



Environmental and Social Impact Assessment for the Adana Integrated Health Campus Project

Non-Technical Summary (NTS) Final Draft

June 2014

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ABBREVIATIONS

| | |
|----------------|--|
| AIWDF | Adana Integrated Waste Disposal Facility |
| AMM | Adana Metropolitan Municipality |
| ASKI | Adana Water and Sewage Administration |
| CCTV | Closed Circuit Television |
| CT | Computed Tomography |
| D&T | Diagnostic and Treatment |
| dBA | Decibel |
| DSI | State Hydraulic Works |
| EBRD | European Bank for Reconstruction and Development |
| EHS | Environmental Health and Safety |
| EHSS | Environmental, Health and Safety and Social |
| EIA | Environmental Impact Assessment |
| EN | European Norms |
| EPRP | Emergency Preparedness and Response Plan |
| ESIA | Social Impact Assessment |
| ESMP | Environmental and Social Management Plan |
| ESMS | Environmental and Social Management System |
| ETL | Energy Transmission Line |
| EU | European Union |
| FIs | Financial Institutions |
| FRH | High Security Forensic Psychiatric Hospital |
| GIS | Geographical Information System |
| HR | Human Resources |
| HWMS | Health Care Waste Management System |
| IBAs | Important Bird Areas |
| IBC | International Building Code |
| ID | Identification Badge |
| IFC | International Finance Corporation |
| IHC | Integrated Health Campus |
| ILO | International Labor Organization |
| IPAs | Important Plant Areas |
| ISO | International Organization for Standardization |
| KBAs | Key Biodiversity Areas |
| m | Meter |
| m ³ | Cubic Meter |
| MEUP | Ministry of Environment and Urban Planning |
| MFWW | Ministry of Forestry and Water Works |
| MH | Main Hospital |

| | |
|------------------|--|
| MoH | Ministry of health |
| MRSA | Methicillin-Resistant Staphylococcus Aureus |
| MW | Megawatt |
| NFPA | National Fire Protection Association |
| NGOs | Non-Governmental Organizations |
| NTS | Non-Technical Summary |
| OG | Official Gazette |
| OHS | Occupational, Health and Safety |
| OHSAS | Occupational Health and Safety Assessment System |
| PM | Particulate Matter |
| PM ₁₀ | Particulate matter with diameter of 10 µm or less |
| PPP | Public Private Partnership |
| PR | Performance Requirements |
| PS | Performance Standard |
| RAMAQ | Regulation on Assessment and Management of Air Quality |
| RFID | Radio Frequency Identification System |
| RH | Physical Therapy and Rehabilitation Hospital |
| SEP | Stakeholder Engagement Plan |
| TAEK | Turkish Atomic Energy Authority |
| TEIAS | Turkish Electricity Transmission Company |
| TPH | Total Petroleum Hydrocarbon |
| WHO | World Health Organization |
| WWF | World Wildlife Fund |

1.0 INTRODUCTION

1.1 Background

This document is a non-technical summary (NTS) of the Final Draft Environmental and Social Impact Assessment (ESIA) Report for the Adana Integrated Health Campus Project (IHC or Project) located in Yuregir District of Adana Province situated in the southern part of Turkey. The Project will be developed on a 328,820 m² area at the location shown in Figure 1-1.

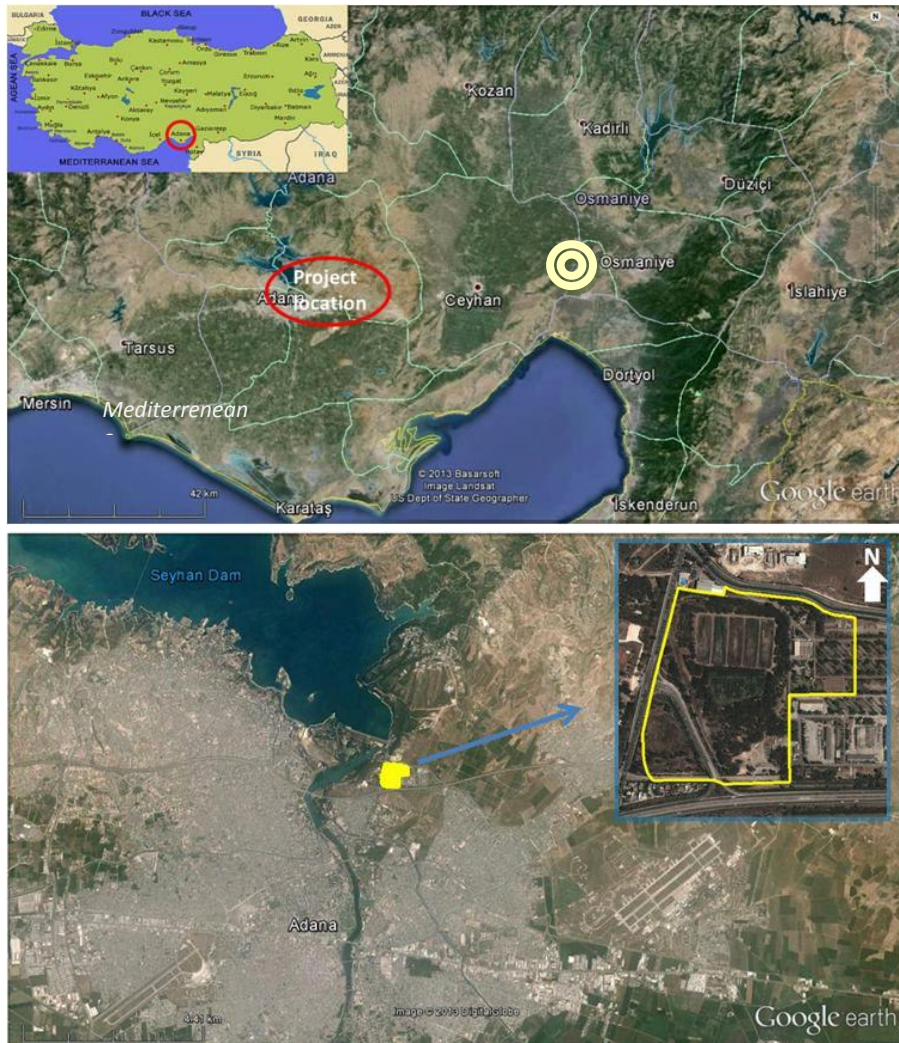


Figure 1-1: Project location with site boundaries shown with yellow shaded area and yellow lines

ADN PPP A.Ş. was established as a Special Purpose Vehicle (a Public Private Partnership (PPP) agreement with the Ministry of Health (MoH)) upon securing the Project's Construction Works and the Provision of Products and Services bid tendered by MoH. The Project's agreement was signed between MoH and ADN PPP A.Ş. on June 27th, 2013. Under the terms of the agreement, ADN PPP A.Ş. will be responsible for the detailed design, construction, equipping, financing, operation and maintenance of the IHC for a 28-year project period. This period covers a 3 year construction period and a 25 year operation period. The provision of medical services will be under the responsibility of MoH. At the end of 28-year project period, the IHC will be transferred to MoH.

The IHC with a total of 1,550-bed capacity will have the following components: a 1,300-bed Main Hospital (MH), a 150-bed Physical Therapy and Rehabilitation Hospital (RH) and a 100-bed High Security Forensic Psychiatric Hospital (FRH). MH will include two General Hospitals (total of 584 beds), an Oncology Hospital (182-bed), a Cardiology and Cardiovascular Hospital (185-bed), a Women/Maternity and Pediatrics Hospital (349-bed) and the Hospitals' common Diagnostic and Treatment Center.

Health campuses are regarded as health complexes that incorporate various types of hospitals with specialized staff, research and development laboratories and centers, social and cultural facilities, hotel, logistic support units, high level of transport and parking facilities, accommodation and open space usage as a whole.

ADN PPP A.Ş. has approached multinational financial institutions (FIs) to fund the development of the Project, and is currently discussing the Project with European Bank for Reconstruction and Development (EBRD) and International Finance Corporation (IFC). In order to meet the requirements of these FIs, ADN PPP A.Ş. has commissioned ELC Group Consulting and Engineering Inc. (ELC) based in Istanbul to undertake the ESIA study.

An ESIA study is a systematic process that predicts and evaluates the impacts of a project on various aspects of the physical, biological and socioeconomic environment followed by the identification of appropriate mitigation measures to avoid or minimize the adverse impacts relevant to the nature and scale of the project. This document summarizes key points and findings of the ESIA Report which was prepared in line with the FI requirements for the IHC Project.

1.2 National EIA Requirements

Until recently, impact assessments were not required to be undertaken for hospital projects since they were scoped out of the 2008 Turkish Environmental Impact Assessment (EIA) Regulation (Official Gazette date/number: 17.07.2008/26939). According to revised EIA Regulation (Official Gazette date/number: 03.10.2013/28784), EIA studies need to be undertaken for large hospital (defined as 500 beds and over) projects.

Correspondence with the Ministry of Environment and Urban Planning (MEUP) conducted as part of the ESIA stakeholder engagement process revealed the following condition for hospital project EIA requirement: "It will be appropriate to exempt hospital projects from the new EIA Regulation if it can be documented that the bidding process for these hospital projects has been included in the public investment program and completed before the effective date of the new EIA Regulation". As a result of further communications with MEUP by ADN PPP A.Ş. in order to provide necessary Project information and bidding process, MEUP issued an official letter stating that the provisions of the new EIA Regulation are not applicable to the Project.

In addition to above-mentioned main hospital components, a trigeneration plant with 8.6 MW thermal input will be constructed as an auxiliary facility within the scope of the Project. Since threshold limit to trigger the EIA Regulation requirements is 20 MW, the trigeneration plant will also be exempt from EIA Regulation requirements.

1.3 ESIA Requirements

ADN PPP A.Ş. has approached international lenders for project financing which have required an ESIA study for identifying potential environmental and social impacts and risks of the Project and developing mitigation measures appropriate to the nature and scale of the Project. The mitigation measures need to be included in the 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:

- IFC Performance Standards on Social and Environmental Sustainability (1 January 2012)
- EBRD Performance Requirements (May 2008)
- IFC General Environmental, Health and Safety Guidelines (30 April 2007)
- IFC Environmental, Health and Safety 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.

The ESIA Report includes in detail the findings of the assessment of the potential environmental and social impacts associated with the construction and operation of the Project. It describes measures to avoid or mitigate identified impacts and to monitor compliance through an Environmental and Social Management Plan (ESMP). Key findings of the ESIA and ESMP measures are presented in Section 4 of this summary report. In addition, an Environmental and Social Action Plan (ESAP) was prepared for the Project.

1.4 Stakeholder Engagement

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.

The ESIA study has included consultation activities that were initiated during the scoping stage to consider the views/concerns raised by the public and/or other organizations during the assessment of impacts and for identifying mitigation measures. A stand-alone Stakeholder Engagement Plan (SEP) has been developed for the Project to help structure systematic communication with the stakeholders. Relevant stakeholders were identified including governmental authorities and non-governmental organizations (NGOs) at national, regional and district level, and local communities and facilities. A public consultation meeting was held on 8th November 2013 in Yuregir District. The meeting was announced via advertisements in one national and two local newspapers thirteen days in advance on 26th October 2013 and the advertisement was repeated at the same newspapers on 1st November 2013.

The main communication methods and mechanisms that were used to consult with key stakeholders included:

- Information about the Project and potential impacts to be provided to stakeholders via project document and leaflets during the scoping stage
- Face-to-face meetings with selected governmental authorities
- Face-to-face meetings with selected headmen and facilities around the Project area
- Public consultation meeting
- Local newspapers (for announcements related to public consultation meeting)
- Project website (for providing information about the Project)

Responses that were received from several governmental authorities, NGOs and the public are compiled in a stakeholder register document. A Project specific email address (pppadanahastanesi@elcgroup.com.tr) was created to be used during ESIA study to collect opinions via e-mail. Furthermore, Project specific website (<http://pppadanahastanesi.com/>) was established where the Project Information Document, Project Information Leaflet and Comment/Complaint Form are made available to the public. The key issues that were raised by the stakeholders are presented below.

Face-to-face meetings with governmental authorities

- Need for clarification of the issue whether a Turkish EIA will be needed for the Project
- Alternative sites considered for the Project location
- Planned light rail system which will have a close stop near the Project
- Need for health campuses so that every party (the MoH and Special Purpose Vehicle) can focus on what they know best in order to provide better quality services

Face-to-face meetings with headmen

- Dust and noise emissions during construction
- Increase in traffic load during construction and operation phases
- Request for further information on FRH
- Necessity of accommodation facilities for patients' relatives
- Positive impacts including job opportunities, easy access to health services and increase in land prices and rents

Face-to-face meetings with facilities

- Dust and noise emissions during construction
- Increase in traffic load during construction and operation phases

Response letters from governmental authorities

- Documentation of the completion of the project bidding process so that the Project is scoped out from the Turkish EIA Regulation
- Waste management and disposal practices
- Waste transportation inside the health campus
- Compliance with Occupational, Health and Safety (OHS) Law and relevant OHS regulations
- Suggestions to have specific units (such as unit related to drug addiction) inside the health campus and specific treatment methods (such as use of sedation methods to small children during dental treatment)

- Inclusion of an oral and dental health center, buildings and services such as accommodation, places of worship, medical supply centers in the health campus

Non-Governmental organizations

- Need to establish infrastructure for blood supply
- Good location of the Project so that immediate medical response can be provided in the event of disasters
- Employment opportunities

Public

- Access difficulties and increase in traffic load by the Project
- Financing of the project and hospital charges during operation
- Potential hospital closures

1.5 Report Structure

The report structure is as follows:

- Project Description
- Environmental and Social Impacts and Mitigation
- Project Environmental and Social Management System

The full ESIA Report and related documents can be found in Project website:

<http://pppadanahastanesi.com/>

2.0 PROJECT DESCRIPTION

2.1 Project Need

Existing Conditions

The Adana Province is located in the Mediterranean Region with a population of 2,125,635 (2012 data) and a surface area of 17,253 km². The Province is located at a distance of 85 km to Mersin Province, 99 km to Osmaniye Province, 188 km to Hatay Province, 192 km to Nigde Province and 319 km to Kayseri Province, which all are surrounding provinces. There is a high amount of daily population flux from the surrounding provinces to the Adana Province. Due to its centralized location, Adana Province is currently providing health services to both residents of Adana and people coming from surrounding and further provinces. It has also been noted that the patient examination rates are increasing every year.

The need for health services is increasing in parallel to the growing population in Adana Province. Currently, there are 11 state hospitals, 1 psychiatric hospital, 149 family health centers, 31 emergency stations, 1 oral and dental health center, 3 mother and child care and family planning centers, 1 public health laboratory and 4 tuberculosis control dispensary in Adana that are affiliated with the MoH. The occupancy rate exceeds full occupancy in a majority of clinics within hospitals resulting in delays in patient treatments. Although the number of beds per 10,000 people has been increasing over the years in the Adana Province, this value is still low when compared to values in the world and European Union.

Most of the hospitals are located in Adana Province center in parallel to the high population in the city center and the status of Adana Province as serving to the other provinces in the region. These hospitals are unable to physically expand in these already condensed areas. These hospitals also do not have adequate parking and green areas. Appropriate areas are not present in these hospital buildings located in Adana Province center, for supporting the changing and evolving technology of the medical devices and equipment. Furthermore, it is difficult to effectively repair and renovate the existing physical structures because the hospitals are quite old. If renovation is considered, this will result in significant costs which may be in the range of a new hospital investment cost. Moreover, service units such as operating room, intensive care, emergency, laboratory, imaging center, polyclinics do not meet the hospital standards in terms of physical structure and equipping. Intensive care beds are only present in four of the hospitals in Adana Province center. In order to close the gap across Turkey and in Adana Province, it can be confirmed that there is a need for undertaking new health investments.

Need for Physical Therapy and Rehabilitation Hospitals

Increasing population, improving technology, changes in health perception and expectations of people have resulted in changes in the health needs of community. The need for Physical Therapy and Rehabilitation health services is also increasing due to increasing aging and high rates of traffic and occupational accidents in the country. However, there is presently insufficient bed capacity specifically for providing active rehabilitation services across Turkey.

Existing Physical Therapy and Rehabilitation Hospitals are located in large provinces such as Ankara and Istanbul resulting in the need for patients and patients' relatives to travel to those provinces.

Physical Therapy and Rehabilitation Hospitals are planned so that people can have access to these services in their own provinces or in the near region which will help in easy access to these services, reducing treatment costs and preventing accumulation of patients in the hospitals located in large provinces.

Need for High Security Forensic Psychiatric Hospitals

Currently, there are no forensic psychiatric hospitals in Turkey. There are 8 hospitals across Turkey (two of them are in Istanbul Province, the others are in Manisa, Bolu, Samsun, Adana, Elazig and Trabzon Provinces) that serve as psychiatric hospitals under the responsibility of the MoH. Patients whose diagnosis, treatment and rehabilitation cannot be provided in their own provinces are sent to the regional hospital responsible from their province.

According to the National Mental Health Action Plan (2011-2023) prepared by the MoH, it is decided to establish high security forensic psychiatric hospitals in 16 provinces with a total bed capacity of 2000, and hospitals having prisoner psychiatry beds in 5 provinces with a total bed capacity of 350. Adana IHC will contribute to the health services with a 100 bed capacity High Security Forensic Psychiatric Hospital.

Considering the above conditions, the existing hospitals cannot provide services of the required quality. Adana IHC with its physical therapy and rehabilitation and high security forensic psychiatric hospitals will contribute 1,550 bed capacity, having rooms with one or two beds, to the existing health services.

2.2 Hospital Planning in Adana Province

As explained in above sections, there is a need for new health infrastructure investments in Adana Province and across Turkey. In order to provide necessary health services to patients, planning has been made by the MoH for all of the identified health regions in Turkey, as indicated in the MoH-Inpatient Facility Planning Guide-Summary Book dated June 2011. According to this guide, plans were made for Adana province to include construction of new hospitals which is consistent with the planning of Adana IHC. However, there is no specific information on the potential closure of existing hospitals when Adana IHC becomes operational. In addition, consultations were conducted with MoH and Provincial Directorate of Health as part of the ESIA consultation process in order to understand the current planning for the potential closure of existing hospitals. Based on these consultations, it is not clear at this stage whether a hospital or hospitals will be closed in the region, or what the new arrangements will be for existing hospitals (either downsizing the bed capacities or revision of some of the units). It is expected that specific care service stations will be established in the Adana Province. However, it was indicated by the consultees that these issues can be only identified in the long-term. ESAP prepared for the Project incorporates a specific action to continue to monitor the potential hospital closure and mitigation plans for staff re-assignment and retrenchment, if applicable.

2.3 Project Alternatives

2.3.1 'No Project' Scenario

The 'no project' scenario considers the situation of not developing the Project. As a result, there will be no new investment for the healthcare system and no provision of health services with better

quality. Given the demand of improved and modern healthcare facilities with sufficient bed capacities in Adana Province, the Project needs to be implemented to meet the demand and satisfy the objectives of the healthcare planning across Turkey.

2.3.2 Project Site Alternatives

Different site locations were evaluated for the Adana IHC based on the information obtained from discussions with the Mayor of Adana. The discussions were undertaken as part of the ESIA stakeholder engagement process. The Mayor stated that the Adana Metropolitan Municipality (AMM) was involved in the site selection process conducted by the MoH.

Current location of the Project in Yuregir District was selected because 1) the site is easily accessible, with easy access by vehicles, afoot and other vehicles compared to the other alternatives; 2) the topography/geometry of the land is more appropriate for the construction of the IHC; 3) there is sufficient area for car parking and open space usage; 4) the site is also more appropriate for the construction of facilities other than the health campus; 5) the site has a potential for coordination with other health facilities in the surroundings; and 6) the site is owned by the Treasury. According to the official letter, selected site has also been allocated as a Health Facility Area in the zoning plans.

The Mayor also indicated that the selected site in Yuregir District is a good location in terms of accessibility as it is located very close to the highway and to the airport; a clover-leaf road junction is currently being planned close to the IHC area that will be a positive solution for better access to the IHC and also to avoid congestions in the area. Furthermore, a metro project is currently being planned with a route that is very close to the IHC.

2.4 Project Components and Design

The Project comprises of the development of an integrated health campus with a total capacity of 1,550 beds consisting of three hospitals. These are the 1,300-bed Main Hospital (MH), 150-bed Physical Therapy and Rehabilitation Hospital (RH) and 100-bed High Security Forensic Psychiatric Hospital (FRH). In addition to the hospitals, there will be a commercial area for health support facilities, a technical unit building, one helipad and a trigeneration plant. The layout of the hospitals and other units are shown in Figure 2-1 and Figure 2-2.



Figure 2-1: Layout and view of the hospital components

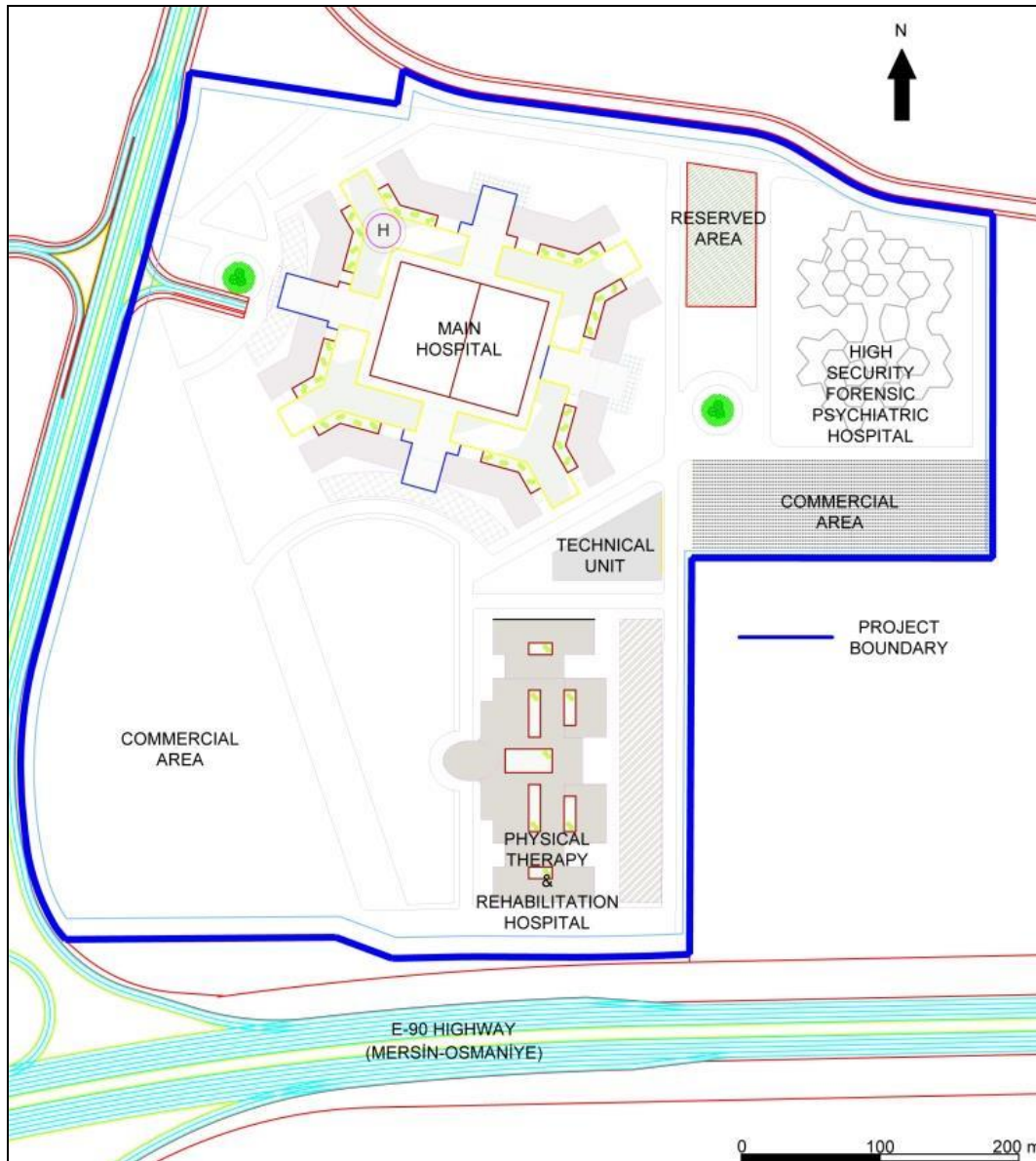


Figure 2-2: Layout of the hospitals

2.4.1 Main Hospital (MH)

MH will consist of four patient tower blocks surrounding a common core where a “Diagnostic and Treatment (D&T) Center” will be located. The four tower blocks will include the following specific hospitals with a total 1,300 bed capacity:

- 182-bed Oncology Hospital & 185-bed Cardiology and Cardiovascular Hospital
- 349-bed Women/Maternity & Pediatrics Hospital
- 285-bed General Hospital
- 299-bed General Hospital

The D&T units will include the angiography unit, day surgery rooms, robotic medicine dispensing unit, total parenteral nutrition unit, genetic diseases central, advanced pathology unit, thalassemia laboratory, hyperbaric unit, In-Vitro fertilization unit, transfusion center, radiology, radiation oncology, nuclear medicine, chemotherapy, emergency service, endoscopy, surgery rooms, pre/post-surgery rooms, sterilization unit and hemodialysis unit. In addition, there will be 38 polyclinics.

2.4.2 Physical Therapy and Rehabilitation Hospital (RH)

The Physical Therapy and Rehabilitation Hospital will have a capacity of 150 beds. The D&T units will include inpatient therapy areas, radiology, prosthesis-orthosis laboratory, 25 beds rehabilitation acute care, 20 physician room module, gait laboratory, psychotherapy, diet, spinal cord injury rehabilitation, traumatic brain injury, rehabilitation public areas and rehabilitation support areas.

2.4.3 High Security Forensic Psychiatric Hospital (FRH)

The High Security Forensic Psychiatric Hospital will have a capacity of 100 beds (Figure 2-3). There will be different inpatient sections within the FRH that includes clinics arranged according to gender and different security levels as below:

- Adolescent security service (for the rehabilitation and treatment of children between the age of 14 to 18, who are mostly drug substance dependents)
- Psychiatry prisoner service
- Psychiatry high-security service
- Psychiatry medium-security service
- Psychiatry low-security service



Figure 2-3: Typical 3D layout of an FRH with 100-bed capacity (Source: Turkish Forensic Psychiatric Hospital (Inpatient Clinic) Exemplary Design Project Brief, Turkish Ministry of Health PPP Program)

2.4.4 Other components

There will be commercial areas within the Adana IHC which are planned to include health support facilities such as pharmacies, doctors' offices, ophthalmic hospital, day chemotherapy and a medical hotel. The planning of the commercial area is currently ongoing and the types of units to be located in the commercial area will be clarified as the design proceeds. There will be no commercial shopping mall complexes within the commercial area.

In addition, there will be a technical unit building to house a trigeneration system in the ground floor. The technical unit building will also have one basement floor. The design of the technical unit building is currently ongoing.

There will be one helipad located at the top of the MH building (on Tower-2) making it directly connected with Accident & Emergency Department and Burn Unit by a vertical connection. The helipad will serve the ambulance helicopters which are directly under the service of the MoH. There is currently one ambulance helicopter assigned by the MoH for Adana Province.

2.4.5 Design Standards of the Hospitals

The design of the hospitals will meet the following standards as a minimum:

- “Circular on the Minimum Technical Standards that should be met in Existing and New Health Facilities” issued by the MoH, Department of Construction and Maintenance (last update: 30.10. 2012)
- “Minimum Design Standards for Turkey’s Health Facilities, Guidebook for the Year 2010”, issued by the MoH, Department of Construction and Maintenance
- “MoH, PPP Program, Adana Health Campus, Technical Specifications” provided by the MoH during the bidding process that includes technical specifications for the following:
 - Part 1: Technical Specifications for Architectural and Construction Works – provides technical specifications for the concept scheme design and for construction works
 - Part 2: Mechanical and Plumbing Technical Specifications
 - Part 3: Electrical Technical Specifications

2.4.6 Fire Safety

Health facility operations are exposed to life and fire safety risks, as they are accessible to the public. The IHC is being designed in accordance with the Turkish Regulation on the Fire Protection of the Buildings (Official Gazette Date/No: 19.12.2007/26735). The Technical Specifications has also covered requirements related to fire protection to be integrated into the design to include the following:

- Compartmentalization: The standards for fire compartmentation between floors and between compartments will be 1 hour (60 minutes) fire resistance. Sub-compartments and identified fire hazard rooms will be half an hour (30 minutes).
- The fire separation shall be reviewed with local officials during the design process to verify compliance with local codes and regulations. The final compartmentation shall represent the regional firefighting principals.
- Sealants: Intumescent sealants to be used to plug smaller gaps around services penetrations in compartment walls and floors.
- Smoke Barriers: Proprietary mineral wool products as Rockwool to be used to maintain fire separation between compartment floors and walls, and to protect around services penetrations.

In addition to the above, Fire Suppression Systems shall be provided throughout the hospitals as required by Turkish and local codes, and the Fire Alarm System shall be designed and installed in accordance with the requirements of NFPA72 and local codes, as per the Technical Specifications.

ADN PPP A.Ş. has assigned a fire consultancy company for the identification of necessary life and fire safety design criteria. As reported by ADN PPP A.Ş., the overall design, construction and operation of Adana IHC will be based on Turkish Regulation on the Fire Protection of the Buildings, and Turkish and European (EN) standards. However, when local standards are not sufficiently detailed and are incomplete, internationally accepted life and fire standards (NFPA standards, IBC Codes and EN standards) will be applied. For this reason, mapping of Turkish requirements for life and fire safety will be conducted by ADN PPP A.Ş. in order to identify the insufficient areas and incorporate them into the design based on the international standards.

2.5 City Planning and Components near the Project area

There is an existing zoning plan prepared by AMM which covers the Project area that is indicated as a “Health Facility Area”. Near the Project area, there are two components that are important to mention in order to understand the general planning around the Project area. One of the components is the planned removal of the shanty houses as part of the general framework of urban transformation projects within the Adana Province. The second component is related with transportation and includes the clover-leaf road junction project and metro line expansion project planned by AMM as part of the improvement of transportation infrastructure and mass transportation, respectively within Adana Province. All of these components are included in the zoning plans and under the jurisdiction of public authorities and outside the scope of the Project.

2.6 Construction

2.6.1 Overview

The planning of the Project is still ongoing. Construction is estimated to start in the last quarter of 2014 and take up to 36 months. The tentative construction schedule is given in Table 2-1.

Table 2-1: Tentative construction schedule

| Works to be undertaken | 1 st year | | | | 2 nd year | | | | 3 rd Year | | | |
|--|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| | 1 st quarter | 2 nd quarter | 3 rd quarter | 4 th quarter | 1 st quarter | 2 nd quarter | 3 rd quarter | 4 th quarter | 1 st quarter | 2 nd quarter | 3 rd quarter | 4 th quarter |
| Infrastructure and Mobilization | | | | | | | | | | | | |
| Preparation of Implementation projects and their approval | | | | | | | | | | | | |
| Construction of Main Hospital | | | | | | | | | | | | |
| Construction of Physical Therapy and Rehabilitation Hospital | | | | | | | | | | | | |
| Construction of High Security Forensic Psychiatric Hospital | | | | | | | | | | | | |
| Construction of Technical Unit | | | | | | | | | | | | |
| Infrastructure Works | | | | | | | | | | | | |
| Automation and Furnishing Works | | | | | | | | | | | | |
| Landscaping and Reclamation | | | | | | | | | | | | |
| Testing and Commissioning | | | | | | | | | | | | |
| General Cleaning and Disinfection | | | | | | | | | | | | |

The construction site facilities (including offices, camping buildings for on-site accommodation of workers and their families, cafeteria, resting areas for workers and engineers, infirmary, workshop, material storage areas) will be located inside the Project area. Total number of buildings is 36 with the capacity of 1,244 people. All construction site facilities shall be constructed in accordance with the specifications and regulations of the Turkish and FI EHS standards. The construction area will be enclosed with fences. There will be entrance and exit gates to control vehicles getting into the site. There will be no blasting activities during construction works.

2.6.2 Construction Materials

The construction material required for the Project will include ready-mixed concrete, aggregates, iron and asphalt which will be transported to the site via roads from local suppliers. Given the size of the construction sector in Adana, it is expected that all materials cannot be supplied from the existing marketplace. As necessary, onsite temporary laydown areas for imported materials will be

appropriately selected to avoid potential disturbance and run-off. A concrete plant is not planned to be established during construction. No borrow areas or quarries will be operated by the contractor. Various types of vehicles and machinery will be sourced locally from existing suppliers as much as possible.

2.6.3 Excavated Soils to be Disposed

It is anticipated that approximately 600,000 m³ of excavated material will be generated that will require off-site disposal. Excavated soils will not be reused and upon generation, will immediately be transported offsite to areas that are to be approved by the Yuregir Municipality and/or Adana Metropolitan Municipality (AMM), to ensure compliance with the Regulation on Control of Excavated Soil, Construction and Demolition Wastes (Official Gazette Date/No: 18.03.2004/25406).

2.6.4 Traffic and Access Management

The Project area is located close to the E-90 Highway and adjacent to Dr. Mithat Ozsan Boulevard that is connecting the city and the Cukurova University. The E-90 Highway and Dr. Mithat Ozsan Boulevard will be used during construction for the transportation of construction materials and excavation soils. The E-90 Highway is 3x3 lanes and Dr. Mithat Ozsan Boulevard is 2x2 lanes. There will be no need to open a new road during construction.

2.6.5 Workforce

The maximum workforce that is anticipated during the construction phase is 1,800 people. Workforce will be supplied locally as much as possible including local subcontractors. Appropriate pre-fabricated facilities will be provided to those employees who need onsite accommodation.

2.7 Operation

2.7.1 Responsibilities and Organizational Management

The management of the Adana IHC will be shared between MoH and ADN PPP A.Ş. during the operation phase. The MoH will be responsible for providing doctors and the support health personnel, and the general management of the clinical hospital activities will be undertaken by the administrative staff provided by MoH. MoH administrative staff will be responsible for the tasks excluding those under the responsibility of ADN PPP A.Ş. as described below. Staff other than the doctors and support health personnel will be provided by ADN PPP A.Ş. ADN PPP A.Ş. will be responsible for the management of services classified as obligatory services (P1) and optional services (P2) as listed below:

- P1 - Obligatory services include building and land services, extraordinary maintenance and repair, management of common services, furniture services, ground and garden care, and other medical support services.
- P2 - Optional services include non-medical services including pest control, car parking, cleaning, implementation and operation of the hospital information management system, security, guidance and escort for patients/help desk/reception/carrying services, laundry, food and waste management; and medical support services including laboratory, imaging, sterilization and disinfection, and rehabilitation services.

2.7.2 Traffic and Access Management

It is estimated that 30,000 to 35,000 people per day will visit the IHC during operation. Presently, the transport system for accessing the IHC site is public buses. AMM has included in its zoning plans the construction of a clover-leaf road junction near the IHC site and expansion of the existing metro line that will have a close station to the IHC. The timing for the completion of the clover-leaf road junction and the metro line expansion is currently unknown but when they become operational, both of them will enable an easier access to the IHC and also eliminate potential traffic congestions in the area.

In order to understand the existing baseline conditions in detail and future conditions, ADN PPP A.Ş. has recently assigned a traffic consultant to undertake a traffic assessment study which will also identify the necessary traffic arrangements inside the IHC site. The traffic assessment study is expected to be completed by mid-September 2014. The Traffic Management Plan will be developed by ADN PPP A.Ş. once the traffic study is completed 1) to control vehicle movements within and around the IHC and 2) to minimize and mitigate impacts on residential areas and other road users.

2.7.3 Emergency Preparedness and Response

An Emergency Preparedness and Response Plan (EPRP) will be prepared by ADN PPP A.Ş. prior to operation as part of the Environmental and Social Management System to be established for the IHC. The EPRP will cover issues related to occupational accidents, fire, fuel and chemical spills, natural disasters such as flooding and earthquakes. EPRP will also consider FRH in detail for all types of accidents/disasters.

2.7.4 Security

An electronic security system will be provided in the IHC and will consist of CCTV cameras, Access Control System, Intrusion Detection System and Radio Frequency Identification System (RFID). CCTV cameras will be located at exterior entrances, main entrance lobbies, elevator lobbies, car parks, loading docks, pharmacy, service corridors and material storage area.

All users of the facility will be issued an identification badge (ID) with photographs in order to facilitate entry. These badges in conjunction with the access control system components will be used to gain entry to restricted areas.

The security for the prison ward inside the MH will be under the responsibility of the Gendarme. The security of the FRH will be managed by the Gendarme as well; however this issue will be discussed in more detail during the project development, as reported by ADN PPP A.Ş.

2.7.5 Operational Workforce

The workforce requirement during the operation phase is anticipated to be approximately 4,500 in total, with 2,500 health service personnel to be employed by MoH and 2,000 service employees to be employed by ADN PPP A.Ş. Workforce will be supplied locally as much as possible. Appropriate pre-fabricated facilities will be provided to those employees who need onsite accommodation.

3.0 ENVIRONMENTAL AND SOCIAL IMPACTS AND MITIGATION

3.1 Overview

The ESIA Report provides a description of the environment and social baseline and explains the Project's potential impacts and identifies the mitigation measures to avoid or minimize the significant adverse environmental and social impacts. The mitigation measures are also included in the ESMP that has been developed as part of the ESIA study, and includes description of the mitigation measures, responsible parties for the implementation of the mitigation measures, the timing, monitoring and audit requirements.

The topics that are included in the ESIA study include (1) Land Use and Zoning, (2) Geology, Soils and Contaminated Land, (3) Hydrology and Hydrogeology, (4) Material Resources and Waste, (5) Air Quality, (6) Noise, (7) Traffic Impact, (8) Ecology, (9) Socio-Economy, (10) Community Health and Safety and (11) Labor and Working Conditions. These topics and related impacts and proposed mitigation measures are summarized in the following sections.

3.2 Summary of Impacts and Mitigation Measures

3.2.1 Land Use and Zoning

The Project comprises the development of an Integrated Health Campus within an area that is owned by the Treasury and has been allocated to MoH. The Project area is included in the 1/5,000 scaled Saricam-Yuregir Zoning Plan that has been approved by the AMM Board. No land take, expropriation, resettlement and/or economic displacement have occurred related to the Project. The construction activities will be undertaken within the defined Project area and no additional land will be used. ADN PPP A.Ş. will sign a contract with the MoH for the use of the site.

The majority of the Project area is currently vacant with some buildings/areas on the east part of the area (where FRH will be built) which are currently being used by 6th Regional Directorate of DSI for commercial purposes (such as warehouses, vehicle maintenance area). The responsibility for demolishing of mentioned buildings will be with the DSI and the site will be handed over to ADN PPP A.Ş. as a completely empty area.

An Energy Transmission Line (ETL) of 154 kV is currently passing through the Project area which is being operated by TEIAS. The transmission line will be relocated outside the Project area after approval of the ETL relocation project by TEIAS that was submitted by Adana Provincial Health Directorate. It is not clear at this stage when the ETL relocation will take place.

There is a road which is approximately 400 m in length and located inside the Project area which connects to the E-90 Highway. As reported, the removal of this road will be conducted by the AMM as a part of the planned clover-leaf road junction near the Project area. However, it is not known at this stage when the construction of the clover-leaf road junction will start.

The closest settlements to the Project area are the shanty houses located adjacent to the south boundary of the Project area separated by a side road. According to the 1/5,000 scaled Saricam-Yuregir Zoning Plan, the area of these shanty houses are designated as urban transformation area.

The planned clover-leaf road junction and removal of shanty houses are under the jurisdiction of public authorities and have been planned based on prior decisions of AMM related to improvement of transportation infrastructure and urban planning. These are part of the general city planning and therefore are not related with the Project development. For this reason, any land take for these projects including the expropriation of the shanty houses are outside the scope of the Project.

3.2.2 Geology, Soils and Contaminated Land

Geology and Seismic Risk

According to the Map of Turkey Seismic Zones (dated 18.04.1996) published by the Ministry of Public Works and Settlement, General Directorate of Disaster Affairs, Earthquake Research Department, Adana, Yuregir is in the 2nd degree seismic zone where 1st degree seismic zone express most tectonically active zones in Turkey. In the event of earthquakes during construction and operation, significant impacts on the environment as well as on the community and workers' health and safety and on patients may arise following accidents, spills, fire, etc. related to the seismic incident.

Provisions of "Regulation on Buildings to be built in Seismic Zones" (Official Gazette date/no: 06.03.2007/26454) are to be applied in all calculations for newly constructed buildings. The earthquake loads to be taken during the design of the buildings are obtained from the earthquake classification of the zone in which the structures are to be built. The Project design will take into account the Turkish regulatory requirements related to seismic design and risk assessment. This will ensure that residual risks are as low as possible.

Soils

The site is predominantly made of fill material overlying alluvial material. No major natural surface soils are present in the Project area. Based on the assessment of the Project area in accordance with the "Land Ability Classes", the site and surrounding areas are Class VI which is not suitable for agricultural use. The Project will not adversely impact potential agricultural land areas.

During construction, the temporary use of land, if not properly managed and operated, can lead to impacts on soil quality by events such as compaction and accidental spills of liquid cement (excluding hazardous material spills). All these events may be expected to have a minor-moderate impact.

Construction activities on soils and storage of construction equipment and materials on soils have the potential to affect soil and groundwater through spills of hazardous material such as oils, fuel or other materials (i.e. fuel loading for machinery operating at the site). The vulnerability of the groundwater should be considered as moderate during construction activities since there will be excavation to depths where more permeable soil layers will be present and there are DSI ground water wells in the vicinity of the site. Potential impacts are expected to range between minor to major significance depending on the duration of the spills that may range from temporary small-scale spills to continuous/long-term spills. To mitigate above-listed risks, all contractors will be required to adopt good construction site practices for the protection of soils and to follow the General IFC EHS Guidelines. Contaminated soils will be disposed of in an appropriately licensed disposal site. The use of cement and wet concrete in or close to any exposed areas will be carefully controlled. A Soil Sampling Plan will be developed in order to separate the clean and contaminated soils during earthworks at the DSI vehicle maintenance area.

During operation, soils may become contaminated from spills of hazardous materials (i.e. fuel leakage from underground storage tanks), poor management of hazardous wastes generated at the site, leakage from underground pipes used for sanitary wastewater discharges. These spills and leakages may lead to impacts that are considered to range between minor to major depending on the spill size, nature of contaminants and impacted areas.

The Project will therefore be designed with the necessary protection systems against spills from hazardous materials and wastewater generated at the site. The risks of soil pollution during operations are deemed to be negligible if these protections are in place and appropriately operated.

Hazardous and non-hazardous materials and waste during construction and operation will be handled according to an Integrated Quality, Environment, Health and Safety Management System to be prepared by ADN PPP A.Ş. and further site-specific management plans will be developed (i.e. Hazardous Material Management Plan).

Fuels, oils and chemicals will be stored on an impervious base protected by bunds to 110% of capacity. Drip trays will be used for fuelling mobile equipment. Any spillages from handling fuel and liquids will be immediately contained on site and the contaminated soil removed from the site for suitable treatment and disposal.

Spoil and other surplus material arising from the works which is classed as “acceptable fill” shall, wherever practicable, be recovered and used in the construction works. Relevant authorities shall be consulted regarding this on a site by site basis to ensure the re-use of waste materials is acceptable.

Operation of a closed drainage system and implementation of Emergency Preparedness and Response Plan in the event of spills, fire etc. will prevent significant impacts on soils during construction and operation. With the implementation of mitigation measures mentioned above, the residual impact on soil and groundwater is estimated to be insignificant.

3.2.3 Hydrology and Hydrogeology

A number of construction activities may adversely impact surface and groundwater resources. These activities include soil and concrete movement due to excavations and the presence of stockpiles of exposed soil (including contaminated soils identified during the soil quality investigation) and concrete which may lead to suspended sediment in runoff waters from the work sites. Exposed soils that are dampened to reduce dust emissions may also produce surface runoff leaving the site boundaries. If not mitigated, impacts may be expected to range between minor to major significance depending on the amount and quality of surface runoff leaving the site.

The excavated soils and concrete could contain contamination and if not properly managed could infiltrate to the groundwater and cause contamination. The closest distance of nearby surface water bodies is the irrigation channel YS1 which is approximately 20 m north from the site boundaries and separated by a side road and then a double-lane road which decreases the chances of surface water or spills from entering directly to the channel. Good construction site practices such as using designated areas for storing materials, regular inspections at construction sites, training of construction workers, placement of sediment traps and/or oil/water will be adopted to minimize risks of water pollution.

Impacts may occur as a result of accidental spills from the use of hazardous materials (fuel oils and lubricants) as well as construction materials (liquid cement, lime) during construction which may migrate off and also infiltrate to the groundwater resulting in the degradation of groundwater quality. Spills may also occur from the refueling of equipment during construction. Associated impacts are considered to be of minor to major significance depending on the amount of spill and the timely response to the incident.

All staff and subcontractors will be required to report any incidents and these will be subject to investigation, and remedial and preventive actions will be taken as needed. To mitigate above-listed risks, spill response kits including absorbent materials suitable for the materials will be present on site. These will be kept at designated areas with specific instructions for their use. Site staff will be trained on the use of spill kits. Response to the spill will be made as fast as possible. Contaminated materials will be collected and sent to appropriate disposal facilities.

If the hazardous materials (i.e. fuels stored in underground storage tanks) are not handled appropriately, potential spills and leakages may result in impacts ranging from minor to major significance and may become permanent during operation. Regular periodic integrity testing for hazardous material storage equipment (i.e. underground storage tanks and lines) will need to be conducted and appropriate leak detection systems will be in place.

No fuelling of vehicles or equipment will take place within excavated areas; no hazardous materials will be stored in excavated areas and all handling of hazardous materials will be under special supervision. Fuelling shall only be carried out in designated areas away from surface drainage pathways exiting the site. Suitably sized impervious bunds or other containment will be installed where hazardous materials are handled (such as fuel stores and loading areas, concrete mixing, hazardous material stores) to prevent hazardous materials entering the site drainage.

A Hazardous Material Management Plan will be developed to ensure proper handling of hazardous materials during construction and operation of the IHC. An Emergency Preparedness and Response Plan will be developed to ensure mitigation of spills from hazardous materials during construction and operation of the IHC.

Inappropriate storm water drainage conditions for the Adana IHC facilities may result in flooding of the site area. Flooding may result in impacts ranging from minor to major significance in terms of health and safety conditions. It is being reported that the flooding events are being controlled by Seyhan and Catalan Dams built upstream of the City of Adana. DSI has stated that the integrity of the Seyhan Dam is being monitored since it became operational and adverse conditions were not detected to date. Dam failure risk is deemed to be low based on the DSI declaration.

Assuming mitigation measures are implemented and good site practices are adopted, the residual impacts on the surface water and groundwater is estimated to be negligible. Based on the DSI declaration for Seyhan Dam's condition, residual impact related to dam failure is not foreseen.

3.2.4 Material Resources and Waste

It is anticipated that approximately 10,000 m³ of aggregate, 250,000 m³ of concrete, 3,000 tons of asphalt and 25,000 tons of iron will be needed for the Project. Given the size of the construction sector in Adana, it is expected that all materials cannot be supplied from the existing marketplace. No borrow areas or quarries will be operated by the contractor. There should therefore be no

adverse impacts from the extraction of raw materials or production of finished materials that will be attributable directly to the Project.

During the detailed design and procurement stage, the contractor will be responsible for identifying sources for all materials and equipment and will be required to consider environmental impacts in selecting materials to be used for the Project. This will include using less harmful materials where possible, considering the carbon footprint of alternative materials and considering the impacts of extraction, processing and transport.

In particular, the contractor will be required to source materials from as close as possible to the Project site, to use recycled materials and materials certified as being from “green” or lower carbon sources where practicable and to source aggregates and materials from quarries, borrow pits, crushing plants and asphalt plants operating with valid environmental and other permits and licenses and where the sites are managed in full compliance with all applicable environmental standards and specifications.

Waste storage, transport and disposal practices during the construction and operation phases of the Project are required to be in full compliance with relevant Turkish regulatory framework. In addition to Turkish regulations, waste management practices for the Project will also abide with the following IFC and EBRD Guidelines:

- IFC General EHS Guidelines
- IFC EHS Guidelines for Health Care Facilities
- EBRD Sub-sectoral Environmental and Social Guidelines: Health Services and Clinical Waste Disposal

Water Consumption and Discharge

There will be drinking and potable water usage by construction workers and during construction activities. Based on water usage data provided by Ministry of Environment and Urban Planning (MEUP), the total daily water requirement for the construction activities (water usage by workers plus activities such as dust suppression activities, spraying concrete, adding water to backfill material, equipment cleaning and site clean-up) would be 445 m³/day. During operation, there will be water uses related to general domestic and sanitary use (including laundry), food preparation processes, sterilizers and autoclaves, X-ray equipment (water used in the processing of prints) and water used for gardens. Water consumption of the IHC is predicted to vary between 1,750 and 2,480 m³/day.

The water supply to the Saricam-Yuregir districts is provided from the Catalan Dam which is treated prior to distribution and has sufficient capacity (132,000 m³/day) to provide water to the Project. Based on this information, the water supply increase during the construction and operation of the IHC Project can be considered negligible on the water supply requirements for the region.

Wastewater Discharge

Water consumption of the IHC was predicted to vary between 1,750 and 2,480 m³/day. All the water consumed is assumed to be converted into wastewater and will be discharged into municipality sewer lines. IFC Guidelines indicated that often the wastewater quality from healthcare facilities has a quality similar to urban wastewater. There will be no separate waste water treatment plant (WWTP) within the IHC, however as reported by ADN PPP A.Ş., wastewater from departments and all

the water consumed within the IHC will be collected via different piping systems and discharged directly into the sewer system, except for the wastewater that is contaminated with radioactive substances (i.e. from nuclear medicine department) which will be collected separately and/or subject to neutralization prior to being discharged into the sewer system. The treatment capacity of the East WWTP operated by AMM in Yüreğir is 128,000 m³/day. The existing wastewater flow coming in to the East WWTP is 85,272 m³/day and the IHC wastewater load will represent less than 3% maximum increase in the existing flow rate indicating that this will still be within the treatment capacity of the WWTP.

Conditions set for liquid wastes contaminated with radioactive substances in the Regulation on Wastes Generated upon Usage of Radioactive Substances (OG date/no: 02.09.2004/25571) related to discharging this type of wastewater into the sewer system will be met during operation phase. As per above regulation, if the liquid wastes contain radioactivity higher than the limit values covered in conditions set for liquid wastes contaminated with radioactive substances, these wastes will not be allowed to be discharged into the environment and application is required to be made to the TAEK by the license owner related to procedures to be applied for such wastes.

Waste Generation during Construction and Operation Phases

The types of the waste generated during construction phase include domestic waste, excavation waste, packaging waste, hazardous waste (pharmaceutical waste, liquid fuel, chemical substances, antifreeze, vehicle/engine filters, oiled textile, old filters, polluted soil and contaminated excavated material), special waste (waste oils, waste batteries and accumulators) and medical waste (infectious waste, pathological waste, sharps waste) and subject wastes. These wastes will be disposed at the licensed recycling and hazardous waste treatment facilities in and out of Adana and the Adana Integrated Waste Disposal Facility (AISWDF) operating under the jurisdiction of AMM in Sofulu.

The waste categories that will be generated during the operation phase include medical wastes, hazardous and non-hazardous wastes, domestic wastes and wastewater. In accordance with the IFC EHS Guidelines for Health Care Facilities, the healthcare wastes are categorized into two main categories as medical waste and domestic waste. Medical waste includes infectious wastes, pathological waste, sharps, pharmaceutical waste, genotoxic/cytotoxic waste, chemical waste, radioactive waste, waste with high content of heavy metals and pressurized containers. Domestic waste includes general healthcare waste, non-recyclable waste and recyclable waste as metals and plastics. Each of these classifications has a separate waste code and suitable disposal method in accordance with the Turkish regulations. In order to identify the amount of healthcare waste to be generated during the operation of the IHC, literature survey was conducted to determine waste generation ratios per bed. In addition, an assessment was carried out by Adana Numune Training and Research Hospital to determine the ratio of medical and domestic waste to general hospital waste. Based on the above mentioned information and the information on the distribution percentages of different types of medical waste obtained from World Health Organization (1999), medical waste was estimated as 1,317.5 kg/day and domestic waste generated was estimated as 3,642.5 kg/day during IHC operation

The AISWDF Sofulu facility has a Medical Waste Sterilization Unit where presently the medical waste which is collected from hospitals, healthcare units and facilities by Adana Metropolitan Municipality. It has a reported treatment capacity of 8-10 tons per day. The Medical Waste Sterilization Facility has

the capacity and can accept medical waste such as infectious waste, sharps; and its Packaging Waste Recycling Facility can accept general waste.

Energy

The electricity, heating and cooling needs of the facility will be from the trigeneration and boilers systems that will be installed inside the IHC during operation. The trigeneration system and boiler will use natural gas. The yearly electricity consumption of the IHC would be 73,000,000 kWh based on the yearly electricity consumption amount of 250 kWh/m² in large hospitals (as indicated by U.S. Energy Information Administration, 2007). The natural gas will be used for heating and for producing warm water. Due to the fact that the energy and natural gas requirements will be high for the IHC operation, efficiency opportunities and associated tasks to achieve energy savings will need to be considered in the design and operation of the IHC Project.

3.2.5 Air Quality

The key emission sources during construction include dust emissions generated from earth movements, transport of construction materials and resources, transport of excavated soils outside the Project area, working of machinery and vehicle movements inside the Project area. There will be also gas emissions from construction vehicles and equipment such as generators, excavators, bulldozers, trucks and cars. In addition, transport of construction materials and transport of excavated soils outside the site will result in emissions related to construction traffic and may have the potential to affect the air quality. The impacts related to these activities will be temporary.

During operation, key emission sources are emissions the trigeneration and boiler systems and fugitive emissions (released from sources such as medical waste storage areas, medical technology areas and isolation wards) that may be potentially contaminated with biological agents, pathogens, or toxic materials. It is expected that necessary exhaust/treatment systems will be included in the design of the health campus to eliminate the mentioned emissions and no significant impacts will occur. There will be also impacts related to increase in emissions from road traffic during the operation of the health campus.

Air dispersion modeling study (for dust-PM₁₀ and PM dispersion) was undertaken to estimate the air quality impacts associated with the construction phase in both earthworks and main construction which includes PM₁₀ emissions from the transport of construction materials and transport of excavated soils outside the Project area, and PM₁₀ emissions from handling of dusty materials in the Project site. Air dispersion modeling for operation phase included the NO₂ parameter which is the significant emission from above-mentioned sources.

The modeled values related to the construction phase were significantly below the associated limit values stipulated in the Turkish air quality regulations, EU directives and WHO Guidelines (except for the slight exceedance of WHO limit value during earthworks). When cumulative long-term total pollution values were considered, the limit values were exceeded. However, this was noted as being related with the high ambient background air quality values and not directly associated with the emissions from the Project. The values related to the operation phase including the long-term total contribution of NO₂ parameter to the ambient air were significantly below the associated limit values defined in the above-mentioned guidelines.

In addition, the generation of greenhouse gas emissions during the operation of the trigeneration and boiler systems was estimated to be 105,163 tons CO₂/year that is above the CO₂ production limit value of 25,000 tons/year. This requires quantification of direct and indirect annual emissions as per IFC Performance Standard 3. The Project will be expected to meet this requirement and undertake necessary actions to minimize the greenhouse gas emissions.

An Air Quality Control and Monitoring Plan will be prepared in order to mitigate impacts on air quality during construction that will include mitigation measures and monitoring requirements. Additionally, air pollutants will be monitored at nearby sensitive locations to ensure minimal impacts in accordance with the Air Quality Control and Monitoring Plan. Emissions during the construction phase can be effectively mitigated through good management and housekeeping practices and the use of dust suppression methods (water spraying during dry weather conditions) and implementation of specific mitigation measures within the Air Quality Monitoring Plan. Turkish Regulation on the Control of Excavated Soils, Construction and Demolition Wastes (Official Gazette Date/No: 18.03.2004/25406) will be followed which requires taking necessary measures to minimize dust emissions during excavations. A Construction Traffic Management Plan will be prepared and implemented which will decrease the impacts of the traffic load resulting from the construction activities. This, in turn, will lower the exhaust emissions from the truck movements. By implementing above plans, impacts will be insignificant.

The Air Quality Control and Monitoring Plan will include mitigation measures that will be taken to minimize emissions during operation. It will also include details of sampling locations, monitoring frequency, methods of sampling for each parameter, applicable regulatory limits and will require analysis of samples by accredited laboratories.

An IHC Traffic Management Plan will be prepared and implemented which will decrease the impacts of the traffic load resulting from the operation activities. This, in turn, will lower the exhaust emissions from the vehicle movements.

The residual impacts on air quality will not be significant during construction phase given that impacts from air emissions can be effectively mitigated through measures listed above. Based on the results of the dispersion modeling studies, the residual impacts are predicted to be minimal from emissions generated by the operation of the proposed Project, mainly due to operation of the trigeneration and boiler systems.

3.2.6 Noise and Vibration

Main noise sources during construction phase include the use of construction machinery and equipment during excavation works and main construction works and construction traffic related to the transportation of excavated soils and construction materials. Increased noise levels during construction activities have the potential to result in negative impacts to the background noise levels including health risks at nearest sensitive receptors. No piling or blasting which are important sources of vibration will be conducted at the Project site. For this reason, potential vibration impacts will be related to the truck movements and use of construction machinery at the Project site.

The transfer of construction materials to the site and excavated materials off-site for disposal may cause disturbance particularly to the residents at the south boundary of the Project area as a result of frequent truck movements, however it is not clear at this stage whether the trucks will use the

side road located at the south boundary or the north boundary during the transportation of excavated materials.

Main noise sources during operation phase include the operation of the trigeneration system and the increase in road traffic from the operation of the facility. In addition, there will be ambulance helicopter movements causing occasional noise.

In order to predict the impacts of the Project during construction and operation on the existing background noise conditions, baseline noise measurements at four locations and a sound propagation modeling study were conducted. The noise modeling study indicated that during construction, three of the locations where baseline noise measurements were conducted (at the nearest residential buildings and at school located north of the Project area), cumulative noise levels are either very close to existing background noise levels or the increase in existing background noise levels are not exceeded by more than 3 dBA which is the allowed limit defined in IFC General EHS Guidelines. However, at the last location (within Adana Riding Center), IFC limit values and maximum allowable increase (3 dBA) of the existing background noise level are exceeded due to construction activities during parts of the daily working hours. Necessary mitigation measures will be taken based on the noise monitoring to be conducted. These measures will be defined in the Noise and Vibration Control and Monitoring Plan to be prepared. During operation phase, cumulative noise levels do not result in changes in the existing background noise levels and the associated impact is considered as negligible.

With the implementation of mitigation measures such as use of low-noise equipment, limiting specific activities to day-time, installation of movable noise barriers where feasible and applicable, placing noise generating machinery/equipment during operation in buildings with isolated walls during construction and operation phases, noise impacts will not be significant.

3.2.7 Traffic Impact

A preliminary traffic assessment has been conducted by ADN PPP A.Ş. to identify the vehicle traffic load that will be generated from the operation of the IHC. It is estimated that 14,000 vehicles will visit the facility daily with the peak traffic (between 8:00-14:00) for transportation purposes. There will be an increased internal and external traffic in and out of the site during construction phase for a temporary period of six months for excavation and transport of earthworks.

The only vehicle entrance and exit will be directly from the Mithat Ozsan Boulevard. No information on the road network within the IHC Project area is presently available. There is no detailed information on the existing traffic load near the Project area and the internal site traffic plan. Furthermore, there is no information on how the medical staff, patients and other workers will potentially use the organized transport or private means to reach the IHC.

The AMM transportation planning has incorporated the presence and needs of the Project area and the revised version of the 1/5,000 scaled Saricam-Yuregir Zoning Plan. This includes the planned clover-leaf road junction project which will replace the existing road which links the E-90 to the Mithat Ozsan Boulevard through the road crossing the present land area of the Project; however, the timing for the completion of the clover-leaf road junction and the metro line expansion is currently unknown. AMM has also developed the "Rail Transport System" project based on a two-phase railway transport facility for the intensively used transport routes in order to solve the traffic

problem of the city and reduce the traffic load. Within this framework, "Adana Rail Transport System – Phase II" project is planned to be built and operated by AMM. The existing Adana metro line starts from the metro-car depot west of the existing Hospital for Mental Health and then heads to the west of the Kocavezir Commercial Center and the Hurriyet Police Station, crosses the Seyhan River and ultimately ends next to the Yuregir Bus Terminal. The scope of planned Adana Rail Transport System – Phase II Project extends the existing Adana Rail Transport System in the northeast direction towards Cukurova University, Balcali Hospital and the planned Stadium Area. The implementation of the Phase II line will ease the mass transportation in the direction to Cukurova University, Balcali Hospital, Fevzi Cakmak Student Hostel, Teknokent (Technological Center), Congress Center, TOKI State Hospital (Numune Hastanesi), Baskent Hospital, TOKI Houses and other destinations. The station of TOKI Houses will be the closest to the Project area. The station's location aims at providing service to the residents of TOKI Houses at a distance of 200 meters from the station.

The magnitude of the traffic impact from the construction and operation of the IHC cannot be quantified at this point but it is likely to be between medium to large it even after the start-up of Phase II metro line expansion project. It is also not clear presently how the travel for personnel entering and exiting the IHC will be undertaken between the metro line station and the IHC area.

The Project traffic load will also create additional air pollution from vehicles. Emissions include particulate emissions from diesel engines, NO_x, volatile organic compounds, carbon monoxide and various other hazardous air pollutants including benzene. The concentrations of air pollutants and adverse respiratory health effects will be greater near the roads than at some distance away from the road.

Road noise may become a nuisance on the population near the IHC, near intersections and on uphill sections. Unless properly designed and managed, the traffic entering the campus may create congestion within the campus area. This will increase the time to enter the premises and create undue noise and air pollution within the IHC.

Given the increase in the demand for transportation use and lack of database on the existing transportation conditions near the IHC, there is a need for a detailed traffic assessment study to be conducted. Currently, the study is being undertaken to assess the impacts of the increase in traffic from the IHC operation and expected to be completed by mid-September 2014, therefore the results are not known yet. The study will establish the existing conditions as well as predict the future transportation infrastructure capabilities and usage once the IHC becomes operational.

In addition to traffic study, IHC Traffic Management Plan will be developed and implemented within the campus that will take into account vehicular traffic, emergency conditions, pedestrian traffic entering, exiting and internal traffic in order to understand the potential adverse impacts created by the increased traffic during the construction and operation phases. The Traffic Management Plan will address the potential noise and air pollution loads that may be generated from the traffic loads.

3.2.8 Ecology

Terrestrial Flora

The Project site is located within the city and a significant portion of the site is covered by plantation species. All of the tree species identified at the site are plantation trees and the rest of the species are cosmopolitan and widespread flora species that do not carry natural characteristics but are of an

artificial structure that have been created at the site. Despite the fact that the site has no natural character, a total of 131 flora taxa that belong to 46 families were identified. Among 131 plant taxa identified at the site, there are no rare and/or endemic species attributable to the fact that there is no natural habitat within the site.

There will be habitat loss with the development of the Project, however based on the results of studies which indicated that the site has no significance in terms of its flora and vegetation characteristics, no significant impacts will occur. Moreover, the majority of the Project site is vacant with some part currently being used by DSI as a commercial area. The site is also fenced, there are no uses (such as commercial, recreational) by the community inside the Project site and the site does not provide basic ecosystem services related to water catchments, erosion control or provision of critical barriers to destructive fire. Therefore, there will be no impacts related with the use of the Project site.

There will be a need to fell down approximately 300 trees which is not considered as a significant impact considering that the trees at the site are plantation trees and there will be plantation in the future within the health campus area. Necessary correspondence will be made with the relevant forestry directorate, an inventory of the trees should be prepared and the approval of the forestry directorate should be obtained prior to felling down the trees. Communicating with the relevant forestry directorate and obtaining the approval for felling trees is under the responsibility of MoH. The most appropriate species to be used for landscaping purposes are those that have already been brought to the site for plantation. As a result, the proposed Project is not expected to cause any adverse impacts on flora and vegetation of any degree of significance.

Terrestrial Fauna

An artificial pond created under the responsibility of the DSI inside the Project site was present during the ESIA study. The pond had been formed by extracting water from the nearby DSI irrigation channel and also was discharging water back into the same channel. However, the water of the pond was recently drained by DSI and presently there is no such ecological character inside the Project site.

None of the fauna species identified within the Project site are endemic or threatened species. It was found that most of the animal species depend mainly on the previously existing man-made pond. Although the removal of the artificial pond may have affected the species living there, water dependent species can continue their existence in neighboring aquatic environments due to the fact that the water body at the artificial pond was part of the water system coming from the DSI irrigation channel which is connected to the Seyhan River and faunal species identified are considered to use the Seyhan river system. The removal of the artificial pond would not have a destructive effect to the ecosystem because of its unnatural pattern, its small size and existence of many other larger water bodies in the vicinity.

Birds

Halcyon smyrnensis (White-breasted Kingfisher) was observed at the Project site during the ecological field survey by the flora and fauna experts. The Project site is an eucalyptus grove with some open fields and eucalyptus is considered as an exotic species in Turkey. Due to the common nature of the species, very generalist habitat requirements (agricultural lands) and the exotic nature

of the Project site, and isolation of the Project site by wide roads, no conservation action for White-breasted Kingfisher is required.

In terms of the migratory birds, Adana lies on the migratory routes of birds, particularly the birds of prey, storks and pelicans. The Project site as well as Seyhan Dam Lake is not on or near the main resting or staging areas for migratory birds.

Migratory birds of prey regularly migrate between 200-500 m, but up to 2,000 m above sea level. Therefore, the development of the Project site is not expected to have any effect on the flying migratory soaring birds, such as eagles, hawks and storks. The development of the Project site, construction of a large building and changing the vegetation within the Project site, has no relevant impact on the migratory birds.

Legally Protected Sites

The nearest protected site to the Project area is Seyhan Dam Lake Wildlife Development Area (obtained from GIS Database of MFWW) located approximately at a distance of 500 m to the north of the Project area. The target with the declaration of this protected area is to conserve the population of water birds, particularly wintering water birds.

In addition to the Seyhan Dam Lake Wildlife Development Area, there is a small wooded area and degraded small wooded area located at a distance of 140 m to the north of the Project site. No impacts on the Seyhan Dam Lake Wildlife Development Area and the wooded areas are foreseen as a result of the Project activities due to the fact that there will be no direct contact with these areas.

Key Biodiversity Areas, Important Bird Areas and Important Plant Areas

Key Biodiversity Areas (KBAs) have been identified in Turkey, but there are no regulatory provisions for the identified KBAs except for those that have a legal protected status. In addition to the KBAs, Important Bird Areas (IBAs) and Important Plant Areas (IPAs) were also identified by Nature Society and WWF Turkey, respectively. Due to the far distance of KBAs, IBAs and IPAs to the Project area, no impacts will occur on these areas as a result of Project activities.

3.2.9 Socio-Economy

Construction and operation of the Project will result in direct, indirect and induced employment. The maximum anticipated direct employment during the construction phase of the Project is 1,800 people. Employment of the workers over the 36 month construction and commissioning period will provide a positive employment impact through creating approximately 5,400 person years of employment.

It is the intention that the large majority of the workforce will be sourced locally and the provision of temporary employment will provide a significant benefit to the economy.

ADN PPP A.Ş. intends to employ as many construction workers who are based in Adana (and thus have their individual accommodation in the city) as is realistically possible. However, there will be on-site worker accommodations. Appropriate pre-fabricated facilities will be provided to those employees who need onsite accommodation. A Construction Camp Management Plan will be

prepared and implemented. Therefore no risks associated with incoming workers such as introduction of diseases or anti-social behavior affecting local communities are foreseen.

Due to the fact that the workforce during the construction and operation phases will be supplied locally as much as possible, the scale of permanent employment is not expected to result in any significant long term changes in residential or working population in the immediate Project area. No impacts on the size or composition of the population (in Yuregir District) are expected.

The Project will have a substantial developmental impact as being the largest Public Private Partnership project in Adana province and surrounding provinces to date. In particular, the Project is anticipated to fill a substantial need in the Adana province and surrounding areas for an updated and consolidated public healthcare facility to serve the lower-medium income public existing hospitals in the region which are outdated and are poorly maintained. Some hospitals are overly-crowded or forces Turkish citizens make multiple visits to different facilities within and outside of the province. The Project will eliminate these problems by providing Adana province with better infrastructure and cost-effective, efficient health service delivery.

There will be employment opportunities during the operation of the hospital. The workforce requirement during the operation phase is anticipated to be approximately 4,500 in total, with 2,500 health service personnel to be employed by MoH and 2,000 service employees to be employed by ADN PPP A.Ş.

Indirect employment will be created in businesses providing goods and services to the project, and induced employment by the expenditure of direct and indirect employees' earnings in the economy resulting in both construction and operation phases. *Business-to-business* activities include the supplies and equipment purchased by the hospital, administrative services, cleaning and property maintenance services, and clinical and laboratory services that support hospital operations (outside of hospital industry) represent indirect benefits.

The Project will seek to maximize the benefits from the Project to local communities in terms of direct and indirect employment, and purchasing of local goods and services during construction. This will include measures such as adopting local employment and purchasing policies, establishing tenders for procurement of subcontracted goods and services at a scale that local businesses can respond to, ensuring opportunities are advertised locally, and providing career training for local people to allow them to obtain jobs with the Project as much as possible.

Socio-economic benefits are expected to accrue from the operation of Adana IHC despite the potential closure of some of the existing healthcare facilities which are not known at this point. Overall the health sector is envisioned to increase with increasing healthcare needs which will result in direct and indirect benefits to the economy of Adana province.

There will be an increase in vehicle traffic with the development of the Project. Vehicle traffic will increase due to the expected large daily visitor volume. Transportation impacts will be minimized as far as possible with the establishment of an IHC Traffic Management Plan which will be prepared based on the results of the traffic assessment study that is currently being undertaken.

In summary, there will be a positive residual impact during construction and operation phases of the project as a result of local employment opportunities. The local economy will also be positively affected by Adana IHC. With the implementation of mitigation measures mentioned above and in

other relevant chapters of the ESIA report -with the exception of road traffic impact which is still being investigated, no negative residual impact on socioeconomic conditions is estimated.

3.2.10 Community Health and Safety

The risks and impacts of the Project, in the context of health and safety of off-site communities, will be managed through a Community Health and Safety Management Plan to be developed and implemented by ADN PPP A.Ş. This plan will include measures to address the identified risks and ensure the disclosure of relevant Project-related information in order to enable the affected communities to understand the risks and impacts. Community health and safety related issues are explained below:

Dust and Noise

There will be dust and noise generation during construction activities (including earthworks, operation of equipment, vehicle movements, construction of buildings). Impacts related to air and noise emissions are explained in above sections which will be temporary during the construction phase and can be mitigated through good construction site practices and mitigation measures as mentioned in Section 3.2.5 and Section 3.2.6.

During operation phase, the main air emissions will be from the trigeneration and boiler systems and the fugitive emissions as explained in Section 3.2.5. Relevant impacts and mitigation measures are also provided in Section 3.2.5. In addition to these, there will be also impacts related to increase in air and noise emissions from road traffic during the operation of the health campus which is expected to be minimized through implementation of an IHC Traffic Management Plan.

Community Health and Exposure to Disease

Community health issues with respect to large hospital constructions are common to those of most industrial facilities, which may include communicable diseases associated with the influx of temporary (construction) and permanent labor. ADN PPP A.Ş. intends to recruit workforce locally to the greatest extent possible and provide appropriate onsite pre-fabricated facilities to those employees who need accommodation. A Construction Camp Management Plan will be developed and implemented by ADN PPP A.Ş. Therefore, risks associated with influx of workforce, such as introduction of diseases or anti-social behavior affecting local communities are not anticipated.

During operation, health-care wastes may pose a risk of infectious diseases (such as hepatitis, e-coli infection, tuberculosis and MRSA) from biological wastes; injury and infection risk from wastes containing nuclear material and improperly disposed of sharp instruments; and improper waste recycling risk leading to cross infection and illegal use of hypodermic needles as well exposure to the public in accessible locations. The above potential risks will be minimized with a implementation of the Waste Management Plan, Health Care Waste Management System and Hazardous Material Management Plan following all the applicable regulatory requirements related to waste management during the construction and operation phases.

Road Traffic

The transport of excavated soil and construction materials during the construction of the Project will result in an increase in road traffic which may pose risks to the community related to accidents, road

safety and congestions that may occur near the Project area. However, these risks will be temporary for the duration of the construction phase.

The traffic increase during the operation of the IHC will be more important due to the expected large daily visitor volume and increased congestion in the existing traffic conditions near IHC site. These can be mitigated through an IHC Traffic Management Plan that will take into account vehicular traffic, emergency conditions, pedestrian traffic entering, exiting and internal traffic. Implementation of the IHC Traffic Management Plan will help to minimize the risks to the community.

Life and Fire Safety

Fire safety risks may occur during the construction phase of the Project which may affect particularly the construction workers and the nearby residents depending on the area that the fire is spread. Fire safety risks will be managed through implementation of several mitigation measures explained in relevant chapters of the ESIA Report and specifically preparation and implementation of an Emergency Preparedness and Response Plan during the construction phase. As a result, significant impacts are not expected related to fire.

Related to the operation phase, health facility operations are exposed to life and fire safety risks, as they are accessible to the public. These risks may arise due to the storage, handling and presence of chemicals, pressurized gases and other flammable substances. As explained in Section 2.4.5, the IHC is being designed in accordance with national regulations and international standards. Considering that the compliance with national legislation for fire safety and also international standards are already integrated into the design of the IHC and other mitigation measures will be implemented, impacts from fire are expected to be negligible to the surrounding communities and negligible to minor significance to the patients, health care personnel and visitors.

Infrastructure Safety

The risk of structural failure will increase in the event of natural hazards such as earthquakes and floods, which may potentially occur in the Project area. Earthquake and flooding risks are discussed in Section 3.2.2 and Section 3.2.3.

The Project area lies within a 2nd degree seismic zone and in the event of earthquakes during construction and operation, significant impacts on the community and workers' health and safety may arise following accidents, spills, fire, etc. related to the seismic incident. The structural elements and components of the Project will be designed and built according to national regulations and international best practice. ADN PPP A.Ş. has taken into account the Turkish regulatory requirements related to seismic design and risk assessment, and will comply with the Regulation on Buildings to be constructed in Earthquake Zones during all construction works within the Project area.

Risks related to the flooding from the nearby surface water bodies is deemed to be low. Based on official response obtained from DSI, the integrity of the Seyhan Dam is being monitored since it became operational and adverse conditions were not detected to date. Dam failure risk is deemed to be low based on the DSI declaration.

Security Requirements

Security arrangements to be performed during the construction phase have not been established yet. However, ADN PPP A.Ş. will perform security arrangements in accordance Turkish regulatory requirements. Related to operation phase, security measures are summarized in Section 2.7.4.

3.2.11 Labor and Working Conditions

Human Resources Policy and Working Conditions

ADN PPP A.Ş. will comply with all relevant national employment and labor laws and international standards including International Labor Organization (ILO) conventions to which Turkey is a signatory (on child labor, forced labor, non-discrimination and freedom of association and collective bargaining). IFC PS2 and EBRD PR2 are in part guided by a number of ILO Conventions, and PS2 as well as PR2 require complying with four core labor standards of ILO. These fundamental conventions are ratified by Turkey.

It is important to note that there will be a joint management system between MoH and ADN PPP A.Ş. during the operation of the IHC. MoH will be responsible for providing doctors and the support health personnel, and the general management of the hospital will be undertaken by the administrative staff provided by the MoH. Staff other than the doctors and support health personnel will be provided by ADN PPP A.Ş. ADN PPP A.Ş. will be responsible for the management of services classified as obligatory services and optional services as described in Section 2.7.1.

ADN PPP A.Ş. will fulfill the requirements of IFC PS2 and EBRD PR2 by adopting and implementing an HR policy appropriate to its size and workforce during the construction and operation phases of the Project. ADN PPP A.Ş. will have written contracts with all employees complying with the requirements of the Turkish Labor Law and will ensure to communicate to all employees/workers the working conditions, duration, wages and similar.

ADN PPP A.Ş. will be responsible for the labor and working conditions for their own construction workers during the construction phase and personnel providing support services during the operation phase. During construction, ADN PPP A.Ş. will manage workers' accommodation and provide basic services to workers in line with the provisions of IFC PS2 and EBRD PR2 and also follow the guidance note on worker's accommodation published by IFC and EBRD (Worker's Accommodation: Processes and Standards). During the construction phase, ADN PPP A.Ş. will provide appropriate facilities to those employees who will need onsite accommodation. A Construction Camp Management Plan will be developed by ADN PPP A.Ş. Workers' accommodation arrangements will not restrict workers' freedom of movement or of association. Accommodations will meet national legislation and international good practice.

Health and Safety

Occupational health and safety considerations during the construction of the IHC are common to those of most civil construction facilities. The construction activities will pose certain health and safety risks for the employees involved. These risks will include physical hazards (i.e. use of machinery and vehicles, working with moving machinery and vehicles, working at heights), chemical hazards (i.e. direct contact with fuels or chemicals, contaminated soil), dust emissions with excavation and noise emissions (vehicular traffic and machinery operation). The health and safety

hazards during the IHC operation may affect healthcare providers, cleaning and maintenance personnel and workers involved in waste management handling, treatment and disposal. Healthcare facility specific hazards have been highlighted to include: exposure to infections and diseases, exposure to hazardous materials/ waste, exposure to radiation and fire safety.

ADN PPP A.Ş will develop an ESMS covering OHSAS 18001:2007 requirements for the management of health and safety issues as part of IFC PS2 and EBRD PR2 requirements to provide a safe and healthy work environment for workers, taking into account inherent risks and hazards specific to the work. The management system will ensure that all applicable health and safety legislation is met during the construction and operation phases. Within the scope of the ESMS, an Occupational Health and Safety Management Plan will be prepared and implemented in both phases of the Project which will ensure identification of intrinsic risks associated with the activities, regular training of the workers, provision of appropriate personal protective equipment and presence of emergency response plans.

Of specific to operation phase, an Exposure Control Plan will be formulated for infection risks against blood-borne pathogens and staff members will be informed on infection control policies. Risks from hazardous material and hazardous wastes will be minimized by following the Hazardous Material Management Plan, Waste Management Plan and Health Care Waste Management System.

The implementation of the ESMS and the above mentioned plans will minimize impacts to the extent possible and ensure safe working conditions for the workers/employees/patients.

Subcontractors will also be required to follow the requirements of IFC PS2 and EBRD PR2. Contracts to be signed with subcontractors will include EHS requirements. A Subcontractor Management and Monitoring Plan will be prepared and implemented.

4.0 PROJECT ENVIRONMENTAL AND SOCIAL MANAGEMENT SYSTEM

The environmental, health, safety and social impacts will be managed during construction and operation phases of the Project in accordance with applicable legislation in Turkey and the IFC/EBRD Requirements.

ADN PPP A.Ş. will establish an integrated management system (*referred to here as the Environmental and Social Management System - ESMS*) for the construction and operation phases of the Project as it will be the main construction work contractor and the product and service provider of the Adana IHC. The ESMS will enable to (i) manage the above mentioned risks and impacts, (ii) implement, monitor and review identified mitigation measures, (iii) provide continuous control of the processes and (iv) improve environmental and social performance. The ESMS will be established in line with ISO 9001:2008, ISO 14001:2004, OHSAS 18001:2007, IFC PS1 and EBRD PR1.

The ESMS will be established and implemented separately for the construction and operation phases. The ESMS will be established in line with the following international good practice and guidelines:

- ISO 9001:2008 - Quality Management System;
- ISO 14001:2004 - Environmental Management System;
- OHSAS 18001:2007 - Occupational Health and Safety Management System;
- IFC PS1 - Assessment and Management of Environmental and Social Risks;
- EBRD PR1 - Environmental and Social Appraisal and Management.

ESMS will integrate planning, implementation, control and review of the processes in terms of environmental and social impacts. In addition to ESMS, a Health Care Waste Management System will be established and implemented as per IFC requirements.

The overall responsibility for the establishment, implementation, maintenance and effectiveness of ESMS will lie with the Project Board of ADN PPP A.Ş. For this purpose, necessary human and financial resources and technical infrastructure will be provided by the Project Board for all phases of the Project. Due to the fact that there will be a shared management during operation, it is expected that there should be cooperation between MoH and ADN PPP A.Ş. for some specific areas during the development and implementation of the operation phase ESMS which are not clear at this stage. It is expected that necessary discussions and engagement will be made with MoH by ADN PPP A.Ş. prior to the start of developing the operation phase ESMS in order to clarify these issues.

4.1 Environmental and Social Management Plan (ESMP)

An ESMP has been developed for the Project (covering construction and operation phases) in order to manage the adverse impacts on the environment. The ESMP includes description of the mitigation measures to avoid, minimize or compensate the adverse impacts during the construction and operation phases of the project; responsible parties for the implementation of the mitigation measures; the timing of implementation; 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 possible impacts to acceptable levels.

The ESMP is based on the results of the ESIA study and is a framework document that specifies the necessary work to be conducted for the Project such as preparation of detailed management plans for each topic (e.g. air quality control and monitoring, noise control and monitoring, traffic

management). The ESMP will be kept up to date with any required additional mitigation throughout the Project and to reflect the requirements of new and/or amended laws and regulations.

A Waste Management Plan has also been established as part of the ESIA. Waste Management Plan will be updated based on the final design and site layout plan. In addition to the updated Waste Management Plan, the following plans are described in the ESMP and will be developed to achieve EHSS objectives for the construction and operation phases:

For construction phase:

- Air Quality Control and Monitoring Plan
- Noise and Vibration Control and Monitoring Plan
- Hazardous Material Management Plan
- Emergency Preparedness and Response Plan
- Soil Sampling Plan
- Construction Camp Management Plan
- Construction Traffic Management Plan
- Human Resources Management Plan
- Occupational Health and Safety Management Plan
- Community Health and Safety Management Plan
- Security Plan
- Archaeological Chance Find Management Plan
- Subcontractor Management and Monitoring Plan

For operation phase:

- Air Quality Control and Monitoring Plan
- Hazardous Material Management Plan
- Emergency Preparedness and Response Plan
- IHC Traffic Management Plan
- Community Health and Safety Management Plan
- Occupational Health and Safety Management Plan
- Exposure Control Plan for blood-borne pathogens
- Radiation Exposure Control Plan
- Radioactive Substance Management Plan
- Life and Fire Safety Master Plan
- Security Plan
- Subcontractor Management and Monitoring Plan

These plans will be supported with operational procedures and related instructions as necessary as part of the ESMS. The ESMS procedures and plans will be periodically (or when necessary) reviewed and revised. Additional procedures and plans will be developed as the Project progresses, as necessary.

4.2 Grievance Process

A Grievance Management Procedure will be established in order to ensure that all comments, suggestions and objections received from the Project stakeholders especially from nearby surrounding communities and facilities are dealt with appropriately and in a timely manner. It is

important to note that there will also be a separate grievance management procedure for workers/employees during construction and operation phases and for patients during the operation phase.

Local communities will be informed about the grievance management system during the consultation and disclosure activities. All grievances will be recorded, responded and resolved in a defined timeframe. Comments and grievances can be sent to ADN PPP A.Ş. via mail, e-mail, and fax during the construction and operation stages as well as through the Project website and telephone.

The procedure to handle grievances include consideration of all grievances submitted by the stakeholders in verbal and written, logging all the grievances, evaluation of the grievances in a timely manner, and informing the complainant about the corrective actions to be taken to manage the grievance. Any grievance related to subcontractors' activities will also be managed in line with the same grievance mechanism. In addition to grievances, comments will also be reviewed once a week to identify if they require a response and reflected to a comment log.

ADN PPP A.Ş. will be responsible for managing the stakeholder engagement process and handling with comments and grievances.