

1.0 INTRODUCTION

1.1 Background and Objective

An Environmental and Social Impact Assessment (ESIA) study has been conducted for the Elazığ Integrated Health Campus Project (IHC or Project) located in the central district of Elazığ province situated in the Eastern Anatolia region of Turkey. The Project will be developed on a 347,016.92 m² area at the location shown in Figure 1-1.



Figure 1-1. Project location with site boundaries shown with red shaded area and red line

A bid was tendered by the Ministry of Health (MoH) for the *Construction Works and the Provision of Products and Services for Elazığ Integrated Health Campus* under a Public Private Partnership (PPP) model, and awarded to a joint venture whose pilot members built the current partnership structure in time and established a Special Purpose Vehicle (SPV) named ELZ Sağlık Yatırım A.Ş. (ELZ A.S.)

which will undertake the construction, operation and maintenance phases of the Project. ELZ A.S. is comprised of the following four companies: 1) Rönesans Holding A.Ş., 2) Rönesans Sağlık Yatırım A.Ş., 3) Sıla Danışmanlık Bilişim Eğitim İnşaat Taahhüt Ticaret ve Sağlık Hizmetleri Ltd. Şti., 4) Şam Yapı Sanayi ve Ticaret Ltd. Şti.. Meridiam Eastern Europe S.a.r.l. is currently in the process of becoming a shareholder of the SPV.

The 1,038 bed capacity Integrated Health Campus will have the following components: 888-bed Main Hospital (including a 493-bed General Hospital, a 299-bed Women/Maternity and Pediatrics Hospital and a 96-bed Psychiatric Hospital) and 150-bed High Security Forensic Psychiatric Hospital. In addition to the mentioned hospitals, there will be a 60-unit Oral and Dental Health Clinic inside the health campus. Further details of the Project are provided in *Chapter 2: Project Description*.

ELZ A.S., the Project Company, is planning to finance the Project bringing together multinational financial institutions (FIs), international, commercial lenders and institutional investors and currently discussing the Project with European Bank for Reconstruction and Development (EBRD). In order to be in line with good international practice and to meet the requirements of the FIs, ELZ A.S. has commissioned ELC Group Consulting and Engineering Inc. to undertake the ESIA study.

The purpose of the ESIA study is to describe the Project, identify the environmental and social impacts that will or may occur as a result of the Project and determine mitigation measures that can be taken to avoid and/or minimize the adverse impacts and maximize benefits. This document represents the Final Draft ESIA report which has been prepared in line with the FI requirements.

1.2 National Environmental Impact Assessment Requirements

In terms of Turkish regulatory requirements, the Turkish Environmental Impact Assessment Regulation (EIA) has been subject to several changes in the last two years. EIA studies were not required to be undertaken for hospital projects according to the 2008 EIA Regulation (Official Gazette date/number: 17.07.2008/26939) which has been replaced with the 2013 EIA Regulation (Official Gazette date/number: 03.10.2013/28784) that required large hospital projects (defined as 500 beds and above) to undertake an EIA study. 2013 EIA Regulation has recently replaced with a new EIA Regulation (Official Gazette date/number: 25.11.2014/29186) that again excludes hospital projects. When the ESIA studies started, 2013 EIA Regulation was in force. Correspondence with the Ministry of Environment and Urban Planning (MEUP) conducted by ELZ A.S. revealed that the Project is exempt from the 2013 EIA Regulation based on the fact that the bidding process for the Project has been completed before the effective date of the 2013 EIA Regulation. The official EIA exemption letter issued by MEUP is included in Annex A. On the other hand, ELZ A.S. has made an application to MEUP and requested to undertake an EIA study as per the article 24 of the 2013 EIA Regulation which states that an EIA study can be undertaken upon request of the project owner if it is found appropriate by MEUP. Accordingly, an EIA study is also being undertaken in addition to the ESIA study. The EIA study covers the hospitals and also the concrete batching plant (with a capacity of 120 m³/h) that will be installed during the construction phase of the Project. Apart from the main hospital components previously discussed, there will be a trigeneration plant and boiler system to be used as auxiliary facilities within the scope of the Project. The total energy need of the health campus will be 30 MW. The trigeneration system will have a total of 5.5 MW rated thermal capacity and the rated thermal capacity of the boilers will be 30 MW. The trigeneration plant and the boilers will not be operated in full capacity together and the operating scheme will change

according to system needs and/or season. Considering the maximum rated thermal capacity of 30 MW, the trigeneration system and the boilers will be subject to EIA Regulation requirements according to the 20 MW threshold mentioned in Annex-2 of the EIA Regulation.

1.3 ESIA Requirements

In order to be in line with good international practice and being aware of the fact that the Project is an important public infrastructure project, ELZ A.S. has decided to carry out an ESIA study for identifying potential environmental and social impacts and risks of the Project and subsequently developing mitigation measures appropriate to the nature and scale of the Project. The mitigation measures are required to be included in an accompanying Environmental and Social Management Plan (ESMP). The ESIA report and the ESMP will then be used as a basis by the lenders for the environmental and social appraisal of the Project. The ESIA study has been conducted to meet the requirements of the following international standards:

- EBRD Performance Requirements (May 2008)
- IFC Performance Standards on Social and Environmental Sustainability (1 January 2012)
- IFC General Environmental, Health and Safety (EHS) Guidelines (30 April 2007)
- IFC EHS Guidelines for Healthcare Facilities (30 April 2007)
- EBRD Sub-sectoral Environmental and Social Guidelines for Health Services and Clinical Waste Disposal (October 2009)

In addition to these standards, the Project must comply with Turkish environmental and social legislation. The relevant European Union (EU) Directives are also applicable to the Project as per the EBRD requirements. The applicable national laws and regulations have been compiled in a regulatory framework document provided in Annex B, including a brief overview of key EU Directives that may be relevant to the Project.

1.4 Key Steps in the ESIA process

1.4.1 Overview

The integration of environmental and social considerations into the project cycle is an essential part of all projects that aim to contribute to sustainable development. An ESIA process is accepted as being the most effective way of achieving this integration. ESIA is a systematic process that predicts and evaluates the impacts of a project on various aspects of the physical, biological, cultural and socioeconomic environment. This is followed by the identification of appropriate mitigation measures to avoid, reduce, remedy, offset or compensate for adverse impacts relevant to the nature and scale of the project. The key steps of the ESIA process are presented in Figure 1-2.

Information provided in the following sections describes the key steps outlined below and presents the approach adopted by the present ESIA study.

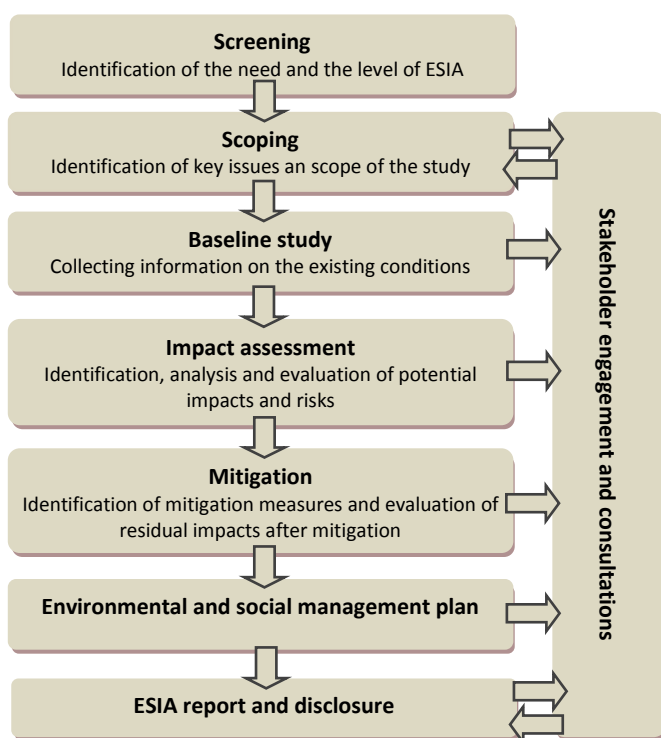


Figure 1-2: ESIA process

1.4.2 Screening

The first step in the ESIA process is the screening stage which determines whether an impact assessment is required to be undertaken for a specific project. This is in general determined by referring to the FIs categorization lists, including types of activities and if the project activity is found to be included in these lists, then an ESIA is undertaken. EBRD has categorized the Project as B which means that the potential adverse environmental and/or social impacts of the Project are typically site-specific, and/or readily identified and addressed through mitigation measures. As ELZ A.S. has approached EBRD and other lenders, it was indicated that an ESIA study would be needed to meet the requirements of these lenders.

1.4.3 Scoping

Scoping is a crucial step in an ESIA process that identifies the key issues to be addressed in the ESIA study. Scoping involves defining the impact topics that should be addressed in the assessment as well as those of little or no relevance to the project. Scoping is the stage at which consultations with stakeholders are initiated, which is an important part of the ESIA process.

The following topics are important in undertaking the scoping and assessment study:

Project's Area of Influence (Aoi) Identification: The Aoi was defined as follows:

- The area likely to be affected by (i) the Project and the client's activities and facilities that are directly owned, operated or managed (including by contractors) and that are a component of the Project; (ii) the impacts from unplanned but predictable developments caused by the Project that may occur later on or at a different location; or (iii) indirect

impacts on biodiversity or on ecosystem services upon which the livelihood of affected communities are dependent. The major areas, facilities and communities potentially to be affected by the Project are listed below:

- Project area covering the Main Hospital (including three hospitals), High Security Forensic Psychiatric Hospital, Oral and Dental Clinic and other supporting facilities (helipad, health support facilities, commercial area, closed and open car parking areas, technical unit building)
 - Small martyrs' cemetery consisting of eight graves whose names are unknown. The cemetery has recently been transferred to another cemetery (on 22.12.2014) following the approval of relevant authorities as explained in *Chapter 5: Land Use and Zoning*.
 - Intermittent stream near the eastern boundary of the Project area (explained in *Chapter 7: Hydrology and Hydrogeology*)
 - Waste disposal areas/facilities which are planned to be used during the construction and operation phases of the Project including:
 - Excavated material disposal area (locations in the outskirts of Meryem Mountain and Saricubuk village for excavated materials and in Coteli for topsoil)
 - Elazig Municipality Domestic Wastewater Treatment Plant
 - Class II Landfill Facility of Elazig Solid Waste Disposal Facility
 - ERA Medical Waste Sterilization Facility
 - Licensed waste disposal facilities
 - Surrounding communities and facilities that are part of the social area of influence as explained in Section 4.4 of *Chapter 4: Scope of the ESIA and Stakeholder Engagement*.
 - Surrounding privately owned lands to which part of the excavated soils were transported upon the request of land owners
- Associated facilities or businesses that are not funded as part of the project and may be separate legal entities yet whose viability and existence depend exclusively on the project and whose goods and services are essential for the successful operation of the project. A concrete batching plant (with a capacity of 120 m³/h) will be installed during the construction phase of the Project inside the Project area boundaries. The impacts associated with the concrete batching plant are covered in relevant chapters of this report. Based on available information, there are no other associated facilities that are defined in this Project.
 - Cumulative impacts that result from the incremental impact, on areas or resources used or directly impacted by the project, from other existing, planned or reasonably defined developments at the time the risks and impacts identification process is conducted. Based on local zoning plan, a road network planned around the Project area was identified that would be part of the cumulative impact assessment scope. This planned road network is considered to be a part of a wider road planning that is ongoing in Elazig (details are provided in *Chapter 11: Traffic Impact*). It is not clear at this stage when the construction of

the planned roads will start. Due to the fact that the timing and duration of a potential overlap was not known during the preparation of the ESIA, cumulative impacts were not assessed in the ESIA study.

- Traffic routes to be used during construction and operation phases which may result in an increase in traffic movements during construction and operation phases.

Based on ESIA stakeholder consultations with Elazig Provincial Directorate of Health, there are plans to close some of the hospitals either in full or partially and/or to make alterations in the existing hospitals, however this is not only related to Elazig IHC Project but rather related to create a more efficient health service in Elazig province. It was stated by the Provincial Health Director that this is still in planning phase and has not been officially finalized. In case of closure of any hospital related to the Project, the hospital to be closed will be included in the AoI.

Aspects of the environment: The environmental aspects include the physical environment (e.g. geology, hydrology, hydrogeology, soils, air, noise, vibration, light), the biological environment (e.g. aquatic and terrestrial habitats and flora/fauna, protected areas), the cultural environment (e.g. archaeological sites), the socioeconomic environment (e.g. people, employment, income), and health and safety of the patients and workers.

Types of impacts: Types of impacts resulting from the Project include the following:

- impact outcome: beneficial or adverse
- time aspect: permanent impacts (e.g. loss of land), temporary impacts (e.g. dust during construction phase) and long-term impacts (e.g. noise during the operation phase)
- nature of impact: direct impacts arising from the project (e.g. air, noise pollution), indirect impacts as a consequence of other changes that occur by the project (e.g. influx of population due to workforce), and induced impacts (e.g. industrial development stimulated by the project)
- non-routine impacts (e.g. earthquakes, accidental events)
- cumulative impacts arising from further planned development of the project or any other existing/planned projects

A scoping study has been conducted as part of the ESIA study and a Scoping Report was issued in January 2015. The report is based on the review of the available project documentation provided by ELZ A.S., environmental and social information collected through secondary sources and field surveys, and review of international standards. The results of the scoping study are presented in *Chapter 4: Scope of the ESIA and Stakeholder Engagement*.

1.4.4 Baseline Data Collection

The next step of the ESIA process is the collection of data to establish the existing baseline conditions (i.e. conditions in the absence of the proposed development), whereby the impacts of construction and operation of the project can be assessed against. In undertaking the ESIA study, information on the current environmental and social baseline conditions was gathered using the following sources:

- technical reports prepared by ELZ A.S. and its consultants

- secondary data sources (existing published materials and documents, maps by the government agencies, research organizations and other relevant organizations)
- review of aerial photographs of the Project area and its surroundings
- field study results

The baseline data collection started during the scoping phase and continued to support the assessment process. Baseline studies and their results are described in the relevant chapters of the ESIA Report.

1.4.5 Assessment of Impacts

Assessment of likely impacts is undertaken by determining the value/sensitivity of resources/receptors that are affected, predicting the magnitude of impacts and evaluating the significance of impacts. This is followed by proposing mitigation measures for key significant impacts and assessing whether any residual impacts remain after the implementation of the mitigation measures.

Assessment of impacts was undertaken based on the results of the scoping study. The assessment evaluates environmental and social changes as a result of the project from the established baseline. The assessment reviews all of the possible impacts and determines which impacts are likely to be significant.

The impact magnitude depends on the degree and extent to which the project changes the environment and usually varies according to the project phase. There are various factors to be considered in determining the magnitude of impact, including but not limited to the following:

- area of influence
- deviation from existing baseline conditions
- sensitivity and importance of the receptors and resources
- nature, scale, extent, frequency and duration of the change
- duration and timing of the project

The impact magnitude is quantified on the basis of the factors listed above to the extent practicable. Depending on the nature of impact, the impact magnitude is predicted by mathematical models (e.g. noise, air quality) and by professional judgment for those impacts that cannot be represented by mathematical models (e.g. impacts on ecology). The criteria to determine the impact magnitude for physical, biological, and social environments are described in Table 1-1 below. When determining the impact magnitude, conservative assumptions are often used to ensure that impacts are not underestimated.

Table 1-1: Criteria used to determine the impact magnitude

Magnitude	Description
Physical Environment	
Negligible	Impacts that lead to imperceptible changes in baseline conditions
Small	Temporary or short term impacts that are localized to the immediate project area that physical environment will return to its original conditions once the impact ceases
Medium	Temporary or short term impacts that go slightly beyond the limits of the project area and/or that are above the defined regulatory limit values, however long term integrity of any resource/receptor/process is not threatened

Magnitude	Description
Large	Impacts that result in an order of magnitude change on physical environment in a wider scale, that exceed the defined regulatory limit values and irreversible
Biological Environment	
Negligible	Impacts that lead to imperceptible changes in baseline conditions
Small	Temporary impacts on a number of species that are common in the area and does not affect overall population, localized habitat loss
Medium	Impacts resulting in changes in the population of the species that are common in the area, long term integrity of the population is not threatened
Large	Impacts on legally protected and rare/threatened/endangered species and there is no possibility of recovery
Socio-economic Environment	
Negligible	Impacts that are imperceptible to communities or socio-economic values
Small	Temporary impacts that are reversible and do not affect communities or socio-economic values
Medium	Impacts to communities or socio-economic values that bring change in status but do not threaten overall stability of communities or assets
Large	Impacts to communities or socio-economic values that bring long term change in status

Criteria related to the value/sensitivity of the resources/receptors are described in Table 1-2.

Table 1-2: Criteria related to value/sensitivity of the resources/receptors

Value or sensitivity of the affected resource or receptor	Description
Physical Environment	
Negligible	Physical resources/receptors that are resistant to change
Low	Physical resources/receptors that can return to its original conditions after the impacts and that are not important to the wider physical environment
Medium	Physical resources/receptors that are important in the region and can return to original conditions naturally over time after the impacts
High	Physical resources/receptors that cannot return to their original conditions after the impacts
Biological Environment	
Negligible	Biological environment component that has no or very limited importance
Low	Biological environment component that is common to the area and not under protection
Medium	Biological environment component that is common and experiencing decline and not under protection
High	Biological environment component that is protected by national regulations and international standards and listed as rare, threatened or endangered
Socio-economic Environment	
Negligible	Assets are not significant regarding their resource, economic, cultural and social value
Low	Assets are not significant regarding their resource, economic, cultural and social value, and there are nearby alternatives to the affected assets
Medium	Assets are not significant in the overall project area but have local significant roles (asset base, livelihoods)
High	Assets are protected by national and international legislation

The significance of those impacts is decided upon once the impact magnitude and the value/sensitivity of the resource/receptor are determined. The impact significance is the product of

- (i) the value, importance or sensitivity of the resource or the system that might be impacted, and
- (ii) the magnitude of impact on that resource and system.

The impact significance has been assessed by taking into account the following:

- legislation, policies, guidelines and standards
- area of influence
- amount of resource affected
- persistence of impacts
- status of resources
- sensitivity of resources, regulatory status
- societal value

The evaluation of significance is illustrated in Table 1-3.

Table 1-3: Evaluation of significance

Value or sensitivity of the affected resource or receptor	Magnitude of impact			
	Negligible	Small	Medium	Large
Negligible	Not significant	Not significant	Not significant	Minor
Low	Not significant	Not significant	Minor	Moderate
Medium	Not significant	Minor	Moderate	Major
High	Minor	Moderate	Major	Major

For the purposes of this assessment, impacts have been categorized as follows:

- Not significant: Impact does not require any control.
- Minor Impact: Impact can be controlled using good practice management measures.
- Moderate Impact: Impact can be reduced to a reasonable level (as low as reasonably practicable) by applying feasible and cost effective mitigation measures.
- Major Impact: This is an impact for which no further mitigation is possible and there is a requirement to provide compensation or offset measures.

Significance criteria for each type of impact are presented in the relevant chapters of this report, as needed. Impacts have been assessed for key phases of the Project from initial site preparation and advance works, through construction to operation of the IHC. Decommissioning of the Project is not assessed as the IHC is envisaged to remain in place and in operation for the foreseeable future.

1.4.6 Identification of Mitigation Measures

A principal objective of the ESIA is to identify ways of reducing the impacts of development. For this reason, subsequent to the assessment of identified impacts, mitigation measures for each impact are defined in order to avoid, minimize or remedy the significant impacts. Mitigation measures also include measures to provide environmental and social benefits. The residual impacts that are likely to remain after implementation of mitigation measures are then assessed based on the same criteria mentioned in Section 1.4.5.

Mitigation can be carried out by changes in the design, engineering modifications, and adoption of measures to address the specific impacts. During the ESIA, mitigation measures have been identified based on the Turkish regulatory requirements, EBRD and IFC requirements, and international best practice. The identified measures are discussed and agreed with ELZ A.S. and are presented in the ESMP provided in Annex C. Implementation of the measures identified in the ESMP will be monitored by ELZ A.S. during the construction and operation phases of the Project in order to ensure the effectiveness of these measures.

1.4.7 Uncertainties

This ESIA is prepared based on the Project information received from ELZ A.S. and a description of the Project is made in *Chapter 2* according to this information. The description of the Project is based on the bidding documentation and conceptual design documents made available to ELC. The detailed design of the Project is currently ongoing. All the hospitals and other abovementioned units will be located within the identified Project area and have been considered during the scope of impact assessment. It is not expected therefore that the present uncertainties will have a considerable effect on the identified impacts of the Project. On the other hand, in order to address the uncertainties, monitoring will be undertaken by ELZ A.S. to understand whether the identified mitigation measures are sufficient or there is a need for refinement of any mitigation measure(s).

1.4.8 Environmental and Social Management Plan (ESMP)

The ESMP is a significant part of an ESIA in which all the identified mitigation measures are outlined for the adverse impacts for each phase of the project. An ESMP has been developed as part of the ESIA study, which includes description of the mitigation measures for each impact during construction and operation phases of the Project, responsible parties for the implementation of the mitigation measures, the timing, monitoring and audit requirements. The ESMP focuses on the avoidance of impacts, and where this is not possible, presents technically and financially feasible and cost-effective mitigation measures to minimize or reduce possible impacts to acceptable levels. The ESMP of the Project is presented in Annex C of this report. The ESMP will be kept up to date with any required additional mitigation throughout the Project.

Implementation of the ESMP will be accomplished by conducting a Project specific Environmental and Social Management System (ESMS) during the construction and operation phases of the Project, which will be developed by ELZ A.S. in accordance with the requirements of international standards (i.e. for quality: ISO 9001, for environment: ISO 14001 and for occupational health and safety: OHSAS 18001). Brief information on the environmental and social management is presented in *Chapter 15: Environmental and Social Management*.

1.4.9 Stakeholder Engagement

The stakeholder engagement is an integral and crucial part of an ESIA process, aiming to provide an opportunity to affected and/or interested individuals, groups and organizations to express their views and concerns about the project, which are taken into account during the assessment of impacts and identification of mitigation measures. According to international best practice, stakeholder engagement is recommended to start with the scoping phase and to continue throughout the ESIA process. EBRD Performance Requirement 10 and IFC Performance Standard 1

describe stakeholder engagement as an on-going process during the life of project involving the disclosure of information.

A stand-alone Stakeholder Engagement Plan (SEP) has been developed for the Project, to help structure a systematic communication with the stakeholders during the ESIA study. The details of stakeholder engagement activities undertaken as part of the ESIA study are presented in *Chapter 4: Scope of the ESIA and Stakeholder Engagement* and Annex D. Furthermore, a Project specific website has been established where the Project Information Document and comment form are made available to the public (www.pppelazighastanesi.com).

1.5 Outline of the ESIA Report

The remaining chapters of the ESIA report are as follows:

- Chapter 2: Project Description
- Chapter 3: Institutional and Regulatory Framework
- Chapter 4: Scope of the ESIA and Stakeholder Engagement
- Chapter 5: Land Use and Zoning
- Chapter 6: Geology, Soils and Contaminated Land
- Chapter 7: Hydrology and Hydrogeology
- Chapter 8: Material Resources and Waste Management
- Chapter 9: Air Quality
- Chapter 10: Noise
- Chapter 11: Traffic Impact
- Chapter 12: Socio-economy
- Chapter 13: Community Health and Safety
- Chapter 14: Labor and Working Conditions
- Chapter 15: Environmental and Social Management

The ESIA report is supported by the following annexes:

- Annex A: Official Correspondence Letters related to Turkish EIA Requirements and Martyrs' Cemetery
- Annex B: Environmental, Health and Safety and Social (EHSS) Legislation Review
- Annex C: Environmental and Social Management Plan (ESMP)
- Annex D: Stakeholder Engagement Activities
- Annex E: Project Description Supporting Information
- Annex F: Ecology Reconnaissance Field Survey Results
- Annex G: Soil and Groundwater Quality Assessment Report
- Annex H: Waste Management Plan
- Annex I: Air Quality Supporting Information
- Annex J: Noise Supporting Information
- Annex K: ESIA Team