey-hbs/653-household-budget-survey-2017-18-tanzania-mainland-final-report>.

² Tanzania Mainland Household Budget Survey 2017/18.

³ Tanzania Economic Update. Issue 18. The World Bank Group, 2023.



4. **Tanzania is heavily reliant on natural resources, and climate change is threatening the livelihoods of many.** Climate change affects coastal zones, public health, energy supply and demand, infrastructure, water resources, agricultural production, and availability of goods and services. Approximately 25 percent of the Tanzanian population live along the mainland coast and are susceptible to accelerated sea level rise. It is estimated that the hazard level for floods is high, and the hazard levels for water scarcity and extreme heat are medium.^[4] Extreme weather conditions such as increased seasonal variation in rainfall and temperature have been significant in most parts of Tanzania, with frequent and prolonged periods of droughts that impact agriculture, grazing land and hydropower capacity. Droughts and floods have already caused major economic costs, disrupting livelihoods of both rural and urban communities.^[5] Research shows that intensifying disasters due to climate change are the second most cited reason for tenure insecurity in Tanzania, and Tanzania's National Climate Change Strategy (2021) identified land use as one of the key intervention areas to combat climate change.

5. **The cost of adaptation to the current climate impacts in Tanzania is estimated at US\$500 million annually and, projected to increase to US\$1 billion a year if no action is taken.**^[6] Individual annual events have economic costs in excess of 1 percent of GDP. Recognizing its vulnerability to climate change impacts, the Government of Tanzania (GoT) first adopted the National Climate Change Strategy in 2012. The strategy identified climate change risks for 18 sectors—including transport—and 12 cross-cutting areas, where it proposed over 200 strategic interventions to mitigate risks. However, the implementation of climate-resilient approaches and its integration in projects has been insufficient. Action plans based on the strategy have not been put in place for most sectors, including transport, and the country is already experiencing problems due to inaction. For example, abnormal flooding along the central railway has been exacerbated resulting to more frequent and longer period (three to four months annually) of railway closures (especially in Morogoro region) with massive economic losses.

6. **Gender inequality is limiting the ability of Tanzania to increase human capital and overall wealth per capita.** In 2014, women accounted for 35.5 percent of Tanzania's human capital wealth, while men accounted for 64.5 percent.^[7] Losses in human capital wealth due to gender inequality in Tanzania are estimated at up to US\$111 billion. The gender gap in agricultural productivity is estimated at 20–30 percent. Men and women control different assets and have different decision-making roles and responsibilities, generally resulting in an unequal situation that is disadvantageous to women.⁸ In transport, the sector is traditionally male dominated in terms of employment and related values.⁹ The preliminary gender assessment of Railway sector in Tanzania identified that women are significantly underrepresented in both the public and private sector. For instance, they comprise 10% of the TRC staff, 12% of TRC management, and 10% of the Tanzania Railway Workers Union (TARWU). Furthermore, they occupy only 21.7 and 8.3% of the TRC officer and non-officer positions, respectively; and make up only 18% of TRC engineers, 12.9% of the station masters, 0% of the more than 130 locomotive drivers, and only 2.4% of the over 1,400 artisans. With regards to the private sector, women make up 12% of the 33,899 registered engineers. The latest Living Standards Measurement Survey (LSMS) data for Tanzania show that only 22 percent

⁴ <http://thinkhazard.org/en/report/257-united-republic-of-tanzania/FL>.

⁵ Nationally Determined Contribution (NDC) of Tanzania to the UNFCCC; July 2021. https://unfccc.int/sites/default/files/NDC/2022-06/TANZANIA_NDC_SUBMISSION_30%20JULY%202021.pdf.

⁶ World Bank Group. 2015. "Financing Climate-Resilient Growth in Tanzania." *Environment and Natural Resources Global Practice Policy Note*, Washington, DC: World Bank.

⁷ Tanzania Economic Update, 12th Edition, July 2019.

⁸ IFAD. 2011. *Investing in Rural People*, accessed May 2, 2020, <http://www.ifad.org/sf/index.htm>.

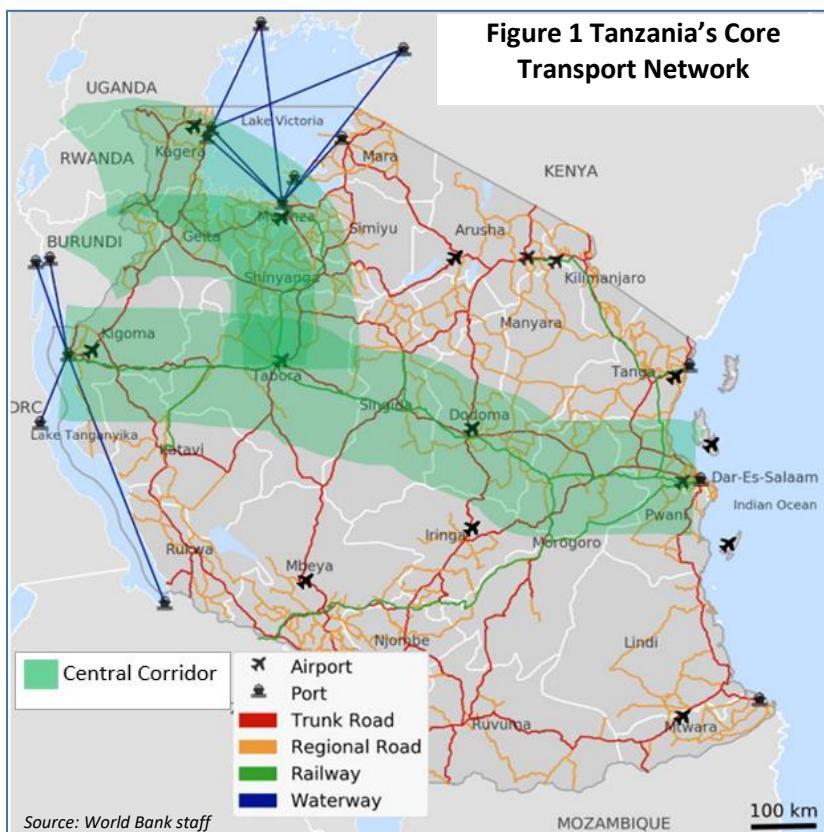
⁹ UNECE. "Gender and Transport." Accessed July 21, 2023. <https://unece.org/transport/gender-and-transport>.



of women versus 48 percent of men were in wage employment in the last 12 months.^[10] In addition, women wage workers earn about 88 cents for each dollar earned by men.^[11] Adding to this, the COVID-19 pandemic increasingly limited women's access to formal employment.^[12]

Sectoral and Institutional Context

7. Tanzania is an important gateway serving its own hinterland as well as the six landlocked countries of Malawi, Zambia, the Democratic Republic of Congo, Burundi, Rwanda, and Uganda. The country has a relatively expansive transport network in place consisting of roads, several railway systems, a number of ports – among them one of the key ports in East Africa at Dar es Salaam -, and airports. The country of 945,500 km² area has a total road network of 145,308 km, out of which just over nine percent is paved and the rest is unpaved gravel and earth. The roads are being managed by the Tanzania National Roads Agency (TANROADS) and the Tanzania Rural and Urban Roads Agency (TARURA). There are two existing railway systems with a total of 3,682 km: the Tanzania railway (2,707 km), a meter gauge railway (MGR) under the Tanzania Railways Corporation (TRC), and the Tanzania-Zambia railway line (975 km), a cape gauge railway (CGR) under the Tanzania Zambia Railway Authority (TAZARA). A third system of a standard gauge railway (SGR) along the Central Corridor^[13] has two sections between Dar es Salaam and Makutupora (near Dodoma) (644km) at advanced stage of construction; the remaining three sections to Mwanza (575km) are at initial stage of contract implementation, and the contract for the Tabora to Kigoma (411 km) section has been recently awarded. The new line runs parallel to the MGR line. The maritime transport system comprises the coastal seaports of Dar es Salaam, Tanga, and Mtwara as well as lake ports at Lake Victoria, Tanganyika, and Nyasa under the Tanzania Ports Authority (TPA). The country also has 59 airports under the Tanzania Airports Authority and about 200 airdromes operated by other agencies including the private sector. Tanzania's transport network is not fully integrated as significant bottlenecks remain with the capacity and condition of many of these linkages (road, rail,



¹⁰ Hasanbasri, Ardina, Talip Kilic, Gayatri Koolwa, and Heather Moylan. Forthcoming. "LSMS+ Program in Sub-Saharan Africa: Findings on Individual-Level Data Collection on Labor and Asset Ownership and Rights." World Bank.

¹¹ Global Wage Report (accessed September 5, 2021, <https://www.ilo.org/global/research/global-reports/global-wage-report/lang--en/index.htm>).

¹² Tanzania Economic Update. Issue 15. February 2021.

¹³ The Central Corridor in Tanzania is an economic corridor from the Dar es Salaam port westward to Kigoma, Tanzania's Northern hinterland (Mwanza and Kagera) and to the landlocked Democratic Republic of Congo, Burundi, Rwanda, and Uganda.



air, lake and maritime routes) restricting a seamless movement of people and goods and thus limiting the potential contribution of the sector to development.

8. The SGR was one of the strategic projects for implementation under the National Five-Year Development Plan (FYDP) for 2016/17–2020/21 that was also included under the FYDP-III for 2021/22–2025/26.¹⁴ One specific objective of the FYDP-III is to enhance the scope of Tanzania's benefits from strategic geographical opportunities through enabling improved business environments and strengthening the country's regional position as a hub for production, trade, supply, and transportation. The objective of the SGR—under FYDP-II—was to facilitate enhanced trade through connectivity of the neighboring countries of Burundi, Rwanda, the Democratic Republic of Congo, and Uganda to and from the Port of Dar es Salaam. The 2,561 km project was estimated to cost about US\$7.6 billion and increase train speed from the current 30–56 kph to 160 kph for coaches and 120 kph for wagons and also increase axle load from 13–20 tons to 35 tons and throughput volume from 214,987 tons to 17 million tons per year.

9. The SGR and existing MGR are expected to complement the roads in transporting goods along the Central Corridor. The FYDP has also prioritized rehabilitation of the existing MGR that is planned to co-exist with the SGR when completed. The co-existence of the two railway systems is expected to provide adequate capacity in line with the increasing throughput. The participation of private sector in the train operations – after the June 2023 parliamentary approval of the amendment to the Tanzania Railways Act to allow for open access train operations – is expected to facilitate higher utilization of the public track in both lines. The total throughput along the Central Corridor in 2021¹⁵ was 17 million tons that was predominantly (about 98 percent) carried by roads. The operations of both railways are expected to facilitate modal shift for freight towards railways given the ongoing and planned expansion of the Dar es Salaam port.¹⁶

Table 1. Status of Implementation of the Central Corridor SGR infrastructure

Section	Length (km)	Status in July 2023
Dar es Salaam-Morogoro	300	Completed
Morogoro-Makutupora	344	Substantially completed
Makutupora-Tabora	294	Initial implementation stage
Tabora-Mwanza	379	Initial implementation stage
Tabora-Kigoma	411	Initial implementation stage
Isaka-Rusumo	371	Not procured
Keza-Ruvubu	36	Not procured
Kaliua-Mpanda-Karema	321	Not procured

Source: TRC Website

10. The co-existence of SGR and MGR in Tanzania is second in the region after Kenya where a new SGR was launched in 2017. To facilitate model shift towards rail, in August 2019, the Government of Kenya required shippers with goods destined for the Nairobi area and beyond to transport their goods by rail rather than road to feed traffic onto the SGR. The decision enabled nearly all containers to be moved by SGR to the multimodal

¹⁴ The National Five-Year Development Plan 20/21–2025/26 “Realising Competitiveness and Industrialisation for Human Development.” United Republic of Tanzania, June 2021.

¹⁵ Central Corridor Transport Observatory, 2021 Annual Report (<https://centralcorridor-ttfa.org/>)

¹⁶ The rehabilitation of berths 0 to 7 and deepening of the entrance channel at the Dar es Salaam port through Dar Maritime Gateway Development Project (Report No: PAD1462) was expected to increase Port throughput from 15m tons in 2016 to 25m tons in 2025. At the same time, the Government plan of building four additional new berths (Berths 12-15) will likely increase the throughput to 40m tons in ten years.



transfer facilities in Nairobi while the MGR remained with general cargo (concentrate bulk) traffic due to its direct connectivity through the available sidings to the industry premises. However, this policy was changed by the new Government in September 2022. It was noted that the imposition of the policy for traffic outside Mombasa to move by rail did not cause a significant increase in the volume of SGR freight traffic, and neither did the lifting of this requirement have much effect. Therefore, an analytical study is proposed for informing the Tanzania Government on the various policy strategies/options for maximizing the usage of the available railway (mode shift to rail) along the corridor as well as necessary measures for optimizing the use of the two parallel lines.

11. **Regulatory arrangements are in place for regulating transport operations.** Surface transport (road and railway) is being regulated by the Land Transport Regulatory Authority (LATRA) and maritime transport operations by the Tanzania Shipping Agencies Corporation (TASAC). The aviation operations are being regulated by the Tanzania Civil Aviation Authority (TCAA).

12. **The transport sector is vulnerable to the impacts of climate change and natural hazards.** The natural hazard that presents the highest risk to the transport sector is flooding. Flooding not only damages transport infrastructure but also causes disruptions in the transport network, causing delays and ultimately having negative social and economic impacts. These risks are predicted to increase in the future, with climate change increasing the frequency and intensity of catastrophic natural hazard events. A systemic climate vulnerability assessment of multi-modal transport networks was conducted for Tanzania in 2018, which showed that with climate change, greater lengths of the transport network will be exposed to extreme fluvial flooding. The analysis estimated that the worst-case transport network disruption in Tanzania has the potential to cause a negative economic impact of US\$1.4 million per day at present and this would potentially increase to US\$2.5 million per day by 2030, due to disruptions caused by future fluvial flooding.¹⁷ The Central Corridor Railway Network is exposed to floods, erosion, and sand deposition. Risks are particularly high in the Kilosa-Gulwe-Igandu railway section. People within the section have been suffering from floods for more than 25 years but the impacts have been worse over the last few years.

13. **The Tanzania railway system is yet to operate at its full potential due to infrastructural and operational challenges.** The design annual freight capacity for both the central MGR and the TAZARA CGR lines is about 5 million tons each. However, the historical annual peak freight volume carried by the 100-year-old MGR and the TAZARA railway was 1.2 million tons and 1.5 million tons, respectively, in 2002 and 2005. Thereafter, the freight volumes have been declining, mainly due to deteriorated infrastructure and inadequate investment for repairs and/or replacement of rolling stock that led to unreliable services. The freight carried in 2021/2022 by TRC and TAZARA was 416,866 and 322,000 tons, respectively. Over the past two decades, the railways have been steadily losing modal share to the roads running parallel to the lines.

14. **The Tanzania Intermodal and Rail Development Project (TIRP) supported the Government to improve the MGR railway section between Dar es Salaam and Isaka (970 km).** The project supported the Government strategy, "Big Results Now"¹⁸ of 2012, to address the transport bottlenecks along the Central Corridor to enable the country to use the potential of its geographical location. The project was closed on September 30, 2022 and resulted in (a) the rehabilitated infrastructure (track and bridges) increasing the axle load capacity from 13.85 tons to 18.5 tons for the section between Dar es Salaam and Tabora (840 km); (b) completed designs to rehabilitate

¹⁷ Pant, R., E. E. Koks, T. Russell, and J. W. Hall. 2018. *Transport Risks Analysis for The United Republic of Tanzania - Systemic Vulnerability Assessment of Multi-Modal Transport Networks*. Final Report Draft, Oxford Infrastructure Analytics Ltd., Oxford, UK. https://www.researchgate.net/publication/330134472_Transport_Risks_Analysis_for_The_United_Republic_of_Tanzania_-_Systemic_vulnerability_assessment_of_multi-modal_transport_networks.

¹⁸ The Big Results Now (BRN) initiative by the GoT proposed major reforms and investment proposition of about US\$2.3 billion along the central transport corridor between 2012 and 2015.



the intermodal terminals of Dar es Salaam port, Ilala, and Isaka; (c) additional rolling stock for TRC for their block train¹⁹ (3 locomotives and 44 wagons); and (d) the drafting of economic and safety regulations for open-access train operations, which was approved by parliament nine months after project closure.

15. **Although the operational performance is now gradually increasing, the railway system in Tanzania is still far from achieving its potential.** In 2010, the Tanzania railway recorded about 7 percent²⁰ of the freight modal share. This is significantly lower than that of other countries with active railways for freight services. As an example, the freight shipments by rail in the United States in 2019 accounted for nearly 28 percent of all ton-miles, and the rail freight shipments in South Africa in 2013 accounted for 10.4 percent of all modes.

16. **Safety incidents have been increasing with improved tracks and higher frequency of trains operating along the line.** Over the past five years, 123 fatalities were recorded, with an average of 24 fatalities per year. The TRC data show that 50 percent of serious injuries resulted from collision between trains and vehicles, or pedestrians hit by a moving train. The Dar es Salaam to Isaka (970 km) section, which was improved by TIRP, had recorded 25 fatalities within the period and 98 fatalities were recorded elsewhere within the central railway network. The root cause analysis of nine incidents from July 2019 to October 2020 showed the main causes as: (a) encroachment by pedestrians due to lack of barriers and warning devices in busy urban areas, (b) inadequate attention by train drivers and lack of full compliance with driver fitness procedures, (c) noncompliance with train propelling rules,²¹ and (d) inadequate safety facilities at railway crossings.

17. **Tanzania railway has relatively high fatality rates compared to other freight operating railways.** Given the low level of freight traffic, the 20 average fatalities per year is equivalent to about 125 fatalities per billion ton-kilometers; by contrast, the United States rail system recorded 862 fatalities and 2,357 billion ton-kilometers of freight²² in 2019 which is equivalent to 0.37 fatalities per billion ton-kilometers and in the same year, and South Africa recorded 375 fatalities and 146,000 million ton-kilometers equivalent to 2.56 fatalities per billion ton-kilometers. The main areas of trouble (or 'blackspots') along the Tanzania railway are the road/railway level crossing points and township areas where trespassing is prevalent.

C. Proposed Development Objective(s)

Development Objective(s) (From PAD)

18. The PDO is to improve safety, climate resilience and operational efficiency of the railway along the Dar es Salaam to Isaka segment in Tanzania.

Key Results

19. Project outcome indicators includes: (i) Reduction in average transit time from Dar es Salaam to Isaka; reduction of railway traffic disruption due to flooding in a year and Railway traffic incidents at the railway crossings.

D. Project Description

Component A: Strengthening of Railway Infrastructure and Support of Transport Studies

20. **The proposed strengthening of infrastructure will enable the railway track to be able to carry 18.5-ton**

¹⁹ The block train for TRC is a 40-container wagon freight train providing scheduled services between the Dar es Salaam port and Isaka intermodal terminals.

²⁰ Nkya, Elinikunda. A. 2015. *The Role of Tanzania Centra Railway Line in Promoting Cargo Transportation*.

²¹ Operational Rules are documented in 'The TRC General Rules of 1997' and 'The TRC General Appendix to the General Rules and Working Timetable'.

²² United States Bureau of Transportation Statistics.



axle load between Dar es Salaam port and Isaka. The Tabora-Isaka section (130 km) is currently the only section with 15-ton axle load capacity. Also, the Kilosa-Gulwe-Igandu (84km) flood prone section is proposed to be rehabilitated to improve climate resilience of the railway infrastructure after the root cause of flooding is addressed through the flood control protection systems under Component B. Apart from its rehabilitation, the project is also proposing to refurbish selected sections (about 258 km) between Dar es Salaam and Tabora that are in poor/fair condition and repair about 156 bridges. Strengthening of the infrastructure will also facilitate efficient block train operation between Dar es Salaam and Isaka, which is currently affected by axle load limits. This component will comprise five subcomponents as briefly explained below.

21. **Dar es Salaam to Tabora Railway Infrastructure Safety Strengthening.** This activity will include the refurbishment of selected bridges and track sections of railway track (257.4 km) and strengthen safety infrastructure between Dar es Salaam and Tabora. The project plans to support the strengthening of safety at the rail-road at-grade crossings and providing pedestrian safety at townships. The improvements will include the installation of automatic operated bars/booms at the rail-road crossing points and/or speed reduction measures (speed humps or rumble strips) to reduce the speed of approaching vehicles from the paved roads. The project will further support the installation of chain-link barriers to deter pedestrians from trespassing on to the railway track in townships. The railway track refurbishment is planned to be conducted at Kikombo-Bahi (74.8 km), Makutupora-Manyoni (33.6 km), and Kitaraka-Igalula (149 km) and will include strengthening works that were not implemented under the previous project (TIRP) due to cost overruns and resulting budget constraints. The proposed works include continuous welded rails (CWR) on 308.1 km rail track, complete track renewal on 33.6 km length of the rail track, replenishment of ballast, and strengthening of the track formation.

22. **Rehabilitation of the Tabora - Isaka railway line - 130 km.** This section is currently the weakest (15-ton axle load) link for the container block train operations, and it is to be rehabilitated to be able to support 18.5-ton axle load capacity. The railway track and bridges are weak, and this is the only section between Dar es Salaam and Isaka with 56/60 pounds per yard rails compared to the rest of the section with 80 pounds per yard rails. Therefore, currently, the operation of the 3,000 hp container block train locomotive from Tabora to Isaka is affected: The train has to be split at Tabora for the movement between Tabora and Isaka by two 2,200 hp locomotives. The double handling causes delays and affects the reliability and efficiency of services. The proposed rehabilitation includes complete renewal of tracks, installation of CWR of 80 pounds per yard, and rehabilitation of bridges.

23. **Rehabilitation of Kilosa-Gulwe-Igandu flood prone section (84km).** The section that is currently weak due to periodic flooding is planned to be rehabilitated through raising the embankment and provision of flood protection infrastructure along the railway section. The rehabilitation works will be conducted after implementation of flood control measures within the Kinyasungwe catchment area – under component B.

24. **Improvement of intermodal terminals and preparation for operations.** The two existing intermodal terminals of Ilala and Isaka are proposed to be rehabilitated under the project and will be made compliant with national building codes and have energy performance standards equivalent to Level 1 EDGE Certification. The third intermodal terminal at the Dar es Salaam port is being implemented through Government funding. The completion of realignment of rail and loading platform at the three intermodal terminals will reduce train in-and-out maneuvers and address cargo loading and unloading delays at the intermodal terminals. The project will also support the preparation of public-private partnership operation of the three terminals.

25. **The project plans to support key transport studies.** These will include (i) analysis of policy strategies for maximizing usage of railway (modal shift) and (ii) engineering design for rehabilitation of additional MGR sections - the Tabora-Kigoma, Isaka-Mwanza, Tanga-Arusha, Kilosa-Mikumi, and Kaliua-Mpanda lines - to climate resilient standards.

26. **The designs of the infrastructure activities under the component will benefit from input from the**



ongoing climate and disaster risk assessment study of the Dar es Salaam-Isaka railway line. The study is being supported by a Japan-funded Quality Infrastructure Investment Partnership (QII) Bank-executed Trust Fund. The consultant for the study has been conducting a climate and disaster risk assessment that will include recommendations for enhancing resilience of the railway infrastructure to flooding events and will prepare emergency preparedness and response protocols for TRC to be able to respond and restore railway functionality quickly. The consulting team works under the guidance of TRC and the Kilosa-Gulwe Technical Committee and is due to complete the assignment by December 30, 2023.

Component B: Strengthening Climate Resilience of Kilosa-Gulwe-Igandu Section

27. **The component is proposed to support** (a) the analytical studies for design of flood control systems along the catchment area of the Kilosa-Gulwe-Igandu and (b) the rehabilitation/restoration of six flood control reservoirs at the Kinyasungwe catchment area to reduce flooding of the Kilosa-Gulwe-Igandu railway section.

28. **The Kilosa-Gulwe-Igandu railway section is being affected by flooding leading to railway closure for about 3–4 months annually.** The recurring Kilosa-Gulwe-Igandu flooding is mainly due to heavy rains and lack of adequate soil cover upstream of the basin catchment especially in Dodoma region. The heavy rains in Dodoma region in areas such as Chenene and Makutupora result in high runoff causing flash floods downstream including along the Kilosa-Gulwe-Igandu railway section. The environmental degradation and deforestation have resulted in a lack of soil cover, therefore facilitating the runoff speed and flash floods in all river streams upstream. Apart from infrastructure wash-out and community displacement, the flooding also results in massive deposition of silt/sand causing rising of the ground level by about 500 mm at Kilosa annually.

29. **The water levels were historically controlled by six reservoirs upstream of the section under review.** A 2016 JICA report identified six upstream reservoirs of Kidete, Kimagai, Buigiri, Ikowa, Hombolo, and Dabalo that were developed in the 1950s and 1960s for irrigation and water supply that were also serving as flood control reservoirs. Most of the reservoirs have been either washed away or were significantly sedimented due to lack of maintenance, therefore no longer effectively supporting irrigation, water supply, and/or flood control in the areas. The Ministry of Agriculture, through the National Irrigation Commission (NIRC), is in FY2023/24 developing two new reservoirs located at Membe (immediately downstream of Dabalo reservoir) and Msagali (immediately upstream of Ikowa reservoir) within the Kinyasungwe catchment area for irrigation schemes.

30. **The project will support the rehabilitation of the six existing flood control reservoirs.** The project supports the feasibility study and detailed design of flood relief structures (ponds/reservoirs) at the Kinyasungwe catchment area that quantify the flooding (flood modeling) along the Kilosa-Gulwe-Igandu section and propose the design for rehabilitation/restoration for effective flood control of the railway segment. The implementation of the restoration/rehabilitation of the proposed flood control reservoirs will be supported by the project. The NIRC will be responsible for operation and maintenance of the reservoirs and the project has included PBCs²³ to ensure a maintenance program is developed and approved by the MoA and MoF including a sustainable source of funding for maintenance of developed reservoirs.

31. **The project will also provide institutional capacity strengthening and support the preparation of large-scale irrigation schemes for the six reservoirs.** The NIRC will be provided with technical specialists for effective review of designs and monitoring of infrastructure implementation as well as a consulting team for supervision of contracts. The Dam Safety Unit under the Water Resources Department in the Ministry of Water (MoW) will be supported with dam safety technical specialists to review the safety of designs, provide approval and construction certificate, and provide independent quality monitoring during implementation. The project will also support

²³ PBCs are specified results whose achievement triggers all or part of the disbursements. PBCs focus on the results generated by specific inputs (results-based) and establish a greater link between inputs and results in project design (World Bank. 2020. Bank Guidance: Investment Project Financing with Performance-Based Conditions).



capacity strengthening for operations and maintenance of the flood control reservoirs. Finally, the project will support the feasibility study and conceptual design for development of a multipurpose water utilization program for the six reservoirs that will include (i) water supply to surrounding communities, (ii) fisheries, (iii) livestock, and (iv) irrigation scheme for both livelihood of surrounding communities and large commercial agricultural investors through public private partnership (PPP).

Component C: Operational and Institutional Support

32. **The development of a safety culture in the railway network and the supporting regulatory agencies is critical for enhancement of safe operations and reduction/elimination of safety incidents.** Institutional safety support is proposed to include updating of the Safety Management System (SMS); updating of the operational manual to reduce the likelihood of human errors; guiding planned improvements in level-crossing protection and the deployment of new electronic train control and warrant system; guiding the Project Implementation Team (PIT); and training of TRC, LATRA, and Ministry of Transport (MWT) staff.

33. **The operationalization of open-access train operations will increase infrastructure asset utilization and influence modal shift in favor of railway for freight cargo.** The amendment to the Tanzania Railways Act, in June 2023, has formally allowed open access train operations along the TRC network. The project will support the preparation of technical instruments (for example, network statement) and capacity strengthening to enable TRC become an infrastructure manager. Further, the project will also support the updating of the economic and safety regulations as well as providing technical assistance for enabling LATRA to perform its regulatory function under open-access arrangements.

34. **The development of an asset management system for railway tracks is key for the sustainability of operations.** The project will support the operationalization of the track recording car for effective network data collection, provide capacity strengthening for data analysis, and prepare maintenance strategies and programs. The support will enable TRC to switch to condition-based maintenance (from currently force account maintenance methods) as part of their enterprise-wide asset management transformation.

35. **The project will contribute to addressing the identified barriers to women's participation in the railways sub-sector with the aim of achieving safe, decent, and equal employment opportunities in both technical and nontechnical positions.** There are several barriers that restrict women's participation in the railway industry and these manifest at multiple levels. A gender survey of TRC that was conducted in 2022 confirmed that unequal access to education, and in particular, STEM between girls/women and boys/men is a key entry-level barrier in formal employment and is reported by 72.4% of the respondents. The project will enhance women's participation in the sector by (a) building a pipeline of young experts through providing three-year financial support to graduate engineers, at least half of whom will be women, to participate in the structured engineers apprenticeship program (SEAP) to enable them to register as professional engineers and thus expand their employment opportunities in the sector and in the market (including TRC, TAZARA, and private sector consultants and contractors); (b) supporting the training and certification²⁴ of women as locomotive drivers; (c) supporting the development and implementation of a resource- and time-bound institutional gender equality policy with an action plan, which addresses the identified barriers to women's full and effective participation in the sector; (d) designing and conducting tailor-made gender capacity building of TRC staff, informed by findings of the survey; and (e) developing and maintaining a database of women's employment relative to men's employment (recruitment, retention, and promotion) in the industry disaggregated by skills and position.

Component D: Contingent Emergency Response

36. **This zero-dollar component will allow for swift reallocation of credit proceeds from the other**

²⁴ This would include the licensing and the two-year internship (something similar to the SEAP).



components to provide immediate emergency recovery support following an eligible crisis or emergency. This CERC will be developed to be triggered only for emergencies and/or disasters that affect the railway infrastructure or operations within the Tanzania railway network.

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

Summary of Assessment of Environmental and Social Risks and Impacts

The project will support the refurbishment of the railway track and/or complete track renewal in some sections, rehabilitation and repairs of river crossing bridges, infrastructure safety improvements in level-crossings and in townships and improvement of intermodal terminals. The implementation of some of these activities will improve safety during the operational stage of the project but may also pose health and safety risks during their construction.

Based on the current assessment, the environmental and social risk rating of the project is substantial. The refurbishment works will extend over 970 km of the rail segments. Despite the large scale of the project, the civil works and activities will take place within the same footprint of existing Railway infrastructure and will not extend beyond the track corridors except for sourcing materials such as gravel and sand. While the objective of the project is to strengthen the safety and operational efficiency of the central corridor railway from Dar es Salaam port to Isaka, construction phase of the project will entail (1) labor and working conditions including (Occupational Health and Safety (OHS), (2) traffic impacts associates with level crossing upgrades (3) community health and safety risks such as, dust, noise, and vibration from construction vehicle transit, and communicable diseases associated with the influx of temporary construction labor, (4) waste generation and management (including hazardous waste), (5) air pollution and noise from construction machinery and quarries and operation phase noise and vibration impacts, (6) soil disturbance and loss during earthmoving, (7) tree-cutting and loss of vegetation, (8) quarry sites management, and (9) construction camp management. WBG's General Environmental Health and Safety (EHS) Guidelines as well as EHS Guidelines for Railways will be carefully assessed and used particularly to address issues related to project environmental risks. Most of the identified impacts are site-specific, short term (i.e., limited to construction) and mechanisms are available to prevent and mitigate those impacts, however there is still medium probability of OHS risks due to accidents as observed during the implementation of TIRP. During the implementation of TIRP, a total of 11 fatal accidents were encountered during project implementation in which most of the accidents were due to negligence of train working norms and safety regulations as per the root cause analysis conducted by Land Transport Regulatory Authority (LATRA). The environmental and social assessments and related environmental and social instruments under consultancies, studies, capacity building are carried out in accordance with terms of reference acceptable to the Bank that incorporate the relevant requirements of the ESSs. Based on the Environmental and Social Assessment (ESA) study findings, the Environmental Risk rating shall be updated accordingly in Project Appraisal ESRS, and appropriate mitigation measures developed and included in the ESCP for implementation. Among others, the following aspects shall be discussed and considered in the revised Risk-Classification: (i) capacity of the implementing agency; ii) likely OHS risks; iii) likely E&S risks relevant to TA activities including key transport studies and designs to be undertaken by the project.



Project components are expected to be implemented mainly within the existing government owned land, which will minimize the need for land acquisition except for clearance of encroachments which may result in physical and/or economic displacement. Construction between Dar es Salaam and Dodoma will utilize existing camps acquired under TIRP and there is a possibility of temporary land acquisition for camp site covering activities implemented between Dodoma and Isaka sections of the railway line. The project will use existing quarry for ballast in Tabora owned by TRC and also purchase from commercial producers who supplied the same for the TIRP. The extent of potential ESS5 risks and impacts and its relevance will be assessed further during project preparation. Other social impacts and risks may include but not limited to (i) construction related risks and OHS risks; (ii) labor influx and associated risks of Gender Based Violence/Sexual Exploitation and Abuse-Sexual Harassment (GBV/SEA-SH) which is rated as moderate risk; (iii) pressure on local amenities and resources in the project area where civil works will be undertaken as a result of labour influx; (iv) possible spread of COVID-19 or other communicable diseases; (v) possible increase in prevalence of HIV/AIDS and other sexual transmitted diseases; (vi) and exclusion of PWDs and Vulnerable Groups described in ESS 7 and meet the criteria set out in paragraphs 8 and 9 of the standard due to limited access to information and project benefits.

The following Environmental and Social Standards tools will be prepared for the project and disclosed before Appraisal: (i) An Environmental and Social Impact Assessment (ESIA) and accompanying Environmental and Social Management Plan (ESMP) to cover all risks and impacts associated with ESS 1,2,3, 4, 5, 6, 7, 8 and 10 during construction and operation. The ESIA will also consider the above mentioned risks and mitigation of Coronavirus (COVID-19) pandemic in project related activities, Waste management plan (with a focus on rail replacement waste), Traffic/Road Safety Management Plans, community health and safety, quarry management, access road management, and a well-defined OHS plan. For the Contingency Emergency Response mitigation measures and Component, Environmental and Social Risk Management Procedures Framework will be included in the ESMP prepared following the Bank's Guidance on CERC (Oct 2017), since the emergency activities are not well defined and designed at this stage; (ii) Labour Management Procedures (LMP); (iii) a Resettlement Policy Framework (RPF) to guide the preparation of Resettlement Action Plan (RAP) for sites not currently known as well a RAP for already identified sites; (iv) Vulnerable Groups Planning Framework (VGPF) to guide the preparation of Vulnerable Groups Plan (VGPs) as required; (v) Stakeholder Engagement Plan (SEP) with a Grievance Redress Mechanism (GRM); (vi) SEA/SW Prevention and Response Action Plan including an Accountability and Response Framework; and (vii) an Environmental and Social Commitment Plan (ESCP) will be agreed upon with the borrower and will set out the substantive measures and actions that will be required for the project to meet environmental and social requirements over a specified period prior to project appraisal.

E. Implementation

Institutional and Implementation Arrangements

37. **TRC is the overall implementing agency of the project and will be responsible for all fiduciary activities, financial management (FM), and procurement activities for Components A, C, and D.** TRC has gained experience in implementing World Bank-funded projects during implementation of TIRP through PIT. For this project, TRC will form the PIT for support, monitoring, and coordination of all aspects of the project, and LATRA in setting up a timely, effective, and efficient legal and regulatory structure for open access in the rail segment to foster efficient cross-border transportation and trade (imports and exports) for the beneficiaries. **The NIRC will be the implementing agency for Component B activities** and will establish a dedicated PIT with technical, fiduciary, safeguards and monitoring teams for ensuring smooth implementation. The MoA, MoW, MoT, Wami/Ruvu Basin Water Board (WRBWB), TPA and LATRA will be supporting entities.

38. TRC and MoT will, as appropriate, call on institutions training to support the project in skills upgrading and in support of gender inclusion, career development, and capacity training in operations of open access.



The technical oversight for the project will be the responsibility of the Steering Committee, comprising of Permanent Secretary (PS) of Transport under MoT and the PS MoA with representatives from MoW, TRC, NIRC, WRBWB, LATRA, TPA, and Central Corridor Transit Transport Facilitation Agency. The Steering Committee will meet biannually to review project progress toward the development objectives and help resolve any interagency issues that may arise. The PIT will report on the project implementation progress to the Steering Committee.

CONTACT POINT

World Bank

Yonas Eliesikia Mchomvu
Senior Transport Specialist

Emma Isinika Modamba
Senior Agriculture Economist

Nana S R H Soetantri
Senior Transport Specialist

Borrower/Client/Recipient

The United Republic of Tanzania

Implementing Agencies

National Irrigation Commission (NIRC)
Raymond Mndolwa
Director General
raymond.mndolwa@yahoo.com

Tanzania Railways Corporation (TRC)
Masanja Kadogosa
Director General
dg@trc.co.tz

**FOR MORE INFORMATION CONTACT**

The World Bank
1818 H Street, NW
Washington, D.C. 20433
Telephone: (202) 473-1000
Web: <http://www.worldbank.org/projects>

APPROVAL

Task Team Leader(s):	Yonas Eliesikia Mchomvu Emma Isinika Modamba Nana S R H Soetantri
----------------------	---

Approved By

Practice Manager/Manager:		
Country Director:	Preeti Arora	04-Dec-2023