

MERSİN-GAZİANTEP RAILWAY PROJECT



NON-TECHNICAL SUMMARY



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ANKARA - 2021



MERSİN GAZİANTEP HIGH STANDARD TRAIN PROJECT

NON-TECHNICAL SUMMARY (FINAL DRAFT)

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Rev. No	<u>Tarih/Date</u>	<u>Yayınlanma Nedeni</u> Reason for Issue	<u>Hazırlayan</u> Prepared By	<u>Kontrol Eden</u> Reviewed By	<u>Onaylayan</u> Approved By

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Terms & Definitions

TERM	DEFINITION
Assystem Envy	Assystem ENVY Energy and Environmental Investments Inc.
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
EBRD	European Bank for Reconstruction and Development
EHS	Environment, Health and Safety
EIA	Environmental Impact Assessment
ENR	Engineering News-Record
EPFI	Equator Principles Financial Institutions
ESIA	Environmental and Social Impact Assessment
EST	Electrification, signaling and telecommunication
EU	European Union
FEBAS	FEBAS Environmental Laboratory Analysis Industry and Trade Ltd. Co.
GATT	General Agreement on Tariffs and Trade
IFC	International Finance Corporation
IUCN	International Union for Conservation of Nature
MACOM	MACOM Environmental Energy and Technology Investments Ltd. Co
MAK	Central Game Commission
MoEU	Ministry of Environment and Urbanization
PM10	Particulate matter 10 micrometers or less in diameter
PM2.5	Particulate matter 2.5 micrometers or less in diameter
PR	Performance Requirements
Project	Mersin-Adana-Osmaniye-Gaziantep High-Speed Railway Project
PS	Performance standards
Rönesans	Rönesans Holding (Also REC Uluslararası İnşaat Yatırım Sanayi ve Ticaret A.Ş.)
SD	Settled Dust
SEP	Stakeholder Engagement Plan
SW	Surface Water
TCDD	General Directorate of State Railways of the Republic of Turkey
US-EPA	United States Environment Protection Agency

1 INTRODUCTION

1.1 Project Information

The agreement signed between The Republic of Turkey State Railways (TCDD) and REC International Construction Investment Industry and Trade Inc. under Rönensans Holding (Rönensans Holding will be named as Rönensans in rest of the report) within the scope of the High Standard Railway Line Construction and Electromechanical Systems Installation Project, an Environmental and Social Impact Assessment Report was prepared for the Environmental and Social Evaluation of the High Standard Train Project.

Railway construction and mining activities require a full impact assessment study. Therefore, this Environmental and Social Impact Assessment (ESIA) is prepared to define environmental and social impacts.

Two high standard railways have been planned between Mersin and Gaziantep provinces and the construction has started but could not be completed. Rönensans will complete the remaining works for the rail system and continuous transportation will be provided between Mersin and Gaziantep. In this context, 2 new railways will be constructed between Mersin and Adana in addition to the current railway. In following part of the line, current line will be extended with high standard railway line. The detailed explanation of the works to be performed by Rönensans is given in the project description section. General view of the Project and responsibilities of the Rönensans are shown in Figure 1.1.

Mersin- Adana- Osmaniye- Gaziantep

Installation Works of Construction and Electromechanical Systems of High Standard Railway Line

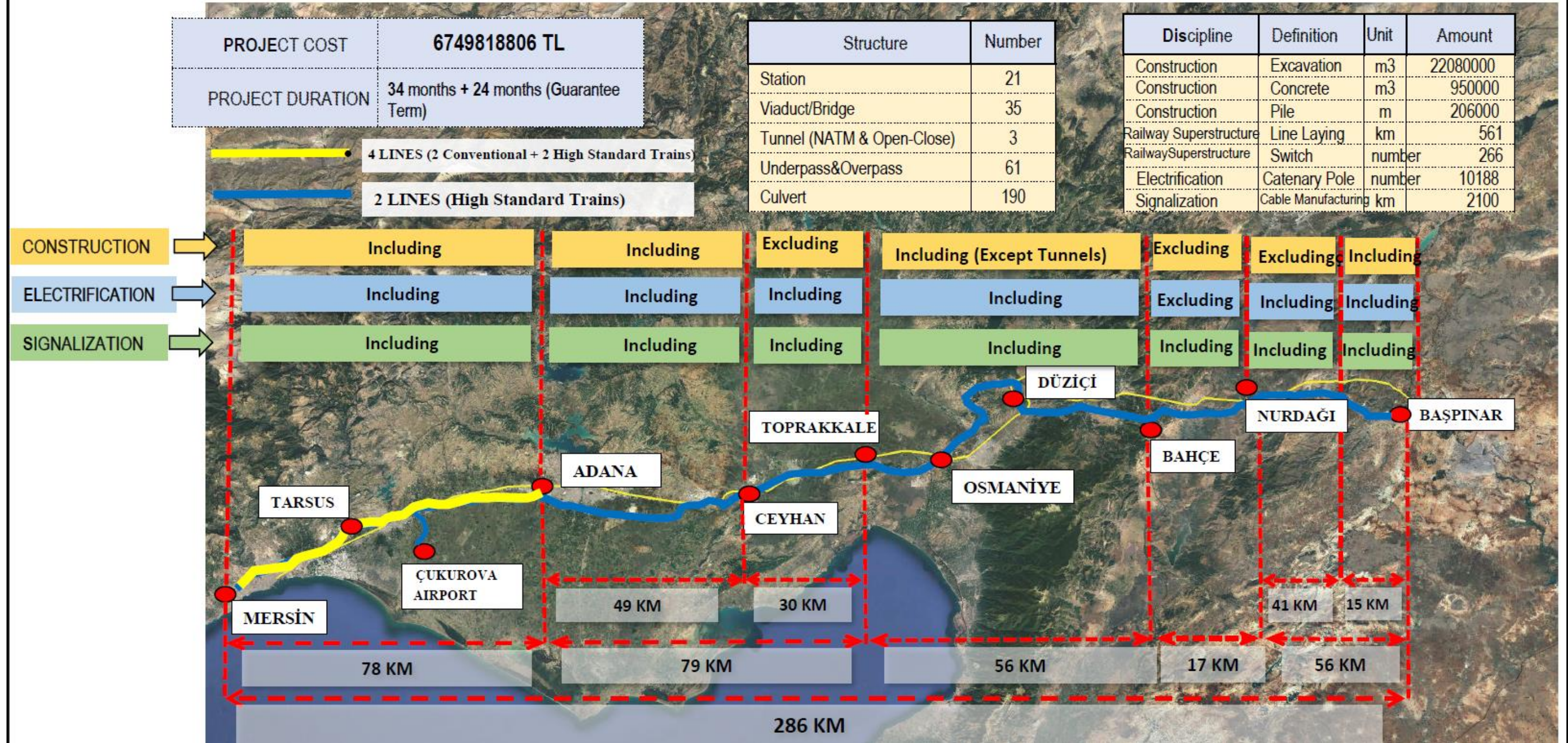


Figure 1.1: Project Scope Map

The High Standard Train Project is between Mersin-Gaziantep provinces and passes through Mersin-Adana-Osmaniye-Gaziantep (Başpınar). The route proceeds as Mersin-Adana-Toprakkale-Bahçe-Nurdağ-Başpınar, respectively.

Mersin-Adana route is approximately 76 km long and passes through Mersin, Tarsus, Çukurova Airport and Adana. The main stations planned on the route are: Tirmil Station, Karacailyas Station, Taşkent Station, Huzurkent Station, Tarsus Station, Çukurova Airport Connection, Yenice Station, Zeytinli Stop, Küçükdilli Station, Otogar Stop, Şakirpaşa Stop, Adana Station. Infrastructure, superstructure, electrification, signaling and telecommunication works are included on the Mersin-Adana route. Information about this route is given below;

- Existing 2 convectional lines will be rehabilitated,
- The third and fourth high standard railway lines will be constructed,
- The river crossing bridge constructed of 20 steel structures will be removed and a concrete bridge will be built instead,
- Length of existing 46 culverts in the first and second line will be extended to the third and fourth line,
- 12 stations will be built,
- Incomplete infrastructures and superstructures on Çukurova airport connection line, which is 9.5 km double line, will be built, Electrification, Signaling and Telecommunication (EST) Systems will be installed, and a 1113 m long viaduct will be built on this connecting line,
- Subways, overpasses, and surrounding walls will be constructed by Turkish State Railways (TCDD) and these are not included in the scope of this project.

Adana-Toprakkale route is planned as a double line of approximately 79 km and passes through Adana, İncirlik, Ceyhan and Toprakkale. Main stations planned on the route; İncirlik Station, Yakapınar Station and Ceyhan Station. The infrastructure, superstructure, electrification, signaling and telecommunication works of the first 49 km line on the Adana-Toprakkale route and the infrastructure and superstructure works of the 30 km section are carried out by another contractor and electrification and signaling works are within the scope of this project. Other information about the route is given below;

- 3 hydraulic bridges, 12 overpasses, 8 underpasses, 54 culverts and 2 tunnels will be constructed,
- A viaduct will be built on a 4 km section due to the inability to fit into the existing line in İncirlik region,
- 5 stations in the line will be reconstructed (the first 3 stations are in the 49 km section and the other 2 stations are in the 30 km section).

Toprakkale-Bahçe route is approximately 58 km double line and passes through Toprakkale, Osmaniye, Düziçi and Bahçe. Stations located between Toprakkale-Bahçe routes are Osmaniye Station, Düziçi Station and Bahçe Station. Including infrastructure, superstructure, electrification, signaling and telecommunication works in the tunnels on the route. Other information about the route is given below;

- The construction of 11 cut and cover tunnels (2387 m),
- 5 tunnels (9785 m),
- 9 single tube escape tunnels (3687 m) and 7 cut and cover escape tunnels (449 m) will be carried out by another contractor. These are not in the scope of the project,
- 5 viaducts, 15 overpasses, 23 underpasses and 83 culverts will be built,
- 3 stations will be constructed.

Bahçe-Nurdağ route has been planned as approximately 17 km, and the infrastructure, superstructure, and electrification operations between Bahçe and Nurdağ are not within the scope, only the signaling process at 17 km is within the scope.

Nurdağ-Başpınar route has been planned as approximately 56 km double lines, and in the first 41 km, electrification and signaling operations will be completed, except for infrastructure and superstructure construction works, and infrastructure, superstructure, electrification and signaling processes will be completed in the last 15 km. Other information about the route is given below;

- 3 viaducts, 2 overpasses, 1 underpass, 8 culverts and 1 tunnel will be constructed,
- 1 station will be built.

The construction of the railway system is scheduled to be completed in 34 months, and it is followed by period of 24-month guarantee. There may be shifts in the work schedule due to the site delivery of the companies currently working in the field and the place delivery dates to Rönesans by TCDD and AYGM. Within the scope of this work, the project cost has been determined as 6,749,818,806 TL. The construction period of schedule of Rönesans is given below.

During the construction period, when infrastructure, superstructure and excavation operations were carried out, the maximum number of employees in March-April is 385 personnel. During the operation period, there will be 20 employees working at stations in each city and 10 employees working at stations in each district.

Within the scope of the Project, 21 stations with a length of 19,010 m, 35 viaducts/bridges with a length of 4528 m, 3 tunnels (NATM & cut and cover) with a length of 1520 m, 61 subways and overpasses with a length of 2740 m, 190 culverts with a length of 5350 m are constructed. In addition, 22,080,000 m³ excavation, 950,000 m³ concrete, 206,000 m piles, 561 km of line laying, 266 switches, 10,188 catenary poles for electrification and 2100 km of cables for signaling operations are produced.

For the air quality, water quality, noise and other environmental/social impact assessments evaluated within the scope of ESIA, where Environmental and Social Assessment will be made, field studies and measurements and analyzes were made and impact assessments were made in line with these measurements and analyzes.

Necessary mitigation methods and measures to be taken as a result of impact assessment studies are given in the relevant section.

Solid wastes, hazardous and non-hazardous wastes and wastewater that will be generated during the construction and operation phases such as project infrastructure, superstructure, electrification, and signalization will be recovered and/or disposed of in accordance with the relevant regulations.

Necessary field studies were carried out in December 2020 to determine the positive or negative social effects that may arise from the railway.

The travel time between Adana-Gaziantep will be shortened by 1.5 hours with the High Standard Train Project and it will increase the passenger comfort. In addition, it provides an important economic effect. Especially for Mersin, which is a port city, the port will contribute to the development of local and intercity transportation and the development of the economy. In addition, it is expected to provide employment in the cities where the stations and stops of the high standard train pass. In addition, with the shortening of the travel time and the increase in comfort, it is expected that the number of tourists coming to the region will increase and accordingly, the region around the project area will be improved economically.

The ESIA report, which will ensure that all impacts are duly defined, and the negative impacts are mitigated as best as practical, is developed in accordance with local legislations, the requirements of International Finance Corporation (IFC) and European Bank for Reconstruction and Development (EBRD).

1.2 Scope of Works

A contract was signed between Rönesans and Assystem ENVY for the Mersin-Gaziantep High Standard Railway Line within the scope of the ESIA study. The scope of work includes:

- To identify, predict, evaluate and mitigate the significant environmental impacts (positive and negative);

- To identify key social issues relevant to the Project objectives, and specify the Project's social development outcomes;
- To determine magnitude of adverse environmental and social impacts and identify the safeguards instruments as per IFC guidelines, Country laws and regulations;
- To predict and assess in quantitative terms as far as possible, the impacts from changes brought about by the Project on the baseline environmental conditions;
- To establish the mitigation measures that are necessary to avoid, minimize or offset predicted adverse impacts and, where appropriate incorporate these into Environmental and Social Management and Monitoring Plan (ESMMP);
- To identify stakeholders who are directly affected and carry out stakeholder analysis to determine their role in achieving social development outcomes;
- To inform, consult and carry out dialogues with stakeholders on matters regarding project design alternatives, implementation of environmental and social mitigation measures and to provide recommendations on Project design that may require adjustments in project design;
- To provide an environmental and socio economic profile of the population and available infrastructure facilities for services and community resources; and
- To develop monitoring and evaluation mechanism to assess effectiveness of mitigation measures during and after Project completion.

1.3 Methodology

1.3.1 Baseline Data Collection

A contract was signed between Rönesans and Assystem ENVY for the Mersin-Gaziantep High Standard Railway Line within the scope of the ESIA study. The works and processes carried out within the scope of the contract were carried out with EIA regulations, IFC Performance Standards (2020), EBRD Policy and Performance Requirements (2019), National (Turkish) environmental, social, employment, health & safety, laws and regulations, best practices, engineering studies, and the work done is given below;

- Project documents were examined.
- Baseline measurements were carried out together with field studies in November 2020.
 - PM₁₀ and PM_{2.5} measurements were made at 10 points during a month. Additionally, settled dust measurements were carried out at 15 points for 2 months. Within these measurements, air quality assessment has been carried out and is given in the impact assessment section.
 - At 20 points, water samples were taken and analyzed according to the Table 2 in Annex-5 of the Surface Water Quality Regulation. Along with these analyzes, the evaluation of water resources is given in the impact assessment section.
 - Day, evening, and night noise measurements of 15 minutes were made for 3 days at 20 points. As a result of the noise measurements, the noise impact assessment study was prepared and given in the impact assessment section.
- The visual impacts of project were determined with 3D visualization method.
- In December 2020, Social Impact Assessment and Stakeholder Engagement management assessment was carried out.
- Environmental and Social Management System was prepared.
- Environmental and Social Action Plan was prepared
- Non-Technical Summary Report has been created.

Summary information about Project area are given below (see Table 1.1).

Table 1.1: Baseline, Impact Assessment and Mitigation Measures

ESIA Topic	Baseline Data	Impact Assessment (IA) and Mitigation Measures
Physical Environmental		
Climate actual and projections. Climate change	<p>According to the data provided by EPA, the effect of GHGs to climate change depends upon three factors, which are;</p> <ul style="list-style-type: none"> • The concentration in the atmosphere, • Duration of stay in the atmosphere and • The power to affect the atmosphere. <p>The World Resources Institute (WRI) is a global research organization that turns big ideas into action at the junction of the environment, economic opportunities and human well-being, and the World Business Council for Sustainable Development (WBCSD) is an organization that works to accelerate the transition to a sustainable world. They prepared a Greenhouse Gas Protocol where greenhouse gas scopes are examined in three groups. The definitions adopted by the WBCSD/WRI Greenhouse Gas Protocol, the first group is "Scope 1" that emits greenhouse gases directly to the atmosphere from the facility or works under the responsibility of the facility, the second group is "Scope 2" that 'indirect' greenhouse gas emissions from sources owned or controlled by another company, as well as emissions from the grid electricity used and last group is other greenhouse gas emissions occurring in a wider area in a chain is called "Scope 3".</p> <p>In line with the information given about greenhouse gas and climate change, the use of the high standard railway in this project, instead of using vehicles, will have a positive effect in terms of the damage to the atmosphere caused by greenhouse gas emissions. The use of high standard trains has a very low potential as a negative impact on greenhouse gas emissions released into the atmosphere.</p>	<p>The emission amount has an advantage of being lower than the emission amount generated by the existing highway, mitigation measures are taken in order not to pose a risk in the future;</p> <ul style="list-style-type: none"> • Minimizing the transport distances for materials in excavation works during the construction period, • Programming vehicle and equipment movements to minimize the waiting time and the distances traveled, • Minimization of land clearance works during the construction phase as much as possible, • Regular maintenance of used vehicles and equipment, • Restricting the use of extra tools by well organizing excavation and filling works, • Keeping regular greenhouse gas emission calculation records for greenhouse gas emissions resulting from electricity use for the operating period, • Providing training to employees both during the construction and operation period, when necessary. <p>The mitigation measures planned to be implemented within the scope of the project are given in the ESMMP prepared for the project.</p>

ESIA Topic	Baseline Data	Impact Assessment (IA) and Mitigation Measures
	<p>The 286 km long route line between Mersin-Gaziantep is likely to create effect on GHG emissions due to the fuel consumption of vehicles and equipment to be used for excavation operations during the construction period.</p> <p>The evaluation of the greenhouse gas emissions that may occur during phases of the planned High Standard Train Project with the positive and negative aspects and determining the impacts to minimize the possible risks.</p> <p>GHG emissions are expected along the Mersin-Gaziantep (Başpınar) High Standard Railway route, arising from the construction and operation periods. The amount of CO₂ that will be released into the air because of the fuel consumption of vehicles and vehicles planned to be used for construction works along the 286 km line will affect the greenhouse gas emission.</p> <p>Along the High Standard train project route, there is an existing highway parallel to the right and left of the railway. For the High Standard Train Project, which is surrounded by both intercity and inner-city roads, vehicle intensity reduction is planned by means of reducing the vehicle use for the passengers who would like to travel.</p> <p>The amount of emissions that will be caused by the fuel consumption of these vehicles is 195663.345 metric tCO₂-e .</p>	
Topography and Agro-Ecological Zones	The existing topography was analyzed using 1/25000 scaled topographic maps and EU DEM 1.1 obtained from the General Directorate of Maps.	-
Soil	Necessary information was obtained from the geological and geotechnical studies conducted in the Project area before.	<ul style="list-style-type: none"> • Site planning should be prepared by related experts, • Physical characteristics of the soil will be investigated, • Proper excavation method to relocate the soil will be determined, • Correct depth for stripping topsoil and subsoil will be determined, • Topsoil will be stripped in the driest condition possible,

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		<ul style="list-style-type: none"> • Movement of trucks or dumpers will be limited with designated temporary routes, • Soil storage periods will be kept as short as possible, • Salt crusting signs on the surface will be monitored. Material transfer should not be accepted if there is evidence of salt deposits unless the soil has been tested for salinity, • Topsoil will be recovered using appropriate equipment. Depending on compaction and recovery rates, deep ripping may be required to maximize topsoil recovery with care taken not to mix topsoil with sodic subsoil, • The vegetative topsoil to be stripped will be stored in the designated plant soil stock areas for use in rehabilitation and landscaping in the later stages of the project • The slope of vegetative topsoil storage area will not be more than 5%. • The requisite measures will be taken to prevent any loss in the vegetative topsoil during storage and the soil quality will be maintained. • With the intention to prevent the precipitation and wind erosion, the surface of the vegetative topsoil will be cover with fast growing plants and the perimeter of the storage area will be enclosed with ditch. • In the event of a spillage on land, contaminated soil will be cleaned in accordance with the provisions of the Regulation on Control of Soil Contamination and Point Source Contaminated Lands (Official Gazette dated 08.06.2010 and numbered 27605) or will be disposed of by licensed companies. • Within scope of the project, provisions of the Law on Soil Protection and Land Use No. 5403 and Regulation on Control of Soil

ESIA Topic	Baseline Data	Impact Assessment (IA) and Mitigation Measures
		<p>Contamination and Point Source Contaminated Lands will be adhered.</p> <ul style="list-style-type: none"> • The samplings and analyses will be performed by laboratories accredited by the Ministry of Environment and Urbanization and the analyses reports will be kept on-site and upon request and/or when required, they will be submitted to the relevant authorities. • Upon the termination of the construction activities, the vegetable topsoil stripped and stored separately will be spread on the landscaping areas in accordance with the "Landscape Repair Plan" for the purposes of arrangement the project site, and the provisions of the plan will be respected accordingly. • Landscape repair plan will be applied.
Surface water	Surface water measurements made at 20 points (10 input and 10 output to surface water) throughout the project area.	<ul style="list-style-type: none"> • Sampling studies will be conducted at a total of 10 stations in the scope of seawater quality monitoring activities. • The monitoring will be performed four times a year seasonally at each station throughout the construction phase. In addition, the samplings at Akliman and the beach will be continued throughout the operation phase • The sampling and analyses will be performed by laboratories accredited by the Ministry of Environment and Urbanization • The analyses reports will be kept on-site and upon request and/or when required, they will be submitted to the relevant authorities. • Lateral drainage systems will be established for all groundwater and surface water discharges with seasonal flow within the site.
Groundwater	Baseline groundwater measurements were not performed in the scope of the Project.	<ul style="list-style-type: none"> • Samples will be taken, during the construction period, from groundwater sources analyzed as part of the baseline studies within scope of the project, and the groundwater quality will be constantly monitored

ESIA Topic	Baseline Data	Impact Assessment (IA) and Mitigation Measures
		<ul style="list-style-type: none"> • The monitoring of the groundwater will be performed at these six boreholes throughout the construction and operation phases once every six months, in other words twice a year • The sampling and analyses will be performed by laboratories accredited by the Ministry of Environment and Urbanization • On roads and temporary access road in the site, care will be taken that there will be no spillage in order to prevent the penetration of silt, grease or other substances into drains. On roads and temporary access road in the site, care will be taken that there will be no spillage in order to prevent the penetration of silt, grease or other substances into drains • Within the scope of the project, actions will be taken so that the groundwater and surface water sources are never damaged and water sources that may be negatively affected will be determined and their coordinates and current flow rates will be measured and recorded. • Within the scope of the project, the legislation in force related to groundwater will be respected, and in case any negative impact on the groundwater's quality and quantity caused by the project is determined, all damages will be indemnified, and the respective activity will be stopped and actions will be taken accordingly in line with the directives of SHW. • Lateral drainage systems will be established for all groundwater and surface water with seasonal flow within the site.
Air Quality	PM ₁₀ and PM _{2.5} measurements were conducted by laboratory in 10 measurement points on a monthly basis and dust deposit measurements were conducted in 15 measurement points along the Railway Line.	<ul style="list-style-type: none"> • Dust generating areas will be controlled by water spraying, particularly under dry weather conditions. • Stockpiles will be planned and sited to minimize the potential for dust generation taking into account prevailing wind directions and the

ESIA Topic	Baseline Data	Impact Assessment (IA) and Mitigation Measures
		<p>locations of sensitive receptors. They will be protected against wind erosion (e.g. by windshield, water spraying in dry periods).</p> <ul style="list-style-type: none"> • The drop height of potentially dust generating materials will be kept as low as possible. • Where practicable, stockpiles will be located away from sensitive receptors. • If crushing of construction materials is required, crushers will be located away from sensitive receptors. • On-site speed limits will be applied and enforced for trucks travelling on unpaved surfaces (10 km/h). • Trucks transporting spoil or other dusty materials off-site will be covered before leaving the sites. • Construction vehicles will not be permitted to keep engines running while waiting to enter the sites or waiting on-sites. • Wheel washing facilities will be available and used so that trucks leaving the site do not spread dust onto neighboring roads. • Public roads used by site traffic will be swept regularly to prevent accumulation of dust. • Construction machines will not be left running in periods between works, or will be throttled down to a minimum. • Movements of construction vehicles should be restricted with onsite only. • Successful implementation of the above measures will be supported by provision of training for the operators of equipment and truck drivers regarding the air pollution potential of their activities. • Dust levels around construction sites will be monitored using dust deposit gauges. The Contractor will adopt the value of 0.39 grams per square meter per month as stipulated by the Turkish Industrial Air Pollution Control Regulation for the protection against dust nuisance.

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		<p>If this level is exceeded at sensitive areas near the construction sites, the Contractor will take additional measures for dust control including preventing recurrence during further stages of construction work.</p> <ul style="list-style-type: none"> • Reduction of PM₁₀ emissions will be implemented with the similar manner; by reducing the vehicle intensity and smoke and supplying pollution abatement equipment. • Allowable emission rates will be determined according to the permissible levels. • Emissions will be monitored to ensure that the air quality is maintained. • Renewable and eco-friendly energy sources and fuels will be preferred instead of sources with high air pollution potential. • Maintenance procedures will be implemented in order to keep equipment in good working condition to minimize exhaust emissions caused by poor performance. • Construction machines will not be left running or will be throttled down to a minimum. • Maintenance procedures will be implemented in order to keep equipment in good working condition to minimize exhaust emissions caused by poor performance. • Successful implementation of the above measures will be supported by provision of training for the operators of equipment and truck drivers regarding the air pollution potential of their activities. • PPE will also be supplied to be protected from adverse health effects of air pollutants for prevention of respiratory disorders.
Noise and vibrations	<p>Background noise measurement points were determined as 20 points on the planned railway route, in front of the houses close to the railway.</p> <p>Vibration measures will be performed in the case of any complaint.</p>	<ul style="list-style-type: none"> • Periodic machine maintenance, • Covering the source causing the noise with absorbent materials (rubber, melamine, etc.) that can absorb sound and provide sound insulation,

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		<ul style="list-style-type: none"> • It is to make material and design changes by turning the noise source off. • Equipment with lower sound power levels should be selected, • Silencers should be installed for fans and mufflers should be installed on engine exhausts and compressor components, • Traffic noise should be reduced by effective traffic routing, • Local residents should be informed in advanced of the scheduled activities with noise generating potential, a mechanism to complaint recording and responding mechanism should be developed, • Operation hours of equipment with extra noise generating potential should be limited, • Re-locating noise sources to less sensitive areas to take advantage of distance and shielding, • Equipment causing excessive levels of noise due to malfunction should be identified and taken out of service. Corrective actions such as repair or replacement should be taken. • Covering with a material such as rubber to dampen the vibration at the points where vibration occurs, • Equipment with lower vibration levels should be selected and vibration,
Visual	<p>Visual impact can be defined as any alteration in landforms, water bodies, or vegetation, or any introduction of structures or other man-made visual elements, that negatively or positively affect the visual characteristics or quality of a landscape and the visual experience of people viewing the landscape through the introduction of visual contrasts (opposition of different forms, lines, colors, textures in a landscape) in the basic elements of form, line, color, and texture. They cover the impacts on specific views and on the general visual amenity experienced by people and the potential visual impact is primarily originated from</p>	<p>The visual impact of the proposed Project will be permanent for people living in the nearest settlements and other living beings in the immediate vicinity of the Project region. Proximity of the project region to 2 highways and 1 state road will change the visual status substantially, once the construction is completed and operation starts. As the project region is covered by dense vegetation and forests, it is inevitable that visual sensitivity will be affected negatively during construction works.</p>

ESIA Topic	Baseline Data	Impact Assessment (IA) and Mitigation Measures
	<p>changes in visual characteristics in the view field. Any aesthetic disturbance to the human eye or any hindrance of a landscape can be regarded as visual impact and they should be evaluated thoroughly with a comprehensive VIA study.</p> <p>To be able to conduct an appropriate VIA study, baseline landscape characteristics must be comprehended.</p> <p>Landscape is the most frequently encountered concept in the scope of VIA studies. Landscape can be defined as the extent to which the scenery is visible including land and water forms, vegetation, and man-made structures such as roads and concrete structures of the geographical region that will be subjected to an examination, including its physical and biological environment and psychosocial patterns.</p> <p>VIA study area entails the determination of a 5 km circular area drawn from the center of the Project area. The detected 5 km study area is based upon the Project description, site visits and good practice guidance. High Standard Railway Line and its components (signaling, electrification, train etc.) were evaluated together.</p> <p>This generic impact area should be determined for all VIA studies according to the well-recognized guidelines (e.g., GLVIA).</p> <p>Baseline conditions represent the existing scenic conditions of the Project area independent from the Project. The first step in any landscape or visual impact assessment is to identify the existing landscape and visual source in the vicinity of the Project that is the baseline visual conditions. Site visits and field studies were carried out by Assystem ENVY on September 19 and 20, 2020 in order to assess the baseline conditions. In the evaluation of baseline conditions, similar projects, structures, vegetation, distribution of settlement areas, dwellings, land use, topography, and viewpoints, view angles and view directions. In addition, in order to evaluate the current situation, many desk studies were conducted before the field studies.</p>	<p>On the other hand, rehabilitation of the existing railway route will compensate the visual impacts arising from construction. As a result, the magnitude of the visual change after the rehabilitation for operation phase can be assumed as either high or medium.</p> <p>Mitigation measures were identified based both on the Best Practice Guide Documentations in theory and the Project only. These documentations clarify many issues for the clients on addressing project-specific impacts and their applicable mitigation measures. The impacts are categorized into four categories.</p> <p>As the electrification infrastructure will exist in long term and it is impossible and non-feasible to disassemble the structure and avoid or eliminate the visual changes. Therefore, there will be residual/net effects due to the long-term nature of the Project. Independent from this, mitigation measures are recommended where feasible to reduce the visual impacts of the electrification infrastructure as much as possible.</p> <p>As a part of the Project development, the following efforts will be made to minimize visual impacts to the extent possible;</p> <p><u>OCS (Overhead Contact System)/Overhead Line Catenary System</u></p> <ul style="list-style-type: none"> The installation of OCS infrastructure will influence the viewshed along the rail corridors, particularly in areas covered with vegetation. Visual impact mitigation strategies for OCS will be determined and incorporated into the detailed design processes. These measures will address the visual baseline conditions, area allocations and mitigation needs found along the rail corridor. This mitigation measure can be evaluated within the impact category of “high”.

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	<p>Baseline conditions are useful for forecasting the possible visual amenity after the completion of the Project. The changes will depend on the landscape/vegetation of the area in baseline view and the level of visual contrast of the objects within the scope of the project. In this section, high-resolution photographs were addressed by section/VPs and visual characteristics were explained in detail.</p> <p>Visual or aesthetic sources are deemed as natural characteristics of an environment in the view field. These sources should be appealing to people as they reflect the long-term characteristics of the region. Appealing visual sources have high visual sensitivity (e.g. recreational areas, national parks, preserved areas with high biodiversity and high visual quality). In other words, those areas should be maintained in scenic quality as they highly concern the local inhabitants. Visual sources are referred to as any objects or features (either man-made, natural, stationary or mobile) such as landforms or water resources that are visible and valuable within a landscape.</p> <p>Within the scope of baseline studies, Assystem Envy carried out field studies and took photographs in September 2020, from the 1.6 m height on average above ground and with a high camera resolution of 1440p x 960p with a focal length of 4-mm. Focal length is the length of the lens used to take photographs. Even though the main parameters of human vision when the viewer's position is stationary and falls in the range between 45° and 60°, we generally move our eyes, head or our body for an accurate view. On the photographs taken by Assystem ENVY, VP codes and locations, view angles, view directions, latitude, longitude, height above ground and date/time of the photographs are given.</p> <p>The desk studies are crucial elements before site visits and evenly important as site visits. The desk studies involve establishment of the visibility characteristics of the proposed Project region through</p>	<ul style="list-style-type: none"> The Metrolinx Tree Compensation Protocol requirements will oblige compensating the tree loss to the extent possible through planting trees to the other vulnerable areas, which will also help reduce visual negative impacts due to tree cutting. <p><u>Bridges/Rail Overpasses</u></p> <ul style="list-style-type: none"> All overhead and pedestrian bridges will require safety barriers, which affect the view across the bridge. Therefore, Metrolinx Guideline will determine the “bridge barrier” designs instead that will maintain existing scenery to avoid substantial visual impacts. Treatment for the aesthetics of bridge barriers can also be carried out in consultation with the affected municipalities and dwellings. During the Project, OCS structures can be placed far away from the existing bridges/rail overpasses not to limit the visibility. Instead, OCS support structures can be placed symmetrically on each sides on bridges and viaducts for the least disturbing view. <p><u>Traction Power Facilities</u></p> <ul style="list-style-type: none"> The traction power facilities can be designed in a way that making site planning more innovative if feasible and ensuring external yard and transformers are hidden as much as possible. <p>Apart from these, dust emissions during construction activities can create loss of visibility and landscape viewing. Dust emissions should be avoided for visual amenity. Dust emission reduction can be accomplished through paving and/or irrigation of the roads.</p> <p>The mitigation measures planned to be implemented within the scope of the project are given in the ESMP prepared for the project.</p>

ESIA Topic	Baseline Data	Impact Assessment (IA) and Mitigation Measures
	<p>visualization studies. Visualization studies cover computer simulations such as GIS software, photomontage or other illustration techniques to predict the potential appearance characteristics of the Project.</p> <p>Photomontage studies involve the process of creating imagery of a realistic 3D model of a proposed project overlaid onto a photograph of the existing landscape.</p> <p>The “Zone of Theoretical Visibility” (ZTV) is used to depict the area in which the proposed development can be seen theoretically, formerly named as “Zone of Visual Influence” (ZVI). ZTV is based on a Digital Terrain Model (DTM) which is the most widely used digital topography model to incorporate into a GIS software and it is overlapped with a map. Before site visits, the ZTV studies must be carried out to determine the reasonable VPs.</p> <p>The main reason behind defining such a zone is that the effective borders of the zone could affect the people’s visual aesthetic within the broader area neighboring the Project. Within this context, ZTV maps are prepared using the GIS software. The aim of the software is to assist the VP selection and simulate the potential impacts arising from the developments in the broader landscape. The visibility map facilitates the selection of areas where the proposed development can be seen by people and local inhabitants. However, the use of these maps should be improved due to the following constraints that impede the model accuracy;</p> <ul style="list-style-type: none"> • The ZTV map is based on a bare-earth model (ASTER DEM v2 data with a 30 m grid terrain model) which is limited by the detail of the DTM data and does not consider the spatial variations in topography or blocking features such as vegetation and so on (i.e., landscape without any structure, objects or vegetation). 	

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	<ul style="list-style-type: none"> The ZTV map does not consider the exact location and orientation of the viewer such as the travel direction and there is no information upon the loss of visibility with physical environmental and meteorological conditions (distance, weather, light, etc.) <p>These limitations probably mean that the ZTV maps have a tendency to overvalue the extent of the visibility, both from the proposed development perspective and the range of the visible proposed development. As a result, ZTV studies are helpful for assessment of the theoretical visibility. In contrast, it is not a measure of the visual impacts. Visibility is defined as the ability to visually notice any object in a landscape; also the distance that an individual can see. Visibility factors are the variables that affect the visibility and distinct visual characteristics of an object in a landscape. They consist of “viewshed-limiting factors” that determine the potentially visible area, viewer characteristics (features of an individual’s viewer such as how closely the viewer looks at an object and viewer’s motion that affect the visual contrast preception and ability of distinguishing the objects in the landscape), distance, viewing geometry, background/backdrop, lighting, atmospheric conditions (stability/unstability) and object’s visual characteristics.</p> <p><u>Viewshed Analysis</u></p> <p>Viewshed refers to the area/landscape that can be potentially seen from a specified point. Viewshed analysis can be defined as a spatial analysis that uses elevation data such as DEM and DTM to identify the parts from where the landscape surrounding the project area is likely to be visible from the certain points.</p>	
Biological environment		

ESIA Topic	Baseline Data	Impact Assessment (IA) and Mitigation Measures
Flora and Fauna	<p>Ecology enriches the world and is crucial for human wellbeing and prosperity. It provides new knowledge of the interdependence between people and nature that is vital for food production, maintaining clean air and water, and sustaining biodiversity in a changing climate.</p> <p>The ecological studies before the project is an early element in the monitoring and evaluation plan and provide a reference point against which any future changes associated with the project activities can be assessed and offer information for subsequent monitoring.</p> <p>In that manner, the comprehensive baseline study identifies the habitats, the range and status of the main flora and fauna species groups that live in the project area and its potential radius impact area, the potential presence and status of protected areas or other important areas for biodiversity. Therefore, collecting biodiversity information is rather significant in the process. The data should be at a satisfactory level to compare the initial conditions and changes due to the project in an impact evaluation approach, to set future targets of the project and to estimate the changes as the project proceeds.</p> <p>The first step of the terrestrial ecological surveys was the desktop studies. In the scope of the desktop studies, a thorough search of the available literature on the distribution, population and ecology of the species likely to occur within the project area and areas of ecological value was conducted. Research on biological diversity of provinces where Project routes passes through, were analyzed before the field surveys for global insight of the region. Moreover, Davis's "Flora of the Turkey and Aegean Islands" was also considered for flora species characterization during the desktop studies. Besides, the area was evaluated by the use of 1/25,000 scaled topographical maps and satellite images (Google Earth) to detect and validate the different habitat types. During reporting period, plant samples photographed during field observations were identified using by "Flora of Turkey and the East</p>	<ul style="list-style-type: none"> • Arrange "Induction Meeting" for new comers in order to provide information about environmental & social policies, responsibilities, and management system as in line with the Environmental & Social Management System, • Hold regular trainings in order to raise awareness associated with the natural assets & importance of the site and protection of the natural structure including legislative framework, related conventions and their requirements as in line with the Environmental & Social Management System. • Limit the working area in order to keep the clearing area in minimum and avoid unnecessary clearing, • Limit access to non-working areas, • Engage a qualified ecologist to attend the site on a regular basis to monitor the activities, • Develop a monitoring program to be applied during construction works as in line with the Environmental & Social Management System. • Allocate a storage area to store chemicals and hazardous wastes at site with concrete basin and sheltering against wind, dust and sun, • Supply necessary and appropriate absorbents at the at site, • Do not allow debris dumping at site, • Remove waste regularly from the site and dispose properly, • Develop a "Waste Management Plan" as in line with the Environmental & Social Management System. • Develop a "Landscape Repair Plan" to restore the vegetation of the area including landscape analyses, methodology to be applied for repairing, assessment and determination of landscape characteristics, management, control and monitoring

ESIA Topic	Baseline Data	Impact Assessment (IA) and Mitigation Measures
	<p>Aegean Islands” and plant terminology guides (Davis, 1965-1985; Davis et al., 1988; Stearn, 1995; Baytop, 1998; Güner et al., 2000). Scientific (in Latin), Turkish and English names of the identified species, their preferred habitat, phytogeographic regions, general distributions in Turkey, situations according to the Bern and CITES Convention, endemism and IUCN Red List categories with relative abundance given in the species list.</p> <p>Transect and grid method were implemented during terrestrial flora surveys. Transects are useful for measuring vegetative cover, determining composition and species dominance within a vegetation unit, or measuring vegetation changes across vegetation unit boundaries and species distribution. Quadrats are used to record floristic presence and characterize vegetation units. The Grid (Quadrature) method was also used during the field surveys. As quadrats have a defined boundary, they provide repeatable and verifiable location and abundance information. By this method comprehensive species list and abundance of the species were determined.</p> <p>In the scope of the project, 2 field surveys were conducted in 19-21 September 2020 and 21-23 November 2020. In order to determine the flora of the project route, site surveys, floristic research conducted in the areas close to the project route and literature data such as Flora of Turkey and the East Aegean Islands were used. If some exceptions are not regarded, the part of the route from Mersin to Nurdağı is in the Mediterranean phytogeographical region, and the part from the eastern of Nurdağı to Gaziantep is Iran-Turan phytogeographic region (Akman, 1993). Especially in Sof Mountain, located to the east of the route, the Iran-Turan phytogeographic region effect can be observed more clearly. The streams, canals and ponds of various sizes are a shelter for plants that are elements of the European-Siberian phytogeographical region.</p>	<p>of the plan as in line with the Environmental & Social Management System.,</p> <ul style="list-style-type: none"> • Start landscape repairing following completion of the construction, • Develop a monitoring program to be applied during post construction works. • Engage a qualified ecologist to attend the site on a regular basis to monitor the activities. • Construction and operational activities should be limited to the project area. No activity should be carried out within the project route. • The project area should be surrounded by wire mesh if possible, and wild animal entry into the area should be limited. • In order to prevent animals from using domestic waste for feeding, garbage containers will be covered and domestic solid waste should be stored in controlled areas. • Such activities cutting, rubble, etc. could be harmful to this habitat, should not be carried out in parts outside of the project area. • Within the scope of the project, existing roads should be used as much as possible and new roads should not be opened unless it is necessary. • Although not directly in the field of activity, nearby water resources and streams with seasonal flows, biotopes are the most advantageous habitat for many amphibians and reptiles. In addition, these areas in the region are very important in the thermoregulation of nocturnal wild animals. Therefore, it is essential to protect these resources and areas at every stage of the activity. Whatever the reason, intervention in these resources and areas should be avoided.

ESIA Topic	Baseline Data	Impact Assessment (IA) and Mitigation Measures
	<p>The site observations of the fauna were commenced in the mornings following the time/hour coordination of the GPSs and cameras of all fauna teams; thereby the observation points and tracks of the experts were recorded as of the commencement of the observation. Additionally, each survey point recorded as waypoints in GPSs and some animals were recorded when seen between two survey points.</p> <p>The line transect method was used for field surveys. Transect methodology - a common and traditional method - is practical and efficient. Surveys comprise line transects to be walked. Transect route is selected so as to cover a walking line along which various fauna species are expected to be either observed or their signs of existence to be detected such as feces, feather, footprints or calls, etc. The surveyor walks, watches and listens around to determine the species till the end of the transect.</p> <p>Furthermore, the fauna experts photographed the burrow, hair, trace, feces, voice, bone, teeth and skins of the vertebrates and invertebrates species observed during the site surveys to be used in the identification of the species living at the area.</p> <p>At the end of the observation day, the tracks were saved in computer and archived as "kmz" files. All taken photos of all fauna experts were saved and archived. During site survey, Nikon 8x2 binocular, Canon Mark II camera with several lens 100 x 400 telephoto lens were used.</p> <p>Conversations were made with the local residents and workers to gather more data on the vertebrates at the project route.</p> <p>In the scope of the project, 2 field surveys were conducted in 19-21 September 2020 and 21-23 November 2020. In order to determine the flora of the project route, site surveys, floristic research conducted in the areas close to the project route were used. The findings of these surveys are given according to species groups.</p>	<ul style="list-style-type: none"> According to the air quality modelling studies carried out within the scope of the project, it is determined that dust and exhaust emissions that will occur during the land preparation and construction phase provide the limit values of ground level concentration given in the Regulation on Control of Air Pollution from Industrial Sources (Official Gazette dated 03.07.2009 and numbered 27277). In this context, to reduce dust emission, <ul style="list-style-type: none"> Unloading and loading operations will be carried out without scattering, Material will be covered with a nylon tarp or with other materials with a grain size no less than 10 mm, Upper layers will be stored with a humidity level of 10%, Roads should be wide enough and asphalt covered, Vehicles that can cause dust emission should be covered. Noise that will arise during the land preparation and construction period of the project will be produced by heavy construction machinery and other necessary plants (concrete batch plants and crushing and screening plant/s). Acoustic Report assessing noise impact in construction and operation phases, including background noise measurements daytime, in the evening and at night at the nearest settlement areas, is prepared by accredited laboratory. As demonstrated in the report, the calculated noise levels are below the legal limits provided in Annex VII Table 4 of the Regulation on Assessment and Management of Environmental Noise (Official Gazette dated 04.06.2010 and numbered 27601) and the noise will only be detectable within the plant area.

ESIA Topic	Baseline Data	Impact Assessment (IA) and Mitigation Measures
		<ul style="list-style-type: none"> • Training on "culture of living in peace with the nature" must be given to employees and operators at every stage of the project, • When any vertebrate species is seen while on a vehicle or on foot, it will not be interfered with, • When any vertebrate is encountered by car after the sunset, the car must be stopped and lights must be turned off sufficient time should be given in order to allow it to move away safely, • When a nest or youngster is encountered in the work area, it must not be touched or approached. If a nest, egg or youngster is encountered, it must be removed from the activity field by receiving help from experts, • No living species will be intentionally hunt, killed or caught, • No interference, in any manner, with wild species that are feeding, • During the spring and autumn migration periods, especially the Eastern Black Sea section is used by many bird species during the transition. During transitions in group or in case of accommodation, birds will not be disturbed to the extent possible, and any disruptive and noisy activities will be minimized until the transition ends, • Sand and gravel should not be taken from beach, dune and streambeds for use in buildings and for material supply. • A lighting system should be planned in a way to give minimum artificial light to • Especially heavy vehicle drivers should drive slowly when driving around the area and avoid unnecessary horn use. • During the project activities, devices or applications producing smell, light, heat and sound that wild animals will perceive as a threat should be minimized.

ESIA Topic	Baseline Data	Impact Assessment (IA) and Mitigation Measures
		<ul style="list-style-type: none"> During stripping fauna expert will be employed to take necessary measures to move Birds which are widespread in agricultural areas are expected to be directly affected by the activities to be carried out in the project route. It has also been observed that bird of prey species that feed on rodents in the field also use this area. However, it is considered that there are alternative environments where these species can survive and there will be no significant impact provided that the activity starts outside the breeding period. In the observations made in December (2020), it was observed that the activity started after the breeding period and a process was followed by which the species could easily adapt. Turkey is one of important routes used by migratory species. It is determined that some of the main routes pass near the project site. For this reason, the area is used during the migration period. It is expected that bird species may pass through the area during migration periods. Accordingly, the project route should be monitored for the project route should be monitored for 2 years for construction period and 2 years for operation period in terms of birds and migration to find out possible impacts on bird species.
Natural Protected Areas	<p>The ecological studies before the project is an early element in the monitoring and evaluation plan and provide a reference point against which any future changes associated with the project activities can be assessed and offer information for subsequent monitoring.</p> <p>In that manner, the comprehensive baseline study identifies the habitats, the range and status of the main flora and fauna species groups that live in the project area and its potential radius impact area, the potential presence and status of protected areas or other important areas for biodiversity. Therefore, collecting biodiversity information is rather</p>	<p>There is no any Natural Protected Areas on the Project route and because of this there is no need to take special mitigation measures. In addition to this, mitigation measures which are specified for flora and fauna should be taken for all phases of the Project.</p>

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	<p>significant in the process. The data should be at a satisfactory level to compare the initial conditions and changes due to the project in an impact evaluation approach, to set future targets of the project and to estimate the changes as the project proceeds.</p> <p>The 286 km-long High Standard Train Project will start from Mersin, pass through Tarsus, Adana, Incirlik, Toprakkale, Bahçe, Nurdağı, Başpınar stations, and last at Mustafa Yavuz Station. 78 km of this 286 km line is between Mersin and Adana, 79 km between Adana and Toprakkale, 56 km between Toprakkale and Bahçe, 17 km between Bahçe and Nurdağı and the last 56 km between Nurdağı and Başpınar is planned to be. The route of the Project is passing through mostly agricultural areas and natural areas such as Nurdağı and Sof Mountain, which shows main vegetation characteristics of the route.</p> <p>The closest Natural Protected Areas are;</p> <ul style="list-style-type: none"> • Tarsus Dalyanı Natural Protected Area • Göksu Deltası Natural Protected Area • Taşocağı Cave • Tatarlı Köyü Natural Protected Area 	
Critical Habitats	<p>The habitats along project route were evaluated based on “EUNIS - European Nature Information System” and 6 different habitat types were defined.</p> <p>Among 6 habitats, Pinus brutia forests and maquis are widespread not only in Turkey but also in Mediterranean Phytogeographic Region.</p> <p>Another common habitat type along project route is “Oak Forests” which can be observed higher elevations of Sof Mountain and Nurdağı. The dominant species of this habitat type which are Quercus cerris and Quercus infectoria subsp. veneris are common species in Turkey. In addition to Turkey, these species also grow in Central and Southeast Europe, Cyprus, Palestine, Iraq, Iran and Transcaucasia. Besides, Quercus brantii is also found in Syria, Iraq and Iran, as well as Quercus</p>	<p>As a result of the evaluation, it is concluded that all determined habitats are widespread in the area. Accordingly, no major impacts are foreseen considering the project route.</p>

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	<p>ithaburensis subsp. macrolepis also grows in Central Anatolia, Aegean and Mediterranean regions, the Balkans and Southeastern Italy. In the light of these data, "Oak (Quercus sp.) Forests" and the species consisting these forests are not widespread in Turkey.</p> <p>"Anthropogenic habitats", which are frequently observed in the project area, occupy areas where Maquis habitats were dominant in the past. This habitat type has already lost its natural structure. On the other hand, the least common habitat type of the project site is "Riparian (wetland) areas". Except for Nurdağı and Sof Dağı, the "Riparian (wetlands) areas" can be observed within anthropogenic areas. These areas are not natural as a result of agricultural activities such as irrigation, fertilization, pesticides and the negative effects of wastes. The project route will pass through tunnels along Nurdağı and Sof Dağı. Therefore, "Riparian (wetland) areas" in these parts are will not be affected by the activity.</p> <p>The "Steppe habitat" in Sof Mountain and its close vicinity was formed by the destruction of the Quercus brantii habitat due to anthropogenic effects. Since it is secondary habitat, it contains many taxa belonging to the forest habitat. The secondary steppe habitats can be observed in wide area in Southeastern Anatolia region, Syria and Iraq.</p>	
Cultural Heritage		
Cultural Heritage	<p>For the Project, cultural heritage studies were conducted by Archeologist Dr. İrfan Tuğcu as both desktop and field surveys.</p> <p>According to the EBRD PR8, the term cultural heritage defines it as a resource group that does not belong to people (that is not their own property), and that is accepted as a reflection of their developing values, beliefs, knowledge, and traditions from the past to the present. It covers all tangible (physical) and intangible cultural heritage recognized locally, regionally, or nationally or in the international community.</p> <p>Physical cultural heritage refers to mobile or immovable objects, sites, groups of buildings and associated cultural or sacred sites, and natural</p>	<p>This section shows the impacts of the construction and operation phases of the project on cultural heritage and archeology in the region. Mersin - Gaziantep High Standard Train project includes four provinces and two cultural regions. It includes the provinces of Mersin, Adana and Osmaniye, which form the lowland Cilicia cultural region, and the provinces of Gaziantep in the Islahiye Cultural Region.</p> <p>Within the scope of the project, an examination was made in terms of immovable cultural assets (archaeological cultural heritage), based on the line passing through the borders of these four provinces. The</p>

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	<p>features and landscapes of archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance. Intangible cultural heritage refers to practices, representations, expressions, knowledge, and skills that communities, groups, and in some cases, individuals consider being part of their cultural heritage and are passed down from generation to generation.</p> <p>It was determined whether there are cultural heritage and archeological findings in the region with the studies carried out on the routes followed for the High Standard Train Project covering Mersin-Adana-Osmaniye-Gaziantep provinces.</p> <p>The protected areas that are mentioned are not near the train project area. Cultural Heritage and Archaeological area near the project area are given below.</p> <p>Between Mersin – Adana</p> <ul style="list-style-type: none"> • There are no cultural heritage and natural heritage sites in and close to project area. • There is no sensitive area <p>Between Adana - Toprakkale</p> <ul style="list-style-type: none"> • It will pass just north of the Old Misis settlement at the 25th km of the Adana-Ceyhan line; The Misis Antique City of Yüreğir District of Adana Province passes through the 1st and 3rd degree archaeological site, • Sirkeli Mound and its Vicinity, located at the starting point of the Yukarı Ovalı within the borders of Çeyhan district at approximately 38th km of the Adana - Ceyhan line, • Kamışlı/ Yarma Höyük, located at the 21st km of Ceyhan-Mustafabeyli line, It is the most sensitive point of the project, 	<p>study, conducted as a literature review, was completed in two stages as digital data scanning and printed publication review. Digital data evaluation: It was in the form of scanning the database of the Ministry of Culture and Tourism General Directorate of Cultural Heritage and Museums and the databases of the Provincial Directorate of Culture of four provinces on the project line. The print publication was searched on books, articles, journals, periodicals, and academic studies containing information about the region. In total, over 150 printed sources were scanned. During this study, 450 sites were examined, 76 of them were evaluated in detail considering their proximity to the project implementation site and their contribution to Anatolian archeology. Of these 76 sites, six regions have been identified as sensitive areas (These sensitive receptors may change during the project construction process and will be updated with any changes).</p> <p>Sensitive area detection has been tried to be done on the line of the project as a literature review (desk). This study was carried out by considering two criteria. The first of these is the registered areas existing in the project implementation line and the physical proximity of the line with these areas. It is the area with a zero point on the line known to be registered. This area, whose locations are marked in KMZ satellite images, is Sirkeli Höyük, which has a great importance in the archaeological literature. Another of the other five sites is Kamışlı/Yarma Höyük, which was identified by scientific studies in the region. The line passes through the zero point in this placement. The other four areas are defined by their proximity to the registered archaeological data in their surroundings and the prediction that these archaeological data can be found within the spreading areas. It is anticipated that the risks and negativity in these areas will be zero or minimized by negotiating with the necessary</p>

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	<p>Between Toprakkale - Bahçe</p> <ul style="list-style-type: none"> Neronias Ancient City located in the area between Düziçi Station and T4 tunnel entrance <p>Between Bahçe - Gaziantep</p> <ul style="list-style-type: none"> Islahiye (Sakçagözü) Plain is one of the sensitive points in the region 	<p>institutions/organizations and the execution of the Chance Find Procedure.</p> <p>There is a The Misis Antique City around Adana-Toprakkale Railway line in Yüreğir Adana in the planned project area. The Misis Antique City is approximately 2 km away from the railway. The High Standard Train will pass just north of the Old Misis settlement at the 25th km of the Adana-Ceyhan line. During the application, the manufacturing process in this area will be a much more controlled and sensitive work.</p> <p>Also, around 38th km of Adana - Ceyhan line, within the borders of Ceyhan district, there are archaeological sites in Sirkeli Höyük and its surrounding at the starting point of the Yukarı Ova.</p> <p>Höyük at the western end of the Ceyhan River and the Hittite King II on the rock block next to the Ceyhan River. This area is extremely important for both Anatolian and World archeology because of the ski relief of Muwattali. The manufacturing process of the line that will pass through the southern skirt of the mound constitutes the second most sensitive time period in the project. The line passes through the zero point of the mound</p> <p>Kamışlı/ Yarma Mound, located at the 21st km of the Ceyhan-Mustafabeyli line, is the most sensitive point of the project. It is seen that the project line passes right in the middle of the mound. The area was visited and the presence of ceramics that could be dated to the Roman and later periods were observed. The line passes through the zero point of the mound. Suggested working methodology is given below;</p> <ul style="list-style-type: none"> before to start excavation works, detailed site survey and if needed archeological excavation should be conducted by archeologist/s,

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		<ul style="list-style-type: none"> Results of detailed site survey and/or archeological excavation should be submitted to related Directorate of Cultural Heritage Preservation Regional Board, Commission of Directorate of Cultural Heritage Preservation Regional Board will decide to how construction works will be held. Three options which will be implemented to continue construction works of the Project are given below, <ul style="list-style-type: none"> Start rescue excavation and archeological finds should be moved by archeologists from the construction site or, Replace the railway route to out of the archeological site or, No need any action and the construction works of the Project can continue under the supervision of an archaeologist. <p>The ancient city of Neronias, located in the district of Düziçi, has shown that there are densely settlements in the region and a spread towards the plain with the archaeological studies carried out recently. Roman cities, which were established in the lowland Kilikya since the 1st century BC, had wide spreading areas. Neronias-Eirenopolis / Düziçi city is also known to have a wide distribution area. Therefore, the area between Düziçi Station and T4 tunnel entrance has been defined as another sensitive point during the project's implementation process in the field.</p> <p>Islahiye cultural region is one of the important points of Anatolian Archeology. Especially Zincirli Höyük, Coba (Sakçagözü) Höyük, Gedikli Karahöyük on the plain, especially in the early periods BC. The most important settlements of the Late Hittite Principalities in the 1st millennium years. The project line passes the Nurdağı tunnels from Osmaniye province Bahçe district and enters the Nurdağı district of Gaziantep. The line that starts with the T1 exit at the exit of Nurdağı</p>

ESIA Topic	Baseline Data	Impact Assessment (IA) and Mitigation Measures
		<p>District and continues along the Sakçagözü plain leaves the plain with the T2 entrance. The plain between T1 and T2 is another sensitive point of the project. This line of 19km has the potential to provide important data in terms of chance finds.</p> <p>The sixth and last sensitive point in the project line is Dülük Plain. In the plain located within the borders of Şehitkamil district, there is intense data especially regarding the Paleolithic Period. For this reason, the T7 tunnel exit and the Başpınar Organized Industrial Zone have been defined as a sensitive point.</p> <p>Mentioned archaeological sites are a moderately sensitive archaeological structure according to the ICOMOS scale. It is a cultural heritage property recognized by national authorities, where excavations are exhibited in museums, but not defined as a world heritage property.</p> <p>The project route and the works in the project preparation/operation phases are not expected to cause a visual and/or physical change/impact on the Mentioned archaeological sites. The project is carried out without damaging the rock tombs in the area and is monitored under the supervision of the Museum Directorate. In this context, the impact magnitude of the project is insignificant and is not expected to cause any changes.</p> <p>The EIA studies have been examined, and most of cultural heritage asset are far away from Train Project. There are six sensitive area, and the railway route passes through the zero point of two of these sensitive areas. These two areas are Sirkeli Mound and Kamışlı Mound. If any movable or immovable cultural property is encountered during the project time, the works will be stopped and the nearest local administrative authority and/or the Museum Directorate will be informed.</p>

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		<p>Sensitive areas were determined on the investigated railway route by evaluating the cultural heritage and archaeological findings on the project route and surrounding the project area. No possible impact is expected on these sensitive are of the project.</p> <p>As stated in the Archaeological Evaluation Report (EK), starting from the planning phase, the creation of the Chance Findings Procedure with the "Scientific Committee/Advisory" committee that will take charge in all and all areas of the production process will minimize the risks. The scientific committee/advisory board will make field visits daily, if necessary, but more weekly or monthly, during field studies and will share these visits with all relevant or requesting authorities and institutions by making a study report and They will take the responsibility of the scientific publications to be made during or at the end of the archaeological studies carried out within the scope of the project. The chance find procedure prepared is valid for all activity areas of the project in the field (railway line, connection roads, road opened for production purposes, quarries, tunnels, entrances, exits, etc.) or similar activities that develop or will develop as a main activity connection.</p> <p>According to the Chance Find Procedure, "Field Monitoring Experts" will be present at every point of the field applications. These will share their daily observations, which will take part in the construction process of the project, with the units are affiliated. In a possible determination, they will ensure that production activities in that area are stopped, and they will take the area under control. They will ensure that production continues outside that specified area. Although the application process of the Chance Find Procedure is a production schedule, the existence of this procedure provides the opportunity for effective inspection, control and implementation throughout the project.</p>

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		<p>The second unit of the Archaeological-Cultural Heritage unit are field-monitoring experts. Field monitoring experts will be obliged to monitor the construction works daily from the moment the activity starts on the field. In this process, if any archaeological find is encountered, it will inform the upper units and the scientific committee that it will ensure that the construction activities in that area are stopped within the scope of the interviews and 2863 law. From this moment on, the Museum Directorate of the province where the production activity is located will be informed. They will prepare reports on daily work and share the reports they have prepared with the units they are affiliated with.</p> <p>The complete operation of the process in the field will ensure that the Chance Find Procedure is operated, and the production activities are interrupted in this process. They will be responsible for the surface research and/or archaeological excavations deemed necessary to be carried out within the scope of the project.</p> <p>The Museum Directorate and the Conservation Board of the province affiliated with the General Directorate of Cultural Heritage and Museums decide on what steps should be taken in the field. In the progress of the project, the Museum Directorate will be informed when a possible cultural heritage and archaeological find is encountered during the construction and operation phases.</p> <p>Before starting the construction works, meetings will be held with the work area that covers the Chance Find Procedure and the General Directorate of Cultural Heritage and Museums of the Ministry of Culture and Tourism. With this meeting to be arranged, all kinds of archaeological studies to be carried out within the scope of Mersin-Gaziantep High Standard Train Project will be defined by the relevant institution. In addition, this contact to be made will pave the way for many bureaucratic processes between the company and the</p>

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		<p>institution and will ensure that there are no possible disruptions in terms of schedule.</p> <p>The mitigation measures planned to be implemented within the scope of the project are given in the ESMMP prepared for the project.</p>
Socioeconomic		
Geography and Administrative Structure	<p>According to this classification, there are 4 provinces. Mersin, Adana and Osmaniye provinces locate in within TR6 Mediterranean Region, Gaziantep Provinces locate in TRC Southeast Anatolia Region. In addition to this classification, below the NUTS levels there are two Local Administrative Unit (LAU). The first of these units (LAU-1) is districts and the second (LAU-2) is municipalities. According to this classification, there are 12 districts and 14 municipalities.</p>	<p>There is no mitigation measures to be needed due to the not available impacts on administrative structure.</p>
Ethnicity, Religion and Language	<p>According to the mukhtar interview, accurate information on the distribution of ethnic groups has not been obtained. However, it has been obtained that the majority consists of Turkish and Muslim groups.</p>	<p>Impact Assessment:</p> <ul style="list-style-type: none"> EBRD PR 8: Cultural Heritage IFC PS 8: Cultural Heritage <p>There is no mitigation measures to be needed due to the not available impacts on ethnic and religious structure.</p>
Population and Demographics including Migration	<p>In 2019, populations of Turkey, Mediterranean Region and Southeast Anatolia are 83,154,997, 10,627,530 and 8,975,618, respectively. The share of the populations of the Mediterranean Region (12.78%) and the Southeast Anatolia Region (10.79%) in the Turkish population is similar. When the populations of the provinces on the route are sorted from large to small, Adana Province (2,237,940 people) ranks first, Gaziantep Province (2,069,364 people) is second, Mersin Province (1,840,425 people) is third and Osmaniye Province (538,759 people) comes in fourth place. Seyhan District is the most populated settlement (796,286 people), while Bahçe District has the lowest population on the route (22,155 people). The total population of Şehitkamil District (794,931) comes second in the district's population ranking, but only 3.54% of this district's population is on the route.</p>	<p>Impact Assessment:</p> <ul style="list-style-type: none"> EBRD PR 1: Assessment and Management of Environmental and Social Risks and Impacts IFC PS 1: Social and Environmental Assessment and Management System <p>The goal is to make a social impact assessment on different aspects of the Project in a way, which allows a comprehensive analysis work to be done. The information produced by this study will focus on construction phase of the Project. The key objective of this study is; to assess and understand the impact of construction and operation of the High Standard Train Line and its infrastructure to both the regional economy and population.</p> <p>To evaluate the socio-economic impacts of a High Standard Train Project, it is necessary to consider the relations of different issues</p>

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	<p>According to the findings of household surveys, the average household size in the Project Social Impact Area (PSIA) is 3.7</p> <p>In the ten-year period of 2010-2019, the population change in the region was realized as an increase. This process of population change is parallel to the change in Turkey. The average annual population growth rate compared to the previous year is 0.79% in Adana, 1.24% in Mersin, 1.24% in Gaziantep and 1.31% in Osmaniye.</p>	<p>affecting each other together. It is an actual situation to say that the population will increase due to the arrival of workers to work in the region during the construction and operation phases of the High Standard Train Project. Still, this alone is not an adequate assessment. In short, it is necessary to consider the indirect impacts of the High Standard Train Line Project. On society, especially population growth, employment, and built environment.</p> <p>The direct impact of the project on the population and the indirect impact on the population's age and gender structure should be evaluated within the context of social +construction and operation. The most critical impact of the Project on demography is the increase in the region's population. The reason for the population growth is the workers who will work during the construction and operation phases.</p> <p>One of the significant and unavoidable impacts of macro projects is population growth. The local population growth also means population growth for the Mediterranean Region</p> <p>One of the most critical direct impacts of population growth caused by megaprojects on the current population structure is the youthening of the population. The population growth is due to workers who will work during the Project's construction and operation phases.</p> <p>The most critical consequence of expats' arrival in the area is interaction with the indigenous people. This interaction will be bilateral.</p> <p>The most important result of the interaction process due to workers migrating to the region is the social conflicts between foreign workers and the region's local people.</p> <p>Mitigations:</p> <p>The most important impact of the Project on the society is the increase in the population of the region due to expats. This increase will cause the young population to gain weight in the population structure. These effects of population growth can be monitored primarily in the region close to the project area. Population growth is overall definite, and its effects are positive for both local people and for the Mediterranean Region. The stated positive effects of population growth are more pronounced during the construction phase but will also apply to the operation phase. Neither a mitigation</p>

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		<p>measure is required for the construction phase nor for the operation phase about population growth.</p> <p>Social conflicts, seen as a short-term impact, would be heavily related to the construction phase. The expected impact of social conflict will be short-term and will not be strong enough to change the social structure of the region. These social conflicts, which were raised during the construction phase, would have almost disappeared for the operation phase as a result of the cultural interaction. Induction trainings for new comers related with relationship/communication with locals, code of conduct, and the social dynamics of the country will be beneficial for mitigating the social conflicts.</p> <p>The most important effect of population growth in cultural life is the change in the daily life of the local people. These changes are more evident during the construction phase because the population growth was greater. As well as social conflicts, there will be cultural conflicts in this phase. The fact that employed workers during the construction phase are foreign nationals forms the basis of cultural conflicts. Differences in language, beliefs, and lifestyle can create cultural conflict. Local people are particularly affected by this issue. As of the initiation of the construction phase, measures can be taken by establishing an effective communication and training network for newcomers. It is important to provide training where newly arrived workers can learn the social and cultural structure of the region.</p>
Indigenous People	<p>According to the mukhtar interview, accurate information on the distribution of ethnic groups has not been obtained. However, it has been obtained that the majority consists of Turkish and Muslim groups. As a result, it was not considered the Indigenous People in the context of Social Impact Assessment in ESIA Report.</p>	<p>Impact Assessment:</p> <ul style="list-style-type: none"> EBRD PR 7: Indigenous Peoples IFC PS 7: Indigenous Peoples <p>There is no mitigation measures to be needed.</p>
Gender Context	<p>The general structure of the population in terms of gender is more or less equally distributed, as 50.2% males and 49.8 % females, with no distorting figures.</p> <p>PSIA has a total of 679 inhabitants. Approximately, 54% of the total population of PSIA is male and 46% is female. Most of the population</p>	<p>Impact Assessment:</p> <ul style="list-style-type: none"> EBRD PR 1: Assessment and Management of Environmental and Social Risks and Impacts IFC PS 1: Social and Environmental Assessment and Management System

ESIA Topic	Baseline Data	Impact Assessment (IA) and Mitigation Measures
	is in the 15-24 age group. The distribution of male and female by age groups is similar	There is no mitigation measures to be needed due to the not available impacts on gender structure.
Vulnerability	According to the mukhtar interview no precise or detailed information was available about the vulnerable groups.	<p>Impact Assessment:</p> <ul style="list-style-type: none"> EBRD PR 1: Assessment and Management of Environmental and Social Risks and Impacts IFC PS 1: Social and Environmental Assessment and Management System <p>The impact of the Project on the construction and operation period was examined on the low-income people and disabled people, who are minorities in the local population. How the expected impacts for the construction and operation phase will affect these sensitive groups has been studied in detail.</p> <p>Mitigations:</p> <p>Vulnerable groups will be a part of the stakeholder identification plan. Vulnerable groups/people in the Project area will be identified through the socio-economic study conducted as part of the ESIA studies. The Project will identify and consult specifically with potentially vulnerable groups such as women headed households, women, poor, disabled and elderly people. Special meetings for vulnerable groups; e.g. women meetings will be held on village level to make sure that their concerns are addressed as well. It is important to note that a special effort will be made to identify who are the most vulnerable among the potentially affected and are special engagement efforts necessary.</p>
Economy	The unemployment rate in Adana-Mersin Sub-region (11.9%) is lower than in Turkey (13.7%). In the sub-regions (TR63 Sub-region and TRC1 Sub-region) where Osmaniye and Gaziantep provinces are located respectively, these rates are (18.1% and 15.2%) significantly higher than Turkey. This situation is related to the low number of employment and employment participation rates in the relevant regions.	<p>Impact Assessment:</p> <ul style="list-style-type: none"> EBRD PR 1: Assessment and Management of Environmental and Social Risks and Impacts EBRD PR 2: Labor and Working Conditions IFC PS 1: Social and Environmental Assessment and Management System IFC PS 2: Labor and Working Conditions

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	<p>The economic activities are industry, tourism and agriculture in TR62 Adana-Mersin Sub-region. When the spatial distribution of economic activities in the region is examined.</p> <p>Agriculture, industry and tourism in Adana-Tarsus-Mersin metropolitan area;</p> <p>Agriculture and industry in Adana's Kozan and Ceyhan districts; Agriculture and tourism are concentrated in Erdemli, Silifke and Anamur districts of Mersin</p> <p>The northern and western parts of the region show relatively underdeveloped features, and mostly agricultural and services sector activities stand out. Apart from the metropolitan center of the region consisting of Adana and Mersin centers and Tarsus district, the two districts that have sub-centers in the region are Ceyhan and Silifke.</p> <p>Osmaniye is suitable for agricultural production, animal husbandry and forestry with its geographical location and natural structure, but economic mobility is observed in many industrial sectors in the province with the influence of expanding industries in the surrounding provinces and the expansion of incentive measures in the recent period.</p> <p>As Osmaniye province became one of the priority provinces in development, investments were made in various sectors with the incentives given. At the beginning of these investments is the iron and steel sector.</p> <p>According to the "socio-economic development ranking survey of Provinces and Regions" announced by the State Planning Organization in May 2011, the Gaziantep Province ranks 30. among 81 provinces Gaziantep has been under the influence of many surrounding provinces in economic terms, and has made serious investments in tourism in recent years. It is one of the provinces leading the Turkish economy with its production and export volume</p> <p>Of the total population in PSIA, 53% (362 people) have no job or source of income. Of the remaining 317 people, 75% are active. 39.4% of active workers work in the private sector. 75% of those who have an income, even though they are not actively working, are retired</p>	<p>The most significant local impact of the macro projects is on jobs and incomes. There are findings that facilities generate substantial economic and employment benefits to the surrounding communities and are economic mainstays.</p> <p>Starting the construction of the Project, needed employment will raise and job seekers may come to the project area. Jobseekers may migrate to the Region from various places. It is possible to say that significance of the impact as a result of an influx of construction workers is largely dependent on the number of people. When the construction activities of the project, will be a significant impact on the regional economy especially in Mediterranean Region.</p> <p>Mitigations:</p> <p>The most important effect of the Project is the economic benefit. This economic benefit can be felt both locally, in the region and across the country. There is a significant economic benefit, especially in the local area. The significant reason for the economic growth of the macro projects is employment opportunities. This employment affects jobseekers in the local area. Thus, unemployment in the local area is reduced. Direct employment refers to personnel employed during the construction and operation phase of the Project. Indirect employment covers the services that will be created to meet the demands of these personnel. The only negative point here will be the competition between the unemployed in the local area and the workers from outside. The prevention of this economic conflict depends on the good determination of the number of local employments.</p>

ESIA Topic	Baseline Data	Impact Assessment (IA) and Mitigation Measures
Education and Literacy	Primary school graduates (28.9%) have the highest rate in the grouping made according to the last graduated education level	<p>During both operation and construction phases arrival of the well-trained staff to the region is considered as a positive impact on the increase in the level of education. It is quite possible that this effect will occur.</p> <p>The low-educated labor force does not have a changing effect on the level of education in the region.</p> <p>Conversely, the labor force needed during the operation period is mostly well-trained, qualified personnel.</p> <p>The qualified labor force will increase the number of people who have trained university and post-university level education in the distribution of the population according to the level of education. This situation could be observed more at the local level.</p> <p>An increase impact in the level of education could be seen due to the migration of expats. However, the construction phase has no significant impact on education levels. Conversely, the arrival of qualified personnel needed during the operation phase may lead to an increase in the level of education. In both phases, the current education system will be forced to evolve, as the demands of workers who come to the region with their families on educational institutions will be intense.</p>
Livelihoods	For the Project, land acquisition process is implemented by Ministry of Transportation and Infrastructure. It is declared by the Rönesans that, according to contract between Rönesans and the Ministry, The Ministry is responsible with the land acquisition process and any other permits, which are related with land uses. As a result, Rönesans will not take any action for these issues.	N/A
Labour and Working Conditions	Labour and Working Conditions , It is the planning studies carried out in a systematic manner in order to protect from conditions that may harm human health and take precautions during the performance of business activities in the workplace. According to the mixed commission of WHO and International Labor Organization (ILO); "Occupational health is to protect and develop the physical, mental and social well-being of	<p>Construction Phase</p> <p>Workers' rights including occupational health and safety need to be considered to avoid accidents and injuries, loss of man-hours, labour abuses and to ensure fair treatment, remuneration and working and living conditions. These issues should be considered not only for those who are directly employed by the Project, but also their sub-</p>

ESIA Topic	Baseline Data	Impact Assessment (IA) and Mitigation Measures
	<p>workers in all professions at the highest level; prevent workers from losing their health due to working conditions; protecting workers from risks arising from unhealthy factors in the workplace; It aims to ensure that the worker works in a job suitable for his physical and psychological equipment and, in short, to adapt the work to the human and to adapt each person to his job".</p> <p>Labour and Working Conditions is very wide and diverse in scope. In addition, it has some basic principles for its implementation and planning. These principles;</p> <ul style="list-style-type: none"> • The right to work in a health and safety job is the right of all employees. • Creating a policy at a level that all interested parties can implement, • Creating a management system that can be developed and examined periodically, • Occupational Health and safety policies and programs should be focused on prevention and protection, • Created policies and programming should cover all workers. <p>In 2016, the International Labor Organization (ILO) published Turkey's Occupational Health and safety profile. According to this publication, although work accidents in Turkey have fallen steadily since the last two decades, with the change of the notification system in 2013, work accidents figures have been almost three times higher than the previous year.</p> <p>In Turkey, which was enacted on 22 April 2005, No. 155 Occupational Safety and health and the working environment in relation to the contract with occupational health and safety risk identification and assessment, and Prevention and protection requirements, both national and occupational health and safety system to ensure compliance at international standards and guidelines that are reengineered.</p>	<p>contractors and those within the supply chain. Rönesans engages with fair labour and working conditions in its policies and procedures.</p> <p>Worker Health and Safety</p> <p>Bearing in mind the nature of the activities being undertaken during construction, worker health and safety is a key risk area with the potential for accidents that may result in injuries and potentially fatalities as well as lost man- hours. Many national companies may currently not meet international safety requirements and standards. Employees working informally and those with limited or without awareness of their rights (for example, migrant workers, or those newly entering the labour market) are likely to be most at risk.</p> <p>Worker Rights</p> <p>The labour laws in Turkey are in line with international labour laws and Turkey has ratified the core International Labour Organization (ILO) conventions:</p> <ul style="list-style-type: none"> • Freedom of Association and Protection of the Right to Organize Convention, 1948 (No. 87); • Right to Organize and Collective Bargaining Convention, 1949 (No. 98) ; • Forced Labour Convention, 1930 (No. 29); • Abolition of Forced Labour Convention, 1957 (No. 105); • Minimum Age Convention, 1973 (No. 138); • Worst Forms of Child Labour Convention, 1999 (No. 182); • Equal Remuneration Convention, 1951 (No. 100) ; and • Discrimination (Employment and Occupation) Convention, 1958 (No. 111).

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	<p>Mersin-Gaziantep (Başpınar) High Standard Railway Line is a 286 km line and is divided into certain segments.</p> <p>In this 286 km line, all construction, electrification and signalization operations on the Mersin-Ceyhan route, other operations except construction between Ceyhan and Toprakkale, construction, electrification, and signalization operations except tunnel construction between Toprakkale and Bahçe, only signaling operations between Nurdağı and Bahçe, the first 41 km between Nurdağı and Başpınar, except construction operations for the remaining 15 km will be carried out. As most of the construction activities within the scope of the project, Labour and Working Conditions measures must be taken and implemented in all of these stages.</p> <p>There are both national legislation and international standards and guidelines to be based as guidelines for Labour and Working Conditions practices and management. Labour and Working Conditions applications will be implemented in accordance with both national legislation and international standards and guidelines.</p>	<p>Discrimination is likely to occur as women are generally not employed in construction activities and may not be selected by contractors. However, Rönesans Human Resources Policies and Procedures seeks to apply gender diversity principles in all the phases of recruitment, selection, training, development and promotion of all employees</p> <p>Employment and Procurement</p> <p>The Project shall develop a Human Resources Policy, Labour and Employment Plan as well as specific recruitment policies and procedures, specifically:</p> <ul style="list-style-type: none"> • The Project should develop a fair and transparent employment and procurement policy and processes to avoid any potential for nepotism or favoritism. The policy should be shared with the local community members and leadership. • Rönesans will notify identified representatives of the local agencies of the specific jobs and the skills required for the Project, prior to the commencement of construction phase. This will give the local population time to prepare and apply for the available job opportunities on time. This is mainly applicable to unskilled and semi-skilled workers who will be locally sourced. • There will be no requirement for applicants to make payments for applying for, or securing, employment on the proposed Project. • The Project will ensure that recruitment procedures are transparent and monitored to ensure that those recruited present their actual experience, geographical location,

ESIA Topic	Baseline Data	Impact Assessment (IA) and Mitigation Measures
		<p>health status, and age and that requirement for local employment are being met.</p> <ul style="list-style-type: none"> • The Project will develop and implement a program of up-skilling, training and development for workers to assist them in accessing opportunities associated with the Project and in finding work following completion of their contracts. • The Project will provide training on health and safety and quality standards required by the Project for provision of goods and services to the Project to ensure that local businesses have the opportunity to benefit. • The Project will develop a Workers Grievance Mechanism. <p>Management System</p> <p>The Project should develop a Human Resources Policy, Labour and Employment Plan. These requirements should also be passed on to any sub-contractors. Key issues with the Human Resource (HR) management will include, but not be limited to the following:</p> <ul style="list-style-type: none"> • Provision of clear and understandable information regarding rights under national labour and employment law, and any applicable collective agreements, including those related to hours of work, wages, overtime, compensation, etc. • Provision of reasonable working conditions and terms of employment. • Provision of adequate accommodation (where relevant). • Provision of employment, compensation/remuneration and working conditions, including working hours, based on equal opportunity and fair treatment, avoiding discrimination on any aspects.

ESIA Topic	Baseline Data	Impact Assessment (IA) and Mitigation Measures
		<ul style="list-style-type: none"> • Provision of adequate welfare facilities on site. • Implementation of a grievance mechanism for the Project workers. • Adoption and implementation of a sexual harassment policy. • Adoption of open attitude towards freedom of association. <p>The Project will develop a H&S programme which will include risk assessments (such as working at heights, confined space machine guarding), work permit systems and a H&S management system, in line with industry best practice, including worker performance safety tracking (safety observations) to assure worker safety. All workers will receive induction and continuous training regarding this system (See Implementation of Social Monitoring in ESMMP)</p> <p>Sub-Contractor and Supplier Management</p> <ul style="list-style-type: none"> • Subcontractor and Supplier Contracts should make explicit reference to the need to abide by Turkish law, international standards (in particular IFC PS 2) and the ratified ILO conventions and the Project policies relating to health and safety, labour and welfare standards. • As part of the subcontractor and supplier selection process, Rönesans should take into consideration performance with regard to worker management, worker rights, health and safety as outlined in Turkish law and international standards. • Rönesans should provide support to sub-contractors and suppliers to ensure that labour and working conditions are in line with Turkish legislation and IFC PS 2 through gap analysis, awareness raising and information provision, as necessary.

ESIA Topic	Baseline Data	Impact Assessment (IA) and Mitigation Measures
		<ul style="list-style-type: none"> Regular checks / audits by Rönesans should be undertaken to ensure the relevant labour laws are adhered to at all times. <p>Workers' Rights</p> <ul style="list-style-type: none"> Rönesans should ensure no employee or job applicant is discriminated against on the basis of his or her gender, marital status, nationality, ethnicity, age, religion or sexual orientation. All workers (including those of subcontractors) should, as part of their induction, receive training on worker rights in line with Turkish legislation to ensure that positive benefits around understanding labour rights are enhanced. This process should be formalized within the Code of Conduct that would be provided by Rönesans (as in ESMMP). All workers (including those of subcontractors and suppliers) should have contracts, which clearly state the terms and conditions of their employment and their legal rights. These contracts should be aligned with Turkish labour law, the ILO core conventions and the requirements of IFC PS2. Contracts should be verbally explained to all workers where this is necessary to ensure that workers understand their rights. Contracts should be in place prior to workers leaving their home location if applicable. The Project should put in place a worker grievance mechanism that should be accessible to all workers, whether permanent or temporary, directly or indirectly employed. The worker grievance mechanism should be open to Rönesans and the subcontractor workforce in the event that their grievance is not adequately resolved by their direct employer. Rönesans would then have the authority to act to resolve this grievance.

ESIA Topic	Baseline Data	Impact Assessment (IA) and Mitigation Measures
		<ul style="list-style-type: none"> All workers should have access to training on communicable diseases and STDs and community interactions in general. Accommodation should be provided to workers in accordance with international good practice on workers' accommodation, including IFC standards to prevent transmission of diseases associated with poor living conditions. <p>Rönesans should undertake surveillance and assurance that no children or forced labour is employed directly, and to the extent possible by third parties related to the Project and primary suppliers where such risk may exist.</p>
Community Health, Safety and Security	<p>Impacts on the health and safety of the community may arise during construction as a result of noise, vibration, dust and other emissions from earth moving activities, and operation of equipment and vehicles which have already been addressed in different chapters of the ESIA Section 4.7 "Impacts on Noise and Vibration from Construction Activities" and Section 4.3 "Impacts on Air Quality Related to Construction Equipment Emissions".</p> <p>Other risks involving the public associated with construction could include physical accidents on sites, impacts from construction traffic, and accidents involving the handling of hazardous materials during construction. Children and youths are amongst those vulnerable to the physical hazards associated with construction activities, including falls from unguarded areas at height, and construction traffic, especially in the event of unauthorized entry.</p> <p>The EPC Contractor's ongoing stakeholder engagement activities in accordance with Project "Stakeholder Engagement Plan" will serve to inform the local communities regarding potential health and safety issues during the construction period. Stakeholder engagement activities will include ongoing community meetings with the vulnerable</p>	<p>Rönesans has a "Manual for Health Safety & Environment" management plan, which has been created within the scope of Occupational Health and Safety. In the activities carried out in line with this plan, responsible people are appointed, and management is ensured by taking necessary OHS measures:</p> <ul style="list-style-type: none"> Adopting best transport safety practices across all aspects of the project and the adoption of a Traffic Safety Management Plan, including for sub-contractors, to prevent, minimize and control risks and adverse impacts from traffic accidents. Measures will include: <ul style="list-style-type: none"> Obligation that all drivers are appropriately licensed; Obligation that all vehicles are safe and have current inspection certificates; The rush hours of the access roads will be considered and usage of the access roads will be avoided during rush hours (especially during hours that children are travelling to and from school).

ESIA Topic	Baseline Data	Impact Assessment (IA) and Mitigation Measures
	<p>and marginalized groups such as children and young persons (including visits to schools), press releases, and local postings to inform the public regarding the relevant hazards associated with construction activities that will be relevant to their particular locations. These stakeholder engagement requirements are detailed in the project SEP, provided in Appendix 6.</p> <p>IFC PS 4 recognizes that project activities, equipment and infrastructure can increase community exposure to risks and impacts. The objective of community health and safety measures is to anticipate and avoid health impacts during the project lifetime and to ensure that the safety of personnel and property is carried out in line with the human rights and in a way that avoid or at least minimize risks to the vulnerable communities. Community Health and Safety impacts during construction, rehabilitation, operation, and maintenance of railways are common for large construction projects, which are also discussed in the IFC General EHS Guidelines. These impacts include dust, noise emissions, vibration from construction vehicles and machinery, hazardous substance formation, transport, and storage and communicable diseases associated with the biological impacts associated with the temporary labor in construction. General EHS Guidelines provide community health and safety issues specific to earthwork extraction projects including land instability, water, explosion risks and decommissioning. Additional potential risks to community health and safety are uncontrolled access to construction sites, exposure to waterborne diseases associated with the small impoundment formations and exposure to increased traffic of materials transport vehicles.</p> <p>However, no relevant Turkish national legislation has been published specific to community health and safety and involving the mitigation measures.</p>	<ul style="list-style-type: none"> Minimizing pedestrian interactions with the construction vehicles through fencing, flagmen, warning signs, etc.; Improving local traffic signage by collaboration with the responsible local authorities and communities; Coordinating with emergency responders to ensure that appropriate first aid is provided in the event of accidents; <p>Developing and implementing a series of security measures including the installation of sufficient and adequate site boundary and access controls near settlements to prevent unauthorized entry to construction sites, especially by children.</p> <p>Hazardous Material Safety during Construction</p> <p>Hazardous materials, such as fuels, oil, paints, and solvents are likely to be used during construction. The storage, handling, transport and disposal of all hazardous materials should comply with Project requirements, and with adoption of good construction site practices (e.g., appropriate locked storage and sign posting of hazardous materials).</p> <p>Access control/restrictions to the construction site should be provided, and thus the risks to the community through exposure to any such hazardous materials during construction of the railway, are expected to be very limited.</p> <p>Details with respect to the anticipated quantities of hazardous materials to be used on site and the locations of where such materials are stored should be elaborated in the detailed site layout and management plans, to be produced by the EPC Contractor.</p>

ESIA Topic	Baseline Data	Impact Assessment (IA) and Mitigation Measures
	<ul style="list-style-type: none"> Health and safety issues concerning the community include those subtopics; General rail operational safety, Transport of dangerous/hazardous goods, Level crossings safety, Pedestrian safety, Occupational health and safety monitoring.	<p>The large majority of construction waste and spoil will be inert and suitable for disposal in normal disposal areas. Only a limited amount of waste (e.g. oily waste, containers with hazardous residues etc.) is expected to be disposed of as hazardous waste. Again, adoption of good construction waste management practices (e.g., placement in appropriate containers and sign-posted temporary hazardous waste storage sites, with restricted access, regular removal of waste) will ensure that risks to the public are very low.</p> <p>Security</p> <p>Security personnel will be employed at the site to protect assets and prevent community members entering restricted areas. In the event of protests, trespass or other actions by community members or other stakeholders there is the potential for unlawful or abusive interaction between security guards and community members especially if site security are not adequately trained.</p> <p>Community safety and security risks have the potential to impact Project workforce and communities on the direct footprint of the proposed project. In order to minimize negative impacts from security, the following mitigation measures should be applied:</p> <ul style="list-style-type: none"> A Grievance Mechanism should be developed, whereby affected people can raise issues and concerns associated with vehicle movements, driver behaviors and report accidents or damage to property they feel are caused by Project vehicles. Raise awareness to communities regarding the Grievance Mechanism to deal with community concerns and issues in a timely manner to avoid issues escalating. This will include the use of the Community Liaison Officers (CLOs) who will be present around the Project Site pre and during construction.

ESIA Topic	Baseline Data	Impact Assessment (IA) and Mitigation Measures
		<ul style="list-style-type: none"> • The Project should develop a Traffic Safety Management Plan to prevent, minimize and control risks and adverse impacts from traffic accidents. • Project security should comply with Turkish laws and regulations as well as the requirements of the Voluntary Principles for Security and Human Rights. The security should include, among other things, selection or personnel based on a careful background screening, training with regards to human rights requirements, and monitoring of performance. • The Project should implement a Community Health and Safety Management Plan and a Security Management Plan for construction phase containing measures to protect the Project facilities and personnel against potential violent protest or social unrest and to train security personnel in safeguarding of community human rights. • High-risk or value elements of construction sites should be fenced to minimize the risk of trespass and robbery. In addition, clear and visible signage should be put in place where appropriate to advise community members of the risk of site trespass. • Sensitize local community members prior to the commencement of the construction phase so that they are aware of presence and role of security guards, the risk of site trespass and how to interact with the Project in the event of any concerns or issues. • The Project should consult with local leaders such as mukhtars. As part of the SEP, the consultations should be aimed at finding ways of ensuring site trespass and robbery are minimized either through punitive or rehabilitative

ESIA Topic	Baseline Data	Impact Assessment (IA) and Mitigation Measures
		<p>measures (See Implementation of Social Monitoring in ESMMP)</p> <p>Rönesans, from the above-mentioned national legislation, Occupational Health and Safety Law, Labor Law, Regulation on Duties, Authorities, Responsibilities and Training of Occupational Safety Specialists, Communique on Workplace Hazard Classes Regarding Occupational Health and Safety, EBRD (2019), IFC Standards and Guidelines and EU Directives will properly carry out business activities.</p> <p><u>General Rail Operational Safety</u></p> <p>General rail operational safety is a concept that potentially affects both crewmembers and passengers due to such problems such as train collisions with other trains or road vehicles in transition points as well as operational problems such as power cuts and loss of signals. Following mitigation measures will be implemented for those risks in the scope of the Project;</p> <ul style="list-style-type: none"> • Implementation of rail operational safety processes aims reducing the collisions such as positive train control (PTC) system. If a full PTC system is not applicable, installation of automatic rail switches is required. They are distinct from the manual switches due to the interchangeable replacements of the switches between main track and siding to compensate loss of signals. This information should be announced to all passengers and crew, • Implementation of hazardous material security plan and relevant trainings, prohibition of unauthorized access as well as establishment procedures for storage and transport of hazardous materials are required.

ESIA Topic	Baseline Data	Impact Assessment (IA) and Mitigation Measures
		<p><u>Level Crossings Safety</u></p> <p>Level crossings at grade road and rail junctions represent high-risk accident locations for railways. On railways with congestion, a flagman (person who is in charge of protecting all personnel employed in the railway operation) can be charged to prevent traffic at the crossing and clear the tracks before the train comes. Automatic warning lights, belts, and beams or automatically closing gates are commonly used for this objective. The gates also function as barriers against intrusion of any highway or road traffic onto the railway. Crossings with no gate present inevitable risks. Following mitigation measures will be implemented for those risks in the scope of the Project;</p> <ul style="list-style-type: none"> • Use of bridges or tunnels in place of level crossings. Level crossings may be beneficial as it may improve train performance. Because the limitation of train speed may not be an effective measure to reduce accidents. • Installation of automatic gates to all level crossings and proper and regular maintenance should be provided for safer operation. <p><u>Pedestrian Safety</u></p> <p>Trespassers on rail lines and facilities can expose risks caused by moving trains, electrical equipment and hazardous materials, substances. Following mitigation measures will be implemented for those risks in the scope of the Project;</p> <ul style="list-style-type: none"> • Installation of a clear and attentive warning signalization system at crossing points of the track such as stations and level crossings, • Installation of fences or barriers at station ends to prevent access to the track without any permission,

ESIA Topic	Baseline Data	Impact Assessment (IA) and Mitigation Measures
		<ul style="list-style-type: none"> Raising public awareness especially to elderly people and children, Designing stations in a way that the permitted route is safe and clearly indicated, Use of closed-circuit television to monitor the stations and other areas where trespassing occurs often and/or voice alarms to prevent trespassers to access the track. <p><u>Accident and Fatality Rates</u></p> <p>In all railway projects, number of accidents should be reduced to zero or at least minimized among the project personnel and contractors/subcontractors. It should be paid particular attention to the reduction of accident and fatality rates as it may result in a waste of time in workplace, disability and even death. Facility rates should be graded in accordance with the performance of facilities in terms of their performance against accident and fatality rates in this sector in consultation with legal bodies (e.g., US Bureau of Labor Statistics and UK Health and Safety Executive).</p> <p><u>Occupational Health and Safety Monitoring</u></p> <p>Monitoring of the OHS should be carried out by accredited professionals. Facilities also should keep records and keep track of occupational accidents and/or occupational-vocational diseases that possibly occur in the workplace arising from physical, chemical, or biological hazards. For detailed information upon this, IFC General EHS Guidelines can be used as a guide.</p> <p>Across the world, train accidents have a decreasing trend as well as the death rates originating from the trains. The lowest statistical values belong to European Union and Australia.</p>

ESIA Topic	Baseline Data	Impact Assessment (IA) and Mitigation Measures
		<p>Apart from the IFC Requirements, all construction areas and access routes should be investigated, and restrictive measures should be applied prior to construction works. Speed limits should be implemented and checked as well as periodic vehicle maintenance. Investigation of grievances from local inhabitants and stakeholders due to the construction activities are also incredibly important. For biochemical risks mitigation, air conditioning and ventilation should be supplied, and periodic medical checks of staff should be implemented as well as carrying out health awareness raisings on emergency preparedness and response in railway tracks.</p>
<p>Land Ownership and Tenure System.</p> <p>Land use / Forest</p>	<p>Type of a land use depend on land what it is used for. Forestry and farming can be given as example for the land use in rural areas while housing and industry are land use example in urban areas which consist of town and cities. The main zones, which represent the function of land use, are Central Business District, Inner City, Suburbs and Rural Urban Fringe.</p> <p>Studies on earth's surface is described as topography which includes changes on the surface of mountains and valleys, features of rivers and roads and surface of other planets, the moon, asteroids and meteors. Topography is used for determination of the relation between points with recording the data.</p> <p>Soil, which covers the land, is the surface material. Organic and inorganic matters form the soil. Existence of soil is significant for humanity because of the food chain and so on.</p> <p>In the scope of Mersin-Gaziantep Train Project, expropriation throughout the line is performed and ownership of the line is belonging to TCDD.</p> <p>High Standard Train Project pass through the land on Mersin, Adana, Osmaniye and Gaziantep Province. Length of the railway in each Province borders are 76 m km in Mersin, 79 km in Adana, 58 km in Osmaniye and 56 km in Gaziantep. The exact footprint of the Project</p>	<p>There will be no soil pollution around the Project during the construction and operation phases caused by the Project. Materials that will cause pollution will not be discharged to the soil. If necessary, the Emergency Action Plan prepared by Rönesans will be implemented. Topsoil and Subsoil Management Procedures of Rönesans will be implemented during the construction period.</p> <p>Mitigation measures to be taken for the topsoil;</p> <ul style="list-style-type: none"> • Site planning should be prepared by related experts, • Physical characteristics of the soil will be investigated, • Proper excavation method to relocate the soil will be determined, • Correct depth for stripping topsoil and subsoil will be determined, • Topsoil will be stripped in the driest condition possible, • Movement of trucks or dumpers will be limited with designated temporary routes, • Soil storage periods will be kept as short as possible,

ESIA Topic	Baseline Data	Impact Assessment (IA) and Mitigation Measures
	<p>could not be obtained from the activity owner. When the center of Railway Line is taken as a reference, 30 m buffer (15 m to the right and 15 m to the left) in the Mersin-Gaziantep Railway Line and 70 m (35 m to the right and 35 m to the left) buffer for the airport connection has been determined.</p> <p>Calculations have been made with this acceptance by using CORINE Land Cover.</p> <p>Major land use depending on the Project will be on 669.50 ha of permanently irrigated land, 252.13 ha of industrial/ commercial, 150.26 ha of complex cultivation patterns and 114.65 ha of discontinuous urban fabric. The land use type in the Project footprint will change.</p> <p>Studies about main soil types in the project area is according to the database of the General Directorate of Rural Services.</p>	<ul style="list-style-type: none"> • Salt crusting signs on the surface will be monitored. Material transfer should not be accepted if there is evidence of salt deposits unless the soil has been tested for salinity, • Topsoil will be recovered using appropriate equipment. Depending on compaction and recovery rates, deep ripping may be required to maximize topsoil recovery with care taken not to mix topsoil with sodic subsoil, • The vegetative topsoil to be stripped will be stored in the designated plant soil stock areas for use in rehabilitation and landscaping in the later stages of the project, • The slope of vegetative topsoil storage area will not be more than 5%, • The requisite measures will be taken to prevent any loss in the vegetative topsoil during storage and the soil quality will be maintained, • With the intention to prevent the precipitation and wind erosion, the surface of the vegetative topsoil will be cover with fast growing plants and the perimeter of the storage area will be enclosed with ditch, • In the event of a spillage on land, contaminated soil will be cleaned in accordance with the provisions of the Regulation on Control of Soil Contamination and Point Source Contaminated Lands (Official Gazette dated 08.06.2010 and numbered 27605) or will be disposed of by licensed companies, • Within scope of the project, provisions of the Law on Soil Protection and Land Use No. 5403 and Regulation on Control of Soil Contamination and Point Source Contaminated Lands will be adhered to, • The samplings and analyses will be performed by laboratories accredited by the Ministry of Environment and Urbanization and the analyses reports will be kept on-site and upon request

ESIA Topic	Baseline Data	Impact Assessment (IA) and Mitigation Measures
		<p>and/or when required, they will be submitted to the relevant authorities,</p> <ul style="list-style-type: none"> • Upon the termination of the construction activities, the vegetable topsoil stripped and stored separately will be spread on the landscaping areas in accordance with the "Landscaping Repair Plan" for the purposes of arrangement the project site, and the provisions of the plan will be respected accordingly. • Landscape repair plan will be applied, <p>Mitigation measures to be taken for the erosion;</p> <ul style="list-style-type: none"> • In order to interrupt the surface flow and prevent the bottom from being carved, material deposits will be released. • When the slopes are to be cut, mini sluices will be formed, and discharge of the stream will be ensured along the slope. • Continuous monitoring will be carried out to prevent problems such as collapses, soil losses • Afforestation and planting will be done. • Plant species that can be planted during the afforestation and landscaping should be used from the trees in the vegetation of the region. • Landscape repair plan will be applied. • Drainage channels and settlement structures will be built before the land preparation and construction of the Project. • At the end of the excavation work, slopes will be strengthened. • For the prevention of soil loss, embankments will be built around the excavation material which will be stored in the designated storage areas • After the stripping and excavation of sites, all degraded part of the Project area will be rehabilitated.

ESIA Topic	Baseline Data	Impact Assessment (IA) and Mitigation Measures
		<ul style="list-style-type: none"> Geotextile filters, drainage channels and settlement structures will be built before the land preparation and construction of the Project for the reduction of sediment transportation to the outside from the project area. In the case of extreme climate conditions occurs, land preparation and construction works will be changed to decrease the erosion risk. <p>Mitigation measures to be taken for the forest lands;</p> <ul style="list-style-type: none"> Roads to be built at the construction phase of the project will be built by excavators in a way not causing any landslide from slopes and any harm to the environment, and materials to be extracted from the road building will be moved to authorized areas without causing any harm to the forest, and, furthermore, forest roads to be used will be repaired and maintained. All facilities and units to be built will be placed in line with provisions of the Regulation on Protection of Buildings against Fire (the Official Gazette dated 19.12.2007 and numbered 26735) A fire team will be established according to the Emergency Response Plan to be prepared and information will be provided in writing and verbally about how all personnel will act in case of emergency, and drills will be conducted at certain intervals. Forest fire extinguishing tools and equipment will be kept available for use, employees will be trained on how to use the tools and equipment to be used in this regard, and such tools and equipment will always be well kept. In this respect, the nearest Provincial Directorate of Agriculture and Forest will be contacted and forest fires that may start both in the facility and

ESIA Topic	Baseline Data	Impact Assessment (IA) and Mitigation Measures
		<p>around it will be immediately notified to the Provincial Directorate of Agriculture and Forest.</p> <p>The mitigation measures planned to be implemented within the scope of the project are given in the ESMP prepared for the project.</p>
Traffic and Transportation	<p>The High Standard Train Project planned to be built on the Mersin-Gaziantep (Başpınar) route will be carried out by rehabilitating the existing railway in some sections and building additional lines in some places. The current railway proceeds in parallel with the highway from Mersin to Gaziantep, which also separates other settlements located between these two provinces. The High Standard Railway Route is surrounded by both the highway (O-51/52) and the state road (D400/825).</p> <p>With the High Standard Railway Route that passes through Mersin, Adana, Osmaniye and Gaziantep provincial borders and covers a total of 286 km, it will ensure that the transportation to the mentioned 4 provinces and districts is in a shorter time than the highway. High Standard Railway passes through 4 provinces and 14 districts. It will also reduce the load on road transport, as it will reduce the number of vehicles passing through the highway and state road.</p> <p>On the route from Mersin to Gaziantep Başpınar, Mersin-Adana D400 Road, Adana-Erdemli Highway (O-51), Adana Ring Road (O-51), Adana-Şanlıurfa Highway (O-52), Adana-Osmaniye D400 the road runs in parallel with the Osmaniye-Gaziantep D400 Road, the Gaziantep-Antakya D825 Road, and intersects in some areas with the Adana-Şanlıurfa Highway (O-52), the Adana-Osmaniye D400 Road, the Osmaniye-Gaziantep D400 Road, and the Gaziantep-Antakya D825 roads. In addition, within the scope of this project, a single connection</p>	<p>Although a negative impact on traffic and transport is not expected in the High Standard Train Project, the prevention and reduction methods given below are applied when a possible risk is not encountered and/or encountered;</p> <ul style="list-style-type: none"> • All activities related to traffic and transportation within the scope of the High Standard Train Project will be carried out in accordance with the provisions of the Road Traffic Law. • Activities related to the transport of dangerous goods shall comply with the provisions of the regulation on the transport of dangerous goods by road No. 15742 of 22 October 1976. • In the current situation, additional connecting roads will not be opened except for the Çukurova airport connection, and in cases where it is necessary to open, the necessary permits will be obtained from the relevant Regional Directorate of Highways and other authorities. • Existing roads will be used for transport as much as possible during both the construction and operation stages, and all impact mitigating measures will be taken to avoid any damage to the roads. • Existing asphalt roads will be used as necessary without damage. In cases of damage, such as removal of asphalt, repair work will be carried out. • Stabilized roads used will be watered against dust formation.

ESIA Topic	Baseline Data	Impact Assessment (IA) and Mitigation Measures
	<p>road will be built under Rönesans responsibility, and this road is the 9.5 km double-line connection road to Çukurova Airport.</p> <p><u>Mersin-Tarsus</u></p> <p>According to the 2019 State Roads Load Map published by the General Directorate of Highways, located between Mersin and Tarsus, the number of vehicles passing through the state road is estimated by counting 56,521 vehicles per day and a total of 25,697 vehicles per day with continuous vehicle counting and classification station. According to the 2019 Highway Volume Map published by the General Directorate of Highways, 82,218 vehicles pass through this road daily.</p> <p><u>Tarsus-Adana</u></p> <p>According to the 2019 State Roads Volume Map published by the General Directorate of Highways, the number of vehicles passing through the state road between Tarsus and Adana Center is estimated and counted with 53,707 vehicles per day and continuous vehicle counting and classification stations, and 20,152 vehicles per day. According to the 2019 Highway Volume Map published by the General Directorate of Highways, 73,859 vehicles pass through the state roads daily.</p> <p><u>Adana-Osmaniye</u></p> <p>According to the 2019 State Roads Volume Map published by the General Directorate of Highways between Adana and Osmaniye, the estimated number of vehicles passing through the state road is counted and a total of 61,416 vehicles per day.</p> <p>A total of 16,551 vehicles and portable vehicle counting, and classification stations are counted per day, and 14,420 vehicles are counted per day. According to the 2019 Highway Volume Map published</p>	<ul style="list-style-type: none"> • Vehicles carrying long, heavy, and dangerous loads will depart at certain hours in a way that does not disrupt traffic. • Regular planning of the traffic hours will be made, and these hours will be enforced to be applied, • Carrying out monitoring within the scope of traffic and transportation. <p>The mitigation measures planned to be implemented within the scope of the project are given in the ESMMP prepared for the project.</p>

ESIA Topic	Baseline Data	Impact Assessment (IA) and Mitigation Measures
	<p>by the General Directorate of Highways, 92,387 vehicles pass through the Adana-Osmaniye highway per day.</p> <p><u>Osmaniye-Gaziantep</u></p> <p>According to the 2019 State Roads Volume Map published by the General Directorate of Highways, between Osmaniye and Gaziantep, the number of vehicles passing through the state road is estimated and counted with 239,343 vehicles per day and continuous vehicle counting and classification stations, and 34,741 vehicles per day. According to the 2019 Highway Volume Map published by the General Directorate of Highways, 274,084 vehicles pass through the Osmaniye-Gaziantep state roads in total daily.</p> <p>In the traffic and transportation section, the intersection points of the High Standard Train Project with the existing highway and the traffic density are given and the effects on traffic and transportation have been examined.</p> <p>With a total of 56,521 vehicles including 38,712 automobiles, 8483 medium-loaded commercial vehicles, 591 buses, 2829 trucks and 5906 trucks and trailers, which were measured by estimating the state road between Mersin and Tarsus; A total of 25,697 vehicles, including 15,621 automobiles, 3134 medium-loaded commercial vehicles, 318 buses, 2047 trucks, and 4577 trucks and trailers, were counted through the continuous vehicle counting and classification station. The total number of vehicles between the Mersin-Tarsus state road, where both the estimated and continuous vehicle counting and classification station are being counted, is 82,218.</p> <p>A total of 52,575 vehicles, with 41,387 light vehicles and 11,188 heavy vehicles, passed through the highway between Mersin and Tarsus.</p> <p>With a total of 53,707 vehicles, including 41,700 automobiles, 6745 medium-loaded commercial vehicles, 512 buses, 3157 trucks and 1593</p>	

ESIA Topic	Baseline Data	Impact Assessment (IA) and Mitigation Measures
	<p>trucks and trailers, which were measured by making an estimate of the state road between Tarsus and Adana Center; A total of 20,152 vehicles, including 14,875 automobiles, 2490 medium-loaded commercial vehicles, 230 buses, 1122 trucks, 1432 trucks + trailers, were counted with the continuous vehicle counting and classification station. The total number of vehicles between Tarsus-Adana state road, where both the estimated and continuous vehicle counting and classification station and the counting is made, is 73,859.</p> <p>104,790 vehicles have passed between Tarsus-Adana Central highway, with 71,170 light vehicles and 33,620 heavy vehicles.</p> <p>With 39,435 automobiles, 5923 medium-loaded commercial vehicles, 281 buses, 11,857 trucks and 9920 trucks + trailers in total, 61,416 vehicles, which were measured by making an estimated count between Adana and Osmaniye; A total of 16,551 vehicles, including 10,904 automobiles, 2938 medium-loaded commercial vehicles, 266 buses, 1285 trucks, 1158 trucks + trailers, counted by the continuous vehicle counting and classification station; A total of 14,420 vehicles, including 8324 automobiles, 1244 medium-loaded commercial vehicles, 26 buses, 1501 trucks, 3325 trucks + trailers, were counted with the portable vehicle counting and classification station. The total number of vehicles between the estimated and continuous vehicle counting and classification station and the portable vehicle counting and classification station and the Adana-Osmaniye state road where the count is made is 92,387.</p> <p>368,984 vehicles passed between Adana and Osmaniye, with 274,916 light vehicles and 94,068 heavy vehicles.</p> <p>With a total of 239,343 vehicles, including 183,434 automobiles, 25,434 medium-loaded commercial vehicles, 1843 buses, 17,942 trucks and 11,918 trucks + trailers, which were measured by making an estimated count between Osmaniye and Gaziantep; A total of 34,741 vehicles,</p>	

ESIA Topic	Baseline Data	Impact Assessment (IA) and Mitigation Measures
	<p>consisting of 28,054 automobiles, 3248 medium-loaded commercial vehicles, 122 buses, 1134 trucks, 2183 trucks + trailers, were counted with the continuous vehicle counting and classification station. The total number of vehicles between the Adana-Osmaniye state road, where both the estimated and continuous vehicle counting and classification station are being counted, is 274,084.</p> <p>There were 58,343 light vehicles, 111,886 heavy vehicles, and 170,229 vehicles between the Osmaniye-Gaziantep highway.</p> <p>The average total number of vehicles given in line with the volume maps published by the General Directorate of Highways and the total traffic load increase are given below.</p> <p>Average total number of vehicles crossing the state road between Mersin and Gaziantep: 522,548 vehicles.</p> <p>Average total number of vehicles on the highway between Mersin and Gaziantep: 696,578 vehicles.</p> <p>During the construction phase, 315 vehicles for excavation, 91 for filling, 17 for foundation excavation, 29 for Plenti production, 87 for granular fillings, 11 for asphalt paving, 35 for basalt paving, 61 for basalt line paving, 15 for non-basalt line paving, scissors paving It is planned to use 13 vehicles for line dismantling, 5 for scissor removal, 14 for sleeper production, 8 for basalt quarry, 8 for panel production and 58 for the support team. A total of 758 vehicles will be used for all operations.</p>	

1.3.2 Stakeholder Consultations

A Stakeholder Engagement Plan (SEP) has been prepared for the purpose of ensuring that a consistent, comprehensive, coordinated and culturally appropriate approach is taken to stakeholder engagement and Project disclosure throughout the ESIA. This SEP was also used as a tool to enable Rönensans to align with international best practice for engaging stakeholders. Moreover, Rönensans is committed to full compliance with all Turkish EIA Regulations, as well as aligning to the international standards namely the IFC Performance Standards and any other directly relevant policies of the IFC and World Bank. To achieve this goal, a well-planned procedure for stakeholders in the entire ESIA study was thus imperative.

In line with current international best practice, the SEP aims to ensure engagement that is free of manipulation, interference, coercion and intimidation. It also aims to ensure that stakeholder engagement is conducted on the basis of timely, relevant, understandable and accessible information, in a culturally appropriate format. In this way, the SEP seeks to ensure that stakeholder groups are given sufficient opportunity to voice their opinions and concerns, and that these concerns influence Project decisions. The SEP:

Outlines the approach to be adopted to engagement, showing how this will be integrated into the rest of the ESIA process;

- Identifies stakeholders and mechanisms through which they will be included in the ESIA process; and
- Serves as a way to document engagement undertaken throughout the ESIA.

The SEP was developed after the Scoping exercise, and was continually updated throughout the course of conducting this ESIA study. The SEP was used in the course of engaging stakeholders during the detailed ESIA study. The SEP shall continue to be used during Project implementation and post-construction monitoring, and is presented in this ESIA. As described in the SEP, consultation was undertaken.

In December 2020, field survey of Stakeholder Engagement Plan and Social Impact Assessment were carried out. The summary of field surveys are given below:

- 183 household questionnaires were completed in the field survey conducted as part of the social impact assessment in 4 provinces, 15 districts and 120 settlements (village, neighborhoods) designated as the project's impact area. 33.3% of questionnaire forms belong to Mersin, 42.1% to Adana, 18.6% to Osmaniye, and 6.0% to Gaziantep,
- 19 mukhtar interviewed was conducted as of December 2020. 9 of the interviews were conducted in Osmaniye, 5 in Adana and 5 in Gaziantep,
- 30 institutions were interviewed. 11 of the meetings of this institution were conducted in Mersin, 9 in Adana, 6 in Osmaniye and 4 in Gaziantep. The majority of the interviews (11) were conducted with representatives of metropolitan municipalities and district municipalities. 9 interviews were conducted in other public institutions, and 6 of them are institutions related to the Ministry of Transport (see Table 1.2).
- It was considered sufficient to organize a focus group meeting to represent each province, and 2 focus group meetings and 2 in-depth interviews were realized (see Table 1.3),

Table 1.2: Consultations with Institution

No	Date	Province	District	Institution
1	02.12.2020	Mersin	Akdeniz	Mersin Chamber of Commerce and Industry
2	02.12.2020	Mersin	Akdeniz	Mersin Metropolitan Municipality Transportation Department
3	02.12.2020	Mersin	Akdeniz	Mersin Governorate
4	03.12.2020	Mersin	Tarsus	Tarsus Branch of Turkish Disabled Association
5	03.12.2020	Mersin	Tarsus	Tarsus Branch of the Autism Association
6	03.12.2020	Mersin	Tarsus	Tarsus Visually Impaired Association
7	03.12.2020	Mersin	Tarsus	Tarsus Municipality
8	04.12.2020	Mersin	Akdeniz	TCDD Gar Directorate
9	04.12.2020	Mersin	Akdeniz	Güney Newspaper
10	04.12.2020	Mersin	Akdeniz	Mersin Provincial Directorate of Environment and Urbanization, Branch of Zoning Planning
11	04.12.2020	Mersin	Akdeniz	Directorate of TCDD Mersin Port Authority
12	07.12.2020	Adana	Seyhan	Adana Metropolitan Municipality Head of Projects Department
13	07.12.2020	Adana	Seyhan	Çukurova Development Agency, Investment Support Office
14	07.12.2020	Adana	Seyhan	Seyhan District Municipality
15	07.12.2020	Adana	Çukurova	Adana Metropolitan Municipality, Head of Transportation Department-Directorate of Rail Systems
16	08.12.2020	Adana	Seyhan	Adana Chamber of Industry
17	08.12.2020	Adana	Seyhan	Adana Regional Directorate of TCDD Transportation Incorporated Company, Directorate of Services

No	Date	Province	District	Institution
18	08.12.2020	Adana	Seyhan	Adana 6 th Regional Directorate of TCDD, Railway Maintenance Service, Branch of Superstructure
19	08.12.2020	Adana	Seyhan	Adana 6 th Regional Directorate of TCDD, Railway Maintenance Service
20	09.12.2020	Adana	Ceyhan	Ceyhan District Municipality, Directorate of Mukhtar Affairs
21	10.12.2020	Osmaniye	Central District	Osmaniye Municipality
22	10.12.2020	Osmaniye	Central District	Osmaniye Provincial Directorate of Environment and Urbanization
23	10.12.2020	Osmaniye	Central District	Osmaniye Provincial Directorate of Environment and Urbanization, Directorate of Planning and Settlement
24	10.12.2020	Osmaniye	Düziçi	Düziçi District Municipality
25	10.12.2020	Osmaniye	Bahçe	Bahçe District Municipality
26	10.12.2020	Osmaniye	Nurdağı	Nurdağı District Municipality, Branch of Zoning and Urbanization
27	11.12.2020	Gaziantep	Şehitkamil	Gaziantep Metropolitan Municipality,
28	11.12.2020	Gaziantep	Şehitkamil	Silk Road Development Agency
29	11.12.2020	Gaziantep	Şehitkamil	Gaziantep Governorate
30	11.12.2020	Gaziantep	Şehitkamil	TCDD General Directorate of Infrastructure

Table 1.3: Focus Group Discussions and In-Depth Interviews

Province	Date	Type of interview	Representatives / Members
Mersin	03.12.2020	In depth interview	<ul style="list-style-type: none"> - Tarsus Branch of Turkish Disabled Association - Tarsus Branch of the Autism Association - Tarsus Visually Impaired Association
Adana	29.12.2020	In depth interview	- Adana "Kadın Eli" Women's Development, Production and Business Cooperative
Osmaniye	27.12.2020	Focus group discussion	<ul style="list-style-type: none"> - Osmaniye Branch Office of Science Dissemination Society - Osmaniye Scientific Art And Culture Association (İLSANDER) - Osmaniye Branch Office of Anatolian Artisan Industrialists ' and Businessmen's Association (ANESİAD) - Osmaniye Branch Office of Beyazay Association of Turkey - Osmaniye Branch Office of Chamber of Agricultural Engineers
Gaziantep	20.12.2020	Focus group discussion	Graduate students of the department of sociology of Gaziantep University

1.3.3 Fieldwork and Observations

Fieldwork was carried out in the Project area by related experts (biologist, sociologist, measurement laboratories and environmental engineers). Result of fieldwork were given in this Report. Fieldwork depending on each impact is detail explained in related sections in Section 4.

1.3.4 Impact Assessment

Impacts of Mersin-Gaziantep High Standard Train Project on baseline of the Project area was analyzed and observed. Necessary measurement was carried out. Policy and legal framework, extend of study area, identification of baseline conditions, impact magnitude and sensitivity criteria, impact assessment, cumulative impact assessment, summary of residual impacts, significance criteria and overall impact significance, mitigation measures, assumptions and limitation of each environmental and social impact are given in the Section 4

1.3.5 Public Disclosure of Draft ESIA

- 1st Draft: 11.01.2021 (Presented to Rönesans by Assytem Envy)
- 2nd Draft: 15.03.2021 (Presented to Rönesans by Assytem Envy)
- Final Draft: 29.03.2021 (Presented to Rönesans by Assytem Envy)

1.4 Study Limitations

This Environmental and Social Impact Assessment Report (ESIA) is prepared in the pursuance of the agreement mutually signed between Rönesans and Assytem ENVY Energy and Environmental Investments Inc. (Assytem ENVY).

Assytem ENVY is appointed to undertake an Environmental and Social Impact Assessment Report (ESIA) in compliance with Finance Corporation (IFC), and European Bank for Reconstruction and Development (EBRD).

ESIA report for the High Standard Train Project has been independently prepared by Assytem ENVY as a result of the analysis made using the most up-to-date engineering studies and best practices on 29th of March 2021 in line with the information and documents from Rönesans and the measurement dates (fieldwork).

1.5 Project Phase

The Project was developed by TCDD in the early year 2010 and at the some locations of the project construction works have been started. In the scope of this ESIA Reports, the Project was designed by TCDD and some engineering information have been provided by The Ministry of Transport and Infrastructure to Rönesans. Construction works, signaling and any other defined works will be done by Rönesans at the scope of signed contract between Rönesans and The Ministry of Transport and Infrastructure. Responsibilities of Rönesans are detailed in Section 3. After completion of construction and other necessary works, Mersin – Gaziantep High Standard Train project will be operated by TCDD.

1.5.1 Design Criteria & Technical Specification

Design criteria and technical specifications of the Project are given below (see Table 1.4).

Table 1.4: Design Criteria and Technical Specifications

Design Parameter	Design Specification
Rail	Rail 60 E1 in 900A quality
Axle load	22.5 tons/axle
Design speed	120 -160 km/hour
Minimum curve radius	200 m
Maximum deviation	130 mm
Maximum slope	16 per thousand
Ballast	30-60 mm
Span between sleepers	60 cm
Rail connection	Welded
Sleeper type	Concrete sleeper

1.6 Construction Phase

1.6.1 Water Supply for the Project

The water requirement for the construction and operation period will depend on the use of personnel and drinking water. For the construction period, drinking water needs of the staff at the construction sites and in the field will be supplied from the market. The utility water need at the construction sites will be met from the city network. For the operating period, drinking water of the personnel at the route stations will be supplied from the market and the domestic water from the city network.

1.6.2 Machinery and Equipment required for Construction

During the construction phase, 315 vehicles for excavation, 91 for filling, 17 for foundation excavation, 29 for Plenty production, 87 for granular fillings, 11 for asphalt paving, 35 for basalt paving, 61 for basalt line paving, 15 for non-basalt line paving, scissors paving It is planned to use 13 vehicles for line dismantling, 5 for scissor removal, 14 for sleeper production, 8 for basalt quarry, 8 for panel production and 58 for the support team. 758 vehicles will be used for all operations.

1.6.3 Access Routes to Site Locations

For the construction on the route, 3 construction sites will be installed and the structures in these sites are planned to be prefabricated.

As a result of preliminary studies, Merkez Tarsus construction site is positioned as the central construction site and Ceyhan as the second construction site. Nurdağı construction site is located as the third construction site.

There are connections roads to construction sites. As a result, there is no need to built new connection roads for construction sites.

1.6.4 Labour, Facilities and Accommodation for Construction Phase

For the construction on the route, 3 construction sites will be installed and the structures in these sites are planned to be prefabricated.

As a result of preliminary studies, Merkez Tarsus construction site is positioned as the central construction site and Ceyhan as the second construction site. Nurdağı construction site is located as the third construction site.

During the construction period of the High Standard Train Project such as excavation, filling, and coating, works will be carried out along the line. In the areas where Rönesans is responsible for the construction operations, temporary construction sites are established where the construction works are carried out. These construction sites are units with a certain number of employees and equipment used for construction operations.

1.6.5 Fuel

In the scope of the project, diesel fuel will be used to provide energy for construction machinery. Usage of total diesel fuel for each section are listed below;

- between Mersin and Adana; ~23,827,889.52 Lt/year
- between Adana and Toprakkale; ~13,301,417.80 Lt/year
- between Toprakkale and Bahçe; ~27,602,092.36 Lt/year
- between Bahçe and Nurdağ; ~2,726,681.94 Lt/year
- between Nurdağ and Gaziantep; ~5,650,824.96 Lt/year

Fuel to be used within the scope of the project will be supplied from licensed facilities in the region.

1.6.6 Waste Management

During the construction phase of the High Standard Train Project, construction wastes originating from earthworks, ground improvement, engineering structures, superstructure works, electrification and signaling processes, household and packaging wastes from the staff to work on the site, waste oils from vehicles and equipment to be used, medical wastes, end-of-life tires hazardous wastes and wastes from waste batteries and accumulators are generated.

In the operational phase, it is likely that wastes arising from the personnel working at the stations and the use of the train and the passengers will occur.

As mentioned above, domestic solid wastes, packaging wastes and construction wastes will be generated during the construction phase of the project.

The domestic solid waste load that will arise during the construction phase is 1459 kg/day, and the packaging waste load is 0.2918 kg/day. Domestic solid wastes and packaging wastes, which will occur during the construction phase of the project, will be kept in the construction site in a way that will not pose a risk to water, air, soil, plants, animals, and people, prevent adverse effects on the natural environment and thus not harm the environment and human health. Then, they will be sent to the nearest landfill and removed from the field.

In the management of domestic solid wastes to be generated within the scope of the Project, provisions of the Waste Management Regulation dated 02.04.2015 and numbered 29314, international standards, IFC Standards and EU Directives will be followed. Recyclable and non-recyclable packaging wastes such as glass, plastic and metal will be collected separately from the others and managed in accordance with the Packaging Waste Control Regulation dated 27.12.2017 and numbered 30283, IFC Standards and EU Directives. Negotiations will be made with the relevant municipalities to ensure collection, storage, and disposal.

Construction/excavation wastes will be used as filling and wastes that are not suitable for filling will be kept in the designated area in the construction site and sent to the relevant municipal solid waste site. In this context, the relevant provisions of the "Regulation on the Control of Excavation Soil, Construction and Demolition Wastes" will be complied with regarding the reuse and disposal of excavation phases materials within the scope of the project.

First aid equipment will be available to respond to an emergency that may occur during the construction phase of the High Standard Train Project, and medical wastes from this equipment (bandages, bandages, contaminated cotton, etc.) will be generated. These medical wastes will be collected separately from other wastes such as domestic, packaging, hazardous and non-hazardous wastes and sent to the disposal facility of the relevant municipality. By preventing from harming to the environment and human health directly or indirectly, the Medical Waste Control Regulation, the relevant IFC standard/guideline and EU directives will be complied with for the management in this regard.

In case of any malfunction of the construction equipment to be used for the works in the construction phase, it is possible that waste oils will occur during the maintenance and repair of the machines in cases where this failure is made in the construction site. The waste oils generated will be stored in sealed bags/containers placed on an impermeable ground within the project. Tanks and/or containers shall be easily filled and emptied. In case that oil filters are removed from the vehicles, waste engine oil will be collected in, a separate lidded container located next to the temporary storage tanks. Apart from waste oils from the same construction machinery and equipment, it is likely to occur in hazardous wastes from absorbers, filter materials, protective clothing, and waste drums and cartridges contaminated with pollutants. It will be managed in accordance with the Waste Oil Management Regulation dated 21.12.2019 and numbered 30985, Waste Management Regulation dated 02.04.2015 and numbered 20814 and the relevant IFC standard/guideline and EU directives, by ensuring ground impermeability to prevent the passage of these waste oils and hazardous wastes to the soil and water.

In case that the replacement of the tires that have completed their life is in the field, they will be given to the conversion companies that have "Temporary Storage Permit or Environmental License" from the Ministry of Environment and Urbanization and evaluated. Within the scope of the project, the management will be carried out in accordance with the Regulation on Control of End of Life Tires, IFC standard/guideline and EU directives.

In cases where it is necessary to change the batteries of construction machinery and equipment, it will be replaced with a battery full and waste batteries will be generated. Apart from batteries, it will also generate waste from batteries that have reached the end of their life. These wastes will be collected and given to licensed companies. The provisions of Waste Batteries and Accumulators Control Regulation, IFC standard/guideline and EU directives will be complied in the collection and disposal of waste batteries and accumulators.

The solid wastes, which are calculated and mentioned above, do not cause any risk or negative impact on the environment and people during and after the construction period of the High Standard Train Project.

Management of wastes and wastewater are detailed in Section 4.10.

2 POLICIES AND LEGAL FRAMEWORK

2.1 Turkish Environmental and Social Policies and Legislations

The purpose of legal arrangements in environmental area is to determine necessary standards and behavioral patterns of authorized agencies and citizens in order to live in a healthy and a balanced environment. Directives, circulars, notifications that were issued based on these laws include the details related to procedures and methods to be complied. Turkish legislation on the environmental protection largely overlaps with the European Union (EU) legislation in line with the harmonization studies carried out in the scope of pre-accession efforts of Turkey to the EU (see Table 2.1).

The national regulations listed below are updated and changed over time. Updates and revisions in the relevant regulations and changes that will take place during the Project will be followed and implemented by Rönesans.

In all evaluations made in the report, current national and international regulations have been taken into consideration and implemented as of the date of the report's preparation.

Table 2.1: National Regulations

Environmental Issues	Turkish Legislations
General	<ul style="list-style-type: none"> • Municipality Law No. 5393 (Official Gazette dated 13.07.2005 and numbered 25874) • Environmental Impact Assessment Regulation (Official Gazette dated 25.11.2014 and numbered 29186), • Environmental Permit and License Regulation (Official Gazette dated 10.09.2014 and numbered 29115), • Regulation on Environmental Audit (Official Gazette dated 21.11.2008 and numbered 27061).
Nature Protection	<ul style="list-style-type: none"> • Regulation on the Procedures and Principles Regarding the Protection of Game and Wild Animals and Their Lives; Pest Control (Official Gazette dated 24.10.2005 and numbered 25976), • Regulation on the Conservation of Wetlands (Official Gazette dated 04.04.2014 and numbered 28962), • Regulation on Pasture (Official Gazette dated 31.07.1998 and numbered 23419), • Land Hunting Law No. 4915 (Official Gazette dated 11.07.2003 and numbered 25165), • National Parks Law No. 2873 (Official Gazette dated 11.08.1983 and numbered 18132), • Environment Law No. 2872 (Official Gazette dated 11.08.1983 and numbered 18132) and all relevant Regulations, • Law No. 2863 on Conservation of Cultural and Natural Entities (Official Gazette dated 23.07.1983 and numbered 18113), • Red Data Book for Turkish Bird Species (Kiziroglu, 2008).
Soil Quality	<ul style="list-style-type: none"> • Soil Protection and Land Use Law No. 5403 (Official Gazette dated 19.07.2005 and numbered 25880) • Expropriation Law No. 2942 (Official Gazette dated 08.11.1983 and numbered 18215)

Environmental Issues	Turkish Legislations
	<ul style="list-style-type: none"> Regulation on Soil Pollution Control and Contaminated Sites by Point Source (Official Gazette dated 08.06.2010 and numbered 27605).
Climate Change	<ul style="list-style-type: none"> Regulation on Substances that Deploy Ozone Layer (Official Gazette dated 07.04.2017 and numbered 30031), Regulation on Monitoring of Greenhouse Gas Emissions (Official Gazette dated 17.05.2014 and numbered 29003).
Air Quality	<ul style="list-style-type: none"> Regulation on Control of Industrial Air Pollution (Official Gazette dated 03.07.2009 and numbered 27277), Regulation on Exhaust Gas Emission Control (Official Gazette dated 11.03.2017 and numbered 30004), Regulation on Assessment and Management of Air Quality (Official Gazette dated 06.06.2008 and numbered 26898), Regulation on Control of Exhaust Gas Emission and Diesel Fuel and Gasoline Quality (Official Gazette dated 30.11.2013 and numbered 28837), Regulation of Control of Air Pollution Originated from Heating (Official Gazette dated 13.01.2005 and numbered 25699).
Water Quality	<ul style="list-style-type: none"> Groundwater Law No. 167 ((Official Gazette dated 23.12.1960 and numbered 10688) Regulation of Urban Wastewater Treatment (Official Gazette dated 08.01.2006 and numbered 26047), Regulation on Control of Pollution Caused by Hazardous Substances in the Aquatic Environment and Its Surroundings (Official Gazette dated 26.11.2005 and numbered 26005), Regulation Concerning Water Intended for Human Consumption (Official Gazette dated 17.02.2005 and numbered 25730), Water Pollution Control Regulation (Official Gazette dated 31.12.2004 and numbered 25687), Regulation on Fishery Products (Official Gazette dated 10.03.1995 and numbered 22223), Regulation on Quality of Surface Water (Official Gazette dated 30.11.2012 and numbered 28483), Regulation on Protection of Groundwater Against Pollution and Deterioration (Official Gazette dated 07.04.2012 and numbered 28257), Monitoring of Surface and Groundwater Regulation (Official Gazette dated 11.02.2014 and numbered 28910), Regulation on Water Intended for Human Consumption (Official Gazette dated 17.02.2005 and numbered 25730).
Waste Management	<ul style="list-style-type: none"> Regulation on the Control of Packaging Waste (Official Gazette dated 27.12.2017 and numbered 30283), Regulation on Waste Management (Official Gazette dated 02.04.2015 and numbered 29314), Regulation on the Control of Waste Tires (Official Gazette dated 25.11.2006 and numbered 26357),

Environmental Issues	Turkish Legislations
	<ul style="list-style-type: none"> Regulation on Control of Medical Wastes (Official Gazette dated 25.01.2017 and numbered 29959), Regulation on Control of Waste Batteries and Accumulators (Official Gazette dated 31.08.2004 and numbered 25569), Regulation on Waste Oil Control (Official Gazette dated 21.12.2019 and numbered 30985), Regulation on Control of Waste Vegetable Oil (Official Gazette dated 06.06.2015 and numbered 29378), Regulation on Control of Excavated Soil, Construction and Demolition Wastes (Official Gazette dated 18.03.2004 and numbered 25406), Regulation on Control of Waste Electrical and Electronic Appliances (Official Gazette dated 22.05.2012 and numbered 28300), Regulation on Safety Data Sheets Regarding Hazardous Substances and Mixtures (Official Gazette dated 13.12.2014 and numbered 29204) Regulation on the Preparation and Distribution of Safety Data Sheets Regarding Dangerous Substances and Preparations (Official Gazette dated 26.12.2008 and numbered 27092) Regulation on Classification, Labeling and Packaging of Substances and Mixtures (Official Gazette dated 11.12.2013 and numbered 28848)
Management of Chemicals	<ul style="list-style-type: none"> Regulation on Safety Information Forms on Hazardous Substances and Mixtures (Official Gazette dated 13.12.2014 and numbered 29204).
Noise	<ul style="list-style-type: none"> Regulation on Assessment and Management of Environmental Noise (Official Gazette dated 04.06.2010 and numbered 27601), Regulation on Control of Ambient Noise Emissions Originating from Equipment used Outdoor (Official Gazette dated 30.12.2006 and numbered 26392), Regulation Related to Noise Emissions by Equipment for Outdoor Use (Official Gazette dated 30.12.2006 and numbered 26392).
Health and Safety	<ul style="list-style-type: none"> Labor Law No. 4857 (Official Gazette dated 10/6/2003 and numbered 25134), Occupational Health and Safety Law No. 6331 (Official Gazette dated 30.6.2012 and numbered 28339), Public Health Law No. 1593 (Official Gazette dated 06.05.1930 and numbered 1489) Regulation on Health and Safety Requirements for Temporary or Fixed Term Works (Official Gazette dated 23.08.2013 and numbered 28744), Charter on the Measures to Be Taken at the Works and Businesses Which Utilize Flammable, Explosive, Hazardous and Detrimental Materials (Official Gazette dated 24.12.1973 and numbered 14752), Regulation on Transportation of Explosives via Highways (Official Gazette dated 24.04.2019 and numbered 30754), Regulation on Personal Protective Equipment (Official Gazette dated 01.05.2019 and numbered 30761), Regulation on Usage of Personal Protective Equipment in Workplaces (Official Gazette dated 02.07.2013 and numbered 28695),

Environmental Issues	Turkish Legislations
	<ul style="list-style-type: none"> Act on the Procedures and Principles on Manufacture, Import, Transportation, Storing, Sales, Usage, Disposal and Control of Explosive Materials, Hunting Equipment and Similar Exempted from Monopoly (Official Gazette dated 29.09.1987 and numbered 19589)
Traffic and Transport	<ul style="list-style-type: none"> Traffic Law No. 2918 (Official Gazette dated 18.10.1983 and numbered 18195) Highways Traffic Law (Official Gazette dated 8.10.1983 and numbered 18195) Turkey Law on the Liberalization of Railway Transport (Official Gazette dated 01.05.2013 and numbered 28634) Regulation on Transportation of Hazardous Substances via Highways (Official Gazette dated 24.04.2019 and numbered 30754) Communique on Dangerous Goods Safety Consultancy (Official Gazette dated 22.05.2014 and numbered 29007) Highways Traffic Regulation (Official Gazette dated 18.07.1997 and numbered 23053) Regulation on Road Infrastructure Safety Management (Official Gazette dated 21.10.2018 and numbered 30572)

2.2 National Legislations for Labour and Working Conditions

2.2.1 Occupational Health and Safety Law

The Occupational Health and Safety Law dated 30.06.2012 and numbered 6331 regulates the duties, powers, responsibilities, rights and obligations of employers and employees in order to ensure occupational health and safety at workplaces and to improve existing health and safety conditions.

The OHS Law No. 6331 is applied to all businesses and workplaces belonging to the public and private sector, employers and employer representatives of these workplaces, all employees, including apprentices and interns, regardless of their field of activity. Activities outside of this scope are;

- Activities of the Turkish Armed Forces, general law enforcement forces and the Undersecretaries of the National Intelligence Organization, excluding those in factories, maintenance centers, sewing shops and similar workplaces,
- Intervention activities of disaster and emergency units,
- Household services,
- Those who produce goods and services on their own behalf and account without employing employees,
- During the execution services for convicts and detainees, the workplace, education, security, and vocational training activities performed within the scope of improvement.

The general obligation of the employer, protection from risks, occupational health and safety services, workplace physicians and occupational safety experts, determination of the hazard class, emergency plans, occupational accidents and occupational diseases, employee training are mentioned and precautions to be taken about these issues. Except for the business lines outlined above, it is obligatory for both employers and employees to comply and enforce in all workplaces and working areas.

Employer representatives who act on behalf of the employer and take part in the management of the work and the workplace are considered as employers for the implementation of this Law.

The employer is obliged to ensure the work-related health and safety of the employees and within this framework;

- It works to prevent occupational risks, to take all kinds of measures, including training and information, to organize, to provide the necessary tools and equipment, to adapt health and safety measures to changing conditions and to improve the current situation.
- Monitors and controls whether occupational health and safety measures taken in the workplace are followed and ensures that non-conformities are eliminated.
- Makes or has a risk assessment done.
- While assigning tasks to the employee, it considers the employee's suitability for the job in terms of health and safety.
- Takes necessary measures to prevent employees other than those given adequate information and instructions from entering places with life and special danger.

Receiving services from experts outside the workplace does not remove the employer's responsibilities. Employees' obligations in the field of occupational health and safety do not affect the employer's responsibilities and the employer cannot reflect the cost of occupational health and safety measures to the employees.

2.2.2 Labor Law

The Labor Law No. 4857 and dated 10.6.2003 in the Official Gazette is to regulate the rights and responsibilities of workers employed on the basis of an employment contract with employers regarding the working conditions and the working environment.

Sea and air transportation business, fewer than 50 workers (50) including the business or businesses of agriculture and forestry is carried out in workplaces where the family remaining within the boundaries of the economy related to agriculture in all kinds of building work, members of a family and 3rd Degree (3rd Degree included) to disagree with someone else among the relatives of handicrafts are made from the outside in where homes and jobs, in home services, apprentices, about athletes, about those who rehabilitate, it applies to all workplaces other than workplaces where three people work in accordance with the description of Article 2 of the law on Merchants and Craftsmen 507, employers of these workplaces, as well as employers' representatives and employees, regardless of their activity issues.

All kinds of responsibilities and obligations provided for by the employer in this law also apply to the employer's proxies. The title of employer's attorney does not eliminate the rights and obligations granted to employees. The principal employer is jointly responsible with the sub-employer for the obligations of the sub-employer to its employees arising from this law, the employment contract, or the collective bargaining agreement to which the sub-employer is a party in relation to that workplace.

2.2.3 Regulation on Duties, Authorities, Responsibilities and Training of Occupational Safety Specialists

Regulation on Duties, Authorities, Responsibilities and Training of Occupational Safety Specialists, dated 29.12.2012 and numbered 28512, regulates the qualifications, training and certification, duties, powers and responsibilities, and working procedures and principles of occupational safety specialists working in occupational health and safety services. It covers workplaces and educational institutions within the scope of the Occupational Health and Safety Law No. 6331.

2.2.4 Communique on Workplace Hazard Classes Regarding Occupational Health and Safety

In accordance with the Article 9 of the Occupational Health and Safety Law numbered 6331, the hazard classes of the workplaces in terms of occupational health and safety are specified in the Workplace Hazard Classes List in Annex-1 of this communique. In determining the hazard class, the hazard class of the actual work carried out in a workplace is taken into consideration.

2.2.5 Occupational Health and Safety Risk Assessment Regulation

The Occupational Health and Safety Risk Assessment Regulation, dated 29.12.2012 and numbered 28512, regulates the procedures and principles of risk assessment to be made in terms of occupational health and safety at workplaces. It covers workplaces under the Occupational Health and Safety Law numbered 6331.

According to this regulation, the employer makes risk assessment in terms of occupational health and safety with the aim of ensuring, maintaining, and improving the working environment and the health and safety of the employees. Carrying out a risk assessment does not eliminate the employer's obligation to ensure occupational health and safety at the workplace. The employer provides all kinds of information and documents related to risk assessment to the person or persons assigned in risk assessment studies.

2.2.6 Regulation on Occupational Health and Safety in Construction Works

The Regulation on Occupational Health and Safety in Construction Works dated 05.10.2013 and numbered 28786 determines the minimum occupational health and safety conditions to be taken in construction works. It is applied in workplaces under the Occupational Health and Safety Law numbered 6331.

The employer, in addition to the obligations specified in Article 4 of the Law, also provides the following issues in construction works;

- Keeping the construction area tidy and clean enough,
- In the selection of working places in the building area; determination of how transportation will be provided and areas or roads for equipment, movement, and passages,
- Arranging the usage and transportation conditions of the material,
- Technical maintenance and controls of the facility and equipment before starting to be used and periodically,
- Separating suitable storage areas for various materials and especially dangerous materials and substances and determining the boundaries of these areas,
- Regulating the conditions for the use of dangerous materials and their removal,
- Storage, disposal or removal of wastes and residues with appropriate methods and equipment,
- The periods foreseen for various jobs or work stages are re-determined according to the state of the work in the construction area,
- Cooperation between subcontractors and employees on their behalf,
- Consideration of interaction with industrial activities in or near the building site.

Having personal protective equipment in accordance with the Regulation on the Use of Personal Protective Equipment at Workplaces and harmonized national standards published in the Official Gazette dated 2.7.2013 and numbered 28695, and their use by employees.

2.3 International Environmental and Social Standards

In order to manage the project in environmental and social issues and to obtain credit from the credit institution, there are also national legal provisions and international obligations that must be implemented and carried out. The environment outside as Turkey signed contracts and agreements and other assets that are created to maintain the standards and guidelines are available.

International Conventions and Treaties related to the Project are listed below;

- Stockholm Convention on Persistent Organic Pollutants, 2001 (Turkey 2001),
- European Landscape Convention, Florence 2000 (Turkey 2003),
- Convention on Biological Diversity, Rio de Janeiro 1992 (Turkey 1996),
- United Nations Framework Convention on Climate Change, 1992 (Turkey 2004),
- Kyoto Protocol to the United Nations Framework Convention on Climate Change, 1992 (Turkey 2009),
- Montreal Protocol on Substances that Deplete the Ozone Layer, 1987 (Turkey 1990),
- Vienna Convention for the Protection of the Ozone Layer, 1985 (Turkey 1990),
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES Convention, Turkey 2001),
- Convention on the Conservation of European Wildlife and Natural Habitats, Bern 1979 (Turkey 1984),
- Convention concerning the Protection of the World Cultural and Natural Heritage, Paris 1972 (Turkey 1983),
- International Convention for the Protection of Birds, Paris 1959 (Turkey 1966),
- 1983 Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention) and Agreement (bird and mammals and their habitats, 1994),
- 1971 International Convention on Wetlands of International Importance especially as Waterfowl Habitat (RAMSAR Convention) and the as amended by 1982 Protocol,
- 1951 International Plant Protection Convention,
- 1950 International Convention for the Protection of Birds,
- 1979 Convention on Long-range Transboundary Air Pollution and its protocols,
- 1998 Aarhus Convention on the Access to Information, Public Participation in Decision-Making, and Access to Justice in Environmental Matters,
- 1989 ILO Convention Concerning Indigenous and Tribal Peoples in Independent Countries.
- ILO Convention: C182 Worst Forms of Child Labour Convention, 1999
- ILO C148, Working Environment (Air Pollution, Noise and Vibrations) Convention, 1977)

2.3.1 International Standards

Among the potential creditor corporations for the Project, the Environmental and Social Standards, and Guiding Documents of International Finance Corporation (IFC) and European Bank for Reconstruction and Development (EBRD) shall be taken as basis for every phase of the Project. Furthermore, in compliance to the Equator Principles (July 2020), the conditions of Equator Principles Financial Institutions (EPFI) shall also be provided. All these standards serve for the improvement of the project's performance through its evaluation in environmental and social aspect by minimizing of negative impacts and increasing in contributions.

The processes of ESIA adopted by finance foundations, which are basically conformable with the EIA methodology, are explained in the following paragraphs.

2.3.2 IFC Performance Standards

As the financial department of the World Bank, IFC has constituted its environmental and social policy with the intention to provide the implementation of the projects that it provides finance in line with the sustainability principle and in that regard, has established Performance Standards (PS) as the basis of environmental and social evaluation.

General Environment, Health and Safety (EHS) Guidelines of IFC is among the guiding documents to be based on during implementation. It contains information on environmental issues, occupational health and safety, community health and safety. The important aspects for the construction and decommissioning phases

are given in a separate section in this guideline. Furthermore, Industry Specific EHS Guidelines defines the environmental impacts and health and safety risks about the sector to which the project is related to and also it leads the way for the measures to be taken. Apart from these guidelines, there are IFC performance standards. The project is expected to comply with both the IFC general Environmental and Health Guidelines and performance standards. The IFC performance standards (PSs) are given brief as follows;

- PS 1: Social and Environmental Assessment and Management System; it underscores the importance of managing environmental and social performance throughout the life of a project.
- PS 2: Labor and Working Conditions; it comprises the issues on the protection of basic worker rights under the headings of Working Conditions and Management of Worker Relationship, Protecting the Workforce, Occupational Health and Safety, Non-Employee Workers.
- PS 3: Pollution Prevention and Abatement; it outlines a project approach to pollution prevention and abatement.
- PS 4: Community Health, Safety and Security; it covers the assessment of the potential risks and impacts to the health and safety of the affected community from project activities.
- PS 5: Land Acquisition and Involuntary Resettlement; it highlights that in addition to physical displacement, economical displacement (loss of income, etc.) should be considered during the land allocation for the project.
- PS 6: Biodiversity Conservation and Sustainable Natural Resource Management; it recognizes the protection and conservation of biodiversity - the variety of life in all its forms - and its ability to change and evolve and that this is fundamental to sustainable development. IFC Performance Standard 6 recognizes that protecting and conserving biodiversity, maintaining ecosystem services, and sustainably managing living natural resources are fundamental to sustainable development. The requirements set out in this Performance Standard have been guided by the Convention on Biological Diversity, which defines biodiversity as “the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part; this includes diversity within species, between species, and of ecosystems. The objectives of Standard 6 are to protect and preserve biodiversity, to sustain the benefits from ecosystem services and to promote the sustainable management of living natural resources.
- PS 7: Indigenous Peoples; it includes the assessments of the indigenous peoples among the social groups at the project area.
- PS 8: Cultural Heritage; it includes the protection of the cultural heritage in the project design and implementation and the usage of the cultural heritage by the project.

2.3.2.1 European Bank for Reconstruction and Development (EBRD) Environmental and Social Standards (April 2019)

Another international standard is the European Bank for Reconstruction and Development (EBRD) Standard. The European Bank for Reconstruction and Development (EBRD or the Bank) is committed to promoting “environmentally sound and sustainable development” in the full range of its activities pursuant to the Agreement Establishing the EBRD. The Bank recognizes that environmental and social sustainability is a fundamental aspect of achieving outcomes consistent with its transition mandate. Therefore, the projects that foster environmental and social sustainability are within the highest priorities of the Bank’s activities.

EBRD Performance Conditions aims to ensure that projects are implemented under appropriate policies and conditions, to support projects with high environmental and social benefits, and to integrate the environmental sustainability of the project with the Bank activities. Through the Performance Requirements (PR) adopted in line with these objectives, the bank defines the key areas of environmental and social impacts and issues and requires monitoring the applications. The Bank Performance Requirements are parallel to the IFC Performance Standards and they are listed below;

- EBRD PR1: Assessment and Management of Environmental and Social Risks and Impacts

- EBRD PR2: Labour and Working Conditions
- EBRD PR3: Resource Efficiency and Pollution Prevention and Control
- EBRD PR4: Health, Safety and Security
- EBRD PR5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement
- EBRD PR6: Biodiversity Conservation and Sustainable Management of Living Natural Resources
- EBRD PR7: Indigenous Peoples
- EBRD PR8: Cultural Heritage
- EBRD PR9: Financial Intermediaries
- EBRD PR10: Information Disclosure and Stakeholder Engagement

2.3.2.2 Equator Principles (July 2020)

The Equator Principles consist of principles that aim to establish a common basis for financial institutions to identify, assess and manage environmental and social risks while financing the Projects. Equator Principles Financial Institutions (EPFI) are the institutions that decide to carry out their project finance transactions in accordance with the Equator Principles and require that the activities they finance are carried out in accordance with these principles. No funding is provided for Projects that do not comply with the relevant Equator Principles requirements. EPFIs also state that they have broader responsibilities to identify and manage adverse environmental and social risks and impacts, and to respect Human Rights for financial products that are outside the Scope of the Equator Principles and managed through the corporate environmental and social risks of EPFIs. Equator principles are briefly explained below;

EP 1: Review and Categorization; Following the assessment of the project in terms of its social and environmental impacts, it categorizes the project as per the magnitude of impacts as Category A, B or C.

Category A: Projects with potential significant adverse environmental and social risks and/or impacts that are diverse, irreversible or unprecedented;

Category B: Projects with potential limited adverse environmental and social risks and/or impacts that are few in number, generally site-specific, largely reversible and readily addressed through mitigation measures; and

Category C: Projects with minimal or no adverse environmental and social risks and/or impacts.

EP 2: Environmental and Social Assessment; The EPFI will require the client to conduct an appropriate Assessment process to address, to the EPFI's satisfaction, the relevant environmental and social risks and scale of impacts of the proposed Project (which may include the illustrative list of issues found in Exhibit II). The Assessment Documentation should propose measures to minimize, mitigate, and where residual impacts remain, to compensate/offset/remedy for risks and impacts to Workers, Affected Communities, and the environment, in a manner relevant and appropriate to the nature and scale of the proposed Project.

EP 3: Applicable Environmental and Social Standards; The Assessment process should, in the first instance, address compliance with relevant host country laws, regulations and permits that pertain to environmental and social issues. EPFIs operate in diverse markets: some with robust environmental and social governance, legislation systems and institutional capacity designed to protect their people and the environment; and some with evolving technical and institutional capacity to manage environmental and social issues. The EPFI's due diligence will include, for all Category A and Category B Projects globally, review and confirmation by the EPFI of how the Project and transaction meet each of the Principles.

EP 4: Environmental and Social Management System and Equator Principles Action Plan; For all Category A and Category B Projects the EPFI will require the client to develop and / or maintain an Environmental and Social Management System (ESMS). Further, an Environmental and Social Management Plan (ESMP) will be prepared by the client to address issues raised in the Assessment process and incorporate actions required to comply with the applicable standards. Where the applicable standards are not met to the EPFI's satisfaction, the client and the EPFI will agree to an Equator Principles Action Plan (EPAP). The EPAP is intended to outline gaps and commitments to meet EPFI requirements in line with the applicable standards.

EP 5: Stakeholder Engagement For all Category A and Category B Projects the EPFI will require the client to demonstrate effective Stakeholder Engagement, as an ongoing process in a structured and culturally

appropriate manner, with Affected Communities, Workers and, where relevant, Other Stakeholders. For Projects with potentially significant adverse impacts on Affected Communities, the client will conduct an Informed Consultation and Participation process. The client will tailor its consultation process to: the risks and impacts of the Project; the Project's phase of development; the language preferences of the Affected Communities; their decision-making processes; and the needs of disadvantaged and vulnerable groups. This process should be free from external manipulation, interference, coercion and intimidation.

EP 6: Grievance Mechanism; For all Category A and, as appropriate, Category B Projects, the EPFI will require the client, as part of the ESMS, to establish effective grievance mechanisms which are designed for use by Affected Communities and Workers, as appropriate, to receive and facilitate resolution of concerns and grievances about the Project's environmental and social performance.

EP 7: For all Category A and, as appropriate, Category B Projects, an Independent Environmental and Social Consultant, will carry out an Independent Review of the Assessment process including the ESMPs, the ESMS, and the Stakeholder Engagement process documentation in order to assist the EPFI's due diligence and determination of Equator Principles compliance. The Independent Environmental and Social Consultant will also propose or opine on a suitable EPAP capable of bringing the Project into compliance with the Equator Principles, or indicate where there is a justified deviation from the applicable standards. The Independent Environmental and Social Consultant must be able to demonstrate expertise in evaluating the types of environmental and social risks and impacts relevant to the Project.

EP 8: Covenants; An important strength of the Equator Principles is the incorporation of covenants linked to compliance. For all Projects, where a client is not in compliance with its environmental and social covenants, the EPFI will work with the client on remedial actions to bring the Project back into compliance. If the client fails to re-establish compliance within an agreed grace period, the EPFI reserves the right to exercise remedies, including calling an event of default, as considered appropriate..

EP 9: Independent Monitoring and Reporting; For all Category A and, as appropriate, Category B Projects, in order to assess Project compliance with the Equator Principles after Financial Close and over the life of the loan, the EPFI will require independent monitoring and reporting

EP 10: Reporting and Transparency; as a minimum, the project owner should ensure that a summary of the ESIA is accessible and available online and includes a summary of human rights and climate change risks and impacts, where relevant.

2.3.3 International Agreement and Guidelines for Labour and Working Conditions

2.3.3.1 International Labor Organization

The International Labor Organization, which was established with the aim of developing and advancing the standards in the labor laws and practices in this field in countries, aims to realize rights in working life, to encourage decent employment opportunities, to strengthen social protection and to strengthen dialogue on working life issues. The ILO has four strategic goals;

- The dissemination and implementation of standards, basic principles and rights in working life,
- Increasing the opportunities required for women and men to work in decent jobs and earn decent income,
- Expanding the scope of social protection for all and increasing its effectiveness,
- Strengthening tripartite and social dialogue.

There are 59 contracts from ILO Conventions, which are approved by Turkey, and 55 of them are in force. Some of Turkey's approved contracts are as follows;

Table 2.2: Turkey's Approved Contracts

Convention Name	ILO Admission Date	The date that Convention entered into force in Turkey
Unemployment Convention numbered 2	29. 10. 1919	14. 07. 1950
Freedom of Association (Agriculture) Convention numbered 11	25. 10. 1921	29. 03. 1961
Weekly Rest (Industry) Convention numbered 14	25. 10. 1921	27. 12. 1946
Weekly Rest (Industry) Convention numbered 14	25. 10. 1921	27. 12. 1946
Minimum Age (Trimmers and Attendants) Convention* numbered 15	29.10. 1921	29. 09. 1959
Minimum Wage Determination Method Convention numbered 26	30. 05. 1928	29. 01. 1975
Forced Labor Convention numbered 29	06. 06. 1930	30. 10. 1998
Paid Employment Offices Convention numbered 34	08. 06. 1933	27. 12. 1946
Worker Compensation Convention (Occupational Diseases) numbered 42 (Revised)	04. 06. 1934	27. 12. 1946
On the Underground Works Convention numbered 45 (Women)	04. 06. 1935	21. 04. 1938
Minimum Age (Sea) Convention numbered 58 (Revised)	22. 10. 1936	29. 09. 1959
Minimum Age (Industry) Convention numbered 59 (Revised)	03. 06. 1937	12. 07. 1993
Young People's Medical Examination (Industry) Convention numbered 77	19. 06. 1947	05. 03. 1951
Labor Inspection Convention numbered 81	17. 06. 1948	12. 07. 1993
Freedom of Association and Protection of the Right to Union Convention numbered 87	17. 06. 1948	14. 07. 1950
The Establishment of the Job and Employment Service Convention numbered 88	08. 06. 1949	29. 03. 1961
Working Conditions Convention (Public Conventions) numbered 94	08. 06. 1949	29. 03. 1961
Protection of Wages Convention numbered 95	18. 06. 1949	23. 01. 1952

2.3.3.2 EU Directive 89/391/EEC

The European Union Directive 89/391/EEC of 12.06.1989 was created to promote improvements in safety and health of workers. Therefore, it contains information on occupational risk prevention, safety and health protection, elimination of risk and accident factors, information, consultation, national laws and/or practices, and principles, guidelines, and training principles for employee implementation.

This Directive applies to all sectors of activity, both public and private (industrial, agricultural, commercial, administrative, service, education, culture, entertainment, etc.). However, It cannot be applied to certain specific public service activities, such as the armed forces of the police, or certain specific activities in the civil protection service. The Member State will take the necessary steps to ensure that employers, workers and representatives of workers are subject to the legal provisions necessary for the implementation of this Regulation.

The directive, consisting of 19 articles, includes main headings for the health and safety of employers and workers.

2.3.3.3 IFC Environmental, Health, and Safety (EHS) Guidelines Occupational Health and Safety

The IFC Occupational Health and Safety section provides guidance and examples of reasonable measures to be implemented in managing key risks to occupational health and safety. Most of the guidance also applies to construction and decommissioning activities, although the focus is placed on the operational phase of projects. According to the IFC Occupational Health and Safety guidelines, employers should hire technically qualified contractors to manage the occupational health and safety issues of their employees and carry out hazard management activities through formal procurement Conventions.

According to IFC, preventive and protective measures should be taken in the following order of priority;

- Eliminating the hazard by removing the activity from the work process. Examples include substitution with less hazardous chemicals, using different manufacturing processes, etc.
- Controlling the hazard at its source through use of engineering controls. Examples include local exhaust ventilation, isolation rooms, machine guarding, acoustic insulating, etc.;
- Minimizing the hazard through design of safe work systems and administrative or institutional control measures. Examples include job rotation, training safe work procedures, lock-out and tag-out, workplace monitoring, limiting exposure or work duration, etc.
- Providing appropriate personal protective equipment (PPE) in conjunction with training, use, and maintenance of the PPE.

The application of prevention and control measures to occupational hazards should be based on comprehensive occupational safety or occupational hazard analysis. The results of these analyzes should be prioritized as part of an action plan based on the likelihood and severity of the consequence of exposure to the hazards identified. An example of a qualitative risk ranking/analysis matrix has been provided by IFC OHS to help set priorities (see Table 2.3).

Table 2.3: Risk Ranking Table to Classify Worker Scenarios Based on Likelihood and Consequence

Likelihood	Consequences				
	Insignificant	Minor	Moderate	Major	Catastrophic
Almost Certain	L	M	E	E	E
Likely	L	M	H	E	E
Moderate	L	M	H	E	E

Unlikely	L	L	M	H	E
Rare	L	L	M	H	H
Legend E: extreme risk; immediate action required H: high risk; senior management attention needed M: moderate risk; management responsibility should be specified L: low risk; manage by routine procedures					

2.3.3.4 IFC Performance Standards

The Labor and Working Conditions standard, which is the IFC Performance Standard 2, is another IFC guide that will set an example for occupational health and safety. IFC Performance Standard 2 recognizes that the pursuit of economic growth through job creation and income generation must be balanced with the protection of fundamental rights of the employees.

Failure to establish and develop a sound worker-management relationship can weaken employee engagement and jeopardize a project. Conversely, through a constructive worker-management relationship and by treating workers fairly and providing them with safe and healthy working conditions, tangible benefits such as increasing the efficiency and productivity of operations of the customers improve the project.

The requirements set out in this Performance Standard are partly guided by international Conventions negotiated through the International Labor Organization (ILO) and the United Nations (UN). The purpose of the IFC PS 2 is;

- Establishing, maintaining, and improving the worker-management relationship,
- Promoting fair treatment, non-discrimination and equal opportunity of employees and compliance with national labor and employment laws,
- Protecting the workforce by addressing child labor and forced labor,
- Promoting safe and healthy working conditions and to protect and improve the health of employees.

While the applicability of this Performance Standard is determined in the Social and Environmental Assessment process, the implementation of the necessary actions to meet the requirements of this Performance Standard is managed through the Social and Environmental Management System of the client. The assessment and management system requirements are outlined in Performance Standard 1.

2.3.3.5 European Bank for Reconstruction and Development (EBRD) Requirements

The European Bank for Reconstruction and Development (EBRD) Requirement 2: Labor and Working Conditions states that the workforce is a valuable asset for employers and their business activities, and that good human resources management and a sound worker based on respect for rights of workers, including freedom of association and the right to work. acknowledges that there is a management relationship. EBRD PR2 objectives are given below;

- To respect and protect the basic principles and rights of employees,
- To promote a decent work agenda, including fair treatment, non-discrimination, and equal opportunities for employees,
- To establish, maintain and improve a solid worker-management relationship,
- To encourage compliance with collective Conventions, national labor and employment laws,
- To protect and improve the safety and health of employees, especially by promoting safe and healthy working conditions,

- To prevent forced labor and child labor (as defined by ILO).

Rönesans has a "Manual for Health Safety & Environment" management plan, which has been created within the scope of Occupational Health and Safety. In the activities carried out in line with this plan, responsible people are appointed, and management is ensured by taking necessary OHS measures.

Rönesans, from the above-mentioned national legislation, Occupational Health and Safety Law, Labor Law, Regulation on Duties, Authorities, Responsibilities and Training of Occupational Safety Specialists, Communique on Workplace Hazard Classes Regarding Occupational Health and Safety, IFC Standards and Guidelines and EU Directives will properly carry out business activities.

Table 2.4: Permitting Plan for the Project

Permit	Authority	Responsibility	Timing	Date Received	Status/Permit No
Environmental					
Mersin-Adana EIA Decision*	Ministry of Environment and Urbanization	TCDD	10.07.2015	10.07.2015	E-2015531
İncirlik-Toprakkale EIA Decision*	Ministry of Environment and Urbanization	TCDD	19.06.2012	19.06.2012	2577
Toprakkale- Bahçe EIA Decision*	Ministry of Environment and Urbanization	TCDD	05.05.2014	05.05.2014	E-201464
Bahçe - Nurdağı EIA Decision*	Ministry of Environment and Urbanization	TCDD	05.10.2011	05.10.2011	2309
Nurdağ – Başpınar EIA Decision*	Ministry of Environment and Urbanization	TCDD	25.03.2013	25.03.2013	2834
Waste Management					
Environmental Permit for Camp Sites	Ministry of Environment and Urbanization	Rönesans	Before Activities	-	-
Other					
Construction Permit	Ministry of Environment and Urbanization	Rönesans	Before Construction	-	-
Forest Permit	Ministry of Agriculture and Forest	Rönesans	Before Construction	-	-
Non-Agricultural Usage Permit	Ministry of Agriculture and Forest	Rönesans	Before Construction	-	-

Permit	Authority	Responsibility	Timing	Date Received	Status/Permit No
Protocol for cultural heritage (especially for Kamışlı/Yarma Mound)	Directorate of Cultural Heritage Preservation Regional Board	Rönesans	Before construction activities near the Kamışlı/Yarma Mound and anywhere else where recommended by Directorate of Cultural Heritage Preservation Regional Board	-	-

3 PROJECT DESCRIPTION

3.1 Project Overview

The Project awarded to Rönesans through a tender by TCDD is a High Standard Train Project where construction, electrification and signaling processes will be carried out. The High Standard Train Project will be built between Mersin-Adana-Osmaniye-Gaziantep (Başpınar) routes and a railway of 286 km in total will be created. The unfinished parts of the railway between Mersin and Gaziantep are planned to be completed in 34 months by Rönesans, followed by 24 months warranty period.

The 286 km long High Standard Train Project will start from Mersin, pass through Tarsus, Adana, Incirlik, Toprakkale, Bahçe, Nurdağ, Başpınar stations, and last at Mustafa Yavuz Station. 78 km of this 286 km line is between Mersin and Adana, 79 km between Adana and Toprakkale, 56 km between Toprakkale and Bahçe, 17 km between Bahçe and Nurdağ and the last 56 km between Nurdağ and Başpınar is planned to be.

All construction, electrification and signaling operations on the route between Mersin and Ceyhan, other operations excluding construction between Ceyhan and Toprakkale, construction, electrification and signaling operations excluding tunnel construction between Toprakkale and Bahçe, signaling operations only between Bahçe and Nurdağ, the first 41 km between Nurdağ and Başpınar excluding construction works and all operations on the remaining 15 km will be carried on Rönesans.

In 2023, it is aimed to increase the passenger capacity in railway transportation from 1.3% to 3.8% with the High Standard Train Project planned.

3.2 Project Categorization

According to Equator Principles categorization scale is in 3 different categories. These categories are A, B and C. The Category A is large projects that can cause significant adverse environmental and social risks and/or impacts that are diverse, irreversible, or unprecedented such as projects which take 15 years or more.

In general, according to IFC and EBRD standards, train projects can be categorized as Category A Project. Category A Projects are defined by EBRD as projects which are likely to have significant environmental and/or social impacts and which require a more formalized process of assessment than other projects. The planned Train Project can be considered as Category A since it passes through especially important natural areas, water bodies and may have an impact on number of employees and geographical size. In addition, since the ESIA process is currently underway, it has been deemed appropriate to be considered Category A.

In summary, since the train project is a stable and long-term project and its impact will remain for a long time, it is also likely to be Category A according to reasons which are the described above in the category descriptions.

3.3 Project Scope and Extend

The main scope of the Project is high standard railway construction and rehabilitation between Mersin and Gaziantep Provinces of Turkey.

Turkey aims to improve intermodal and multimodal applications by using the geographic advantage of Turkey to;

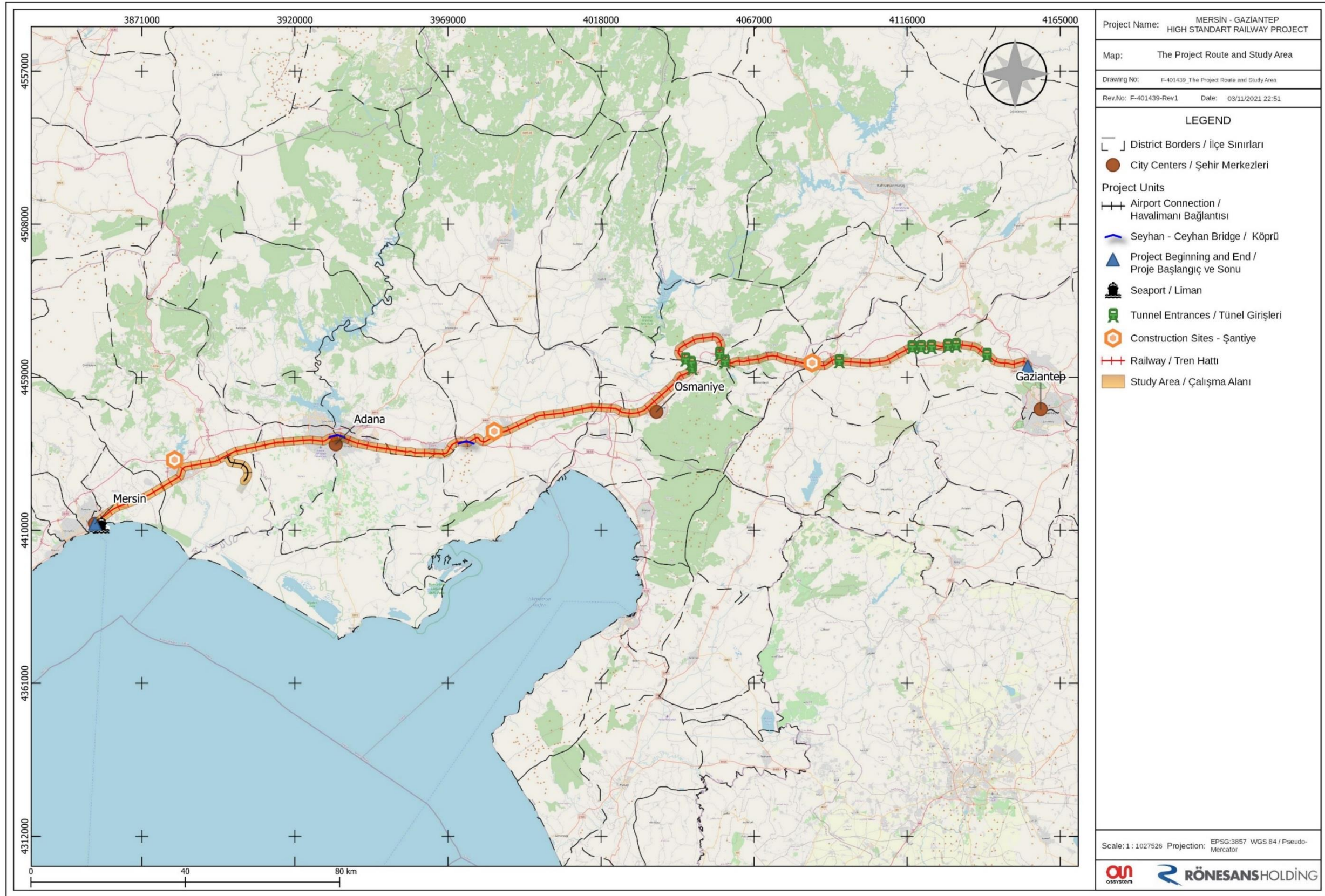
- Increase the share of railway and seaway in transportation,
- Establish a fast, flexible, safe, reliable, and integrated transportation system and so reduce logistic costs and trade facilitation,
- Increase growing competitiveness for logistics and transportation within the scope of 11th Development Plan covering the period 2019-2023.

For this purpose;

- Ongoing high standard railways will be completed,
- Planning for high standard railway will be made by considering the balance of supply and demand,
- Express services will be increased, and
- Travel times will be shortened.

The Train Project, which is the subject of this report and 286 km in length, starts from Mersin, passes through Adana, İncirlik, Toprakkale, Bahçe, Nurdağ, Başpınar Stations respectively and ends at the Mustafa Yavuz Station. Following the completion of the railway, the travel time between Adana and Gaziantep will be reduced to 1.5 hours. As a result, while the transportation cost to Mersin where there exists an international port reduces, the competition opportunities of producers, especially located in Gaziantep will increase because, Gaziantep is an industrial city with a population of around 2 million.

Project route and study area are shown as a map below (see Map 3.1).



Map 3.1: The Project Route and Study Area

Currently, there are 2 lines between Mersin and Gaziantep Provinces. Rehabilitation of the available lines, construction of 2 new lines, electrification, signaling, and telecommunications and the connection of the line with Çukurova Airport and Tarsus are taken into consideration in the scope of the Project.

By implementing the Project, the following benefits will be achieved;

- Expansion and development of the national railway network,
- Increasing the share of railways in intercity transportation,
- Providing fast, secure, continuous and economical transportation,
- Reducing intercity logistic costs,
- Ensuring safe traffic and station management with an effective capacity of the national railway network.

Within the scope of the project, 21 stations, 35 viaducts/bridges, 3 tunnels (NATM & cut-and-cover), 61 subway & overpasses, 190 culverts and also 22,080,000 m³ excavation, 950,000 m³ concrete, 206,000 m piles, 561 km line laying, 266 switches, 10,188 catenary poles for electrification operations and 2100 km cable production for signaling processes.

Construction, electrification and signaling operations on the 79 km Mersin-Adana route of the 286 km Mersin-Gaziantep (Başpınar) high standard railway, construction, electrification and signaling operations on the 49 km section of the 79 km Adana-Toprakkale route and other 30 km of the route electrification and signaling processes; construction, electrification and signaling operations excluding tunnels on the 56 km Toprakkale-Bahçe route, 17 km Bahçe-Nurdağ route only signaling process, the first 41 km of the 56 km Nurdağ-Başpınar route electrification and signaling operations and the construction, electrification and signaling operations in the remaining 15 km will be carried out by Rönesans.

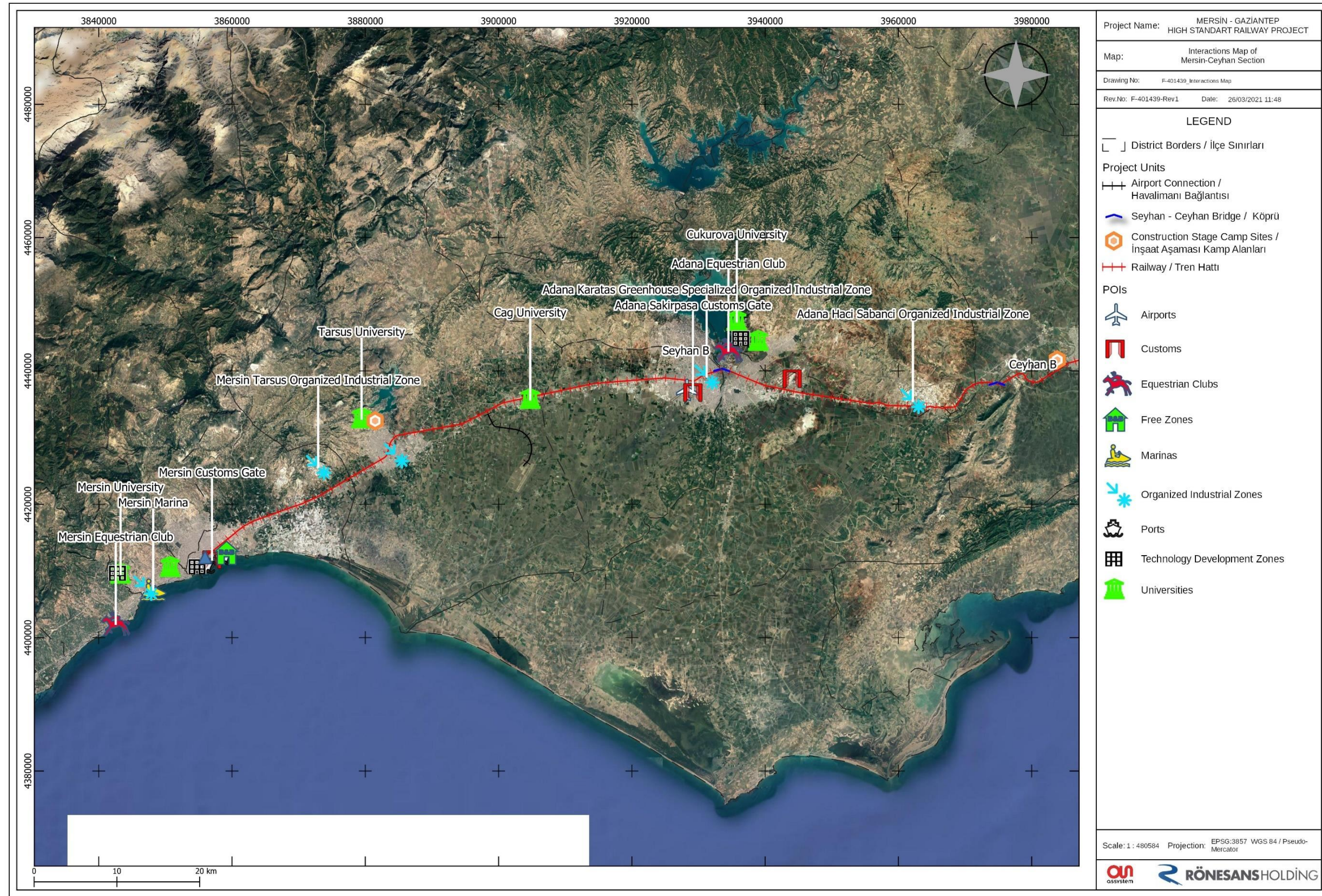
3.4 Major Facilities in the Project Vicinity

Major facilities in the Project vicinity are listed below (see Table 3.1) and Interaction map of the major facilities with the Project is given in the maps below (see Map 3.2 and Map 3.3).

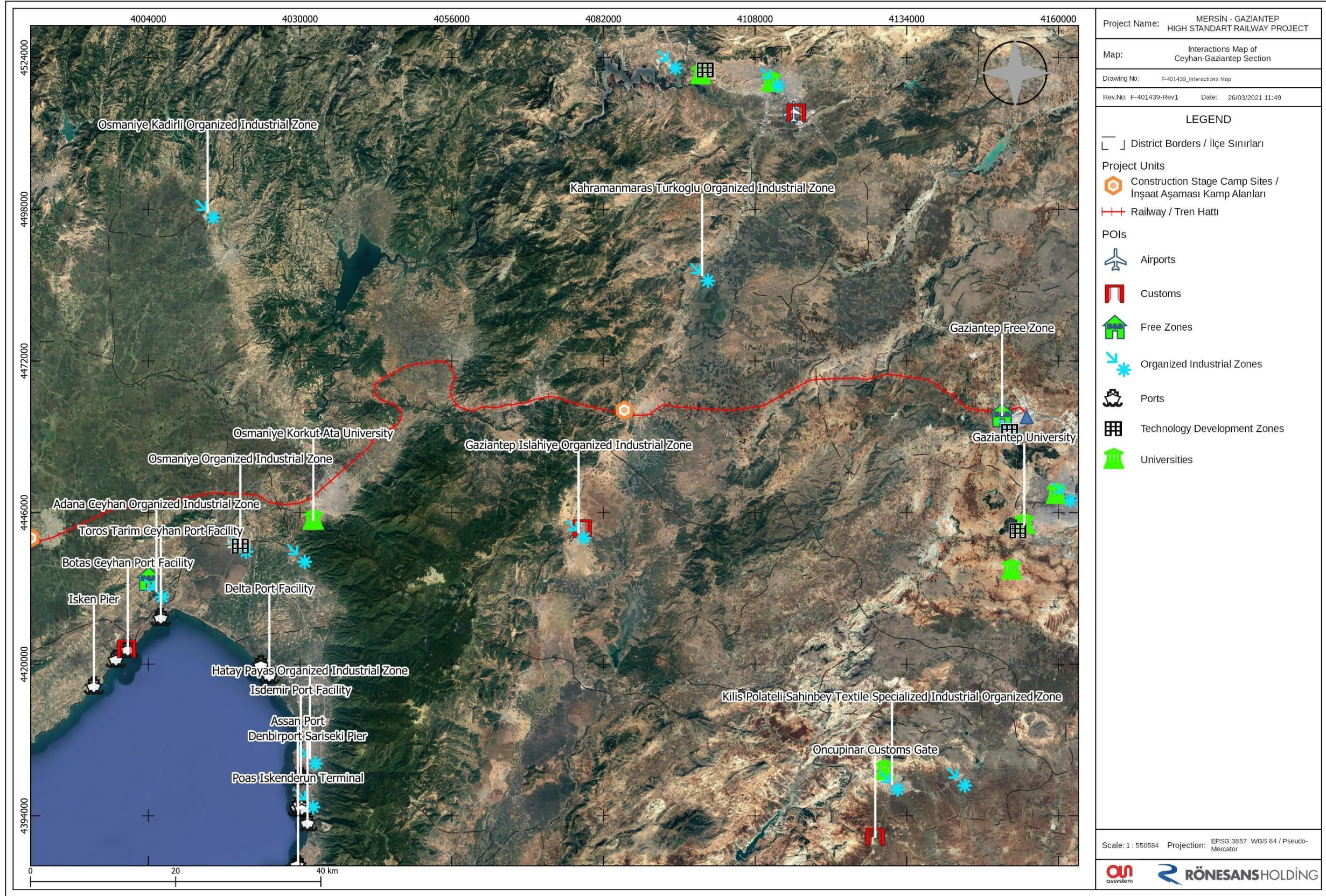
Table 3.1: Major Facilities in the Project Vicinity

City	Facilities in the Project Vicinity
Mersin	Mersin Food and Agriculture Specialized Technology Development Zone
	Mip Mersin Port
	Mersin Customs Gate
	Mesbas Port Facility
	Mersin Mut Organized Industrial Zone
	Mersin Technology Development Zone
	Mersin Free Zone
	Mersin Tarsus Organized Industrial Zone
	Mersin Tarsus Agricultural Product Processing Organized Industrial Zone
Adana	Adana Airport
	Adana Sakirpasa Customs Gate

City	Facilities in the Project Vicinity
	Adana Karatas Greenhouse Specialized Organized Industrial Zone
	Cukurova Technology Development Zone
	Adana Incirlik Customs Gate
	Adana Hacı Sabancı Organized Industrial Zone
	Adana Yumurtalık Free Zone
	Adana Ceyhan Organized Industrial Zone
	Toros Tarım Ceyhan Port Facility
	Botaş Ceyhan Port Facility
	İsken Pier
Osmaniye	Osmaniye Technology Development Zone
Gaziantep	Gaziantep Free Zone
	Gaziantep Organized Industrial Zone



Map 3.2: Interaction Map of the Major Facilities with the Project Between Mersin-Ceyhan



Map 3.3: Interaction Map of the Major Facilities with the Project Between Ceyhan - Gaziantep

3.5 Estimated Benefits of the Projects

Estimated benefits of the Projects,

- The travel time between Adana-Gaziantep will be shortened by 1.5 hours with the High Standard Train Project,
- It will increase the passenger comfort,
- It provides an important economic effect,
- Especially for Mersin, which is a port city, the port will contribute to the development of local and intercity transportation and the development of the economy,
- It is expected to provide employment in the cities where the stations and stops of the high standard train pass,
- With the shortening of the travel time and the increase in comfort, it is expected that the number of tourists coming to the region will increase and accordingly, the region around the project area will be improved economically.

3.6 Utilities to be Relocated

Necessary expropriation procedures have been carried out and there is no infrastructure components to be relocated.

3.7 Temporary Construction Facilities

For the construction on the route, 3 construction sites will be installed and the structures in these sites are planned to be prefabricated.

During the construction period of the High Standard Train Project such as excavation, filling, and coating, works will be carried out along the line. In the areas where Rönesans is responsible for the construction operations, temporary construction sites are established where the construction works are carried out. These construction sites are units with a certain number of employees and equipment used for construction operations.

As a result of preliminary studies, Merkez Tarsus construction site is positioned as the central construction site and Ceyhan as the second construction site. Nurdağı construction site is located as the third construction site.

There is no stockyards planned to be built within the scope of the Project.

3.8 Project Units

3.8.1 Earthworks

The extracted vegetable soil is expected to be stored on site temporally. During the excavations to be carried out along the route, the topsoil to be taken at the first stage will be temporarily stored along the route at certain intervals. It will be used in landscaping after the general excavation works are completed. Topsoil remaining after this use will be transferred to the area determined by the relevant municipality.

For the management of excavation wastes, the provisions of the Regulation on Control of Excavated Soil, Construction and Demolition Wastes Official Gazette dated 18.03.2004 and numbered 25406 will be provided.

3.8.2 Stations, Buildings and Engineering Structures

The station information of the High Standard Train Project on the Mersin-Gaziantep (Başpınar) route is written in the following items. For the construction on the route, 3 construction sites will be installed and the structures in these sites are planned to be prefabricated.

In order to determine the existing conditions of the project area, a field exploration study was carried out by Assystem ENVY between 4-16 October 2020.

Mersin - Adana Section (76 km)

- Existing 2 convectional lines will be rehabilitated,
- The third and fourth high standard railway lines will be constructed,
- The river crossing bridge constructed of 20 steel structures will be removed and a concrete bridge will be built instead,
- Length of existing 46 culverts in the first and second line will be extended to the third and fourth line,
- 12 stations will be built,
- EST systems of 4 lines will be installed,
- Incomplete infrastructures and superstructures on Çukurova airport connection line, which is 9.5 km double line, will be built. In addition, EST systems and a 1113 m long viaduct will be built on this connecting line,
- Subways, overpasses, and surrounding walls will be constructed by Turkish State Railways (TCDD) and these are not included in the scope of this project.

Adana - İncirlik - Ceyhan - Toprakkale Section (79 km)

- The first 49 km section of the 79 km double rail line will be constructed, infrastructures and superstructures will be built, and EST will be installed,
- Infrastructure and superstructure work of the last 30 kilometers of the line will be completed by another contractor, but electrification and signaling works of this part will be carried out,
- 3 hydraulic bridges, 12 overpasses, 8 underpasses, 54 culverts and 1 tunnels will be constructed,
- A viaduct will be built on a 4 km section due to the inability to fit into the existing line in İncirlik region,
- 5 stations in the line will be reconstructed.

Toprakkale - Osmaniye - Bahçe Section (58 km)

- 8 km double railway line will be constructed between Toprakkale - Osmaniye - Bahçe, all infrastructures and superstructures in line will be completed,
- The construction of 11 cut and cover tunnels (2387 m), 5 tunnels (9785 m), 9 single tube escape tunnels (3687 m) and 7 cut and cover escape tunnels (449 m) will be carried out by another contractor. These are not in the scope of the Project,
- 5 viaducts, 15 overpasses, 23 underpasses and 83 culverts will be built,
- 3 stations will be constructed.

Bahçe - Nurdağ Section (approx. 19 km)

- Only signalization works for the 19 km dual railway line will be carried out. All other necessary works will be carried out by another contractor.

Nurdağ–Başpınar Section (56 km)

- The final 16 km section of the 56 km dual rail line will be constructed. Infrastructures and superstructures of this line and EST systems will be built,
- Infrastructure and superstructure work of the first 40km section will be carried out by another contractor. However, electrification and signaling works of this part will be carried out,
- 3 viaducts, 2 overpasses, 1 underpass, 8 culverts and 1 tunnel will be constructed,
- 1 station will be built.

Except the Düziçi Station, all other terminals and stations were built before the High Standard Train Project because there was already an existing railway line.

3.8.3 Station Access Roads

Supplying of the access to the stations for the community is an important subject. For most of the stations, existing roads will be rehabilitated and used. For the new stations to be built, connection roads will be built close to the existing highways.

3.8.4 Bridges, Tunnels and Engineering Structures

5 different consultancy/contracting companies are involved in the construction of the High Standard Train Project. These companies are companies that have been contracted by TCDD with different tenders. Each of these companies has different business scopes. As can be seen from the tables below, even structures like the art structures, bridges, tunnels and so on will be constructed by these 5 companies.

Table 3.2: Structures Under the Responsibility of Other Contractors

Section	Mersin - Adana	Adana - Incirlik - Toprakkale	Toprakkale - Bahçe	Bahçe - Nurdağ Variant		Nurdağ - Başpınar	Başpınar - Gaziantep - M.Yavuz
Scope of the Work	Addition of 3rd and 4th lines between Adana and Mersin Stations	Addition of 2nd line and rehabilitation of current line between Adana - Incirlik and Toprakkale Stations	Construction of Tunnel Works Between Toprakkale and Bahçe Stations	Infrastructure works of between Bahçe -Nurdağ Variant	Infrastructure, superstructure and electrification works between Bahçe and Nurdağ Variant	Construction of new lines between Nurdağ and Başpınar Stations	Infrastructure and superstructure work and reconstruction of railway lines between Başpınar – Gaziantep and Mustafa Yavuz Stations
Contractor	Dalgıçlar & Nuhoğlu	Çelikler	Demce & Bestaş	Intekar	Bestaş - Intekar	Fernas & Öztaş	Kolin & Gülermak & Kalyon
Distances	78.0 km	79.0 km	58.0 km	-	16.9 km	56.0 km	25.0 km
Completion Percentage	100.0%	22.0%	7.5%	100.0%	-	49.1%	100.0%

3.8.5 Temporary (Construction Phase) Units

During the construction period of the High Standard Train Project such as excavation, filling, and coating, works will be carried out along the line. In the areas where Rönesans is responsible for the construction operations, temporary construction sites are established where the construction works are carried out. These construction sites are units with a certain number of employees and equipment used for construction operations.

As a result of preliminary studies, Merkez Tarsus construction site is positioned as the central construction site and Ceyhan as the second construction site. Nurdağ construction site is located as the third construction site.

3.9 Project Alternatives (If investigated by TCDD)

The project alternatives determined before the project construction are used to determine the most suitable scenario in the region without changing the purpose and benefits of the Project. Project alternatives which their impacts are not reasonably defined, may cause problems in terms of implementation and the project objectives cannot be achieved, are not considered. Since the Mersin-Gaziantep Railway Route is an existing railway, its route and technologies used are certain. In determining the alternative of the High Standard Train Project, contacting many institutions and organizations and examining the plans to be made with areas such as the planned road and water resources played a role. For the determined alternative of the Project, the geology of the line, the environmental features in the region, the services and art structures that may be affected, and the cost analysis and examination have been made. There are no project alternatives as it is an existing line, and it is aimed to add lines where necessary and rehabilitate the existing one.

4 ASSESSMENT and MANAGEMENT of ENVIRONMENTAL and SOCIAL RISKS and IMPACTS (EBRD PR 1)

4.1 Impact Assessment Methodology (Impact Magnitude and Sensitivity Criteria may be re-define in each section)

4.1.1 Describing the Sensitivity, Value, or Importance of Receptors

General criteria for defining the importance or sensitivity of receptors are set out in Table 4.1. Key factors influencing this include the value of the receptor or resource based upon empirical and/or intrinsic factors (e.g. taking into account any legal or policy protection afforded which is indicative of the receptor or resources' value internationally, nationally or locally).

Table 4.1: Sensitivity or Value Criteria

Sensitivity or Value	Description
Very high	The receptor has little or no capacity to absorb change without fundamentally altering its present character, is of very high environmental value, or of international importance.
High	The receptor has low capacity to absorb change without fundamentally altering its present character, is of high environmental value, or of national importance.
Medium	The receptor has moderate capacity to absorb change without significantly altering its present character, has some environmental value, or is of regional importance.
Low	The receptor is tolerant of change without detriment to its character, is low environmental value, or local importance.
Negligible	The receptor is resistant to change and is of little environmental value.

4.1.2 Magnitude of Impacts

General criteria for defining the magnitude of an impact are set out in Table 4.2. Key factors influencing this include, the physical or geographical scale of the impact, the duration of the impact, the frequency of the impact and the reversibility of the impact.

Table 4.2 Impact Magnitude Criteria

Magnitude	Description
High	Total loss or major alteration to key elements/features of the baseline conditions such that post development character/composition of baseline condition will be fundamentally changed.
Medium	Loss or alteration to one or more key elements/features of the baseline conditions such that post development character/composition of the baseline condition will be materially changed.

Magnitude	Description
Low	Minor shift away from baseline conditions. Changes arising from the alteration will be detectable but not material; the underlying character/composition of the baseline condition will be similar to the pre-development situation.
Negligible	Little change from baseline conditions. Change is barely distinguishable, approximating to a "no change" situation.

4.1.3 Describing the Significance of Effects

The general approach adopted for evaluating the significance of effects considering the sensitivity of the receptor and the magnitude of impact is outlined in Table 4.3. The ESIA Regulations require the likely significant effects to be identified. However, in simple terms effects predicted to be 'major' or 'moderate' are considered to be 'significant' whilst effects predicted to be 'minor' or 'neutral' are considered to be 'not significant'.

Table 4.3 Assessment of Significance

Magnitude of Impact	Sensitivity or Value of Receptor				
	Very High	High	Medium	Low	Negligible
High	Major	Major	Moderate	Moderate	Minor
Medium	Major	Moderate	Moderate	Minor	Negligible
Low	Moderate	Moderate	Minor	Negligible	Negligible
Negligible	Minor	Minor	Negligible	Negligible	Negligible

In subsequent chapters of this report the general criteria described above have been made more specific for each environmental topic based on relevant standards or guidelines. A detailed explanation of the approach to assessing impacts and the specific criteria to be used for each topic is set out in later chapters.

4.1.4 Residual Effects

The residual effects are those generated by considering the mitigation methods. The results of the EIA will be reported with and without mitigation in order to allow the effectiveness of mitigation to be fully understood.

4.1.5 Approach to Mitigation

A standard hierarchical approach to the development of mitigation measures will be followed with aim of 'designing out' adverse effects as much as possible (avoiding, preventing, or reducing effects). With the EIA being undertaken in parallel with the development of the Railway this provides opportunities to incorporate mitigation into its design or how it will be constructed. The following approach will be used for developing and categorizing mitigation: design mitigation, construction mitigation, other measures, and compensation measures.

4.1.6 Types of Effects

For the purposes of this ESIA construction effects are typically temporary or short-term occurring during the construction phase only. This would include effects resulting from construction of the Railway such as construction traffic, noise and vibration from construction plant and machinery, dust generation and site runoff as well as effects resulting from the temporary loss of agricultural land or other temporary effects such as exposure to compounds.

For the purposes of this ESIA operational, longer term and permanent effects are those, which would occur as a result of the Railway such as its land take or its operation. This would include effects which may begin during construction and endure for the lifetime of the Railway (such as the loss of agricultural land for the construction of the converter station) or effects which occur during operation only (such as noise emissions associated with operation of the converter station).

4.2 Land Acquisition, Restrictions on Land Use and Involuntary Resettlement (EBRD PR5)

4.2.1 Introduction

Type of a land use depend on land what it is used for. Forestry and farming can be given as example for the land use in rural areas while housing and industry are land use example in urban areas which consist of town and cities. The main zones which represent the function of land use are Central Business District, Inner City, Suburbs and Rural Urban Fringe.

Studies on earth's surface is described as topography which includes changes on the surface of mountains and valleys, features of rivers and roads and surface of other planets, the moon, asteroids, and meteors. Topography is used for determination of the relation between points with recording the data.

Soil which covers the land is the surface material. Organic and inorganic matters form the soil. Existence of soil is significant for humanity because of the food chain and so on [1]

In the scope of Mersin-Gaziantep Train Project, expropriation throughout the line is performed and ownership of the line is belonging to TCDD.

4.2.2 Policies, Legal Framework and Guidelines

National Legislation that will be followed within the scope of the Project is as follows:

- Expropriation Law
- Soil Protection and Land Use Law
- Pasture Law
- Forest Law
- Agriculture Law
- Regulation on Control of Soil Pollution and Point Source Contaminated Sites
- Regulation on Building in Disaster Areas
- Regulation on Building Earthquake in Turkey
- Regulation on The Conservation, Use and Planning of Agricultural Lands
- Regulation on Control of Excavated Soil, Construction and Demolition Wastes
- Regulation on Protection of Buildings against Fire

4.2.3 Extend of Study Area

The exact footprint of the Project could not be obtained from the activity owner. When the center of Railway Line is taken as a reference, 30 m buffer (15 m to the right and 15 m to the left) in the Mersin-Gaziantep Railway Line and 70 m (35 m to the right and 35 m to the left) buffer for the airport connection has been

determined. Calculations have been made with this acceptance by using CORINE Land Cover. Studies about main soil types in the project area is according to the database of the General Directorate of Rural Services.

Erosion classes of the Project footprint are identified within the ESIA report. After the construction works, the soil structure will change, and the vegetative soil will be re-laid in the Project area and the soil will be tightened. As a result of these processes, the Project is not expected to have a negative impact on soil erosion risk classes, except for the Project footprint.

The construction of the railway system is scheduled to be completed in 34 months, and it is followed by period of 24-month guarantee. The period when the impacts can be reversible is described as temporal boundaries. When the construction is completed, impact of the Project on land use and soil will not be reversible. After the construction of the Project, land will be used for transportation until the end of operational period of the Project.

4.2.4 Identification of Baseline Conditions

4.2.4.1 Desk Studies

In the context of Mersin-Gaziantep High Standard Railway Project, baseline conditions of the Project area are analyzed with the purpose of defining land use. The database of the General Directorate of Rural Services and CORINE Land Cover were used. Along the railway line, works of general geology, stratigraphy, and hydrogeology were performed.

4.2.4.1.1 Natural Disaster Risks

In the facility subject to the project, the provisions of the "Regulation on Buildings to be Built in Disaster Areas" published in the Official Gazette dated 14/07/2007 and numbered 26582 in order to protect against flood, fire and earthquake disasters will be complied with. The provisions of the "Regulation on Building Earthquake in Turkey " published in the Official Gazette dated 18.03.2018 and numbered 30364 will be complied with.

4.2.4.2 Field Studies

Within the scope of the project, the vegetable soil will be stripped first. Later, the excavation soil in the Project area will be removed. A large part of this excavation soil to be removed will be used for land arrangement along the route and filling. After the infrastructure and land preparation processes are completed, the Engineering Structures (culvert, passage) will be carried out. Then, rails will be laid on the platform. After laying the rail, trial operations will start on the line and the new line will be put into operation. Drilling works were carried out along the Railway Line.

4.2.5 Impact Assessment

4.2.5.1 Construction Phase

Impacts related to the Project on the existing land use, topography and soil characteristics may occur mostly during the preparation of land and construction period depending on the earthworks and construction activities to be carried out. The impacts on land use, topography and soil will continue during the operational period of the Project.

Topsoil losses, soil disturbance and soil contamination are the possible impacts of the Project on soil. The excavated soil will be stored permanently storage areas near to the project area until the end of construction period and saving the vegetative properties of excavated soil will be ensured. Works carried out during the construction period such as clearing the area, earthworks and excavation of the soil can make the soil risky to the erosion. Soil contamination may be caused by accidentally release of hazardous materials like oil used by machines. Occurrence of this kind of accidents cannot be foreseen but Emergency Management Procedure of Rönesans will be complied in the case of any hazardous leakage. All work on soil will also be carried out in accordance with the Topsoil and Subsoil Management Procedure of Rönesans.

4.2.5.2 Operation, Longer Term and Permanent Effects

Impacts related to the Project on land use, topography, and soil occur in the preparation period of land and construction period. Any impact is not expected on land use, topography, and soil during the operational period. Related changes in the land use type which occurred in the construction period will continue until the end of Project life.

4.2.6 Cumulative Impact Assessment

In the Project area, there was impact of the existing railway on land use, soil and topography. After the construction and rehabilitation of railway line, this impact will be extended in some section of the Railway route. Increase in the impact is expected because of the Project.

4.2.7 Summary of Residual Impacts, Significance Criteria and Overall Impact Significance

Flood refers to the event that a river overflows from its bed for various reasons, damaging the surrounding lands, settlements, infrastructure facilities and living creatures, creating a flow size that interrupts normal socioeconomic life in the impact area. Most of the project route has an existing infrastructure system to provide drainage. Arrangements will be made in this existing infrastructure system. A drainage system will be made for the new line to be established. The Ceyhan Flood Management Plan of DSI prepared in 2018 will be followed. In case of flood risk during the construction phase, Emergency Action Plan of Rönesans will be implemented. Flood risk will be under the responsibility of TCDD.

4.2.8 Mitigation Measures

As a result of the impact assessment studies, mitigation measures were identified. Management procedures established by Rönesans will be followed for the mitigation of land use, topography and soil impacts.

4.2.9 Assumptions and/or Limitations

- Necessary calculation made by using Corine Land Cover European seamless vector database (2018).
- Footprint of the Project could not be provided from project owner. Thus, 30 m (15 m to the left and 15 m to the right) buffer is used for the Mersin-Gaziantep Railway Line while 70 m (35 m to the left and 35 m to the right) buffer is used for the airport connection.
- Earthquake Risk Map was taken on the website of AFAD.

4.3 Air Quality

This section considers the existing air quality and potential impacts of the region where the planned activity is located and the air quality around the facility. Railway construction activities require a comprehensive air quality impact assessment study. Therefore, Air Quality section is prepared to define environmental impacts of air quality within the Project area. In the scope of the project, air quality measurements were carried out to determine the present pollution load of the region before air quality modelling studies. The pollutants of interest for this project are determined as PM₁₀, PM_{2.5}, dust deposit and combustion gases (CO, NO₂ and SO₂) for both construction and operation phases.

4.3.1 Policies, Legal Framework and Guidelines

It is obliged to comply with the national legislations for the High Standard Train Project. The legal framework is applied for all the projects for the evaluation of air quality for a better examination of air quality measurement results. The legal framework examined is given below;

- The Regulation on Industrial Air Pollution Control,
- The Regulation on Management and Assessment of Air Quality,
- The Regulation of Control of Air Pollution Originated from Heating,
- The Regulation on Control of Odor Causing Emissions,
- International Finance Corporation/World Bank (IFC/WB) General Environmental Health and Safety Guidelines,
- European Bank for Reconstruction and Development (EBRD),
- Directive 2015/1480/EC on Ambient Air Quality and Cleaner Air for Europe

4.3.2 Extend of Study Area

The Railway Line air quality impact assessment was carried out using the AERMOD modelling software to see how the pollutants are dispersed along the project area. The buffer zone which is determined as 10 km (5 km to the left and 5 km to the right) for the determination of spatial extend. Spatial extend expresses the impact areas that are likely to affect the nearby communities to the project area.

Air quality samplings were carried out within the scope of the Train project to identify the temporal change in air quality and to understand the overall baseline quality and potential cumulative impacts of the project's existing activities (i.e., whether and/or how they will contribute to the air quality of the proposed project area). In the model study, 2020 meteorological data was used.

4.3.3 Identification of Baseline Conditions

Baseline conditions expresses the present conditions of the region in the absence of any activity. Baseline concentrations of PM_{10} , $PM_{2.5}$ and dust deposit are measured by the contracted laboratory which is called as Febas Environmental Laboratory. The baseline studies are key elements in the monitoring and assessment plan and provide a reference for which any future changes associated with the project activities can be assessed together with their degree of effectiveness and offer information for consecutive monitoring. The baseline conditions also offer a set of comparison criteria for the status of the area before and after the implementation of the Project.

4.3.3.1 Desk Studies

Desk studies of the Project were carried out with the following order;

- Execution of a preliminary model and determination of nearest sensitive receptors to the project area,
- Satellite imagery and obtaining of the Open Street Map views of the Project area,
- Route evaluation,
- Literature studies upon the possible impacts which are examined thoroughly as well as the research and reliable selection of emission factors (EFs) of the construction phase pollutants of concern (PM and dust) with the help of Best Available Techniques (BAT),
- Model selection,
- Model results.

4.3.4 Field Studies

To determine the baseline air quality in the project area, air quality monitoring was carried out at the project field and its vicinity. PM_{10} and $PM_{2.5}$ measurements were conducted by laboratory in 10 measurement points on a monthly basis and dust deposit measurements were conducted in 15 measurement points along the Railway Line.

To determine the Air Quality around the facility, Emission Measurements were carried out around the facility in the date mentioned below.

- 17.10.2020-17.11.2020 / 29.11.2020-29.12.2020 for dust deposit measurements,
- 17.10.2020-17.11.2020 / 29.11.2020-29.12.2020 for PM₁₀ measurements,
- 17.10.2020-17.11.2020 / 29.11.2020-29.12.2020 for PM_{2.5} measurements.

Emission measurement locations were selected according to the standards approved by the Ministry, technically flawless and allowing to make the necessary connections for the measurement.

4.3.4.1 Dust Emissions

The settled dust emissions are carried out for 2 periods each of them is 1 month and in total 2 months according to the Regulation on Industrial Air Pollution Control. In 15 points settled dust measurement was performed. Settled dust formation occurs within the site mostly because of the movement of the vehicles and filling material used for soil works within the Project area. Long-term limit value is 210 mg/m².day and short-term value is 390 mg/m².day which are the strictest value in both national and international legislations.

According to measurement results, there is no exceedance for settled dust concentration in the baseline conditions. Both annual and monthly dust emissions that will arise from the activities during the construction period comply with the limit values on the Regulation on Industrial Air Pollution Control. There is no Information in the international legislation on dust limit values.

4.3.4.2 PM Emissions

Result of PM₁₀ and PM_{2.5} emission measurement which are performed at 10 points. Limit value for daily base is 50 µg/m³ in both national and international legislations and long-term limit for average value is 40 µg/m³ in national legislations and 20 µg/m³ and international legislations. Limit value for daily base is 25 µg/m³ in both international legislations and long-term limit for average value is 10 µg/m³ and international legislations.

4.3.5 Impact Magnitude and Sensitivity Criteria

This section discusses about the impact magnitude by grading the effects of the construction, operation, and decommissioning phases of the Project on air quality in the region. The magnitude and significance of the impact of the project on air quality in the region are shaped by the impact on the receptor. Air quality sensitive receptors have been assessed for their sensitivity, providing a definition of receptor sensitivity and in accordance with relevant applicable legal regulations and standards.

4.3.6 Impact Assessment

The methodology is presented in the following subsections. It should be noted that the severity criteria of the adverse impacts include duration, likelihood, extent and reversibility of an impact within the scope of risk assessment and EBRD PR 3.

As the proposed project will not utilize fuel during operation, no pollutants of concern will be emitted. The only emission during the operation phase can be for maintenance purposes (i.e., transportation of the station employees with vehicles and/or transportation of the authorized personnel in case of an emergency/a maintenance situation).

4.3.7 Cumulative Impact Assessment

There are many industrial facilities around the project area, which should be evaluated as a stationary point source. Also, effects of emissions stemming from the facility on the cumulative load must be evaluated since there are settlement units nearby. The emissions stemming from the other sources are called background measurements. As a rule of thumb, background field measurements form the basis of cumulative impact assessment studies for a better comprehension of project's overall impact to the communities.

Information on provinces that comprise borders of the planned project railway is given in the following sections. Information consists of the number and type activities going on in the region, meteorological conditions, and geographical Information is given in the following sections. Pertaining data is retrieved from the Ministry of Environment and Urbanization, Provincial Environmental Status Reports 2019 for Adana, Osmaniye and Gaziantep provinces and 2018 for Mersin, because the 2019 report for Mersin province is not available in the official website.

Looking at the results, it is likely that agricultural activities-which constitutes exceptionally high percent of the city economy-can particularly contribute $PM_{2.5}$ formation, industrial activities can particularly contribute PM_{10} formation and the construction activities within the Mersin, Adana, Osmaniye and Gaziantep provincial borders can contribute dust formation.

4.3.8 Summary of Residual Impacts, Significance Criteria and Overall Impact Significance

Information on provinces that comprise borders of the planned project railway is given in the following sections. Information consists of the number and type activities going on in the region, meteorological conditions, and geographical Information is given in the following sections. Pertaining data is retrieved from the Ministry of Environment and Urbanization, Provincial Environmental Status Reports 2019 for Adana, Osmaniye and Gaziantep provinces and 2018 for Mersin, because the 2019 report for Mersin province is not available in the official website.

4.3.9 Mitigation Measures

Mitigation measures are required for items which are expected to cause impact on the environment. All activities will be carried out in a controlled manner to prevent dust formation within the scope of the planned activity. Mersin-Gaziantep HST will be able to become an environmentally friendly type of transportation. No exceedance is observed in dust deposit measurements in field visits. In contrast, PM exceedances are observed in some measurement points, emissions in the region can simply be reduced by reducing of smoke and vehicle emissions.

4.4 Visual

This section is about potential visual impacts originating from the Project during operational period. This section also consists of identification of potential visual impacts, proposed avoidance or at least mitigation measures if required, the resultant net and residual effects and monitoring/commitments.

The impact area based upon the existing information and impacts on sensitive receptors are addressed in the following sections. In this context, 3D visual impact assessment studies were carried out in the Report and in the area of analysis belonging to the Project, which is the geographic area to be included in the visual impact assessment.

Visual impact can be defined as any alteration in landforms, water bodies, or vegetation, or any introduction of structures or other man-made visual elements, that negatively or positively affect the visual characteristics or quality of a landscape and the visual experience of people viewing the landscape through the introduction of visual contrasts (opposition of different forms, lines, colors, textures in a landscape) in the basic elements of form, line, color, and texture. They cover the impacts on specific views and on the general visual amenity experienced by people and the potential visual impact is primarily originated from changes in visual characteristics in the view field. Any aesthetic disturbance to the human eye or any hindrance of a landscape can be regarded as visual impact and they should be evaluated thoroughly with a comprehensive VIA study.

Landscape is the most frequently encountered concept in the scope of VIA studies. Landscape can be defined as the extent to which the scenery is visible including land and water forms, vegetation, and man-made structures such as roads and concrete structures of the geographical region that will be subjected to an examination, including its physical and biological environment and psychosocial patterns.

4.4.1 Policies, Legal Framework and Guidelines

There are no well-recognized legislations on VIA studies across the world and Turkey, either. However, there are some guidelines established and widely used. One of which is and the most commonly used one is the "Scottish Natural Heritage Environmental Impact Assessment Handbook". The visual impact assessment (VIA) work within the scope of this project was performed in parallel to and "Guidelines for Landscape and Visual Impact Assessment 3rd Edition".

Apart from this guideline, there is a document established for vegetation removal and compensation relevant to railway projects for offsetting the tree loss due to installment: "Metrolinx Vegetation Removal and Compensation Program Document". This guideline aims to manage the vegetation along the electrified corridor after the tree removal.

4.4.2 Extend of Study Area

VIA study area entails the determination of a 5 km circular area drawn from the center of the Project area. The detected 5 km study area is based upon the Project description, site visits and good practice guidance. High Standard Railway Line and its components (signaling, electrification, train etc.) were evaluated together.

Temporal changes express the change in a property with respect to time. Visual impact assessment studies were carried out within the scope of the Railway Project to identify the temporal change in visual quality/sensitivity/amenity and to understand the overall baseline quality and potential cumulative impacts of the project's existing activities (i.e., whether and/or how they will contribute to the visual quality of the Project area). In the construction period, no visual impact is expected. In the operation period, visual impact of the Project will last until the decommission of the Project.

4.4.3 Identification of Baseline Conditions

Baseline conditions represent the existing scenic conditions of the Project area independent from the Project. The first step in any landscape or visual impact assessment is to identify the existing landscape and visual source in the vicinity of the Project that is the baseline visual conditions. Site visits and field studies were carried out by Assystem ENVY on September 19 and 20, 2020 in order to assess the baseline conditions. In the evaluation of baseline conditions, similar projects, structures, vegetation, distribution of settlement areas, dwellings, land use, topography, and viewpoints, view angles and view directions. Also, in order to evaluate the current situation, many desk studies were conducted before the field studies.

Baseline conditions are useful for forecasting the possible visual amenity after the completion of the Project. The changes will depend on the landscape/vegetation of the area in baseline view and the level of visual contrast of the objects within the scope of the project. In this section, high resolution photographs were addressed by section/VPs and visual characteristics were explained in detail (see between Figure 4.1 and Figure 4.14).

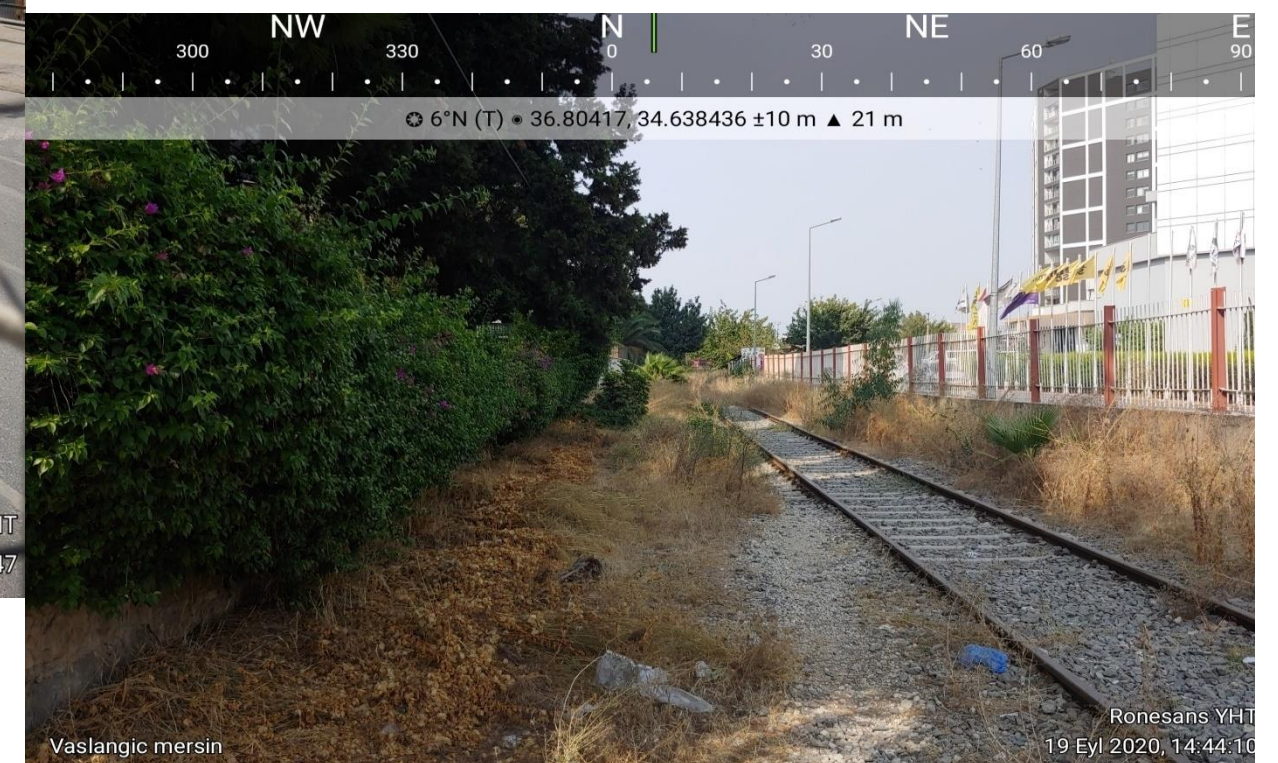


VP-1

VP-2

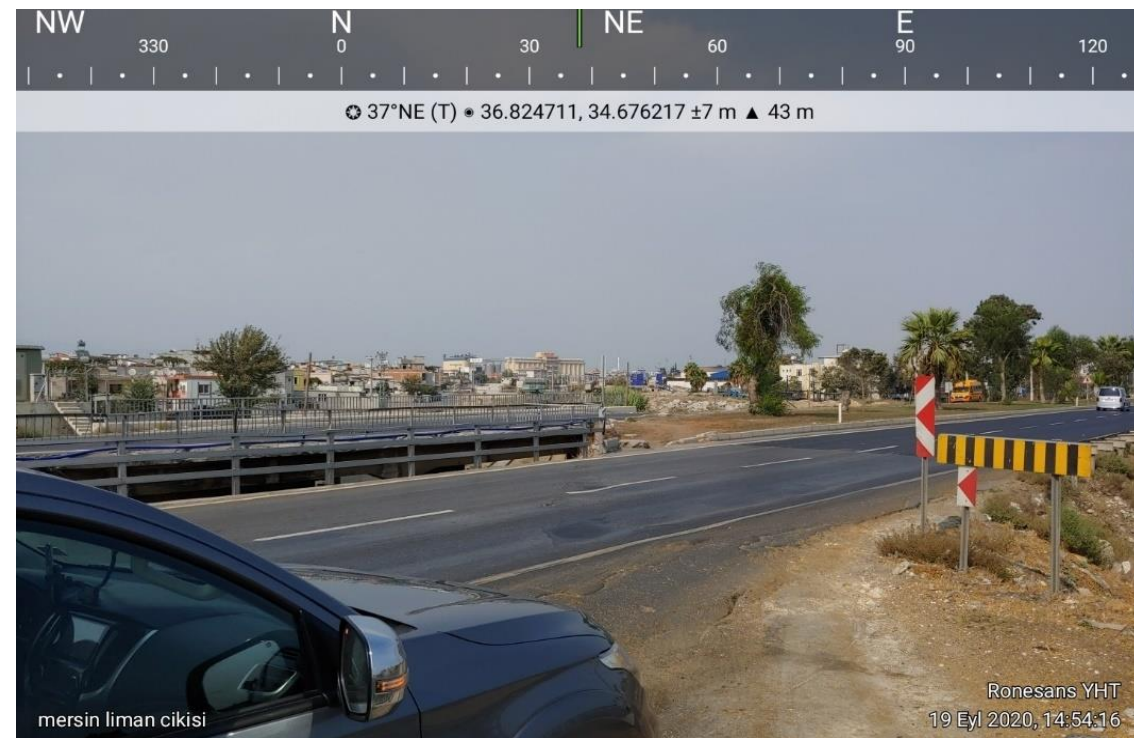


VP-3



VP-4

Figure 4.1: Viewpoints of Mersin Entrance



VP-5



VP-6

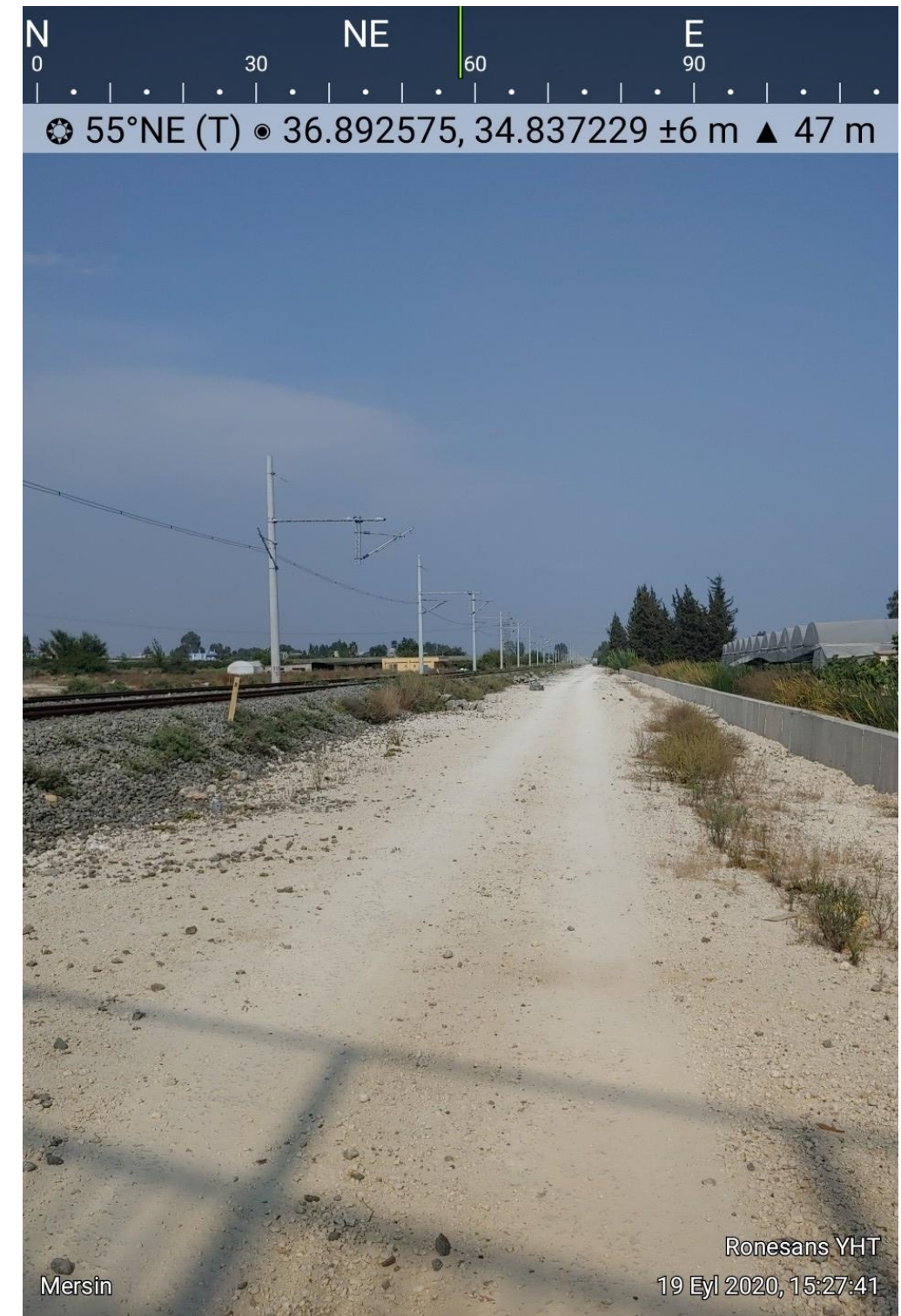


VP-7

Figure 4.2: Viewpoints of Mersin Port Exit

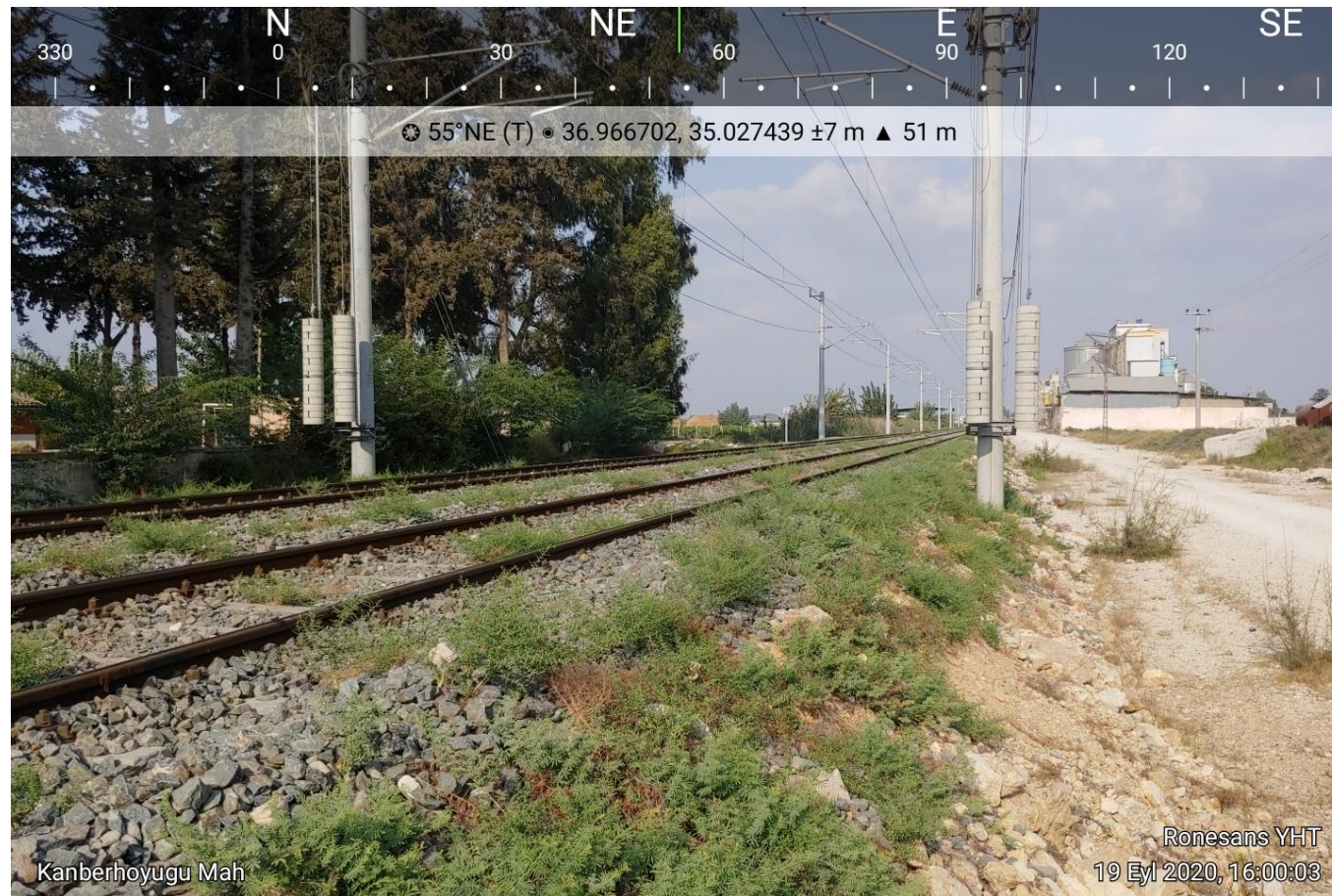


VP-8



VP-9

Figure 4.3: View Points of Mersin

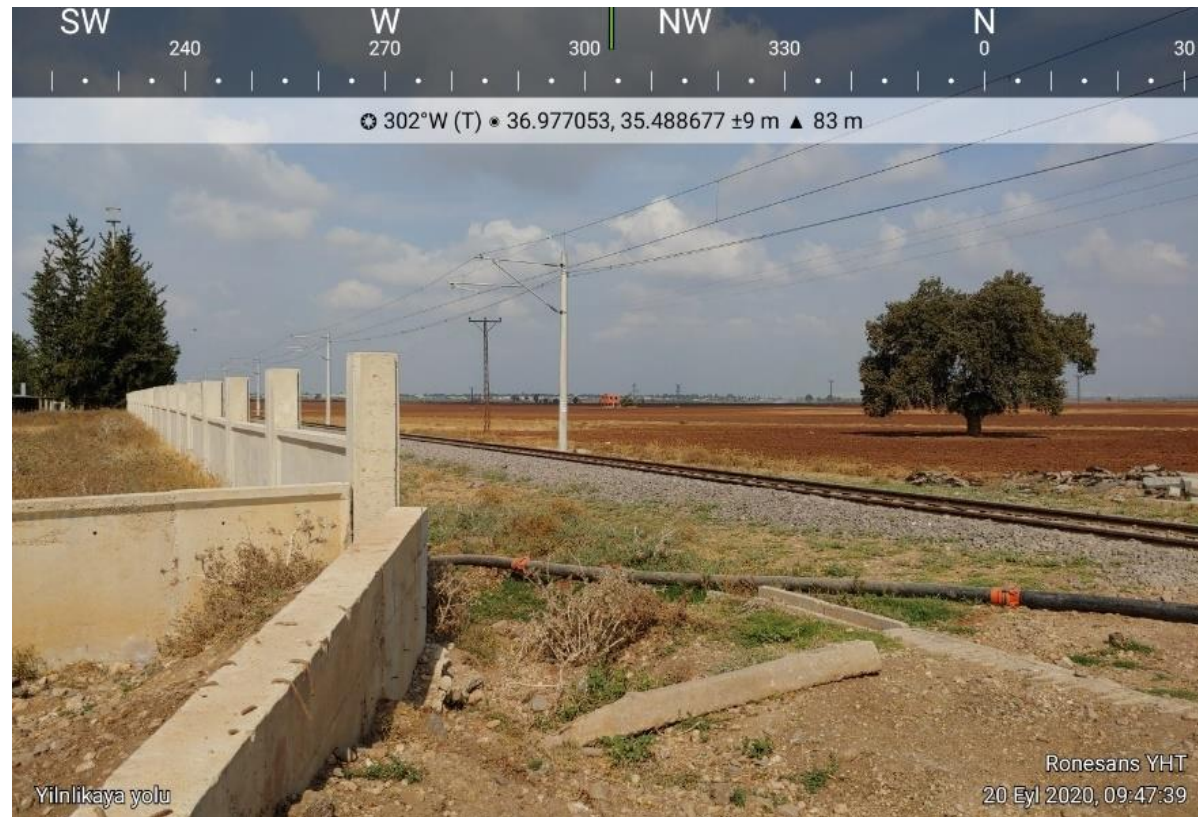


VP-10



VP-11

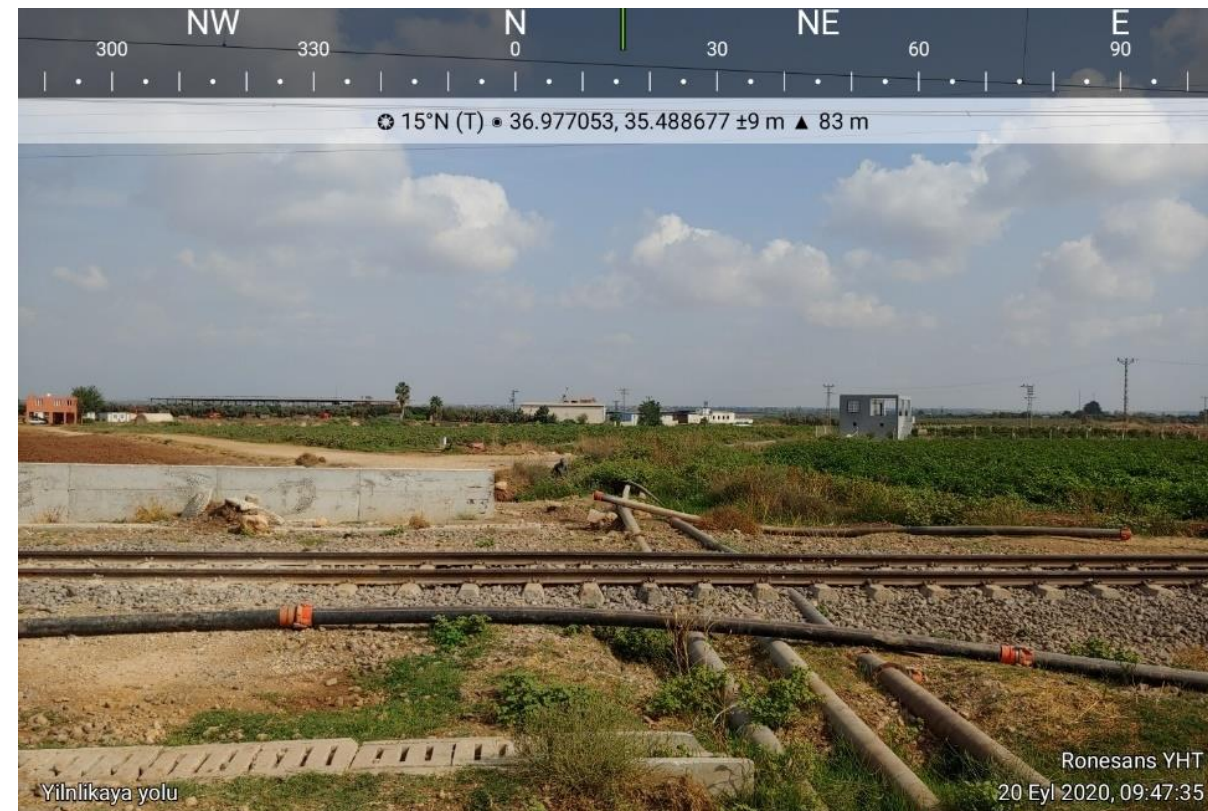
Figure 4.4: Viewpoints of Kanberhöyüğü Neighbourhood



VP-12



VP-13



VP-14

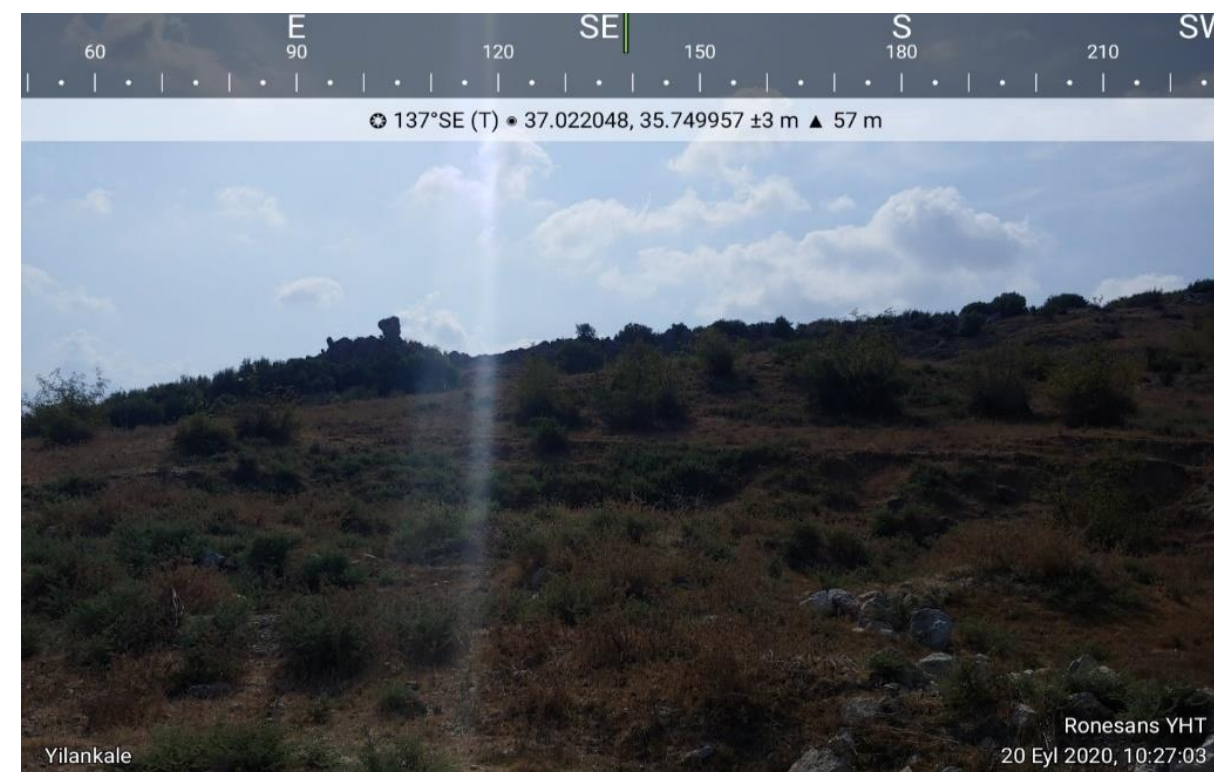
Figure 4.5: Viewpoints of Yılanlıkaya Road



VP-15



VP-16



VP-17

Figure 4.6: Viewpoints of Yilankale - 1

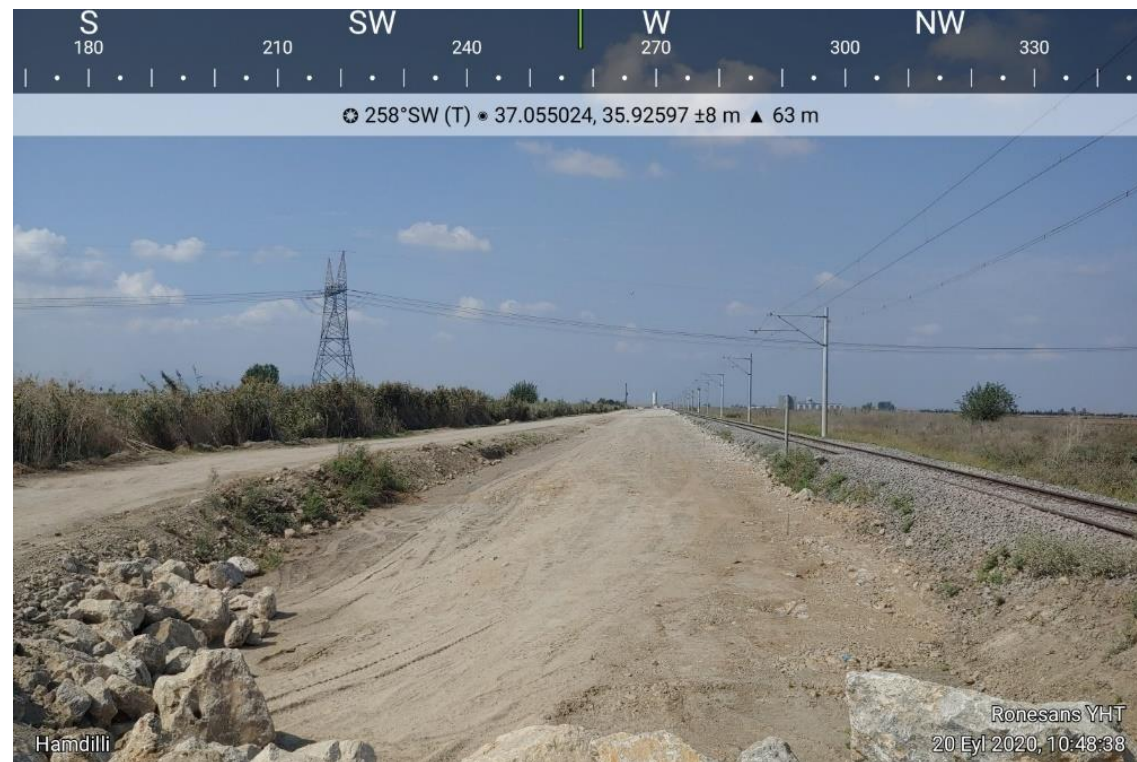


VP-18



VP-19

Figure 4.7: Viewpoints of Yilankale - 2



VP-20



VP-21



VP-22

Figure 4.8: Viewpoints of Hamdili



VP-26



VP-27



VP-28



VP-29

Figure 4.9: Viewpoints of Osmaniye Exit



VP-30



VP-31



VP-32



VP-33

Figure 4.10: Viewpoint of Tunnel 1-1



VP-34

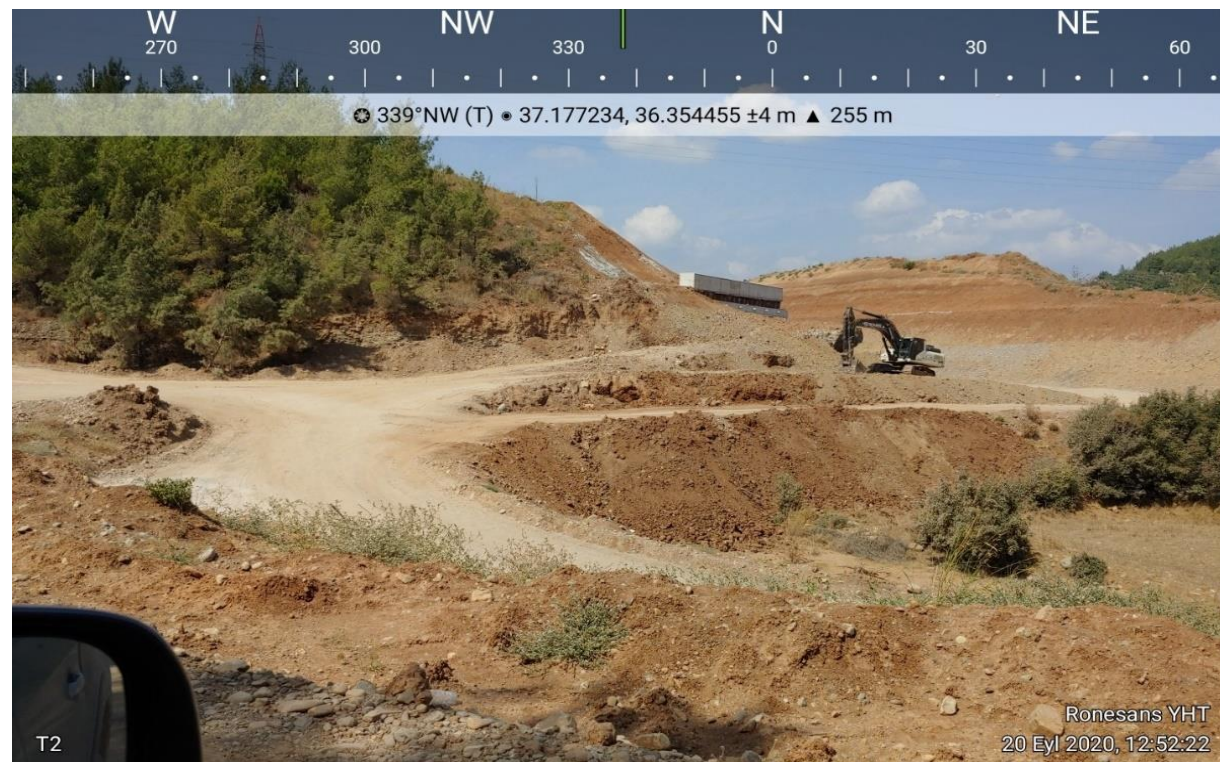


VP-35

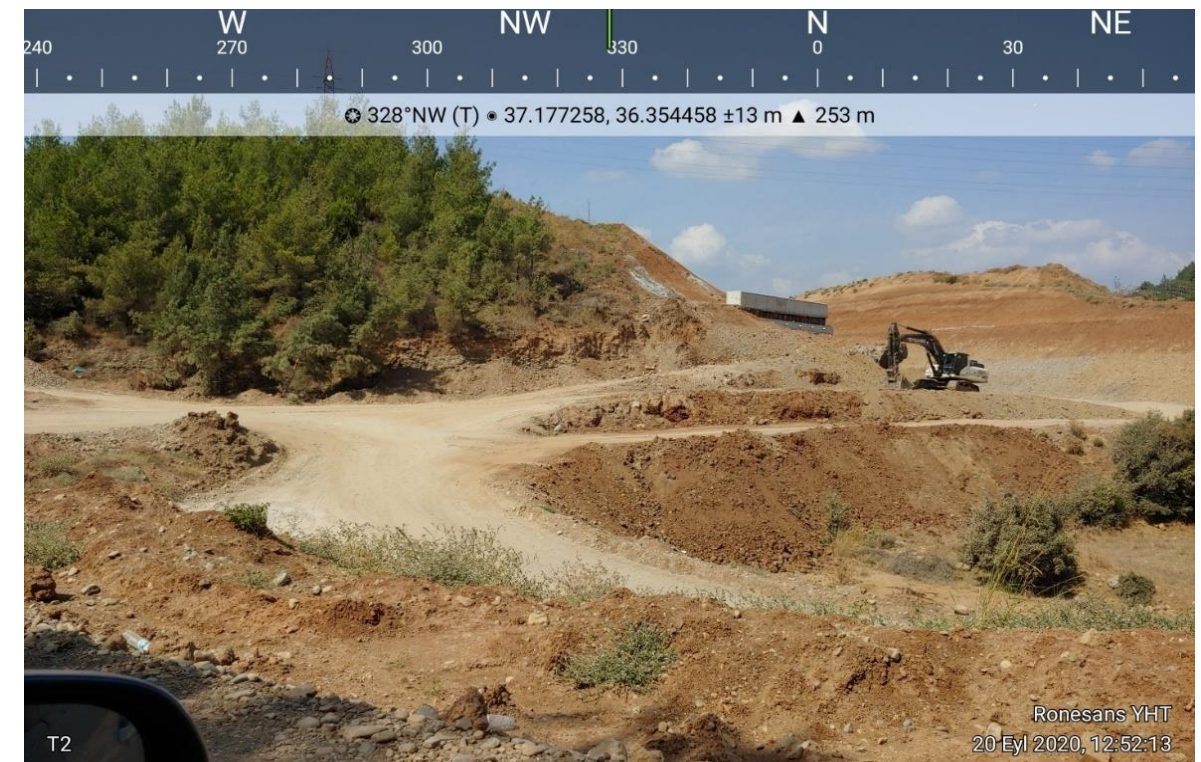


VP-36

Figure 4.11: Viewpoint of Tunnel 1-2



VP-37



VP-38



VP-39



VP-40

Figure 4.12: Viewpoints of Tunnel 2 Entrance



VP-41

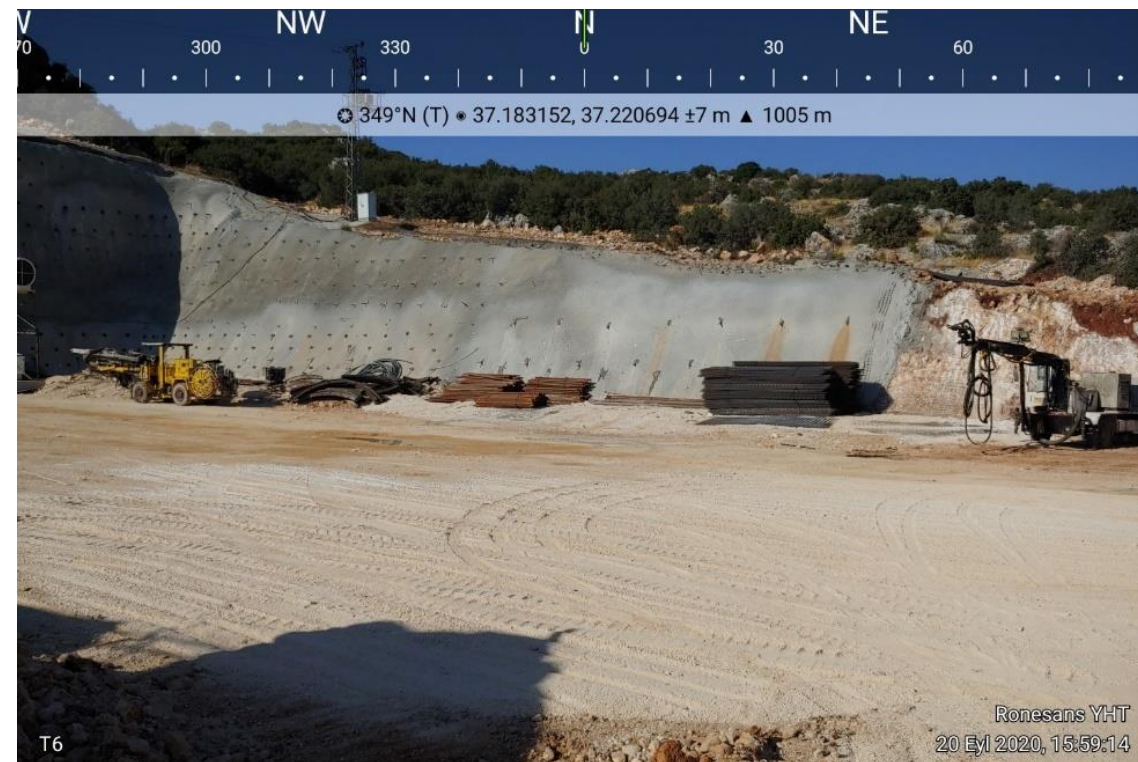


VP-42



VP-43

Figure 4.13: Viewpoint of Tunnel 4 and Tunnel 5



VP-44



VP-45



VP-46

Figure 4.14: Viewpoint of Tunnel 6

4.4.3.1 Field Studies

Within the scope of field studies, after the completion of construction, site visits were performed by Assystem Envy, photographs belonging to the railway line is given in ESIA Report Section 4.4.3 Detailed 3D impact assessment studies were completed and these studies are given in detail and step-by-step in ESIA Report Section 4.4.5.

4.4.4 Impact Magnitude and Sensitivity Criteria

The classification for potential visual impacts can be either of negligible, low, moderate or high magnitude. The impacts are categorized in order to predict the potential effects along the railway line and its vicinity.

Visual impact by the construction period of the Project is predicted not to have a significant impact on sensitive receptors near the Project area as the rehabilitation works will compensate the visual impacts arising from the construction works. Visual changes will not remain persistent for a long time. As the magnitude of change will be high after remediation and visual sensitivity will be less prior to rehabilitation, it is likely that the impact magnitude and sensitivity will increase proportionally.

4.4.5 Impact Assessment

As the electrification infrastructure will exist in long term and it is impossible and non-feasible to disassemble the structure and avoid or eliminate the visual changes. Also, the line within the railway line are electrified. The railway corridor mostly passes near the settlements, therefore it is definite that visual impacts with varying magnitudes occur.

The trucks, dozers etc doing the earthworks have short-term visual impacts on the environment. No significant visual impact is expected on the receptors since the work is temporary. Also, the each sensitive receptor through the Railway Line experienced temporary visual changes. On the basis of sections but not the whole railway line, construction activities will be expected to have significant visual impacts on the receptors.

Operation phase will have permanent effects due to presence of art structures (culverts, bridges, overpasses, underpasses, viaducts, etc.) and electrical infrastructures such as catenary poles and electricity transmission lines will have permanent visual impacts on the receptors, ability to change the scenery. On the other hand, the persistency of the visual impacts are also dependent upon the VP of a viewer, either transient or stationary. However, the impact magnitude is not expected to be high as the railway route will be rehabilitated for operation. The conventional worn out railway track rehabilitation enables the new railway to be more attentive including the repairmen of walls, wire fences, etc. as well as the construction of earthwork storage areas.

4.4.6 Cumulative Impact Assessment

The cumulative impacts were evaluated separately for each VP. The cumulative impacts were taken into consideration since the additional railway to be constructed within the scope of the project will be visible from main roads by the transient viewers and nearby settlement areas by stationary viewers (i.e., inhabitants) because it is approximately at the same level as the topography.

4.4.7 Summary of Residual Impacts, Significance Criteria and Overall Impact Significance

The visual impact of the proposed Project will be permanent for people living in the nearest settlements and other living beings in the immediate vicinity of the Project region. Proximity of the project region to 2 highways and 1 state road will change the visual status substantially, once the construction is completed and operation starts. As the project region is covered by dense vegetation and forests, it is inevitable that visual sensitivity will be affected negatively during construction works.

On the other hand, rehabilitation of the existing railway route will compensate the visual impacts arising from construction. As a result, the magnitude of the visual change after the rehabilitation for operation phase can be assumed as either high or medium.

4.4.8 Mitigation Measures

Mitigation measures were identified based both on the Best Practice Guide Documentations in theory and the Project only. These documentations clarify many issues for the clients on addressing project-specific impacts and their applicable mitigation measures. The impacts are categorized into four categories as mentioned earlier in ESIA Report.

As the electrification infrastructure will exist in long term and it is impossible and non-feasible to disassemble the structure and avoid or eliminate the visual changes. Therefore, there will be residual/net effects due to the long-term nature of the Project. Independent from this, mitigation measures are recommended where feasible to reduce the visual impacts of the electrification infrastructure as much as possible.

4.4.9 Assumptions and/or Limitations

Visual impacts resulting from construction and operation phases of the Project has been analyzed based on the most used international standards. The most widely used document is GLVIA, which is emerged in Scotland. In this section, visual impacts were identified and interpreted for each viewpoint both from technical and non-technical perspectives. The evaluation work is based on the 3D visualization model and view shed analysis results and other information provided about the Project such as photographs taken in the field. The visualization results were interpreted based on the combination of both desk and field studies. Rehabilitation of the existing line is estimated to avert the visual impacts observed in the construction due to the machinery and to bring back the former landscape quality. However, there remain gaps in the long-term visual impacts as all the necessary information have not been gathered by TCDD.

4.5 Water Resources

The quality of the water resources that can be used, both underground and above ground, is related to the construction and operation period activities of the planned High Standard Train Project. The relationship of the Project with the water resources, whether there is an impact on these resources and the determination of the mitigation methods for the evaluated impact are given in this section.

Mersin, Adana, Osmaniye and Gaziantep are the provinces on the route where the Mersin-Gaziantep (Başpınar) High Standard Train passes. Water resources information related to these provinces are explained in the following paragraphs.

Irrigation channels were built by the traffic of the General Directorate of State Hydraulic Works (DSİ) to supply water to the agricultural land starting from Mersin to the provincial border exit to Adana. Since 2005, a total of 85 irrigation facilities have been built to cover Mersin, Adana and Osmaniye provinces, and 73 irrigation channels have been under construction since 2012. For Gaziantep Province, 11 irrigation canals have been built since 1991, and there are 7 irrigation canals under construction since 2015. These facilities are of great importance for irrigation of agricultural lands between Mersin, Adana, Osmaniye and Gaziantep.

The water requirement for the construction and operation period will depend on the use of personnel and drinking water. For the construction period, drinking water needs of the staff at the construction sites and in the field will be supplied from the market. The utility water need at the construction sites will be met from the city network. For the operating period, drinking water of the personnel at the route stations will be supplied from the market and the domestic water from the city network.

4.5.1 Policies, Legal Framework and Guidelines

Both national regulations and national standards are used to protect and use underground and surface water resources, prevent pollution, and eliminate the resulting pollution. Since limit values for surface waters are not determined in international standards and guidelines, an evaluation has been made within the scope of national legislation.

- Regulation on Water Pollution Control
- Regulation on Surface Water Quality
- Regulation on Protection of Groundwater Against Pollution and Deterioration
- Regulation on Monitoring of Surface and Groundwater
- Regulation on Control of Pollution Caused by Hazardous Substances in the Aquatic Environment and Its Surroundings
- Regulation on Water Intended for Human Consumption
- International Finance Corporation (IFC)
- European Bank for Reconstruction and Development (EBRD)

4.5.2 Extend of Study Area

In order to examine the effect of Mersin-Gaziantep High Standard Train Line on water resources, a study area of 1000 m in total was selected by choosing distances of 500 m from the right and left of the route. In this determined study area, the water resources that were or could be affected by the project were examined. As a result of the investigation, surface water analysis was carried out to determine the effect on water resources, especially during the construction phase.

4.5.3 Identification of Baseline Conditions

4.5.3.1 Desk Studies

The High Standard Train Line passes over the Seyhan and Ceyhan rivers, which are two important surface water resources, within the borders of Adana Province. Apart from these two large rivers, it completes the route by passing near small and medium-sized water sources. Most of the small and medium-sized water resources are used as irrigation channels and are of great importance for the lands given in the ESIA.

4.5.3.2 Field Studies

There were drilling works performed by SWS Engineering in 2015 between Toprakkale-Bahçe section on the Mersin - Gaziantep High Standard Railway Line. Drilling work carried out was conducted between Toprakkale - Bahçe Station taking into account the "Research Engineering Services Technical Specification for the General Directorate of Highways", 2967 foundation drillings were carried out in 97 locations with depths varying between 12 m and 100 m.

During the drillings, disturbed (SPT), undisturbed (UD) and core samples were taken to determine the properties of the project area ground. Natural water content, natural unit volume weight, specific weight, Atterberg limits (Il, pl, pi), grain size distribution, triaxial pressure test, free pressure test and consolidation tests were performed on the damaged and undisturbed samples. Uniaxial pressure test and natural unit weight test were applied on the rock samples obtained from the cores.

There are drilling works carried out by Yüksel Proje in 2012 in the Nurdağ-Başpınar section. A total of 2031.00 meters of foundation drilling was carried out at 68 locations, taking into account the "Research Engineering Services Technical Specification" of the General Directorate of Highways between Km: 76 + 400 - 132 + 300 along the route. Experiments were carried out by taking undisturbed (UD) and core samples.

Analysis was carried out to examine the water resources in the vicinity of the high standard railway route between Mersin and Gaziantep. Samples for analysis were taken on 22.10.2020-24.10.2020 by Febas Environmental Laboratory between 24.10.2020 and 30.10.2020.

4.5.4 Impact Magnitude and Sensitivity Criteria

Although Mersin-Gaziantep (Başpınar) High Standard Railway has no effect on water resources and is not expected to have an impact in the future, the short-term effects that may occur will be controlled by mitigation methods. Irrigation channels for the lands in and around the project area and the presence of Seyhan and Ceyhan rivers, which are two important rivers for the region; Water resources are of high importance because when groundwater and surface waters are polluted, it creates a mass effect, not a regional one, and the pollution cannot be removed for a long time. Although it is high magnitude, the impact is insignificant as the project is not expected to affect water resources.

4.5.5 Impact Assessment

4.5.5.1 Construction Phase

During the construction period when the existing route is rehabilitated and new lines are added in certain sections and excavation-filling operations are carried out, the water resources given in the above sections and its immediate surroundings are passed. In order to see whether the planned project will be affected by the works to be carried out during the construction period, it has been ensured that the impact is observed by drilling works and surface water analysis.

Apart from the water resources given in the table, the railway passes over the many land irrigation channel. The analyses of the water resources deemed necessary over the route of the railway and the results is provided with the coordinates.

During the drilling works, there were places where groundwater at different depths was found and sections where groundwater was not available. In the drilling work between Toprakkale-Bahçe, groundwater at the closest level of 3.30 m to the surface and the closest 0.10 m level groundwater in the section between Nurdağ-Başpınar were found.

It is not expected that any underground water resources will be damaged by paying attention to these depths in the construction works such as infrastructure, superstructure, and station other than tunnels to be made in both sections. Apart from this, no negative effects are expected since there will be no production or work with a hazardous substance that will pollute the groundwater and those working in temporarily established construction sites will not use the groundwater. The sewage system, which is a factor with low potential to contaminate groundwater, is not expected to affect it because it is an impermeable system.

As it can be seen from the analyzes determined by the inlet and outlet points of surface waters, it has been observed that the water quality values are mostly very good and good according to the National Regulation (Regulation on Quality of Surface Water) water quality value, scaled from very good to bad. It is not expected to affect surface waters by paying attention to the analysis values during the Project construction process. According to the analysis results, it is not expected to have a negative impact on irrigation channels and water resources specified during the construction period of the project.

4.5.5.2 Operation, Longer Term and Permanent Effects

In the construction and operation phases of the project, no surface water resource will be used. The high standard train will be operated once the construction period is over, providing that there will be no probability of hazardous and chemical substance transport. Along the route, no negative impact is expected on the given water resources as no water resource will be utilized except the stations.

4.5.6 Cumulative Impact Assessment

Municipal water needed by the personnel who works in the scope of the Project will be provided from city infrastructure. Necessary procedures and permissions will be obtained for connection to the infrastructure system. Drinking water will be met from the market. Information about the current water usage, including Mersin, Adana, Osmaniye and Gaziantep below, was obtained from TURKSTAT, and the water load and the water load due to the project were calculated and compared.

According to the above calculated water load increase, the project will increase the current water load by 0.023%. An increase in this amount indicates that the cumulative effect of the project on the resource from which both drinking water and the water usage needed by the personnel will be provided is negligible.

The water to be used for irrigation of the wastes that will create dust and the roads that will cause dust during the construction process with the sprinkler will be supplied from the source indicated by the relevant municipality.

4.5.7 Summary of Residual Impacts, Significance Criteria and Overall Impact Significance

In the line with the planning, field studies and analyzes have been carried out in order to examine the groundwater and surface waters for monitoring objectives and as a result of the analysis of water resources which are of high importance, it has been seen that the project will not have a negative impact on the water resources. Mitigation measures will be applied in case of any negative impact.

4.5.8 Mitigation Measures

The project is not expected to have an impact on water resources, but the following measures will be taken in case of a risk;

- When deemed necessary, establishment of the Water Resources Management Plan thus, the reduction of the negative impacts on the water resources,
- Monitoring of the impact by having water resources analyzed periodically,
- Improving the sewage system at the stations.

The mitigation measures planned to be implemented within the scope of the project are given in the ESMMP prepared for the project.

4.6 Greenhouse Gases (GHG)

4.6.1 Introduction

Greenhouse gases trap heat into the atmosphere. Human activities are responsible for almost all of the greenhouse gas increase in the atmosphere in the last 150 years. The biggest source of greenhouse gas emissions is the burning of fossil fuels for heat and transport.

The global warming problem has emerged due to activities such as greenhouse gases, fossil fuel use, manufacturing sectors, and driving. Increase in greenhouse gas emissions is seen as an expected result by disrupting the global carbon balance with the increase in human activities. The gases causing greenhouse gas generation given in the Kyoto Protocol are as follows;

- Carbon dioxide (CO₂),
- Methane (CH₄),
- Nitrous oxide (N₂O) and
- Fluorinated gases are greenhouse gases.

In line with the information given about greenhouse gas and climate change, the use of the high standard railway in this project, instead of using vehicles, will have a positive effect in terms of the damage to the

atmosphere caused by greenhouse gas emissions. The use of high standard trains has a very low potential as a negative impact on greenhouse gas emissions released into the atmosphere.

The 286 km long route line between Mersin-Gaziantep is likely to create effect on GHG emissions due to the fuel consumption of vehicles and equipment to be used for excavation operations during the construction period.

4.6.2 Policies, Legal Framework and Guidelines

National and international standards that will be implemented as follows;

- Regulation on Monitoring of Greenhouse Gas Emissions
- European Bank for Reconstruction and Development (EBRD)
- Intergovernmental Panel on Climate Change (IPCC)
- World Bank (WB)

4.6.3 Extend of Study Area

During the construction period, construction machinery and equipment will be used in excavation and filling processes for infrastructure and superstructure operations. Considering that the excavation to be made for the construction period will cover an area of 1000 m in total of 500 m from the right and left of the railway, the area of 1000 m for the construction period was selected as the working area and the greenhouse gas emission from this area was evaluated.

During the operation period, The High Standard Train Project that will be operated with the termination of the construction period will require an electricity consumption. There is an electricity consumption in both lines and stations. The annual calculated GHG emission amount with this value is 141,280,877 tCO₂-e. In comparison with the existing highway, much lower GHG emission occurs and no significant effect is expected in global environment.

4.6.4 Identification of Baseline Conditions

4.6.4.1 Desk Studies

GHG emissions are expected along the Mersin-Gaziantep (Başpınar) High Speed Railway route, arising from the construction and operation periods. The amount of CO₂ that will be released into the air because of the fuel consumption of vehicles and vehicles planned to be used for construction works along the 286 km line will affect the greenhouse gas emission.

Along the High Standard train project route, there is an existing highway parallel to the right and left of the railway. For the High Standard Train Project, which is surrounded by both intercity and inner-city roads, vehicle intensity reduction is planned by means of reducing the vehicle use for the passengers who would like to travel.

The amount of emissions that will be caused by the fuel consumption of these vehicles is 195663.345 metric tCO₂-e.

4.6.5 Impact Magnitude and Sensitivity Criteria

According to the EBRD methodology for evaluating GHG emissions, the impact size of annual greenhouse gas emissions can be categorized as follows;

- Negligible (no GHG assessment necessary)
- Low (< 20 kt/y CO₂-equivalent per year)
- Medium-Low (20 – 100 kt CO₂/yr)
- Medium-High (100 kt – 1 Mt CO₂/yr)
- High (>1 Mt CO₂/yr)

4.6.6 Impact Assessment

As a result of the works to be carried out during the construction period on the Mersin-Gaziantep (Başpınar) railway route, Scope 1 is the amount of greenhouse gas emissions that will occur according to the GHG emissions caused by the direct project.. In this context, according to the EBRD and IPCC assessments, the negative impact of the greenhouse gas, which will be released during the construction period, is expected to be negligible.

The number of vehicles to be used in construction operations on the Mersin-Gaziantep (Başpınar) train line route to be built by Rönesans is 758. Greenhouse gas emissions are expected to be released into the ecosystem from these tools. In addition to vehicles, greenhouse gas emissions are expected to occur due to the use of electricity and vehicle use during the operating period. The amount of greenhouse gas emission to be emitted from construction and operation periods are 195663 CO₂. The CO₂ emission will decrease by the amount of CO₂ and the amount of greenhouse gas emission resulting from the intensive use of the highway will decrease. This is seen as one of the advantages of the project.

The High Standard Train Project that will be operated with the termination of the construction period will require an electricity consumption. There is an electricity consumption in both lines and stations. The annual planned electricity use is and calculated GHG emission amount with this value is 141,280,877 tCO₂-e. In comparison with the existing highway, much lower GHG emission occurs and no significant effect is expected in global environment.

4.6.7 Cumulative Impact Assessment

Because of global impact of green gas emissions, instead of assessing regional cumulative effects, a comprehensive cumulative effect should be made like based on Turkey.

Amount greenhouse gas emissions of Turkey is 520.9 million tons (Mt) CO₂-e, which is most recent data calculated in 2018, according to 31 March 2020 TURKSTAT Greenhouse Gases Emissions Statistics source data. In this section, the amount of greenhouse gas emissions that will be caused by the High Standard Train Project is 195663.345 CO₂. From industry, vehicles, production, etc.in Turkey, it is not at the level of impact that will have a cumulative effect on the amount of greenhouse gas emissions caused by activities.

4.6.8 Summary of Residual Impacts, Significance Criteria and Overall Impact Significance

Although the amount of greenhouse gas emission caused by the project is advantageous and low compared to the greenhouse gas emission to be caused by the existing highway, it is possible to apply the prevention and mitigation methods for potential risks that may occur in the future, even if reduction methods are not required.

4.6.9 Mitigation Measures

Greenhouse gases will be given directly to the ecosystem from the construction period works to be carried out between Mersin and Gaziantep (Başpınar). Mitigation measures are taken in order not to pose a risk in the future;

- Minimizing the transport distances for materials in excavation works during the construction period,
- Programming vehicle and equipment movements to minimize the waiting time and the distances traveled,
- Minimization of land clearance works during the construction phase as much as possible,
- Regular maintenance of used vehicles and equipment,
- Restricting the use of extra tools by well organizing excavation and filling works,

- Keeping regular greenhouse gas emission calculation records for greenhouse gas emissions resulting from electricity use for the operating period,
- Providing training to employees both during the construction and operation period, when necessary.

The mitigation measures planned to be implemented within the scope of the project are given in the ESMMP prepared for the project.

4.7 Noise, Vibration and Physical Impacts

4.7.1 Introduction

Noise can be defined as unpleasant, unwanted, disturbing sound. Sound is defined as the result of pressure changes in the air. These pressure changes in the air stimulate the eardrum and produce sound. The human ear can distinguish sound pressure even over a wide area. The frequency of the sound and the pressure it creates are important factors in determining the loudness.

There are two part of train which are wheels and rail for the generation of vibration during the movement of train. While system above the wheel such as bogie, springs, dampers and load of vehicle are related with vibration in the wheel, system below the rail such as track, subsoil and soil are related with vibration in the rail. As a result of imperfection between the wheel and rail, vibration originates.

A study about noise and vibration was completed to identify potential impacts on the locations near the project area. Noise and vibration during the construction and operation phase of the Project were calculated and compared to applicable laws, guidelines, and/or regulations.

Taking the current number of the High Standard Train voyages as an example, it is predicted that there will be a trip every 2 hours between 07:00 and 23:00 every day during the year, and the number of high standard train voyages that will cross the year is estimated to be around 3300 in the operation phase.

4.7.2 Policies, Legal Framework and Guidelines

- National and International Legislation that will be followed as following;
- Regulation on Assessment and Management of Environmental Noise
- Regulation on Noise Emissions in the Environment Generated by Open Field Used Equipment (2000/14 / EC)
- International Finance Corporation (IFC)
- The World Health Organization (WHO)

4.7.3 Extend of Study Area

Footprint of the Project is considered as spatial boundaries. This area typically extends depending on the topic from about 1 m to 1500 m as measured from the center-alignment of the Railway. Impact area is determined as 1500 m to the right and 1500 m to the left from the Railway. In case of necessity, studies in the narrower area are performed during construction works and mitigation measures will be implemented in the sensitive receptors where the noise levels exceed the limits is examined in the ESIA.

The period when the impacts can be reversible is described as temporal boundaries. For instance, short-lived impact of construction work may be observed, but the existence of this railway may have implications which extend to the future. For this reason, some of the impacts cause by construction equipment may occur during the construction period and disappear with the completion of construction activities. The construction period will last for not more than 4 years (30.12.2020-01.06.2024).

4.7.4 Identification of Baseline Conditions

Baseline study is performed after the desk studies and identification of measurement points. Baseline conditions will be used as a reference for the evaluation of the noise levels before and after the High Standard Train Project.

4.7.4.1 Desk Studies

Within the context of desk studies, following steps were performed;

- Pre-modelling study is performed to determine the measurement points,
- Identification of conditions such as weather, topography,
- Determination of sensitive receptors around the project area throughout the railway route,
- Studying on national and international regulations/policies to ascertain the optimal management of impacts,
- Requirements for adherence to environmental and social sustainability of international financiers were as well addressed through reviewing relevant Environmental and Social Safeguards,
- Literature studies about the possible impact and their mitigation measures.

4.7.4.2 Field Studies

To determine the baseline noise in the project region, noise monitoring was carried out at the project site and its vicinity. Noise measurements were carried out by Febas Environmental Laboratory between 22.10.2020 and 12.11.2020 and result were given in the ESIA. Since the construction activities will be carried out in the daytime period, only the noise maps prepared for the daytime period are calculated.

Environmental noise measurements were measured for 3 full days, with 15-minute measurements at each measurement point. Background noise measurement points were determined as 20 points on the planned railway line route, in front of the houses close to the railway. Each measurement height is 1.5 m. The measurements were taken in accordance with TS 9315 ISO 1996-1 and TS ISO 1996-2 standards.

4.7.5 Impact Magnitude and Sensitivity Criteria

- Very High: Areas with high concentration of educational, cultural, health services and camping area,
- High: Areas with high concentration of dwellings and some commercial buildings,
- Medium: Areas with high concentration of commercial buildings, and some workplaces,
- Low: Industrial area,
- Negligible: Temporary living area.

4.7.6 Impact Assessment

4.7.6.1 Construction Phase

Following activities during the construction activities will principally cause noise impact;

- Construction of the High Standard Train,
- Construction of the art structures (e.g., bridges, tunnels, overpasses etc.),
- Excavation activities,
- Transportation of the material result from excavation and construction.

Noise impact of the Railway will continue along the route during the construction phase and will result on a relatively short-term basis (typically some weeks/few months) at most of the receptors as the construction approaches and moves past each settlement.

Construction activities will be carried out along the line. Rail systems in existing lines will be adapted to high standard trains and new tunnel and railway construction works will be carried out for new parts of the line.

It is envisaged that all the said construction equipment will be operated at the same time. However, construction equipment is expected to be concentrated in the stations.

Noise maps were produced by using the SOUNDPLAN 8.3 program. Sound power level values of the construction noise equipment of the project were obtained from the program library. The data of the sound power level values of the said equipment according to octave bands are given in the ESIA.

SOUNDPLAN 8.2 program was used in the calculation of the noise that may occur because of the construction site activity. For the modeling of noise distribution in the TS ISO 9613-2 standard, first the land height information is entered, then the information of the point noise sources is entered after the obstacle information is entered.

4.7.6.2 Operation, Longer Term and Permanent Effects

Operation of Mersin-Gaziantep Railway will cause noise and vibration generation from a variety of sources. Contact between wheel and rail during movement and braking of the train, aerodynamic noise which is generated by the train pushing air, and by the engine and cooling fans result in railway noise.

4.7.7 Cumulative Impact Assessment

This section represents the cumulative impact assessment of the Project, involve a description of the potential cumulative impacts by considering the other important projects near to the Project area.

The route from Mersin to Gaziantep runs parallel to both the highway and the state road, passing almost the same routes until reaching Gaziantep, and there are stops and stations on these routes. Background noise level includes all noise around the Railway Line.

4.7.8 Summary of Residual Impacts, Significance Criteria and Overall Impact Significance

Noise caused by construction during the Project is expected not to have a significant impact on the sensitive receptors because noise measurements in all measurement points are lower than 75 dBA during the construction period.

According to the article 27 of the Regulation on Assessment and Management of Environmental Noise and the measurement results, the residences remaining in the project area can be evaluated according to Category B in general. Category B (55- 64 dBA in Lday) Area: The noise level is taken into consideration in planning decisions. Planning decisions are made by taking necessary measures against noise.

The main source of current noise pollution in the proposed project is the locomotives. Noise measurements show that the daytime noise levels ranged between 4.1 dB(A) and 52.1 dB(A) during construction phase. During the operation phase: daytime noise levels ranged between 37.0 dB(A) and 56.1 dB(A), evening time noise levels ranged between 37.0 dB(A) and 56.1 dB(A) and nighttime noise levels ranged between 31.0 dB(A) and 50.1 dB(A). This is in comparison to the IFC Guidelines and National Environmental Standards for Environmental Noise of 55 dB(A) for the day and 45 dB(A) during the night, set for mixed residential land use. Therefore, daytime exceedances of the noise limits do not occur.

There are residences at a distance of 50 m to the project area in city centers throughout the project area. The authorized company undertakes to carry out environmental vibration measurements in case of any suspicion and/or complaint of vibration originating from construction equipment.

According to the noise measurement levels originating from construction activities, it is seen that the noise level that may occur in the closest houses in the project does not exceed 75 dBA which is the limit value of RAMEN.

According to the statements in the Environmental, Health and Safety (EHS) Guidelines: Environmental Noise Management file prepared by the International Finance Corporation (IFC) dated April 30, 2007, noise levels should not exceed the background measurement values by 3 dBA, 55 dBA levels during the daytime (07: 00-22: 00) period, 45 dBA levels during the nighttime (22: 00-07: 00) period. As it can be seen in the table above, noise levels do not exceed the limit value set by IFC during daytime.

According to the limit values given in Table 5 of Annex VII in Article 23 of the Regulation on Assessment and Management of Environmental Noise, the noise level that may occur in the project area due to the noise sources in the project should not exceed 75 dBA. According to the noise maps originating from construction activities, it is seen that the noise level that may occur in the closest houses in the project does not exceed 75 dBA .

4.7.9 Mitigation Measures

The specified actions will be taken at sensitive receptors where the predicted noise levels exceed or has potential to exceed the limits specified in the national and international regulations. In terms of environmental noise and vibration sprawled from the project, all of the impact significances according to RAMEN, IFC Guidelines, and Work Health Organization document are found out to be negligible, and any exceeding of the limiting values is not detected.

4.7.10 Assumptions and/or Limitations

In this section, which was evaluated for the High Standard Train Project between Mersin-Gaziantep (Başpınar), noise and vibration were calculated and interpreted. The evaluation work is based on the calculation and modelling results made by Febas Environmental Laboratory who reported the information to us, and other information provided about the Project. The calculation results were interpreted based on reports published by the RAMEN, IFC and WHO.

4.8 Biodiversity, Conservation and Sustainable Management of Ecosystem Services and Living Natural Resources (EBRD PR6)

4.8.1 Introduction

The ecological studies before the project is an early element in the monitoring and evaluation plan and provide a reference point against which any future changes associated with the project activities can be assessed and offer information for subsequent monitoring. In that manner, the comprehensive baseline study identifies the habitats, the range and status of the main flora and fauna species groups that live in the project area and its potential radius impact area, the potential presence and status of protected areas or other important areas for biodiversity. Therefore, collecting biodiversity information is rather significant in the process. The data should be at a satisfactory level so as to compare the initial conditions and changes due to the project in an impact evaluation approach, to set future targets of the project and to estimate the changes as the project proceeds.

4.8.2 Policies, Legal Framework and Guidelines

There are national legal provisions and international obligations that must be implemented and carried out for the protection of nature.

- Convention on Biological Diversity, Rio de Janeiro 1992 (Turkey 1996),
- International Convention for the Protection of Birds, Paris 1959 (Turkey 1966),
- 1983 Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention) and Agreement (bird and mammals and their habitats, 1994),

- 1971 International Convention on Wetlands of International Importance especially as Waterfowl Habitat (RAMSAR Convention) and the as amended by 1982 Protocol,
- 1951 International Plant Protection Convention,
- 1950 International Convention for the Protection of Birds,
- International Union for Conservation of Nature (IUCN)
- IFC Performance Standards

4.8.3 Extend of Study Area

The general approach was the description of the project route and the possible sensitive habitats, especially natural lands along the route. Accordingly, the general flora and fauna of agricultural lands, small riparian habitats, forests, steppes and city habitats were identified. After evaluating of maps and literature data, it is determined that the areas having natural and undisturbed characteristics are located between Toprakkale-Osmaniye and Osmaniye-Gaziantep. In this scope, the locations where construction activities dense such as tunnels, camps and their close vicinity were surveyed.

To examine the effect of Mersin-Gaziantep High Standard Train flora and fauna species, a working area of 1,000 m in total was selected by choosing distances of 500 m from the right and left of the route.

4.8.4 Identification of Baseline Conditions

In the scope of the project, 2 field surveys were conducted in 19-21 September 2020 and 21-23 November 2020. In order to determine the flora of the project route, site surveys, floristic research conducted in the areas close to the project route and literature data such as Flora of Turkey and the East Aegean Islands were used. If some exceptions are not regarded, the part of the route from Mersin to Nurdağı is in the Mediterranean phytogeographical region, and the part from the eastern of Nurdağı to Gaziantep is Iran-Turan phytogeographic region (Akman, 1993). Especially in Sof Mountain, located to the east of the route, the Iran-Turan phytogeographic region effect can be observed more clearly. The streams, canals and ponds of various sizes are a shelter for plants that are elements of the European-Siberian phytogeographical region.

The habitats along project route were evaluated based on “EUNIS - European Nature Information System” and 6 different habitat types were defined.

4.8.4.1 Endemic Species

As a result of the evaluation of the species locations and project route, it is concluded that the species are located in higher elevation from project route and will not be effected from project activities. On the other hand, no proper habitat where the species can be found is not observed along the project route regarding elevation.

4.8.5 General Assessment on Fauna and Mitigation Measures

The project route is not located directly in the water or in areas very close to the water sources. This situation reduces the incidence of amphibians. It is especially difficult to see amphibians directly in the field of activity. These animals are more common in humid biotopes and water sources in the close environment. For this reason, amphibian and reptile species and populations that feed, nest and breed directly within the activity area are very few. Considering that reptile species can easily travel long distances in suitable habitats in time; individuals of this species may be encountered in the activity area or in its close vicinity in the future. In this case, as the noise and vibrations that will occur during the construction phase and the habitat fragmentation will affect the species.

There are some habitats which can be nesting and feeding areas for local and migrating birds. In addition, there will be a transition of birds from one place to another due to the presence of many large and small wetlands in the environment in basin. At the same time, it was concluded that these areas were used as important resting or feeding areas. As a result of these observations, it has been determined that both songbird species and many birds benefit from the field. The species most likely to

be affected by the activity are field birds, and there are sufficient alternative areas where these species can live with the activity.

Starting the project activities after the breeding period and continuing until the next breeding period will minimize the impact on bird species or other wildlife elements that will carry out breeding activities in and around the site. In this respect, an important opportunity will be provided for the living creatures living in or near the project site to move to other alternative sites. It is necessary to evaluate this situation and the status of the populations with the faunal periodic monitoring to be made in the following processes.

Among mammals, predatory mammals such as jackals and foxes are widespread in the field and its close vicinity, and there is always the possibility of individuals of these species in the field. Especially in winter conditions, it may be possible for them to come to the field and its immediate surroundings for hunting.

4.9 Cultural Heritage (EBRD PR8)

4.9.1 Introduction

Being in contact with the Aegean in the west, the Balkans in the northwest, the Caucasus and Iran in the east, Mesopotamia in the south, and the Eastern Mediterranean cultures, Anatolia has different geographical and cultural characteristics within itself. This cultural diversity / variability can actually be defined depending on geographical features.

As stated in the Archaeological Evaluation Report, The Archaeological-Cultural Heritage management unit of the project will consist of two units. The first unit is the Science Committee / Advisory Board. This unit will take part in all activities in the field.

When the Mersin-Gaziantep High Standard Train project is considered as the physical boundary, the eastern part of the Mediterranean Region and the junction point of this region and the Southeastern Anatolia region (although Gaziantep is located within the political borders of the Southeastern Anatolia Region, it has more of a transitional geographical characteristic can be seen). Within the borders of Mersin, Adana and Osmaniye Mediterranean Region, Gaziantep forms the westernmost border of the Southeastern Anatolia Region. For this reason, while cultural diversity is evaluated within the scope of the project, the Kilikya Cultural region stands out.

Rönesans for the implementation of the find procedure and the protection of archaeological-cultural heritage data is responsible.

As stated in the Archaeological Evaluation Report, as in general of Anatolia, there are different geographical features in the Mediterranean Region and the Cilicia cultural region covering a part of it. The region is divided into two based on its topographical feature.

This section constitutes an assessment of the potential impacts on the project area and its environment related to the cultural heritage during construction, operation, and decommissioning. Cultural heritage can be defined as works, monuments, buildings, and sites with various values including symbolic, historical, artistic, aesthetic, ethnological or anthropological, religious, scientific, and social significance. Cultural heritage is an important component of the cultural identity and social cohesion of communities, groups, and individuals. Cultural heritage elements are divided into three groups;

- Tangible Cultural Heritage,
 - Movable Cultural Heritage (paintings, sculptures, handicrafts, etc.),
 - Immovable Cultural Heritage (archaeological sites, monuments, etc.),
 - Underwater Cultural Heritage (inundated settlements and wrecks),
- Intangible Cultural Heritage (traditions, religions, etc.),
- Natural Cultural Heritage (biological and geological formations, natural culture areas, etc.).

Archeology is a scientific study that includes physical evidence of past human populations obtained through the collection and analysis of artifacts and excavation. Physical archaeological resources

include movable antiques, monuments, historical buildings, historical landscapes, cemeteries, and burial sites. Both immovable and movable cultural assets can be found in archaeological sites.

Archeology and cultural heritage are important to civilization and cultural life, so they are protected from potentially damaging activities.

The project aims to avoid impacts on cultural heritage as much as possible by balancing cultural heritage aspects with other environmental and engineering requirements. Where important cultural heritage elements are affected, this section also provides appropriate mitigation measures aimed at minimizing these impacts.

4.9.2 Policies, Legal Framework and Guidelines

There are national legislation and international guidelines that have been established in the field of Cultural Heritage and Archeology, in which measures for protection, transport and monitoring are taken and managed. National and international standards that will be implemented as follows;

- Law on the Protection of Cultural and Natural Heritage
- International Finance Corporation (IFC)
- European Bank for Reconstruction and Development (EBRD)

4.9.3 Extend of Study Area

The High Standard Train Project is planned to pass through Mersin-Adana-Osmaniye-Gaziantep provinces and the districts of these provinces. The provinces where the line is planned to pass and the areas surrounding the stations are considered as study areas. The working area related to cultural heritage and archaeological sites are the construction areas where excavations will be carried out in the project.

Excavation operations will be carried out within an area of 199 km on the route line of 286 km in total. Considering that cultural heritage and archaeological areas may be affected during the construction operations on the given routes, the impact area is determined according to these routes.

4.9.4 Identification of Baseline Conditions

It was determined whether there are cultural heritage and archeological findings in the region with the studies carried out on the routes followed for the High Standard Train Project covering Mersin-Adana-Osmaniye-Gaziantep provinces. The findings were given in the EIA files previously made for each line, as stated in the Archaeological Evaluation Report. In the table below, it is given whether there are cultural heritage and archeology findings and by which study.

Although the areas found by Desk Studies around the project are not located near the High Standard Railway, the Museum Directorate will be contacted with any findings encountered during construction excavations and field work.

4.9.5 Impact Magnitude and Sensitivity Criteria

The value of cultural heritage attributes is assessed in relation to priorities or recommendations and attributed values set out in international and / or national legal regulations and national research agendas. Then the classification is made to determine the sensitivity and importance of the source. This method should be carried out as objectively as possible, but qualitative evaluation by classification is inevitable.

4.9.6 Impact Assessment

The project route and the works in the project preparation/operation phases are not expected to cause a visual and/or physical change/impact on the Mentioned archaeological sites. The project is carried out without damaging the rock tombs in the area and is monitored under the supervision of the Museum

Directorate. In this context, the impact magnitude of the project is insignificant and is not expected to cause any changes.

The EIA studies have been examined, and most of cultural heritage asset are far away from Train Project. There are six sensitive area, and the railway route passes through the zero point of two of these sensitive areas. These two areas are Sirkeli Mound and Kamışlı Mound. If any movable or immovable cultural property is encountered during the project time, the works will be stopped and the nearest local administrative authority and/or the Museum Directorate will be informed. Kamışlı/Yarma Mound is the highest risk area of the project. During the application, it is recommended to conduct a survey in this area and a rescue excavation that will develop accordingly. Recommended working methodology is given below;

- before to start excavation works, detailed site survey and if needed archeological excavation should be conducted by archeologist/s,
- Results of detailed site survey and/or archeological excavation should be submitted to related Directorate of Cultural Heritage Preservation Regional Board,
- Commission of Directorate of Cultural Heritage Preservation Regional Board will decide to how construction works will be held. Three options which will be implemented to continue construction works of the Project are given below,
 - Start rescue excavation and archeological finds should be moved by archeologists from the construction site or,
 - Replace the railway route to out of the archeological site or,

No need any action and the construction works of the Project can continue under the supervision of an archaeologist.

4.9.7 Cumulative Impact Assessment

Since Sirkeli Mound, Kamışlı Mound, İslahiye Cultural Region, Misis Antique City, the ancient City of Neronias and Dülük Plain are located in the cultural heritage site, it is important whether the projects planned to be built around it will have a cumulative effect on this region. The projects surrounding the cultural heritage property have been examined and it has been determined that a situation that could create a cumulative effect is not expected with the High Standard Train Project.

4.9.8 Summary of Residual Impacts, Significance Criteria and Overall Impact Significance

The impact of the High Standard Train Project on cultural heritage and archeology has been examined under the above headings. Six sensitives areas have been identified and these are Sirkeli Mound, Kamışlı Mound, İslahiye Cultural Region, Misis Antique City, The ancient City of Neronias and Dülük Plain.

The impact assessment has been evaluated nationally and internationally, and the ICOMOS guideline has been used on the degree of impact and sensitivity. According to the ICOMOS guide, the archaeological sites are a low-sensitivity archaeological site except sensitive areas where the line passes through the zero point. There will be no adverse impact on the archaeological site and cultural heritage areas of the project during the construction and operation phases.

4.9.9 Mitigation Measures

Sensitive areas were determined on the investigated railway route by evaluating the cultural heritage and archaeological findings on the project route and surrounding the project area. No possible impact is expected on these sensitive are of the project.

Before starting the construction works, meetings will be held with the work area that covers the Chance Find Procedure and the General Directorate of Cultural Heritage and Museums of the Ministry of Culture and Tourism. With this meeting to be arranged, all kinds of archaeological studies to be carried out within the scope of Mersin-Gaziantep High Standard Train Project will be defined by the relevant

institution. In addition, this contact to be made will pave the way for many bureaucratic processes between the company and the institution and will ensure that there are no possible disruptions in terms of schedule.

4.10 Waste and Wastewater

4.10.1 Introduction

In the waste and wastewater section, the effects of waste and wastewater generation that will arise from the construction and operation phases of the project are mentioned, and methods to reduce and prevent these impacts are presented. The effects of waste and wastewater generation have been evaluated with both national legislation and regulations and international standards. Both are given below in subtitle.

Waste Management

A certain amount of rock and soil material will be produced from the excavation removed during Mersin-Gaziantep (Başpınar) construction activities. During the construction phase, a total 19557959 m³ excavation and 12438093 m³ filling will be made. Determination of excess material disposal sites to be removed as a result of construction operations and the method of disposal (area, compression, slope stability, drainage, access, etc.) should be defined. Sites for the disposal of inert materials (construction and demolition waste) will be determined in consultation with the authorities (municipalities). During the Construction Phase, the management of site excavation materials will be carried out in accordance with the IFC EHS Construction Material Removal Guidelines and General EHS Guidelines and national legislation.

Waste management is clearly stated in the environmental and social management plan. The effects of wastes were determined by evaluating different categories. The project is divided into certain parts and construction operations will be carried out in almost every section. 17 km of signaling process will be done only between Bahçe and Nurdağ and no construction works will be carried out. However, even if the signaling process is carried out in this section and the construction process is not carried out, it is possible that the cable and other related wastes will come out during signalization process.

The wastes generated from the project activities will be sent to the relevant municipal landfill areas, stored there, and disposed of.

Wastewater Management

Domestic wastewater will be generated due to the water consumption of the personnel during the project activities. Package treatment will not be used for wastewater that will be generated during both construction and operation periods, and it is planned to connect to the network line. Wastewater Connection Permit and Certificate will be obtained after the controls of the relevant Municipality. There is no industrial wastewater generation during the construction and operation phases of the facility.

Domestic wastewater generated from the project activities will be discharged to the network and treated in the wastewater treatment facilities of the relevant municipalities.

4.10.2 Policies, Legal Framework and Guidelines

Both national regulations and international standards and guidelines for waste and wastewater environmental impacts are given below.

Solid Wastes

The regulations applied within the scope of national legislation for the evaluation and management of solid wastes to be generated from project activities (construction and operation) will be complied with;

- Official Gazette dated 02.04.2015 and numbered 29314 Regulation on Waste Management
- Official Gazette dated 27.12.2017 and numbered 30283 Regulation on the Control of Packaging Waste
- Official Gazette dated 21.12.2019 and numbered 30985 Regulation on Waste Oil Control
- Official Gazette dated 25.11.2006 and numbered 26357 Regulation on the Control of Waste Tires
- Official Gazette dated 31.08.2004 and numbered 25569 Regulation on Control of Waste Batteries and Accumulators
- Official Gazette dated 22.05.2012 and numbered 28300 Regulation on Control of Waste Electrical and Electronic Appliances
- Official Gazette dated 18.03.2004 and numbered 25406 Regulation on Control of Excavated Soil, Construction and Demolition Wastes
- Official Gazette dated 13.12.2014 and numbered 29204 Regulation on Safety Information Forms on Hazardous Substances and Mixtures
- Official Gazette dated 26.12.2008 and numbered 27092 Regulation on the Preparation and Distribution of Safety Data Sheets Regarding Dangerous Substances and Preparations
- Official Gazette dated 11.12.2013 and numbered 28848 Regulation on Classification, Labeling and Packaging of Substances and Mixtures.

Wastewater

Regulations applied within the scope of national legislation for the utilization and management of domestic wastewater from project activities (during construction and operation);

- 31.12.2004 dated and numbered 25687 Water Pollution Control Regulation,
- 08.01.2006 dated and numbered 26047 Regulation of Urban Wastewater Treatment.

Waste Management

Guidelines applied within the scope of international guideline for the evaluation and management of wastes to be generated from project activities (during construction and operation);

- International Finance Corporation (IFC) Environmental, Health, and Safety General Guidelines
- International Finance Corporation (IFC) Waste Management
- International Finance Corporation (IFC) Environmental, Health, and Safety Guidelines Railways
- European Bank for Reconstruction and Development (EBRD) Standards
- European Union (EU)

4.10.3 Extent of Study Area

Public toilets will be used where possible along the line, where necessary, portable toilet cabinets will be used, and the wastes will be discharged to the local municipality or transferred via sewage line.

4.10.4 Identification of Baseline Conditions

4.10.4.1 Desk Studies

Waste

During the construction phase of the High Standard Train Project, construction wastes originating from earthworks, ground improvement, art structures, superstructure works, electrification and signaling processes, household and packaging wastes from the staff to work on the site, waste oils from vehicles and equipment to be used, medical wastes, end-of-life tires hazardous wastes and wastes from waste batteries and accumulators are generated.

The materials extracted after excavation will be evaluated in order to determine their technical properties, and those suitable materials will be used in filling works. For excavations that are not suitable for use in the filling, they will be sent to the stockpiles determined/to be determined within the scope of the project and/or to the municipal waste sites in consultation with the relevant municipalities.

Wastewater

Domestic wastewater will arise from the personnel working during the construction phase and there is no industrial wastewater generation. For the calculation of domestic wastewater which will be originated by staffs Turkey Statistical Institute (TURKSTAT) data were utilized. Mersin-Gaziantep (Başpınar) High Standard Railway Route will cross 4 different provincial borders, namely Mersin, Adana, Osmaniye and Gaziantep, and the data from TURKSTAT will be different for these 4 provinces. For 2018 which is the most recent year, average municipal waste amounts per capita (kg/person-day) of TURKSTAT for the cities mentioned below data are given;

During the operation phase, domestic wastewater produced by train passengers and visitors at train stations and stops, and in railway offices and administrative buildings will also be a source of environmental impact. This waste water may contain oils and greases, detergents, chemicals, metals, and solids in concentrations that can pass into the drainage system and from there to the nearest stream. The resulting domestic wastewater will go to the network system, and it is assumed that the stations and administrative buildings along the railway are part of the railway operation.

The operation phase is under the responsibility of TCDD and Rönesans is responsible for the construction phase.

4.10.4.2 Field Studies

For the Mersin-Gaziantep (Başpınar) High Standard Train Project route, a preliminary field study was carried out and the route was recognized. Since there is an existing railway route and some parts of it started to be built in different years, the waste areas are known with the previous studies.

The location for the treatment plant has not been selected, as the wastewater treatment system will not be installed and will be given to the wastewater network.

4.10.5 Impact Magnitude and Sensitivity Criteria

Since the impacts of domestic solid wastes and other wastes generated during the construction phase are short-term and reversible and they are mostly domestic wastes, the impact size is low.

Receiver source sensitivity is moderate because the receiving environment is living organisms and ecosystem. The impact magnitude is negligible.

Since the domestic wastewater generated during the construction phase is not of an industrial nature, it has a short-term and reversible effect. Thus, its impact size is low.

4.10.6 Impact Assessment

4.10.6.1 Construction Phase

Waste

The domestic solid waste load that will arise during the construction phase is 1459 kg/day, and the packaging waste load is 0.2918 kg/day. Domestic solid wastes and packaging wastes, which will occur during the construction phase of the project, will be kept in the construction site in a way that will not pose a risk to water, air, soil, plants, animals, and people, prevent adverse effects on the natural environment and thus not harm the environment and human health. Then, they will be sent to the nearest landfill and removed from the field.

In the management of domestic solid wastes to be generated within the scope of the Project, provisions of the Waste Management Regulation dated 02.04.2015 and numbered 29314, international standards, IFC Standards and EU Directives will be followed. Recyclable and non-recyclable packaging wastes such as glass, plastic and metal will be collected separately from the others and managed in accordance with the Packaging Waste Control Regulation dated 27.12.2017 and numbered 30283, IFC Standards and EU Directives. Negotiations will be made with the relevant municipalities to ensure collection, storage, and disposal.

Construction/excavation wastes will be used as filling and wastes that are not suitable for filling will be kept in the designated area in the construction site and sent to the relevant municipal solid waste site. In this context, the relevant provisions of the "Regulation on the Control of Excavation Soil, Construction and Demolition Wastes" will be complied with regarding the reuse and disposal of excavation phases materials within the scope of the project.

First aid equipment will be available to respond to an emergency that may occur during the construction phase of the High Standard Train Project, and medical wastes from this equipment (bandages, bandages, contaminated cotton, etc.) will be generated. These medical wastes will be collected separately from other wastes such as domestic, packaging, hazardous and non-hazardous wastes and sent to the disposal facility of the relevant municipality. By preventing from harming to the environment and human health directly or indirectly, the Medical Waste Control Regulation, the relevant IFC standard/guideline and EU directives will be complied with for the management in this regard.

In case of any malfunction of the construction equipment to be used for the works in the construction phase, it is possible that waste oils will occur during the maintenance and repair of the machines in cases where this failure is made in the construction site. The waste oils generated will be stored in sealed bags/containers placed on an impermeable ground within the project. Tanks and/or containers shall be easily filled and emptied. In case that oil filters are removed from the vehicles, waste engine oil will be collected in, a separate lidded container located next to the temporary storage tanks. Apart from waste oils from the same construction machinery and equipment, it is likely to occur in hazardous wastes from absorbers, filter materials, protective clothing, and waste drums and cartridges contaminated with pollutants. It will be managed in accordance with the Waste Oil Management Regulation dated 21.12.2019 and numbered 30985, Waste Management Regulation dated 02.04.2015 and numbered 20814 and the relevant IFC standard/guideline and EU directives, by ensuring ground impermeability to prevent the passage of these waste oils and hazardous wastes to the soil and water.

In case that the replacement of the tires that have completed their life is in the field, they will be given to the conversion companies that have "Temporary Storage Permit or Environmental License" from the Ministry of Environment and Urbanization and evaluated. Within the scope of the project, the management will be carried out in accordance with the Regulation on Control of End of Life Tires, IFC standard/guideline and EU directives.

In cases where it is necessary to change the batteries of construction machinery and equipment, it will be replaced with a battery full and waste batteries will be generated. Apart from batteries, it will also generate waste from batteries that have reached the end of their life. These wastes will be collected and given to licensed companies. The provisions of Waste Batteries and Accumulators Control Regulation, IFC standard/guideline and EU directives will be complied in the collection and disposal of waste batteries and accumulators.

The solid wastes, which are calculated and mentioned above, do not cause any risk or negative impact on the environment and people during and after the construction period of the High Standard Train Project.

Wastewater

The domestic wastewater load that will arise from the activities during the construction period of the High Standard Train Project is 266,805 liter/day.

The Work Term Plan, which shows the timing of the works such as construction and commissioning, which takes place in the process of realization of infrastructure facilities such as sewage that wastewater resources need to meet the receiving environment discharge standards specified in the regulation, will be prepared and the wastewater load calculated appropriately within this plan will be given to the recovery (network line).

4.10.6.2 Operation, Longer Term and Permanent Effects

Waste

When the construction period of the High Standard Train is over and the operation period starts, domestic solid wastes and packaging wastes are formed as in the construction period. These wastes originate from employees, who work at stations and stops, and train passengers.

The amount of domestic solid waste and packaging waste will vary depending on the number of passengers and trips. Collection containers will be placed in suitable places within the station for domestic solid wastes and packaging wastes (separately for plastic, glass and metals) that will occur at the stations and stops. For the disposal of wastes, it will be provided in Convention with the companies and the relevant municipalities.

Wastewater

Domestic wastewater to be generated at the stations during the operation phase of the project will vary according to the number of trips, passengers and personnel to work at the station. Necessary permits and documents will be obtained for the disposal of wastewater that will occur during the operation phase, and their disposal will be provided by connecting to the existing network line system in the region.

4.10.7 Cumulative Impact Assessment

In the cumulative solid waste and wastewater assessment, it was reviewed whether the capacities of the solid wastes and wastewaters to be established on the route line and the construction activities and the waste storage areas and wastewater treatment facilities in the provinces where the route passes are met.

3 construction sites that planned to be established are in Merkez Tarsus, Ceyhan and Nurdağ settlements.

When the total amount given in the calculation made according to the total number of personnel of the construction sites is compared with the above wastewater treatment capacities, it is seen that the cumulative effect has almost no effect.

4.10.8 Summary of Residual Impacts, Significance Criteria and Overall Impact Significance

The waste and wastewater impact of Mersin-Gaziantep (Başpınar) High Standard Train Project route construction and operation were examined. Domestic solid waste load is calculated as 1,459 kg/day and packaging waste load as 0.2918 kg/day, and it is seen that solid waste load will not have an impact on the environment and the ecosystem. Considering that other solid wastes will come out at a lower amount than the domestic and packaging waste load, the total waste load is not enough to have a significant impact. The wastes generated on the route of the project are temporarily stored and sent to the waste storage areas of the relevant municipalities for disposal.

The domestic wastewater load to be formed from the construction sites which is established during the construction period will be 266,805 liter/day and the wastewater load to be generated from the operation will vary according to the number of passengers and voyages to be used. Industrial wastewater will not

be generated, only domestic wastewater will be generated. The calculated wastewater load will be given to the network line and it is not expected to have an impact on the environment and ecosystem.

4.10.9 Mitigation Measures

The construction phase solid wastes are not expected to have a negative impact on the environment and ecosystem. The calculated solid waste load is a low amount. If a possible potential risk occurs, the measures and mitigation methods given in the ESIA Report will be implemented.

The domestic wastewater of construction phase is not expected to have a negative impact on the environment and ecosystem. In this context, it is not necessary to take any additional mitigation measures. When a possible risk occurs, the discharge of wastewater to the network can be monitored continuously.

4.10.10 Assumptions and/or Limitations

Waste and wastewater generation resulting from construction and operation phases of Mersin-Gaziantep (Başpınar) High Standard Train Project has been analyzed based on data about number of the employee sent by Rönesans, TURKSTAT 2018 municipality statistics and Environmental Status Reports.

4.11 Traffic and Transport

4.11.1 Introduction

The High Standard Train Project planned to be built on the Mersin-Gaziantep (Başpınar) route will be carried out by rehabilitating the existing railway in some sections and building additional lines in some places. The current railway proceeds in parallel with the highway from Mersin to Gaziantep, which also separates other settlements located between these two provinces. The High Standard Railway Route is surrounded by both the highway(O-51/52) and the state road (D400/825).

With the High Standard Railway Route that passes through Mersin, Adana, Osmaniye and Gaziantep provincial borders and covers a total of 286 km, it will ensure that the transportation to the mentioned 4 provinces and districts is in a shorter time than the highway. High Standard Railway passes through 4 provinces and 14 districts. It will also reduce the load on road transport, as it will reduce the number of vehicles passing through the highway and state road.

4.11.2 Policies, Legal Framework and Guidelines

Both national regulations and international standards and guidelines for waste and wastewater environmental impacts are given below.

- Turkey Law on the Liberalization of Railway Transport
- Regulation on Transportation of Hazardous Substances via Highways
- Communiqué on Dangerous Goods Safety Consultancy
- Highways Traffic Regulation
- Regulation on Road Infrastructure Safety Management
- International Finance Corporation (IFC)
- European Bank for Reconstruction and Development (EBRD)

4.11.3 Extend of Study Area

4.11.3.1 Spatial Extend

The High Standard Train Project planned to be built on the Mersin-Gaziantep (Başpınar) route will be carried out by rehabilitating the existing railway in some sections and building additional lines in some places. The current railway proceeds in parallel with the highway from Mersin to Gaziantep, which also separates other settlements located between these two provinces. The High Standard Railway Route is surrounded by both the highway(O-51/52) and the state road (D400/825).

With the High Standard Railway Route that passes through Mersin, Adana, Osmaniye and Gaziantep provincial borders and covers a total of 286 km, it will ensure that the transportation to the mentioned 4 provinces and districts is in a shorter time than the highway. High Standard Railway passes through 4 provinces and 13 districts. It will also reduce the load on road transport, as it will reduce the number of vehicles passing through the highway and state road.

4.11.3.2 Temporal Extend

Other than the Çukurova Airport connection road, no connection road will be constructed on the High Standard Train Project route. When a possible connection road is needed, temporary connection roads will be constructed by obtaining permits from the necessary institutions, and necessary national legislation and international regulations will be complied with during construction and implementation.

4.11.4 Identification of Baseline Conditions

4.11.4.1 Desk Studies

With a total of 56,521 vehicles including 38,712 automobiles, 8483 medium-loaded commercial vehicles, 591 buses, 2829 trucks and 5906 trucks and trailers, which were measured by estimating the state road between Mersin and Tarsus; A total of 25,697 vehicles, including 15,621 automobiles, 3134 medium-loaded commercial vehicles, 318 buses, 2047 trucks, and 4577 trucks and trailers, were counted through the continuous vehicle counting and classification station. The total number of vehicles between the Mersin-Tarsus state road, where both the estimated and continuous vehicle counting and classification station are being counted, is 82,218.

A total of 52,575 vehicles, with 41,387 light vehicles and 11,188 heavy vehicles, passed through the highway between Mersin and Tarsus.

Total traffic load increase= Total traffic load from project / Total traffic load x100

Total traffic load increase on the state road during the construction period

$$= 758 / 522,548 \times 100$$

$$= 0.15\%$$

Total traffic load increase on the highway during the construction period

$$= 758 / 696,578 \times 100$$

$$= 0.11\%$$

During the operation period, vehicle traffic will occur for the purpose of entering and leaving stations within the scope of the project. It is assumed that there are 100 vehicles entering and exiting the station from Tarsus Station, Çukurova Airport Connection, Yenice Station, İncirlik Station central stations and 50 vehicles entering and exiting from other 14 stations and stops.

$$\begin{aligned} \text{Total vehicles to be used during the operating period} &= (100 \times 4) + (50 \times 14) \\ &= 1,100 \text{ vehicles} \end{aligned}$$

Total traffic load increase on the state road during the operation period

$$=1,100 / 522,548 \times 100$$

$$=0.21\%$$

Total traffic load increase on the highway during the operation period

$$=1,100 / 696,578 \times 100$$

$$=0.16\%$$

4.11.5 Impact Magnitude and Sensitivity Criteria

In the analysis of the effect size of traffic and transportation, it can be considered as a low impact since the examined effect is road-related and will not be a permanent situation during the construction period. For the operating period, it can be called low magnitude because it has a very low effect, although there is a slight departure from the basic conditions. There will be changes for both stages, but these changes will not be significant and will have an effect similar to the baseline situation. Therefore, the effect can be described as low magnitude.

The receptor is tolerant of change without damaging its character, has a low environmental value or is of local importance, so the sensitivity criteria are low.

4.11.6 Impact Assessment

4.11.6.1 Construction Phase

In the Mersin-Gaziantep (Başpınar) High Standard Train Project, the number of vehicles passing both on the state road and the highway for traffic and transportation was obtained from the 2019 Volume Maps of the General Directorate of Highways and the contribution to the current traffic load was calculated. Since the effect that will occur for the construction period is not long-term and creates a temporary situation, the low impact that will occur can be regarded as insignificant.

4.11.6.2 Operation, Longer Term and Permanent Effects

Automobiles, buses, and service vehicles will be used during the operation period and 1,100 extra vehicles will be added in addition to the current situation in total. In this context, the traffic load for the state road calculated for the operational period will increase by 0.21% and for the highway by 0.16%. As in the construction period, the increase in traffic load calculated during the operation period will have a low effect. It is expected to have a low impact for the region, although it will have a permanent effect on the current situation, not as a temporary situation like the construction period.

Increasing the traffic load is an impact, as well as increasing the use of high standard trains by reducing the use of highways by passengers, it will facilitate the traffic load that will occur on the existing highway during the operation period. This lightening of the traffic load also provides a positive effect.

4.11.7 Cumulative Impact Assessment

The states and highways that can be preferred to reach Gaziantep from Mersin are as follows; Mersin-Adana D400 Road, Adana-Erdemli Highway (O-51), Adana Ring Road (O-51), Adana-Şanlıurfa Highway (O-52), Adana-Osmaniye D400 the road runs in parallel with the Osmaniye-Gaziantep D400 Road, the Gaziantep-Antakya D825 Road, and intersects in some areas with the Adana-Şanlıurfa Highway (O-52), the Adana-Osmaniye D400 Road, the Osmaniye-Gaziantep D400 Road, and the Gaziantep-Antakya D825 roads. These roads and vehicles to be used during the construction and operation phase of the project will create a cumulative effect in the region. In this context, in the cumulative impact assessment section, the extent of the cumulative effect of the traffic load, which will

be caused by the construction and operation period activities of the route line between Mersin and Gaziantep, on the existing traffic has been evaluated.

Currently, the number of vehicles crossing the state road daily is 522,548 and the number of vehicles passing through the highway daily is 696,578, and the total number of vehicles to be used in both construction and operation phases is 1858. When the current vehicle status and project-based vehicle status are compared, vehicle traffic arising from the project is not expected to affect the current situation at a high level. Although it will increase vehicle traffic a little cumulatively, this amount will not have a major impact on traffic and transportation. Therefore, the cumulative impact on vehicle traffic will be low.

4.11.8 Summary of Residual Impacts, Significance Criteria and Overall Impact Significance

In this section, where the Mersin-Gaziantep (Başpınar) High Standard Train Project route is constructed and the effect on the existing road traffic and transportation is examined, the daily number of vehicles on the existing highway is calculated from the 2019 Volume Maps of the General Directorate of Highways. According to this calculation, the vehicles to be used during the construction period of the project are expected to increase the state road traffic load by 0.15% and the highway traffic load by 0.11%. Considering these rates, the number of vehicles that will pass through the state road and highway, and the total number of vehicles planned to be used in the project, the project is not expected to have a negative impact on traffic and transportation.

Since the impact is traffic and transportation related to the road and the effect is short-term, temporary for the construction period, it is in the low magnitude and low importance class. When a potential adverse impact risk is encountered, the following mitigation methods can be applied. Any measures to be taken to ensure traffic safety will be under the responsibility of the construction contractor during the construction phase and the operating contractor during the operation phase.

4.11.9 Mitigation Measures

Although a negative impact on traffic and transport is not expected in the High Standard Train Project, the prevention and reduction methods given below are applied when a possible risk is not encountered and/or encountered.

4.12 Resources Efficiency and Pollution Prevention and Control (EBRD PR3)

The basic definition to efficiency is the ratio of desired output to required input. Resource efficiency is the vice versa of over-exploitation of world's resources. It means using the resources in a sustainable manner, less input with a greater output. It facilitates the shift towards a low-carbon economy and a sustainable growth.

Resource efficiency and pollution prevention control is an important environmental discipline recognized by IFC PS3, aims to minimize pollution and maximize sustainable resource efficiency with an integrated approach. Increased economic activities and urbanization generates increased level of pollution to the environment. As pollution occurs, finite resources are depleted and threat all the living beings at the regional, local, and global levels. Also, GHGs emitted from the activities threatens the public health and sustainability. On the other hand, GHG mitigation technologies and pollution prevention control technologies have become more available and achievable in all parts of the world and widely applied in industrial and agricultural sectors. Industrial and agricultural sectors should try to reach out the most sustainable level of production to ensure the welfare of future generations.

4.12.1 Policies, Legal Framework and Guidelines

Both national regulations and international standards and guidelines for waste and wastewater environmental impacts are given below.

- Regulation on Energy Performance in Buildings
- IFC/WB PS 3: Resource Efficiency and Pollution Prevention and Control

- EBRD PR 3: Resource Efficiency and Pollution Prevention and Control
- Environmental and Social Framework for Investment Project Financing (IPF) Operations

4.12.2 Resource Efficiency

Cost-effective measures should be taken by client for improving efficiency in energy and water consumption and raw material acquisition. Through the implementation of efficiency improvements, eco-effective products can be designed, and conservation of raw materials, energy and water should be provided. Raw material input should be as least as possible in any process while at the same time providing the most out of the process. This approach brings about sustainable use of energy and water and pollution reduction.

4.12.3 Pollution Prevention

The client should control the excessive releases and flows of pollutants to air, water, and soil locally and regionally, relying on GIIP. Where pollution exists from past activities, the client will consider whether a cumulative assessment is required. Baseline conditions may include;

- Assimilative capacity (the capacity that the ecosystem absorbs pollutants to its highest level before collapse occurs),
- Existing and future land use,)
- The proximity of project boundaries to an area of high biodiversity or high ecological sensitivity,
- Reversible or irreversible alterations resulting from cumulative impacts to the project.

If the project area vicinity has already degraded ecosystems that are to be summed up with the project's impacts itself, additional mitigation measures are required. These strategies include project location alternatives and emission abatement.

4.12.4 Impact Assessment

As there will be energy consumption, water consumption and GHG emissions during the project-lifetime, all the issues stated above are subjected to the resource efficiency and pollution prevention and control standards. All information given serve as a base for impact assessment. In general, measures to be implemented are based on best available practice taking the key requirement of cost-effectiveness into consideration. Energy efficiency can best be provided by proper insulation and temperature arrangements (not allowing the over-heating as well as minimal heating) in stations and construction site where the staff works.

Water will be consumed only in stations and dust suppression. The Project contribution to citywide water consumption of 4 provinces is 0.023%, which is negligible and does not affect conservation of the water resources adversely. In contrast, total GHG emissions from the construction period exceeds the limit value stated in IFC. Thus, GHG mitigation measures will be implemented during the construction period while the operation phase does not require GHG mitigations.

Green chemistry is the design of chemical products or processes that is used to eliminate the generation of hazardous substances. It also enables the evaluation of life cycle assessment, also known as sustainable chemistry.

- Minimizing the transport distances for materials in excavation works during the construction period,
- Programming vehicle and equipment movements to minimize the waiting time and the distances traveled,

- Minimization of land clearance works during the construction phase as much as possible,
- Regular maintenance of used vehicles and equipment,
- Restricting the use of extra tools by well organizing excavation and filling works,
- Keeping regular greenhouse gas emission calculation records for greenhouse gas emissions resulting from electricity use for the operating period,
- Providing training to employees both during the construction and operation period, when necessary.

4.12.5 Mitigation Measures

The mitigation measures planned to be implemented within the scope of the project are;

- No wastes should be generated in chemical syntheses. If prevention is not possible, treatment or cleanup should be implemented.
- Syntheses should be carried out in a way that the final product contains the number of reactants, without yielding any byproducts.
- Design syntheses to use and generate substances with little or no toxicity.
- Design effective products having negligible or no toxicity.
- Use of solvents and auxiliaries should be reduced to the extent possible, safer ones can be used instead.
- Chemical reactions should be run at moderate temperatures and pressures.
- Use renewable starting materials instead of depletable ones
- Derivatives may block a reaction to proceed, they use additional reagents and generate waste, so that they should be minimized.
- Catalysts are effective and facilitates a reaction to proceed faster and carry out a reaction many times.
- Design chemical products in a way that they break down in the environment easily so that they do not accumulate.
- Ensure real-time monitoring and control during synthesis to minimize or avoid byproduct formation.
- Design chemicals in a way that to minimize potential of chemical accidents including explosions, fires, and releases to the environment.

4.13 Labour and Working Conditions (EBRD PR2)

Labour and Working Conditions, it is the planning studies carried out in a systematic manner in order to protect from conditions that may harm human health and take precautions during the performance of business activities in the workplace. According to the mixed commission of WHO and International Labor Organization (ILO); "Occupational health is to protect and develop the physical, mental and social well-being of workers in all professions at the highest level; prevent workers from losing their health due to working conditions; protecting workers from risks arising from unhealthy factors in the workplace; It aims to ensure that the worker works in a job suitable for his physical and psychological equipment and, in short, to adapt the work to the human and to adapt each person to his job".

Labour and Working Conditions is very wide and diverse in scope. In addition, it has some basic principles for its implementation and planning. These principles;

- The right to work in a health and safety job is the right of all employees.
- Creating a policy at a level that all interested parties can implement,
- Creating a management system that can be developed and examined periodically,
- Occupational Health and safety policies and programs should be focused on prevention and protection,

- Created policies and programming should cover all workers.

In 2016, the International Labor Organization (ILO) published Turkey's Occupational Health and safety profile. According to this publication, although work accidents in Turkey have fallen steadily since the last two decades, with the change of the notification system in 2013, work accidents figures have been almost three times higher than the previous year.

In Turkey, which was enacted on 22 April 2005, No. 155 Occupational Safety and health and the working environment in relation to the contract with occupational health and safety risk identification and assessment, and Prevention and protection requirements, both national and occupational health and safety system to ensure compliance at international standards and guidelines that are reengineered.

In this 286 km line, all construction, electrification and signalization operations on the Mersin-Ceyhan route, other operations except construction between Ceyhan and Toprakkale, construction, electrification, and signalization operations except tunnel construction between Toprakkale and Bahçe, only signaling operations between Nurdağ and Bahçe, the first 41 km between Nurdağ and Başpınar, except construction operations for the remaining 15 km will be carried out. As most of the construction activities within the scope of the project, Labour and Working Conditions measures must be taken and implemented in all of these stages.

There are both national legislation and international standards and guidelines to be based as guidelines for Labour and Working Conditions practices and management. Labour and Working Conditions applications will be implemented in accordance with both national legislation and international standards and guidelines.

Construction Phase

Workers' rights including occupational health and safety need to be considered to avoid accidents and injuries, loss of man-hours, labour abuses and to ensure fair treatment, remuneration and working and living conditions. These issues should be considered not only for those who are directly employed by the Project, but also their sub-contractors and those within the supply chain. Rönesans engages with fair labour and working conditions in its policies and procedures.

Worker Health and Safety

Bearing in mind the nature of the activities being undertaken during construction, worker health and safety is a key risk area with the potential for accidents that may result in injuries and potentially fatalities as well as lost man- hours. Many national companies may currently not meet international safety requirements and standards. Employees working informally and those with limited or without awareness of their rights (for example, migrant workers, or those newly entering the labour market) are likely to be most at risk.

Worker Rights

The labour laws in Turkey are in line with international labour laws and Turkey has ratified the core International Labour Organisation (ILO) conventions:

- Freedom of Association and Protection of the Right to Organise Convention, 1948 (No. 87);
- Right to Organise and Collective Bargaining Convention, 1949 (No. 98) ;
- Forced Labour Convention, 1930 (No. 29);
- Abolition of Forced Labour Convention, 1957 (No. 105);
- Minimum Age Convention, 1973 (No. 138);
- Worst Forms of Child Labour Convention, 1999 (No. 182);
- Equal Remuneration Convention, 1951 (No. 100) ; and
- Discrimination (Employment and Occupation) Convention, 1958 (No. 111).

Discrimination is likely to occur as women are generally not employed in construction activities and may not be selected by contractors. However, Rönesans Human Resources Policies and Procedures seeks to apply gender diversity principles in all the phases of recruitment, selection, training, development and promotion of all employees

Employment and Procurement

The Project shall develop a Human Resources Policy, Labour and Employment Plan as well as specific recruitment policies and procedures, specifically:

- The Project should develop a fair and transparent employment and procurement policy and processes to avoid any potential for nepotism or favoritism. The policy should be shared with the local community members and leadership.
- Rönesans will notify identified representatives of the local agencies of the specific jobs and the skills required for the Project, prior to the commencement of construction phase. This will give the local population time to prepare and apply for the available job opportunities on time. This is mainly applicable to unskilled and semi-skilled workers who will be locally sourced.
- There will be no requirement for applicants to make payments for applying for, or securing, employment on the proposed Project.
- The Project will ensure that recruitment procedures are transparent and monitored to ensure that those recruited present their actual experience, geographical location, health status, and age and that requirements for local employment are being met.
- The Project will develop and implement a program of up-skilling, training and development for workers to assist them in accessing opportunities associated with the Project and in finding work following completion of their contracts.
- The Project will provide training on health and safety and quality standards required by the Project for provision of goods and services to the Project to ensure that local businesses have the opportunity to benefit.
- The Project will develop a Workers Grievance Mechanism.

Management System

The Project should develop a Human Resources Policy, Labour and Employment Plan. These requirements should also be passed on to any sub-contractors. Key issues with the Human Resource (HR) management will include, but not be limited to the following:

- Provision of clear and understandable information regarding rights under national labour and employment law, and any applicable collective agreements, including those related to hours of work, wages, overtime, compensation, etc.
- Provision of reasonable working conditions and terms of employment.
- Provision of adequate accommodation (where relevant).
- Provision of employment, compensation/remuneration and working conditions, including working hours, based on equal opportunity and fair treatment, avoiding discrimination on any aspects.
- Provision of adequate welfare facilities on site.
- Implementation of a grievance mechanism for the Project workers.
- Adoption and implementation of a sexual harassment policy.
- Adoption of open attitude towards freedom of association.

The Project will develop a H&S programme which will include risk assessments (such as working at heights, confined space machine guarding), work permit systems and a H&S management system, in line with industry best practice, including worker performance safety tracking (safety observations) to assure worker safety. All workers will receive induction and continuous training regarding this system (See Implementation of Social Monitoring in ESMMP)

Sub-Contractor and Supplier Management

- Subcontractor and Supplier Contracts should make explicit reference to the need to abide by Turkish law, international standards (in particular IFC PS 2) and the ratified ILO conventions and the Project policies relating to health and safety, labour and welfare standards.
- As part of the subcontractor and supplier selection process, Rönesans should take into consideration performance with regard to worker management, worker rights, health and safety as outlined in Turkish law and international standards.
- Rönesans should provide support to sub-contractors and suppliers to ensure that labour and working conditions are in line with Turkish legislation and IFC PS 2 through gap analysis, awareness raising and information provision, as necessary.
- Regular checks / audits by Rönesans should be undertaken to ensure the relevant labour laws are adhered to at all times.

Workers' Rights

- Rönesans should ensure no employee or job applicant is discriminated against on the basis of his or her gender, marital status, nationality, ethnicity, age, religion or sexual orientation.
- All workers (including those of subcontractors) should, as part of their induction, receive training on worker rights in line with Turkish legislation to ensure that positive benefits around understanding labour rights are enhanced. This process should be formalized within the Code of Conduct that would be provided by Rönesans (as in ESMMP).
- All workers (including those of subcontractors and suppliers) should have contracts, which clearly state the terms and conditions of their employment and their legal rights. These contracts should be aligned with Turkish labour law, the ILO core conventions and the requirements of IFC PS2. Contracts should be verbally explained to all workers where this is necessary to ensure that workers understand their rights. Contracts should be in place prior to workers leaving their home location if applicable.
- The Project should put in place a worker grievance mechanism that should be accessible to all workers, whether permanent or temporary, directly or indirectly employed. The worker grievance mechanism should be open to Rönesans and the subcontractor workforce in the event that their grievance is not adequately resolved by their direct employer. Rönesans would then have the authority to act to resolve this grievance.
- All workers should have access to training on communicable diseases and STDs and community interactions in general.
- Accommodation should be provided to workers in accordance with international good practice on workers' accommodation, including IFC standards to prevent transmission of diseases associated with poor living conditions.

Rönesans should undertake surveillance and assurance that no children or forced labour is employed directly, and to the extent possible by third parties related to the Project and primary suppliers where such risk may exist.

There are both national legislation and international standards and guidelines to be based as guidelines for Labour and Working Conditions practices and management. Labour and Working Conditions

applications will be implemented in accordance with both national legislation and international standards and guidelines.

- Occupational Health and Safety Law
- Labor Law
- Regulation on Duties, Authorities, Responsibilities and Training of Occupational Safety Specialists
- Communiqué on Workplace Hazard Classes Regarding Occupational Health and Safety
- Occupational Health and Safety Risk Assessment Regulation
- Regulation on Occupational Health and Safety in Construction Works
- International Labor Organization
- EU Directive 89/391/EEC
- IFC Environmental, Health, and Safety (EHS) Guidelines Occupational Health and Safety
- IFC Performance Standards
- European Bank for Reconstruction and Development (EBRD) Requirements

4.14 Community Health, Safety and Security (EBRD PR4)

Impacts on the health and safety of the community may arise during construction as a result of noise, vibration, dust and other emissions from earth moving activities, and operation of equipment and vehicles which have already been addressed in different chapters of the ESIA Section 4.7 “Impacts on Noise and Vibration from Construction Activities” and Section 4.3 “Impacts on Air Quality Related to Construction Equipment Emissions”.

Other risks involving the public associated with construction could include physical accidents on sites, impacts from construction traffic, and accidents involving the handling of hazardous materials during construction. Children and youths are amongst those vulnerable to the physical hazards associated with construction activities, including falls from unguarded areas at height, and construction traffic, especially in the event of unauthorized entry.

The EPC Contractor’s ongoing stakeholder engagement activities in accordance with Project “Stakeholder Engagement Plan” will serve to inform the local communities regarding potential health and safety issues during the construction period. Stakeholder engagement activities will include ongoing community meetings with the vulnerable and marginalized groups such as children and young persons (including visits to schools) and press releases and local postings to inform the public regarding the relevant hazards associated with construction activities that will be relevant to their particular locations. These stakeholder engagement requirements are detailed in the project SEP

IFC PS 4 recognizes that project activities, equipment and infrastructure can increase community exposure to risks and impacts. The objective of community health and safety measures is to anticipate and avoid health impacts during the project lifetime and to ensure that the safety of personnel and property is carried out in line with the human rights and in a way that avoid or at least minimize risks to the vulnerable communities.

Community Health and Safety impacts during construction, rehabilitation, operation, and maintenance of railways are common for large construction projects, which are also discussed in the IFC General EHS Guidelines. These impacts include dust and noise emissions, vibration from construction vehicles and machinery, hazardous substance formation, transport and storage and communicable diseases associated with the biological impacts associated with the temporary labor in construction. General EHS Guidelines provide community health and safety issues specific to earthwork extraction projects including land instability, water, explosion risks and decommissioning. Additional potential risks to community health and safety are uncontrolled access to construction sites, exposure to waterborne diseases associated with the small impoundment formations and exposure to increased traffic of materials transport vehicles.

However, no relevant Turkish national legislation has been published specific to community health and safety and involving the mitigation measures.

Health and safety issues concerning the community include those subtopics;

- General rail operational safety,
- Transport of dangerous/hazardous goods,
- Level crossings safety,
- Pedestrian safety,
- Occupational health and safety monitoring.

Mitigation / Management Measures

Rönesans has a "Manual for Health Safety & Environment" management plan, which has been created within the scope of Occupational Health and Safety. In the activities carried out in line with this plan, responsible people are appointed, and management is ensured by taking necessary OHS measures:

- Adopting best transport safety practices across all aspects of the project and the adoption of a Traffic Safety Management Plan, including for sub-contractors, to prevent, minimize and control risks and adverse impacts from traffic accidents. Measures will include:
 - Obligation that all drivers are appropriately licensed;
 - Obligation that all vehicles are safe and have current inspection certificates;
 - The rush hours of the access roads will be considered and usage of the access roads will be avoided during rush hours (especially during hours that children are travelling to and from school).
 - Minimizing pedestrian interactions with the construction vehicles through fencing, flagmen, warning signs, etc.;
 - Improving local traffic signage by collaboration with the responsible local authorities and communities;
 - Coordinating with emergency responders to ensure that appropriate first aid is provided in the event of accidents;
 - Developing and implementing a series of security measures including the installation of sufficient and adequate site boundary and access controls near settlements to prevent unauthorized entry to construction sites, especially by children.

Hazardous Material Safety During Construction

Hazardous materials, such as fuels, oil, paints, and solvents are likely to be used during construction. The storage, handling, transport and disposal of all hazardous materials should comply with Project requirements, and with adoption of good construction site practices (e.g., appropriate locked storage and sign-posting of hazardous materials).

Access control/restrictions to the construction site should be provided, and thus the risks to the community through exposure to any such hazardous materials during construction of the railway, are expected to be very limited.

Details with respect to the anticipated quantities of hazardous materials to be used on site and the locations of where such materials are stored should be elaborated in the detailed site layout and management plans, to be produced by the EPC Contractor.

The large majority of construction waste and spoil will be inert and suitable for disposal in normal disposal areas. Only a limited amount of waste (e.g. oily waste, containers with hazardous residues etc.) is expected to be disposed of as hazardous waste. Again, adoption of good construction waste management practices (e.g., placement in appropriate containers and sign-posted temporary hazardous waste storage sites, with restricted access, regular removal of waste) will ensure that risks to the public are very low.

Security

Security personnel will be employed at the site to protect assets and prevent community members entering restricted areas. In the event of protests, trespass or other actions by community members or other stakeholders there is the potential for unlawful or abusive interaction between security guards and community members especially if site security are not adequately trained.

Community safety and security risks have the potential to impact Project workforce and communities on the direct footprint of the proposed project. In order to minimize negative impacts from security, the following mitigation measures should be applied:

- A Grievance Mechanism should be developed, whereby affected people can raise issues and concerns associated with vehicle movements, driver behaviors and report accidents or damage to property they feel are caused by Project vehicles. Raise awareness to communities regarding the Grievance Mechanism to deal with community concerns and issues in a timely manner to avoid issues escalating. This will include the use of the Community Liaison Officers (CLOs) who will be present around the Project Site pre and during construction.
- The Project should develop a Traffic Safety Management Plan to prevent, minimize and control risks and adverse impacts from traffic accidents.
- Project security should comply with Turkish laws and regulations as well as the requirements of the Voluntary Principles for Security and Human Rights. The security should include, among other things, selection of personnel based on a careful background screening, training with regards to human rights requirements, and monitoring of performance.
- The Project should implement a Community Health and Safety Management Plan and a Security Management Plan for construction phase containing measures to protect the Project facilities and personnel against potential violent protest or social unrest and to train security personnel in safeguarding of community human rights.
- High-risk or value elements of construction sites should be fenced to minimize the risk of trespass and robbery. In addition, clear and visible signage should be put in place where appropriate to advise community members of the risk of site trespass.
- Sensitive local community members prior to the commencement of the construction phase so that they are aware of presence and role of security guards, the risk of site trespass and how to interact with the Project in the event of any concerns or issues.
- The Project should consult with local leaders such as mukhtars. As part of the SEP, the consultations should be aimed at finding ways of ensuring site trespass and robbery are minimized either through punitive or rehabilitative measures (See Implementation of Social Monitoring in ESMMP)

Rönesans, from the above-mentioned national legislation, Occupational Health and Safety Law, Labor Law, Regulation on Duties, Authorities, Responsibilities and Training of Occupational Safety Specialists, Communique on Workplace Hazard Classes Regarding Occupational Health and Safety, EBRD (2019), IFC Standards and Guidelines and EU Directives will properly carry out business activities.

General Rail Operational Safety

General rail operational safety is a concept that potentially affects both crew members and passengers due to such problems such as train collisions with other trains or road vehicles in transition points as well as operational problems such as power cuts and loss of signals. Following mitigation measures will be implemented for those risks in the scope of the Project;

- Implementation of rail operational safety processes aims reducing the collisions such as positive train control (PTC) system. If a full PTC system is not applicable, installation of

automatic rail switches is required. They are distinct from the manual switches due to the interchangeable replacements of the switches between main track and siding to compensate loss of signals. This information should be announced to all passengers and crew,

- Implementation of hazardous material security plan and relevant trainings, prohibition of unauthorized access as well as establishment procedures for storage and transport of hazardous materials are required.

Level Crossings Safety

Level crossings at grade road and rail junctions represent high-risk accident locations for railways. On railways with congestion, a flagman (person who is in charge of protecting all personnel employed in the railway operation) can be charged to prevent traffic at the crossing and clear the tracks before the train comes. Automatic warning lights, bells, and beams or automatically closing gates are commonly used for this objective. The gates also function as barriers against intrusion of any highway or road traffic onto the railway. Crossings with no gate present inevitable risks. Following mitigation measures will be implemented for those risks in the scope of the Project;

- Use of bridges or tunnels in place of level crossings. Level crossings may be beneficial as it may improve train performance. Because the limitation of train speed may not be an effective measure to reduce accidents.
- Installation of automatic gates to all level crossings and proper and regular maintenance should be provided for safer operation.

Pedestrian Safety

Trespassers on rail lines and facilities can expose risks caused by moving trains, electrical equipment and hazardous materials, substances. Following mitigation measures will be implemented for those risks in the scope of the Project;

- Installation of a clear and attentive warning signalization system at crossing points of the track such as stations and level crossings,
- Installation of fences or barriers at station ends to prevent access to the track without any permission,
- Raising public awareness especially to elderly people and children,
- Designing stations in a way that the permitted route is safe and clearly indicated,
- Use of closed-circuit television to monitor the stations and other areas where trespassing occurs often and/or voice alarms to prevent trespassers to access the track.

Accident and Fatality Rates

In all railway projects, number of accidents should be reduced to zero or at least minimized among the project personnel and contractors/subcontractors. It should be paid particular attention to the reduction of accident and fatality rates as it may result in a waste of time in workplace, disability and even death. Fatality rates should be graded in accordance with the performance of facilities in terms of their performance against accident and fatality rates in this sector in consultation with legal bodies (e.g., US Bureau of Labor Statistics and UK Health and Safety Executive).

Occupational Health and Safety Monitoring

Accredited professionals should carry out monitoring of the OHS. Facilities also should keep records and keep track of occupational accidents and/or occupational-vocational diseases that possibly occur in the workplace arising from physical, chemical, or biological hazards. For detailed information upon this, IFC General EHS Guidelines can be used as a guide.

Across the world, train accidents have a decreasing trend as well as the death rates originating from the trains. The lowest statistical values belong to European Union and Australia.

Apart from the IFC Requirements, all construction areas and access routes should be investigated, and restrictive measures should be applied prior to construction works. Speed limits should be implemented and checked as well as periodic vehicle maintenance. Investigation of grievances from local inhabitants and stakeholders due to the construction activities are also incredibly important. For biochemical risks mitigation, air conditioning and ventilation should be supplied, and periodic medical checks of staff should be implemented as well as carrying out health awareness raisings on emergency preparedness and response in railway tracks.

4.14.1 Impact Assessment

As most of the construction activities are subject to subtopics above, mentioned community health and safety measures must be taken and implemented in all these stages as there are many potential dangers due to the abundance of railway structures, main road junctions, access roads, signalization beams and pollution load to be occurred during the construction. All the information given serve impact assessment purposes along the project line as a large-scale transport will occur which necessitates paying particular attention to mitigation measures for accidents. For the Project, conventional line rehabilitation will enable the enhancement of worn-out structures along the line, will be expected to provide a safer area for the community, preventing the unexpected accidents.

5 SOCIAL IMPACT ASSESSMENT (EBRD PR1 and PR7)

5.1 Introduction

Interorganizational Committee on Principles and Guidelines for Social Impact Assessment (2003) defines social impacts as follows: “By social impacts we mean the consequences to human populations of any public or private actions that alter how people live, work, play, relate to one another, organize to meet their needs and generally cope as members of society. The term also includes cultural impacts involving changes to the norms, values, and beliefs that guide and rationalize their cognition of themselves and their society.”

The impact assessment process is carried out in three steps, which are identification, assessment, and mitigation. The identification stage consists of a systematic definition of possible impacts for all phases of the project. Project related activities and facilities through all phases are considered in terms of their interaction with the environment in order to determine the potential impacts, both adverse and beneficial, on the environment. Potential impacts are evaluated for the relevant stages of the project cycle (construction, operation, and decommissioning).

Measures are developed to avoid, or where avoidance is not possible, minimize, mitigate, or offset/compensate for identified potential impacts associated with the project on the environment.

The impacts will be assessed after obtaining the baseline information, which shows the existing status of the environment. The findings of the assessment must be compliant with both the applicable national regulations and the international standards. The mitigation measures will be addressed in the ESIA Report, if there are any adverse impacts associated with the proposed Project.

5.2 Policies, Legal Framework and Guidelines

Among the potential creditor corporations for the Project, the social and environmental standards, and guiding documents of International Finance Corporation (IFC) and European Bank for Reconstruction and Development (EBRD) shall be taken as basis for every phase of the Project. All these standards serve for the improvement of the project's performance through its evaluation in environmental and social aspect by minimizing of negative impacts and increasing in contributions.

As the financial department of the World Bank, IFC, has constituted its environmental and social policy with the intention to provide the implementation of the projects that it provides finance in line with the sustainability principle and in that regard, has established performance standards (PS) as the basis of environmental and social evaluation. The IFC Performance Standards (PSs) are given brief as follows.

PR 1: Assessment and Management of Environmental and Social Risks and Impacts; it establishes the importance of integrated assessment to identify the environmental and social impacts and issues associated with projects and the client's management of environmental and social performance throughout the life of the project.

PR 2: Labor and Working Conditions; it recognizes that for clients and their business activities, the workforce is a valuable asset, and that good human resources management and a sound worker-management relationship based on respect for workers' rights, including freedom of association and right to collective bargaining, are key ingredients to the sustainability of business activities.

PR 7: Indigenous Peoples; it recognizes that projects can create opportunities for Indigenous Peoples to participate in and benefit from project-related activities that may help them fulfil their aspiration for economic and social development.

PR 8: Cultural Heritage; it aims to protect irreplaceable cultural heritage and to guide clients to avoid or mitigate adverse impacts on cultural heritage in the course of their business operations

5.3 Extend of Study Area

Mersin, Adana, Osmaniye and Gaziantep Provinces are located on the route of the train project. The main stations are in Mersin and Adana Provinces, Toprakkale, Bahçe and Nurdağ Districts, Başıpınar

Quarter and Mustafa Yavuz locality. All of these settlements are located in the south and southeast of Turkey.

5.4 Identification of Baseline Conditions

5.4.1 Desk Studies

Secondary data sources have been used in this study include census data, geographical data (including maps), and national and local government statistics and documents.

The objective of this section is to present the baseline information on socio-economic characteristics, through the desktop studies carried out in the scope of the Project.

The scope of this section embraces all the findings about the socio-economic characteristics, together with the methodology followed during the studies. The provided information will constitute a basis for the ESIA.

This phase of the study is mainly composed of the compilation of the existing data, from the official databases of Turkish Statistical Institute (TurkStat).

The following headings cover "Population Structure" and "Economic Structure", which are the main topics used in the analysis of socio-economic structure.

5.4.2 Field Studies

The Project Social Impact Area (PSIA) covers the entire area directly and indirectly affected by the project activities mentioned above. Therefore, 6,686,488 people, consisting of cities (Mersin, Adana, Osmaniye and Gaziantep) districts, villages and quarters connected to these cities, are covered by PSIA.

However, it is almost impossible to study the socio-economic structure of such a large population community and assess the possible social impacts. Thus, in order to study the direct and indirect effects that are expected to occur on such a large population, a sampling is needed to represent the entire population.

In December 2020, Social Impact Assessment and field survey of Stakeholder Engagement Plan were carried out. The summary of field surveys are given below:

- 183 household questionnaires were completed in the field survey conducted as part of the social impact assessment in 4 provinces, 15 districts and 120 settlements (village, neighborhoods) designated as the project's impact area. 33.3% of questionnaire forms belong to Mersin, 42.1% to Adana, 18.6% to Osmaniye, and 6.0% to Gaziantep,
- 19 mukhtar interviewed was conducted as of December 2020. 9 of the interviews were conducted in Osmaniye, 5 in Adana and 5 in Gaziantep,
- It was considered sufficient to organize a focus group meeting to represent each province, and 2 focus group meetings and 2 in-depth interviews were realized,
- 30 institutions were interviewed. 11 of the meetings of this institution were conducted in Mersin, 9 in Adana, 6 in Osmaniye and 4 in Gaziantep. The majority of the interviews (11) were conducted with representatives of metropolitan municipalities and district municipalities. 9 interviews were conducted in other public institutions, and 6 of them are institutions related to the Ministry of Transport.

5.5 Impact Magnitude and Sensitivity Criteria

After all the impacts have been assessed, it is then necessary to prioritize them for action. In impact assessment speak, this is called 'establishing significance', 'significance assessment' or 'significance

determination'. In effect, criteria for establishing significance need to be determined and each impact rated (or ranked) on the basis of those criteria.

5.6 Impact Assessment

5.6.1 Construction and Operation Phase

The goal is to make a social impact assessment on different aspects of the Project in a way, which allows a comprehensive analysis work to be done. The information produced by this study will focus on construction phase of the Project. The key objective of this study is; To assess and understand the impact of construction and operation of the High Standard Train Line and its infrastructure to both the regional economy and population.

To evaluate the socio-economic impacts of a High Standard Railway Line Project, it is necessary to consider the relations of different issues affecting each other together. It is an actual situation to say that the population will increase due to the arrival of workers to work in the region during the construction and operation phases of the High Standard Train Line Project. Still, this alone is not an adequate assessment. In short, it is necessary to consider the indirect impacts of the High Standard Train Line Project. on society, especially population growth, employment, and built environment.

The impact assessment of socioeconomics is presented in the following sub-headings, and the general assessment is given following each section. The information produced by this study will focus on both construction and operation phases of the Project.

5.7 Mitigation Measures

Following mitigation will be implemented;

- Mitigations on Demography
- Mitigations on Social and Cultural Conflicts
- Mitigations on Education
- Mitigations on Health
- Mitigations on Employment Conditions
- Mitigations on Services and Public Facilities
- Mitigations on Vulnerable Groups

Mitigations on Demography

The most important impact of the Project on the society is the increase in the population of the region due to expats. This increase will cause the young population to gain weight in the population structure. These effects of population growth can be monitored primarily in the region close to the project area. Population growth is overall definite, and its effects are positive for both local people and for the Mediterranean Region. The stated positive effects of population growth are more pronounced during the construction phase but will also apply to the operation phase. Neither a mitigation measure is required for the construction phase nor for the operation phase about population growth.

Mitigations on Social and Cultural Conflicts

Social conflicts, seen as a short-term impact, would be heavily related to the construction phase. The expected impact of social conflict will be short-term and will not be strong enough to change the social structure of the region. These social conflicts, which were raised during the construction phase, would have almost disappeared for the operation phase as a result of the cultural interaction. Induction trainings for new comers related with relationship/communication with locals, code of conduct, and the social dynamics of the country will be beneficial for mitigating the social conflicts.

The most important effect of population growth in cultural life is the change in the daily life of the local people. These changes are more evident during the construction phase because the population growth was greater. As well as social conflicts, there will be cultural conflicts in this phase. The fact that employed workers during the construction phase are foreign nationals forms the basis of cultural conflicts. Differences in language, beliefs, and lifestyle can create cultural conflict. Local people are particularly affected by this issue.

The most important impact on lifestyle in the local area is related to food and consumption habits. Consumer goods offered to newcomers may restrict access to products (e.g., food) that local people are accustomed to. This effect is evident during the construction phase and can also be observed during the operation phase.

As of the initiation of the construction phase, measures can be taken by establishing an effective communication and training network for newcomers. It is important to provide training where newly arrived workers can learn the social and cultural structure of the region.

Nevertheless, information meetings can be held for local residents about the project's construction phase. Local authorities and law enforcement agencies need to know the importance of the issue in order to prevent potential conflicts. For this reason, regular and continuous communication should be established with local stakeholders.

Mitigations on Education

An increase impact in the level of education could be seen due to the migration of expats. However, the construction phase has no significant impact on education levels. Conversely, the arrival of qualified personnel needed during the operation phase may lead to an increase in the level of education. In both phases, the current education system will be forced to evolve, as the demands of workers who come to the region with their families on educational institutions will be intense.

Mitigations on Health

As with the education system, the health system will be under pressure from the growing population and will resort to increased capacity to respond to the need. The negative impact of the construction phase on health is likely related to the dust and noise created by increasing activities in the region. However, they are impacts that can be easily mitigated by applying common appropriate measures.

Mitigations on Employment Conditions

The most important effect of the Project is the economic benefit. This economic benefit can be felt both locally, in the region and across the country. There is a significant economic benefit, especially in the local area. The significant reason for the economic growth of the macro projects is employment opportunities. This employment affects jobseekers in the local area. Thus, unemployment in the local area is reduced. Direct employment refers to personnel employed during the construction and operation phase of the Project. Indirect employment covers the services that will be created to meet the demands of these personnel. The only negative point here will be the competition between the unemployed in the local area and the workers from outside. The prevention of this economic conflict depends on the good determination of the number of local employments.

Mitigations on Services and Public Facilities

Although the mentioned impacts on the services are not seen as a direct negative effect, reducing the mass on existing facilities by coordinating with local authorities during the construction phase can be used as a measure. In addition to these some mitigation, measure could be applied cooperating with local government /municipalities.

Traffic congestion can cause to critical problems, which are related public health and occupational health. Therefore, both drivers and passengers who access to camp site as using public roads, should be trained on safety travel. In addition, local people should be included to traffic training program via

educational institutions. These kind of training programs should be supported by Contractor and they will be made accessible by public announcements. As a result, effectiveness of public relations and public information network is determinant on to applying mitigation measurements.

Both construction activities and the transportation of workers from place to place will cause an additional load on the existing traffic, pressure on existing roads, which should be improved and/or rehabilitated as well as the training of drivers using the vehicles.

Coordination with the local municipality will reduce the load on the sewerage and water system, and waste disposal. Besides, water and wastewater policies should be developed, especially during the construction period.

Mitigations on Vulnerable Groups

Minority groups are among the first to be affected by instability in society in general. Therefore, they are under the influence of the expected social conflicts.

Low-income groups are also included in sensitive groups. They are, therefore, expected to be heavily affected by instability in society. The people who would first want to benefit from economic growth in the region are low-income groups. Increased education and health services due to newly arrived workers are an advantage for low income groups. Besides, the development of municipal services provides an advantage for low-income groups. Another consideration would be high house and land prices, seen as an economic benefit for the region, a disadvantage for low-income groups. Low-income groups will be most affected, particularly from rising rent prices.

Sensitive groups are heavily damaged by challenges in education and health care. The difficulty of transportation and the problem of traffic also bring an extra burden for these groups. In this sense, the development of the region in terms of education and health impacts these sensitive groups.

The project's impact on economic growth and subsequent development of social services is also positive for these sensitive groups.

6 INFORMATION DISCLOSURE and STAKEHOLDER ENGAGEMENT (EBRD PR10)

6.1 Introduction

Stakeholder Engagement Plan (SEP) of the Mersin-Gaziantep Train Project as part of the ESIA process. SEP will be developed to ensure the process of interaction with the external stakeholders in the course of implementation of the Mersin-Gaziantep Train Project in compliance with the requirements of the Turkish national law/regulations and the International Finance Corporation's (IFC) Performance Standards on Social and Environmental Sustainability. As described in the IFC Performance Standard 1, the purpose of the SEP is to establish and maintain positive relationships with external stakeholders (i.e. individuals, communities, local government authorities, or other interested/affected parties) over the lifetime of the project.

6.2 Objectives

The SEP will be developed with the aim of explaining how the Project Company will communicate with all stakeholders, that is, people, institutions and organizations who might affect/be affected by or interested in the Project. The main objective of the SEP is to define a technically and culturally appropriate approach to consultation and disclosure.

The main objectives of the SEP are therefore to:

- Identify all stakeholders that may be directly/indirectly affected from or affect the Project,
- Provide timely, relevant, accessible, and easily understood information to stakeholders in an appropriate non-technical format,
- Foster strong project community relationships,
- Specify procedures and methodologies for stakeholder consultations,
- Build and maintain relationships between the Project and stakeholders through open dialogue,
- Provide opportunity for all stakeholders to express their opinions and concerns,
- Ensure a technically and culturally appropriate approach to engagement with all stakeholders,
- Establish a grievance mechanism for all stakeholders.

6.3 Legal Framework

The Stakeholder Engagement Plan (SEP) aim to guide The Project Management Department on how to continuously and constructively involve stakeholders in the project management process. According to this scope both national and international legal framework have a binding force.

The Turkish environmental legislation is in parallel with the EU Legislation due to the Turkey's harmonization process to EU. The baseline for the environmental impact of this Project is the Environmental Law No. 2872 (Official Gazette dated 11.08.1983 and numbered 18132). On the other hand, the EIA principles and procedures are detailed in the Environmental Impact Assessment Regulation (last version: Official Gazette dated 25.11.2014 and numbered 29186).

Performance Standards based on Equator Principles follow an effective policy to inform the Parties at every stage of project activity and ensure their active participation in the process. It is essential to inform the public that clear, distinct and accurate information should be shared with the relevant persons at the appropriate time.

In this respect, an Environmental and Social Impact Assessment ESIA Report has been prepared to meet the requirements of the IFC performance standards.

6.4 Roles and Responsibilities

The primary responsibilities of the Client are to coordinate stakeholder engagement activities and to support the stakeholders during the Project activities. The following are core tasks of the Client in the stakeholder engagement process;

- External communication system; to inform the stakeholders about the Project progress,
- Meeting; to public disclosure or information,
- Registration; to follow grievances and complaints,
- Tracking and Monitoring; to ensure fulfillment of the commitments,
- Social management programs; to ensure sustainability of the social benefit,
- Social investment programs; to contribute the PSIA particularly vulnerable groups.

6.5 Methodology for Stakeholder Engagement

6.5.1 Approach

The SEP outlines a systematic approach to stakeholder engagement that will help Client to develop and maintain a constructive relationship with their stakeholders during all stages of the Mersin-Gaziantep Train Project.

IFC defines stakeholder engagement as follows: “the term “stakeholder engagement” is emerging as a means of describing a broader, more inclusive, and continuous process between a company and those potentially impacted that encompasses a range of activities and approaches, and spans the entire life of a project”

As for the SEP the IFC Sustainability Framework: Policy and Performance Standards on Environmental and Social Sustainability is being followed. It outlines a systematic approach to stakeholder engagement that will help investors build and maintain over time a constructive relationship with their stakeholders, in particular the locally affected communities.

6.5.2 Identification of Stakeholders

Stakeholder identification is a key step in managing the overall stakeholder engagement process.

IFC defines stakeholder as follows: “Stakeholders are persons or groups who are directly or indirectly affected by a project, as well as those who may have interests in a project and/or the ability to influence its outcome, either positively or negatively. Stakeholders may include locally affected communities or individuals and their formal and informal representatives, national or local government authorities, politicians, religious leaders, civil society organizations and groups with special interests, the academic community, or other businesses” (IFC,2007:10).

In this respect, a comprehensive list of stakeholders has been prepared for the Mersin-Gaziantep Train Project. Stakeholders have been identified as the following bullets;

- Project affected settlements,
- Vulnerable groups in the PSIA,
- Local authorities,
- Municipalities,
- Social services providers,
- Trade unions,
- Universities,
- Heads of village (Mukhtars)
- NGOs
- Local media

6.5.3 Identification of Communication and Informing Channels

Public disclosure is one of the main steps of stakeholder engagement. Verbal, written and visual sources could be used as the informing tools. The most important verbal sources are meetings which could be organized in a several periods. Brochures, leaflets, posters and advertisement are both written and visual tools to inform. Besides, the official website could contain different information sources. In this sense, the website is the most useful and effective mechanism of communication, inform and disclosure.

6.6 Preliminary Works

6.6.1 Public Participation Meetings

Pursuant to the Article 9 of the Turkish EIA Regulation (MoEU 2014, 29186), Public Participation Meetings (PPMs) were held to inform the public about the Project. In that regard, four PPM were held in Osmaniye, Gaziantep and Adana, respectively. The first PPM was held as of 2010 and the last one was in 2011.

6.7 Findings and Results of the Stakeholder Interviews

6.7.1 Consultation with Institutions

In December, 30 institutions were interviewed. 11 of the meetings of this institution were conducted in Mersin, 9 in Adana, 6 in Osmaniye and 4 in Gaziantep. The majority of the interviews (11) were conducted with representatives of metropolitan municipalities and district municipalities. 9 interviews were conducted in other public institutions, and 6 of them are institutions related to the Ministry of Transport.

In connection with the publication of the 31225 numbered and dated 26 August 2020 Presidential Circular on the application of flexible working methods such as remote work, alternating work and administrative permission for employees in public institutions and organizations, it was not possible to conduct face-to-face interviews. Consultation with Mukhtars

In accord with the law no. 6360 on the establishment of the Metropolitan Municipality and the twenty-seven districts and amending certain laws and decrees to the provinces, fourteen in law, which came into force in 2012, the administrative status of towns, villages and quarters in Mersin, Adana and Gaziantep, has changed. Within the framework of this change, settlements in the status of villages become quarters. Therefore, Ceyhan and Şehitkamil districts are on the border of the Metropolitan Municipality, they show rural features.

6.7.2 Consultation with Mukhtars

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In metropolitan areas (urban areas) where the population density is high, such as Seyhan, Yüreğir, Akdeniz and Tarsus, the number of quarters is small, and the number of populations of the quarters is high. On the other hand, in districts (rural areas) where the population density is low, such as Düziçi and Nurdağı, the number of villages is high, and the number of populations of the villages is low.

Support will be taken from Mukhtar survey to close this gap between “urban areas” and “rural areas” included in the sample. For this reason, the Mukhtar survey will be conducted in “villages and quarters not in the centre of the city /district”, which are considered “rural areas”.

The rural areas were where Mukhtar surveys were conducted in the villages / quarters that are connected to, Ceyhan, Toprakkale, Düziçi, Bahçe, Nurdağı and Şehitkamil districts.

19 mukhtar interviewed was conducted as of December 2020. 9 of the interviews were conducted in Osmaniye, 5 in Adana and 5 in Gaziantep.

According to the general results of the mukhtar interviews, 8 of the interviews expressed negative opinions, 7 of the interviews expressed neutral opinions and the remaining 4 interviews expressed positive opinions.

6.7.3 Focus Group Discussions and In-Depth Interviews

A focus group discussion/interview is a group process structured to obtain detailed information about a particular subject matter. A focus group discussion consists of 7-12 participants to discuss a clearly defined topic. A focus group session lasts about 1-1.5 hours and its maximum period can be 2 hours. A specialist asks open-ended questions and ensures that discussions continue in an orderly manner. In this study, it was considered sufficient to organize a focus group meeting to represent each province, and 4 focus group meetings were realized.

To be held in open or closed areas at the national and international level scientific, cultural, artistic, and similar meetings or activities regarding the Presidential Circular (20.03.20 dated and 31074 numbered) according to the circular, online focus group interviews were conducted. In cases where the number of people required to hold a focus group meeting is insufficient, support was obtained from in-depth interview methods.

6.8 Grievance Mechanism

The purpose of the grievance mechanism is primarily to respond the complaints and requests of stakeholders. The grievance mechanism should be open, widespread and public. In addition, an effective grievance mechanism is a written resource for stakeholder management. Therefore, it is important to encourage stakeholders to submit their requests and complaints in writing.

Effectiveness of a grievance mechanism as a management procedure depends on the existence of the following key determinants:

- Clearness and clarity: Both visual and written sources used in public disclosure should be prepared with clearest form. For instance, addresses and phone numbers of the assigned person should be in visible form for also elderly and handicapped people.
- Prevalence and accessibility: All the visual and written material such as brochures, advertisements, posters should be delivered to all settlements in the PSIA.
- Privacy and respecting to personal rights: Throughout all the activities, the collected personal data should be protected in accordance with The Personal Data Protection Law No. 6698.

6.8.1 Flowchart

In order to respond to requests and complaints related to the project, the functioning of the grievance mechanism is illustrated in the following Figure 6.1 and Table 6.1.

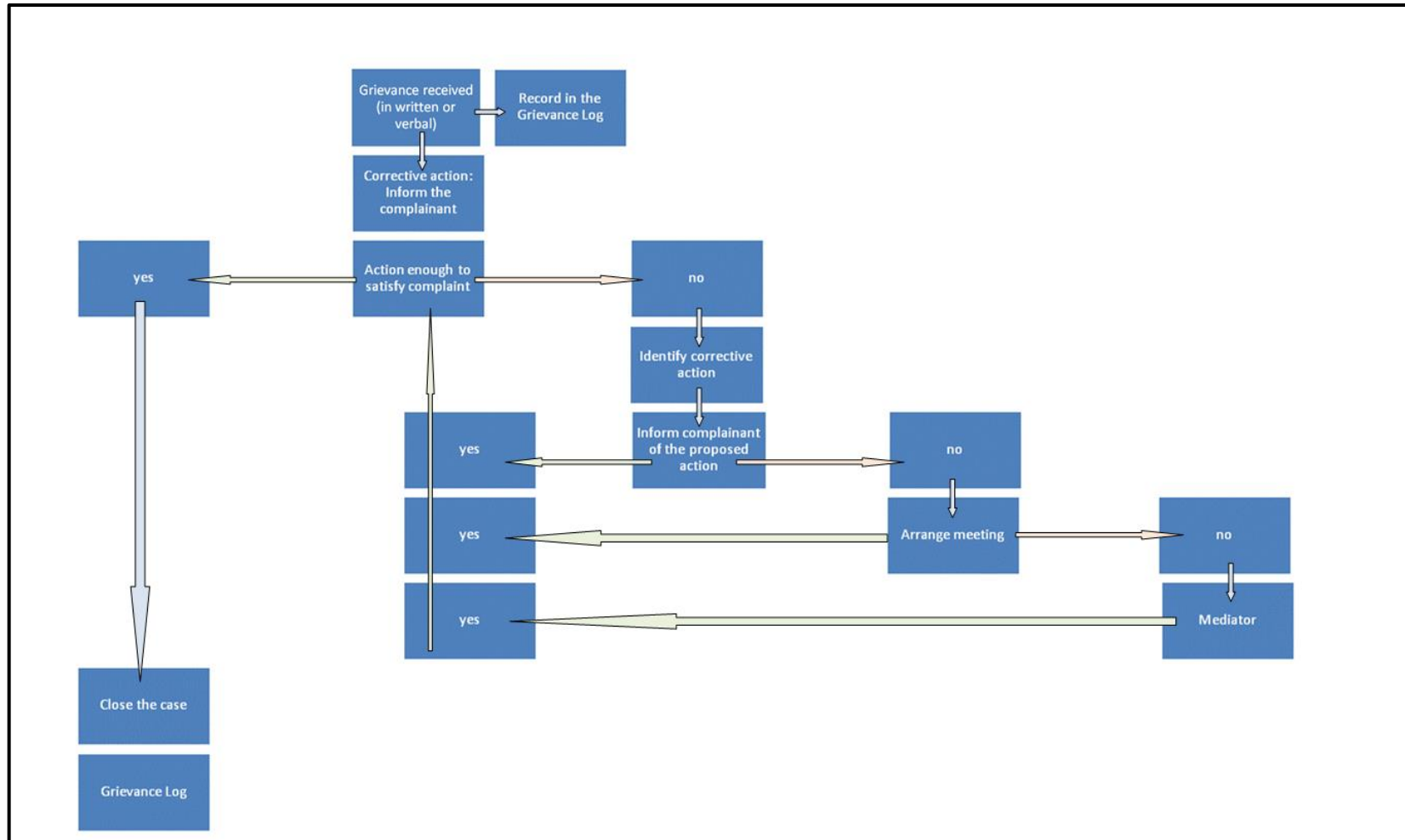


Figure 6.1: Grievance Mechanism Flowchart

Table 6.1: Steps on Flowchart

		STEP 1	STEP 2	STEP 3	STEP 4
		Receiving and Registration	Reviewing and Investigation	Response and Feedback	Monitoring and Evaluation
Actions of the Parties in the Step	Complainant	Completion and submission of a grievance form	Waiting for response till 30 days	Waiting for response till 30 days	Grievances are monitored to ensure they are properly handled within the deadline and principles.
	Respondent	Grievance is considered to be officially accepted	Check the validity and severity of the grievance	A formal response explaining how the grievance has been resolved will be provided to each complainant within 30 days.	
		Result of 1st Step	Result of 2nd Step	Result of 3rd Step	Result of 4th Step
Results		Grievance will be recorded in the in the “grievance log” within two (2) days of receipt of the complaint.	Grievance will be registered and acknowledged within five (5) working days and responded to the complainant within 30 days as of receiving the grievance	When solution is delayed, the complainant will be informed with regular updates on progress. If complainant may not agree with the solution of the problem, the grievance department or manager should arrange a meeting with complainant to reach a further agreement.	Monitoring and reporting process will be implanted after the corrective actions and consultations.

6.8.2 Grievance Form

The Client will have a communication tools such as public relation office, Project website. In addition to this, grievances can be filed through the interviews by face-to-face, on-line or telephone. Grievance forms will also be found in easily accessible places such as common usage areas in the settlements, public relation office and Project management office. The template of grievance form given in Figure 6.2

Grievance Form Registration Number:					
Registered Person:					
Settlement of Grievance:					
Registration Date:					
Subject:					
Information of complainant					Notification type
Name - Surname					☐ Telephone
Telephone No					☐ Contact Office
Address					☐ Site Visit
					☐ Mail
					☐ Other
Information on person receiving the complaint					
Name - Surname		Date		Signature	
Procedure for Corrective Action					
Information on Corrective Action of Complaint					
Relevant Person	Date of Action			Signature	
Is there any feedback provided to the complainant?			Yes ☐	No ☐	
Information on person providing feedback					
Name - Surname		Date		Signature	

ACTION PLAN FOR TERMINATION	
COMPLAINTS	
1	
2	
3	
4	
5	
REINSTATEMENTS	
1	
2	
3	
4	
5	
RESPONSIBLE DEPARTMENT	
SIGN OFF DATE	
TERMINATION OF COMPLAINT	
IS THERE ANY COMPENSATION MEASURES REQUIREMENT?	1) YES 2) NO
SIGNATURE	

Figure 6.2: Template for Grievance Form

7 ENVIRONMENTAL AND SOCIAL MANAGEMENT SYSTEM

The purpose of the Environmental and Social Management System (ESMS) of the Mersin-Gaziantep (Başpınar) High Standard Train Project is to ensure that the environmental and social management processes to be implemented in all stages of the Project are adapted to the conditions of national legislation and international standards. The purpose of the ESMS;

- Defining the environmental and social goals of the Rönesans,
- Ensuring the achievement of environmental and social targets during both construction and operation periods,
- Creating a framework for ensuring compliance with national legislation and international standards and fulfilling the obligations given,
- Ensuring that responsibilities are assigned for the implementation of environmental and social impacts.

Determining the policies and risks and impacts that should be in an Environmental and Social Management System are evaluated in the above titles of this report. In this context, within the scope of the planned High Standard Train Project, the policies of the Project were given, the environmental and social risks and impacts of the project during both construction and operation periods were evaluated and certain prevention/reduction methods were shown for these risks. Apart from these, in order to manage, monitor and show these evaluations together, they have been evaluated within the scope of the Plan-Apply-Check-Take Action cycle of IFC and in the following subjects as suggested by other standards;

- Management Programs,
- Organizational Capacity and Competence,
- Emergency Preparedness and Response,
- Stakeholder Engagement,
- Monitoring and Evaluation.

Mersin-Gaziantep (Başpınar) High Standard Train Project is carried out in accordance with the legislation and standards on the issues related to the standards and obligations of the Project. The standards and conditions used in the project are given below;

- International Finance Corporation (IFC) Guidelines and Performance Standards,
- EBRD Environmental and Social Policy and Performance Requirements (PR),
- National regulations and permits, approvals,
- International conventions and protocols that Turkey is a party and
- Rönesans Environmental, Health, Safety and Social Procedures.

In addition, it has ISO 9001 Quality Management System, ISO14001 Environmental Management System and OHSAS 18001 Occupational Health and Safety Management System certifications obtained by Rönesans.

The implementation of this should be as important as the establishment of the Environmental and Social Management System. A management system consists of trained and committed employees who routinely follow procedures. Procedures are the way employees follow company policies step by step. Procedures form the basis for effective system development. In this context, Rönesans has procedures on different environmental issues. These are given below;

- Air Emission and Ambient Quality
- Energy Conservation Procedure
- Wastewater and Ambient Water Quality
- Water Quality and Availability Management

- Stormwater Handling Management
- Hazardous Material Management Procedure
- Hazardous Waste Management Procedure
- Medical Waste Management
- Domestic Waste Management
- Recyclable Waste Management
- Non-hazardous Waste Management
- Construction Waste Management
- Noise Monitoring and Control
- Contaminated Land Management
- Topsoil and Subsoil Management
- Dust Control and Monitoring Management
- Spill Response Management
- Vehicle Use and Maintenance
- Fuel Handling Management
- Disease Prevention
- Emergency Management Procedure

Apart from these procedures, there is an OHS Plan and a Stakeholder Engagement Plan. In addition, the Traffic Management Plan, Biodiversity Action Plan, Cultural Heritage Action Plan will be developed and implement. Below is the figure containing the evaluation steps for IFC ESMS (see Figure 7.1).

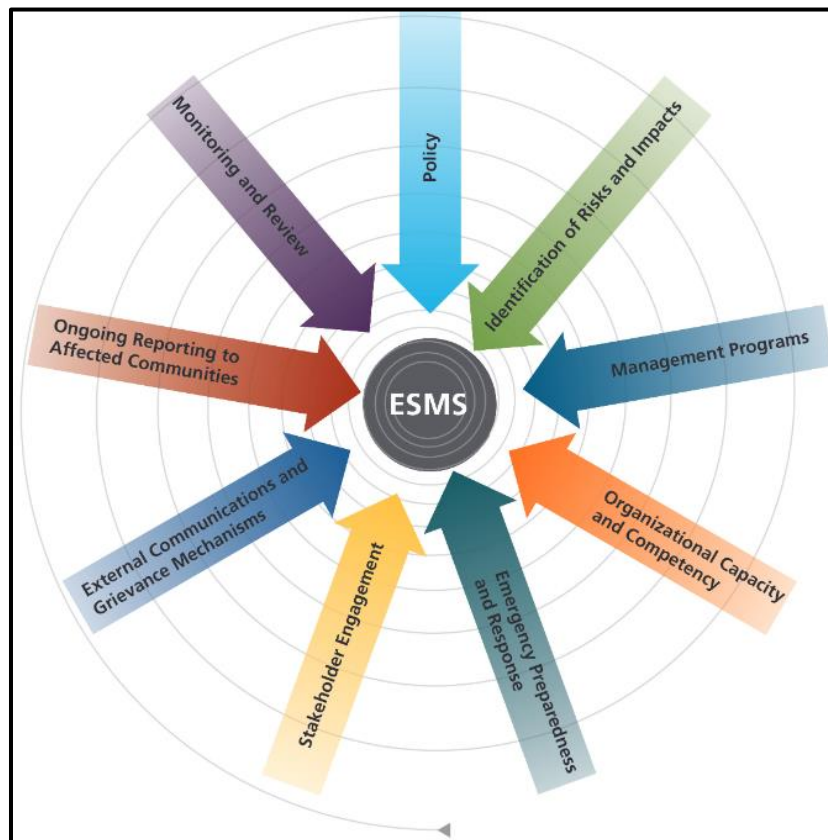


Figure 7.1: ESMS Evaluation Steps

The scope for which Rönesans is responsible for this project, some parts of the railway construction work between Mersin and Gaziantep have been performed by former constructors. Therefore, Rönesans will work for the incomplete parts of the High Standard Railway to provide continuous and fast transportation between Mersin and Gaziantep Provinces.

Rehabilitation of the existing railway lines, construction of two new lines, Electrification, Signaling and Telecommunication (EST) infrastructure, and connection of the line to the Çukurova Airport and Tarsus will be performed by Rönesans. In other words, Rönesans will finish off the incomplete works for the Mersin - Gaziantep High Standard Railway.

As depending on the observation during the site survey, the construction works have been started before by other companies which were commissioned by TCDD. The Mersin-Gaziantep High Standard Train Line Project was developed by TCDD and expropriation and construction activities were started about year 2015. Especially construction activities have been implemented by other companies due to their contracts between companies and TCDD. In early 2020, some activities could not be completed by that companies and as a result Rönesans was awarded to complete the Project by General Directorate of Infrastructure Investments. Within the scope of the Project, new railway lines will be constructed, existing convectional lines will be rehabilitated (some parts will be displaced), structures such as stations, viaducts/bridges, tunnels, underpasses, overpasses, culverts will be constructed, and EST system of the whole lines will be installed. Moreover, open mine operation will be carried out for material supply.

In present, many of permits have been taken and some construction activities have been completed and some of them are still continued by different companies. Responsibilities of other companies, which are not in scope of the Rönesans and this ESIA studies, are summarized in Table 3.2.

The Rönesans Environmental Unit team will assume all responsibility for Environmental and Safety management and will be responsible for the implementation of health, safety and environmental issues required by the ESMS and for sub-employees of the Project. The roles and responsibilities of Rönesans in this project are summarized in Table 7.1 and the organizational chart created for each construction site is presented below (see Figure 7.2, Figure 7.3 and Figure 7.4).

Table 7.1: Roles of Responsibilities of Rönesans Holding for the ESMMP

Roles	Responsibilities
Regional Manager	<ul style="list-style-type: none"> Approving the implementation of policies, procedures, plans, and management processes related to health, safety, and environment
Project Manager	<ul style="list-style-type: none"> Reporting to the Regional Manager, Authorizing the implementation of Rönesans policies and procedures and the Environmental Management System, Allocating resources for the implementation of systems,
Project Purchasing Manager	<ul style="list-style-type: none"> Reporting to the Project Manager, Ensuring that the deliveries and services specified in the project are received in accordance with the Environmental and Social Management System, Ensuring the correct application of the conditions in the contracts made with the contractors. Evaluating Contractor Health Safety Environmental performance

Roles	Responsibilities
Project Human Resources Manager	<ul style="list-style-type: none"> Reporting to the Project Manager, Ensuring that the work, workforce, and business relations in the project are managed in accordance with the national legislation and international standards, Observing the availability of Human Resources management tools such as the Grievance Mechanism and communication elements in accordance with the legislation and standards, and that they are clearly explained to the employees, Communicating with the Public Relations Manager,
Chief Liaison Officer	<ul style="list-style-type: none"> Reporting to the Regional Manager, Main responsible of management of grievance mechanism, Ensuring that the management of Public Relations issues in the project is in line with the national legislation and international standards in line with the project obligations. Ensuring that resources are allocated for Health Safety Environment and Public Relations Management
Project Environment, Health and Safety Manager	<ul style="list-style-type: none"> Reporting to Project Manager, Auditing Environment, Health and Safety issues in implementation, review, update, and monitoring ESMS. Managing reporting provinces on internal Environment, Health and Safety issues for senior management Auditing contractor's compliance with project requirements on Health and Safety issues through review, contractor monitoring and reporting. Managing Environment, Health and Safety awareness trainings, If necessary, having a full medical evaluation ("suitable for the job") of the staff before starting work.
Project Environmental Engineer	<ul style="list-style-type: none"> The environmental engineer reports to the Environmental, Health and Safety Manager and Chief, Implementing the health and safety environmental policies of the project and the actions in accordance with the Environmental Management System, Creating and updating Health, Safety, Environmental Management Plan, and related documents in accordance with national legislation, international standards, Project policies and Environmental Management System
Project Civil Engineer	<ul style="list-style-type: none"> Reporting to the Project Civil Engineer, Taking part in the field during construction.
Subcontractor Health Safety Environmental Managers/Teams	<ul style="list-style-type: none"> Works under the supervision of the Environment, Health and Safety Manager, Ensuring compliance with Project Health Safety Environmental policies, Environmental Management System, and management processes, Preparing monthly Health Safety Environment review and case reports for the Project Health Safety Environment Manager

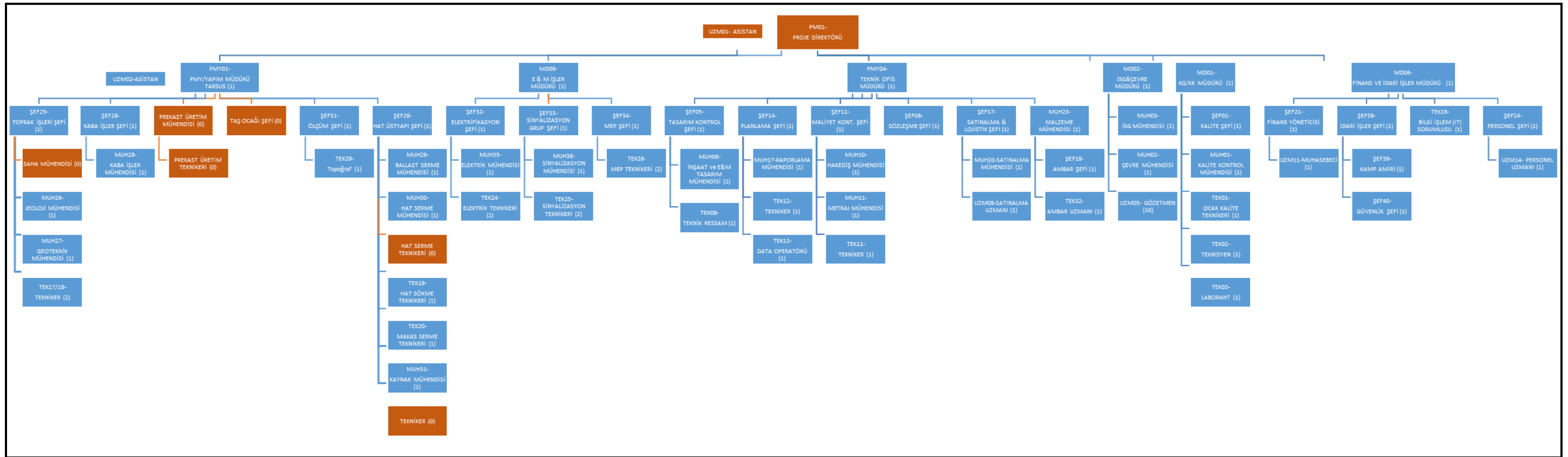


Figure 7.2: Central Construction Site (Tarsus) Organization Chart

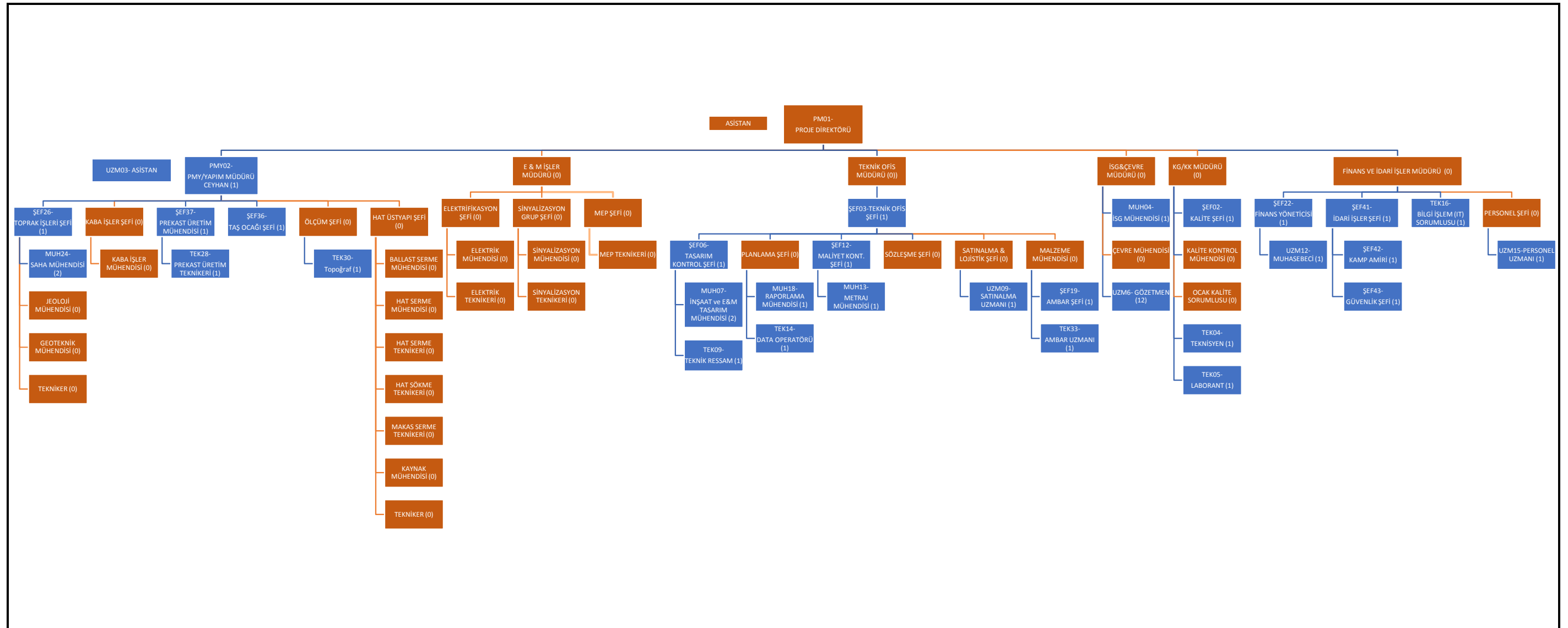


Figure 7.3: Satellite Construction Site (Ceyhan) Organization Chart

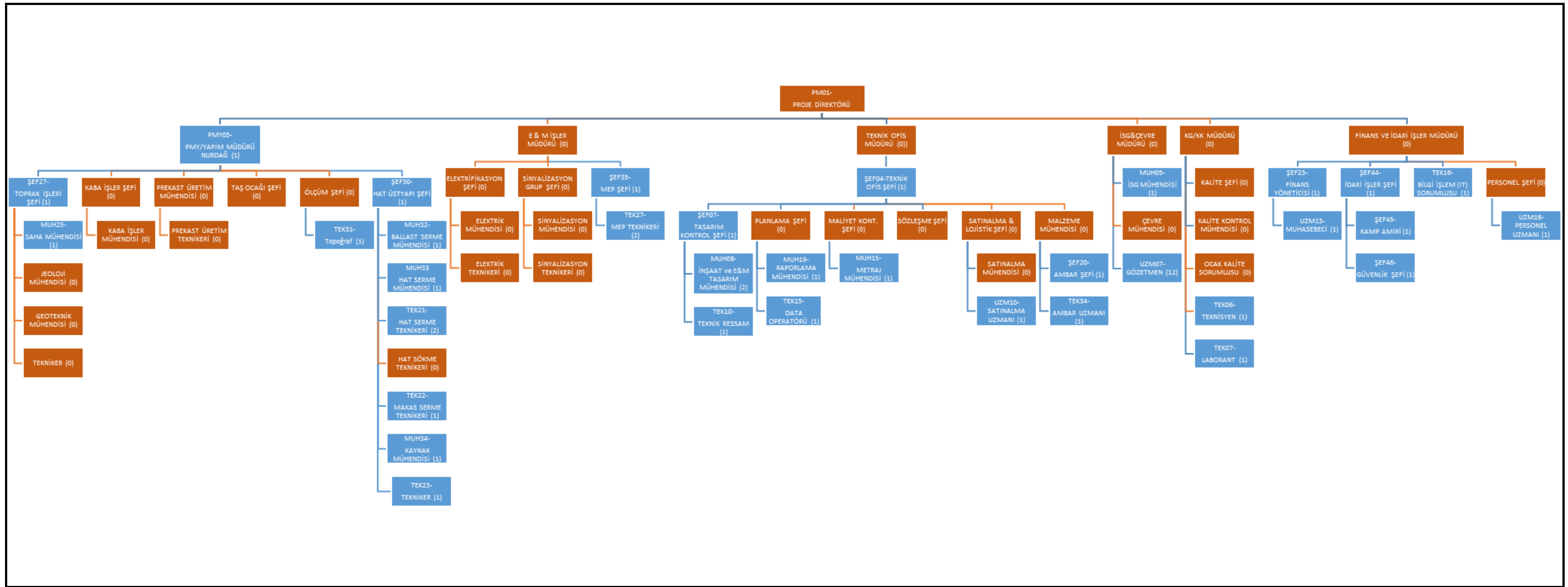


Figure 7.4: Satellite Construction Site (Nurdağ) Organization Chart

Regular monitoring and review of environmental and social elements will be carried out in the system whose roles and responsibilities are determined. The scope of monitoring is for the following purposes;

- Checking whether the elements that make up the ESMS are available,
- Checking whether procedures, plans and other documents are followed up,
- Whether the project is carried out in accordance with national legislation, regulations, and international standards,
- Checking whether the target is being progressed in line with the assessments specified in the ESIA prepared,
- Evaluation of Environmental and Social performance.

An environmental monitoring is carried out for the construction and operation phases in order to monitor certain criteria. Monitoring indicators defined as Key Performance Indicators in the IFC ESMS Guidelines are given as follows;

- Energy consumption,
- Water consumption,
- The volume of solid waste disposed of,
- Liquid waste discharge,
- Air emissions,
- Accidents (such as injuries, illness, property damage) and lightly overcome accidents,
- Lost time, injury frequency, recurrence and severity rates,
- Emergency response incidents,
- Average working hours and wages paid
- Wage levels,
- Child labor recurrence rate,
- Repetition rate of disciplinary and discrimination complaints,
- Compliance of employee demographics with access to education and jobs and wages.

The tracking chart created for the ESMS is given below (see Table 7.2) Parameters that require numerical calculations and limits such as air quality and noise in this table will be compared according to which legislation and/or standard the most stringent limit value is included.

This will be reported in cases where regulations and standards for project measurements are not met or are found to be inappropriate in project values and comparisons.

Table 7.2: Monitoring Table

Environmental and Social Topic	Monitoring Parameter	Frequency of Monitoring
Top soil	✓ Amount of top soil stripped and stored	Construction Phase
	✓ Visual inspection of areas and incident investigation process for spills and leaks that could	After Case

Environmental and Social Topic	Monitoring Parameter	Frequency of Monitoring
	affect topsoil quality and groundwater	
Surface water	<ul style="list-style-type: none"> ✓ Usage water for drainage pipes, culverts and bridges and at construction sites established for line laying, ✓ Pre-construction and post-operation analysis of surface waters 	Beginning of the contracture and construction phase
Ground water	<ul style="list-style-type: none"> ✓ Control of groundwater discharges against pollution during operation and excavation works and ensuring their effective shutting) 	Beginning of the contracture
	<ul style="list-style-type: none"> ✓ Evaluation of chemicals in groundwater 	After the completion of the works During the construction period
Air Quality	<ul style="list-style-type: none"> ✓ Dust emissions from construction sites ✓ Gas emissions 	During the construction phase When there are complaints in the business
Noise and Vibration	<ul style="list-style-type: none"> ✓ Noise and vibration measurement in noise sensitive areas at the construction site and during operation ✓ Complaint record 	During the construction and operation phase When there are complaints in the business
Wastewater	<ul style="list-style-type: none"> ✓ Registration of wastewater parameters 	Construction and operation phase At the frequency determined by the Environmental Permit obtained in accordance with the Water Pollution Control Regulation.
Waste Management	<ul style="list-style-type: none"> ✓ Waste collection, storage, transportation, monitoring of possible spills / leaks 	Daily in construction and operation phase

Environmental and Social Topic	Monitoring Parameter	Frequency of Monitoring
	<ul style="list-style-type: none"> ✓ Waste disposal documents ✓ Waste management plans ✓ Trainings 	Annual
Visual	<ul style="list-style-type: none"> ✓ Evaluation of visual impact 	Pre-construction and operation phase
Biodiversity	<ul style="list-style-type: none"> ✓ To ensure that construction works and are affect not all sensitive habitats adjacent to the construction sites protected in accordance with the recommendations of the flora and fauna study. ✓ Controlling the growth of local plant formations (plant density, diversity, coverage) 	Construction phase
Cultural Heritage	<ul style="list-style-type: none"> ✓ Examination of all defined cultural heritage sites ✓ Chance finding records 	Continuously throughout the construction and operation phase
Health & Safety	<ul style="list-style-type: none"> ✓ Safety barriers and signs, ✓ Following the community health and safety training program, ✓ Monitoring accidents and near-miss events, ✓ Monitoring compliance with applicable standards and national legislation for worker PPE and safety, ✓ Monitoring the number of local people employed in the project 	Before the start of the construction phase and during the construction phase

Environmental and Social Topic	Monitoring Parameter	Frequency of Monitoring
	✓ Complaints from residents through the grievance mechanism.	In case of complaint

The Environmental and Social Management System will be reviewed as necessary and in compliance with the legislation and standards when there are significant changes in the health and safety environmental conditions of the project. The responsible persons listed in the roles and responsibilities table above will be responsible for the revision and updating of this management system.

A Stakeholder Engagement Plan has been prepared for the purpose of managing relations with stakeholders, which is another requirement of the Environmental and Social Management System. During the ongoing process of the project, this plan, which includes the complaints from the stakeholders, the sharing of information, and the communication, will be updated periodically.

8 ENVIRONMENTAL BENEFITS AND ENHANCEMENTS

Mersin-Gaziantep (Başpınar) High Standard Train Project, in which environmental and social impacts are given, infrastructure, superstructure, electrification and signalization processes are under the responsibility of Rönesans, has benefits in both environmental and social issues. Mersin-Gaziantep (Başpınar) High Standard Railway Route will start from Mersin, continue with Tarsus District, Adana (city center), Ceyhan District, Osmaniye (city center), Düziçi District, Bahçe District, Nurdağ District and will end in Gaziantep. Mersin-Gaziantep (Başpınar) High Standard Railway Route is 286 km and passes through 4 different provinces and 13 different districts.

Mersin-Gaziantep High Standard Train Project was developed by TCDD and expropriation and construction activities started around 2015. Two high standard train lines have been planned between Mersin and Gaziantep provinces, especially the construction activities have been implemented by other companies due to the contracts between the companies and TCDD. In early 2020, some activities could not be completed by these companies and as a result, they were given to Rönesans by the General Directorate of Infrastructure Investments to complete the Project. Rönesans will complete the remaining works for the rail system and uninterrupted transportation will be provided between Mersin and Gaziantep. Considering this situation, the line will be rebuilt in some parts between Mersin and Gaziantep and the line will be rehabilitated in some parts. It is planned to construct lines and increase the load capacity and number of passengers within the scope of the Project.

6 strategic goals have been defined in TCDD Strategic Plan on the year covering 2014-2018. However, TCDD is possessed to duties of railway infrastructure provider and manager with the "Turkey Law on the Liberalization of Railway Transport" numbered 6461 which divided TCDD into two, in 2017 and rail transport companies have become companies using this infrastructure. Following this plan, a new TCDD Strategic Plan covering the years 2019-2023 was prepared.

One of the goals set in order to develop and expand the national railway network according to strategic plan covering the years of 2019-2023, is the completion of the construction of the 2028 km High Standard Railway, where freight and passenger transportation can be carried out together, and 228 km of conventional line.

Other objectives are to start the construction of High Standard Train (4488 km high standard train) lines using alternative financing models, to complete electrification (3318 km) and signaling (3019 km) studies in the lines of the network, to increase the existing line capacity, to reduce traffic congestion and delays, to reduce traffic congestion and impacts and to save energy and personnel in line sections where freight transport is intense, according to their priorities, and to extend the station road. With the High Standard Train Project planned in 2023, it is aimed to increase the passenger capacity in railway transportation from 1.3% to 3.8%. One of the goals created to ensure safe traffic and station management with effective capacity in the national railway is to make our stations accessible to everyone within the scope of the "Barrier-Free Train Project". One of the aims is to ensure the integration of the railway infrastructure with other transportation systems.

In line with the strategic plans, the construction of a High Standard Train on a 286 km route between Mersin and Gaziantep is one of the steps taken for the stated goals. Mersin, Gaziantep, Adana with a population of approximately 2 million each and Osmaniye with a population of approximately 500 thousand will occupy an important place especially in the transportation of the local people. By making it easier for passengers to reach the provinces and districts on the route, especially by reducing the travel time between Adana and Gaziantep by 1.5 hours, which is both time savings and a more comfortable journey will be provided for passengers. In addition to passenger transportation, it will also be beneficial in terms of facilitating and accelerating the transportation of the cargo that will go from the port in Mersin to other provinces and districts and decrease the cost of transportation to Mersin. Thus, it will provide more opportunities for the execution of the works in the port.

The route from Mersin to Gaziantep runs parallel to both the highway and the state road, passing almost the same routes until reaching Gaziantep, and there are stops and stations on these routes. In this context, the passengers who want to go to residential or touristic places on this road route will use the high standard train instead of the highway, which will reduce the road traffic load on this route and have a positive effect on traffic and transportation. In addition to traffic, it is expected that these 4 cities, which have important touristic places, will attract more tourists to these provinces both from outside and from the region, since transportation will be faster and easier than by road. In this respect, attracting tourists indirectly will both bring new tourists to the region and benefit the people of the region economically.

The High Standard Train Line will also affect the 4 cities (pass through Mersin, Adana, Osmaniye, Gaziantep) in terms of employment. It is expected that workers will be recruited to station areas in provinces and districts during the operation period. Recruitment will provide employment both for the people of the region and in general. Apart from recruitment, it will have positive effects on employment, especially in Mersin which has an international port, and Gaziantep which has its industry, and other provinces. With the construction of The High Standard Train, there will be an increase in industrial employment and an increase in competition among producers. In this context, the High Standard Train Project will increase employment and will benefit the people of the region and indirectly throughout the country.

The most important benefit of Mersin-Gaziantep High Standard Train to environment is to reduce the exhaust emission arising from these vehicles and the greenhouse gas emission that will be given as pollutant load to the air by reducing the vehicle load on the highways. It has been observed that there is less greenhouse gas emission effect compared to high standard trains, which significantly affects the environment and people, the CO₂ emission of vehicles on the road and the greenhouse gas effect, which is a return.

In addition to the reduction of greenhouse gas emissions, noise generation during the operation period is also less than the noise of road traffic. The Mersin-Gaziantep High Standard Train Project is an environmental project category, with a low-intensity noise generation, as well as a reduction in emissions and less air pollution compared to the pollution load in the exhaust emission of road vehicles.

As it can be understood from the social topics such as employment, transportation, and industry, which are evaluated in the Social Impact Assessment study prepared within the scope of the Project, which will benefit the people of the region and indirectly the country in general, this project will provide a significant benefit on people.

9 SUMMARY OF POTENTIAL IMPACTS AND CONCLUSIONS

An agreement was signed between TCDD and Rönesans for the High Standard Railway Construction and Electromechanical Systems Installation Project. An Environmental and Social Impact Assessment Report has been prepared for the Project to be made in line with this agreement.

Two high standard railways have been planned between Mersin and Gaziantep provinces and the construction has started but could not be completed. Rönesans will complete the remaining works for the rail system and uninterrupted transportation will be provided between Mersin and Gaziantep. In this case, the Republic of Turkey State Railways also taken into consideration, which is available even in some sections and rail transport in total by adding more lines to 2, 4 lines are planned. These lines are planned for suitable routes that will increase the load capacity of both trains and passengers.

The planned High Standard Train Project passes through the borders of 4 provinces, Mersin, Adana, Osmaniye and Gaziantep. Mersin-Gaziantep (Başpınar) route is approximately 286 km long and passes through Tirmil Station, Karacailyas Station, Taşkent Station, Huzurkent Station, Tarsus Station, Çukurova Airport Connection, Yenice Station, Zeytinli Stop, Küçükdilli Station, Otogar Stop, Şakirpaşa Stop, Adana Station, Incirlik Station, Yakapınar Station, Ceyhan Station, Toprakkale, Osmaniye, Düziçi Stations and Bahçe Station.

The construction of the rail system is planned to be completed in 34 months, followed by a 24-month warranty period. During the construction period of the project, the maximum number of employees is 385 in March-April.

Within the scope of the Project, 21 stations with a length of 19,010 m, 35 viaducts/bridges with a length of 4528 m, 3 tunnels (NATM & cut and cover) with a length of 1520 m, 61 subways and overpasses with a length of 2740 m, 190 culverts with a length of 5350 m are constructed. In addition, 22,080,000 m³ excavation, 950,000 m³ concrete, 206,000 m piles, 561 km of line laying, 266 switches, 10,188 catenary poles for electrification and 2100 km of cables for signaling operations are produced.

Air quality, visual impact, water quality, noise, vibration and physical impacts, biodiversity, ecosystem services and living natural resources, cultural heritage and archaeology, waste and wastewater, traffic and transport impact, resources efficiency and pollution prevention and control, occupational health and safety, community health and safety, assessments were made within the scope of the project and the results were included in the report. In addition to these assessments, social impact assessment, stakeholder engagement, environmental and social management system, environmental benefits and enhancements were also made.

The domestic water that will be needed for the personnel working within the scope of the project will be met from the existing infrastructure systems. Necessary procedures and permissions will be obtained for connection to the infrastructure system. Drinking water will be supplied from the market. The daily water consumption used for the project in total is 326,865 L/day. In this context, the water consumption load increase in the region due to the project is 0.023%. In line with the planning, field studies and analyzes were carried out to examine groundwater and surface waters for monitoring. As a result of analysis and calculations, the project is not expected to have a negative impact on water resources. When a negative impact is observed, mitigation measures will be taken.

The number of vehicles to be used in construction operations on the Mersin-Gaziantep (Başpınar) train line route to be built by Rönesans is 758. Greenhouse gas emissions are expected to be released into the ecosystem from these tools. In addition to vehicles, greenhouse gas emissions are expected to occur due to the use of electricity and vehicle use during the operating period. The amount of greenhouse gas emission to be emitted from construction and operation periods will decrease by the amount of CO₂ and the amount of greenhouse gas emission resulting from the intensive use of the highway will decrease. This is seen as one of the advantages of the project.

An Archaeological Evaluation Report has been prepared to investigate whether cultural heritage and archaeological sites are affected. As a result of this study, it was decided to define 6 areas as sensitive buyers. These areas are Sirkeli Mound, Kamışlı Mound, İslahiye Cultural Region, Misis Antique City, The ancient City of Neronias and Dülük Plaib. The project is not expected to have a negative impact on these areas. If any cultural heritage and/or archaeological site is encountered during the construction or operation of the project, the relevant places will be reported, and necessary precautions will be taken.

The domestic solid waste load that will arise from the Mersin-Gaziantep (Başpınar) High Standard Railway Line construction and operation was calculated as 1,459 kg/day and the packaging waste load as 0.2918 kg/day. The wastes generated on the route of the project are temporarily stored and sent to the waste storage areas of the relevant municipalities for disposal. The total amount of domestic wastewater to be formed from the construction sites is 266,805 liter/day. In addition, the wastewater load to be caused by the operation will vary according to the number of passengers and voyages to use. Industrial wastewater will not be generated, only domestic wastewater will be generated. The wastewater generated will be given to the network line of the relevant municipality. When a negative impact is observed or expected to occur, necessary mitigation methods will be applied.

The effect of the traffic load in the Mersin-Gaziantep (Başpınar) High Standard Railway Route construction and operation on the existing road traffic and transportation was examined and the daily number of vehicles on the existing highway was calculated from the 2019 Volume Maps of the General Directorate of Highways. According to calculations, the vehicles to be used in the project during the construction period are expected to increase the state road traffic load by 0.15% and the highway traffic load by 0.11%. Considering these rates, the number of vehicles to pass through the state road and highway and the total number of vehicles planned to be used in the project, the project is not expected to have a negative impact on traffic and transportation. Any measures to be taken to ensure traffic safety will be under the responsibility of the construction contractor during the construction phase and the operating contractor during the operation phase.

Rönesans has a "Manual for Health Safety & Environment" management plan, which it has created within the scope of Occupational Health and Safety. In the activities carried out in line with this plan, responsible persons are appointed, and management is ensured by taking necessary OHS measures.

Social assessment studies were carried out through desktop studies and field surveys to understand the current socio-economic conditions and the opinions of the affected communities about the project. The assessment of the results of social studies, with possible impacts and related mitigation measures, is given in ESIA Report Section 5.

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