ASIAN INFRASTRUCTURE INVESTMENT BANK

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January 24, 2022

Date of IC Meeting: December 08, 2021

Sovereign-Backed Financing

Project Document

P000341 Republic of Uzbekistan: Bukhara-Miskin-Urgench-Khiva Railway Electrification Project

Currency Equivalents
(As at November 16, 2021)

Currency Unit – Uzbekistan Som (UZS)
USD1.00 = UZS10,721

Borrower's Fiscal year
January 1 – December 31

Abbreviations

ADB	Asian Development Bank
AIIB	Asian Infrastructure Investment Bank
BMUK	Bukhara-Miskin-Urgench-Khiva
CAREC	Central Asia Regional Economic Corridor
COVID-19	Coronavirus disease
EIRR	Economic internal rate of return
EMP	Environmental Management Plan
EPC	Engineering, Procurement, Construction
EPS	External power supply
ES	Environmental and Social
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
ESP	Environmental and Social Policy
FM	Financial Management
GAP	Gender Action Plan
GHG	Greenhouse gas
GOU	Government of Uzbekistan
HSR	High-speed rail
IEE	Initial Environmental Examination
IFRS	International Financial Reporting Standards
IUFR	Interim Unaudited Financial Report
LARP	Land Acquisition and Resettlement Plan
MDB	Multilateral Development Bank
MOF	Ministry of Finance of Uzbekistan
N/A	Not applicable
OCS	Overhead Catenary System
PAM	Project Administration Manual
PDS	Project Delivery Strategy
PIE	Project Implementation Entity
PIU	Project Implementation Unit
PP	Procurement Plan
PPMS	Project performance monitoring system

PPR	Project performance reporting
RAMS	Reliability, availability, maintainability and safety
SCADA	Supervisory Control and Data Acquisition.
SDDR	Social Due Diligence Report
SPS	Safeguard Policy Statement
SPP	Strategic Procurement Plan
TBD	To be defined
TRTA	Transaction Technical Assistance
USD	United States Dollars
UTY	JSC “Uzbekistan Railways”/ Uzbek Temir Yollari (Uzbek: “O’zbekiston Temir Yo’llari”)
UZS	Uzbekistan Som

1. Summary Sheet

Republic of Uzbekistan

Bukhara-Miskin-Urgench-Khiva Railway Electrification Project

Project No.	000341
Project Name	Bukhara-Miskin-Urgench-Khiva Railway Electrification Project
AIIB Member	Republic of Uzbekistan
Borrower	Republic of Uzbekistan
Project Implementation Entity	Uzbekistan Railways (O'zbekiston Temir Yo'llari (UTY))
Sector	Transport
Subsector	Railway
Project Objective	To improve railway services for passengers and freight and support tourism development in Western Uzbekistan by electrifying the existing railway line connecting Bukhara, Miskin, Urgench and Khiva.
Project Description	The project will upgrade the current railway along Bukhara – Miskin – Urgench – Khiva line, adding electrification, signaling and telecommunication, and traction power management systems to the recently built 465 km railway line. The Project will also help to support tourism and transit-oriented economic development along the railway corridor, and an electronic ticketing system to enhance the attractiveness of railway transport.
Implementation Period	Start Date: January 2022 End Date: June 2026
Expected Loan Closing Date	December 2026
Cost and Financing Plan	Project cost: USD 445.65 million Financing Plan: AIIB loan: USD 108.0 million ADB loan: USD 162.0 million UTY and Government of Uzbekistan: USD 175.65 million
Size and Terms of AIIB Loan	USD 108.0 million 25-year term, including a grace period of 5 years. The terms will follow AIIB's standard interest rate for sovereign-backed loans.
Environmental and Social Category	B
Risk (Low/Medium/High)	Medium
Conditions of Effectiveness	- The Project Co-Lenders Agreement between ADB and AIIB has been executed; - ADB's loan agreement has been executed;

	- Legal opinion acceptable to AIIB has been issued by the Government of Uzbekistan.
Key Covenants/Conditions for Disbursement	- Operating income ratio of UTY shall be maintained above 0.1; - GOU will pass an official decree to remove non-core businesses from UTY; - AIIB has received a subsidiary agreement (on-lending agreement) entered into between GoU and UTY, in the form satisfactory to AIIB.
Retroactive Financing (Loan % and dates)	Retroactive financing will be allowed up to 20% of the loan amount and will be related to costs incurred not more than 12 months prior to signing date.
Policy Assurance	The Vice President, Policy and Strategy, confirms an overall assurance that the Bank is in compliance with the policies applicable to the project.
Economic Capital (Ecap) Consumption	USD 10.54 million (12.13% of the loan amount)

President	Jin Liqun
Vice President	Konstantin Limitovsky
Director General	Supee Teravaninthorn
Manager	Gregory Liu
Team Leader	Igor Popkov, Private Sector Operations Specialist
Team Members	Komron Rajabiyon, Investment Associate Abhijit Sen Gupta, Senior Economist Aditi Khosla, Counsel - Investment Operations Georgi Dzhartov, Social Development Specialist Jurminla Jurminla, Senior Procurement Specialist Marcin Sasin, Senior Economist Yogesh Malla, Financial Management Specialist Zhixi Zhu, Environment Specialist (Operations)

2. Project Description

A. Project Overview

1. **Project Objective.** The Project objective is to improve railway services for passengers and freight and support tourism development in Western Uzbekistan by electrifying the existing railway line linking Bukhara, Miskin, Urgench and Khiva.

2. **Project Description**. The project will upgrade the current railway along Bukhara – Miskin – Urgench – Khiva line, adding electrification, signaling and telecommunication, and traction power management systems to the recently built 465 km railway line. The Project will also help to support tourism and transit-oriented economic development along the railway corridor, and an electronic ticketing system to enhance the attractiveness of railway transport.

3. **Expected Results.** The expected results of the Project will include: (i) travel time for passengers between Bukhara to Khiva reduced from 5.2 hours to 3.0 hours; (ii) travel time for freight trains reduced from 13 hours to 8 hours; (iii) CO2 emissions reduced in tons per year. The Project will also help to support tourism and transit-oriented economic development along the railway corridor, and an electronic ticketing system compliant with industry standards to enhance the attractiveness of railway transport.

4. **Expected Beneficiaries.** The primary beneficiaries will be rail customers, including business travelers, tourists and freight owners. The secondary beneficiaries will be members of communities located near rail transportation hubs, who will benefit from increased employment opportunities and small businesses who will benefit from handling increased trade flows.

B. Rationale

5. Uzbekistan is located in the middle of Central Asia and has borders with all countries of the region, indicating its position as an important transit hub. With about 33 million people, Uzbekistan is the most populous country in Central Asia. It is doubly landlocked, requiring crossing at least two countries to reach a seaport. Good transport links are therefore critical to the economic survival of the country. The 4,735-kilometer (km) Uzbekistan rail network carries about 30-40% of Uzbekistan's total freight and 3-4% of total passenger traffic. Since 2004, Uzbekistan's gross domestic product has grown by an average of 7% per year, which has contributed to strong demand for rail transport.

6. The Project targets the region of Khorezm in western Uzbekistan. The distance of Khorezm from other urbanized areas of Uzbekistan is long: Urgench, the regional capital, is more than 420 kilometers from Bukhara, and 940 km from the capital city of Tashkent. This hinders economies of scope and scale and keeps Khorezm as a lagging area. The per capita gross domestic product per capita of Khorezm is only 56% of the national average, and only 28% of that of Tashkent[1]. On the other hand, Khorezm is rich in agricultural, industrial, and tourism assets. In terms of tourism, it is home to Khiva, accredited as a world heritage site by the United Nations

[1] State Committee of the Republic of Uzbekistan on Statistics. 2018. Gross Regional Product. Tashkent.

Educational, Scientific and Cultural Organization. As part of a nationally coordinated effort, Khorezm has already began to exploit such cultural assets to develop its tourism industry. The project will help connect Khiva with two other world heritage sites of Bukhara and Samarkand.

7. The project will electrify the 465 km railway line between Bukhara, Miskin, Urgench, and Khiva commissioned in December 2017 and currently being operated with non high-speed trains using diesel traction. The line has a design speed capacity of up to 250 km per hour and connects to the already electrified high-speed railway line linking Tashkent, Samarkand, and Bukhara. The project will fundamentally change the economic geography of Khorezm, by shrinking the temporal distance to other urbanized areas of Uzbekistan. High-speed trains will reduce travel times between Bukhara and Khiva to 3.0 hours, compared to the current 5.2 hours. The total journey from Tashkent to Khiva will take approximately 7.0 hours, within a daily journey. The existing, non-electrified Bukhara-Miskin-Urgench-Khiva line transported about 280,000 passengers in 2019. With electrification and capacity improvements, the line is forecast to attract a total of 1.2 million passengers in 2030.

8. A similar challenge is noted for freight transport: due to the lack of electric traction, the travel time between Bukhara and Urgench is about 13 hours. The Project will reduce freight travel time to 8 hours. Freight will consist of domestic, export, import and transit traffic, which was at 9.2 million tons in 2019 and projected to reach a total of 14.0 million tons by 2030 on the project section.

9. With such improvements, a number of impacts will be achieved. First, traditional sectors of agriculture and manufacturing will increase in their value addition. For example, higher value agricultural produce will be able to be exported faster and farther using refrigerated wagons. The local population, including women and children, will have improved access to safer transport, supported by gender-inclusive facilities in trains and at modernized stations already in place. The project will significantly increase the accessibility of the population of Khorezm to jobs, markets, healthcare and education facilities within the region and in other parts of the country. Second, the economy of Khorezm will be further diversified. The project will maximize the potential for Khorezm's world-class tourism assets to generate sustainable revenue flows.

10. **COVID-19 impact.** The impacts of the coronavirus disease (COVID-19) have been felt extensively throughout Uzbekistan, and particularly in Khorezm. The tourism industry has been severely affected by the pandemic. However, by the time the project is completed, it is expected that COVID-19 will have subsided. The project will help the Khorezm region to bounce back economically.

11. For freight, the railway system has proven to be the most reliable mode of transportation during the pandemic, while truck traffic declined. For passenger transport, trains have proven to be a relatively safer mode of transport under the pandemic, since measures can be enacted to ensure social distancing and proper hygiene. This contrasts with microbuses and other forms of public transport, which are limited in space to ensure adequate social distancing. UTY has already invested in efforts to make train travel as safe as possible during the pandemic. Such measures include (i) social distancing with 50% seat occupancy, (ii) regular disinfecting of trains and stations, (iii) and setting of clear rules on wearing of masks inside the train.

12. The project's construction activities are expected to start in 2022 when COVID-19 is likely to have subsided and be more manageable. To address COVID-19 risks during project implementation, COVID-19 health and safety management plan and emergency response plan will be developed and implemented by contractors as part of site-specific environmental management plans.

13. **Linkage with the government strategy.** Transport infrastructure is recognized as a key growth driver in the government's Development Strategy for 2017 – 2021, to promote economic development and liberalization, and support the development of the social sectors. The strategy specifically mentions the importance of improving transport services, raising passenger safety, and reducing harmful carbon emissions. The project is also in line with the government's Concept for Tourism Development for 2019 – 2025 which includes among its strategic priorities the expansion of external and internal transport routes, improvement of quality of transport services, and the development of tourism infrastructure.

14. **Strategic fit for AIIB.** The Project is aligned with AIIB's thematic priority for Green Infrastructure. The electrification of the railway line will cut greenhouse gas emissions and reduce local air pollution. It will also support climate adaptation efforts by applying climate resilient technologies.

15. The improved efficiency of train services brought about by the project will ensure regional connectivity between Khorezm and other parts of Uzbekistan and will increase transport capacity to remove existing bottlenecks between major urban centers in the country. The railway link to be improved is on Central Asian Regional Economic Cooperation (CAREC) Corridor 2, which serves the vital East – West trade corridor linking Asia from China, through Central Asia, to Europe. Thus, the Project improves Uzbekistan's cross-border connectivity with neighboring countries and is aligned with AIIB Connectivity and Regional Cooperation thematic priority. As part of the CAREC corridor 2, this section of railway will directly contribute to the Bank's cross-border connectivity target. Furthermore, the Project complements ongoing AIIB investments in supporting local infrastructure in Bukhara, Karakalpakstan and Khorezm regions of Uzbekistan.

16. **Value addition by AIIB.** AIIB's support will help to close the financing gap for the proposed Project, which requires substantial upfront capital investments to address infrastructure constraints. The loan will further support Uzbekistan's transition to a low-carbon economy, complementing AIIB's parallel efforts in clean energy sector in the country. The project will also add value to the ongoing AIIB's operations in the transport and urban sectors of Western Uzbekistan by enhancing connectivity effects.

17. AIIB has been working closely with the ADB team throughout Project preparation to streamline the prerequisite requirements and the implementation procedures in line with the MDBs' standards and best international industry practice. Since early stage of project development, AIIB was actively engaged with key stakeholders on shaping and formulating the project. Notably, the AIIB project team have supported the client with technical review of the project feasibility study and conducted early risk assessment to ensure smooth implementation. AIIB, in collaboration with ADB, is providing continued support to UTY to enhance its capacity to meet MDBs' procurement and ES measures required for projects of such scale and complexity.

18. **Value addition to AIIB**. The key value additions to the Bank by participating in the Project are as follows: (i) it will help to diversify the Bank's portfolio as the first railway project in Uzbekistan; (ii) it will provide an entry point for the Bank to invest in and develop a long-term engagement with UTY which has significant infrastructure development needs in the coming years; (iii) it will further build AIIB capabilities in the railway sector, (iv) it will position AIIB as an investor in modern high-speed railway systems in the region, and (v) it will help strengthen AIIB's institutional ties with ADB as the lead co-financier.

19. **Lessons learnt from previous projects.** AIIB has approved seven projects amounting to USD 1,132.6 million in Uzbekistan, of which one is in road transport sector[2] in the same regions of Bukhara and Khorezm. The project will be the first AIIB's transaction in the railway subsector of the country.

20. ADB has prepared five projects in Uzbekistan in the railway sector, two for the rehabilitation and modernization of infrastructure,[3] two for electrification of railway lines (including the current project)[4], and one for the modernization of rolling stock[5]. In general, ADB's Independent Evaluation Department rated the rehabilitation and modernization projects successful and the government's and UTY's performance highly satisfactory. Lessons from the implementation of these projects include (i) designing the project to focus on components that add most value to UTY, e.g. electrification as opposed to general track works; (ii) designing realistic capacity development components to avoid policy and institutional reforms that cannot be completed within the project time frame; (iii) coordinating with other stakeholders on challenges across the subregion through the CAREC program; and (iv) synchronizing project preparation and procurement actions as well as timelines with government procedures and legislation requirements to avoid delays. Specifically on electrification of high-speed lines, lessons learned from the implementation of CAREC Corridor 6 (Marakand – Karshi) Railway Electrification Project will be applied, for example on how to ensure safety during construction and operation, as well as design features to make the project components resilient to high temperatures. The Completion Report for the same project recommends several areas of improvement including (i) better coordination between the PIU and other UTY departments for project monitoring and reporting, and (ii) improving UTY's financial reporting and auditing system to ensure better compliance with international financial management, reporting, and audit requirements.

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[2] Bukhara Road Network Improvement Project (Phase 1)

[3] ADB. 1998. Report and Recommendation of the President to the Board of Directors: Proposed Loan and Technical Assistance Grant to the Republic of Uzbekistan for the Railway Rehabilitation Project. Manila; and ADB. 2000. Report and Recommendation of the President to the Board of Directors: Proposed Loan and Technical Assistance Grant to the Republic of Uzbekistan for the Railway Modernization Project. Manila.

[4] ADB. 2011. Report and Recommendation of the President to the Board of Directors: Proposed Loan to the Republic of Uzbekistan for the Central Asia Regional Economic Cooperation Corridor 6 (Marakand–Karshi) Railway Electrification Project. Manila; and ADB. 2017. Report and Recommendation of the President to the Board of Directors: Proposed Loan to the Republic of Uzbekistan for the Central Asia Regional Economic Cooperation Corridor 2 (Pap–Namangan–Andijan) Railway Electrification Project. Manila.

[5] ADB. 2019. Report and Recommendation of the President to the Board of Directors: Proposed Loan to the Republic of Uzbekistan for the Railway Efficiency Improvement Project. Manila.

C. Project Components

21. **Overview.** The project will upgrade the current railway along Bukhara – Miskin – Urgench – Khiva line, by adding electrification, signaling and telecommunication, and traction power management systems to the recently built 465 km railway line. The line was designed to support train speed of up to 250 km per hour and is connected to the electrified high-speed railway line between the country's capital Tashkent, and cities of Samarkand and Bukhara.

22. **Component 1. Development of railway infrastructure along and adjacent the Bukhara – Miskin – Urgench – Khiva line.** Under Component 1, the Project will develop railway infrastructure: (i) construction of 8 traction substations, (ii) construction of section posts, (iii) supply and installation of catenary systems, (iv) supply and installation of signaling, telecoms, and supervisory control and data acquisition (SCADA) systems, (v) construction of external power supply, (vi) purchase of maintenance equipment, and (vii) procurement of specialized wires for catenary system. In addition, minor upgrades will be made to electrification infrastructure on adjacent lines extending from Bukhara to Tashkent, and from Samarkand to the south[6]. These upgrades, although minor in scope, will enable the electrified network of UTY to continue operating reliably and to support anticipated growing traffic volumes. The infrastructure incorporates resilient design measures, particularly in order to withstand the extreme temperatures under the current and future expected climate. The latest technological features will also be embedded to ensure efficiency and reliability.

23. **Component 2. Development of tourism economic corridor Bukhara–Miskin–Urgench–Khiva.** Under Component 2, the Project will support the transformation of the corridor into a tourism-led, economic corridor through (i) support to municipalities along the railway corridor for sound urban development around stations which will include access and safety features for the elderly, women, children, and the mobility impaired, (ii) support to the same municipalities to develop a sustainable tourism industry, (iii) marketing of railways as part of wider efforts of Uzbekistan to attract tourists, (iv) implementation of an electronic ticketing system to allow tourists and domestic passengers easier means of booking tickets, with provision for discounts and priority seats for the elderly, pregnant women, children, and the mobility impaired, (v) strengthening women's participation in economic activities related to tourism, including the operation of tourist information centers, employment at tourism facilities, and sale of local crafts, and (vi) training of women in hospitality and tourism management.

24. With the project, annual passenger traffic on the Bukhara to Khiva electrified line is expected to increase from 280,000 passengers per year in 2021, to 1,080,000 passengers by 2026. Freight will reach a total of 11.8 million tons per year by 2026.

D. Cost and Financing Plan

25. The project is expected to cost USD 445.65 million.

[6] Transformers and related equipment will be upgraded at existing traction substations. Existing sectioning posts will be upgraded. Two new sectioning posts will be constructed.

26. ADB and AIIB have both been requested by the Government of Uzbekistan to help co-finance the Project. ADB, designated as the lead co-financier, will harmonize all relevant procedures to those of AIIB as much as possible, including but not limited to safeguards, procurement and financial management. AIIB will apply and rely on respective ADB's policies to the extent that they are consistent with AIIB policies. The loan is expected to be co-financed by ADB and AIIB at a 60:40 ratio. Co-financing will be conducted on a joint basis, i.e., same contracts will be jointly financed by ADB and AIIB, with two withdrawal applications made in the ADB and AIIB co-financing ratio.

27. Out of total project cost, USD 7.13 million will be allocated for consultancy services to implement Component 2 of the Project, while the rest of the cost will support Component 1.

28. Mitigation measures comprise electrification of the railway and accompanying modal shift to lower-carbon transport. Adaptation measures comprise the climate-resilient wires for catenary system, and specialized machinery for sand clearing and track condition monitoring. Accompanying annual greenhouse gas emission reductions are expected at 81,000 tons per annum.

29. **Government and UTY financing.** The government and UTY are expected to finance 40% of the project costs, which will cover track upgrades, safety facilities, other civil works, design works, land acquisition and resettlement, taxes and duties, and financing charges during implementation. Starting from July 1, 2020, GOU has introduced changes in the tax and duties regulation of MDB-financed projects from exemption to reimbursement. UTY will directly pay taxes and duties claimed by tax and customs authorities in the case of imported goods and goods component of plant contracts. Contractors and consultants will make such payments for all others, and invoice UTY of such amount. UTY will submit the cost report to MOF, which will deduct the equivalent amount from UTY's tax obligations for the succeeding month. Other tax exemptions will be applied in accordance with the Tax Code, and custom duty exemptions will be applied in accordance with the Customs Code. UTY will monitor the tax and duty reimbursement and will ensure transparency, efficiency and timeliness of the reimbursements. ADB and AIIB loan proceeds will not be used for the tax financing or pre-financing. The government will relend the proceeds of the ADB loan to UTY with applicable interest and a term of 25 years including a grace period of 5 years. The on-lending interest rate mark-up to be charged by MOF on the subsidiary loans to UTY is assumed to be a maximum of 1.0%. It is included into the financial charges during implementation and will be covered by UTY.

30. Technical assistance (TA) of USD 300,000, financed on a grant basis by ADB's Technical Assistance Special Fund (TASF 6), was approved to support UTY in preparing and implementing key gender actions associated with the project.[7] The TA will support selected women students of STEM courses at universities or TVET institutes gaining the skills required for railway operations and management. The modules will also be used to build the capacity of UTY's women staff. In

[7] ADB. 2020. Technical Assistance for Preparing and Implementing Gender-Inclusive Projects in Central and West Asia, Subproject 5: Putting Women on the Right Track in the Railway Sector. Manila (TA 6693).

addition, women from communities in the project area will be offered training related to tourism and hospitality. The TA will be administered by ADB. The consultants recruited for the TA will liaise with UTY, khokimyat (local government) representatives, the Ministry of Mahalla and Family Support, Ministry of Investments and Foreign Trade, Ministry of Finance, Ministry of Transport, and the State Committee for Tourism, among other stakeholders.

E. Implementation Arrangements

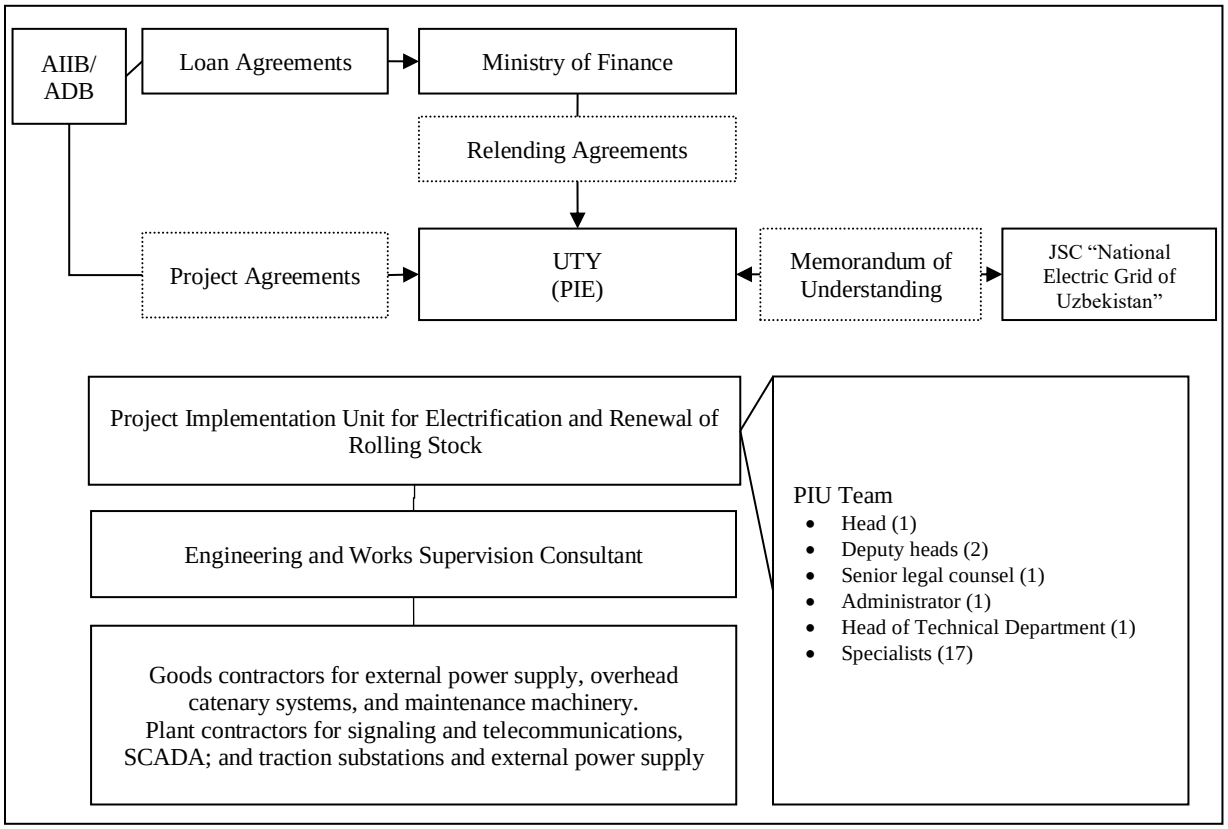
31. **Institutional Context.** The Ministry of Transport is responsible for railway development in the country. The Deputy Minister responsible for railway transport oversees the operations and the investment program of UTY, which is an PIE of the Project. UTY is a national railway operator and infrastructure owner in Uzbekistan, with 100% shares owned by the Government of Uzbekistan. The Board of Directors of the company is headed by the Prime-Minister of the country and includes representatives of various governmental agencies and ministries. Overall responsibility for the planning, oversight and implementation of the Project rests with UTY.

32. UTY was established in 1994 on the basis of the Uzbekistan part of the Central Asian Railway of the Soviet Union. Its principal activity is the operation of the railway network including underground railway system in Tashkent, and related infrastructure in Uzbekistan. It carries out both passenger and freight transportation, provides railway forwarding services and performs construction works of its own activities. In 2020 UTY served 22.9 million passengers (with 1.1% average annual increase since 2000), the revenues from passenger services increased for 4% despite the COVID-19 pandemic. The company transported 70.1 million tons of cargo (with 3.3% average annual increase since 2000). The cargo segment was not affected by the outbreak of the coronavirus disease, with the first 9 months of 2020 reporting about the same amount as compared to the same period from the year before. The company is a large employer on the Uzbekistan market with 87,100 employees. The Uzbekistan railway network has expanded rapidly in recent years: even in 2020, electrified lines increased by 3.6% to 1831 km.

33. **Implementation period.** The project will be implemented from January 2022 to June 2026. The loan is expected to close by December 2026.

34. **Implementation Management.** UTY's project implementation unit (PIU), a structural division in charge of electrification projects, will manage the day-to-day implementation of the project. UTY's other technical departments will assist the PIU during project implementation. UTY will also carry out sound operations and maintenance of electrified and non-electrified lines. The PIU's staff is experienced in international financing institutions' procedures and policies. The technical and administrative departments of UTY will also assist the PIU. Close coordination with JSC "National Electric Grid of Uzbekistan" will be needed for works relating to the external power supply. For the Tourism corridor development component of the Project, UTY will cooperate with the Khorezm Region local government (khokimyat) comprising the cities of Urgench and Khiva.

Figure 1: Project organization structure



Source: Asian Development Bank and UTY.

35. **Procurement.** ADB is the lead co-financer for this project. Procurement of goods, works and services for the project will be carried out in accordance with ADB Procurement Policy: Goods, Works, Non-consulting and Consulting Services (2017 as amended from time to time); and the Procurement Regulations for ADB Borrower: Goods, Works, Non-consulting and Consulting Services (2017, as amended from time to time). The rights and obligations between the AIIB and ADB will be governed by a co-lenders' agreement. The ADB procurement policy and procurement regulations are materially consistent with the AIIB's procurement policy and associated Procurement Instructions to Recipient and therefore, are deemed fit for purpose.

36. **Financial Management.** UTY will be responsible for overall financial management of the Project to ensure proper usage of funds. As the project will be co-financed with ADB, which will be the lead co-financier, AIIB will align with ADB's financial management (FM) procedures, in accordance with the signed co-financing framework agreement. The project's Interim Unaudited Financial Reports (IUFRs) will be submitted to AIIB and ADB within 45 days after the end of each calendar quarter. The audited annual project financial statements will be submitted to AIIB and ADB within 6 months after the end of each financial year. UTY's annual audited financial statement will be submitted no later than 1 month after approval by the relevant authority. The external audits of the Project and the entity financial statements will be carried out by an independent auditor acceptable to AIIB and ADB.

37. **Monitoring and Evaluation.** Project progress and performance will be monitored based on the project objective indicators, which are defined in the Results Monitoring Framework. The PIU will be responsible for results monitoring and will be supported by designated external experts working under the project in the frame of the ADB TRTA.

38. UTY and the lenders will monitor the overall performance of the project through the project performance monitoring system (PPMS) and project performance reporting (PPR) system respectively. UTY will establish the PPMS, within 6 months from project commencement, and collect and update baseline data for performance monitoring. The key indicators and targets in the project's Results Monitoring Framework will be the primary data required for analysis. For this purpose, AIIB's and ADB's inception mission will provide UTY a checklist of the above data, which will be updated and reported quarterly through UTY's quarterly progress reports and after each AIIB/ADB review mission. UTY will involve the beneficiaries in the collection of data on impacts and outcomes. During each review mission, the updated project performance will be shared with the interested representatives of project beneficiaries.

39. A project inception mission will be fielded after the loan agreement for the project is declared effective. Thereafter, regular reviews will follow at least annually. As necessary, special loan administration missions and a midterm review mission will be fielded, under which any changes in scope or implementation arrangement may be required to ensure achievement of project objectives. The PIU will monitor project implementation in accordance with the schedule and time-bound milestones, and keep the lenders informed of any significant deviations that may result in the milestones not being met. A project completion report will be submitted by the PIU within 6 months of physical completion of the project, providing detailed evaluation of the progress of implementation, costs, consultant performance, social and economic impact, and other details.

40. Compliance with the covenants will be jointly monitored by UTY and the lenders through monthly and semi-annual updates provided by the engineering and construction supervision consultants. The consultants will provide a status report on the covenants with the explanation and time-bound actions on partly or non-complied covenants. ADB's resident mission in Tashkent will hold semi-annual review meetings with UTY to ensure the full compliance with the covenants.

41. **AIIB's Implementation Support.** The Bank's team will conduct regular supervision missions. The frequency of the missions will depend on implementation progress and complexity with a minimum of one mission per year. AIIB's implementation support will be coordinated with ADB implementation support missions.

3. Project Assessment

A. Technical

42. **Project Design.** UTY is highly experienced in electrification, signaling and telecom implementation, given its involvement in ongoing and completed projects. The technical parameters of the project were prepared by UTY, design institute “Boshtransloyiha”, and design institute “Uzengineering” (for aspects related to external power supply). TRTA consultants have been supporting UTY in the design by reviewing the technical documentation and providing recommendations for improvement. Considerations made and included in the final design relate to (i) ensuring safety of high-speed train operations, (ii) ensuring climate-resilient design of all project components, (iii) optimization of the design and routing of the external power supply and (iv) ensuring safety on the Amudarya river bridge.

(i) **Safety of high-speed train operations**. UTY has incorporated measures to ensure safe operation reliability, availability, maintainability, and safety of trains reaching a maximum of 250 kilometers per hour. Level crossings will be eliminated over the next 3 years, and by the time high-speed operations begin. International standards will be followed with regards to the design, manufacture and installation of components. The signaling and telecommunications system will be designed to ensure prompt communication with train drivers to stop the train on time in case of emergencies. UTY will perform a thorough check on the stability of tracks and embankments along the track before commissioning of high-speed operations. UTY will procure and maintain a special railway inspection car to periodically check all components.

(ii) **Climate resilient design**. UTY will use special material to ensure resilience against extreme variations in temperature. A special cement will be used to manufacture concrete foundations for Overhead Catenary System (OCS), made of sulfate-resistant Portland cement. It is a special purpose cement used where sulfates are present in concentrations that would damage concrete and this is the case on the current electrification project. The OCS aluminum-steel cable will be manufactured with a special grease inside to avoid corrosion by sand and salt. A sand clearing machine will be procured under the project to avoid sand accumulation, rail and wheel abrasion, sensor/signal losses, drainage issues, early corrosion of track superstructures, etc.

(iii) **Optimization of external power supply**. The route of the external power supply line was carefully designed to avoid ecologically sensitive and culturally significant zones. Special devices will be installed on external power supply cables to avoid collision and electrocution of birds.

(iv) **Ensuring safety on Amudarya.** The Amudarya River bridge is used for both train and road traffic. UTY has completed the design for the road/rail bridge over the river, where road users present risk of delays to train operations and electrification of bridge requires special considerations to avoid electrocution hazard.

43. Given that the installation of the electrification, signaling and telecommunication will be implemented under normal traffic operations, careful coordination with existing train operations and provision of high-level safety measures for the on-site work will be needed.

44. **Operational sustainability.** UTY has developed in-house technical capabilities for planning, designing and operation and maintenance of the railway network. Infrastructure improvements and new assets created under the Project will be procured, maintained, and operated by UTY Railroad Transportation and Infrastructure division.

B. Economic and Financial Analysis

45. Both economic and financial analysis have been conducted by the lead co-financier. Detailed information is provided in Annex 3.

46. **Economic Analysis.** The economic analysis of the project has been carried out by ADB through comparing the costs of the project with the benefits in the with- and without-project scenarios. The main economic benefits of the project are (i) time savings for passenger and freight traffic, (ii) vehicle operating cost savings for passenger and freight traffic, (iii) reductions in carbon dioxide emissions, (iv) energy cost savings, (v) locomotive maintenance cost savings, and (vi) net economic development linked with increased tourism arrivals. The economic impact of COVID-19 is reflected in projected macro-economic conditions. The project is economically viable, with an economic internal rate of return of 15.1%. The project remains viable against (i) a 10% reduction in projected benefits, (ii) a 10% increase in costs, (iii) a combined 10% reduction of project benefits and 10% increase in costs, (iv) a one-year delay in completion, and (v) the exclusion of tourism-induced benefits.

47. The project will increase the capacity, efficiency, and sustainability of the transport network along BMUK. The capacity added by the project will divert passenger and freight traffic using road-based modes, and release suppressed freight demand that would not be met without the project. The electrification of the BMUK line, and improvements to the signaling and telecommunications systems, will improve the capacity, speed, efficiency and safety of rail freight operations. Passenger trains between Bukhara and Khiva currently take about 5.2 hours. The project will result in a reduction of journey time savings estimated at 2.2 hours per journey. The passenger value of time was based on the GDP per capita, the employment ratio, and the wage rates in Uzbekistan, resulting in a value of time of USD1.5/hour for work trips, which were assumed to account for 70% of total trips, and USD0.3/hour for nonwork trips. For diverted demand, travel time savings were based on road travel times of 7.5 hours.

48. The project will help develop the tourism sector in the Khorezm region, by significantly improving accessibility to the region through fast and comfortable high-speed rail services. Total economic benefits are based on an average spending of USD80/day, an economic multiplier of

2.8 which comprises both direct and indirect effects, and an average length of stay of 2.7 days along Bukhara–Khiva[8].

49. The project will result in a net reduction in CO2 emissions, as electric locomotives emit less CO2 than the diesel locomotives that would be used without the project, and less CO2 than the heavy trucks and cars used for diverted freight and passenger traffic. The CO2 emissions savings were based on emissions rates estimated at 31 grams (g) per ton-km for diesel locomotives, 13 g for electric locomotives, 669 g per ton-km for heavy goods vehicles, and 164 g per ton-km for passenger cars. CO2 emissions were converted at a value of USD43.2/ton in 2020 prices, increasing at 2% per annum in real terms.

50. **Financial Analysis.** The financial analysis assessed the project's financial viability and sustainability in the context of UTY's operating environment. Without the project, trains would continue to run with diesel locomotives, which incur high operating costs and operate at significantly lower speeds, for both passenger and freight services. The project is revenue generating, and its financial viability was assessed by comparing incremental costs and revenues of the financing components in with- and without-project scenarios. The project will increase revenues, mainly from the freight traffic that currently provides about 88.0% of UTY's total revenues. It will also reduce operations and maintenance costs of traction and locomotives. The financial internal rate of return (FIRR) is estimated at 4.9% on an after-tax basis, which is above the WACC and indicates the project's financial viability. The project will thus contribute to further strengthening the financial performance of UTY as an entity. The project remains financially viable in the case of a (i) 10% increase in costs, (ii) 10% decrease in revenues, (iii) 10% increase in costs and 10% decrease in revenues, and (iv) 1-year delay in implementation.

51. **Financial and institutional sustainability of UTY.** UTY operates a profitable business, mainly due to its freight revenues. However, the operating income ratio, which includes depreciation, decreased from 0.33 in 2017 to 0.14 in 2019, mainly due to the poor financial performance of its non-core businesses. The government has issued a decree stating that the coal production is to be divested from UTY and is in the process of removing other non-core businesses. With these measures, the operating income ratio is expected to increase to 0.18 by 2030. The long-term debt to equity ratio is forecast to gradually decrease from 3.7 in 2020 to 1.2 by 2030, while the debt service coverage ratio is forecast to increase from 2.0 in 2020 to 3.2 by 2030. Overall, UTY maintains the financial capacity to implement the project, fund its contribution to the project costs, repay the loan, and make the required payments on its existing debt. To ensure the future financial health of UTY, the project includes loan covenants (i) on the operating income ratio of UTY, which shall be maintained above 0.1 from financial year 2022 onwards, and (ii) for the government to pass an official decree to remove other non-core businesses from UTY.

[8] With tourism benefits being a major contributor, the project team further tested the economic viability of the project by looking at the following scenarios (a) reduction in average tourism spend per day by 50%, (b) reduction in average spend per day by 50% and no multiplier effect, and (c) more gradual ramp up in tourism. The observed EIRRs were 12.7%, 11.1% and 14.7%, all of which were above the social discount rate of 9.0%.

52. In 2019, UTY's operating revenues totaled UZS9.2 billion (USD 858 million), and operating income reached UZS1.2 billion (USD 112 million), with an operating income ratio of 0.14. Freight traffic is the primary contributor to freight revenues, and UTY does not receive budgetary support from the government.

53. **Uzbekistan debt sustainability.** In 2020, Uzbekistan's external debt stood at around USD33 billion or 58.4% of GDP, a sharp increase since 2019 due to Covid-19 response. However, both external and public debt is sustainable. The government has pursued a generally prudent debt policy with low public debt (37.8 percent of GDP in 2020), mechanisms to control annual borrowing, and large reserves of around USD35 billion as a buffer against risks. Public debt is projected to continue to increase by 2023 and then stabilize and decline to around 40 percent of GDP in the medium and long term.

C. Fiduciary and Governance

54. **Procurement.** UTY is the implementing agency. UTY has prepared a Strategic Procurement Plan (SPP) defining procurement arrangements for the project. The SPP is equivalent to AIIB's Project Delivery Strategy (PDS) and addresses procurement arrangements, market analysis, capacity assessment of the implementing agencies, application of domestic preference, and risk assessment along with proposed mitigation. In the SPP, the client has proposed application of domestic preference on one contract (Overhead Catenary System) to encourage participation of local firms and develop their capacity. This is in line with paragraph 5.6 of Procurement Policy "development of domestic industry" and thus agreed in principle by both the financiers. In addition to the SPP, UTY has also prepared a Project Administration Manual (PAM) with support from ADB defining project implementation arrangements.

55. Open competitive tendering will apply to all packages, under single-stage, one-envelope method, without prequalification. ADB's standard bidding documents will be used. Contracts have been packaged in "lots and package" system which allows small contractors to bid for a lot and a larger contractor to bid for combination of multiple lots or for entire package. As a result, it is likely that it will reduce transaction cost of conducting multiple tenders. UTY and GOU have also agreed to use ADB's electronic procurement platform "Tenderlink" for bidding under the project. This platform has been recently approved by ADB for use by implementing agencies, to support tenders during the COVID-19 pandemic situation.

56. An engineering and works supervision firm (with package name BX-05) will be recruited to support the PIU in project implementation and to support the development of a tourism-led economic corridor.

57. A project procurement risk assessment conducted by ADB confirmed that UTY has prior experience in handling MDB financed projects. Procurement risk is rated as medium. The risk assessment highlighted capacity issues of the PIU staff international procurement and therefore, as a part of mitigation measure, proposed to provide training on ADB procurement procedures. The TRTA procurement consultant is providing on-the-job training and assisting PIU in managing procurement during project preparation stage. After the project becomes effective, assistance will

be provided by international project management and supervision consultants. AIIB has reviewed SPP along with PAM and conquer to their findings.

58. **Financial Management.** ADB's assessment in August 2021 confirmed that UTY's current financial management arrangements are sufficient to implement the project in compliance with ADB requirements. The overall pre-mitigated financial management risk is assessed as medium. UTY has built on prior and ongoing ADB project experience, retaining adequate staff, undertaking disbursements based on ADB rules, and adhering to acceptable accounting standards for project reporting. However, risks exist in the management of foreign exchange risks, acquisition of non-core businesses from the government, non-compliance with IFRS, timeliness and accuracy of monitoring and reporting, and accounting system and reporting integration within UTY. In this respect, an FM action plan has been drawn to (i) monitor UTY's foreign currency reserves and develop measures to hedge against currency fluctuations, (ii) divest non-core businesses, (iii) carry out training organized by ADB on financial management, (iv) move to multi-year contracts for auditors and conduct interim audit missions mid-year to reduce delays in the preparation of financial statements, (v) engage external consultants and a valuation company to address the qualified audit opinions, and (vi) accelerate the integration of the accounting system. A Project Administration Manual (PAM) has been prepared which provides detailed information on the project financial management implementation arrangements.

59. **Disbursements.** The Government of Uzbekistan will on-lend the proceeds of the loan to UTY through a Subsidiary Loan Agreement. The Government and UTY will ensure that all expenditures financed out of the loan proceeds to be used exclusively for the purposes of the project.

60. The loan proceeds will be disbursed following ADB's Loan Disbursement Handbook, AIIB's disbursement procedures and detailed arrangements agreed between the government and ADB/AIIB. Reimbursement as well as direct payment procedures will be used for the civil works (design, supply and installation) contracts, goods contracts, and consulting services.

61. UTY is using own funds as counterpart funds for this project. In case of any shortfall in UTY's funding, the Borrower will seek and identify alternative sources of funding to ensure successful completion of the project. UTY's counterpart funding will include financing of taxes and duties, VAT portion as a cash contribution, and the duties portion as exemption. ADB/AIIB loan proceeds will not be used for the tax financing or pre-financing.

62. **Financial Crime and Integrity (FCI) and Counterparty Due Diligence/Know Your Counterparty (CDD/KYC).** Uzbekistan has taken large strides in improving governance by strengthening the rule of law and anticorruption measures[9]. It set up a new Anti-Corruption Agency in 2020 to guide and coordinate anticorruption efforts. Starting from 2021 anti-corruption assessment will be carried out for each project funded from centralized budgets and investments. One of the innovations is the announcement of corruption ratings and shadow economy for state bodies, enterprises and regions.

[9] Uzbekistan improved the most among the Commonwealth of Independent States in the "absence of corruption" indicator of the World Justice Project Rule of Law Index 2020. Government of Uzbekistan, MOF. 2020. Newsletter No. 10.

63. Uzbekistan is a member of the Eurasian Group on Combating Money Laundering and Financing of Terrorism. Uzbekistan is not on the Financial Action Task Force (FATF) List of Countries that have been identified as having strategic anti-money laundering deficiencies**.**

64. AIIB conducted integrity due diligence on UTY, its Board of Directors, and senior management. They do not appear to constitute a significant or potentially significant integrity risk. No adverse news has been found based on research done by the Bank's KYC intelligence provider. AIIB has obtained reasonable assurance that UTY was not established for and is not being used for money laundering or terrorism financing in the project jurisdiction.

65. **Governance and Anti-corruption.** AIIB is committed to preventing fraud and corruption in the projects it finances. For this project, ADB's Anti-corruption guidelines shall apply which are materially consistent with AIIB's Policy on Prohibited Practices (2016). However, the Bank reserves the right to investigate, directly or indirectly through its agents, any alleged corrupt, fraudulent, collusive, coercive or obstructive practices, and misuse of resources and theft or coercive practices relating to the project and to take necessary measures to prevent and redress any issues in a timely manner, as appropriate. AIIB's Policy on Prohibited Practices would apply to the Project to the extent it is not covered by ADB's Anticorruption Policy (i.e., non-harmonized components of misuse of resources and theft).

66. ADB's Anticorruption Policy was explained to and discussed with the government and UTY. The specific policy requirements and supplementary measures are described in the project administration manual.

67. **Institutional Capacity.** UTY has implemented several ADB and other multilateral development bank-financed projects and is familiar with MDB's procedures and requirements. An evaluation of the recently completed projects shows ADB's implementation capacity on appropriate level. In this project, institutional capacity is expected to be increased as a result of comprehensive ADB technical assistance.

68. **Reporting and Monitoring.** The PIU is staffed with required experts to ensure quality to monitoring and reporting on implementation progress. Designated external consultants under ADB technical assistance will support the PIU in construction supervision and monitoring. UTY will monitor the Project implementation according to the schedule and timebound milestones and keep AIIB and ADB informed of any significant deviations. UTY will provide AIIB and ADB with: (i) quarterly progress reports including financial and disbursement report, variance analysis of physical and financial progress, details of utilization of funds and reconciliation with ADB loan financial information system; (ii) consolidated annual reports including (a) progress achieved by project components as measured through the indicator's performance targets, (b) key implementation issues and solutions, (c) updated procurement plan, and (d) updated implementation plan for the next 12 months; and (iii) a completion report within 6 months of physical completion of the Project. In January and July every year, UTY will submit semi-annual social and environmental monitoring reports to AIIB and ADB and relevant government authorities, and these reports will be disclosed to the public on the UTY's (in Uzbek or Russian) and AIIB and ADB (in English) websites. To ensure that the project implementation is financially accountable, project accounts and PIE audited financial statement together with the associated auditor's report should be adequately reviewed.

D. Environmental and Social

69. **Environment and Social Policy and Categorization**. The Project's environmental and social (ES) risks and impacts have been assessed in accordance with ADB's Safeguard Policy Statement (SPS), 2009. To ensure a harmonized approach to addressing the ES risks and impacts of the Project, following the ADB and AIIB agreement, and as permitted under AIIB's Environmental and Social Policy (AIIB ESP 2016, amended 2019), the ADB's SPS will apply to the Project in lieu of the AIIB's ESP. AIIB has reviewed the ADB's SPS and ADB's SPS and is satisfied that: (a) they are consistent with AIIB's Articles of Agreement and materially consistent with the AIIB's ESP (2019), including AIIB's Environmental and Social Exclusion List and the relevant Environmental and Social Standards; and (b) the monitoring procedures that are in place are appropriate for the Project.

70. In accordance with ADB's SPS, the Project has been categorized as B for environment, as a project with site-specific impacts, few of which are irreversible, and where in most cases mitigation measures can be designed. It has been assigned Category A for involuntary resettlement due to the permanent impact on 65 land users out of which, 58 dehkan farm holders (with approximately 290 household members) are considered severely impacted. The external power supply lines (EPSL) will also impact 575.63 ha. (27.12 ha permanently and 548.71 ha temporarily) which will affect 307 dehkan farms and 149 farm enterprises. None of the land users affected by the EPSL will be severely affected. The country in general, and the project area in particular, do not have Indigenous Peoples' communities, as per the SPS, thus the project is categorized as C for Indigenous Peoples. An Initial Environmental Examination (IEE) has been prepared in compliance with ADB's SPS, which is accompanied by two Environmental Management Plans (EMPs): (i) construction of overhead catenary system, traction substations (TSS) and installation of signaling, telecom, and supervisory control and data acquisition systems, and (ii) construction of external power supply network. The IEE also includes due diligence of two existing depots which will be upgraded for maintenance of electric locomotives, and corrective measures have been provided in the IEE. Two Land Acquisition and Resettlement Plans (LARPs) have also been prepared, LARP 1 for the traction substations and LARP 2 for the external power supply lines. In addition, a Social Due Diligence Report (SDDR) had also been prepared for existing facilities and it was confirmed that no new physical resettlement or economic displacement are expected because of the proposed civil works for these components.

71. **Environment Aspects**. By enhancing the safety and efficiency of a clean mode of transport, the Project is expected to contribute to a reduction of air emissions by replacing diesel locomotive and model shift from road transport. The railway line does not traverse through any protected areas or buffer zones, however, there are some key biodiversity areas (KBAs) including several Important Bird Areas (IBAs) on the wider surroundings of the project site (in 50km from the alignment). Thus, a biodiversity assessment and Critical Habitat Assessment (CHA) have been conducted. According to these assessments, the Project triggers critical habitats for Asian Houbara (IUCN Category: Endangered), and migratory species Dalmatian Pelican (IUCN Category: Not Threatened) and Red-Crested Pochard (IUCN Category; Least Concerned). The potential impacts on bird species of electrocution and collision with the new gantry infrastructure and or external power supply lines and TSS were evaluated. During the process of the assessments, the designer and UTY decided to re-route two sections of transmission lines (TLs)

to avoid sensitive areas. Mitigation measures like bird protection markers on wires are embedded in the two EMPs and in a Biodiversity Action Plan, which include detailed actions to ensure no net loss and net gain where possible. With these mitigation measures, the CHA concluded that there will be no significant or irreversible impacts expected. Bird monitoring will be carried out in migratory seasons during pre-construction and construction phases.

72. Potential negative environmental impacts of this Project are largely temporary and localized. During the construction phase, the negative impacts will include air pollution, noise and vibration, water pollution, wastes, soil erosion and cleaning of vegetation at the locations of TSS and external power supply lines. The old transformers to be replaced are “dry” ones without oil-polychlorinated biphenyl (PCB). New transformers to be procured under this Project will also be PCB-free. A section of the TL alignment has been re-routed to avoid a historical monument based on IEE’s suggestion, therefore there is no cultural heritage anticipated within the area of impact of the Project. During the operation phase, increased numbers of trains as per the Project design will not result in increasing noise levels within project areas according to the noise modeling. The vibration due to the train operation will also be under permitted standards. Other adverse impacts during the operation phase will include generation of wastewater and wastes, potential soil erosion and air emissions from equipment which are considered minor. The existing railway line provides sufficient crossings along the alignment that wild animals can use so the habitat fragmentation has already been reduced. The construction of fences for high-speed train is not likely to increase impacts on habitat fragmentation.

73. The EMPs describe the mitigation measures for the identified risks and adverse impacts. The EMPs also include a Chance Find Procedure and Asbestos-containing Materials Management Plan. In addition, monitoring plans for bird migratory routes, air quality, noise, vibration and water quality have been proposed with budget and reporting mechanism. The EMP will be included in tender documents and construction contracts. Site-specific EMPs (SSEMPs) will be prepared by the contractors prior to the constructions.

74. **Climate Change Risks and Opportunities.** Uzbekistan is among the countries most vulnerable to climate change. A climate risk assessment was carried out based on climatic models presented in Third National Communication for Uzbekistan under the United Nations Framework Convention on Climate Change (2016) and Climate Risk Profile (2015). The main risks are related to the impact of extreme temperatures, high wind speeds and earthquakes. Extreme temperatures (beyond 40°C) may negatively impact on the performance of equipment installed at TSS, the signaling and telecommunications equipment.

75. To adapt to the increase in temperature, construction materials resistant to hot weather have been selected. Each structure housing signaling, and telecommunication systems will be equipped with air conditioning to regulate temperature for such sensitive equipment.

76. The whole Project is considered a Climate Mitigation Financing as it (i) reduces the carbon intensity of train travel, and (ii) induces modal shift away from road transport. Anticipated estimated GHG emission reduction will be 81,000 tCO_2 /year. 100% of AIIB’s financing (USD 108 million) qualifies as climate mitigation finance according to the joint MDB climate finance tracking. Climate adaptation finance is USD 6.7 million: ADB will finance USD 4 million (60%), while AIIB will finance USD 2.7 million (40%).

77. **Social Aspects.** Improving railway connectivity will stimulate growth by supporting sustainable tourism and transit-oriented development, thereby creating opportunities for women to actively engage in the railway and tourism industries. Further, temporary local job and contractor opportunities related to civil works are expected to have beneficial economic impact on local communities.

78. The negative social risks and impacts are mainly related to temporary construction-related nuisances, increased traffic inside settlements located close to traction substations' construction sites, limited labor influx, community health, gender-based violence/sexual exploitation and harassment (GBV/SEAH) risks. They will be mitigated through the provisions of the EMPs, dedicated Code of Conduct for workers and site-specific EMPs for labor/construction camps (SSEMP) which will be incorporated into the bidding documents.

79. The Project design will not lead to physical resettlement, though economic resettlement and land acquisition will occur on agricultural lands and dekhans/small farms. TL routes have been selected to traverse primarily through agriculture lands and desert areas to minimize the demolition of houses and structures. However, during the construction phase, land will be acquired temporarily for the construction of the pylons and the stringing of the cables. The catenary, signaling and SCADA systems, as well as pipes for optic cable, will be installed within the territory of the operating stations and existing right of way of railway alignment. The construction activities will also involve some permanent acquisition of land for the foundations for the pylons and towers, and 25 meters wide for 220 kV and 20 meters for 110 kV high-voltage line safety zone during operation.

80. The draft LARPs and corresponding budgets were prepared based on a desktop review and limited field surveys, due to COVID-19 restrictions. Detailed measuring, census and socio-economic surveys, impacts on crops, and vulnerability assessments will be undertaken upon finalization of detailed design to finalize the LARPs and corresponding Entitlement Matrices prior to initiation of civil works. The preliminary assessment undertaken for LARP 1 reveals that 18.91 ha of agricultural land will be subject to permanent acquisition for construction works on 5 TSS affecting 65 land users. The construction of ten external power supply lines (EPSL) would require the acquisition of 575.63 ha, which is covered in LARP 2. This will have an impact on 456 project-affected people, who will lose a small portion of land and/or experience temporary restriction of access during construction works.

81. **Gender Aspects**. The project will provide gender sensitivity trainings to PIU staff and BMUK line personnel. Better and faster railway connection to Khorezm region will boost tourism flow in the region, a sector dominated by female employees. It is expected that job opportunities in the service sector will increase too, especially for women. A Gender Action Plan (GAP) has been developed to identify actions to ensure the maximization of benefits to women based on a gender assessment.

82. **Occupational Health and Safety, Labor and Employment Conditions**. The IEE has identified occupational health and safety (OHS) risks during the construction, operation and maintenance phases. A Project OHS Management Plan will be implemented, and the contractors will prepare OHS plans as part of the SSEMPs in compliance with World Bank Group

Environmental, Health and Safety Guidelines, national OHS regulations and UTY internal regulations as well as those related with COVID-19.

83. **Stakeholder Engagement, Consultation and Information Disclosure.** The preparation of the IEE and LARPs overlapped with COVID-19 restrictions, which placed limitations on physical contacts with Project-affected people (PAPs). In March and August 2020, prior to governmental-mandated quarantines, public consultations and meetings took place in the districts of the Khorezm province adjoining to Khiva. Gender and tourism development specialists conducted workshops focused on general information about the project, its components, and the anticipated opportunities for the development of tourism and handicraft activities among the population of the project areas. The total number of meeting participants was reported to be around 55. As part of the biodiversity assessment, several consultations with national specialists and representatives of the International Breeding Center in Bukhara province were held and their feedback has been incorporated into the IEE and the Project design including the TL re-routing. The potential ES impacts, mitigation measures, the entitlement matrix for compensation calculations and details of the Project's Grievance Redress Mechanism (GRM) were presented in leaflets. 700 of them were distributed in settlements located next to the railway alignment including all PAPs in August 2020 and published on the UTY website and relevant khokimiyats' (local governments') websites in Russian and Uzbek languages.

84. The IEE and LARPs have been disclosed on the websites of UTY[10] and ADB[11] in Uzbek, Russian and English languages. The links to these websites are also provided on AIIB's website[12]. They are physically available in local communities and relevant authorities (khokimiyats), the Bukhara, Khorezm Provinces and Republic of Karakalpakstan branches of SCEEP, and makhalla committee located next to Bukhara, Hazarasp and Urgench TSSs for further use during the construction and operation phases.

85. The stakeholder engagement process will continue throughout Project activities as planned in the IEE. Should there be any changes in the design/alignment/location and or unanticipated ES impacts, the IEE will be updated accordingly, and public consultations will be organized. Prior to construction, the PIU will conduct an information, education, and communication campaign to provide sufficient awareness among the affected communities of the upcoming civil works.

86. **Project Grievance Redress Mechanism**. A two-level grievance redress mechanism (GRM) is in place, involving (i) the nearest railway station, and (ii) UTY's secretariat in Tashkent. As a third channel, aggrieved persons can approach any competent court at any stage of the complaint. The GRM established under previous ADB Project – Electrification of Pap-Namangan-Andijan railway project will be applied to the Project. The GRM fully complies with UTY's existing procedure on citizens' appeal. Members of Project-affected communities and construction

[10] Russian: https://railway.uz/ru/gazhk/investicionniy_potencial/
Uzbek: https://railway.uz/uz/gazhk/investicionniy_potencial/
English: https://railway.uz/en/gazhk/investicionniy_potencial/
[11] https://www.adb.org/projects/53271-001/main
[12] https://www.aiib.org/en/projects/details/2020/proposed/Uzbekistan-Bukhara-Miskin-Urgench-Khiva-Railway-Electrification-Project.html

workers who believe that they are adversely affected by the project may submit complaints to the project-level GRM. Each contractor will also establish a mechanism for receiving, registration and documentation of grievances from workers and surrounded communities on the construction sites.

87. **Independent Accountability Mechanism**. As noted above, the ADB's SPS will apply to this project instead of AIIB's ESP. Pursuant to the Bank's agreement with the ADB, the Bank will rely on the ADB's Independent Accountability Mechanism, the Accountability Mechanism, to handle complaints relating to ES issues that may arise under the project. Consequently, in accordance with the Bank's policy on the Project affected People's Mechanism (PPM), submissions to the PPM under this Project will not be eligible for consideration by the PPM. Information on the ADB's Accountability Mechanism is available at: https://www.adb.org/site/accountability-mechanism/main.

88. **Monitoring and Supervision Arrangements**. During the project implementation, the PIU will prepare semi-annual environmental and social monitoring reports for ADB and AIIB's review, and will be disclosed on the ADB and Project websites. The Bank's ES Specialists will carry out field-based ES monitoring missions when conditions allow. The Bank will leverage the use of ultra-high-resolution satellite imagery provided by Maxar to conduct remote ES due diligence and monitor Project activities (example below).

89. The Bank will agree with ADB on arrangements regarding the sharing of ES information between the co-lenders and the monitoring implementation. AIIB will maintain its responsibility to monitor the Project, but ADB is expected to lead the ES supervision and monitoring.

E. Risks and Mitigation Measures

90. The proposed project is considered medium risk, as (i) the track record of PIE is sound, (ii) implementation capacity of the PIE is proven through completed and ongoing projects, (iii) no integrity concerns are foreseen, (iv) E&S category is B, and (v) no high-level technology, beyond that proven in use around the world will be utilized. Together with ADB, the Bank will monitor the implementation of the mitigation measures during Project implementation stage.

Table 1. Summary of Risks and Mitigating Measures

Risk Description	**Assessment Ratings (High, Medium, Low)**	**Mitigation Measures**
Financial Management Risk Deficiencies in existing FM procedures; risks of deterioration of UTY financial standing and lack of funding from UTY.	Medium	A financial management capacity assessment has been conducted and proposed a set of mitigation measures including: (i) UTY will hire external consultant(s) to develop unified accounting policy compliant with IFRS; (ii) GOU is in the process of removing non-core businesses from UTY to relieve the company form non-

		profile burden; (iii) GOU support is expected in case of cash deficiency of UTY; (iv) Staff training related to applicable regulations on project management and implementation will be organized
Technical Risks Risks related to capacity for operation and maintenance of high speed railway systems and external power supply	Medium	• UTY is considered to have sufficient experience to design, operate and maintain high-speed electrified railway lines. • External consultants support the PIE in optimizing the design of electrification components, with sufficient consideration for robust and stable power supply.
Environmental and Social The process for land acquisition for traction sub-station could result in delays to implementation, and involve negative impacts	Medium	Potential temporary impacts on commercial activities and residential areas will be addressed through the surveys to be undertaken for the finalization of the LARPs.
Inflation and FX Risks Price increase in goods and materials leading to cost overrun.	Medium	Costs of major items have been benchmarked to similar ongoing projects in the country, and adequate provision of contingencies have been made. The GOU and UTY will cover financing shortfalls if any.
Procurement Risks Complex coordination between UTY, grid companies, design institutes, and local authorities may delay procurement packaging and project implementation.	Medium	UTY as the implementing agency will systematically coordinate with the relevant stakeholders, including design institutes and local authorities. Consultants will support on a need basis.
Market risks Competition from other transportation modes	Low	Rail transport plays a key role in Uzbekistan transport sector. Since the rail connections will provide for faster and more reliable service, the demand is expected to be substantial.
Overall Rating	Medium	

Annex 1. Results Monitoring Framework

Project Objective:	to improve railway services for passengers and freight in Western Uzbekistan by electrifying the existing railway line linking Bukhara, Miskin, Urgench and Khiva					
Indicator Name	Unit	Base-line **2021**	End Target **2027**	Frequency	Data Sources and Reporting Mechanism	Responsibility
Project Objective Indicators:						
1. Travel time reduction for passengers between Bukhara to Khiva	hours	5.2	3.0	First year of operation	UTY annual report/ Project completion report	UTY
2. Travel time reduction for freight trains between Bukhara to Urgench	hours	13.0	8.0	First year of operation	UTY annual report/ Project completion report	UTY
3. Annual freight traffic increase on the Bukhara to Khiva line	tons	9.2	11.8	First year of operation	UTY annual report/ Project completion report	UTY
4. Annual passenger traffic increase on the Bukhara to Khiva line	passengers	280,000	1,080,000	First year of operation	UTY annual report/ Project completion report	UTY
5. GHG emission reduction, tons of CO2 equivalent per year	tons/ year	N/A	81,000	First year of operation	UTY annual report/ Project completion report	UTY
Project Results Indicators:						
Indicator Name	Unit	Base-line	End Target **2027**	Frequency	Data Sources and Reporting Mechanism	Responsibility
Component 1: Development of railway infrastructure along and adjacent the Bukhara – Miskin – Urgench – Khiva line						
1.1. Railway line between Bukhara – Khiva electrified	km	0	465	Annually and first year of	Annual project reports and	UTY

Project Objective:	to improve railway services for passengers and freight in Western Uzbekistan by electrifying the existing railway line linking Bukhara, Miskin, Urgench and Khiva					
Indicator Name	Unit	Base-line **2021**	End Target **2027**	Frequency	Data Sources and Reporting Mechanism	Responsibility
				operation	project completion report	
1.2. Traction substations constructed	units	0	8	Annually and first year of operation	Annual project reports and project completion report	UTY
1.3. Existing traction substations upgraded	units	0	12	Annually and first year of operation	Annual project reports and project completion report	UTY
1.4. Signaling, communications and power traction control facilities installed on 465 km of track	N/A	0	Implemented	Annually and first year of operation	Annual project reports and project completion report	UTY
1.5. External power supply facilities constructed	km	0	370	Annually and first year of operation	Annual project reports and project completion report	UTY
Component 2: Development of tourism economic corridor Bukhara – Miskin – Urgench – Khiva						
2.1. Number of train station workers trained to apply knowledge and skills on tourism promotion and marketing	staff	0	75, incl. 38 women	Annually and first year of operation	UTY Annual report/ project completion report	UTY
2.2. Concept for international railway industry-compliant electronic ticketing system prepared and adopted	N/A	0	Implemented	First year of operation	UTY Annual report/ Project completion report	UTY
2.3. Guidelines on sound urban development around stations, including	NA	0	Implemented	First year of operation	UTY Annual report/ Project	UTY

Project Objective:	to improve railway services for passengers and freight in Western Uzbekistan by electrifying the existing railway line linking Bukhara, Miskin, Urgench and Khiva					
Indicator Name	Unit	Base-line **2021**	End Target **2027**	Frequency	Data Sources and Reporting Mechanism	Responsibility
access and safety features for the elderly, women, children, and people with mobility impairments, prepared and adopted					completion report	

Annex 2. Detailed Project Description

The technical parameters of the project were prepared by UTY and government design institutes. The transaction consultants of ADB reviewed the design and provided recommendations for improvement, especially to ensure safety of high-speed train operations and optimize the design and routing of the external power supply.

The project includes the following two components:

Component 1. Railway infrastructure along and adjacent to the Bukhara–Miskin–Urgench–Khiva line upgraded. The project will help electrify 465 km of railway track, through (i) construction of 8 traction substations, (ii) construction of section posts, (iii) supply and installation of catenary systems, (iv) supply and installation of signaling, telecoms, and supervisory control and data acquisition systems, (v) construction of external power supply, (vi) purchase of maintenance equipment and machinery, and (vii) procurement of specialized wires. In addition, minor upgrades will be made to electrification infrastructure on adjacent lines extending from Bukhara to Tashkent, and from Samarkand to the border with Afghanistan. The output will cover the training of UTY staff, including women staff on operations and maintenance, and training of female students of technology and vocational education and training (TVET), including those in programs related to, or specifically in science, technology, engineering, and math (STEM) programs. The technical training program will be developed based on the results of the assessment of STEM programs, TVET curricula, and courses relevant to railway technology of major universities, colleges, and TVET institutions.

Component 2. Tourism economic corridor Bukhara–Miskin–Urgench–Khiva developed. The railway corridor will be transformed into a tourism-led, economic corridor through (i) support to municipalities along the railway corridor for sound urban development around stations which will include access and safety features for the elderly, women, children, and the mobility impaired, (ii) support to the same municipalities to develop a sustainable tourism industry, (iii) marketing of railways as part of wider efforts of Uzbekistan to attract tourists, (iv) implementation of an electronic ticketing system to allow tourists and domestic passengers easier means of booking tickets, with provision for discounts and priority seats for the elderly, pregnant women, children, and the mobility impaired, (v) strengthening women's participation in economic activities related to tourism, including the operation of tourist information centers, employment at tourism facilities, and sale of local crafts, and (vi) training of women in hospitality and tourism management.

A consultant will be engaged to work closely with UTY's marketing, passenger and other relevant departments, local authorities and central government authorities, and other consultants mobilized by ADB on gender-related aspects. Experts will carry out the following tasks with regards to Component 2 of the Project:

- Prepare a gender-sensitive plan and materials (e.g. digital media) for the marketing of Uzbekistan Railways as the primary mode of transport to access key tourist destinations in the Khorezm Region. Through such activities, ensure that UTY staff are trained on the principles of marketing for tourism traffic.
- Prepare gender-sensitive guidelines for use by UTY and municipalities along the railway corridor (and in greater Uzbekistan) for the transit-oriented development around the railway stations.
- Conceptualize, and support the implementation of a gender-sensitive (online) ticketing system to allow tourists and domestic passengers easier means of booking tickets. An "Uzbekistan Rail Pass" could be explored where visitors can avail of unlimited train travel for a fixed fee to visit Tashkent, Samarkand, Bukhara and Khiva.

- Based on the Gender Action Plan, support the strengthening of female participation in new economic activities related to tourism.

Annex 3. Economic and Financial Analysis

A. Demand Analysis

1. Methodology and assumptions. Passenger and freight forecasts were based on an analysis of historical and projected socioeconomic growth trends, historical railway traffic trends, travel costs, expected growth in tourist traffic, and improved operating conditions—including higher capacity, faster travel speeds, and increased train frequencies. Although the coronavirus disease 2019 (COVID-19) is heavily impacting all economies worldwide, Uzbekistan's economy is generally resilient, and GDP grew by 1.6% in 2020 and is forecast to grow by 5.0% in 2021[13]. GDP growth during 2022–2030 is estimated at 4.7% annually, with more conservative and tapered assumptions over time (Table 1). Table 2 summarizes the historical passenger and freight traffic volumes in Uzbekistan. International travel restrictions associated with COVID-19 significantly reduced tourist arrivals in 2020; tourism-related activity is expected to regain 2019 levels by 2024, with 6.8 million international visitors in 2024, increasing to 11.2 million by 2029[14].

Table 1: Annual Gross Domestic Product Growth in Uzbekistan

Item	2000–2009	2010–2019	2020	2021–2030	2031–2040	2041–2050
Annual growth rate (%)	6.80	6.51	1.60	4.66	3.50	2.50

Source: Asian Development Bank estimates.

Table 2: Historical Traffic Demand

Year	2000	2005	2010	2015	2019	Average, 2000–2019 (%)
Passengers (million)	42.4	45.8	56.9	67.2	70.1	1.1
Passenger-kilometer (million)	15.0	18.1	22.3	22.9	23.5	0.6
Tons (million)	14.6	15.1	14.5	20.1	22.9	3.3
Ton-kilometer (million)	2.2	2.1	2.9	3.8	4.4	3.6

Source: Asian Development Bank estimates.

2. Corridor demand. The existing, non-electrified BMUK line transported about 9.2 million tons of freight and 280,000 passengers in 2019. The freight demand was mainly diverted from longer lines across the Kyzylkum desert, while the passenger demand is mainly non-incremental demand. With electrification and capacity improvements, the project is forecast to attract a total of 1.51 million passengers in 2030, including 8% of tourists, and 17.6 million tons of freight by 2030, including 38% of transit, import and export freight to neighbouring countries. About 20% of the incremental demand between the without-project and with-project cases consists of diverted demand from road-based modes to rail. About 80% consists of induced demand, which will be generated as a result of improvement in travel times and reduction in travel costs. Table 3 summarizes the estimated traffic volume on the BMUK line.

[13] ADB. 2021. *Asian Development Outlook 2021 Update: Transforming Agriculture in Asia*. Manila; and International Monetary Fund. World Economic Outlook database. Accessed March 2021. Washington D.C.

[14] United Nations World Tourism Organization. 2020. *World Tourism Barometer and Statistical Annex, August/September 2020*. Madrid.

Table 3: Forecast Traffic Volumes

Item	2019	2025	2030	2035	2040	2045	2050
Freight (million tons)							
Base case	9.21	11.23	13.33	15.23	17.40	19.14	21.05
With project		11.33	14.00	16.91	19.79	20.08	21.05
Including: international freight		*4.51*	*6.06*	*8.13*	*9.88*	*8.66*	*8.20*
Passengers (million trips)							
Base case	0.28	0.39	0.52	0.65	0.80	0.95	1.10
With project		0.79	1.24	1.46	1.65	1.73	1.81
Including: tourists		*0.08*	*0.17*	*0.20*	*0.23*	*0.23*	*0.23*

Source: Asian Development Bank estimates.

B. Economic Analysis

3. Key economic assumptions. The economic analysis of the project has been carried out by ADB by comparing the costs of the project with the benefits in the with- and without-project scenarios. The economic analysis valued all costs and benefits in monetary terms, in economic prices, in United States dollars, using the world price numeraire, and discounted to 1 July 2020 at a rate of 9%. The analysis assumed a 30-year period (2022–2051), with a residual value of capital assets based on their economic lives.

4. Project capital costs. Economic costs were derived from financial costs and include capital costs, consulting services, and physical contingencies, but exclude financing charges and price contingencies. The project costs were revalued in economic terms by separating cost items into tradable materials and equipment, non-tradable materials, skilled labor, and unskilled labor. A standard conversion factor of 0.96 was used to convert domestic market price values to border price equivalent values, and a standard wage rate factor of 0.70 was used for unskilled labor. The total economic cost of the project has been estimated at USD364.6 million.

5. Recurring costs. Operation and maintenance (O&M) costs were derived from existing costs incurred by UTY, and include (i) traction fuel costs, (ii) locomotive maintenance costs and (iii) infrastructure (track, electrification and signaling) maintenance costs. Traction costs were based on energy consumption unit rates of 471.6 kilowatt-hours per 10,000 ton-km and 98.3 kilograms of diesel per 10,000 ton-km, with an average economic diesel cost of USD0.57/liter and average power cost of USD0.013 per kilowatt-hour. Locomotive maintenance costs are estimated at USD0.16/engine-km for diesel and USD0.10/engine-km for electric locomotives. Annual O&M costs for systems were estimated at 0.5% of capital costs for electric systems, and 2.0% of capital costs for signaling and telecommunication systems.

6. Economic benefits. The project will increase the capacity, efficiency, and sustainability of the transport network along BMUK. The capacity added by the project will divert passenger and freight traffic using road-based modes, and release suppressed freight demand that would not be met without the project. Project benefits include (i) time savings for freight traffic and passenger journeys, (ii) vehicle operating cost savings for diverted traffic, (iii) economic benefits from increased tourism, and (iv) carbon dioxide (CO2) emission savings. The project will also reduce traction and locomotive maintenance costs. Finally, by reducing road traffic, the project is also expected to reduce accidents; however, such economic benefits were not quantified. The benefits of generated demand were quantified as half of the benefits of normal demand.

7. Time savings for freight. The electrification and improvements to the signaling and telecommunications systems will improve the capacity, speed, efficiency and safety of freight operations. For normal and generated demand, the journey time between Bukhara and Urgench will be reduced from 13.0 to 8.0 hours with the project. For diverted demand, travel time savings were based on road travel times of 11.2 hours. The value of time for freight was based on comparable values in the European Union, estimated at USD1.24 per ton-hour in 2002 prices, which was weighted by the GDP per capita on a power purchasing parity basis of Uzbekistan, to arrive at a conservative freight value of time of USD0.24 per ton-hour[15]. Time savings were applied only for local freight, representing about 60% of total freight. The project is also expected to increase international trade by improving capacity and speeds on the line, even for diesel trains operating to Uzbekistan's neighbors, although the benefits were not quantified in the analysis.

8. Time savings for passengers. Passenger trains between Bukhara and Khiva currently take about 5.2 hours. The project will result in a reduction of journey time savings estimated at 2.2 hours per journey. The passenger value of time was based on the GDP per capita, the employment ratio, and the wage rates in Uzbekistan, resulting in a value of time of USD1.5/hour for work trips, which were assumed to account for 70% of total trips, and USD0.3/hour for nonwork trips. For diverted demand, travel time savings were based on road travel times of 7.5 hours.

9. Vehicle operating cost savings. Part of the capacity added by the project will attract freight and passengers from road modes. Cost savings were based on unit vehicle operating costs of USD0.71/km for heavy trucks and USD0.16/km for cars, based on the Highway Development and Management Model (HDM-4) for comparable roads in Uzbekistan.

10. Tourism benefits. The project will help develop the tourism sector in the Khorezm region, by significantly improving accessibility to the region through fast and comfortable high-speed rail services. In turn, this will bring significant direct and indirect economic benefits to the region as tourist expenditures directly contribute to increased economic activity, and indirectly contribute ton increases in income and employment along the corridor. Total economic benefits are based on an average spending of USD80/day, an economic multiplier of 2.8 which comprises both direct and indirect effects, and an average length of stay of 2.7 days along Bukhara – Khiva.[16]

11. Emissions reduction. The project will result in a net reduction in CO2 emissions, as electric locomotives emit less CO2 than the diesel locomotives that would be used without the project, and less CO2 than the heavy trucks and cars used for diverted freight and passenger traffic. The CO2 emissions savings were based on emissions rates estimated at 31 grams (g) per ton-km for diesel locomotives, 13 g for electric locomotives, 669 g per ton-km for heavy goods vehicles, and 164 g per ton-km for passenger cars. CO2 emissions were converted at a value of USD43.2/ton in 2020 prices, increasing at 2% per annum in real terms.

12. Economic analysis results. Based on the estimated economic costs and benefits, the economic internal rate of return (EIRR) of the project is estimated at 15.1% and the net present value is estimated at USD255.6 million, indicating the project's economic viability (Table 4). Four scenarios assessed the robustness of the results of the economic analysis: (i) a 10% increase in

[15] G. de Jong. 2007. Value of Freight Travel-Time Savings. In D.A. Hensher and K.J. Button, eds. *Handbook of Transport Modelling.* Vol. 1. Amsterdam: Elsevier.

[16] S. Uğuz. 2015. Examination of Economic Impacts of Tourism with Multiplier Analysis. *Tourism, Environment and Sustainability.* Sofia; and Government of Uzbekistan, State Committee of the Republic of Uzbekistan for Tourism Development. 2019. *Tourism White Paper 2018*. Tashkent.

project costs, (ii) a 10% reduction in project benefits, (iii) a 10% increase in capital costs and 10% in project benefits, (iv) a 1-year delay in realizing the project benefits, and (v) the exclusion of tourism benefits. The EIRR of the project exceeds 9% in all cases, demonstrating its overall economic robustness. Economic cost and benefit streams are summarized in Table 4.

Table 4. Economic Analysis Results

No.	Scenario	EIRR (%)	NPV (USD million)	Switching Value (%)
	Base Case	15.1	255.6	
i	10% increase in costs	14.0	223.8	80.5
ii	10% reduction in benefits	13.9	198.3	(44.6)
iii	10% increase in costs and 10% reduction in benefits	12.8	166.5	28.7
iv	1-year delay in benefits	14.7	243.2	
v	Exclusion of tourism benefits	10.1	39.4	

EIRR = economic internal rate of return, NPV = net present value
Source: Asian Development Bank estimates.

Table 1. Cost and Benefit Streams of the Project (USD million)

Year	Costs		Benefits						Net Benefits
	Capital Costs	O&M Costs	Energy Savings	Time Savings (Freight)	Time Savings (Passengers)	Vehicle Operating Cost Savings	CO_2 Emissions	Tourism Benefits	
2022	(114.61)	0	0	0	0	0	0	0	(114.61)
2023	(134.26)	0	0	0	0	0	0	0	(134.26)
2024	(95.71)	0	0	0	0	0	0	0	(95.71)
2025	(20.07)	(.98)	6.39	4.38	.84	.68	1.36	3.82	(3.59)
2026	0	(1.96)	13.46	9.36	2.23	2.29	2.93	16.34	44.66
2027	0	(1.95)	14.17	10.01	2.85	3.27	3.16	25.29	56.81
2028	0	(1.94)	14.72	10.69	3.12	3.69	3.36	27.15	60.79
2029	0	(1.93)	15.39	11.54	3.37	5.08	3.63	28.33	65.40
2030	0	(1.92)	15.96	12.32	3.63	5.50	3.85	29.19	68.54
2031	0	(1.91)	16.49	12.99	3.87	6.33	4.08	30.03	71.88
2032	0	(1.90)	17.03	13.69	4.10	7.22	4.33	30.96	75.42
2033	0	(1.89)	17.59	14.43	4.34	8.16	4.59	31.88	79.09
2034	0	(1.88)	18.16	15.21	4.60	9.15	4.86	32.77	82.86
2035	0	(1.87)	18.75	16.03	4.86	10.19	5.15	33.64	86.76
2036	0	(1.86)	19.36	16.90	5.14	11.29	5.46	34.48	90.78
2037	0	(1.85)	20.00	17.82	5.44	12.45	5.78	35.30	94.93
2038	0	(1.84)	20.65	18.78	5.75	13.67	6.13	36.09	99.22
2039	0	(1.83)	21.30	19.80	5.98	14.85	6.49	36.52	103.11
2040	0	(1.83)	21.65	20.49	6.23	13.31	6.64	36.89	103.37
2041	0	(1.82)	21.93	20.71	6.41	12.22	6.80	37.20	103.44
2042	0	(1.82)	22.20	20.94	6.57	11.14	6.96	37.68	103.68
2043	0	(1.81)	22.45	21.14	6.71	9.77	7.10	37.05	102.41
2044	0	(1.81)	22.70	21.33	6.86	8.38	7.25	36.40	101.12
2045	0	(1.80)	22.95	21.53	7.01	6.97	7.40	35.73	99.79
2046	0	(1.80)	23.21	21.73	7.17	5.52	7.56	35.04	98.43
2047	0	(1.80)	23.48	21.94	7.33	4.04	7.71	34.33	97.04
2048	0	(1.79)	23.80	22.21	7.49	2.98	7.91	33.60	96.20
2049	0	(1.78)	24.23	22.61	7.66	2.80	8.21	32.84	96.56
2050	0	(1.78)	24.68	23.03	7.83	2.65	8.51	32.06	96.98
2051	36.46	(1.77)	25.14	23.47	8.01	2.58	8.84	31.25	133.99
					Net present value at 9% (USD million)			**255.6**	
					Economic internal rate of return (%)			**15.1**	

( ) = negative, CO_2 = carbon dioxide, O&M = operation and maintenance.
Source: Asian Development Bank estimates.

C. Financial standing of UTY

13. UTY Financials. In 2019, UTY's operating revenues totaled UZS9.2 billion (USD 858 million), and operating expenses reached UZS1.2 billion (USD 112 million), for an operating income ratio of 0.14 (Table 6). Freight traffic is the primary contributor to freight revenues, and UTY does not receive budgetary support from the government.

Table 6. Historical Financial Situation of UTY

Item	Unit	2013	2014	2017	2018	2019
Revenue	UZS billion	2,800	2,938	5,954	8,708	9,228
including passengers	UZS billion	*300*	*315*	*338*	*331*	*411*
including freight	UZS billion	*2,141*	*2,248*	*3,570*	*4,797*	*5,237*
Operating expenses	UZS billion	(1,465)	(1,670)	(2,614)	(4,522)	(5,863)
Gross profit	UZS billion	1,054	947	2,466	2,165	2,350
Operating income	UZS billion	748	602	1,955	1,178	1,298
Operating income ratio		0.27	0.21	0.33	0.14	0.14
Net profit margin	%	24.8	15.4	(82.6)	(12.6)	4.6
Return on net assets	%	13.6	7.9	(39.2)	(5.6)	1.9
Debt−equity ratio		0.54	0.52	5.25	4.55	4.26
Debt service coverage ratio		18.64	11.70	13.43	4.35	2.05
Assets	UZS billion	5,101	6,422	17,449	21,828	23,420
Equity	UZS billion	2,908	3,757	2,388	3,390	3,818
Liabilities	UZS billion	2,193	2,666	15,061	18,438	19,602

Note: Numbers may not sum precisely because of rounding.
Source: Asian Development Bank estimates.

14. Forecasting. Projected financial statements were prepared in real terms, and based on trends from 2013 to 2019, existing government commitments for 2020–2021, traffic forecasts, and project impacts. A financial model was developed for UTY based on historical information on passenger and freight traffic, as well as average tariff, revenue, and operating expenses, and forecast financial statements.

15. Financial analysis of UTY. The analysis indicates that (i) the operating income ratio, which considers depreciation, decreased from 0.33 in 2017 to 0.14 in 2019, but is expected to increase to 0.18 by 2030; (ii) the long-term debt−equity ratio is expected to decrease gradually to 1.21 in 2030; and (iii) the debt service coverage ratio will increase from 2.04 in 2020 to 3.19 by 2030 (Table 7). Overall, the analysis indicates that UTY continues to have a solid financial position, despite an operating profit decline in 2018–2020. Supported by freight revenues and a generally resilient domestic economy, UTY is expected to have the financial capacity to implement the project, fund its contribution to the project costs, repay the loan, and make the required payments on its existing debt.

Table 7. Projected Financial Statements of UTY

Year	Unit	2020	2021	2022	2023	2024	2030
Revenues	UZS billion	9,618	10,034	10,480	10,957	11,894	16,019
including passengers	UZS billion	*427*	*445*	*463*	*481*	*501*	*635*
including freight	UZS billion	*5,610*	*6,010*	*6,438*	*6,896*	*7,813*	*11,805*
Operating expenses	UZS billion	(6,110)	(6,375)	(6,658)	(6,961)	(7,556)	(10,177)
Gross profit	UZS billion	2,480	2,628	2,783	2,948	3,276	4,696
Operating income	UZS billion	1,389	1,493	1,601	1,715	1,914	2,858
Operating income ratio		0.14	0.15	0.15	0.16	0.16	0.18
Net profit margin	%	4.7	5.0	4.5	4.1	5.3	10.9
Return on net assets	%	1.9	2.1	1.8	1.6	2.2	5.1
Long-term debt−equity ratio		3.74	3.47	3.45	3.47	3.09	1.21

Debt service coverage ratio		2.04	2.14	2.23	2.28	2.45	3.19
Assets	UZS billion	23,562	24,486	26,547	28,702	29,463	34,943
Equity	UZS billion	4,266	4,764	5,236	5,681	6,310	13,847
Liabilities	UZS billion	19,297	19,722	21,311	23,021	23,153	21,096

Note: Numbers may not sum precisely because of rounding.
Source: Asian Development Bank estimates.

16. Financial sustainability. In addition to its financial viability, the project includes loan covenants on (i) the operating income ratio of UTY, defined as the operating income divided by operating revenues, which will be maintained above 0.1 from fiscal year 2022; and (ii) the government passing an official decree to remove other noncore businesses from UTY and avoiding the addition of such businesses to UTY in the future. This demonstrates the commitment of UTY to maintaining healthy financial statements throughout the project implementation.

D. Financial Viability of the Project

17. Introduction. The financial analysis assessed the project's financial viability and sustainability in the context of UTY's operating environment. Without the project, trains would continue to run with diesel locomotives, which incur high operating costs and operate at significantly lower speeds, for both passenger and freight services. The project is revenue-generating; it is expected to increase revenues, mainly from freight, and to reduce operation and maintenance costs which are significantly lower with electric traction compared to diesel traction. The project's financial viability was assessed following ADB guidelines by comparing the financial internal rate of return (FIRR) of the net incremental cash flow in the with- and without-project scenarios against the weighted average cost of capital (WACC).

18. Key financial assumptions. All financial costs and revenues are expressed in 2021 prices and in real terms. The analysis period includes 4 years of implementation (2021–2024) and 27 years of operation (2025–2051). Residual values were based on the assets' financial life and the straight-line depreciation method.

19. Weighted average cost of capital. The project funds comprise a USD162.0 million loan from ADB's ordinary capital resources, a USD108.0 million loan from the Asian Infrastructure Investment Bank (AIIB), and USD175.7 million from the government or UTY. The annual interest rates of the ADB and AIIB loans follow London interbank offered rate (LIBOR)-based lending rates, and include an assumed 1.0% on-lending fee expected to be charged by the Ministry of Finance to UTY over ADB's and AIIB's LIBOR-based rates. The cost of counterpart funding was based on Uzbekistan's central bank benchmark interest rate of 15.0%, with a risk premium on lending assumed at 5.0%, which reflects the strong financial capacity of UTY compared with other commercial entities. The applicable corporate income tax rate from 2020 is 15%. The WACC was estimated at 2.92% in real terms (Table 8).

Table 8. Weighted Average Cost of Capital

	Item	ADB	AIIB	UTY	Total
A	Amount (USD million)	162.0	108.0	175.7	445.7
B	Weighting (%)	36.4	24.3	39.4	
C	Nominal cost (%)	2.57	2.60	20.00	
D	Tax rate (%)	15.0	15.00	15.0	
E	Tax-adjusted nominal cost (%) [C x (1-D)]	2.18	2.21	17.00	
F	Inflation rate (%)	1.50	1.50	10.00	
G	Real cost [(1+E)/(1+F)-])] (%)	0.67	0.70	3.54	
H	Weighted component of WACC [B x G] (%)	0.25	0.17	2.51	
Weighted average cost of capital (%)					**2.92**

Source: Asian Development Bank estimates.

20. Project costs and revenues. Traffic forecasts in the with- and without-project scenarios considered the impact of COVID-19 on (i) the macroeconomic environment, (ii) tourism levels; (ii) the project, and (iii) risks connected to UTY operations.[17] Without the project, speeds would be constrained by diesel train operations, which incur higher operating costs and longer travel times. Project capital costs and recurring costs are consistent with the economic analysis, expressed in financial terms. The project's incremental revenues were calculated on a ton-km and passenger-km basis, using existing UTY rates corresponding to about USD0.012/ton-km and USD0.010/passenger-km. A real tariff increase of 1.5% was assumed after 18 months of operation, reflecting the shorter journey times, increased efficiency, and reliability of the service in the project scenario.

21. Financial analysis. Based on the incremental earnings and costs that will accrue to UTY, the FIRR of the project was estimated to be 4.9% on an after-tax basis, which is above the WACC and indicates the project's financial viability. Sensitivity tests assessed the project's financial viability to adverse changes in costs or revenues in the following cases: (i) a 10% increase in costs, (ii) a 10% decrease in revenues, (iii) a 10% increase in costs and 10% decrease in revenues, and (iv) a 1-year delay in implementation. Overall, the analysis highlights the project's viability and sustainability even under sensitivity tests (Table 9).

Table 9. Financial Analysis of the Project

No.	Scenario	FIRR (%)	NPV (USD million)	Switching Value (%)
	Base Case	4.9	499.3	
(i)	10% increase in capital costs	4.3	457.9	120.6
(ii)	10% reduction in revenues	4.7	469.3	(166.6)
(iii)	10% increase in costs + 10% reduction in revenues	4.0	427.9	N/A
(iv)	1-year delay in implementation	4.8	491.7	N/A

FIRR = financial internal rate of return, NPV = net present value.
Source: Asian Development Bank estimates.

[17] Economic Analysis conducted by ADB

Annex 4. Uzbekistan Sovereign Credit Fact Sheet[18]

Background

Uzbekistan is a lower-middle-income country with income per capita of around USD1,800 and population of 33.6 million. Since taking office in 2016, the new government is pursuing a reform agenda to transform Uzbekistan from a state-led to a market-based economy. Reforms included introduction of market mechanisms, liberalization of trade and prices (including the exchange rate), reforms to the tax system, public financial management as well as land and agricultural policies.

The modernization agenda has made Uzbekistan an attractive destination for investment, both foreign and domestic. The robust growth potential is supported by young and abundant labor supply, diversified export base, macroeconomic stability, and modest debt levels. Investment rates have been remarkably high, at around 40 percent of GDP. That said, the state continues to dominate the economy. State-owned enterprises account for almost a half of GDP and more than three quarters of tax revenues. State banks control 85 percent of banking assets.

Growth has been robust, at around 5-6 percent, driven by investment, industry (including construction), and services. Inflation remained in double digits, due to high growth, continued liberalization of prices, and currency deprecation. The elevated current account deficit reflected high investment rates. Fiscal policy was relatively prudent, with moderate deficits.

Selected Economic Indicators	2018	2019	2020	2021*	2022*	2023*
GDP growth 1/	5.4	5.7	1.7	6.1	5.4	5.5
Inflation (CPI, average) 1/	17.5	14.5	12.9	11.0	10.9	8.1
General government fiscal balance	-2.1	-3.9	-4.4	-5.5	-4.0	-3.2
Gross public debt	19.5	28.3	36.4	38.9	41.0	40.5
Gross public financing need	2.6	11.6	11.1	7.7	8.0	7.1
Current account balance	-6.8	-5.6	-5.0	-6.0	-5.6	-5.3
Gross external debt	34.3	43.9	58.4	62.3	63.8	62.3
Gross external financing needs	10.4	9.3	10.1	14.4	12.4	10.0
International reserves (USD billion)	27.1	29.2	34.9	34.5	35.2	35.6
Exchange rate (UZS/USD) 2/	8,340	9,508	10,477	10,665	..	

Source: IMF WEO Oct 2021; IMF Country Reports No. 21/85; in percent of GDP unless indicated otherwise; '*' denotes projections.
Notes: 1/ percent change year-on-year, average 2/ data from the central bank, end-of-period, for 2021: as of Oct 14

Recent Developments

The covid-19 pandemic in Uzbekistan, with around 180,000 reported cases and around 1,200 deaths as of October 2021, came in two major waves peaking in August 2020 and August 2021, which nonetheless turned out to be relatively mild compared with global averages. Tight lockdown measures were imposed early in the pandemic, and a decline in economic confidence has led to a sharp economic slowdown. The shock has been compounded by temporarily lower oil prices, which impacted the gas sector, an important export revenue source. Since late September 2021 restrictions are being gradually eased again, in light of decreasing cases.

The economic response, worth around 6 percent of GDP over 2020-21, has been timely, targeted and relatively large. Spending increased on healthcare, expansion of social assistance to low-income families, and lifeline support to affected businesses (subsides, tax relief, etc.). The central

[18] Updated as of June 10, 2021.

bank reduced the interest rate by 200bps in 2020, and provided liquidity to banks, which in turn allowed banks to offer loan repayment holidays or maturity extensions to their affected clients.

Thanks to the above, the economic impact has been less than feared. Starting in the second half of 2020, restrictions have been gradually lifted and businesses have reopened. For the whole 2020 economic growth was still positive, at 1.7 percent, supported by agriculture, manufacturing, construction and stable remittances. The 4.4 percent of GDP fiscal deficit in 2020 was lower than budgeted and almost unchanged from 2019, thanks to the faster-than-expected recovery, higher gold revenues and some postponed capital spending.

Outlook and Risks

Going forward, growth is expected to increase to around 6 percent in 2021. The recovery is dependent on the successful roll-out of the vaccine, the containment of the virus at home, the pace of global recovery, and the level of commodity prices. In this regard, a vaccination campaign has started in April 2021 with modest progress so far (some 66 doses administered per 100 people). The outlook for global recovery and oil prices has improved significantly since the beginning of 2021. The 2021 budget remains accommodative, with higher expenditures on healthcare, social assistance, and policy support.

Notwithstanding the pandemic, Uzbekistan's debt remains sustainable. Public debt has seen a rapid increase in the past few years, to 36.4 percent of GDP in 2020, on account of externally financed investment projects, and, most recently, the covid-19 impact. Debt is still low by peer standards, though. According to the IMF, over the medium term, public debt is expected to peak at around 41 percent of GDP in 2022, and then decline below 40 percent, once the pandemic recedes, growth returns to potential, and some moderate fiscal consolidation is implemented. Public debt is vulnerable to the exchange rate, due to high dollarization, and to an export shock (e.g., commodity prices). Total external debt has grown in parallel, but remains moderate, at 58.4 percent of GDP in 2020.

There are important mitigants to debt vulnerabilities. Thanks to diversified commodity exports Uzbekistan has substantial buffers, with international reserves of around USD35 billion (equivalent to over 60 percent of GDP). According to Fitch, the country and the government remain net creditors. Some 90 percent of public debt is official, concessional, and long term, which limits rollover risks. Official support was strong in 2020. Also, to reinforce debt sustainability, the government plans to introduce a set of fiscal rules, including debt and deficit ceilings.

Uzbekistan's creditworthiness has been sustained through the pandemic. After the initial spike, yields have returned to pre-pandemic levels, and the authorities have successfully issued bonds in international markets. All three major rating agencies have affirmed Uzbekistan's sovereign credit rating (BB- for S&P and Fitch, and B1 for Moody's). In July 2021, Moody's changed outlook from stable to positive regarding gradual progress with key structural reforms.

In the medium term, the government remains commitment to the reform agenda. However, the more complex and sensitive reforms, such as privatization, competition and a level playing field for the private sector, are yet to be implemented. A comprehensive banking sector reform was initiated in October 2019. A presidential decree from October 2020 charts a path for a wide-ranging privatization of state assets, including banks. Monopolies in the energy sector are being unbundled. Reform fatigue in the face of opposition from vested interest or potential social discontent remain key risks.

In the longer run, given large and growing working-age population, creating more and better jobs is the country's overarching priority. That will depend on the conducive environment for private-sector-led growth, better institutions, and improved infrastructure.

Annex 5. Uzbekistan's Railway Sector Assessment

Sector Performance, Problems, and Opportunities

1. Railways as a backbone of Uzbekistan's economy. Uzbekistan is a doubly landlocked country that relies heavily on rail transport for freight and passenger movements. Its railways carry about 70 million tons of freight and about 20 million passengers annually. The Uzbekistan railway network is 4,731-kilometers (km) long. It carries 30%–40% of the total freight traffic (expressed in ton-km), a significant market share compared with railways worldwide, and 3%–4% of total passenger transport (expressed in passenger-km).[19]

2. The public railway company UTY is responsible for the operation of transport services for freight and passengers and is in charge of infrastructure development and maintenance. It undertakes rail construction projects[20] as well as operation and maintenance. The company is profitable and it does not receive operating subsidies from the state. It is capable of financing most investments necessary to preserve the current infrastructure and modernize its rolling stock. It also finances a significant portion of the modernization of railway infrastructure.

3. In terms of size of railway network and number of employees, UTY is the fourth largest railway among Central Asia Regional Economic Cooperation (CAREC) countries. Its railway network and staffing are a number of times smaller than the railways of the People's Republic of China (PRC) and Kazakhstan, but also similar in magnitude to the network length and staff strength of five smallest CAREC railways taken together. Among the comparator countries, UTY also has the third largest number of owned wagons and fourth largest number of diesel locomotives. This is generally consistent with the size of the railway network and the traffic level. Similarly, UTY has the third largest annual freight turnover among the comparator countries (after the PRC and Kazakhstan). This is about half the combined freight turnover of the seven lowest CAREC countries but also only 11% of the second highest country, Kazakhstan.

4. **Freight traffic trends**. UTY is predominantly a freight railway company. The volume of cargo dispatched by rail is gradually increasing, from 63.7 million tons in 2013 to 70.1 million tons in 2020. Remarkably, freight volume increased amidst the outbreak of the coronavirus disease (COVID-19), with 2020 registering slightly more cargo as compared to 2019. About one-third (in terms of ton-km) of freight carried by the railways consists of international movements (import, export, and transit), mostly grain, fuel, and other bulk and semi-bulk commodities. Thanks to a combination of solid economic growth forecasts for Uzbekistan, and the efforts under the new administration to improve connectivity with neighboring countries, the prospects for freight traffic, including cross-border freight, are promising.

5. **Passenger traffic trends**. Passenger ridership has also increased from 14.6 million in 2000 to 23.4 million in 2019. However, COVID-19 dented passenger demand by about three

[19] Government of Uzbekistan, State Committee of the Republic of Uzbekistan on Statistics. 2020. *Freight Transportation and Freight Turnover by Transport Type*; and *Passenger Transportation and Passenger Turnover by Transport Type*. Tashkent. The freight market share of railways averages 17% in the European Union, and 25%–30% in North America. The passenger market share includes all urban, suburban and intercity travel, while UTY mainly caters to intercity passengers. The share in the denser European Union averages 7%.

[20] UTY completed with its own workforce and equipment the construction of several new railway investment projects (including sections Navoi–Uchkuduk–Nukur–Sultanuizdag, Tashguzar–Baisun–Kumkurgan, Angren–Pap, and Bukhara–Miskin). UTY also built the 75 km Hairatan–Mazar–i-Sharif rail link in Afghanistan funded by the Asian Development Bank (ADB).

fourths in 2020. About 80% of UTY's passengers are on local services, but two-thirds of the passenger-kilometers are on intercity regional trains, which connect Tashkent with all major centers.[21] As more and more high-speed railway services connecting major cities are being introduced and coupled with the government's drive to use railways to boost the tourism potential of Uzbekistan, the prospects for passenger traffic are also promising.

6. **Residual challenges**. Despite the aforementioned growth in traffic in recent years, UTY's traffic stays significantly behind the traffic volumes of the Uzbek sections of the Central Asian Railways[22] before the disintegration of the Soviet railways. There are broadly three challenges that UTY and the government are tackling to ensure further growth of railways. These are (i) aged or inadequate infrastructure, (ii) insufficient and outdated fleet of locomotives, and (iii) competition from road and air transport.

7. **Infrastructure**. Before the breakup of the Soviet Union, the rail network in Central Asia served a Moscow-centered planned economy without regard for domestic boundaries between the Soviet republics. Since the 1990s, the border crossings erected between the newly independent states of the former Soviet Union worsened in-country connectivity because many rail and road routes had to cross into neighboring countries before going back into Uzbekistan. GOU and UTY have worked to address the situation by commissioning new railway lines to achieve domestic integration. The commissioning of the Kamchik tunnel in September 2016 is one such example.[23] In parallel with the completion of missing links, UTY focused on improving the condition of its infrastructure and in electrifying its main lines. Electrification started in 1971, but the greatest progress has been made since 2010, when Uzbekistan electrified about 800 km of its railway network. Currently, about 2,530 km — about 54% of the network — are electrified. Enabled by electrification, high-speed passenger trains (above 200 kilometers per hour) operate between Tashkent, Samarkand, Bukhara, Karshi, and Termez. The new line to the Fergana Valley is electrified from Tashkent to Angren and Pap. The Fergana rail loop, linking Pap, Kokand, Andijan, and Namangan, is also being electrified. New higher-speed passenger services will begin operating on these new lines in the near future.

8. **Electric locomotives**. UTY's ability to fully benefit from the increasingly electrified network depends on the speed at which electric locomotives can be procured and commissioned. The locomotive fleet of UTY as of 2019 consisted of 75% diesel and only 25% electric ones. The overall fleet is old, with most units having served more than 30 years. This and limitations in the absolute number of electric locomotives make it difficult to expand freight and passenger train services. Under an ADB financed project, UTY is procuring 30 units of state-of-the-art electric locomotives to address this constraint.

9. **Competition from road transport**. Like other railways around the world, UTY faces stiff competition from road transport. To retain demand, there is an increased need for UTY to become more customer oriented and efficient. To retain and attract customers, UTY has the potential to improve its service to all categories of clients and develop new logistics products, especially in general freight traffic. Once it strengthens its commercial orientation, UTY has a good chance to offer new logistics products and premium passenger services at high profit margins, which will

[21] UTY company reports.
[22] Sredneazitskaya Zheleznaya Doroga (Central Asian Railways) is the predecessor of UTY, which was based in Tashkent and existed until 1991, and included railway networks of Uzbekistan, Tajikistan, Turkmenistan, southern Kyrgyz Republic, and southern Kazakhstan.
[23] The 19.2 km long tunnel on the Angren–Pap railway section was completed in 2016.

further improve its profitability and prospects of long-term growth. There is also scope for UTY to become more operationally efficient. The operating staff of UTY has barely changed between 2011 and 2015, and labor productivity stands at approximately 0.4 million traffic units per operating employee. UTY's labor productivity is 20% lower than that of neighboring Turkmenistan Railways, and only a small fraction of what was achieved in Kazakhstan (1.7 million traffic units per operating employee). UTY has historically financed most of its investment from its own sources, but any further deterioration of its operating assets will begin to restrict its ability to fund their replacement, while also limiting its ability to obtain loans on its own account. UTY should therefore make it a priority to improve its technical efficiency and operating ratio.

Government's Sector Strategies

10. GOU, cognizant of the relative strengths of railway transport, continues to support the development and expansion of railway operations.

11. It created UTY by presidential decree in November 1994. Initially, UTY was a policy maker, regulator, and operator of all railway services in Uzbekistan until institutional reforms separated policy-making and regulatory functions from the commercial management of the company. The government began UTY's institutional reform in 1997, largely separating ancillary rail services from core operations.[24] Some downsizing of staff and noncore assets improved the efficiency and sustainability of operations. In 2001, UTY was corporatized as an open joint stock company with reformed management structure and a new board of external appointees, including representatives of some of UTY's main customer industries. It remains 100% owned by the state, similar to railway organizations across the world.

12. A presidential resolution issued in May 2018 calls for a program to strengthen the governance and management of state-owned enterprises, including UTY.[25]

Major Development Partners: Strategic Focus and Key Activities

13. ADB, the Government of the People's Republic of China (PRC), the European Bank for Reconstruction and Development (EBRD), the Japan International Cooperation Agency (JICA), German development cooperation through KfW, the Kuwait Fund, the Organization of the Petroleum Exporting Countries (OPEC), and the World Bank have provided external assistance to the nonurban railway subsector in Uzbekistan. Their main activities are summarized in the table below. AIIB has no previous experience in railway sector in Uzbekistan.

Major Development Partners

Development Partner	Project Name	Duration	Amount (USD million)
ADB	Rehabilitation of Uzbekistan Railways Project	1999–2005	62.67
	Modernization of Uzbekistan Railways Project	2000–2006	70.00

[24] ADB. 1998. *Technical Assistance to the Republic of Uzbekistan for Institutional Strengthening of the Uzbekistan Temir Yullari*. Manila (TA 3068-UZB); and ADB 2000. *Technical Assistance to the Republic of Uzbekistan for Facilitating Development of Railway Sector in Uzbekistan*. Manila (TA 3529-UZB).

[25] Government of Uzbekistan. 2018. *Presidential Resolution 3720: On Measures to Improve the System of State Asset Management.* Tashkent.

Development Partner	Project Name	Duration	Amount (USD million)
	Central Asia Regional Economic Cooperation Corridor 6 (Marakand–Karshi) Railway Electrification Project	2011–2018	100.00
	Central Asia Regional Economic Cooperation Corridor 2 (Pap–Namangan–Andijan) Railway Electrification Project	2017–2021	80.00
	Railway Efficiency Improvement Project	2019–2025	170.00
	Central Asia Regional Economic Cooperation Corridor 2 (Pap–Namangan–Andijan) Railway Electrification Project – Additional Financing	2021–2025	121.00
EBRD	Repowering Diesel Locomotives Park	2002–2005	40.00
	Modernization of Diesel Locomotives Park and Reconstruction of Foundry	2004–2011	65.99
Fund for Reconstruction and Development of Uzbekistan	Procurement of High-Speed Passenger "Talgo"-250 Trains (from Spain)	2010–2011	24.70
	Reconstruction, and development of engineering and founding factory	2011	33.80
Government of the PRC	Procurement of 15 Passengers' Locomotives	2009–2011	70.11
	Pap–Angren Railway Project	2014–2019	355.00
JICA	Railway Passenger Transportation Project	1997–2001	54.48
	Construction of new railway line: Tashguzar–Boysun–Kumkurgan Project	2005–2010	148.52
	Karshi–Tashquzar–Boysun–Kumkurgan–Termez Electrification Project	2011–2018	220.60
KfW	Tashkent–Angren Electrification Project	2007–2010	36.48
Kuwait Fund	Tashkent–Angren Electrification Project	2007–2010	20.89
OPEC Fund	Modernization of Uzbekistan Railways Project	2002–2006	5.00
World Bank	Pap–Angren Railway Project	2015–2019	195.00

ADB = Asian Development Bank, EBRD = European Bank for Reconstruction and Development, JICA = Japan International Cooperation Agency, OPEC = Organization of the Petroleum Exporting Countries, PRC = People's Republic of China.
Sources: Asian Development Bank and UTY.

Institutional Arrangements and Processes for Development Coordination

14. Development partners coordinated on development of railways in Uzbekistan at two levels: national and subregional. This embodies the need for railway investments to be planned sub-regionally, augmented by projects executed nationally.

15. **National-level coordination**. The government leads a transport sector development partner coordination group, where ADB has the lead role in the road and rail transport subsectors. On the government's side, the Ministry of Investments and Foreign Trade supervises the implementation of large and strategically important investment projects financed by international financial institutions and development partners.

16. **Subregional planning**. Uzbekistan, having once been the seat of the Central Asian Railways, has a strong subregional identity and actively participates in regional railway cooperation initiatives. UTY is a member of the Organization for Cooperation among Railways

(OSJD), International Union of Railways (UIC), and Commonwealth of Independent States (CIS) Railway Transport Council.

17. In addition, development partners actively contributed to the institutional strengthening of UTY and supported sound sector reforms. Between 2000 and 2003, ADB provided two technical assistance projects to this effect. JICA supported UTY in the construction of a facility for the rehabilitation and maintenance of rolling stock. Assisted by such efforts, UTY's ability to maintain its assets is strong. Since 2015, the World Bank has supported UTY in the improvement of its marketing and accounting functions, which will support the evolution of UTY into a more commercially oriented and demand-responsive organization. In 2018, the World Bank also initiated support to the government on a comprehensive transport and logistics strategy, which will improve the planning process, identify and implement essential reforms, and develop innovative financing solutions.