Turkey: Rail Logistics Improvement Project (RLIP)

TERMS OF REFERENCE

For Preparation of Survey and Feasibility Studies for 6 Rail Last-mile Connectivity Infrastructure Sub-projects

Preparation of Detailed Engineering Designs and Technical Specifications/Bills of Quantities and Detailed Environmental and Social Documents for up to 6 Rail Last-mile Connectivity Infrastructure Sub-projects

Construction Supervision for up to 3 Rail Last-mile Connectivity Infrastructure Sub-projects

1. Introduction and Background

The Republic of Turkey achieved strong economic and social development performance since 2000, leading to increased employment and incomes. More recently, growing economic vulnerabilities and a more challenging external environment are threatening to undermine these achievements. Turkey has maintained a long-term focus on implementing ambitious reforms in many areas, and government programs have targeted vulnerable groups and disadvantaged regions. The poverty incidence more than halved over 2002-15, and extreme poverty fell even faster. During this time, Turkey urbanized dramatically, maintained strong macroeconomic and fiscal policy frameworks, opened to foreign trade and finance, harmonized many laws and regulations with European Union (EU) standards, and greatly expanded access to public services.

Turkey, owing to her advantageous geostrategic positioning between Europe and Asia, has a strong potential in becoming a major regional logistics hub. Nevertheless, failure to develop the physical infrastructure of railways and maritime transport in a timely manner in response to the increased demand for transportation, inadequate institutional capacity and the current fact that highway transportation is the most efficient transportation mode for door-to-door transportation, have led to the intensification of freight and passenger transportation on the road network.

Turkey's global standing in logistics performance has steadily deteriorated over the past six years, signaling an urgent need to attain further improvements and reverse this negative trend. As early as 2012, Turkey was ranked as the 27th best-performing economy in international logistics by the Logistics Performance Index (LPI), a position that has steadily weakened since—to 30th in 2014, 34th in 2016, and 47th today. Much of this deterioration stems from relative under-performance in infrastructure provision and small market scale as well as the quality of logistics services, particularly in the railways.

Improvements in containerized rail intermodal and other forms of rail-based logistics are expected to boost economic dynamism and support job creation in Turkey. By enhancing access to domestic and international markets through improved connectivity, railway infrastructure investments are recognized as direct drivers of rail adoption and indirect drivers of sustainable economic growth.

The project aims to increase rail freight efficiency in Turkey by improving last-mile connectivity (LMC), enhancing the operational efficiency of logistics centers and strengthening institutional capacity. The project is developed around three main components:

(i) **Component 1 – Construction of Railway Branch Lines and Multimodal Connections at Priority Network Nodes.** This component includes construction of two main branching lines, Çukurova Region and Iskenderun Bay railway connections, and Filyos Port/Industrial Zone connections, including construction supervision consulting services, as well as construction (and construction supervision) of two to three additional subprojects to be selected from a pre-identified list of 12 potential LMC sites;

(ii) **Component 2 – Feasibility Studies, Detailed Engineering Designs, and Construction Supervision for Rail Last-mile Connectivity Infrastructure at Additional Freight Generation Nodes.** This component includes survey, design, and feasibility studies for the 12 potential LMC locations pre-identified by the Ministry of Transport and Infrastructure (MoTI), plus detailed engineering designs, environmental and social impact assessment and impact management documents, and construction supervision for a subset of this initial list of potential LMCs; and

(iii) **Component 3 – Phase 2 COVID-19 Response Support, Institutional Strengthening, Capacity Building, and Project Implementation Support.** This component will provide technical assistance on key aspects of service delivery in rail freight logistics, such as standardization of railway network technical standards, preparation of a rail freight strategy document for MoTI, and support to MoTI on the management and planning of rail-enabled logistics centers owned by TCDD, the public railway infrastructure manager. Component 3 will also finance the provision of technical assistance to MoTI to assess the medium- and long-term impacts of the COVID-19 pandemic on Turkey's multimodal logistics system and to draw up policy measures to mitigate those impacts. Lastly, Component 3 will finance the operating costs of the Project Implementing Unit (PIU) within MoTI's Directorate-General of Infrastructure Investments (DGII).

2. Objective of the Assignment

The objective of this assignment is to provide project preparation support through the project cycle, from feasibility studies to construction supervision, for up to 6 out of a total of 12 pre-identified last-mile rail infrastructure connectivity subprojects to be considered under Component 2. The initial work in this process will entail production of survey and feasibility studies for all 6 subprojects to be included under this contract (the feasibility of the remaining 6 subprojects will be assessed under a separate consulting services contract subject to identical Terms of Reference [ToR]). Findings from the feasibility studies will then be used by DGII, with the help of the consultant, to prioritize the 12 subprojects based on multi-criteria analysis, including, but not necessarily limited to, 3 main factors: (i) expected economic returns (including the value of mitigating environmental and other non-market externalities); (ii) risk-adjusted technical feasibility (including environmental and social impact considerations); and (iii) magnitude of expected rail freight volume capture as a proxy for urgency of delivery. Based on this prioritization, those subprojects deemed feasible of implementation will move forward to the next stage in the project cycle, in which the consultant will prepare detailed engineering designs and detailed environmental and social impact and impact management documentation, in accordance with the World Bank's Environmental and Social Framework (ESF) for the subset of subprojects deemed feasible under the FS stage. And among the latter, a subset (up to 2 to 3 subprojects total among the initial list of 12) will be selected for construction under the project's Component 1, for which the consultant will provide construction supervision services.

A brief description of the 12 sub-projects is presented in Table 1. This assignment will develop survey and feasibility studies for subprojects 1 to 6 of Table 1. Detailed engineering designs, technical specifications/bill of quantities, and construction supervision consulting services may subsequently be provided for a subset of the initial 6 subprojects.

Table 1. List of Priority Sites for Last-Mile Rail Infrastructure Provision

Site No.	Node name	Key commodities	Branch line length (km)	Tons per year (mil)	Average length of haul (km)	Facilities to be served
1	Kütahya-2 OIZ	Containers, ceramics, paper	2.0	5.0	500	1 OIZ
2	Kütahya-1 OIZ	Containers, ceramics glass	1.0	4.0	500	1 OIZ
3	Konya-2 OIZ	Containers, agricultural products	10.0	3.6	500	1 OIZ
4	Sakarya-2 OIZ	Agricultural products, containers	26.0	2.5	200	1 OIZ
5	Akhisar OIZ	Earthenware, ceramics, containers	3.5	1.5	100	1 OIZ
6	Bilecik Bozüyük OIZ	Plaster, ceramics, containers	4.0	1.0	500	1 OIZ
7	Izmit Arslanbey OIZ	Containers	5.0	0.7	75	1 OIZ
8	Kahramanmaraş/Narli Cement	Cement, clinker	6.0	0.5	355	1 factory
9	Izmit Asim Kibar OIZ	Containers, automobiles	6.0	0.5	350	1 OIZ and 1 factory
10	Çorlu Ergene-2 OIZ	Food, containers, paper	9.6	0.5	153	1 OIZ and 1 factory
11	Türkoğlu Paper Mill	Paper products	5.0	0.4	220	1 factory
12	Denizli Oiz	Containers, copper wire, textiles, chromium	4.0	0.3	260	1 OIZ

The feasibility studies will include economic, financial, technical/engineering, environmental, and social feasibility assessments. Preliminary maps of the proposed alignment of these subprojects are shown in **Annex 1**.

For the environmental and social component of the feasibility studies, the feasibility studies will include initial, FS-level environmental and social impact assessments of the subprojects considering both construction and operation phases of the projects and including any associated facilities (e.g. access roads, quarries, borrow pits, energy transmission lines etc.) based on the World Bank ESF. The ESF comprises Environmental and Social Standards (ESS) together with their Annexes, which set out the mandatory requirements that apply to the subprojects:

Environmental and Social Standard 1: Assessment and Management of Environmental and Social Risks and Impacts;

Environmental and Social Standard 2: Labor and Working Conditions;

Environmental and Social Standard 3: Resource Efficiency and Pollution Prevention and Management;

Environmental and Social Standard 4: Community Health and Safety;

Environmental and Social Standard 5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement;

Environmental and Social Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources;

Environmental and Social Standard 7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities;

Environmental and Social Standard 8: Cultural Heritage;

Environmental and Social Standard 9: Financial Intermediaries; and

Stakeholder Engagement and Information Disclosure.

The potential environmental and social risk and impacts could include but not be limited to the following:

- Potential impacts on environment covering impacts on air, water resources, soil, biodiversity values including natural, modified and critical habitats, cultural resources, water and wastewater management, waste management, resource and energy utilization including the associated facilities
- Potential impacts on public and private assets in the vicinity of the alignment, such as access limitations, usage restrictions or even temporary or permanent loss due to project implementation;
- Potential impacts on land-based livelihoods and any other income generating businesses located along the route or in the footprint of other project components in addition to the prevalence, migration patterns and livelihoods of owners and users of land, potential seasonal migrant workers and other defined vulnerable groups in project affected lands;
- Potential extent and anticipated cost of land acquisition at current market rates;
- Risks related to Occupational Health and Safety (OHS), Labor Management and handling of grievances of contracted workers;
- Preliminary assessment of the potential project-affected persons (PAPs) and households (including informal users), and the likely order-of-magnitude cost of compensation of these PAPs as to any impact on their assets (land, dwellings, sources of income) and need for additional support to sustain land-based livelihoods for a set period of time after project impact;
- Potential impact on tangible and intangible cultural heritage, including any potential impact on 1st, 2nd, and 3rd degree culturally protected area sites and artifacts; and
- Potential impacts on biodiversity, natural habitats and resources that can also be related to ecosystem services, groundwater, water bodies, air pollution, and other environmental protection dimensions, including in protected areas.
- Potential impacts on nearby communities and other sensitive receptors with respect to noise, air pollution, visual impacts, increased level of traffic, any other community health and safety, labor influx etc. related issues that may emerge from project activities.
- Potential cumulative impacts that may occur due to the multiplying effects of other recently completed, ongoing or planned projects in the project region.

The feasibility studies will provide an initial assessment of the extent to which the above impacts can be avoided, mitigated and the likely mitigation measures that could be deployed, based on mitigation hierarchy adopted under the World Bank's ESF, including a justification of same based on good domestic and international practice, cost effectiveness, international experience, and the like.

However, it should be noted that any subproject that is classified as ***High Risk,*** likely to generate a wide range of significant adverse risks and impacts on human populations or the environment, which have the majority or all of the following characteristics: (i) long term, permanent and/or irreversible (e.g., loss of major natural habitat or conversion of wetland), and impossible to avoid entirely due to the nature of the Project; (ii) high in magnitude and/or in spatial extent (the geographical area or size of the population likely to be affected is large to very large); (iii) significant adverse cumulative impacts; (iv) significant adverse transboundary impacts; and (v) a high probability of serious adverse effects to human health and/or the environment (e.g., due to accidents, toxic waste disposal, etc.); (vi) sensitive and valuable ecosystems and habitats (legally protected and internationally recognized areas of high biodiversity value), (vii) impacts to lands belong to or rights of Indigenous Peoples, Local Communities and ethnic minorities, or other vulnerable groups (viii) intensive or complex involuntary resettlement or land acquisition, impacts on cultural heritage or densely populated urban areas; (i) significant concerns that the adverse social impacts of the subproject activity; and (x) the associated mitigation measures, may give rise to significant social conflict or harm or significant risks to human security **should not be selected to move on to the** detailed design and detailed E&S documentation phase.

In assessment of environmental and social implications within the scope of the feasibility studies, Turkish laws and requirements and the following World Bank documents should be taken into consideration as applicable but not limited to:

- World Bank's Environmental and Social Framework (ESF) and Borrower's Guidance Notes;
- World Bank Group's Environmental, Health, and Safety (EHS) General Guidelines;
- World Bank Group's Environmental, Health, and Safety Guidelines for Railways;
- World Bank Group's Environmental, Health, and Safety Guidelines for Toll Roads;
- World Bank Group's Environmental, Health, and Safety Guidelines for Electric Power Transmission and Distribution;

It should be noted the project will apply the relevant requirements of the EHS Guidelines. When the Turkish requirements differ from the levels and measures presented in the EHS Guidelines, the more stringent ones (such as the most stringent discharge and emission standards) will be applied in the project specifications as per Environmental and Social Standards (ESSs) of the World Bank's ESF. The Consultant will fully comply with the requirements of ESSs in assessment of the environmental and social impacts within the scope of the feasibility studies.

3. Scope of Work of Survey and Feasibility Studies

The feasibility study for each subproject must be in compliance with the guidelines and procedures of the Government of Turkey (GoT) and the World Bank. The studies shall present, evaluate, and justify alternatives; and feature clear tables, graphs, drawings, maps, and other supporting material for technical and general descriptions. The consultant's tasks shall include:

- Review of existing past demand-supply, feasibility, market research, engineering, and other studies, if any
- Review of other existing data and studies
- Data collection and market surveys
- Review of institutional frameworks
- Definition of key performance indicators and their baseline values
- Technical analyses

- Preliminary design with assessment of alternatives
- Financial and fiscal impact analyses
- Economic and stakeholder analyses
- Sensitivity and risk analyses
- FS-level Environmental impact assessment of subproject alternatives in light of the requirements of the ESF and relevant national laws covering impacts on air, water resources, soil, biodiversity values including natural, modified and critical habitats, cultural resources, as well as impacts on nearby communities and other sensitive receptors in terms of noise, dust and other air pollutants, traffic impacts and safety, water and wastewater management, waste management, resource and energy utilization including the associated facilities (e.g. access roads, quarries, borrow pits, energy transmission lines etc.), considering both construction and operation phases among other potential issues;
- FS-level social impact assessments of the studied alternatives in light of the requirements of the ESF and relevant national laws covering land acquisition, potential land requirements including any physical resettlement needs, potential impacts on private and public lands and landowners, anticipated costs related to compensation needs for economic and physical resettlement-if any-, identification of the need to have any livelihood restoration measures, investigation and identification of any vulnerable groups (such as but not limited to poor, elderly, disabled, seasonal migrant workers, minorities, refugees, people subject to multiple impacts of other projects etc.), community health and safety assessment (including gender-based violence risks, communicable disease risks etc.), and occupational health and safety risk for workers and risk of labor influx and its impacts on the communities that will host them; and among other potential issues;
- Preliminary Stakeholder consultations.

The details of the tasks that will need to be undertaken to complete the feasibility studies are provided in **Annex 2**.

Findings of the environmental and social assessment will be used to identify possible alternative solutions for the last mile rail structures' options and should be criteria for comparative analysis of options, adopting the mitigation hierarchy for adverse environmental and social impacts, as well as identification of mitigation measures and establishment of baseline which will serve as the basis of preliminary inputs into the detailed engineering design studies as well as further environmental and social assessment documents (e.g. ESIA, ESMP, RAP, other sub-management plans as relevant/needed) to be developed for feasible subprojects.

Based on the findings of the feasibility studies, the consultant shall (i) make a clear recommendation as to the feasibility or non-feasibility of each subproject and whether there is justification for the implementation of each sub-project in isolation; and (ii) develop a methodology to rank the subprojects in order of feasibility, based on multicriteria analysis (e.g., based on socioeconomic, financial, environmental and social, and technical factors of desirability and feasibility) ideally consistent with the 3-point prioritization approach described briefly above and make a clear recommendation as to the attractiveness and investment impact of the 6 subprojects in order of desirability of implementation, with well-substantiated, quantitative evidence. For those subprojects found to be feasible, irrespective of ranking, the consultant will develop detailed engineering designs (see next section). Also, irrespective of ranking, detailed engineering design will be prepared only for Subprojects that are deemed to be of Low, Moderate or Substantial Environmental and/or Social risks in light of the FS-level environmental and social impact assessments.

In carrying out these tasks, the consultant shall conduct all physical inventories, surveys, collection and analysis of market, economic, financial, environmental, social, and technical data and other analytical evidentiary work as required to attain the stated objectives. The consultants shall collaborate closely with the involved authorities at MoTI's Directorate-General of Infrastructure Investments (DGII) and other relevant agencies as appropriate, including TCDD, the public infrastructure manager and future owner of the facilities involved in the subprojects under assessment. The consultants shall be solely responsible for the interpretation of all data and studies received and for the findings and recommendations contained in their reports.

4. Scope of Work of Detailed Engineering Designs, Technical Specifications/Bills of Quantities, and Detailed Environmental and Social Documents

For each of the subprojects deemed feasible of implementation, regardless of relative ranking, the consultant will develop detailed engineering designs and a full suite of detailed E&S assessment documents, including an Environmental and Social Impact Assessment (ESIA), an Environmental and Social Management Plan (ESMP), a Stakeholder Engagement Plan (SEP), a Land Acquisition and Resettlement Action Plan (LARAP). For those subprojects ultimately selected to move forward with construction, the consultant will conduct public consultation meetings on these E&S documents.

The detailed engineering design work will include the following:

- Build on the preliminary engineering designs developed under the scope of work of the feasibility studies, as well as on any existing past studies relevant at the subproject level, if any;
- Carry out the required topographic surveys, soil investigations, and any other physical surveys of the project landscape necessary to prepare the detailed designs;
- Using relevant GoT design standards supported where necessary by appropriate international standards, carry out the detailed design and prepare all necessary engineering drawings, specifications and description of works to be carried out. The drawings shall include:
    - Track alignment plans showing overall layout, intersecting roads, stations, ports, industrial zones, logistics centers, and any other kind of logistics cluster, major manufacturing and distribution facilities, and any other points of interest in the subproject vicinity;
    - Track alignment plans showing cross-sections, elevation, dimensions and similar operating parameters, and engineering supporting features such as bridges, culverts, drainage systems, over/under-passes, sub-stations, etc.;
    - Detailed plans for civil works, for example as to the use and location of borrow pits, quarries, spoil containment areas, dykes, materials, depth of borings and other critical infrastructure resilience parameters, and other works setting out details, reference points and benchmarks, cross-sections, and typical construction details;
    - Plans showing the deployment of signalization, electrification facilities, and other operating equipment in typical detail at the detailed design level; and
    - Layouts, dimensions, operating parameters, and facility distribution and functionality of any railway/multimodal stations involved, including inter-connections between rail,

road, and other potential modes (e.g., maritime in the case of ports, if any), storage areas, cargo loading/unloading areas, shunting areas, road truck-in/truck-out facilities, and any ancillary facilities such as water treatment facilities, drainage systems, and pollution containment areas/equipment.

- Prepare operational plans for the phased development of the rail terminal(s) relevant to each subproject, in order to improve the efficiency of rail freight operations and the environmental footprint of rail freight transportation of bulk and containerized cargo;
- Prepare drawings showing the benchmarks/demarcation lines and stake out positions relating to resettlement activities in line with the existing regulations;
- Pay particular attention to rail traffic management and road safety interventions. These elements should be clearly incorporated within the final engineering designs and subject to a safety audit by an experienced Safety Auditor who may be nominated by MoTI;
- Prepare construction methods and schedules, including determination of most cost-effective construction methods and equipment/personnel needs, packaging of works, and accompanying schedules;
- Prepare bills of quantities and detailed cost estimates, including preparation of detailed analysis of inputs and prices for items such as labor, materials, equipment, tax, overhead, profit, etc., breakdown of the foreign currency and local currency requirements, preparation of the related disbursement schedules; and if data available, potential cost estimates for resettlement needs in the case it is unavoidable;
- Prepare tender documents (using the World Bank's Standard Documents applicable), including relevant supporting documents such as instructions to tenderers, draft contract documents, conditions of contract; general and technical specifications, BOQs, and relevant drawings.
- Fully reflect in the detailed designs the findings from the detailed E&S documentation.

The details of the above tasks are presented in **Annex 3**.

In addition, for all subprojects for which detailed engineering designs are to be prepared, the consultant will prepare relevant ESF instruments including full-fledged Environmental and Social Impact Assessments (ESIAs), Resettlement Action Plans (RAPs), Labor Management Procedures (LMP), Stakeholder Engagement Plan (SEP), and/or Environmental and Social Management Plans (ESMPs) based on this ToR. The project will not start construction of any subproject prior to the Bank's approval of corresponding ESF instruments. The details of the tasks for E&S documentation are presented in **Annex 4**.

5. Scope of Work for Construction Supervision Services

The consultant will supervise the construction of the feasible subprojects for which (a) detailed engineering designs were completed (and revised as needed), and (b) DGII confirmed, with advice and support from the World Bank, that they will move to the construction phase.

The detailed tasks for construction supervision services are presented in **Annex 9**.

6. Consultant Inputs

The successful fulfillment of the scope of services requires professional qualification in the fields of railways engineering and associated facilities such as bridges, stations, terminals, and shunting yards (including drainage, structural, soils and materials engineering); transport engineering; transport economics, multimodal logistics systems and management of railway information systems; and flood control, infrastructure resilience, and disaster risk mitigation.

It is anticipated that key professional staff of the consultant's team to undertake the **feasibility study, detailed engineering design, and detailed environmental and social documentation portions of these Terms of Reference** will include a combination of international and Turkish professional, as follows:

The consultant shall assemble a team capable of implementing an integrated approach to planning, feasibility evaluation, engineering design, and the attainment of desired outcomes in terms of reductions in logistics costs and increases in rail freight market share. The team shall have **at least** the following key positions (or equivalent): (1) Team Leader (Senior Transport Economist); (2) Senior Railways Engineer; (3) Senior Multimodal Transport (rail/road/ports/structures) Engineer; (4) Structural Engineer; (5) Senior Multimodal Logistics Specialist; (6) Transport Economist and Economic and Financial Modeling Specialist; (7) Senior Environmental Specialist; (8) Senior Social Development Specialist; (9) Surveying Engineer; (10) Biodiversity Specialist; and (11) Archeologist. This core team shall be supported by other professionals as proposed by the consultant. The list below provides further details on the required qualifications of the core team positions.

The **Team Leader**, in addition to defining and supervising the activities of other members of the consultancy team and liaising with the PIU, is expected to provide key technical inputs, conduct quality assurance, ascertain consistency of results across individual tasks and studies, and be the day-to-day single point of contact and party ultimately responsible to the client for the work to be conducted under this contract. The Team Leader shall be a senior transport economist who will be responsible for execution of transport economic studies, traffic surveys to determine traffic, traffic growth factors and vehicle operating costs for all studies, as well as the financial, economic and risk analyses of the different components under consideration. In addition to holding a suitable graduate degree (MS or above), the Team Leader is expected to have at least 15 years working experience, including a significant portion of those years spent in projects in upper middle-income countries and/or in the high-income countries of Western Europe. The Team Leader will have been involved in similar last-mile rail infrastructure development projects.

The **Senior Railway Engineer's** main responsibilities for each of the subprojects will include data collection and review, carrying out the required additional surveys, identifying critical engineering requirements and/or problems requiring improvements, and recommending cost-effective and sustainable technical measures for improvement, assisting the Transport Economist with traffic engineering calculations, assisting the Environmental Specialist(s) in carrying out the environmental impact assessment; and guiding his counterparts in the performance of their duties during his absence. In addition to holding a suitable university degree, he must be a versatile rail-multimodal engineering experience with more than 15 years of professional experience in design and construction of railway and associated multimodal structures and facilities, including extensive experience of working in and guiding local consultancy teams in upper middle income countries on similar detailed engineering design and technical-economic feasibility studies.

The **Senior Transport (Rail/Road) Engineer** should hold a suitable university degree in road engineering and should have at least 15 years of professional experience in the design and construction of roads and associated works and/or rail and associated works, with experience working with multimodal structures and connectivity infrastructure, and guiding, local consultancy teams in upper middle income countries on similar technical-economic feasibility studies and detailed technical design.

The **Senior Multimodal Logistics Specialist** with at least 10 years of experience in physical distribution and logistics facilities planning and multimodal transport. The Specialist should be familiar with operation management of cargo warehousing, forwarding, container transport, cargo trucking, rail intermodal, rail bulk transport, and rail enabled logistics centers, and the concepts, analysis, and modeling of modal shift, modal choice, and logistics costs. The Specialist should be experienced in assessing the demand for logistical clusters, industrial zones, and other areas of demand generation, in identifying optimal locations for facilities and connectivity at the last-mile, and should be familiar with the different models for public private participation in infrastructure and service provision for such facilities and connectivity infrastructure. The Specialist should be able to translate theories of inventory, input-output, queuing models into practical issues for logistics centers/clusters and last-mile rail and road connectivity. And he/she should be able to inform and implement plans for data gathering from shippers, carriers, and logistics service providers that are likely to be the beneficiaries of the facilities in the different subprojects, to reflect their operating needs and levels of demand into the engineering, economic, and financial assessments.

The **Structural Engineer** will have an understanding and experience in designing flood-affected works, in carrying out hydrological and soil conditions review and analysis; upgrading engineering design of existing structures and design of new structures for resiliency against climate change impacts, extreme weather events, and non-climate natural disasters such as seismic activity. In addition to holding a civil engineering degree, the Structural Engineer should have at least 10 years of professional experience in drainage, structural design of railway track lines, roads, culverts, piers, railway stations, logistics facilities, etc.

The **Senior Social Development Specialist** will be responsible for carrying out social impact studies and assessment to determine possible impacts in the areas of influence, identifying the need for land acquisition and resettlement compensation at the subproject level, and any other social impacts (including positive impacts such as local employment and procurement) on local communities, vulnerable populations (such as but not limited to poor, elderly, disabled, seasonal migrant workers, minorities, refugees, people impacted from multiple projects etc) and potential impacts of labor influx (workers) on affected communities. The Social Development Specialist is expected to have at least 8 years of experience working in developing countries on similar projects. The specialist is also expected to present a preliminary list of potential stakeholders that are impacted by and influential to the projects.

The **Senior Environmental Specialist** will be responsible for carrying out the environmental impact assessment of the subprojects and produce initial environmental mitigation measures. The Environmental Specialist is expected to have expertise in environmental engineering, biodiversity in water, marine and terrestrial ecosystems, and soil, water and air pollution, and water, air, and soil quality modeling; and have at least 10 years of directly relevant experience in the field and significant international working experience in developing countries on similar projects.

The **Transport Economist and Economic and Financial Modeling Specialist** will gather data and conduct economic and financial feasibility models based on standard cost-benefit analysis, to produces economic and financial net present values, internal rates of return and other key metrics of viability, as well as fiscal impact assessments at the level of MoTI, TCDD, and the national government. The Transport Economist will have at least 10 years of experience analyzing economic and financial viability of infrastructure investments.

The **Surveying Engineer** should have at least 10 years' experience in topography, hydrography hydrology or related fields, and the knowledge to use computer software for processing and analysis. The Surveying Engineer will be expected to:

- Determine all necessary geotechnical, topographical, and/or other surveys to be conducted to inform the design process (and possibly also the feasibility study process);
- Oversee the conduction of these surveys;
- Incorporate survey findings into engineering designs and drawings; and
- Develop databases for available and newly acquired survey data at the various work sites.

The **Biodiversity Specialist** should have at least 10 years' experience with assessing and managing biodiversity impacts of infrastructure subprojects, ideally in the European region or in upper middle-income countries. The Biodiversity Specialist will have a suitable university degree in biology, natural sciences or related fields. Graduate studies will be preferred.

The **Archeologist** will assist the project preparation functions in measuring and proposing risk mitigation measures to manage the exposure of any subproject to cultural heritage sites and other sites of cultural value that must be preserved and protected. He/she will be familiar with the requirements of Turkish law and World Bank policy in this respect. A university degree in archeology or related field is required.

For the Construction Supervision portion of these Terms of Reference, if applicable, it is anticipated that the consultant will require to assemble a core team including the following profiles, some of whom would ideally be the same individuals as above:

- Chief Resident Engineer/Project Manager (Senior Civil Engineer)
- Railways Engineer
- Structure Engineer (Concrete/Steel/Rock/Timber works)
- Mechanical/Electricity System Engineer
- Surveying Engineer
- Senior Environmental Specialist
- Senior Social Development Specialist
- Senior Occupational Health and Safety (OHS) Specialist

The core team should be supported by as many site engineers as deemed necessary, which the consultant should specify in the technical proposal.

The **Chief Resident Engineer** for the supervision phases will be a university graduate (preferably with a post-graduate degree) in civil engineering or closely related field, and professionally qualified. At least 20 years of field working experience in broad-based construction management covering civil, structural, geotechnical engineering, with at least 5 construction projects in senior positions over extended periods. Experience with multi-

contractor projects and construction management of large multilateral funded projects is preferred. Proven experience in multi-agency liaison and reporting and excellent communication ability and advanced computer skills. Work experience in middle income countries, as well as countries in Western Europe, will be highly desirable.

The **Senior Occupational Health and Safety Specialist** will be responsible for determining occupational health and safety requirements of projects in line with national and World Bank guidelines (EHS, ESF, etc.) and carrying out risk assessment to determine possible OHS risks for construction and operation phases of the projects. The OHS Specialist is expected to have at least 10 years of experience working in developing countries on similar projects, specifically experience in health and safety issues of railway projects and knowledge of international best OHS practices and standards will be preferable.

All staff proposed must be independent and free from conflicts of interest in the responsibilities accorded to them. Civil servants and other staff of the public administration of Turkey may not be recruited as experts, unless prior written approval has been obtained from DGII. As the final reports will be produced in both English and Turkish, the consultant may wish to consider having translators on the team or propose a viable alternative for reliable and high-quality translation.

7. Timing

The 6 feasibility studies and up to 6 detailed engineering designs and sets of detailed E&S documents shall be completed within a period of 24 months from contract signing. Construction supervision services will be provided thereafter for those subprojects (if any) selected by DGII, with assistance of the World Bank, to move forward to the construction phase, with a duration of construction dependent upon the findings of the FS, engineering design, and detailed E&S documentation work.

For the construction supervision phase of the assignment (if any), during the Defects Liability Period of Works, a full-time presence of the consultant's team is not required. Frequent visits of key staff, made flexibly on request of and in consultation with the PIU, would be sufficient. At the end of the regular construction period of the contract(s), before start of the Defects Liability Period, the consultant shall prepare an indicative program for the visits for approval by the PIU. It is advisable that the site engineer(s) have at least monthly meetings with the contractor and stay in frequent contact with the PIU and the Chief Resident Engineer to advise on inputs needed.

8. Reporting

For the FS, detailed engineering design, and detailed E&S documentation phases, the consultant shall deliver the following overall status reports to the PIU as scheduled below:

- Inception Report (1 month after start)
- Interim Reports (6, 12, and 18 months after start)
- Draft Final Report (20 months after start)
- Final Report (24 months after start)

The consultant shall present the findings of the inception, interim, draft final, and final reports in workshops to be scheduled shortly after submission and review of each of these reports. All reports will be delivered in hard and soft-copy formats, in English and in Turkish, including drawings, designs, models, analyses, cost estimates and implementation plans. All deliverables

will be subject to comments and feedback by the PIU, other MoTI sub-agencies (including TCDD), and the World Bank.

For the detailed E&S documentation, the consultant will prepare the following:

- Draft Reports of ESIAs, ESMPs and sub-management plans, SEPs and LARAPs in English and Turkish by no later than 20 months from contract start;

- Final Reports of ESIAs, ESMPs and sub-management plans, SEPs, and LARAPs in English and Turkish by no later than 24 months from contract start.

Public consultation meetings will be organized after the submission of Final Reports for those subprojects moving on to the construction phase.

All E&S reports will be subject to detailed review by the World Bank and necessary revisions will be made by the Consultant for the approval of the reports.

All data obtained during the execution of the study from surveys to final report shall be reported to the PIU in appropriate electronic formats proposed by the consultant and agreed by the PIU, including partially or wholly detailed description/instructions of the survey methodology.

The consultant shall include in their reports detailed annexes explaining all assumptions and showing all calculations. Electronic copies of spreadsheets showing all calculations and raw data inputs should also be submitted. The transport models developed throughout the study should be transferred to the PIU/MoTI.

For the construction supervision phase (if any), the consultant will provide the following:

1. **Monthly Reports.** The Project Manager shall prepare, at the end of each month, a brief progress report summarizing the work accomplished by the supervision teams during the reporting period. The report will also outline any problems encountered, administrative, technical (including environmental and social) or financial, and give recommendations on how these problems may be overcome. A brief summary of the progress of the works will be prepared for all ongoing works, outlining problems encountered and recommended solutions.

2. **Quarterly and Periodic Reports.** The Project Manager shall prepare a comprehensive report summarizing all activities of the subproject(s) at the end of each quarter, and at other times when considered necessary, by either the Project Manager or the PIU, because of delays in the construction works or of the occurrence of technical or contractual difficulties. Such reports shall summarize not only the activities of the Project Manager and Site Supervision Teams, but also the progress of the contract(s), all contract variations, change orders, the status of contractor claim(s), if any, brief descriptions of the technical and contractual problems being encountered and other relevant information for all the ongoing contracts.

3. **Final Completion Reports.** The Project Manager shall prepare a comprehensive Final Completion Report for each of the construction contracts which reaches a stage of substantial completion during the period of the services. These reports, which must be submitted immediately after the provisional hand-over of each contract, shall summarize the method of construction, the construction supervision performed, recommendations for future projects of similar nature to be undertaken by DGII, summarizing the construction activities, total effect of contract changes, claims or dispute or any other substantive matters having an effect on the amount, cost, and progress of the work shall be submitted. The

Project Manager shall summarize and consolidate in a single Team Final Report the key information from all supervision Final Completion Reports.

In addition, the consultant will check and finalize 'As Built Drawings' prepared by the contractor(s), within one month after completion of construction on each contract, and submit same to the PIU, as well as final details of the project completed together with all data, records, field books, etc., properly indexed. A full set of as built drawings should also be provided in electronic format acceptable to the PIU.

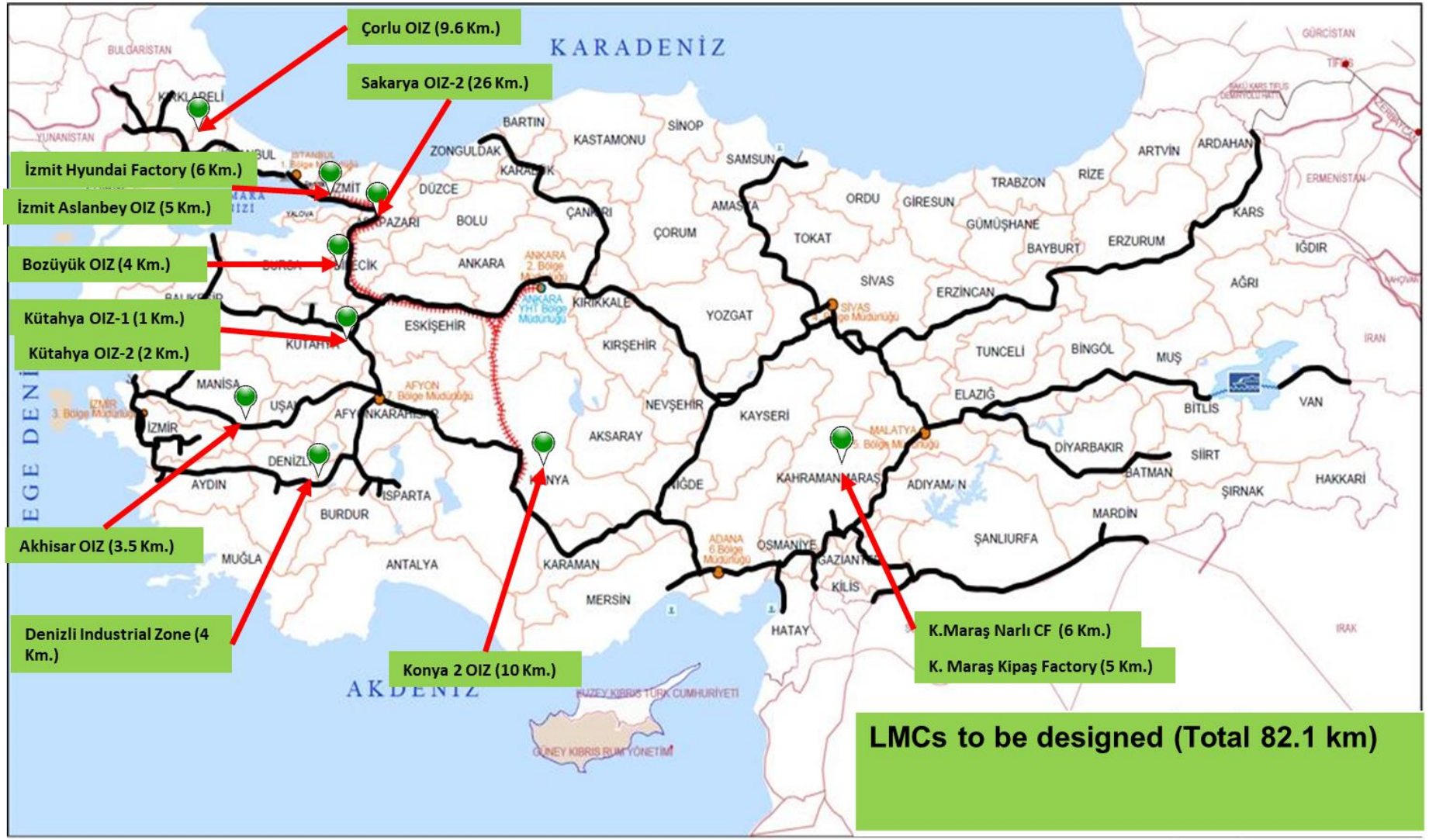
9. Copyright and Use of Documents and Publications

Copyright in all drawings, reports, specifications, bills of quantities, calculations, software, models, source code and object code and other documents provided by the consultant in connection with the assignment shall vest in DGII. The consultant shall indemnify DGII against any claims associated with any action, claim, suit or demand arising out of or in respect of any breach of any intellectual property rights relating to the provision of the consulting services. The consultant may with the prior consent of DGII publish, either alone or in conjunction with others, articles, photographs and other illustrations relating to the project.

10. Professional Standard of Care

In performing the services the consultant shall exercise the degree of skill, care, and diligence normally exercised by members of the consultant's profession performing services of a similar nature, in accordance with the ethics of the consultant's profession.

Annex 1. Preliminary Maps of 12 Pre-identified LMC Sub-projects



Annex 2. Detailed Tasks Required for Completion of Surveys and Feasibility Studies

Key Methodological Considerations

In assessing the economic viability of the subprojects, the consultant shall include in the economic costs the cost of environmental externalities, defined as the emission of greenhouse gases (GHGs) and local pollutants, as well as other externalities such as road safety impacts, congestion impacts, and the like. Economic costs should also include land acquisition and resettlement costs and the cost of any risk mitigation measures. Economic costs should exclude taxes and other forms of transfers. Financial costs should not include non-market externalities, but should include VAT.

Demand projections should be based on real shipper-level historical and future expected freight flow data, ideally complemented by modal choice modeling to derive likely freight capture by rail due to the subprojects compared to the without-project baseline. In this regard, it is imperative that the key shippers and logistics service providers active in each subproject's hinterland be identified and their operations, demand levels, technical requirements, and likely future plans be reflected in the economic and financial modeling.

Financial modeling should be done at the level of "TCDD as a whole", a conceptual approach that includes both infrastructure provision and rail freight transport service delivery, based on cost and revenue parameters to be provided to the consultant by TCDD, with the help of the PIU.

Detailed Tasks

The survey and feasibility study portion of the assignment will be conducted in 8 discrete tasks for each subproject, as follows:

TASK 1: Review of existing studies and data, and fresh data collection and survey activities

Collecting the necessary data is essential to establish a base line to carry out the analyses. The consultant will review existing studies, available data sources, and fill the gaps through interviews and surveys of shippers, carriers, logistics service providers, logistics cluster/industrial zone operators, GoT officials, academics, and others as relevant in each of the following areas: a) transport demand, b) engineering standards and design, c) financial and economic costs, d) environmental impacts, costs and mitigation costs, and e) social impacts, and land acquisition, resettlement costs.

Surveys shall be carried out to an appropriate standard and requirement for use in transport economics studies and analyses, and social and environmental impact studies. Demand and supply data collection shall be carried out as much as possible in the field. The consultant shall in their technical proposal indicate their proposed field survey standards and data gathering frequencies.

A) <u>Transport Demand-Supply Data</u>

1. Review regional, provincial, and/or local economic and transport development plans and data.

2. Identify levels of economic activities within each subproject cargo hinterland, production and consumption patterns therein, and demographic and socioeconomic data that can be used in defining supply-demand projections for transport modeling.

3. Estimate hinterland cargo generation and attraction volumes over a period of 30 years.

4. Carry out origin and destination surveys to fill in gaps regarding provincial, inter-provincial, and international (as applicable) freight movements by all modes.

5. Determine throughputs for the target clusters and other facilities as appropriate (for example, nearby maritime ports).

6. Identify any freight transfer points and exchanges and throughputs.

7. Identify all relevant freight flows to access the target last-mile connections.

8. Collect other data required to develop the transport model necessary to meet the objectives of the feasibility study.

9. Collect data on the supply side across modes (highways, main linehaul railway network, ports and terminals, main target shippers, etc.)

10. For the financial model, collect key cost, revenue, and balance sheet information from TCDD Infrastructure and TCDD Transport, with the support of DGII/PIU.

B) Environmental Impacts, Costs and Mitigation Cost Data

1. The consultant shall collect all data necessary to carry out the environmental impact assessment tasks detailed below.

2. The consultant will also collect data on environmental elements including but not limited to soil, air, noise and water quality, as well as biodiversity values including protected areas and species as well as cultural heritage values that are recognized by national and international standards at the target clusters/nodes under consideration for improvement to enable an environmental assessment of LMC operations.

3. The consultants shall collect data on the railway equipment to be used and its environmental standards.

C) Social Assessment Data

1. The consultant shall identify for each considered investment the number of people affected, including other vulnerable communities/individuals (such as but not limited to poor, elderly, disabled, seasonal workers, minorities, refugee and people impacted by multiple projects etc.), potential stakeholders and if data available anticipated costs associated with land acquisition, resettlement compensation.

2. The consultant shall collect all data necessary to carry out the social impact assessment tasks as outlined below.

D) Financial, Economic and Risk Appraisal Data

1. The consultant shall collect the data needed to estimate the financial and economic costs and benefits of the subprojects, including:
    - Unit financial costs for the various categories subcategories of expenditures for civil works;
    - Tax and subsidy information needed to estimate, or validate, the conversion factors, which will be in turn used to determine economic prices;
    - Input output coefficients and other data needed to estimate vehicle operating costs;
    - Value of time and other parameters used in the estimation of time savings associated with the cost of holding inventory in-transit and safety stock inventory;
    - Costs associated with land acquisition and resettlement compensation, if applicable.
    - Costs of environmental mitigation measures or impacts; and
    - The appropriate economic and financial cost of capital to be used in modeling.

TASK 2: Transport Modeling/Planning

Based on the data collected in Task 1, the consultant shall define origins and destinations within each target hinterland and node to be connected at the last mile, including domestic and international shipments as necessary, to model transport movements relevant to each subproject. It is imperative that this analysis be done with disaggregation by commodity type.

The consultants shall make traffic projections for freight based on assumptions informed by real data on shipper-level historical and future flows and economic indicators such as economic growth, population growth, etc.

Traffic forecasts and modal split should be modeled under two situations: the with- and without-project scenarios.

For cargo forecasts, the consultant shall commence with the analysis of the existing situation to establish the baseline for each subproject. They shall consider cargo origin-destination patterns, market characteristics, and growth for the different types and kinds of cargo (e.g., by commodity type); transport routes, transport speed and frequency of service; the most typical equipment/vehicles used across modes, etc. The consultant shall forecast future transport flows for all cargo types. Cargo flow projections are to be carried out for the various transport modes annually for a period of 30 years.

The consultant shall use a freight modal split model to identify the freight corridor movements for each subproject node hinterland, including multimodal itineraries as relevant.

The consultant shall use transport modeling software to be specified in the technical proposal and eventual agreed with the PIU; modeling within spreadsheet environments is acceptable as long as the analysis is sufficiently nuanced to include the various analytical approaches outlined in this ToR and as long as the model adequately reflects the actual nature of the movement of freight in the target nodes and hinterlands at a granular level.

The cargo allocation study or modal split analysis shall focus on finding the cargo movements between origins and destinations in terms of existing and potential transport modes.

Traffic projections shall identify normal (i.e., existing), generated, and diverted (i.e., shifted) traffic, assuming the optimum solution for transport infrastructure improvements.

The time horizon will be 30 years. The forecasts will be made by type of cargo, mode of handling (e.g. bulk vs. containerized), type of traffic (domestic, international, transit), mode and type of transport (road and rail primarily, and others if relevant) and seasonality of traffic.

TASK 3: Preliminary Engineering Design

The consultant shall produce preliminary engineering designs for each subproject at an appropriate technical standard determined by the applicable Turkish standards and guidelines. The purpose of these preliminary designs is to (a) consider alternatives for each subproject as to key parameters like alignment, track length, number and size of stations, cargo transport and handling capacity, type of traction (electrified or not), type of equipment, resiliency standards (e.g., as to the "design storm"), etc. The design standards are expected to be, as the name indicates, preliminary and indicative, but they nonetheless shall be subject to the prior approval of MoTI/PIU. The preferred alternative for the preliminary design shall include a disaggregated cost estimate for civil works and construction supervision. The preliminary design of bridges and other critical structures should be consistent with national standards.

Level plan drawings of scale 1:500 for civil works (tracks, bridges, stations, control points and benchmarks and contour lines) are considered acceptable in principle, subject to final approval by the PIU. Drawings of other works, such as drainage structures and other features shall be of various scales to make sure all details are well-presented and clear. Preliminary design drawings include foundation structure and superstructures (profile, cross sections, views, perspective).

TASK 4: Environmental Impact Assessment

The objective of the environmental impact assessment at the feasibility study stage is to:

- Identify potential negative and positive environmental impacts of the different alternatives considered for each subproject;
- Determine how significant – or acceptable – these impacts are by comparing against standards of acceptability criteria;
- Recommend ways of preventing, minimizing, reducing, compensating, managing and monitoring unacceptable impacts;
- Provide technical information and recommendations for selection and design of the best alternative;
- Prepare a set of recommendations to mitigate environmental impacts under the preferred alternative. The mitigation measures should be able to reduce or eliminate negative impacts, and can include monitoring and institutional arrangements

The goal ultimately is to promote a harmonious integration of the project components and associated facilities as described in the ESF with the environment and the human needs, following a sustainable development approach. The impact assessment study will be based on the requirements of the WB ESF and its corresponding ESSs as well as relevant World Bank Group Environmental Health and Safety Guidelines including general and sector specific.

The consultant will be responsible for gathering, reviewing, and analyzing all necessary data and information. Where these are insufficient, the consultant shall make all practical efforts to

produce the missing information/data including site sampling, professional estimates and predictions based on the most likely conditions at the project area, reliable information and data from similar situations and conditions, etc.

The consultant shall characterize the extent and quality of available data and describe the key-data gaps and the uncertainties associated with estimates, predictions, and data used from similar situations. The methods of accommodating these gaps and uncertainties should be well stated and presented by the consultant. Topics and areas, which do not need further attention, should be specified with the supporting rationale. When estimated values are used in place of data, the consultant will be required to provide the uncertainty limits associated with these values and perform an appropriate sensitivity analysis.

The consultant will carry out the following sub-tasks at a level of depth appropriate with a Feasibility Study report:

1. **Description of the subproject.** Provide a brief description of the subproject, using maps (at appropriate scale), including main and ancillary facilities; national, provincial, and local roads in the subproject area; identification of sensitive areas, such as protected zones; pre-construction activities, construction activities; planned on-site works, elements, components; locations; general layout; off-site works; etc.

2. **Description of the environment.** The consultant shall assemble, evaluate, and present baseline data on the relevant environmental characteristics of the project area (including any changes that can be anticipated before the commencement of the subproject and expected trends if the proposed works of the subproject are not implemented), including but not limited to the following elements:

    - **Physical environment.** geology; topography; soil; climate and meteorology; surface and ground water hydrology; coastal and oceanic parameters; existing water pollution discharges; and receiving water quality.
    - **Biological environment.** flora; fauna; sensitive habitats; protected areas and significant natural sites. Special attention must be given to landscape.
    - **Socio-economic environment.** Present and projected population; land use; planned and recently completed development activities; employment; sources of income; land tenure; human settlements; community and cultural patterns; health conditions; economic activities (including agriculture, fisheries, commerce, industries, power station, and any economic activity carried out under ecosystem services etc.); infrastructures; archaeological; historic and cultural sites; and present and projected traffic.
    - **Pollution.** Sources; levels, and impacts of existing air, water, soil, nature, and noise pollution in the study area.
    - **Infrastructure.** existing and projected infrastructure, including road and waterway network, landing stages system, public construction, medical and educational centers.

3. **Determination of potential impacts.** The consultant will identify and evaluate all significant potential impacts of each proposed subproject together with the associated facilities (AF) that meet the criteria defined in accordance with the World Bank's ESF. A clear distinction is to be made between positive and negative impacts, direct and indirect induced impacts, short-term and long-term impacts, single and likely/expected cumulative impacts, and avoidable and unavoidable impacts. Impacts are to be assessed for each alternative and according to each phase (i.e. construction, operation, and maintenance). The

consultant must describe impacts quantitatively as much as possible, in terms of environmental costs and benefits, but qualitative data is also acceptable where quantification is not feasible or data is not available and/or cannot be measured. Special attention should be given to:

a. Likely direct impacts on water, soil, air quality during construction and operation
b. Induced effects on air, water and soil qualities;
c. Deterioration or loss of ecologically sensitive areas;
d. Deterioration or loss of aquatic species, important fishery production areas
e. Management of materials, wastes and products of dredge during construction;
f. Loss of used land (from direct and induced impacts);
g. Impacts on cultural heritage
h. Temporary traffic plans during construction;
i. Temporary or permanent access ways to be built;
j. Social issues including resettlement; and
k. Broad assessment, at a preliminary stage, of potential cumulative impacts.

4. **Analysis of subproject alternatives.** The consultant shall describe briefly the main alternatives considered in the course of developing each proposed subproject (as per the preliminary design work above) and indicate reasons for their rejection or selection. The concept of alternatives extends to siting, design, technology selection, construction techniques and phasing, and operating and maintenance procedures. The consultant shall compare these alternatives in terms of their potential environmental impacts; capital and operating costs; and suitability to local needs and requirements.

   The consultant shall also review and analyze possibilities for other alternatives, which would achieve the same objectives and yield better environmental results. All alternatives should be compared to the without-project alternative. Alternatives are to be considered and analyzed in evaluating and comparing the merits of the sites and alignments. The consultants shall, to the extent possible, quantify, on a preliminary basis, the costs and benefits of each alternative and incorporate the estimated cost of any associated mitigating measures.

5. **Mitigation of environmental impacts.** For each subproject and preferred alternative, the consultant shall recommend feasible and cost-effective measures to prevent or reduce significant negative impacts to acceptable levels, and estimate, preliminarily, the likely result and cost of those measures.

TASK 5: Social Assessment

In conjunction with the environmental analysis of subproject alternatives, the consultant shall carry out a preliminary social analysis of subproject alternatives, to identify land to be temporarily or permanently acquired, a preliminary or order-of-magnitude number of affected persons, their economic status and likely impact of loss of assets estimated cost of compensation. . The preliminary list of stakeholders to be impacted or influential to the projects will be identified by the consultant. The “preferred alternative” should include both environmental and social considerations to minimize impact and yield a cost-effective and operationally responsive investment.

If data is available, the consultant shall estimate land acquisition and resettlement costs for each alternative, and for the preferred alternative, a budget and implementation schedule for land acquisition and resettlement activities to inform the economic and financial analyses (see below). Data presented on the potential land requirements of the projects should take into consideration both Turkish law and the provisions under the Environmental and Social Standard 5- Land Acquisition, Restrictions on Land Use and Involuntary Resettlement of The World Bank's ESF while addressing potential land-based impacts.

TASK 6: Economic, Financial, and Fiscal Analysis

On the basis of the traffic projections and other relevant information, an economic evaluation shall be carried out for the preferred alternative of each of the proposed subprojects. The analysis shall reflect the with and without project scenarios, and should use such feasibility criteria as ENPV and EIRR. Externality costs and benefits (e.g., environmental, road safety, congestion) should be included in the analysis and quantified. Optimal timing for investing should also be taken into account. The analyses shall be carried out for a period of 30 years with residual values of assets used to account for benefits beyond the period of analysis.

The consultant shall estimate operating costs for transport means of different categories using existing data. Benefits shall include benefits from transport costs (or vehicle operating costs), time savings associated with inventory carrying costs, accident and fatality impacts, incremental operating cost saving and transport infrastructure maintenance cost savings, externality-related savings, and any other appropriate un-quantifiable benefits (e.g. incremental savings in environmental costs of flooding), as long as the same set of benefits and costs are used across all subprojects.

The total cost of the various alternatives should include (if data available) the anticipated costs associated with land acquisition and resettlement compensation, and the cost of environmental mitigation measures (or environmental costs if mitigation measures are not necessary). In estimating the economic benefits and costs, the consultant shall exclude taxes.

Beyond the economic analysis, the consultants shall conduct a financial analysis to determine the financial sustainability of the proposed investments from the perspective of "TCDD as a whole", i.e., across not only infrastructure provision but also service delivery. This assessment must be made with real, updated data on key parameters to be provided by both TCDD Infrastructure and TCDD Transport, with the support of the PIU. The consultant shall substantiate its choice for the weighted average cost of capital applicable to this analysis.

Lastly, a fiscal impact analysis will be conducted to understand the nature of government subsidies and support that each subproject is likely to require, and the capacity of MoTI/the national government to provide this support.

The consultant will rank the subprojects by their level of economic and financial feasibility, and will devise a simple multicriteria methodology to rank the subprojects on a combination of the various aspects of feasibility assessed under the assignment.

TASK 7: Sensitivity and Risk Analysis

The consultant shall conduct sensitivity analysis on the results of the economic, financial, and fiscal analyses under Task 6, to assess the robustness of these results to changes in variables and assumptions, and the likely economic and financial robustness of the underlying subprojects. The analysis should identify the sensitivity of the results to key variables and

assumptions, and pinpoint which variables/assumptions have the largest impact on feasibility results. The consultant shall also develop a broader risk assessment as to the likely scenarios under which the subprojects would cease to be feasible and the events that would need to transpire for that to be the case.

TASK 8: Key Performance Indicators and Recommendations

The consultant shall define 2-3 key performance indicators that would measure the progress in meeting the objectives of this project component. The consultants shall estimate the base line values for these indicators and develop a plan for updating them. The consultants may consider key performance indicators that measure the impact of the subprojects on certain stakeholders of interest.

Based on the preceding tasks, the consultant must arrive at a clear and explicit statement of recommendation and advice to the PIU as to the feasibility and desirability of each of the subprojects, based on the multicriteria analysis of Task 6 and the robustness of those results as suggested by Task 7.

Annex 3. Detailed Tasks Required for Completion of Detailed Engineering Designs for Feasible Subprojects

The Consultant will carry out detailed engineering designs of last-mile rail infrastructure connectivity subprojects found to be feasibly under the feasibility study portion of the assignment. The specific tasks under detailed engineering design portion of the assignment will be as follows:

TASK 1: Topographic Surveys

The consultant shall carry out topographic surveys, defining the horizontal and vertical alignments and cross-sections of the railway connections, establishment of horizontal control points, benchmarks and permanent reference beacons as required for the preparation of detailed engineering designs to enable construction quantities to be accurately calculated and for land acquisition purposes.

The proposed scope and scheduling of the topographic surveys will be approved by the PIU before the survey works start. The consultant shall inform PIU when the survey works are about to begin so that PIU can send staff to supervise the consultant's survey works.

The results of the surveys shall be given in a set of documents previously agreed with PIU, including details of benchmarks and survey baselines, horizontal and vertical control grids, topographic maps, and field data logs and field books. The results shall be given in digital form and in hard copy.

TASK 2: Geotechnical Surveys

The consultant will carry out the necessary geotechnical/soils investigations along the railway branch line alignments, proposed rail stations, etc. These investigations should include borings, soundings, field testing, soil sampling, rock coring and the laboratory testing of recovered samples. Laboratory testing will include all the necessary testing to establish the mechanical characteristics of the subsoil layers to the required accuracy having a direct bearing on the design of the works.

A complete boring schedule shall be prepared prior to proceeding with the borings and approved by PIU. The geotechnical investigation work should be carried out in accordance with stipulations in national law and international standards.

TASK 3: Materials Surveys

The consultant shall also carry out a thorough materials survey to identify the sources and quality of construction materials required for construction of the works. Where possible, bulk materials should be transported to the site of the works in pre-identified routes and stockpile areas should be identified as well. Material sources will need to identified for concrete aggregates, rock and other fill materials. Sampling shall be carried out at potential sources and the appropriate testing carried out to ensure compliance with the specifications. In addition to materials sources, the consultant shall also identify and design suitable areas for environmentally acceptable disposal of discarded materials.

TASK 4: Detailed Design Studies

The consultant shall produce detailed design documents including a Detailed Design report, design drawings, and calculation sheets. Designs shall be based on Turkish standards or, where not available, acceptable international standards and application of sound engineering practice. The consultant will be responsible for revising and updating these detailed design documents as necessary based on findings from the environmental and social impact assessments (ESIAs), land acquisition and resettlement action plan (LARAPs), and environmental and social management plans (ESMPs) that will be produced under this assignment (see **Annex 4)**.

TASK 5: Unit Rates Analysis

The consultant shall develop updated unit rates for the construction for railway branch lines, stations, and other works to be constructed, including taxes and customs duties, taking into account the bid and completion costs of similar works recently undertaken in Turkey.

TASK 6: Cost Estimates

The consultant shall prepare all bills of quantities, and calculate detailed costs estimates for civil works broken down into foreign (direct and indirect) and local components as well as taxes and customs duties.

TASK 7: Construction Schedules

In conjunction with PIU, the consultant shall prepare realistic construction schedules showing anticipated progress of works and expenditures for each subproject, monitoring and reporting actions; the schedules will reflect seasonal climatic effects at the work sites, and will take into account typical outputs on recent World Bank financed projects of similar nature.

TASK 8: Bidding Documents

The consultant shall prepare bidding documents for each subproject/package according to the requirements of the GoT and World Bank Procurement Framework.

Specifically, the consultant will prepare tender drawings, civil work plans, longitudinal profiles, cross-sections, structural plans, and other details necessary to describe the scope of works to bidders. Civil work plans should include all existing features, expected land-take based on plotted earthwork limits and further right-of-way where different from existing.

TASK 9: Benchmark Survey

The consultant will carry out the establishment of a pre-construction database concerning ambiance, air, water, and soils at designated sites conformed to design works (civil works) of the project and relevant national regulations through surveys, sampling, testing at sites and in laboratory.

All of the above tasks will be subject to adjustment and updating by the consultant based on guidance by the PIU, which in turn will be informed by (a) World Bank implementation support to the PIU, and (b) findings from the independent ESIA/RAP/ESMP consultant.

Annex 4. Detailed Tasks Required for Environmental and Social Documentation

The Consultant will carry out E&S assessments as specified above: ESIA, ESMP, SEP, and LARAP; and in the case of subprojects selected for construction phase, at least 1 public consultation meeting. For this purpose the consultant will conduct all necessary studies, surveys, and measurements to fulfill the requirements within the scope of work.

In the preparation of ESIA, ESMP, and sub-management plans listed above, including SEP and LARAP, applicable Turkish laws and requirements and the following World Bank documents should be taken into consideration as applicable but not limited to:

- World Bank's Environmental and Social Framework (ESF) and Borrower's Guidance Notes;
- World Bank Group's Environmental, Health, and Safety (EHS) General Guidelines;
- World Bank Group's Environmental, Health, and Safety Guidelines for Railways;
- World Bank Group's Environmental, Health, and Safety Guidelines for Toll Roads;
- World Bank Group's Environmental, Health, and Safety Guidelines for Electric Power Transmission and Distribution;

It should be noted the project will apply the relevant requirements of the EHS Guidelines. When the Turkish requirements differ from the levels and measures presented in the EHS Guidelines, more stringent one (such as the most stringent discharge and emission standards) will be applied in the project specifications as per Environmental and Social Standards (ESSs) of the World Bank's ESF.

The Consultant will fully comply with the requirements of ESSs in the preparation of ESIAs, ESMPs, and sub-management plans listed above including SEPs and LARAPs, by also considering the scale of the sub-projects. ESSs that will apply for the sub-projects and would be taken into account in E&S assessments are summarized below.

ESS1 Assessment and Management of Environmental and Social Risks and Impacts

The potential environmental and social risks are expected to be civil works related environmental disturbances, habitat degradation and land acquisition and resettlement as well as contextual risks such as security to contractors and community safety. E&S risks are anticipated to be limited to the impacts associated with railway construction and operation phases such as: (i) air pollution and noise from construction machinery and quarries and operation phase noise and vibration impacts, (ii) soil disturbance and loss during earthmoving, (iii) tree-cutting and loss of vegetation, pest management, (iv) waste generation and management (including hazardous waste), and (v) construction camp management, (vi) community health and safety (traffic safety, earthquakes, avalanches etc.), (vii) labor and working conditions (including occupational health and safety), (viii) land acquisition induced economic displacement for individuals and businesses, (ix) potential impacts on culturally and naturally protected areas. Associated facilities (including electricity transmission lines, access roads, quarries etc.) will be taken into account in the assessments, as applicable, as well as cumulative impacts.

Social risks and impacts including and beyond land take requirements will also be considered in the E&S assessments, such as impacts on disadvantaged and vulnerable groups, community health and safety risks during construction, labor influx risks to communities (women and girls specifically), any discrimination towards groups in providing access to project benefits, impacts on health, safety, and well-being of workers and risks to any sites with cultural heritage importance.

Indicative outline of ESIA, ESMP are presented in **Annex 5** and **Annex 6**, respectively.

ESS2 Labor and Working Conditions

Project workers include the direct workers, contracted workers and primary supply workers. Primary supply workers will be evaluated under ESA studies, including migrant workers. Turkey is party to a multitude of ILO conventions (e.g.), which is in line with ESS2 requirements. National Labor Law includes provisions on non-discrimination, freedom of association, minimum employment age and wage, child and forced labor, occupational health and safety and dispute resolution. Risks related to child/forced labor are not foreseen. Although not anticipated in the railway sector, potential risks related to child and forced labor of the primary suppliers (i.e. supply of stone for the rails, steel manufacturers) will be evaluated by the consultant. According to the preliminary gender risk assessment which is assessing risks that may occur due to labor influx to a community (ie. Gender based violence-GBV, risk of harassment etc); both sub-projects are rated 'low' in terms of GBV risk. However, social assessments carried out within ESIA will aim to define any risks such as sexual harassments in work place or violation of equal opportunity in the work place. ESIA will set measures that are commensurate to this risk category, such as, mapping GBV service providers in the project-affected and adjoining communities, enhancing the project GRM to integrate specific procedures for GBV, undertaking GBV-sensitive consultations with the project-affected communities, and strengthening contractor obligations to address GBV risks, e.g. adopting a Code of Conduct by the contractors that defines obligations for all their staff regarding policies related to GBV, particularly SEA and workplace sexual harassment.

Additionally, OHS management system will be analyzed by the consultant. For the operation phase OHS issues, MoTI has a separate regulation on railway safety which defines risk management including measures to minimize the risks in railway operation as well as regulates significant accidents. An Occupational Health and Safety Management Plan (for construction and operation phases) will be prepared and included in the ESMP in line with World Bank Group Environment, Health and Safety (EHS) Guidelines.

ESS2 will be applied to the sub-projects and a separate labor management procedure (LMP) will be prepared within this scope. The consultant **will not** prepare the LMP but should take into account risks and impacts related to labor and working conditions, and occupational health and safety within the scope of its E&S assessments.

ESS3 Resource Efficiency and Pollution Prevention and Management

The subprojects in question are not considered water intensive. For material supply, the existing and/or nearby quarries will be utilized to the extent possible. Any railway electrification, if any, will be supplied from the closest possible existing ETLs. The major pollution related risks of the planned projects are improper waste and soil management, adverse impacts of construction activities on nearby water bodies, air quality impacts of construction and operation phases. In addition, transport of hazardous wastes during operation phase is a relevant issue. These anticipated impacts will be analyzed and assessed in detail within the scope of the ESIA and the relevant management plans. Water, air quality and soil mitigation and monitoring plans will be part of the ESIA. During operational phase of the subprojects, use of pesticides can be required for railway vegetation clearing in the scope of maintenance works. More information on pest application practices will be evaluated within the scope of the ESIA studies, and if necessary an integrated pest management plan will be prepared as a part of the ESIA.

ESS4 Community Health and Safety

Community related impacts of railways and roads are associated with operational phase noise and air emissions, traffic management and temporary blockades, and labor influx associated

disturbance to local communities and labor camps management. The ESIA studies and relevant management plans (including stakeholder engagement) will identify stakeholders and the likely impacts of construction and operational phase community health and safety issues, mitigation measures, monitoring and reporting requirements. With these studies, site specific risks regarding the potential scale and risk due to natural hazards associated with floods, earthquakes, landslides, and avalanches and emergency preparedness and response plans (EPRPs) for both construction and operation phases will be addressed. Further, as appropriate, a separate Community Health and Safety (CHS) plan will also be prepared (as a part of the ESIAs and relevant management plans) to address impacts/risks on: (i) human and livestock; (ii) HIV/AIDS; Gender Based Violence (GBV). The site-specific Traffic Management Plans (TMP) to be prepared will cover management of traffic safety risks, accident prevention, training programs, relevant stakeholder engagement activities and site safety awareness and access restrictions.

It is foreseen that a minimum of 100 workers will be employed in the 'average' subproject, and will use the camp site accommodation. The labor influx risks and details will be assessed within the scope of ESIA studies. No utilization of designated security personnel is foreseen for road and railway construction and operation phases, but should also be discussed with the Borrower in preparation of ESIA.

ESS5 Land Acquisition, Restrictions on Land Use and Involuntary Resettlement

The physical relocation of households and/or businesses may be required under the subprojects. The anticipated physical displacement of any such facility will require a LARAP to be prepared. The RAP will include information on the regulatory framework on resettlement and provide means and actions to bridge the gaps between national law and Bank standards. An entitlement matrix which covers physical displacement actions and compensation measure will be included in the RAP along with a corresponding budget. The number and profile of affected land users and amount of land required is not known at this stage but will have to be determined under this task. Other possible components of the subprojects that may require land acquisition are the electrification systems and access roads. The reports will look into multiple land impacts and undertake socio-economic baseline studies with the affected communities and assess the potential vulnerabilities specific to the projects. LARAPs will use the same outline provided in **Annex 7**.

ESS6 Biodiversity Conservation and Sustainable Management of Living Natural Resources

Sub-project sites will be assessed by considering the KBAs, IBA, nationally protected areas, critical habitats, and IUCN lists. The first preference will be avoiding all types of sensitive habitats. The site-specific E&S assessments will include a detailed analysis of flora & fauna species, habitats and the significance of impacts on those. If any of the sub-projects have significant impacts on biodiversity values, a separate biodiversity management plan, including mitigation and monitoring measures will be prepared. Existence of critical natural habitats, natural habitats and modified habitats will be determined (according to the definitions of ESS6).

ESS7 Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities

While the subprojects are not expected to involve any indigenous groups, this will have to be determined and confirmed by the consultant, and proper applicable measures discussed with DGII and incorporated into the documentation.

ESS8 Cultural Heritage

Existence of any culturally important resources (tangible and/or intangible cultural heritage) in the subproject affected areas will be evaluated. Consultation process will also identify the existence of intangible cultural heritage which may be affected by the subprojects. The results will be reflected in the ESIA study for the subprojects. A cultural heritage management plan may be established as necessary. The results will reflect the official opinion of the Provincial Directorate of Culture and Tourism.

As the subprojects involve construction works, there is a risk of chance finds during excavation works. Therefore, the subproject specifi E&S assessments will need to include chance find procedures at a minimum.

ESS10 Stakeholder Engagement and Information Disclosure

The objectives of the Stakeholder Engagement Plan (SEP) is to establish a systematic approach to stakeholder engagement that will help the implementing entity identify key stakeholders – project affected parties and other interested parties – and build and maintain constructive relationships with them, in particular the project-affected parties. The SEP will assess the level of stakeholder interest and support for the project, enable stakeholder views to be taken into account in project design, and environmental and social performance, promote and provide means for inclusive engagement throughout the project life-cycle, ensure that appropriate project information is disclosed to stakeholders in a timely, understandable, accessible, and appropriate manner and format, provide citizens with accessible and inclusive means to raise issues and grievances and enable the project implementing entity to respond to and manage such grievances.

The Consultant will prepare Stakeholder Engagement Plans for both of the sub-projects and conduct required public consultation meetings as described in Objective section. SEPs will include the following key elements (see detailed outline in **Annex 8**):

- Introduction / Project Description
- Regulations and Requirements
- Brief Summary of Previous Stakeholder Engagement Activities
- Stakeholder Identification and Analysis
- Stakeholder Engagement Program
- Roles, Responsibilities, and Resources for Stakeholder Engagement
- Grievance Redress Mechanism
- Monitoring and Reporting
- References

Annexes may include: Sample minutes form/s from interviews and consultations conducted; Grievance Submission Form; Stakeholder Mapping or Diagram; documentation from correspondence or minutes of other consultations conducted, e.g., workshops, roundtables, regional events, etc.

Apart from the requirements of the ESSs described above, the ESIAs and ESMPs that will be prepared will also include the assessment of a cross cutting issue: the gender aspect. As touched upon under ESS2, GBV related risks in the workplace will be assessed under labor and working conditions whereas other gender based impacts such as vulnerability of women due to social status, or risks imposed by labor influx during construction etc. will be considered under the topics dealt in ESS1, ESS4, ESS5, and ESS10. The Labor Management Procedures that PIU will prepare, will ensure that contractors have code of conduct for its workers in order to promote good behavior in construction site and take preventive measures in case of any violation of the code.

Annex 5. Indicative Environmental and Social Impact Assessment (ESIA) Outline

(a) Executive Summary

- Concisely discusses significant findings and recommended actions.

(b) Legal and Institutional Framework[1]

- Analyzes the legal and institutional framework for the project, within which the environmental and social assessment is carried out, including the issues set out in ESS1, paragraph 26.
- Compares the Borrower's existing environmental and social framework and the ESSs and identify the gaps between them.
- Identifies and assesses the environmental and social requirements of any co-financiers.

(c) Project Description

- Concisely describes the proposed project and its geographic, environmental, social, and temporal context, including any offsite investments that may be required (e.g., dedicated pipelines, access roads, power supply, water supply, housing, and raw material and product storage facilities), as well as the project's primary suppliers.
- Through consideration of the details of the project, indicates the need for any plan to meet the requirements of ESS 1 through 10.
- Includes a map of sufficient detail, showing the project site and the area that may be affected by the project's direct, indirect, and cumulative impacts.

(d) Baseline Data

- Sets out in detail the baseline data that is relevant to decisions about project location, design, operation, or mitigation measures. This should include a discussion of the accuracy, reliability, and sources of the data as well as information about dates surrounding project identification, planning and implementation.
- Identifies and estimates the extent and quality of available data, key data gaps, and uncertainties associated with predictions.
- Based on current information, assesses the scope of the area to be studied and describes relevant physical, biological, demographic, and socioeconomic conditions, including any changes anticipated before the project commences.
- Takes into account current and proposed development activities within the project area but not directly connected to the project.

(e) Environmental and Social Risks and Impacts

- Takes into account all relevant environmental and social risks and impacts of the project. This will include the environmental and social risks and impacts specifically identified in ESS2 – 8, and any other environmental and social risks and impacts arising as a consequence of the specific nature and context of the project, including the risks and impacts identified in ESS1, paragraph 28.

(f) Mitigation Measures

- Identifies mitigation measures and significant residual negative impacts that cannot be mitigated and, to the extent possible, assesses the acceptability of those residual negative impacts.

[1] This analysis will also include labor, health, and safety laws.

- Identifies differentiated measures so that adverse impacts do not fall disproportionately on the disadvantaged or vulnerable.
- Assesses the feasibility of mitigating the environmental and social impacts; the capital and recurrent costs of proposed mitigation measures, and their suitability under local conditions; the institutional, training, and monitoring requirements for the proposed mitigation measures.
- Specifies issues that do not require further attention, providing the basis for this determination.

(g) Analysis of Alternatives

- Systematically compares feasible alternatives to the proposed project site, technology, design, and operation -including the "without project" situation- in terms of their potential environmental and social impacts.
- Assesses the alternatives' feasibility of mitigating the environmental and social impacts; the capital and recurrent costs of alternative mitigation measures, and their suitability under local conditions; the institutional, training, and monitoring requirements for the alternative mitigation measures.
- For each of the alternatives, quantifies the environmental and social impacts to the extent possible, and attaches economic values where feasible.

(h) Design Measures

- Sets out the basis for selecting the particular project design proposed and specifies the applicable EHSGs or if the ESHGs are determined to be inapplicable, justifies recommended emission levels and approaches to pollution prevention and abatement that are consistent with GIIP.

(i) Key measures and Actions for the Environmental and Social Commitment Plan (ESCP)

- Summarizes key measures and actions and the timeframe required for the project to meet the requirements of the ESSs. This will be used in developing the Environmental and Social Commitment Plan (ESCP).

(j) Appendices

- List of the individuals or organizations that prepared or contributed to the environmental and social assessment.
- References-setting out the written materials both published and unpublished, that have been used.
- Record of meetings, consultations and surveys with stakeholders, including those with affected people and other interested parties. The record specifies the means of such stakeholder engagement that were used to obtain the views of affected people and other interested parties.
- Tables presenting the relevant data referred to or summarized in the main text.
- List of associated reports or plans.
- Official letters obtained from the relevant Ministries and Provincial Directorates and other public institutions.

Annex 6. Indicative Environmental and Social Management Plan Outline

An ESMP consists of the set of mitigation, monitoring, and institutional measures to be taken during implementation and operation of a project to eliminate adverse environmental and social risks and impacts, offset them, or reduce them to acceptable levels. The ESMP also includes the measures and actions needed to implement these measures. The Borrower will (a) identify the set of responses to potentially adverse impacts; (b) determine requirements for ensuring that those responses are made effectively and in a timely manner; and (c) describe the means for meeting those requirements.

ESMPs will be prepared as a stand-alone document. The content of the ESMP will include the following:

(a) Mitigation

- The ESMP identifies measures and actions in accordance with the mitigation hierarchy that reduce potentially adverse environmental and social impacts to acceptable levels. The plan will include compensatory measures, if applicable. Specifically, the ESMP:

  (i) identifies and summarizes all anticipated adverse environmental and social impacts (including those involving land acquisition, involuntary resettlement workers and community health and safety, vulnerable groups and cultural heritage or);
  (ii) describes -with technical details- each mitigation measure, including the type of impact to which it relates and the conditions under which it is required (e.g., continuously or in the event of contingencies), together with designs, equipment descriptions, and operating procedures, as appropriate;
  (iii) estimates any potential environmental and social impacts of these measures; and
  (iv) takes into account, and is consistent with, other mitigation plans required for the project (e.g., for involuntary resettlement, labor, stakeholder engagement, or cultural heritage).

(b) Monitoring

- The ESMP identifies monitoring objectives and specifies the type of monitoring, with linkages to the impacts assessed in the environmental and social assessment and the mitigation measures described in the ESMP. Specifically, the monitoring section of the ESMP provides (a) a specific description, and technical details, of monitoring measures, including the parameters to be measured, methods to be used, sampling locations, frequency of measurements, detection limits (where appropriate), and definition of thresholds that will signal the need for corrective actions; and (b) monitoring and reporting procedures to (i) ensure early detection of conditions that necessitate particular mitigation measures, and (ii) furnish information on the progress and results of mitigation.

(c) Capacity development and training

- To support timely and effective implementation of environmental and social project components and mitigation measures, the ESMP draws on the environmental and social assessment of the existence, role, and capability of responsible parties on site or at the agency and ministry level.

- Specifically, the ESMP provides a specific description of institutional arrangements, identifying which party is responsible for carrying out the mitigation and monitoring measures (e.g. for operation, supervision, enforcement, monitoring of implementation, remedial action, financing, reporting, and staff training).
- To strengthen environmental and social management capability in the agencies responsible for implementation, the ESMP recommends the establishment or expansion of the parties responsible, the training of staff and any additional measures that may be necessary to support implementation of mitigation measures and any other recommendations of the environmental and social assessment.

(d) Implementation schedule and cost estimates

- For all three aspects (mitigation, monitoring, and capacity development), the ESMP provides (a) an implementation schedule for measures that must be carried out as part of the project, showing phasing and coordination with overall project implementation plans; and (b) the capital and recurrent cost estimates and sources of funds for implementing the ESMP. These figures are also integrated into the total project cost tables.

Annex 7. Sample Land Acquisition and Resettlement Action Plan (LARAP) Outline

1. Introduction

- Location of project (province, district, neighborhood)
- Amount and type of land required for the project (private / public), etc.
- Reasons for choice of the land
- Project description: description of the Project's area of influence, components of the project and their land take requirements according to project stages
- Information on other assets on the land (physical structures, businesses, facilities, trees etc.), if any, and their current status (used /not used/ active etc.)
- Information on the land acquisition approach that will be adopted (mentioning change in project design to avoid or minimizing the need for land take or utilization of public lands, utilizing negotiated settlement instead of direct expropriation or use of eminent domain etc.)

2. Potential Impacts and Affected People

- Definition of project impacts (temporary/permanent land take)
- The method to be used for land acquisition (depending on whether owned by the public or a private person; establishment of permanent ownership right, establishment of easement right, allocation, transfer, permit, etc.)
- If the selected land is owned by private persons, number of legal right-holders and information on how they use the land
- If there are existing structures on the selected land, define who are the persons using these structures, and how and for how long are they affected by the project
- If there is a non-agricultural use on the selected land (housing, agricultural industry, other businesses etc.), define who are the affected people, and how and for how long are they affected by the project
- Depending on the type of use on the land, identification of impacts on land-based livelihood, including the identification of certain groups or vulnerable people impacted by project activities
- Eligibility criteria for compensation in line with national legislation or ESS5.

3. Legal Framework

- Brief information on the national legislation (only the laws/regulations applicable to the project)
- Summary of Bank's ESS5
- Gaps between Legal Framework and Bank ESS5 and actions to bridge the gaps

4. Implementation, Compensation and Other Assistance

Detailed outline of the land acquisition process; legal responsibilities of the Borrower, methods and time period for land acquisition, entitlements for project impacts including type of persons and type of losses to be compensated, information on other assistances/supports to be provided during the project implementation process (whether there will be additional measures for income restoration if livelihoods are affected). This section will include an Entitlement Matrix for all types of land-based impacts generated by the construction of each project component.

5. Consultation and Participation

Summary of consultation process with the owners and users of land subject to acquisition, parties responsible for consultation, channels and means to be used for informing project-affected people, actions that will be taken to include and increase the involvement of vulnerable groups, if any.

6. Project's Grievance Redress Mechanism (GRM)

Information on the Borrower's complaint and request collection system. Details on the means and tools used to collect all grievances throughout project life; recording and addressing complaints, duration of addressing complaints, monitoring of open and closed complaints, methods used by Borrower to introduce the project GRM to stakeholders, parties responsible of managing GRM etc.

7. Monitoring and Reporting

Description of the approach adapted by the Borrower to monitor LARAP implementation, frequency of monitoring and evaluation and reporting

8. Timetable and Budget

Estimated budget and work schedule envisaged for the land acquisition works

Annex 8. Sample Stakeholder Engagement Plan (SEP) Outline[2]

Acronyms and Abbreviations

1. Introduction / Project Description
    a. Introduction
    b. Project Overview
    c. Purpose and objectives of SEP
2. Regulations and Requirements
    a. Turkish requirements
    b. World Bank requirements
3. Brief Summary of Previous Stakeholder Engagement Activities
    a. Ex.: Consultations conducted prior to SEP
    b. Ex.: Consultations conducted as part of prior project which are relevant to SEP activities in the current project
    c. Ex.: Communications with NGOs, etc.
    d. Ex.: Lessons from previous projects
    e. Ex. Other documented forms of engagement – interviews, workshops, etc. where feedback from relevant stakeholders has been collected.
4. Stakeholder Identification and Analysis
    a. Project-affected parties
    b. Other interested parties
    c. Disadvantaged/vulnerable individuals or groups
    d. Summary of stakeholder interest in and influence over the project
5. Stakeholder Engagement Program
    a. Purpose and timing of stakeholder engagement program (main goals of the stakeholder engagement program and the envisaged schedule for the various stakeholder engagement activities)
    b. Proposed strategy for information disclosure (what information will be disclosed, in what formats, and the types of methods that will be used to communicate this information to each of the stakeholder groups)
    c. Proposed strategy for consultation (methods that will be used to consult with each of the stakeholder groups)
    d. Proposed strategy to incorporate the view of vulnerable groups
    e. Timelines (Provide information on timelines for project phases and key decisions. Provide deadlines for comments)
    f. Review of Comments
    g. Future Phases of Project (Explain that people will be kept informed as the project develops, including reporting on project environmental and social performance and implementation of the stakeholder engagement plan and grievance mechanism)
6. Resources and Responsibilities for implementing stakeholder engagement activities
    a. Implementation Arrangements
    b. Timeframe
    c. Roles and Responsibilities
    d. Estimated budget
7. Grievance Redress Mechanism

[2] See also Template for ESS10: Stakeholder Engagement and Information Disclosure Stakeholder Engagement Plan and Stakeholder Engagement Framework, June 2018

    a. Grievance process (intake, processing and referral, resolution and response, monitoring and reporting)
    b. GRM contact information
8. Monitoring and Reporting
    a. Monitoring reports in the course of the project (by component, as relevant)
    b. Involvement of stakeholders in monitoring activities
    c. Reporting back to stakeholder groups
9. References

Annexes: records of meetings or consultations, stakeholder mapping analysis or diagrams, detailed budget, grievance submission form, etc.

Annex 9. Detailed Tasks Required for Provision of Construction Supervision Services

TASK 1: Mobilization and Setup

This Sub-Task comprises the following activities:

1. Mobilize supervision team members.
2. Review construction contract documents and outline (a) pertinent initial activities to be complied with by the construction contractors, and (b) obligations of the Client to the construction contractors, if any. Also bring to the attention of the Client any potential contractual issues that warrant their early attention.
3. Establish the project office and facilities for the consulting services.
4. Review and coordinate overall and detailed work program featuring all pertinent activities and critical paths.
5. Prepare the project organization and continue to upgrade and update such chart. Also establish and maintain the lines of authority and communication and coordination procedures necessary to ensure orderly and unimpeded progress of the work.
6. Establish document control and filing system for the project office, including official correspondence, drawings, site instructions, variation orders, diaries and all site records. Establish the channels and modes of communication.
7. Develop program management and tracking system, using computer software such as Microsoft Project to schedule and monitor all aspects of construction activities.

TASK 2: Contract Administration

Assist the Client in all aspects of administrating the construction of subproject facilities, including the following tasks:

1. Assist the Client in bid evaluation.
2. Assist the Client in the preparation of contracts for signature.
3. Review, comment, and recommend for approval the Construction Contractor(s)' proposed implementation schedule and programs, including periodic updates as the works proceed. Assist in resolving possible conflicts in the work plans and schedules of the construction contractors. Monitor the schedule and propose alternative schedules and work plans, which may be necessary to compensate for any critical lack of construction contractors' performance.
4. Examine, check, comment, and approve Construction Contractors' proposed detailed design changes for permanent work with writing consent by DGII, if any.
5. Check and approve the Construction Contractors' proposals for procurement of materials and equipment for incorporation into the permanent works, according to approved specifications and their appropriateness.
6. Carry out inspection and witness testing at source of materials and equipment to be incorporated into the permanent work.
7. Monitor and report on physical progress of the works and financial disbursements.
8. Certify the Construction Contractors' claims for progress payments and issue payment certificates.
9. Advise on the Construction Contractors' requests for variation orders and prepare the issue of such variation orders after approval of the Client.
10. Advise on any difficulties and disputes that may arise during construction of the works, propose solutions to them, and assist in the implementation of the solutions.

11. Examine, evaluate and recommend on any claims for additional time or payment submitted by the contractors.
12. Check and approve (a) as-built drawings, and (b) operation and maintenance manuals submitted by the contractors.
13. Certify partial, substantial and final completion of the works in accordance with provisions of the contracts, including certification of stage and final acceptance tests.
14. Throughout the duration of the Project implementation stage, assist, as and if necessary, on liaison with provincial, city and local authorities and utility agencies/companies; assist with ongoing liaison with the World Bank; and regularly report to DGII on progress and other matters relating to subproject implementation.
15. Assist the Client as may be necessary in meeting its obligations under the World Bank loan.
17. Assist the Client in receiving and apprising World Bank review missions.

TASK 3: Construction Supervision

At all times, maintain sufficient site-based staff, including not only engineering but also environmental, occupational health and safety, and social staff, with clear allocation of duties, to supervise day-to-day construction of the works to complement the Contract Administration tasks listed above. Generally the consultant is to ensure works are carried out as designed to an acceptable quality in accordance with the specifications and drawings. Pertinent construction supervision tasks include the following:

1. Interpret all drawings and specifications as may be required to ensure compliance of the Construction Contractors with all provisions of the contract documents.
2. Develop manuals pertaining to subproject quality assurance and quality control, train resident engineer(s) in applying the manuals
3. Check that all permanent works are constructed according to approved designs and specifications and issue "approval to proceed" memoranda based on approval of the construction contractors' proposals for the construction of each item of the works. Condemn works that are not, or cannot be made, acceptable.
4. Check and approve the Construction Contractors' proposals for temporary works and construction methods.
5. Establish field survey control, as required, in accordance with the construction contracts. Checking the Construction Contractors' setting out to ensure that work complies with the tolerances established by the contract documents and to ensure proper control of construction.
6. Check that the Construction Contractors' proposals accord with statutory or otherwise approved requirements for maintaining workers' occupational health and public health, workers' and community safety, and workers' welfare and for compliance with approved measures to mitigate adverse environmental and social impacts in the vicinity of the works.
7. Maintain daily site diaries of each Construction Contract including progress and performance, recording all unusual occurrences which may reflect on either the progress or performance, such as public health outbreaks, weather, fire, civil commotion, strikes, lack of materials, uncontrollable interference from exterior sources, and other similar events.
8. Cooperate with the Client and the Construction Contractors in matters relating to permits, licenses, right-of-way, and similar matters, which are within the authority of the Client.

9. Ensure that the Construction Contractors have valid permission to access construction sites before work commences, and that their site occupation program complies with conditions applicable to that permission.
10. It is a normal practice with the Supervision Consultant to hold two meetings a month with the contractors. The monthly site meetings will be held in the last week of every month to discuss contractual matters – progress, compliance to environmental and social requirements of the project, costs, variations, time schedules and other matters affecting the contract.
11. Minutes of all meetings to be submitted to the Client in the monthly project report.
12. Make and keep records of condition surveys at each site prior to commencement of construction.
13. Maintain, as appropriate, at the site and/or at the office record copies of contracts, engineering drawings, vendor catalogues and drawings, codes and standards, survey records, work measurements, test logs, samples, revisions, variation order information, and related documents. Distribute them as required.
14. Assist Construction Contractors in developing alternative methods to overcome unforeseen obstacles to the performance or progress.
15. Revise contract drawings as may be required to ensure compliance with the contract documents.
16. Revise contract specifications when necessary for the proper guidance and coordination of selected materials and equipment conforming to the contract documents.
17. Carry out additional investigations and surveys including revision of contract designs or provision of new design changes if it is deemed necessary during the construction.
18. Check that the Construction Contractors maintain adequate numbers of professionally and technically qualified staff, as may be specified in their contracts, and with proper work tools and equipment, as well as proper personal protective equipment (PPE) to execute the works in a proper and safe manner.
19. Ensure that Construction Contractors maintain adequate facilities for workers and their occupational health, as well as that of the surrounding communities, and report on any significant event/incidence accordingly and in an urgent manner.
20. Keep daily records of the progress of works at construction site.
21. Supervise, approve and keep records of, all site tests of the works according to the specifications.
22. Check and verify Construction Contractors' periodic measurements of completed work and maintain and update such records. Conduct survey to determine actual quantities of work where necessary and to be accomplished by the Construction Contractors.
23. Assist the Client in the coordination with other agencies to solve the problems on traffic, public nuisance and others as may arise from construction.
24. Attend regular site meetings with the Construction Contractors to review progress of the works, remaining program, difficulties encountered, and any other matters affecting works implementation.
25. Attend to, and report on, public complaints concerning execution of the works.
26. Examine, approve and supervise all temporary and permanent traffic management proposals of the contractor and ensure that interruption to movement of all road users is kept to a minimum.
27. Propose and present for the approval of the Client any changes to the contract documents the Client may deem necessary, providing information on any effects the changes may have on contract costs and time, and prepare all necessary change/variation orders including alteration of plans, specifications and other details for the approval of the Client.

28. Inform the Client on problems or potential problems that may arise in connection with the construction contracts and make recommendations for possible solutions.
29. Coordinate and supervise all service/utility diversions and relocations required to facilitate the timely completion of the contracts.
30. Coordinate activities with various stakeholders including local authorities, communities and other consultants.
31. Ensure that co-ordination and public awareness is maintained at all times
32. Ensure that complaints from the public and other stakeholders are attended to expeditiously and take the necessary action to resolve any conflicts arising
33. Ensure that the contractors do not involve child labor for the execution of the civil works contracts in accordance with the provisions of the contract agreement
34. HIV/AIDs, Gender-based Violence, Sexual and Physical Harassment, and Human Trafficking. Monitor that the contractors comply and carry out required actions as provided in the respective contract documents, such as awareness and education of laborers and workers in relation to Code of Conduct.
35. The Client will authorize all additional services, other than minor extras that do not materially affect the scope of the supervision work, at the rates established in the construction supervision contract, or at rates mutually agreed upon when the services require the use of specialists not listed in the contract

TASK4: Environmental and Social Aspects

This task consists of the performance monitoring of environmental and social aspects prior to and during the construction of the works to ensure that environmental and social requirements of the contract documents, and of the overall project, are met. The consultant shall coordinate this work as necessary with other consultants and external parties (such as the World Bank). The monitoring of environmental and social aspects task includes the following sub-activities:

1. The consultant shall ensure that the Construction Contractor carries out the construction works in accordance with the contract documents and with the Site-specific Environmental and Social Management Plan (C-ESMP) and any other documents applicable (such as relevant sub-management plans). As a part of construction supervision tasks, the consultant shall also supervise Construction Contractor's implementation of Environmental and Social Protection measures as identified in the project specific environmental and social assessment documents such as ESIA, ESMP etc.
2. The consultant will be responsible for assisting the Government with supervision of the implementation of social aspects of the project as part of its overall supervision responsibilities, in accordance with such documents as the Environmental and Social Impact Assessment (ESIA), ESMP, and Land Acquisition and Resettlement Action Plan (LARAP).
3. Since most adverse environmental aspects of the program will be mitigated through contract provisions under the supervision of the implementing agency, the construction supervisory team will play a key role in ensuring effective environmental management takes place during project implementation through day-to-day monitoring of contractors compliance with the environmental and social requirements of contracts.
4. The consultant will undertake water, soil and air quality and other elements of environment as relevant, for sampling and testing pre- and post-construction (at sites and in accredited laboratory) to create an environmental database.
5. The monitoring activities will be recorded and reported periodically (weekly, monthly etc. as requested) to the Government.

6. If the Construction Contractor is found to be non-compliant with the ESIA, ESMP, and LARAP requirements, the consultant shall file a non-conformity report and any relevant payment orders should be put on hold, until non-compliance issues are remedied satisfactorily.
7. The consultant will coordinate with the Communication/Stakeholder Engagement Specialist of the PIU to ensure that the stakeholder consultations are carried out and their feedback are incorporated in the project planning and implementation.

TASK 5: Defects Liability Period

During the 12-month Defects Liability Period, there are a number of obligations of the Contractor, which require attendance by the consultant. During this Period, the consultant is obliged to carry out any outstanding work that is specified in the (Partial) Completion Certificates, issued when (a part of) the works has been substantially completed and handed over to the Client.

This Task comprises, but is not limited to, the following activities:

1. Check all construction and installation that has to be remedied and finalized, as identified in the (Partial) Completion Certificates.
2. Instruct the Contractor to rectify, and check the proper remediation of, any defects that appear during the Defects Liability Period.
3. Scrutinize and verify all statements of completion including financial statements submitted by the Contractor during the Defects Liability Period, and advise the Client on their acceptability or on rectification required.
4. Upon completion of the Defects Liability Period and remediation and completion of all works to the satisfaction of the Client, prepare a Defects Liability Certificate for issuance to the contractor, indicating that he has satisfactorily carried out the works, and is entitled to final payments under the contract.
5. Depending on the details of the conditions of the Construction contract, the Contractor then submits his Final Statement indicating the final values of the work constructed, and the final sums to which he is entitled. The consultant will thus scrutinize and verify this Final Statement and, upon acceptance by the Client, prepare a Final Certificate to be issued to the contractor.
6. Advise the Client on any outstanding claim, variation, or change order.
7. Assist and advise the Client on the handling of any case of arbitration and litigation subsequent to the construction contract.
8. Review and recommend on any outstanding issue related to the Operation and Maintenance manuals for the equipment and installations, as prepared by the Contractor.
9. Review and advise on any outstanding issue related to final As-Built drawings, as prepared by the Contractor.
10. Prepare and submit a Final Completion Report to the Client, summarizing the important features of the works, including construction schedules, reasons for deviations from the schedules, overviews of claims and variation orders, and including inventory of documents and records prepared during the construction period, that are handed over to Client.

TASK 6: Other Tasks

This Task comprises the following activities:

1. Assist the Client in the start-up of contracts for the subproject(s).
2. Assist in coordination with the Construction Contractors.
3. Assist or participate, as requested, in support of the implementation of complementary activities to the construction works, such as those mandated under the Environmental Management Plan, the Resettlement Action Plan, and any stakeholder engagement initiatives, such as Open Doors Days and the like.
4. Preparation of various reports as outlined in the main section of these Terms of reference.