



**ASIAN INFRASTRUCTURE
INVESTMENT BANK**

August 29, 2024

Sovereign-Backed Financing

Project Document

P000848 Türkiye: Emergency Road Rehabilitation and Reconstruction Project

Currency Equivalents
(As of date, July 31, 2024)

Currency Unit – Turkish Lira (TRY)
TRY1.00 = USD0.03
USD1.00 = TRY33.18

Borrower’s Fiscal year
January 1 to December 31

Abbreviations

| | | | |
|------|--|------|--|
| AADT | Annual Average Daily Traffic | MoTI | Ministry of Transport and Infrastructure |
| AiIB | Asian Infrastructure Investment Bank | OHS | Occupational Health and Safety |
| CBA | Cost-Benefit Analysis | O&M | Operation and Maintenance |
| EIRR | Economic Internal Rate of Return | PDS | Project Delivery Strategy |
| EKAP | electronic government procurement system | PIR | Procurement Instructions for Recipients |
| ENPV | Economic Net Present Value | PIU | Project Implementation Unit |
| ES | Environmental and Social | POM | Project Operations Manual |
| ESAP | Environmental and Social Action Plan | PP | Procurement Plan |
| ESDD | Environmental and Social Due Diligence | PPM | Project-affected People’s Mechanism |
| ESIA | Environmental and Social Impact Assessment | PPP | Purchasing Power Parity |
| ESMP | Environmental and Social Management Plan | RIU | Regional Implementation Unit |
| ESP | Environmental and Social Policy | RP | Resettlement Plan |
| ESS | Environmental and Social Standards | SC | Supervision Consultant |
| FM | Financial Management | SEP | Stakeholder Engagement Plan |
| FX | Foreign Exchange | TAG | Tarsus-Adana-Gaziantep |
| GRM | Grievance Redress Mechanism | TOR | Terms of Reference |
| GoT | Government of Türkiye | VOC | Vehicle Operating Costs |
| IMF | International Monetary Fund | VOT | Value of Time |
| KGM | Karayolları Genel Müdürlüğü, the General Directorate of Highways | | |
| MDB | Multilateral Development Bank | | |
| MoTF | Ministry of Treasury and Finance | | |

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1. Summary Sheet

| | |
|---|---|
| Project No. | P000848 |
| Project Name | Türkiye Emergency Road Rehabilitation and Reconstruction Project |
| AIIB Member | Republic of Türkiye |
| Borrower | Republic of Türkiye |
| Project Implementation Agency | General Directorate of Highways (Karayolları Genel Müdürlüğü, KGM) under the Ministry of Transport and Infrastructure, Türkiye |
| Sector Subsector | Transport Roads |
| Alignment with AIIB's thematic priorities | Connectivity and Regional Cooperation, Green Infrastructure |
| Project Objective | To restore connectivity and enable safe and efficient movement of goods and people by rehabilitating essential transportation infrastructure located in the earthquake affected areas of Türkiye. |
| Project Description | <p>The Project will rehabilitate and reconstruct roads, tunnels, and bridges damaged by the February 2023 earthquakes that occurred in the southeast of Türkiye. The project activities will be implemented through five (5) subprojects, which will entail rehabilitation and enhancement of transportation infrastructure to meet required safety and capacity standards, as well as integration of climate-resilient measures to mitigate and withstand the impacts of climate and geological risks in the future.</p> <p>The Project will be prepared and implemented by KGM, under the Ministry of Transport and Infrastructure (MoTI), to ensure efficient execution and compliance with national regulations and AIIB policies. The subprojects are located within the jurisdictions of the KGM Regional Directorates 5 (Mersin) and 8 (Elazığ).</p> |
| Implementation Period | Sep 1, 2024 Sep 1, 2026 |
| Expected Loan Closing Date | Jan 31, 2027 |
| Proposed Amount of AIIB Financing (USDm) | 200.00 |
| Financing Plan | Total: USD415.90 million AIIB: USD200.00 million equivalent ¹ Government of Türkiye: USD215.90 million |
| ES Category | B |
| Risk (Low/Medium/High) | Medium |
| Conditions of Effectiveness | Project Operations Manual (POM) is furnished to the Bank's satisfaction. |
| Key Covenants | Supervision Consultants are appointed to the satisfaction of the Bank, and their engagement shall be maintained effective throughout the Project Implementation. |

¹ The Loan will be denominated in EUR, up to USD200.00 million equivalent. The costs and funding in this report will be presented in USD.

| | |
|--|--|
| Conditions for Disbursement | (i) Inclusion of the proper Environmental and Social instrument (ESAP or ESMP), as applicable and to the satisfaction of the Bank, within each civil works contract for disbursing funds for the respective subproject. (ii) Inclusion of the Covenant of Integrity within each civil works contract for disbursing funds for the respective subproject. (iii) Independent Audit of expenditures subject to retroactive financing. |
| Retroactive Financing (Loan % and dates) | Retroactive financing of up to 40% of the loan amount for eligible expenditures incurred not more than 12 months prior to the date of the loan agreement. |
| Policy Waivers Requested | No |
| Policy Assurance | Granted on August 8, 2024 |
| Economic Capital (ECap) Consumption (USDm) | USD47.60 million (29.90%) |

| | |
|-------------------------|---|
| President | Liqun Jin |
| Vice President | Konstantin Limitovskiy |
| Acting Director General | Konstantin Limitovskiy |
| Team Leader | Natalia Sanz, Senior Investment Officer |
| Back-up Team Leader | Wenjing Pu, Investment Officer |
| Team Members | Chitambala Sikazwe, Senior Procurement Specialist Shonell Robinson, Financial Management Specialist Xinchen Zhang, Environment Specialist Ercan Ozbulut, Social Development Specialist Alberto Alcubilla Arribas, Senior Investment Solutions Specialist Mengmeng He, Finance Officer Luiz Eduardo Rodrigues, Counsel Nurzhan Serik, Investment Officer Jiaming Yu, Project Assistant |
| Credit Officer | Young Bong Cho, Senior Sovereign Risk Officer |

2. Project Description

A. Project Overview

1. **Project Objective.** To restore connectivity and enable safe and efficient movement of goods and people by rehabilitating essential transportation infrastructure located in the earthquake affected areas of Türkiye.

2. **Project Description.** The project (hereinafter “the Project”) will rehabilitate and reconstruct roads, tunnels, and bridges that were damaged by the February 2023 earthquakes that occurred in the southeast of Türkiye. The project activities will be implemented through five (5) subprojects, which will entail rehabilitation and enhancement of transportation infrastructure to meet required safety and capacity standards, as well as integration of climate-resilient measures to mitigate and withstand the impacts of climate and geological events in the future.

3. The five subprojects included in this Project were strategically selected from a group of 29 rehabilitation projects being prepared and implemented by the General Directorate of Highways (KGM)². The selection of these subprojects was based on their sensitivity, readiness, and urgency, considering as well, which of these subprojects would benefit more from AIIB’s international best practices. Further details of the selected subprojects can be found in Section C.

4. **Expected Results.** By significantly reducing travel times along the subprojects’ routes, the Project anticipates enhancing overall transportation efficiency and connectivity, resulting in smoother and safer infrastructure conditions as well as improved accessibility and reliability for both commuters and businesses. Moreover, the Project’s targeted approach to repairing and restoring critical infrastructure serves as a vital support for communities and industries reliant on these roadways, effectively ensuring a broad spectrum of beneficiaries who will directly experience the positive outcomes. The Project Objective Indicators include travel time and freight and passenger traffic volume, showing the number of people benefiting from the use of repaired and restored infrastructure. Details on the Project objective and intermediate indicators can be found in the Results Monitoring Framework in Annex 1.

5. **Expected Beneficiaries.** The primary beneficiaries of the Project will be the users of the rehabilitated roads, tunnels, and bridges, including passengers and freight transport vehicles, who will benefit from shorter travel times, a safer and more reliable infrastructure, and reduced transport and logistics costs. Additional benefits include improved access to goods and services, and enhanced connectivity within affected areas, contributing to improved regional and national integration, and supporting economic development.

6. According to the Kahramanmaraş and Hatay Earthquakes report³, the earthquakes affected an area of about 350,000 square kilometers, encompassing 11 provinces (Adana, Osmaniye, Hatay, Kahramanmaraş, Gaziantep, Kilis, Malatya,

² The total needs for all these earthquake related road rehabilitation projects are over USD650 million.

³ Kahramanmaras and Hatay Earthquakes Report, Government of Türkiye, March 2023.

Adiyaman, Sanliurfa, Elazig, and Diyarbakir), with a total population of 14,013,496 people, accounting for 16.4 percent of the national population. While 96.7 percent (13,553,283 persons) of the region’s population live in provincial and district centers, the rest (459,913 persons) live in towns and villages.

B. Rationale

7. **Strategic Fit for Türkiye.** In February 2023, southeast Türkiye was struck by three major earthquakes, with epicenters located in Pazarcik and Elbistan, Kahramanmaraş province (both on February 6th, 2023), and Yayladagi, Hatay province (on February 20th, 2023), with magnitudes of Mw7.7, Mw7.6, and Mw6.4, respectively. These earthquakes affected an estimated 14 million people in 11 provinces. The transportation infrastructure suffered significant damages, including 2 percent of the road network (184 of 9,176 km), 10 percent of motorways (61 of 634 km), 26 percent of tunnels (17.3 of 66 km), and 5 percent of bridges (5.1 of 102 km) in the affected region.

8. **Emergency Response.** On February 8, 2023, the Government of Türkiye (GoT) declared the state of emergency, with the National Disaster and Emergency Management Agency (AFAD), which operates under the Ministry of Interior, coordinating the response. These actions followed the Presidency of Türkiye Medium Term Program (2024-2026), which details post-earthquake recovery measures and emphasizes the importance of resilient infrastructure. A Disaster Response Plan (TAMP) was elaborated, including a Disaster Transportation Infrastructure Group Plan and a Disaster Technical Support and Supply Group Plan, both under the responsibility of the Ministry of Transportation and Infrastructure (MoTI), with KGM serving as a Coordinator Partner.

9. The declaration of a state of emergency for a span of three months⁴ across the affected provinces was aimed at effectively mobilizing all available resources for the assistance of individuals impacted by the earthquakes. It allowed for temporary departure from the standard rules and regulations that would have applied under normal circumstances, with the overarching goal of promptly delivering interim infrastructure solutions to the affected people. Temporary measures were put in place by KGM shortly after the earthquakes to facilitate the movement of people and provide access to emergency crews and supplies, but the need for permanent and enhanced solutions remains crucial to ensure the safety and reliability of the infrastructure. This Project will contribute to the final rehabilitation and reconstruction efforts.

10. The details of Türkiye's government plans for post-earthquake infrastructure recovery involve the critical steps detailed in the table below.

Table 1. Türkiye Earthquakes Emergency Response Steps

| Step | Detail | Status |
|-------------------|---|--|
| Immediate relief | Ensuring basic needs like food, shelter, and medical aid are met for affected populations. | Completed in February 2023. |
| Damage assessment | Comprehensive evaluations of the damage to infrastructure, housing, and community facilities. | Completed between February and March 2023. |

⁴ According to article 119 of the Constitution of Türkiye, in cases of natural disasters and other specified situations, the President may declare a state of emergency in the whole or part of the country for a period not exceeding six months.

| Step | Detail | Status |
|---|--|--|
| Reconstruction planning | Developing a blueprint that prioritizes rebuilding efforts with a focus on seismic safety and urban planning. | Completed between February and March 2023. |
| Implementation | The actual construction work, which involves rebuilding homes, public buildings, and essential infrastructure. | Ongoing. |
| Long term resilience and sustainability | Strengthening the structural integrity of new buildings and infrastructure to withstand future seismic events and incorporating sustainable practices into the rebuilding process. | Ongoing. |
| International aid engagement | Collaborating with international organizations for financial and technical support in recovery efforts. | Ongoing. |

11. **Strategic Fit for AIIB.** The Project addresses development challenges in rebuilding the communities, economy, and services in the project area. The February earthquakes had devastating effects on the population, severely impacting livelihoods due to the destruction or damage of homes, businesses, and critical infrastructure. The aftermath of the earthquakes significantly strained social services, creating difficulties in providing both temporary and permanent housing, emergency services, and essential amenities, and inflicting a considerable psychological impact on the community. The rebuilding process poses further economic challenges, draining resources and diverting funds from other essential services. This Project will help address these challenges in line with AIIB's purpose of fostering sustainable economic development.

12. Additionally, the Project directly aligns with AIIB's thematic priorities of Connectivity and Regional Cooperation and Green Infrastructure, as well as with AIIB's Transport Sector Strategy.

- (i) Connectivity and Regional Cooperation: By rehabilitating and reconstructing the damaged roads, tunnels, and bridges, the Project enhances the connectivity within affected areas, contributing to improved regional and national integration and supporting the country's efforts in reestablishing important trade corridors with neighboring countries and the broader region. The Project is aligned with AIIB Cross-Border Connectivity priority, as the affected areas include regions like Gaziantep and Hatay, which are key nodes in the Eastern Mediterranean region, essential for the flow of goods and services. Additionally, the Port of Iskenderun in Hatay is a crucial maritime gateway and a key point for trade between Türkiye and other countries in the Mediterranean, as well as for the transit of goods to and from the Middle East and Europe. By focusing on road rehabilitation in the vicinity of the Port of Iskenderun, the Project directly contributes to enhancing maritime cross-border connectivity. Finally, the inclusion of areas like Malatya and Adiyaman in the rehabilitation efforts, while not directly on the border, plays a crucial role in the connectivity of routes linking Türkiye to its eastern neighbors and beyond.
- (ii) Green Infrastructure: The design of subprojects integrates climate-resilient strategies, including employing heat-resistant road components, enhancing bridge design to reduce thermal expansion, conducting routine slope stability inspections to mitigate landslide risks, reconstructing culverts to regulate water flow, and installing protective structures such as bored piles to mitigate river flood impacts and manage stream effects.

- (iii) **Transport Sector Strategy**: By financing the upgrading of existing infrastructure and the rehabilitation and reconstruction of trunk linkages, improving connectivity and transport integration. These elements are crucial in promoting trade and economic growth by ensuring efficient transport networks.

13. **Paris Agreement Alignment and Climate Finance**. In line with AIIB methodology for assessing the alignment with the mitigation and adaptation goals of the Paris Climate Agreement, the project is assessed as aligned. Details on the assessment are provided in Section 3 and Annex 6. In line with the joint MDB methodology for tracking adaptation finance, it is estimated that USD 45.88 million (22.94 percent) of the project cost contributes to support adaptation. Details on these estimates are provided in Annex 6.

14. **Value Addition by AIIB**. AIIB's participation enhances the Project through: (i) transfer of technical expertise and knowledge acquired from previous operations in Türkiye and other emergency projects caused by natural disasters⁵, including a deep understanding of government institutions, emergency policies, and a comprehensive approach to improving risk management, (ii) AIIB's involvement will promote innovative solutions and technologies, like earthquake-resistant designs, smart monitoring systems, use of recycled materials, geotechnical improvements, landslide prevention, and others, alongside training programs for future similar events, enhancing the quality, safety, and efficiency of rehabilitation efforts, (iii) integration of climate adaptation measures into the Project, ensuring that the rehabilitated infrastructure is resilient against future seismic events and other natural disasters, in alignment with AIIB's commitment to environmental sustainability, (iv) the application of global best practices in Project management, upholding high quality standards and adherence to robust environmental and social (ES) criteria, fostering environmental sustainability within the Project, and enhancing the proficiency of implementing agencies, and (v) AIIB provides capacity-building support to the implementing agency, encompassing the integration of international best practices in managing environmental, social, procurement, and financial risks, setting the foundation for KGM to receive further international financing from MDB's in the future.

15. **Value Addition to AIIB**. AIIB's financing of the Project leverages the Bank's experience and insights acquired from emergency and post-emergency operations, contributing to an enriched knowledge base that will inform and enhance future investment operations, both from technical and policy perspectives. As the first AIIB stand-alone project within Türkiye's transport sector, this financing plays a key role in reinforcing the partnership between the Bank and the country. Moreover, AIIB can gain valuable insights from KGM and its Regional Directorates regarding the implementation and management of infrastructure in disaster-prone areas.

16. **Lessons Learned**. The lessons learned from previous AIIB emergency operations include:

⁵ China: Henan Flood Emergency Rehabilitation and Recovery Project, <https://www.aiib.org/en/projects/details/2021/approved/China-Henan-Flood-Emergency-Rehabilitation-and-Recovery-Project.html>, and Türkiye: Istanbul Seismic Mitigation and Emergency Preparedness Additional Financing Project, <https://www.aiib.org/en/projects/details/2023/approved/Turkiye-Istanbul-Seismic-Mitigation-and-Emergency-Preparedness-Additional-Financing-Project.html>.

- a) The importance of adopting a flexible approach to Project preparation, to facilitate swift responses and agility in Project design, mobilizing the best available resources within constrained timeframes, enabling a detailed assessment of the Project scope and thorough screening of subprojects. This Project applies a phased approach in ES aspects, adding agility to the preparation and approval, while maintaining the best international standards;
- b) Aligning the project design with the imperative of resilience and sustainability, improving the quality of the structures, for which reconstruction efforts should integrate climate adaptation measures, enhanced design standards, advanced technologies, and resilient materials, ensuring long-term sustainability;
- c) Conducting a comprehensive assessment of the environmental and social compliance of contracts that were procured prior to loan approval and are eligible for AIIB financing, verifying that necessary amendments have been made to align these ongoing contracts with AIIB's Environmental and Social Policy (ESP);
- d) Establishing effective and efficient Project management institutions, with strong and clear leadership spanning all government levels is vital for both rapid project preparation in emergency operations and a successful implementation thereof. Coordination between Ministry of Treasury and Finance (MoTF) and KGM, both in Ankara and Regional Directorates 5 and 8, has been vital for the successful preparation of this emergency project, with the expected tight timelines.

C. Components

17. **Component A: Rehabilitation of Damaged Infrastructure (Total USD413.6 million; AIIB USD199.5 million).** This component will finance construction works to rehabilitate and modernize existing infrastructure affected by the February 2023 earthquakes in southeastern Türkiye through five subprojects, as follows:

- a) Subproject 1: Tarsus-Adana-Gaziantep (TAG) Motorway Rehabilitation. This subproject will repair damages on TAG Motorway between Aslanlı Tunnel and Nurdağı Junction, spanning 8.63 km, and including five viaducts (Şehitler, Nurdağı, Atatürk, Turgut Özal, and Başpınar). The damages comprise cracks, settlements, explosions, and deep cracks in the embankments of the main body of the highway and in the expansion joints, deck concrete, approach fills, earthquake bearings, supports, and elevations in the viaducts. Temporary solutions, such as the installation of steel plates, were implemented immediately after the earthquakes, ensuring the motorway remains operational. AIIB financing will be invested in carrying out comprehensive repairs and in strengthening the motorway and viaducts to enhance their resilience against earthquakes.
- b) Subproject 2: Hatay Province Roads Rehabilitation and Reconstruction. This subproject will finance:
 - İslahiye-Hassa-Kırıkhan Road (D825): Repair works on the Fevzipaşa Junction and Sulumağara Bridges and various locations along a 20 km section of a road which was left with transverse and longitudinal cracks after the earthquake.

- Antakya-Reyhanlı Road (D420): Reconstruction of a 2 km section of a 4-lane road, repair of the superstructure at various locations of a 10 km section, reconstruction of a two-lane, 100-meter-long bridge at the Demir Köprü location that collapsed due to the earthquake, and Bituminous Hot Mixture repair works for 1 km bridge connecting roads.
 - Hatay Airport Road: Reconstruction of 2.5 km of the 5 km road and repair of superstructure of the remaining 2.5 km section.
- c) Subproject 3: Antakya-Samandağ Road Reconstruction. Reconstruction of the 27 km two-lane (one lane per direction) Antakya-Samandağ Road, including the Samandağ Ring Road that circles the city of Samandağ on the south and east side.
- d) Subproject 4: Erkenek Tunnel Rehabilitation. Repair of Erkenek Tunnel and damaged sections along the state road D850 from Erkenek Tunnel to Karanlıkdere. The Malatya- Sürğü-Gölbaşı Road experienced damages to road embankments, engineering structures and superstructure due to the earthquakes. The Erkenek Tunnel suffered damages in concrete pavement, tunnel floor, and electromechanical systems. The proposed solution involves the reconstruction of the 20 km road and tunnel, along with the rehabilitation of a landslide that occurred on the road.
- e) Subproject 5: Tohma, Agin, and Beylerderesi Bridges Rehabilitation. Repair and reinforcement of three bridges damaged by the earthquake. The Tohma Bridge experienced structural issues in its modular expansion joints situated on both sides of the bridge legs. On the Agin Cable-Stayed Bridge, damage includes the breakage of cables within 3 cable tendons and structural problems, such as Teflon peeling, affecting a total of 4 pot supports — one on each side leg and one on each middle leg. The Beylerderesi Bridge exhibits cracks ranging from 2.5 to 3 mm in width on the walls of the edge opening segments, and there is damage to the modular expansion joints at both entrances of the bridge.

18. **Component B: Project Management Support and Institutional Capacity Development (Total USD0.5 million; fully financed by AIIB)**. This component will provide support to the Project Implementation Unit (PIU) and Regional Directorates 5 and 8 through the hiring of consultants to strengthen the technical capacity for project management, procurement, monitoring, financial management (FM) and environmental and social activities, along with conducting institutional capacity building activities to enhance emergency response and management capabilities. This component will also finance the hiring of a consulting firm to carry out the independent audit of the expenditures to be reimbursed under retroactive financing.

19. **Component C: Supervision Consultant (Total USD1.8 million; fully financed by KGM)**. KGM will finance Supervision Consultants (SC) with local resources. AIIB has agreed with KGM on the scope of works and staffing of the SCs to ensure appropriate and comprehensive coverage of technical, environmental, and social stipulations for the subprojects under supervision, as well as a budget aligned with the requirements. Each Regional Directorate has engaged one Supervision Consultant responsible for overseeing all subprojects within their respective jurisdiction to the

satisfaction of the Bank and their engagement shall be maintained effective by KGM throughout the Project's Implementation.

D. Cost and Financing Plan

20. The table below provides detailed cost by component and financing plan:

Table 2. Project Cost and Financing Plan

| Item | Project Cost (USD m) | Financing (USD m and %) | |
|---|----------------------|-------------------------|--------------------|
| | | AiIB | GoT |
| Component A: Rehabilitation of damaged infrastructure | 413.6 | 199.5 (48%) | 214.1 (52%) |
| <i>Subproject 1: TAG Motorway</i> | 123.6 | 37.5 | 86.1 |
| <i>Subproject 2: Hatay Province Roads</i> | 118.1 | 21.8 | 96.3 |
| <i>Subproject 3: Antakya-Samandağ Road</i> | 60.3 | 54.6 | 5.7 |
| <i>Subproject 4: Erkenek Tunnel</i> | 97.5 | 83.1 | 14.4 |
| <i>Subproject 5: Tohma, Agin, and Beylerderesi Bridges</i> | 14.1 | 2.5 | 11.6 |
| Component B: Project Management Support and Institutional Capacity Development | 0.5 | 0.5 (100%) | 0.0 |
| Component C: Supervision Consultants | 1.8 | 0.0 | 1.8 (100%) |
| Grand Total | 415.9 | 200.0 (48%) | 215.9 (52%) |

E. Implementation Arrangements

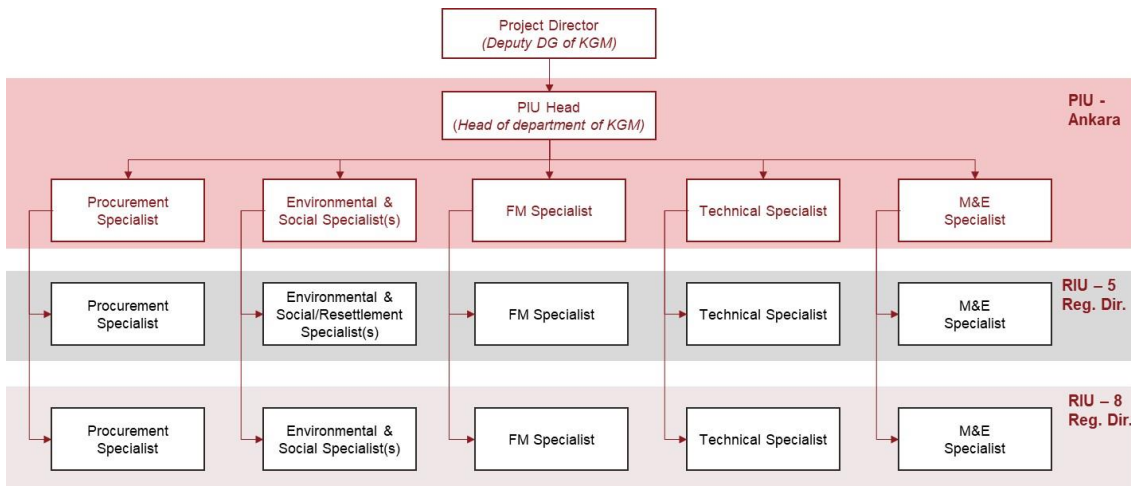
21. **Implementation Period.** The implementation period for the Project is expected to be two years, from September 2024 to September 2026.

22. Implementation Readiness.

- i. **Institutional Arrangements.** KGM, operating within the MoTI, is entrusted with the management and enhancement of Türkiye's national road network. Its responsibilities include planning, construction, enhancement, and maintenance of motorways, state highways, provincial roads, as well as bridges and tunnels, all aimed at ensuring the secure and efficient utilization of these roadways. Additionally, KGM formulates and updates construction standards, repair protocols, maintenance practices, and related technical specifications. Headquartered in Ankara, KGM maintains a network of 18 Regional Directorates strategically situated across the country.
- ii. **Project Implementation Plan.** KGM serves as the implementing agency for the Project, operating through its central offices in Ankara and two of its Regional Directorates (5th and 8th). Subprojects are being implemented and supervised by the Regional Directorate responsible for the area where they are located. Subprojects 1, 2, and 3 fall under the jurisdiction of the 5th Regional Directorate, located in Mersin, and subprojects 4 and 5 are under the supervision of the 8th Regional Directorate, located in Elazığ.

- iii. Given KGM's limited prior experience with MDB-financed projects and considering that this is the first project financed by AIIB to be implemented by this agency, to the Bank will maintain a close oversight and provide training and capacity-building support to align with AIIB's policies and practices during both the preparation and implementation phases. KGM Ankara and Regional Directorates 5 and 8 have been trained in AIIB processes for FM and Procurement. Two AIIB local individual consultants have been engaged and are supporting the PIU on the AIIB requirements.
- iv. **Project Implementation Unit and Regional Implementation Units (RIUs).** The Project will have one PIU in Ankara, and two RIUs within Regional Directorates 5 and 8, respectively. Primary coordination of Project preparation and implementation will stay with the PIU, while the RIUs will handle day-to-day activities, procurement, supervision, and monitoring specific to their respective subprojects.

Figure 1. PIU and RIU Organization Chart



- v. **Procurement Arrangements.** Given that the PIU and RIUs fall under the jurisdiction of the MoTI and are public entities, specific procurement provisions outlined in the “Section 2 Procurement by Public Entities” of the Directive on Procurement Instructions to Recipients (PIR) (July 26,2024) shall apply to the Project’s procurement processes. Due to the emergency nature of the situation, all civil works contracts being considered for financing by AIIB have been awarded using the Negotiated Procedure outlined in Article 21b of Türkiye’s Public Procurement Law No. 4734. The PIU, through the RIUs, has conducted the procurements and will be responsible for the contracts’ management. The PIU has drafted an acceptable Project Delivery Strategy (PDS), including a Procurement Plan (PP) outlining procurement arrangements, contract packaging, amounts, procurement methods, and timelines, which serve as the foundation for the Project procurement activities. Any updates to the PDS and PP will be submitted to the Bank for review and no objection.
- vi. **Financial Management (FM).** The FM responsibility of the Project will be led by the PIU in KGM Ankara, while the day-to-day operations will be managed by the respective RIUs. The PIU will take charge of budget planning and consolidation, financial reporting, payment approval, and withdrawal application preparation.

The PIU will coordinate with RIUs, MoTF, KGM's Accounting Department and other relevant units to obtain the necessary approvals for payment processing. The Project activities will be accounted for by the Accounting Department in the respective regions. The Accounting Department at KGM Ankara will then consolidate the accounting data and provide it to the PIU, which will prepare the project financial statements and other relevant financial information. Templates for both unaudited and audited project financial statements will be agreed upon with the Bank.

The PIU will be required to submit quarterly Interim Unaudited Financial Reports (IUFRs) within 45 days after the calendar quarter. Annual external audit reports will also be required, which should be submitted to the Bank within 6-months from the financial year end.

23. **Monitoring and Evaluation.** KGM PIU will assume the primary responsibility for monitoring the Project's progress and performance, following the results indicators outlined in the Results Monitoring Framework and in coordination with the RIUs, with the support of the two Supervision Consultants. This monitoring will be informed to the Bank through the submission of quarterly and annual reports. To ensure effective monitoring and reporting, a POM will provide comprehensive guidance on the respective roles, responsibilities, and coordination between the PIU and the RIUs.

24. **AIB's Implementation Support.** AIB will conduct supervision and implementation support missions twice a year, and periodic technical review visits to provide necessary implementation support at various project stages. Additionally, AIB will engage tunnel and bridge experts to carry out red-flag reviews of the designs and civil works across the five subprojects. These reviews are scheduled to occur once 50 percent of the physical works for each subproject have been completed. For projects that have already surpassed this milestone, the review will be promptly conducted upon the Project's effectiveness. The primary objective of these reviews is to ensure compliance with safety standards, mitigate potential risks, identify and rectify any discrepancies that may result in cost overruns or delays, and underscore KGM's commitment to quality assurance and accountability, thereby bolstering public confidence.

3. Project Assessment

A. Technical

25. **Subprojects Design.** In the aftermath of the earthquakes in February 2023, KGM was appointed as the designated implementation agency for road disaster recovery and reconstruction. Collaborating with consultants, KGM conducted comprehensive inspections of road infrastructure, including those within the five subprojects, to assess damages and formulate plans for rehabilitation and reconstruction.

26. Türkiye's infrastructure strategy post-2023 earthquakes is centered on building systems that are not only earthquake-resistant but also resilient to a variety of climate-induced hazards. This holistic approach to sustainable reconstruction incorporates resilience and sustainability into the rebuilding process. The focus is on long-term structural safety and adaptability to evolving environmental conditions and challenges. Furthermore, the country's infrastructure development prioritizes the safety and efficiency of its transportation network, including roads, tunnels, and bridges, by adopting innovative engineering solutions tailored to meet the demands of challenging geological conditions and seismic risks. This strategic approach highlights a commitment to both immediate safety concerns and the proofing of infrastructure against environmental threats.

27. For example, traditional rigid concrete or iron retaining walls will be replaced with geosynthetic reinforced walls where suitable. These innovative walls offer greater flexibility, lacking rigid components, which enables them to absorb both horizontal and vertical shifts occurring during and post-construction. This adaptability makes them exceptionally resistant to earthquakes. Moreover, these geosynthetic walls are equipped with special plant-holding facades, seamlessly integrating them into the natural environment by fostering greenery shortly after construction. For ground stabilization, the subprojects will incorporate geocomposite floor reinforcements where suitable to mitigate potential shifts at the base, enhancing the overall structural integrity. Cutting-edge materials from Europe and the Republic of Korea that bear the "CE" marking⁶, such as cables, bearings, and expansion joints will be used in the refurbishment of bridges within subproject 5. Throughout the Project, a harmonious balance with nature will be a priority. The design and reconstruction efforts will accommodate afforestation and landscaping where necessary, ensuring that the revitalized infrastructure not only serves its purpose but also contributes to the ecological landscape.

28. **Operational Sustainability.** While KGM's funding for operation and maintenance (O&M) activities is derived from a diverse range of sources, the resources approved yearly within the national budget are the main one. These funds are essential to ensure the continued functioning, safety, and quality of Türkiye's road network. KGM is included in the scope of Special Budget Organizations and has received 2.65 percent of central government budget in 2023 and 2.40 percent in 2024 (TRY267 billion or USD8.42 billion). The process of budget approval follows the national budget calendar

⁶ CE marking in construction materials stands for "Conformité Européenne," which translates to "European Conformity" in English. It is a certification mark that indicates a product's compliance with European Union (EU) health, safety, and environmental protection standards for construction materials.

and is under the scope of KGM Strategy and Development Department. Processes for increasing the O&M budget, if needed, are clear and in place. The subprojects to be financed by AIIB are already incorporated into KGM's annual O&M program, reducing the need for additional approval from the central government to increase the maintenance budget. Given the technically capable KGM team, and the consistent allocation of funds to O&M activities over the past decade, the project is deemed operationally sustainable.

B. Economic Analysis

29. A cost-benefit analysis (CBA) was carried out to assess the economic viability of each of the five subprojects comparing “with-” and “without-project” scenarios, based on traffic data provided by KGM's Traffic Department. The analysis covers an operating life span of 25 years and a rehabilitation/construction period of one and two years, discounted at a social discount rate of 11 percent⁷. All costs and benefits are expressed in domestic currency, net of transfers and financial charges.

30. Economic costs consider shadow prices of construction and maintenance costs. Economic benefits include: (i) Vehicle Operating Costs (VOC) reduction, calculated utilizing the HDM-4 model based on specific road, bridge and tunnel characteristics, (ii) Value of Time (VOT) savings, factoring in Türkiye GDP per capita, average speed, derived in accordance with Highway Capacity Manual, spot speeds determined by KGM's Directorate of Transportation Studies, and average salary, (iii) savings through a reduction in road accidents, calculated by KGM's Traffic Safety Department using the Harmonised European Approach for Transport Costing and Process Assessment (HEATCO) for Türkiye, and (iv) Greenhouse gas (GHG) savings.

31. Traffic flow has been modelled by KGM's Traffic Department utilizing time series data adjusted with socio-economic variables, accounting for population growth, motor vehicle ownership, income per capita, labor force, regional dynamics, and urban changes.

32. All subprojects on a standalone basis were deemed economically viable with Economic Internal Rate of Return (EIRR) ranging between 12 to 74.2 percent and Economic Net Present Value (ENPV) ranging between TRY207 million to TRY9,949 million. The heterogeneity in EIRR results of subprojects is mainly due to the magnitude of the capital costs contemplated and the traffic density at the respective road sections, while the high EIRRs for subprojects 1 and 3 is driven mainly by the combination of high passenger time savings due to increased average speed (48% and 87% of total economic benefits, respectively) with low construction costs. A sensitivity analysis was undertaken comprising (i) 20 percent decrease in traffic and (ii) 20 percent increase in construction costs. Details on the methodology and disaggregated results are provided in Annex 3.

C. Fiduciary and Governance

33. **Procurement.** In accordance with Section 2.8 - Use of Recipient Procurement Systems of AIIB PIR, the Bank assessed the Türkiye Country Procurement System,

⁷ This social discount rate is determined by the Strategy and Budget Office, within MoTF.

focusing on the five civil works contracts to be financed by the Project. The assessment encompassed a thorough review of (i) the Public Procurement Law No. 4734, (ii) the Law on Public Procurement Contracts No. 4735, and (iii) relevant procurement and contract documentation for the five civil works contracts. The evaluation assessed the alignment of the Türkiye Country Procurement System with the AIIB Core Procurement Principles and Standards. The key risks identified include (i) potential non-compliance with AIIB's Policy on Prohibited Practices within the civil works contracts, and (ii) lack of independent verification for acceptable procurement and contract management processes. To mitigate these risks, measures have been implemented: (i) mandating the inclusion of the AIIB Covenant of Integrity in each contract as a condition precedent for disbursement, and (ii) subjecting the procurement process and contracts to external audit, including this in the external audit ToRs. The procurement risk is assessed as Medium. The Bank considers the Country Procurement Systems and the procurement processes to be compatible with AIIB Core Procurement Principles and Standards.

34. The enactment of Public Procurement Law No. 4734 in 2003 created a modern procurement framework aligned with international standards on public procurement, like the European Union Directives, the United Nations Commission on International Trade Law (UNCITRAL) model law on procurement, World Trade Organization (WTO) requirements and MDB procurement principles. Law 4734 establishes the fundamental principles and procedures governing procurements conducted by public authorities. These principles encompass transparency, competition, equal treatment, reliability, confidentiality, public supervision, timely and appropriate fulfilment of needs, and efficient use of resources. This law applies across all procurement categories, encompassing goods, works and services, and offers a spectrum of procurement methods, including open, restricted, and negotiated procedures. Furthermore, it establishes mechanisms for complaint resolution, measures to deter non-compliant tenderers and sanctions for officials.

35. The Public Procurement Authority, created under Law 4734, is a regulatory body endowed with administrative and financial autonomy. This authority is vested with several key functions, including regulation, capacity building, dispute resolution, system oversight, and management of the electronic government procurement system (EKAP). Procurement operations and practices are monitored and managed through EKAP, bolstering efficiency, transparency, competition, enhanced accountability, and oversight. The Türkiye Court of Accounts further ensures the integrity, transparency, and accountability of the system by auditing the procurement and contract management activities of contracting entities.

36. Article 21b Negotiated Procedure of the Law 4734 is invoked when immediate procurement action is imperative due to sudden and unexpected events, such as natural disasters, epidemics, or imminent risk to lives or property. Over the last four years KGM has applied Article 21 b to over 30 high-value procurement contracts exceeding USD30 million. This demonstrates both market and user familiarity with the procedure and the presence of a local market capable of executing such significant contracts.

37. For each of the civil works contracts already procured, the respective RIU pre-qualified up to six national firms. Pre-qualification criteria included factors such as the availability of plant, equipment and personnel, past project execution, proximity to project site, turnover, and lines of credit. Invitations were extended to pre-qualified firms

via EKAP to submit both technical and financial proposals. These proposals underwent thorough preliminary examination, technical evaluation, and price comparison. Pre-qualified firms were then requested to reconfirm their financial proposals, and contracts were awarded to the most economically advantageous offer. The outcome of the tender process was communicated to the respective bidders, and contract awards were published on EKAP. To date, no complaints regarding the procurement process have been received. Further details of the procurement process are outlined in Annex 7.

38. The procurement documents used are largely aligned with MDB provisions, and the contract used mirrors international standards. The procurement documents and contracts did not include adherence to AIIBs Policy on Prohibited Practices, and therefore, signed contracts will be amended to incorporate AIIB's Covenant of Integrity as well as ES requirements deemed necessary. These amendments will be a condition for disbursement for each subproject.

39. **Financial Management.** The FM assessment concluded that with a few enhancements to the Project FM arrangements, KGM will be able to execute the required FM responsibilities of the Project. The proposed Project FM arrangements are deemed to be adequate to ensure that funds are used for the purposes granted. In addition, the arrangements should enable the timely and reliable financial reporting on eligible project activities financed under the Project.

40. The key risk factors identified are: (i) potential delays in full payment of invoices due to the timely availability of counterpart funds, (ii) insufficient staffing capacity within the PIU to handle the expected additional workload during project implementation, and (iii) decentralization of the FM function, with 40 percent of expenditures to be retroactively financed, posing a risk of non-compliance with specific Bank requirements and potential ineligible expenditures. To mitigate these risks: (i) the availability of the loan will alleviate pressure on the Government's budget, freeing up more funds for counterpart financing under the Project. In addition, the Government and KGM have committed to prioritizing expenses under the Project, (ii) a Finance Officer will be engaged within two months of project effectiveness, and the Bank will provide targeted FM and Disbursement training to all relevant staff and consultants, (iii) retroactively financed expenditures will be released only upon submission of an acceptable audit report to the Bank, justifying eligibility of expenditures, and (iv) despite decentralized implementation arrangements, robust cash management and treasury controls are in place. Furthermore, all expenditures submitted by the Regional Directorates will require approval from the PIU prior to payment processing by the Accounting Department.

41. **Staffing.** Although KGM has never implemented an AIIB financed Project, it is staffed with experienced professionals who are familiar with the FM requirements of other MDBs. The FM capacity of the PIU will be enhanced through the engagement of at least one additional Finance Officer, with ToRs to be agreed with the Bank. As the project progresses, the Bank will continue to monitor the staffing capacity to determine if another Officer is required.

42. **Budgeting.** KGM is a special budgetary institution subject to the Public Financial Management and Control (PFMC) Law No. 5018. Accordingly, the project will follow the national planning and budgeting procedures, and thus can only make expenditures up to the ceiling indicated in the GoT Investment Program for this project. An annual Project

budget and work plan will be prepared by the PIU, subject to review and approval by AIIB. This will be integrated into KGM's investment plan and budget, approved by the Presidential Strategy and Budget Office.

43. **Financial and Information Systems.** KGM has in place several systems that are used to support their operations. These systems enable robust treasury and cash management control, the timely monitoring of contractual performance, the accounting and reporting of transactions. KGM uses the accrual-based government accounting system, "BKMYS", which seamlessly interfaces with the budgeting system and banking system and reinforcing strong budgetary and cash management controls. The Accounting system chart of accounts is aligned with the government approved budgetary codes. The system incorporates an integrated contract management and fixed asset module, facilitating streamlined reporting on project activities. BKMYS is centralized, and therefore KGM Ankara and MoTF can access and consolidate all information provided by the RIUs.

44. **Internal Controls and Internal Audit.** KGM applies the internal control mechanisms set forth in the Public Financial Management and Control Law. Its internal control includes segregation of duties, proper review, and authorization of transactions. The internal control environment is further enhanced through the existing Internal Audit Department (IAD). However, IAD staffing resources are constrained and may need to be reinforced with additional experts to execute the Project specific internal audits. The internal audits will be executed periodically, which will be guided by a Bank approved ToR for internal audit services. The audit reports will become due to the Bank no later than three months after the reporting period end date.

45. **External Audit.** Annual project financial statements will be audited by the Board of Treasury Controllers (BoTC) within MoTF, that is mandated to execute audits of projects financed through external loans in which MoTF is the recipient. BoTC will conduct the Project audit based on International Standards on Auditing and in line with ToR acceptable to the Bank. The audit reports, including the audited financial statements and a Management Letter (letter on internal control weakness), will be provided to AIIB within six months after the end of each fiscal year. The audit reports excluding the Management Letter will be publicly disclosed by the KGM.

46. **Funds Flow and Disbursements.** Disbursement of AIIB proceeds is subject to the Borrower's fulfillment of the disbursement conditions for sub-projects. The disbursement methods to be used are advance payment, direct payment, and reimbursement. Advance payment will be the main method for disbursement, and as such a segregated Designated Account denominated in EUR currency, will be established at the Central Bank of Türkiye by the MoTF. Funds will be transferred from the Designated Account to a Project Account maintained by KGM Ankara, which will then disburse funds to the Project Accounts set up for the RIUs. Each RIU will maintain a corresponding Project Account to receive and disburse funds for their respective subprojects. All Project Accounts will be segregated and denominated in Turkish Lira. The RIUs will make payments directly to contractors and suppliers upon the approval from the PIU (KGM Ankara). With respect to counterpart financing, the funds will flow through the KGM Ankara and RIUs' operating accounts in compliance with government laws and regulations.

47. AIIB will advance funds based on a six-month period cash forecast statement. Following the initial disbursement, report of use of funds will be made on a quarterly basis. Documents requested will be detailed out in the disbursement letter. Withdrawal Applications will be prepared by the PIU and authorized by MoTF prior to submission to AIIB. The reimbursement method will be used mainly for the retroactively financed expenditures.

48. **Retroactive Financing.** Because of the emergency nature of the Project the five subprojects to be financed by AIIB have started implementation. The Bank carried out a thorough assessment of the Procurement, FM, ES, technical, Climate Resilience, and economic viability aspects of the contracts to ensure they qualify for AIIB financing. The retroactive portion is expected to be up to 40 percent of the total loan amount for the eligible expenditures incurred and paid within 12 months prior to the signing date of the Loan Agreement. Reimbursement will be subject to confirmation that the Covenant of Integrity and Environmental and Social Management Plans (ESMPs) are incorporated into the contracts of subprojects. Additionally, retroactively financed expenditures will be audited by an independent auditor approved by the Bank. According to the KGM estimates shown in Table 3, USD114.8 million was incurred and paid across five subprojects (inclusive of value-added tax) in 2023.

Table 3. Incurred and Forecasted Cost by Subproject in USD million

| Item | 2023A | 2024F | 2025F | Total |
|--|--------------|--------------|--------------|--------------|
| <i>Subproject 1: TAG Motorway</i> | 29.4 | 81.3 | 12.9 | 123.6 |
| <i>Subproject 2: Hatay Province Roads</i> | 76.1 | 41.9 | 0.1 | 118.1 |
| <i>Subproject 3: Antakya-Samandağ Road</i> | 0.0 | 32.2 | 28.2 | 60.3 |
| <i>Subproject 4: Erkenek Tunnel</i> | 0.0 | 36.9 | 60.6 | 97.5 |
| <i>Subproject 5: Tohma, Agin, and Beylerderesi Bridges</i> | 9.2 | 4.8 | 0.1 | 14.1 |
| Total | 114.8 | 197.0 | 101.8 | 413.6 |

49. **Governance and Anti-corruption.** The AIIB's Policy on Prohibited Practices shall apply to the Project. AIIB is committed to preventing fraud and corruption in the projects it finances. Thus, 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 address any issues in a timely manner, as appropriate. Detailed requirements will be specified in the AIIB-funded packages' contract documents. The governance structure of KGM is strictly regulated by Türkiye's anti-corruption legal statutes, particularly the Turkish Criminal Code, which delineates definitions and punishments for bribery involving public officials, including those within state-owned entities like KGM. This framework imposes severe penalties for bribery, such as imprisonment and the potential termination of employment contracts, in addition to prohibiting guilty corporations from participating in public tenders. Moreover, these corporations may face additional non-criminal sanctions, including license revocation and financial penalties, if they are found to benefit from corruption-related activities. Complementing these measures, the Law on the Ethics Board for Public Officials and recent laws concerning individuals with significant public influence fortify Türkiye's position against corruption and money laundering.

D. Environmental and Social

50. **Environmental and Social Policy, Standards and Categorization.** The Bank's ESP, including the Environmental and Social Standards (ESSs) and the Environmental and Social Exclusion List (ESEL), is applicable to this Project. As per the Bank's ESP, the Project is classified as Category B, considering the majority of ES risks and impacts from reconstruction and rehabilitation works are temporary, short-term, limited, site-specific, reversible, and can be effectively mitigated with known measures and sound construction management practices. ESS1 – Environmental and Social Assessment and Management and ESS2 – Land Acquisition and Involuntary Resettlement are applicable. ESS3 – Indigenous Peoples is not applicable in Türkiye since Indigenous Peoples are not present in the country.

51. **Environmental and Social Instruments.** In correspondence to Section VI, E, Item 53 of ESP, the use of a phased approach on ES assessment is adopted for this Project given the urgent need for assistance because of the earthquakes. KGM hired ES consultants to carry out Environmental and Social Impacts Assessment (ESIA) for the Project, including:

- a) an Environmental and Social Due Diligence (ESDD) on the subprojects under construction to verify the ES management performance and compliance with Turkish legislations, as well as any gaps with AIIB's ESP, and Environmental and Social Action Plans (ESAPs) for each subproject, detailing the required actions to fill the gaps identified and rectify any critical safety concerns and/or legacy issues.
- b) Environmental and Social Management Plans (ESMP) for each subproject, to be integrated into the respective civil works contracts.
- c) a Resettlement Plan (RP) outlining principles and providing guidance regarding the identification and management of resettlement impacts during Project implementation.
- d) a Gender Action Plan (GAP) including specific gender considerations that must be taken into account during the Project activities and defining indicators to monitor the implementation of these considerations.
- e) a Stakeholder Engagement Plan (SEP) defining a program for stakeholder engagement, including project-specific grievance redress mechanism, public information and consultations, throughout the Project cycle.

52. Under the phased approach, the draft ESDD in English and its summary in Turkish, including the ESAP, was disclosed by KGM on April 5, 2024⁸; and disclosed on AIIB's website on April 10, 2024⁹. The GAP in English and its summary in Turkish was

⁸ <https://www.kgm.gov.tr/Sayfalar/KGM/SiteTr/Duyurular/DuyuruDetay.aspx?Parameter=1455>;
<https://www.kgm.gov.tr/Sayfalar/KGM/SiteTr/Duyurular/DuyuruDetay.aspx?Parameter=1454>.

⁹ <https://www.aiib.org/en/projects/details/2024/download/Turkiye/Environmental-and-Social-Due-Diligence-Report-in-English.pdf>.
<https://www.aiib.org/en/projects/details/2024/download/Turkiye/Environmental-and-Social-Due-Diligence-Report-Summary-in-Turkish.pdf>.

disclosed by KGM on July 17, 2024¹⁰. The SEP in English and its summary in Turkish was disclosed by KGM on July 11, 2024¹¹. The rest of ES instruments, including draft ESIA, ESMPs, and RP will be disclosed in August 2024.

53. **Environmental Aspects.** The Project is expected to have environmental benefits from increased traffic safety to communities in selected regions through the enhanced safety, quality, environmental sustainability, and disaster resilience of transport infrastructure. The anticipated adverse environmental effects are not expected to be significant, which may include soil erosion, loss of surface vegetation, dust, noise, waste disposal, disturbance to communities and wildlife, traffic disturbance during construction, and road and traffic safety during operation.

54. The ESIA carried out a comprehensive survey of the biological environmental baseline and assessment of the Project's potential impacts to habitats and species. Although some of the roads intersect with or are situated adjacent to areas with important biodiversity value, given the existing nature and surrounding urbanization, the impact of rehabilitation works in these areas is not expected to be significant. Precautionary mitigation and monitoring measures are proposed in the ESMPs to avoid or minimize disturbance. The ESDD did not identify any legacy environmental issues, but areas for improvement include the provision of sufficient temporary waste storage area, prevention of oil spills during maintenance works, remediation of unsafe site conditions, additional training needs, and timely obtainment of required environmental permits, which are proposed as corrective actions in the ESAP.

55. **Social Aspects.** The ESDD did not identify any social legacy issues. Aspects for improvement identified and included as corrective actions in the ESAP comprise the establishment of project-specific Grievance Redress Mechanism (GRM), appointing a stakeholder engagement and project-specific GRM expert, preparation and use of the Chance Find Procedure for cultural management and additional training requirements. The social impacts, such as land use, cultural heritage, community and occupational health and safety, labor and working conditions, affected stakeholders and livelihoods, are addressed in ESMPs for each sub-project. Project-related reconstruction and rehabilitation works will broadly take place within the existing footprints and the right of way. Nevertheless, for the rehabilitation of the Antakya-Samandağ Road (P3), an economic displacement of 915 m² is required for the land belonging to 12 title holders. A RP outlining principles and providing guidance regarding identification and management of resettlement impacts during Project implementation is under review and will be disclosed by KGM in August 2024. There are five worker campsites for the ongoing construction activities, which as per the ESDD findings comply with national and international standards.

56. For Tohma Bridge within subproject P5, land for a temporary campsite including a 2-storey house structure has been rented from a private landowner. The landowner also engages in animal husbandry and dairy farming on the remaining parcel of land. The ESIA addresses the risks related to temporary land acquisition along with the RP, which will include appropriate compensation measures for land leasing and land reclamation.

¹⁰ <https://www.kgm.gov.tr/Sayfalar/KGM/SiteTr/Projeler/DiskrediliProjeler.aspx>

¹¹ <https://www.kgm.gov.tr/Sayfalar/KGM/SiteTr/Projeler/DiskrediliProjeler.aspx>

57. **Occupational Health and Safety (OHS), Labor and Working Conditions.** The Project will involve typical civil works related OHS risks such as collision with moving machinery and vehicles, risks associated with the use of hazardous chemicals, electric shock, mechanical and load handling hazards, and exposure to noise, dust, and vapors. The ESDD finds that Turkish national laws and regulations are generally aligned with the requirements of ESS1 concerning OHS and labor and working conditions. The most significant gap between national legislative requirements and ESS1 is the GRM for workers. The ESMPs include requirements to mitigate potential health, safety, social (GRM, gender equality and anti-discrimination measures, Sexual Exploitation and Abuse/Sexual Harassment (SEA/SH), labor rights, and freedom of association), and environmental hazards in all Project activities that pose a risk to employees and may disrupt site works. The ESMPs also stipulate measures related to labor and working conditions, such as issuing all workers written contracts containing job descriptions, work hours, salary, rights and duties, code of conduct, training and information about GRM for workers.

58. **Gender Aspects.** Site accommodation and working conditions were evaluated with a gender sensitive approach. According to ESDD evaluations, the Project does not cause discriminatory or negative impacts in terms of gender and does not include conditions that will lead to gender inequality. A GAP has been developed to ensure the operationalization of recommendations regarding the gender equality approach, to manage and mitigate potential negative risks, and promote gender equality opportunities, drivers of change, and positive gender dynamics throughout the Project's life cycle, in accordance with national legislation and AIB's ESF. The GAP incorporates considerations related to gender-based violence, gender inclusion, and gender-sensitive GRM that need to be addressed during the Project activities.

59. **Stakeholder Engagement, Consultation, and Information Disclosure.** Stakeholder engagement through public consultation and communication was carried out with various stakeholders, including women and vulnerable groups, to prepare the ES instruments and will continue to be carried out throughout the Project cycle. As part of the ESDD preparation, stakeholder engagement activities were conducted with the Mukhtars (village heads) and business owners. The primary concerns raised included issues related to dust, noise, vibration, community health and safety, and traffic management. These concerns have been addressed by integrating appropriate mitigation measures into the ESMPs. A Stakeholder Engagement Plan (SEP) was prepared to assess the output of the sessions carried out so far and outline future consultation and communication plans with various stakeholders. The SEP includes provisions for overall management and coordination, disclosure, and meaningful consultations during SEP implementation.

60. **Project Grievance Redress Mechanism (GRM).** The existing KGM's GRMs, including the hotline 159, GRM for the public and employees available at: <https://www.kgm.gov.tr/Sayfalar/KGM/SiteTr/SikayetveGeriBildirim/GercekKisiSikayetFormu.aspx>, CIMER (cumhurbaşkanlığı iletişim merkezi)¹², and subproject-level GRMs of ongoing subprojects have been evaluated as part of the ESDD. Based on the assessment results, Project-level and subproject-level GRMs for receiving and

¹² Official GRM operated by the Presidency of the Republic of Türkiye.

facilitating the resolution of concerns or complaints from the local community or the workers are described in the SEP and ESMPs to comply with AIIB's ESP requirements. The Project-level GRM and all subproject-level GRMs will be disclosed in August 2024.

61. **AIIB's Independent Accountability Mechanism.** AIIB's Project-affected People's Mechanism (PPM) will be used for the Project. The PPM has been established by AIIB to provide an opportunity for an independent and impartial review for submissions from Project-affected people who believe they have been or are likely to be adversely affected by AIIB's failure to implement its ESP in situations when their concerns cannot be addressed satisfactorily through the project-level GRM or the processes of AIIB's management. For information on AIIB's PPM, please visit: <https://www.aiib.org/en/policies-strategies/operational-policies/policy-on-the-project-affected-mechanism.html>.

62. **Monitoring and Supervision Arrangements.** One environmental and one social specialist have been assigned to the PIU and to each RIU. As part of their responsibilities, they will monitor the ESAP and ESMP implementation across all subprojects, including those under construction and operation, and will provide semi-annual reports to the Bank team.

63. **Climate Change.** The Project is aligned with both mitigation (BB1) and adaptation (BB2) aspects of the Paris Agreements, and hence can be classified as Paris Aligned. Road infrastructure rehabilitation projects fall under the list of automatically aligned activities for mitigation (BB1). For climate adaptation, a comprehensive climate resilient assessment was undertaken, establishing the vulnerability context, identifying measures tackling the substantial climate risks and checking the compatibility with national adaptation strategies, like Türkiye's National Adaptation Strategy¹³ and Türkiye's Nationally Determined Contributions (NDC). Also, given the climate resilient measures (structural and non-structural) adopted in the subprojects' designs, the Project qualifies as Climate adaptation finance under the Joint- Multilateral Development Bank (MDB) methodology, with a 22.94 percent allocated amount, following the proportional approach (please see full Paris Alignment and Climate Finance assessment under Annex 6).

E. Risks and Mitigation Measures

Table 4. Summary of Risks and Mitigating Measures

| Risk Description | Assessment (H/M/L) | Mitigation Measures |
|--|--------------------|--|
| Macroeconomic <i>Lingering economic uncertainty.</i> | H | <ul style="list-style-type: none"> • Türkiye's economy grew 4.5% in 2023, but recent policies may have led to distortions in the economy. • Inflation is expected to decline. However, the outlook is characterized by uncertainty. • Türkiye is gradually transitioning to more orthodox and predictable policy, which is evidenced by lower current account |

¹³ Türkiye's National Climate Change Adaptation Strategy and Action Plan 2011-2023, [https://webdosya.csb.gov.tr/db/iklim/editordosya/uyum_stratejisi_eylem_plani_EN\(2\).pdf](https://webdosya.csb.gov.tr/db/iklim/editordosya/uyum_stratejisi_eylem_plani_EN(2).pdf).

| Risk Description | Assessment (H/M/L) | Mitigation Measures |
|---|--------------------|---|
| | | <p>deficit, softened price pressures, and higher foreign exchange (FX) reserves.</p> <ul style="list-style-type: none"> Public debt is sustainable, which is expected to stabilize over the medium term at around 32 percent of GDP according to International Monetary Fund (IMF). On account of normalization of macroeconomic policy, all credit agencies revised its outlook to positive from stable and Fitch recently upgraded rating to B+ (March 2024). |
| <p>Technical</p> <p><i>Delay in project execution due to technical challenges.</i></p> <p><i>Non-compliance with quality and safety standards.</i></p> | L | <ul style="list-style-type: none"> Designs have been prepared by KGM Engineering and Research and Development Departments, following the latest technologies in materials and methods of construction. These designs follow Türkiye's post-2023 earthquake strategy to build not only earthquake-resistant infrastructure but also resilient to variety of climate-induced hazards. For the Erkenek tunnel, given the level of damages and importance of the infrastructure, KGM hired a consultant to review the inspection report of the damages, and to prepare the designs for the rehabilitation and reconstruction works. AIIB to engage tunnel and bridge experts to carry out red-flag reviews of all the subprojects once 50 percent of physical works have been completed, or upon Project's effectiveness if that milestone has been surpassed. |
| <p>Institutional</p> <p><i>Lack of coordination between PIU (KGM Ankara) and RIUs (Regional Directorates 5 and 8).</i></p> | L | <ul style="list-style-type: none"> All KGM Departments involved in the preparation and implementation of the Project have their heads in Ankara and staff in all the 18 Regional Directorates, ensuring full and smooth coordination. Detailed roles and coordination mechanisms for implementation will be established in the POM. Training on the different AIIB policies and processes have been and will continue to be provided to PIU and RIUs. |
| <p>Environmental and Social</p> <ul style="list-style-type: none"> <i>Civil work-related pollutant discharge, disturbance and OHS risks.</i> <i>Road and traffic safety risks during operation.</i> <i>Delays of land acquisition.</i> <i>Reimbursement of payments (retroactive</i> | M | <ul style="list-style-type: none"> ESDD has been carried out for subprojects under construction, and ESIA with ESMP have been prepared in compliance with AIIB's ESF. The client will maintain ES specialists at PIU and RIUs to coordinate ES risk management, stakeholder engagement, and GRM throughout Project implementation. |

| Risk Description | Assessment (H/M/L) | Mitigation Measures |
|---|--------------------|---|
| <p><i>financing) for ongoing contracts non-compliant with AIIB ESP.</i></p> | | <ul style="list-style-type: none"> • The client will prepare and submit regular ES monitoring reports during Project implementation. • The client will carry out capacity building activities to civil work contractors on ES instruments implementation during Project implementation. • The client will prepare a RP in compliance with AIIB's ESS2. The client is encouraged to acquire land by negotiating with landowners. • Reimbursement will be contingent upon the confirmation of inclusion of the ESMP in the respective subprojects' contracts. |
| <p>Procurement</p> <p><i>Potential non-compliance with AIIB's Policy on Prohibited Practices within the civil works contracts.</i></p> <p><i>Lack of independent verification for acceptable procurement and contract management processes.</i></p> | M | <ul style="list-style-type: none"> • The inclusion of the AIIB Covenant of Integrity in each contract is a condition precedent for disbursement. • Procurement process and contracts will be subject to external audit, including this in the external audit ToRs. |
| <p>Financial Management</p> <p><i>Delays in FM procedures and coordination challenges between PIU and RIUs due to decentralized implementation and FM arrangements.</i></p> <p><i>Delay in timely availability of counterpart funds.</i></p> <p><i>40% of expenditures are retroactively financed, creating an inherent risk that some expenditures may be ineligible.</i></p> | M | <ul style="list-style-type: none"> • KGM's processes and procedures are broadly streamlined. Detailed Project FM processes to be included in the POM. The accounting and contract management systems are centralized making coordination manageable. PIU and RIUs will continue to be trained on AIIB FM processes and requirements. • The availability of the loan will alleviate pressure on the Government's budget, freeing up more funds for counterpart financing under the Project. Government and KGM will also prioritize expenses under the Project. • Bank conducted a thorough assessment of the Procurement, FM, ES and Climate Resilience aspects of the ongoing contracts to ensure they qualify for AIIB financing. Reimbursement will be subject to confirmation that the Covenant of Integrity and Environmental and Social Management Plan (ESMP) are incorporated into the contracts of subprojects. Additionally, retroactively financed expenditures must be audited by an independent auditor approved by the Bank. |

Annex 1: Results Monitoring Framework

| Project Objective: | To restore connectivity and enable safe and efficient movement of goods and people by rehabilitating essential transportation infrastructure located in the earthquake affected areas of Türkiye. | | | | | | |
|--|---|-------------------|--------------------------|------|------------|----------------|----------------|
| Indicator Name | Unit of measure | Base-line 2023 | Cumulative Target Values | | End Target | Frequency | Responsibility |
| | | | 2024 | 2025 | 2026 | | |
| Project Objective Indicators: | | | | | | | |
| 1. Travel time | minutes | 39 | - | - | 24 | End of Project | KGM |
| 2. Estimated number of people benefiting from the use of repaired/restored infrastructure | million pax/year | 0 | - | - | 69.9 | End of Project | KGM |
| 3. Estimated freight traffic volume benefiting from the use of repaired/restored infrastructure | Million ton/year | 0 | - | - | 78.3 | End of Project | KGM |
| Intermediate Results Indicators: | | | | | | | |
| 1. Number of bridges and viaducts rehabilitated | number | 0 | 7 | 10 | 10 | Yearly | KGM |
| 2. Number of tunnels rehabilitated | number | 0 | 0 | 1 | 1 | Yearly | KGM |
| 3. Km of road rehabilitated | km | 0.5 | 15 | 34 | 44 | Yearly | KGM |
| 4. All subprojects financed by AIIB include safety-focused seismic risk-mitigating and climate-resilient design solutions. | Y/N | N | Y | Y | Y | Yearly | KGM |

Annex 2: Detailed Project Description

1. **Background Damage Assessment.** The February 2023 earthquakes wreaked widespread damages to the road network in 11 provinces in Türkiye. Shortly after the earthquakes, KGM conducted repair and reconstruction various surveys and inspections across the 11 provinces to assess the damages to road sections, tunnels, bridges, and viaducts of 9,200 km of highways, state roads, and provincial roads. These assessments revealed that the road transportation infrastructure suffered significant damages, including 2 percent of the road network (184 of 9,176 km), 10 percent of motorways (61 of 634 km), 26 percent of tunnels (17.3 of 66 km) and 5 percent of bridges (5.1 of 102 km) in the affected region. KGM has developed 29 projects to repair and reconstruct the damaged infrastructure with a total cost of USD632 million. Based on project urgency, readiness, financing needs, and expected AIIB's value-add, KGM has packaged five projects for AIIB financing, which are included in Component A of this Project as detailed below.

2. **Component A: Rehabilitation of Damaged Infrastructure.** This component consists of five subprojects. Subprojects 1-3 are in KGM's 5th Regional Directorate headquartered in Mersin, and subprojects 4-5 are in the 8th Regional Directorate headquartered in Elâzığ.

a) Subproject 1: Tarsus-Adana-Gaziantep (TAG) Motorway Rehabilitation. The TAG Motorway serves as a vital corridor in international trade, linking Europe to the Middle East through Istanbul and Ankara. Furthermore, it facilitates access to the Mersin and Iskenderun ports from the Eastern and Southeastern Anatolia Regions, underscoring its strategic importance in connecting diverse regions and enhancing trade routes. This subproject focuses on the 8.625 km section between Aslanlı tunnel and the Nurdağı Junction, which carries an Annual Average Daily Traffic of 24,728 vehicles in 2022, of which 48 percent are heavy vehicles. On this section, five viaducts (Martyrs, Nurdağı, Atatürk, Turgut Özal and Başpınar) were damaged, along with various damages to expansion joints, floor concrete, approach fillings, earthquake wedges, and bearings. In addition, cracks, settlements, explosions, and deep fissures have occurred in the embankments in the main body of the motorway. The subproject includes surveys and damage assessment, design, and rehabilitation and reconstruction works.

b) Subproject 2: Hatay Province Roads Rehabilitation and Reconstruction. This subproject includes three roads:

- İslahiye-Hassa-Kırıkhan Road (D825): This is a critical road connecting Motorway 52 (O-52) in the north of İslahiye to Antakya in the south of Kırıkhan. This four-lane road was damaged by transverse and longitudinal cracks in various locations along this 20 km section, including the Fevzipaşa Junction Bridge and the Sulumağara Bridge. Reconstruction of this section of D825 and the two bridges is included in this subproject.
- Antakya-Reyhanlı Road (D420): This east-west road connects Antakya to the Syrian border in the east of Reyhanlı. Damages were identified along various locations of this road, including collapse of the two-lane, 100 meters long bridge at the Demir Köprü

- location. Reconstruction of the damaged road and the bridge is included in this subproject.
- Hatay Airport Road: The 5 km Hatay Airport Road suffered the destruction of retaining walls and the roadbed. With the loan proceeds a 2.5-kilometer section will be reconstructed, including earthworks, engineering structures and superstructure construction works, and the other 2.5-kilometer section's superstructure will be repaired.
- c) Subproject 3: Antakya-Samandağ Road Reconstruction. Following the earthquakes centered in Kahramanmaraş, the 26.85 km two-lane (one lane per direction) Antakya-Samandağ Road (D420) was impacted by landslides at six different locations, and structural damage occurred to the Favar Bridge, a 15-meter-long, two-lane bridge. This subproject will reconstruct the road and repair the bridge. This subproject also includes the reconstruction of the "Samandağ Ring Road" that circles the city of Samandağ on the south and east side. The Çevlik Touristic Region and Çevlik beach, located at the western end of the ring road, lead to a surge in traffic volume along this route, particularly in the summer months. In the Samandağ city center, the mix of transit and local traffic creates congestion challenges. It is anticipated that the reconstruction of the ring road will alleviate the traffic congestion in the city center, enhancing mobility and accessibility.
- d) Subproject 4: Erkenek Tunnel Rehabilitation. Following the Feb. 2023 earthquakes centered in Kahramanmaraş, various damages were reported on the Malatya – Sürgü - Gölbaşı Road, including transformer area landslides, damages to the Erkenek Tunnel entrance zone, damages to the Erkenek Tunnel inner coating structure, deformations in fillings, and damages to Erkenek Tunnel electromechanical systems. It has been determined that the Erkenek Tunnel electromechanical systems must be completely renewed, the damaged section of Erkenek Tunnel must be repaired, and 20 km of damaged roads in various sections of the Malatya-Akçadağ Junction - Gölbaşı Road must be renewed. This subproject will support these works.
- e) Subproject 5: Tohma, Ağın, and Beylerderesi Bridges Rehabilitation. As a result of two major earthquakes centered in Kahramanmaraş, Tohma Bridge, Ağın Bridge, and Beylerderesi Bridge were exposed to seismic impact and the following damages occurred.
- Tohma Bridge, also known as Şehit Gaffari Güneş Bridge, is a 517.5 meters long bridge that facilitates both road and railway transportation. It was opened in 2021 and located adjacent to the existing bridge over the Tohma River, which divides the Malatya Plain and connects Malatya to Sivas. Structural damages were identified on the viscose dampers located on the both side-legs, 20 pot supports on two side-legs and eight middle-legs, and modular expansion joints located on both side-legs.
 - Ağın Bridge is a 520 meters long cable-stayed bridge spanning Lake Keban in Elazığ Province opened in 2015. It has structural damages in 3 cable tendons.
 - Beylerderesi Bridge is 420-meters long and 24 meters wide Post-Tensioned Balanced Cantilever concrete bridge opened in 2011 and located on the Darende-Malatya-

Elâziğ State Road. It suffered various damages, including cracks ranging from 2.5 to 3 mm wide on the walls in the edge opening segments, stripping of the Teflon coating on the pot supports on the side-legs, and the destruction of modular expansion joints at both entrances of the bridge.

This subproject will repair the damages to the three bridges. Given that air temperatures exceed seasonal norms, there could be more severe, irreversible damage to bridges that have already surpassed their design displacement limits due to post-earthquake damage to expansion joints. Therefore, it is critical to promptly address the repairs of these bridges to prevent further deterioration.

3. **Component B: Institutional Capacity Development.** This component seeks to provide will finance:

- (i) Support to the PIU and Regional Directorates 5 and 8 through the hiring of consultants for capacity strengthening and technical assistance for project management, procurement, monitoring, FM, and environmental and social activities.
- (ii) Along with conducting institutional capacity building activities to enhance emergency response and management capabilities.
- (iii) External financial audit of expenditures to be reimbursed under retroactive financing.

4. **Component C: Supervision Consultants.** KGM is financing two Supervision Consultants (SC) with local resources. Each Regional Directorate has engaged one SC responsible for overseeing all subprojects within their respective jurisdiction. AIIB has agreed with KGM on scope and staffing to ensure appropriate and comprehensive coverage of technical, environmental, and social stipulations for the subprojects under supervision, as well as a budget aligned with the requirements. Each Regional Directorate will engage one Supervision Consultant responsible for overseeing all subprojects within their respective jurisdiction, with their appointment being a condition for disbursement. These SCs should remain engaged throughout Project implementation.

Annex 3: Economic Analysis

1. **Economic Analysis Approach.** A CBA was carried out to assess the economic viability of each subproject investment, comparing “with-project” and “without-project” scenarios over an operating life span of 25 years, with a construction/rehabilitation period of one or two years. The scenario of without-project is assumed to be the case when rehabilitated road section cannot be used and the traffic must use an alternative road. All costs and benefits are expressed in domestic currency, net of taxes and financial charges. The discount rate selected for the subprojects is 11.0 percent.

2. **Base-Year Traffic Data.** In each of the subproject road sections, the most recent actual data has been utilized, either 2019 or 2022. The traffic counts are performed by KGM’s Traffic Safety Department of Regional Divisions using permanent, portable and special counts. The permanent counts determine the coefficients (weekly, monthly, seasonal) used to convert traffic data obtained from portable and special counts to Annual Average Daily Traffic (AADT) values. Portable counts are short term counts and are performed in every season, seven days and 24 hours according to annual programs whereas special counts are generally performed by devices for 48 hours.

3. In terms of the frequency, the count is conducted initially each year on the state roads and every 3-5 years in the long-run and/or in accordance with special demands on the provincial roads. Counting devices to determine AADT include (i) pneumatic tubes and (ii) inductive loops. The base-year AADT value for all subproject road sections was used as 77,772 vehicles as presented in Table 3-2.

4. **Traffic Forecast.** The traffic forecast was made by the Traffic Safety Department taking into consideration the series obtained from the traffic data of previous years and the socio-economic characteristics of the region, namely the growth rates for vehicle-km data, which is a mobility measure for 6 provinces and 2 regional directorates where the project routes are located, as well as the probable increases in traffic volume, especially heavy vehicle traffic, due to the reconstruction of earthquake-affected settlements, industrial zones and other places. According to World Bank database, the annual GDP growth in the last two decades (2002-2022) averaged at 6.9 percent in Türkiye. Traffic annual growth rate assumptions per vehicle and aggregated nominal AADT traffic forecasts are summarized in Tables 3-1 and 3-2 below.

Table 3-1. Annual Growth Rate for Traffic Forecasting per Vehicle Type

| No. | Subproject name | Car | Midibus | Van | Bus | Truck | Trailer | CAGR ¹ |
|-----|------------------------------|------|---------|------|------|-------|---------|-------------------|
| P1 | TAG Motorway | 2.0% | 2.0% | 2.0% | 0.5% | 0.5% | 4.0% | 2.6% |
| P2 | Antakya-Reyhanli Road | 2.5% | 2.0% | 2.0% | 0.5% | 0.5% | 4.0% | 2.4% |
| | Hatay Airport | 5.0% | 4.5% | 4.5% | 0.5% | 0.5% | 4.0% | 4.9% |
| | Islahiye-Hassa-Kirikhan Road | 2.0% | 2.0% | 2.0% | 0.5% | 0.5% | 4.0% | 2.3% |
| P3 | Antakya-Samandag Road | 2.0% | 2.0% | 2.0% | 0.5% | 0.5% | 4.0% | 2.0% |
| P4 | Erkenek Tunnel | 5.0% | 4.0% | 4.0% | 1.0% | 1.0% | 5.0% | 4.6% |
| P5 | Agin Bridge | 2.0% | 2.0% | 2.0% | 0.0% | 1.0% | 4.0% | 2.0% |
| | Tohma Bridge | 1.0% | 1.0% | 1.0% | 0.0% | 1.0% | 1.0% | 1.0% |
| | Beylerderesi Bridge | 1.0% | 1.0% | 1.0% | 0.0% | 1.0% | 1.0% | 1.0% |

Table 3-2. Total AADT Traffic Forecast per Period

| No. | Subproject name | 2022 | 2025 | 2030 | 2035 | 2040 | 2045 | 2049 |
|-----|------------------------------|--------|--------|--------|--------|--------|--------|--------|
| P1 | TAG Motorway | 24,728 | 26,539 | 29,932 | 33,866 | 38,439 | 43,769 | 48,672 |
| P2 | Antakya-Reyhanli Road | 11,205 | 12,024 | 13,532 | 15,237 | 17,167 | 19,352 | 21,306 |
| | Hatay Airport | 3,790 | 4,371 | 5,549 | 7,048 | 8,959 | 11,392 | 13,810 |
| | Islahiye-Hassa-Kirikhan Road | 8,144 | 8,683 | 9,675 | 10,797 | 12,070 | 13,516 | 14,817 |
| P3 | Antakya-Samandag Road | 23,322 | 24,729 | 27,268 | 30,075 | 33,178 | 36,608 | 39,611 |
| P4 | Erkenek Tunnel | 4,354 | 4,966 | 6,200 | 7,763 | 9,745 | 12,260 | 14,752 |
| P5 | Agin Bridge | 333 | 353 | 389 | 429 | 473 | 522 | 564 |
| | Tohma Bridge | 297 | 305 | 321 | 337 | 354 | 372 | 387 |
| | Beylerderesi Bridge | 1,599 | 1,647 | 1,730 | 1,818 | 1,910 | 2,007 | 2,088 |

5. **Economic Costs.** The project costs comprise of Capital and O&M costs. The former was determined by using approximate unit prices that vary according to the terrain condition (flat, wavy, mountainous), the type of surface to be applied, and the geometric standards. The total construction costs at 2024 prices (at 2023 prices for TAG Motorway subproject) without any taxes used for all subprojects is TRY9,550 million. The O&M costs include routine (performed every year), periodic (layer refurbishment) and winter maintenance costs.

Table 3-3. Gross O&M Costs excluding taxes, in TRY.

| No. | Subproject name | Routine ² | Periodic ³ |
|-----|--------------------------------------|----------------------|-------------------------|
| P1 | Tag Motorway | 24,959,859 | 220,544,175 |
| P2 | Hatay Province Roads | 1,116,029 | 17,028,525 |
| P3 | Antakya-Samandag Road | 6,004,236 | 91,613,466 |
| P4 | Erkenek Tunnel | 13,463,993 | 58,591,538 |
| P5 | Agin, Tohma and Beylerderesi Bridges | 836,561 | 14,457,096 ⁴ |

¹ Compounded annual growth rate.

² Per annum including winter maintenance costs.

³ Every 4 to 10 years subject to road section.

⁴ TRY13.985.509 for Agin bridge.

6. It should be noted that O&M costs for TAG Motorway, Hatay Airport and Bridges subprojects were assumed in a slightly different way. Although the absence of the proposed project implementation would lead to increase in O&M costs for alternative roads due to heightened traffic, the CBA did not incorporate such increases as those were not possible to quantify. Consequently, the analyses solely evaluated the maintenance costs of the planned roads, assuming that the O&M costs for the existing road network (the alternative to the projects) would remain at current costs even with project implementation.

7. **Economic Benefits.** The economic benefits include (a) Vehicle Operating Costs (VOC) savings, (b) Value of Time (VOT) savings for passengers, freight carriers and goods carried, (c) reduction in road accidents and (d) savings in GHG emissions.

8. **VOC savings.** By rehabilitating the subproject road sections, the investment will reduce congestion, improve vehicle fuel efficiency, and reduce vehicle wear and tear. Using Highways Development and Maintenance Model Version 4 (HDM-4), the VOC savings have been monetized for six types of vehicles based on estimates of vehicle type and mechanical characteristics, physical and geometrical characteristics of the road, road surface condition (surface roughness) and vehicle speed.

9. **VOT savings.** Since KGM operates national road network, the passenger and freight carrier VOT's were derived using nationwide figures, namely the GDP per capita of Türkiye⁵ and the monthly salary of drivers categorized by type of vehicle (midibus, van, bus, truck, trailer)⁶ with 176 hours per month of work time. With respect to source of average speed, the spot speeds were determined by the KGM's Directorate of Transportation Studies. The spot speeds were adjusted by coefficients to arrive at average speed. The coefficients are determined in accordance with the Highway Capacity Manual according to multiple parameters such as total traffic volume, heavy vehicle ratio, terrain type, physical and geometric standard etc. The average speeds across all road sections in all modes of transport are 72 km per hour under "with project" and 52 km per hour under "without project".

10. In terms of the alternative route or 'without project' scenario, KGM has not conducted comprehensive study to identify/select from all potential alternative and associated diverted traffic routes due to time constraints. It should be noted the benefits derived from the analysis would have been even higher should the analysis include traffic data encompassing all potential alternative routes under the "without project" scenario. As such, the VOT savings are taken conservatively. Refer to Table 3-4 for the comparison of the length of two routes.

Table 3-4. The Length of Routes under Two Scenarios, in km

| No. | Subproject name | With Project | Without Project |
|-----|-----------------------|--------------|-----------------|
| P1 | TAG Motorway | 25.0 | 29.0 |
| P2 | Antakya-Reyhanli Road | 42.5 | 42.5 |
| | Hatay Airport (south) | 5.1 | 16.0 |

⁵ TurkStat 2022.

⁶ Salary amounts stated by employers in their job posting, sourced from www.selaman.net.

| | | | |
|----|------------------------------|------|-------|
| | Hatay Airport (north) | 11.1 | 10.0 |
| | Islahiye-Hassa-Kirikhan Road | 60.0 | 60.0 |
| P3 | Antakya-Samandag Road | 26.8 | 26.8 |
| P4 | Erkenek Tunnel | 20.0 | 21.0 |
| P5 | Agin Bridge | 21.0 | 66.2 |
| | Tohma Bridge | 82.0 | 157.0 |
| | Beylerderesi Bridge | 3.5 | 17.0 |

11. **Greenhouse Gas Emission Reduction.** As a result of fewer vehicles on the road due to modal shift and an increase in speed of the remaining vehicles resulting from lower congestion, the project will reduce GHG emissions. Monetized annual fuel savings domestic currency is derived from the fuel savings, under the HDM-4. It was assumed that the emission rate for gasoline is 2.36 kilogram per liter (kg/l) and 2.64 kg/l for diesel vehicles. For carbon pricing, the midpoint of the Stiglitz-Stern recommendation was used until 2035, after which the price of carbon is estimated to grow at 2.25 percent per year. These benefits are conservatively estimated as they ignore the benefits from reduction of other gases, The total net GHG emissions reduction due to the selected roadworks is estimated at 1,270k tons CO₂ over the Project lifetime.

12. **Road Safety Savings.** Savings through a reduction in road accidents, calculated by Department of Traffic Safety using the Harmonised European Approach for Transport Costing and Process Assessment (HEATCO) for Türkiye. According to the study, it has been determined there is a strong linear relationship between the monetary values of the losses classified as fatality, serious injury and slight injury and the GDP per capita (based on Purchasing Power Parity, PPP) using 2002 values, and the following model is obtained.

Table 3-5. Models Used in Accident Costs

| Type | Model | R ² ⁷ |
|----------------|--|-----------------------------|
| Fatality | TRY167,982 + 49.43 <i>times GDP per capita (PPP)</i> | 0.91 |
| Serious Injury | 7.64 <i>times GDP per capita (PPP)</i> | 0.94 |
| Slight Injury | 0.56 <i>times GDP per capita (PPP)</i> | 0.87 |

13. Accident costs for Türkiye were derived using the GDP per capita (PPP) of 2002, amounting to EUR7,372. To adapt the model for application in the post-2002 period, accident costs were initially converted to USD and TRY using the 2002 exchange rates. 2002 accident costs were subsequently indexed for inflation of respective countries to derive 2023 accident costs in three currencies and, finally, the analysis incorporated the average of the three values using the 2023 exchange rate. In terms of the base-year data and projections, the actual data was obtained from Traffic Safety Department and further assumed to have a 25 percent decrease in the number of accidents under the “with-project” scenario.

14. **Results.** Based on the estimated economic costs and benefits, the EIRR of the subprojects is ranged between 12.0 percent to 74.2 percent and the economic net present value

⁷ The coefficient of determination (statistical measure of how well the regression line approximates the actual data).

(ENPV) is ranged between TRY207 million to TRY9,949 million at 11.0 percent social discount rate, indicating the project's economic viability. There is some heterogeneity in EIRR results of subprojects mainly due to magnitude of the capital costs contemplated and the traffic density at proposed road sections. Refer to Table 3-6. More detailed economic analysis per subproject is available upon request.

Table 3-6. Summary of Economic Analysis Results

| No. | Subproject name | Discount Rate | ENPV, TRY MM | ENPV, USD MM-eq. | EIRR |
|-----|--------------------------------------|---------------|-----------------|------------------------|-------|
| P1 | Tag Motorway | 11.0% | 9,949 | 311 | 69.3% |
| P2 | Hatay Province Roads | | 1,449 | 45 | 16.3% |
| P3 | Antakya-Samandag Road | | 8,773 | 274 | 74.2% |
| P4 | Erkenek Tunnel | | 207 | 6 | 12.0% |
| P5 | Agin, Tohma and Beylerderesi Bridges | | 957 | 30 | 37.7% |

15. **Sensitivity Analysis.** The EIRR was tested by a sensitivity analysis against the (i) 20 percent decrease in traffic and (ii) 20 percent increase in construction costs. The model has confirmed the robustness of the net economic benefits across all subprojects except for Erkenek Tunnel falling slightly short the social discount rate. Results of the cost-benefit and sensitivity analyses are illustrated in Table 3-7 and 3-8.

Table 3-7. Sensitivity Analysis #1 – 20 percent decrease in Traffic

| No. | Subproject name | Discount Rate | ENPV, TRY MM | ENPV, USD MM-eq. | EIRR |
|-----|--------------------------------------|---------------|-----------------|------------------------|-------|
| P1 | TAG Motorway | 11.0% | 7,632 | 239 | 57.1% |
| P2 | Hatay Province Roads | | 681 | 21 | 13.6% |
| P3 | Antakya-Samandağ Road | | 6,812 | 213 | 60.4% |
| P4 | Erkenek Tunnel | | (233) | (7) | 10.0% |
| P5 | Agin, Tohma and Beylerderesi Bridges | | 692 | 22 | 31.2% |

Table 3-8. Sensitivity Analysis #2 – 20 percent increase in Construction Costs

| No. | Subproject name | Discount Rate | ENPV, TRY MM | ENPV, USD MM-eq. | EIRR |
|-----|--------------------------------------|---------------|-----------------|------------------------|-------|
| P1 | TAG Motorway | 11.0% | 9,648 | 302 | 59.3% |
| P2 | Hatay Province Roads | | 907 | 28 | 13.9% |
| P3 | Antakya-Samandağ Road | | 8,476 | 265 | 62.2% |
| P4 | Erkenek Tunnel | | (266) | (8) | 9.7% |
| P5 | Agin, Tohma and Beylerderesi Bridges | | 891 | 28 | 32.3% |

Annex 4: Member and Sector Context.

A. Member context

1. Türkiye has achieved significant economic and social development since the early 2000s. During this time, Türkiye rapidly urbanized, created jobs, maintained strong macroeconomic and fiscal policy frameworks, opened to foreign trade and finance, harmonized many laws and regulations with the European Union (EU) standards, and greatly expanded access to public services. The proportion of people in poverty fell from over 40 percent in 2003 to 12.6 percent in 2019.⁸ It developed expertise in medium-technology production, shifting much of the labor force from farms to factories and increasing the share of manufacturing and services in GDP as well as employment. Türkiye's economy is relatively diverse and does not rely on a single major export product. Main exports include vehicles and their parts, electrical and electronics machinery, textile, and clothing, as well as iron and other metals. The top five exporting destinations are Germany, United States, United Kingdom, Italy, and Iraq.⁹

2. While Türkiye has performed relatively well compared with other economies in the region, in terms of improving the infrastructure over the last two decades, it will nonetheless need to invest more than current trends predict. By 2028, the total annual infrastructure investment requirements are expected to rise to around USD40 billion, with USD20 billion allocated for roads, USD9.7 billion for electricity, USD4 billion for telecoms, USD2.1 billion for water.¹⁰ Additionally, Türkiye's strategic location as a transit hub for energy and goods between Asia and Europe provides opportunities for advancing the country's infrastructure.

3. Despite significant growth in productivity and income, Türkiye still employs a fifth of the workforce in agriculture-related activities, well above the average for high-income countries. Female labor force participation is well below the average for industrialized countries. Türkiye is one of the few major economies whose population is still expected to grow, and the dependency ratio to fall in the next two decades. It would require creating new and better jobs to accommodate the growing labor force. Investing in infrastructure across social, transport, water, energy, and communication sectors can contribute significantly to job creation. As Türkiye has already exploited the medium technology production, new sources of productivity growth will have to come from technology absorption, innovation, and "moving up the value chain" in the manufacturing and services sector. Türkiye's growth prospects, therefore, rely on the extent to which it can establish the conditions for such within-sector productivity growth.

4. Between 2003 and 2022, the use of Public-Private Partnerships (PPP) models increased as an alternative to public procurement, with the government encouraging PPPs to fill the infrastructure investment gap. There have been more than 250 different types of active PPP infrastructure projects in Türkiye, currently in operation or under-construction, with an aggregate

⁸ Poverty is measured as the proportion of people with per capita consumption of below USD6.85 a day 2017 PPP. [Link](#)

⁹ World Integrated Trade Solution (WITS) data. [Link](#).

¹⁰ Global Infrastructure Outlook [Link](#)

investment of USD195 billion.¹¹ Out of these projects, build-operate-transfer and transfer of operating rights are the main contract models in the Turkish PPP market. Economic growth, coupled with favorable demographic trends are expected to drive strong growth in energy demand in Türkiye. Non-hydro renewable energy is well-poised to double the installed capacity in the next decade.¹² The growth could be driven by factors such as the Turkish lira's continued depreciation in 2023, which has increased import costs for the thermal power sector as well as incentivized diversification towards renewable energy. Also, a growing domestic supply chain within the solar industry will aid further investments in the non-hydro renewable sector. In 2020 and 2021, projects worth more than USD1.5 billion achieved financial closures under PPP framework in the renewable energy sector, including the Karapınar Solar PV plant project—Europe's biggest single-site solar power plant, inaugurated in May 2023.¹³

5. Türkiye is increasingly exposed to the risks of climate change. The country faces the risk of more frequent extreme weather events—including flooding, droughts, forest fires, and coastal erosion—due to climate change. Without adequate mitigation measures, these risks could lead to reductions in food production and disruptions in industrial supply chains. A survey of large Türkiye-based publicly traded firm in 2018 found that 31 percent of them had suffered detrimental financial impacts from water-related events during the most recent 12-month period.¹⁴ These climate risks provide opportunities for the financial sector, including the banking sector to help shift towards a low-carbon economy by addressing the climate finance gap and public finance constraints. Along this direction, Capital Markets Board (CMB) and Banking Regulation and Supervision Agency (BRSA) have initiated measures to guide financial sector players, build capacity, and develop innovative products on sustainable and green finance drawing on international best practices such as NGFS and European Green Deal.¹⁵

B. Sector Context

6. **Freight Transport and Logistics.** Türkiye's open economy and advantageous geographical location between Asia and Europe, with direct access to the Black Sea as well as Mediterranean trade corridors makes it a significant trading partner, and particularly the European Union. Türkiye's logistics performance improved in the last two decades, primarily because of trucking operations along with the country's well-developed highway system, connecting most regions with major industrial hubs. However, the transport system is constrained by a lack of intermodal services, particularly along the rail and maritime interfaces.

7. The amount of road freight transported by road in Türkiye has grown from 181,000 to 323,500 tonne-km between 2007 and 2022.¹⁶ Road transport represents over 95 percent of modal

¹¹ Presidency of the Republic of Türkiye Investment office.

¹² Fitch Solutions-Türkiye Renewables report- update Q3-2021 and Q1 2024. [Link](#)

¹³ The World Bank, PPP Knowledge Lab, Türkiye page.

¹⁴ CDP Worldwide, CDP Climate Change and Water Report 2018, Türkiye Edition.

¹⁵ Financing the Next Generation of Green Growth and Prosperity in Turkey, the World Bank. [Link](#)

¹⁶ <https://www.statista.com/statistics/435524/turkey-tonne-kilometres-of-freight-transported-by-road/>

share for freight.¹⁷ In 2023, Türkiye is ranked 38th in the World Bank's Logistics Performance Index¹⁸, an improvement from 47th in 2018.

8. **Road Infrastructure.** As of 2023, Türkiye has over 68,629 km of paved roads. These include 3,633 km of motorways, 29,083 km of divided roads, 30,855 km of state roads, and 34,141 km of provincial roads.¹⁹ Main roads are well-maintained, but secondary and rural road quality varies substantially. Türkiye plans to expand its motorway network to 8,200 km by 2035.²⁰ Most motorway investment has been done through Public Private Partnerships using the Build-Operate-Transfer (BOT) model.

C. Institutional Context

9. KGM is the lead agency in charge of construction of all public roadways outside of cities and towns in Türkiye. It was established in 1950 after the implementation of the National Highways Act in 1949. The agency has 18 geographic divisions across the country, and oversees the maintenance of motorways, state highways and provincial roads. The agency also administers toll plazas on toll roads and bridges as well as automated means of toll collection.

10. Local roads are maintained and administered by local municipalities and each province's Special Provincial Administration is in charge of maintaining rural roads.²¹

11. Traffic regulations are managed by the Ministry of Interior (General Directorate of National Police), while market regulation is managed by the Directorate-General of Transport Services Regulation (DGTSR), under the Ministry of Transport and Infrastructure.²² Traffic Safety is managed by the Directorate of Transport Safety Investigation Center (DoTSIC) under MoTI.²³

12. The International Road Union (IRU) has an office in Türkiye. A national association of transporters (UND) advocates for freight transporters' interests, while passenger transporter interests are advocated by TOFED (Coacher Federation of Türkiye).

¹⁷ <https://www.ceicdata.com/en/turkey/freight-transport-by-mode-of-transport-oecd-member-annual/tr-total-inland-freight-transport--road>

¹⁸ <https://lpi.worldbank.org/international/global>

¹⁹ 2023 General Directorate of Highways (booklet)

²⁰ [Infrastructure - Invest in Türkiye](#)

²¹ https://unece.org/DAM/trans/main/tem/temdocs/Presentation_TURKEY.pdf

²² https://www.itf-oecd.org/sites/default/files/tr_control_bodies_2022_fin.pdf

²³ <https://en.guvenlitrafik.gov.tr/traffic-safety-management>

Annex 5: Country Credit Fact Sheet

1. **Background.** Türkiye is an upper-middle-income country with income per capita of around USD 13,000 (or around USD 44,000 in purchasing power parity) and a population of around 87 million. Türkiye is a large, diversified, dynamic and business-oriented economy. Since the early 2000s, it enjoyed robust growth, around 5.5 percent per year on average, underpinned initially by a strong focus on development, macroeconomic stability, strong fiscal frameworks, trade openness and institutional reform. During this time, income per capita has tripled, while poverty fell significantly.

2. However, since 2016, Türkiye's sovereign credit rating has deteriorated, due to reliance on short-term stimulus to boost growth, unpredictable and often unorthodox policies, declining fiscal and FX buffers, high dependence on external finance, perceived erosion of institutional checks and balances, as well as rising geopolitical risks—according to observers. This has led to periods of financial vulnerability, market anxiety, and macroeconomic stress.

3. More recently, during 2021-23, the monetary policy has been accommodative despite high and accelerating inflation, which has led to capital outflows and a sharp depreciation. The currency lost two-thirds of its value, while inflation reached 80 percent at the peak. Complex macro-prudential measures were put in place to stem depreciation, guide credit, and sustain high growth. Additionally, Türkiye was hit by several shocks, including high global energy prices, which led to a doubling of the energy import bill, and a devastating earthquake. While growth was still high (5.5 percent in 2022), the economy has accumulated significant imbalances. On that account, all major rating agencies downgraded Türkiye's sovereign credit in 2022.

4. **Recent Developments.** Following the 2023 elections, a policy normalization is taking place under a new economic team, reputed to be supportive of more orthodox policies. Since June 2023, the central bank has increased interest rates to 50 percent and has been gradually dismantling the many distorting macroprudential regulations.

5. This is the first time in over a decade that all three major sovereign rating agencies have upgraded Türkiye's credit rating. In March and May 2024, S&P and Fitch each issued a one-notch upgrade, respectively, raising the sovereign credit rating to B+ positive. Moody's issued the most recent two-notch upgrade in July 2024 to B1 with a positive outlook. Prior to these upgrades, Moody's had issued six downgrades, with the latest in August 2022, lowering the rating to B3.

| Selected economic indicators 1/ | 2022 | 2023 | 2024* | 2025* | 2026* | 2027* | 2028* |
|--|-------------|-------------|--------------|--------------|--------------|--------------|--------------|
| GDP growth 2/ | 5.5 | 4.5 | 3.1 | 3.2 | 3.3 | 3.4 | 3.5 |
| Inflation (end-of-period) 2/ | 64.3 | 64.8 | 45.0 | 28.3 | 19.6 | 18.7 | 18.6 |
| Fiscal balance 3/ | -1.1 | -5.5 | -5.4 | -3.7 | -3.2 | -3.3 | -3.4 |
| Gross public debt | 30.8 | 28.9 | 30.9 | 31.0 | 32.0 | 32.1 | 33.0 |
| Gross public financing needs | 7.2 | 5.9 | 7.1 | 8.0 | 9.0 | 9.5 | .. |
| Current account balance | -5.4 | -4.1 | -2.8 | -2.2 | -1.7 | -1.8 | -1.8 |
| Gross external debt 4/ | 57.8 | 48.6 | 47.7 | 46.9 | 46.1 | 45.6 | .. |
| Gross external financing needs | 26.2 | 24.7 | 23.4 | 23.2 | 23.4 | 23.3 | .. |
| Gross FX reserves (USD billion) 4/ | 128.8 | 141.1 | 153.9 | .. | .. | .. | .. |
| Exchange rate (TRY/USD) 4/ | 18.6 | 29.0 | 33.1 | .. | .. | .. | .. |

Sources: IMF World Economic Outlook April 2024; IMF Country Report 23/303, central bank

Notes: 1/ In percent of GDP, except where noted; 2024-28 are projections; 2/ Percent change, year-on-year; 3/ Nonfinancial public sector, IMF definition; 4/ data from central bank, end-of-period, for 2024: most recent as of July 30

6. The first major driver of the upgrade is CBRT's return to orthodox monetary policy—a continued tight monetary policy stance that has started showing positive results. Several indicators are pointing in a favorable direction. In June 2024, the annual rate of inflation decreased to 71.6 percent, down from 75.4 percent a month earlier. The monthly inflation rate for June shows some deceleration, at around 20 percent (annualized). Growth in domestic credit volume has steadily softened since June 2023, reaching 47 percent in June 2024.

7. Unlike in July 2022 and 2023, Türkiye has ruled out a mid-year minimum wage hike this year, which is likely to support disinflationary momentum going forward. Fiscal policy is expected to remain supportive of the tight monetary policy stance. Fiscal reforms, including broadening the tax base and reducing budget deficits, will help stabilize public debt. All these factors are reflected in market participants' annual inflation expectations for the next 12 months—a forward-looking measure of inflation—which stood at 32 percent in June 2024 and has steadily declined since October 2023.

8. The second, and an associated, driver of the rating upgrade is Türkiye's reduced external vulnerability, with the current account deficit narrowing to around 2.8 percent of GDP (on a 12-month rolling basis, as of March 2024). FX reserves have increased and stabilized at USD 153.9 billion (as of July 19, 2024), spreads have declined, and capital inflows have cautiously resumed. External financing is once again readily accessible for Turkish issuers, including banks and corporate entities.

9. However, growth is still high, at 4.5 percent in 2023 and 5.7 percent in Q1 2024, with continuously high domestic demand contributing to inflation and external imbalances. Likewise, the fiscal deficit has been very high recently, reflecting the post-earthquake reconstruction. In May 2024, the government announced a fiscal tightening program, including freeze on some construction projects and cuts to goods and service purchases, which will help arrest fiscal deterioration and promote economic rebalancing.

10. **Outlook and Risks.** Growth is projected to decelerate in 2024, to 3.1 percent, due to policy tightening, and ultimately align with the medium-term potential of around 3.0-3.5 percent—according to the IMF. The shift towards more orthodox policies is a welcome development, improving economic resilience and creditworthiness. However, the track record on that is still being built, as such normalizations have been prone to reversals. The policy tightening may need to be more decisive and sustained and is likely to come at the cost of growth, while disinflation and restoring external balances may take a few years. Political space exists for such reforms, with no scheduled national elections until 2028. Other risks to the outlook relate to tight external liquidity, the volatile market sentiment, and geopolitics.

11. As an important risk mitigant, the private sector has demonstrated resilience and has considerable experience in navigating through the volatile environment. Large firms report sufficient liquidity, positive short-term net open FX positions and sufficient natural FX hedges. Regarding the banking sector, despite recent shocks, reported capitalization remains adequate,

non-performing loans are low, while reported liquidity and profitability metrics are adequate. Domestic banks have been able to roll over their funding, even amid high market uncertainty. Ultimately, the system hinges on residents' confidence and willingness to keep their sizeable dollar deposits in domestic banks, which so far has been sustained.

12. According to the IMF, public debt is sustainable. It is expected to stabilize over the medium term, at around 32-33 percent of GDP. Key factors anchoring Türkiye's debt sustainability include government's strong balance sheet, uninterrupted access to financial markets, a track record of economic resilience, and a dynamic economy with substantial growth potential. Likewise, Türkiye's external debt is expected to remain sustainable over the medium term.

Annex 6: Paris Alignment and Climate Finance Assessment

A. Paris Alignment Assessment

1. BB1 (*mitigation*): The project can be labelled as Universally Aligned for mitigation as it falls under the category of “*Road upgrading, rehabilitation, reconstruction, and maintenance without capacity expansion*” as per the Joint MDB Methodological Principles for Assessment of Paris Agreement Alignment of New operations.

2. BB2 (*adaptation*): To determine the adaptation alignment of the project, the team hired a consultancy firm to run a comprehensive Climate resilience assessment. The Climate resilient assessment follows the 3-steps-process described on the Joint-MDB methodology for Paris Alignment.

3. **Under the first step**, the context of vulnerability has been established identifying the physical climate risks that might materially affect the project. As the project has 5 different locations geographically separated, each one of them has been assessed under the first step individually considering a time horizon of 75 years (up to the year 2100) which is considered the useful lifespan of the asset. The vulnerability assessment found that the material climate risks on this project would be extreme heat (high risk), flash or river floods (medium risk), coastal floods (medium risk) and rain induced landslides (medium risk).

- **Extreme Heat:** It has been established that all 5 subprojects will be affected by extreme heat events as the maximum temperatures in this region are expected to increase to 44.0C by 2050 and 47.5C by 2100. In the meantime, the annual number of extreme heat days (above 38C) is expected to rise to 63.7 by 2050 and 98.1 by 2100.
- **Flash or River flooding:** Exposure to climate physical risk of flash or river flooding depends on two tiers of consideration. The first tier is whether a subproject is located in an area where extreme rain is probable in future. The second tier is whether a subproject is interfaced with any surface flow path that has a potential to impact the road infrastructure if there is heavy rain. Overlaying both variables, it has been established that 2 subprojects will be materially affected in terms of river floods: subproject 2 (Hatay Airport Road, D420 & D852) and subproject 3 (Antakya Samandağ Road).
- **Coastal flooding:** Subproject 3 (Antakya Samandağ Road) is located at the coastal area facing the Mediterranean Sea and the distance from the coastline is less than 300 meters for some sections of the road. In view of the location of the subproject and the possibility of sea level rise associated with climate change, this section has a medium risk of coastal flooding.
- **Rain induced landslides:** The Global Landslide Hazard Map from the World Bank has been used to assess the likelihood of rain induced landslides. Three subprojects (subprojects 1, 2 and 4) are located in areas with medium susceptibility (average annual frequency of occurrence of a significant landslide of 0.02 or once in 50 years). A review of satellite

images of the identified sections shows that a further review of slope stabilization may be required by KGM.

4. **Under the second step**, we assess if adaptation and resilience measures have been identified to reduce material physical climate risks and enhance climate resilience.

5. The subprojects' designs incorporate some climate resilience structural and non-structural measures like the use of road design components (pavement) which are more resilient to extreme heat events (e.g. Superpave), and improved bridge design to reduce the thermal expansion of bridge expansion joints and paved surfaces, and regular inspections for hillside slope stability to reduce the potential risks of rainfall-induced landslides. To tackle river floods in subprojects 2 and 3, the water flow will be regulated by reconstructing the existing culvert under the filling in the transformed area and making upstream and downstream arrangements. The road body will be protected in these sections with bored piles and fortification structures in order to eliminate the effects of the stream in this section.

6. The assessment has identified additional measures that could be incorporated and that the client is evaluating at the moment, such as overload control systems, IoT-based stream flood monitoring systems for early warning and emergency response, emergency messaging systems to communicate and respond to flood events, establishment of communication channel between dammed reservoirs to improve drainage capacity and warning signs at the inter-crossing for overland flow risk caution.

7. **The third step** is the Assessment of Inconsistency with Climate Adaptation and Resilience Strategies Relevant for the Operation. The project is not inconsistent with the priorities set forth in national or sectorial policies/strategies/plans for climate resilience such as Türkiye's National Adaptation Strategy or the NDC of Türkiye.

8. As a conclusion, the primary intention of this assessment is to analyze the resilience of the earthquake-affected road sections to the impacts of climate change, in particular extreme heat and potentially extreme precipitation. The subprojects include appropriate measures in both the design and operation phases that have already been integrated in the design requirements. As a result, this Project is expected to deliver climate resilience outcomes of reduced climate related disruption to road transport and should be considered as Paris Aligned under BB2 (adaptation). As the Project is both aligned with BB1 and BB2 we can conclude that the whole project is Paris Aligned.

Table 6.1. Summary of Climate Hazards, Subproject Affected and Measures Implemented

| Climate Hazard | Road Section affected | Measures |
|--------------------------|---|--|
| Extreme Heat | #1 TAG Highway. #2 Hatay Province Roads Rehabilitation and Reconstruction (incl. Hatay airport road, İslahiye-Hassa-Kırıkhan Road (D825) road and Antakya-Reyhanlı Road (D420) Bridge and Connection Roads). #3 Antakya-Samandağ Road (Including Samandağ Ring Road). #4 Erkenek Tunnel. #5 Agin, Tohma and Beylerderesi Bridges. | (i) Heat resistant pavement. (ii) Improved bridge design to reduce the thermal expansion of bridge expansion joints and paved surfaces. |
| Flash or River floodings | #2 Hatay Province Roads Rehabilitation and Reconstruction (incl. Hatay airport road, İslahiye-Hassa-Kırıkhan Road (D825) road and Antakya-Reyhanlı Road (D420) Bridge and Connection Roads). #3 Antakya-Samandağ Road (Including Samandağ Ring Road). | (i) Reconstructing the existing culvert under the filling in the transformed area and making upstream and downstream arrangements. (ii) The road body will be protected in these sections with bored piles and fortification structures to eliminate the effects of the stream in this section. |
| Coastal flooding | #3 Antakya-Samandağ Road (Including Samandağ Ring Road). | (i) Reconstructing the existing culvert under the filling in the transformed area and making upstream and downstream arrangements. (ii) The road body will be protected in these sections with bored piles and fortification structures to eliminate the effects of the stream in this section. |
| Rain induced landslide | #1 TAG Highway. #2 Hatay Province Roads Rehabilitation and Reconstruction (incl. Hatay airport road, İslahiye-Hassa-Kırıkhan Road (D825) road and Antakya-Reyhanlı Road (D420) Bridge and Connection Roads). #4 Erkenek Tunnel. | (i) Regular inspections for hillside slope stability to reduce the potential risks of rainfall-induced landslides |

B. Climate Finance Assessment

9. The project does not qualify as climate mitigation finance as it does not fall in any of the categories established under the J-MDB common principles for tracking climate mitigation finance. However, given the climate resilience measures adopted into the project design (some of which can be considered as substantial contributors), a portion of the financing can be classified as climate adaptation finance under the category of adapted activities (type 1).

10. The assessment identified two structural measures tackling different climate risks:

- The use of heat-resistant pavement and improved bridge design to tackle increasing heat events by reducing thermal expansion of bridge expansion joints and paved surfaces.
- In subprojects 2 and 3, the regulation of water flow by reconstructing the existing culvert under the filling in the transformed area and making upstream and downstream arrangements to tackle flash or river floodings. The road body will be protected in these sections with bored piles and fortification structures to eliminate the effects of the stream in this section.

11. There is as well one non-structural measure tackling the risk of rainfall-induced landslide which is the regular inspection for hillside slope stability.

12. Taking into account these measures, we can allocate a 23 percent climate adaptation finance for Component A 'Rehabilitation of damaged infrastructure' (15 percent for the structural measures plus an additional 8 percent for the non-structural measures) using the AIIB's proportional approach proposed under the J-MDB methodology. Component B 'Project Management Support and Institutional Capacity Development' would not qualify as climate finance.

13. The final climate finance on this project is 22.94 percent (USD 45.885 million).

Annex 7. Procurement Checklist.

**AiIB Core Procurement Principles and Standards
Requirements – Checklist Analysis**
(Applicable for the works contracts awarded and reviewed)

| CRITERIA | REVIEW |
|--|--|
| Project title and objective | |
| 1. Economy - <i>the procurement process demonstrates that the total price outcome of the of contracts for goods works and services, including economic life and cycle costs does not have a negative impact on the Project</i> | <i>The contracts were launched in accordance with the TR Public Procurement Law and awards made to the lowest evaluated responsive bidders. The construction and repair of the highways and bridges in earthquake region will have a positive effect on the project by improving the transportation and economy in those cities.</i> |
| 2. Efficiency – <i>Procurement implementation arrangements are proportional to the required outcome with regard to implementation capacity and time constraints and are effective.</i> | <i>Considering the emergency need for the damaged highways, after the earthquake, the four works contracts were launched in a very reasonable short time with fair competition among the bidders in accordance with the applicable procurement regulation.</i> |
| 3. Effectiveness – <i>the procurement process facilitates the achievement of the ultimate objectives of the Project taking into account the recipient’s socio-economic and other development objectives</i> | <i>The repair and reconstruction of the damaged connection roads and bridges in the earthquake region will facilitate the achievement of the ultimate objectives of the Project taking into account the recipient’s socio-economic and other development objectives.</i> |
| 4. Fairness; good governance – <i>the procurement process is open, fair, non-discriminatory and provides equitable opportunity and treatment for tenderers and consultants in their submission of tenders and proposals. It also provides for clear rights and obligations as between Recipients on the one hand and suppliers, contractors, and consultants on the other. The procurement process is aligned with principles of good governance.</i> | <i>Public Procurement Law; Basic Principles Article 5 states that “In procurement to be conducted in accordance with this Law, the contracting authorities are liable for ensuring transparency, competition, equal treatment, reliability, confidentiality, public supervision, and fulfilment of needs appropriately, promptly, and efficient use of resources.....” The signed contracts were launched according to the requirements of this Law.</i> |
| 5. Value for Money (“VfM”) – <i>the procurement process enables the Recipient to obtain optimal benefits with the resources utilized. This may include not only the initial costs but also costs over the economic life of the procure items, the quality of the output, fitness-for-purpose, timeliness, and the achievement of other socio-economic and environmental development objectives of the recipient, Price alone may not necessarily represent VfM;</i> | <i>The scope, terms & conditions and contract values of the signed contracts are fulfilling the requirements for” Value for Money”.</i> |

| | |
|--|--|
| <p>6. Fit-for-Purpose – to realize VfM, the procurement process ensures that the procurement methods and procedures applied by the Recipient for the Project, and the nature and extent of Bank oversight are fit for purpose (“FfP”). The procurement modalities appropriately reflect the strategic needs and circumstances of the situation. Standardized approaches maybe used for low value low-risk or low complexity procurement. Where procurement complexity, risk and impact are high, a customized approach with transaction-specific documentation and method may be the most efficient and effective approach.</p> | <p>Turkish Public Procurement Law contains fit for purpose (“FfP”). procurement methods and procedures applied by the Recipient for the Project</p> <p>The selected procurement modalities appropriately reflect the strategic needs and circumstances of the situation. Due to the urgent need of the repair of roads and bridges damaged in the earthquake the client has used the shortest procurement procedures permitted by the Public Procurement Law and succeeded to launch the most important four works contracts in a reasonable short period.</p> |
| <p>7. Transparency - the Bank is committed to achieving a high level of transparency under each project. Transparency during the procurement process is a key element in establishing a good procurement outcome. To this end, sufficient and relevant information is required to be made available in an open manner to interested parties and for appropriate scrutiny.</p> | <p>Turkish Public Procurement Law foresee a transparent procurement system which requires, the clients to provide sufficient and relevant information to the interested bidder; informing the bidders about the result of tender evaluation process and decision of contract award and permits the bidders to raise a complaint if they deem necessary to the client and/or to the Public Procurement Agency.</p> |
| <p>PROCUREMENT STANDARDS 5.3</p> | <p>REVIEW</p> |
| <p>(a) Strategic Procurement Planning</p> | <p>N/A as this was an emergency</p> |
| <p>(b) Transparent and unless other approaches are adequately justified, international competitive processes</p> | <p>Due to urgent need and scope of works national competitive bidding is preferred by the client.</p> |
| <p>(c) optimized balance between price and quality to generate desired development results on a sustainable basis.</p> | <p>Contract prices are reasonably below the estimated costs which reflects the market prices. The technical specs clearly define the required quality.</p> |
| <p>(d) credible recourse and impartial and equitable dispute resolution: integrity throughout the procurement process including during contract management and closure.</p> | <p>The disputes shall be resolved by the Dispute Arbitration Board to be established by the Dispute Law of Türkiye and/or related local courts in the regions.</p> |
| <p>(e) quality assurance, compliance checks, audits inspections and as appropriate third-party verification</p> | <p>Quality assurance, compliance checks, and appropriate third-party verification shall be made by the consultant firms employed for this purpose. Audits, inspections shall be made by the Court of Accounts and inspectors of the Ministry of Treasury and Finance of the Republic of Türkiye.</p> |
| <p>(f) credible mechanism to address complaints of bidders and providers of goods works and consulting services</p> | <p>Credible complaint mechanism is available in Public Procurement System.</p> |