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EXECUTIVE SUMMARY

INTRODUCTION

This executive summary presents an overview of the findings of the Environmental Impact Assessment (EIA) Report for Establishment of Al Shifa Trust Eye Hospital Lahore, at M.A. Jinnah Road, Adjacent Khayaban-e-Amin Interchange Roundabout Tehsil Raiwind & District Lahore. To fulfill the statutory requirements, Environmental Impact Assessment of the proposed project has been conducted in accordance with the Punjab Environmental Protection Act (Amended), 2012 and IEE/EIA Regulations 2022. The process of conducting environmental assessment and the results of EIA is described in this document.

SALIENT FEATURES OF PROJECT

Project Title	Al Shifa Trust Eye Hospital Lahore
Name of Proponent	Muhammad Ashraf Khalid S/O Muhammad Sadiq
Address of Proponent	House No: 9, Sector-B, Sir Syed Boulevard, DHA, Phase-II, Islamabad.
CNIC Number	37405-8969549-1
Project Location	M.A. Jinnah Road, Adjacent Khayaban-e-Amin Interchange Roundabout Tehsil Raiwind & District Lahore. **Co-ordinates:** 31°22'07.2"N 74°15'42.6"E **North:** Road **South:** Residential area **East:** Residential Area **West:** Open land
Consultant Name	EnvironTech Consultants (Pvt) limited
Nature of the Area	Commercial
Project Cost	Approx. 8.5 Billion PKR
Area of the Project	Total Plot Area: 67.48 Kanal Covered Area: 352996 SFT
Archaeological/Historically Important Site	None within the 4 km radius

Surface Water Body	No surface water body in the form of river or canal is present near the project site
Forest Area/National Park	None
Seismicity	2A-Medium Intensity Level
Source of Water	Ground Water
Water Requirements	During construction works water shall be used for concrete preparation, watering the construction sites, as well as for ensuring proper conditions for workers. Taking into account that construction activities will be implemented on one working site. In total water consumption for construction phase will be 4.25m^3/day. Water used for concrete preparation and watering the construction site is considered as non-return water. Water required for drinking and domestic purpose would be 1.2 m^3/day.
Wastewater	No process wastewater will be generated as it is a hospital. However, various activities like washing and cleaning of floors and domestic use will result in effluent discharge. This domestic wastewater may contain medicines and their residues, disinfectants, biological fluids, detergents, chemicals from cleaning or sterilization, etc. Wastewater originated as a result of consumption for domestic use is estimated at 1 m^3/day. The wastewater generated will be treated in a septic tank with MBBR technology induced for secondary treatment. After treatment it will be discharged in the Municipal sewer line.
Air Emissions	Air emissions from generator are expected. Low sulphur fuel will be used in generators to reduce gaseous emissions.
Source of Power	WAPDA (LESCO)

Solid Waste	During the construction and operation phases, solid waste will be transported to the city's waste dumping site through solid waste bunkers while hazardous waste will be handed over to an EPA-Punjab certified incineration facility for safe disposal.

MAJOR IMPACTS AND RECOMMENDED MITIGATION MEASURES

Assessment of the Impacts during Construction

While the project's construction poses certain environmental risks, these are short term, and/or easily reversed. The major effects expected during the construction phase include: dust, air and noise pollution as well as minimal levels soil pollution caused by spillage from construction machinery; surface/ground water contamination. There is also expected to be an increase in the congestion of vehicular traffic and solid waste, however these negative impacts are short term. Positive impacts highlighted include the social benefits of migrant worker influx and the micro-economic development this will induce in the local area.

Mitigation Measures

- All loose material to be kept on site for the shortest possible time and provided with suitable covering.
- Ambient air quality within the premises of the proposed project site to be monitored.
- Implement good working practices to minimize noise and also reduce its impacts on human health (ear muffs, safe distances, enclosures).
- No machinery to be running when not required.
- Acoustic mufflers/enclosures to be provided.
- All solid waste to be appropriately disposed of in drums or specified containers.
- No untreated discharge to be leaked to surface water, groundwater or soil.
- Care taken in disposing wastewater generated such that soil and groundwater resources are protected.
- Ensure drainage system and specific design measures are working effectively for effluent management.

- Implement waste management plan that identifies and characterizes every waste product associated with proposed activities and that identifies the procedures for collection, handling and disposal of each type of waste.

Assessment of the Impacts during Operation

During operational phase, sources of air pollution are emissions from generators and vehicles, while ambient noise levels are threatened by the operation of the generators. There is no foreseen effect on ground water, and with an effective mitigation program. Several positive impacts can be identified as a result of establishment of the proposed project; employment opportunities, increased supply chain demand and satisfying customer needs are in the scope of the development activities.

Mitigation Measure

- Stack emissions from generator shall be optimally monitored
- Noise generated from operation of generator shall be optimized and monitored.
- Generator will be provided with acoustic enclosures.
- Waste receptacles or waste transport containers will be placed in the respective places such that disturbance creating by any means would be avoided.
- No untreated discharge shall be leaked to surface water, groundwater or soil.
- Care shall be taken in disposing wastewater generated, such that soil and groundwater resources are protected.
- The wastewater generated during floor cleaning and domestic activities shall be discharged into main sewer line after being treated in septic tank.
- Fire protection and safety measures shall be adopted to take care of fire and exposure hazards, to be assessed and steps will be taken for their prevention.

PROPOSED MONITORING

During construction phase ambient air quality for dust level in particular, vehicle and equipment exhaust, noise level (tests), solid waste management and soil contamination, and community and workers' safety (visual) need to be monitored. During operational phase wastewater management, solid waste management, housekeeping, parking management and monitoring of fire-fighting gadgets is required.

CONCLUSION

The Environmental Impact Assessment contains description of the project, description of the environmental baseline, potential environmental impacts and suggested

mitigation measures. An implementation mechanism for mitigation measures in the form of an Environmental Management Plan for both construction and operation phase has also been included in this study.

Appropriate mitigation measures as explained in the environmental study shall reduce, if not eliminate, these impacts so that these can be within acceptable limits. It is further concluded that all potential environmental concerns associated with the project have been adequately addressed, and no further study is required in this context.

1. INTRODUCTION

1.1 PURPOSE OF REPORT

The main objectives of this EIA study are:

- To determine and document the state of the environment of the project area to establish a baseline in order to assess the suitability of the proposed project in that area.
- To identify preconstruction, construction and operational activities and to assess their impacts on environment.
- Provide assistance to the proponent for planning, designing and implementing the project in a way that would eliminate or minimize the negative impact on the biophysical and socio-economic environment and maximizing the benefits to all parties in cost effective manner.
- To present Mitigation and Monitoring Plan to smoothly implement the suggested mitigation measures and supervise their efficiency and effectiveness.
- To provide an opportunity to the public for understanding the project and its impacts on the community and their environment in the context of sustainable development.
- Prepare an EIA Report for submittal to the Environmental Protection Agency, Punjab for according Environmental Approval.

1.2 PROJECT BACKGROUND:

Al Shifa Trust Eye Hospital Lahore is conceived as a state of art specialty eye care hospital. Al Shifa trust operates 5 specialty eye care hospitals in different cities of Pakistan. Trust intends to design and construct this hospital as their model facility adhering to highest standards of clinical care and an architectural design marvel. The current project is designed as an advanced specialty eyecare facility to cater the needs of the local population. The project includes both Outpatient and Inpatient services including urgent care services.

1.3 IDENTIFICATION OF PROJECT & PROPONENT

1.3.1 Identification of Project

The proposed project is the “Al Shifa Trust Eye Hospital Lahore” at M.A. Jinnah Road, Adjacent Khayaban-e-Amin Interchange Roundabout Tehsil Raiwind & District Lahore. In the first phase, between 325,000 and 350,000 sq. ft. out of the total allowed area will be built, creating a facility with 152 overnight beds, 72 day beds and 70 outpatient consultation rooms. Together these facilities constitute components of a

wider single-specialty eyecare hospital, which should include all other required facilities under international standards (operating theaters, diagnostic facilities, support facilities such as CSSD, laundry, catering, etc. – among all other required facilities). Additionally, 1 general medical OPD cluster is planned.

1.3.2 Proponent

Name: Muhammad Ashraf Khalid S/O Muhammad Sadiq

Address: House No: 9, Sector-B, Sir Syed Boulevard, DHA, Phase-II, Islamabad.

1.4 DETAILS OF CONSULTANT

The proponent of Al Shifa Trust Eye Hospital Lahore has engaged EnvironTech Consultants to carry out the **EIA** Study for the installation and operation of aforesaid project in accordance with Punjab-EPA guidelines. For this purpose, the company engaged the group of professionals which comprises of environmental specialists and social scientists. The details of the consultant are given below:

Consultant Details	
Consultant	EnvironTech Consultants
Address	Office #11 (2nd floor) Centre point Plaza, Main Boulevard Lahore.
Contact No.	0303-4342302
Focal Person	
Name	Kamal Ahmed Cheema

To prepare EIA Report of the respective project the company engaged the following experts. The details of the experts are given in Appendices-E:

1.5 PROJECT NATURE, SIZE AND LOCATION

Project Nature: The proposed project is the construction of hospital. Hospital is designed to provide quality eyecare in a safe, comfortable and welcoming environment, for the patients and staff.

Project Size: The total area of proposed project is 67.48 Kanal with the total capacity of 152 overnight beds, 72 day beds and 70 outpatient consultation rooms.

Location: The proposed project is at M.A. Jinnah Road, Adjacent Khayaban-e-Amin Interchange Roundabout Tehsil Raiwind & District Lahore with the co-ordinates 31°22'07.2"N 74°15'42.6"E.

2 SCREENING

According to the Section 12 of Punjab Environmental Protection Act, 1997 (amended

2012) which states;

"No proponent of a project shall commence construction or operation unless he has filed With the Government Agency designated by Federal Environmental Protection Agency or Provincial Environmental Protection Agencies, as the case may be or where the project is likely to cause an adverse environmental effect an Environmental Impact Assessment (IEE) and has obtained from the Government Agency approval in respect thereof."

As per Punjab Environmental Protection Act 1997 (amended 2012) and Initial Environmental

Examination (IEE) & Environmental Impact Assessment (EIA) Regulations, 2022 project falls under Category H (3) ***"Hospitals having more than 50 beds"*** mentioned in Schedule-II. Thus, requires an EIA Report is being prepared for duly submission in EPA, Punjab.

2.1 EIA process

2.1.1 Overview of EIA

EIA is a systematic process to identify, predict and evaluate the environmental impacts of proposed actions and projects. The process is applied prior to major decisions and commitments being made. Wherever appropriate, social, cultural and health effects are considered as an integral part of EIA. Particular attention is given to practical implementation of EIA to prevent and mitigate significant adverse effects of proposed undertakings.

2.1.2 Objectives of EIA

The overall objective of the EIA is as follows:

- Description of the project, including an estimate of emissions, effluent and waste and consideration of the project alternatives;
- Identify and investigate all impacts of the project on the physical, biological, and socio- economic environment;
- Evaluation of the baseline environmental conditions in the impact zone to provide a basis for assessing the incremental impacts of the project, including existing pollution levels and nuisance conditions;
- Identification and assessment of the potential impacts on the environment during each of the project phases;
- To propose mitigation measures that would help the Project Proponent in conducting the operation in an environmentally sustainable manner; and
- To develop an Environmental Management Plan that would assist the Project Proponent in the effective implementation of the recommendations of the EIA.

3 SCOPING

Project land is owned by project proponent. Impacts have been assessed for the immediate and direct area of influence of the project defined as:

- Immediate Area of Influence: Within the project site boundary.
- Direct Area of Influence: Within 5 Km from the proposed project site boundary.

Effects on socioeconomic receptors and resources have been assessed for the construction and operational phases of the project. The project activities are predicted to last for a period of 3-4 months within which the potential impacts have been assessed. The operational impacts have been assessed for the entire lifespan of the facility. The impacts related to the decommissioning of the project will be assessed at the time of decommissioning which will involve carrying out site assessment study at the project location.

Project location is given in below figure:

3.1 Scope of EIA

This consolidated EIA report covers the examination of physical, biological, environmental and socioeconomic impacts of the project

The spatial and temporal scope of the project is described below:

3.1.1 Spatial scope

Impacts have been assessed for the immediate and direct area of influence of the project defined as:

- Immediate Area of Influence: Within the project site boundary.
- Direct Area of Influence: Within 5 Km from the project site boundary.

3.1.2 Temporal scope

Effects on socioeconomic receptors and resources have been assessed for the construction and operational phases of the project. The project activities are predicted to last for a period of 3-4 months within which the potential impacts have been assessed. The operational impacts have been assessed for the entire lifespan of the facility. The impacts related to the decommissioning of the project will be assessed at the time of decommissioning which will involve carrying out site assessment study at the project location.

3.1.3 EIA methodology

The EIA project passes through series of stages prior to attaining approval from relevant environmental protection agency. The EIA process and the approach followed for the project is defined below:

3.1.4 Scoping

Scoping is an early stage in the process and is designed to ensure that the environmental studies provide all the relevant information on:

- The impacts of the project, in particular focusing on the most important impacts;
- The alternatives to the project;
- Other environmental sensitivities to be addressed at early stage.

The EIA process started with the scoping study. The purpose of scoping was to identify:

- Important issues to be considered in an EIA;
- Appropriate time and space boundaries of the EIA study;
- Information necessary for decision-making;
- Significant effects and factors to be studied in detail.

The scoping was followed by data collection describes in subsequent section.

3.1.5 Data collection

Following literature reviews and data collection was carried out for EIA:

- A generic description of the project and its related activities was collected from the proponent.
- Legislative review of the applicable laws, regulations, guidelines and standards from literature search.
- Baseline of the area's environmental and socio-economic settings was collected through literature search and field surveys.

3.1.6 Baseline

The environmental impact is measured through a change in the environment, resulting from a designated action or activity. In order to identify such a change, it is essential to have as complete as practicable understanding of the nature of the existing environment, prior to its interaction with the activity. This translates into the need to characterize the existing baseline environmental conditions, including establishing prevailing conditions for a range of environmental media, particularly air, water, soil and groundwater, flora and fauna and the human environment.

This was achieved through a detailed review of all secondary resources (i.e. existing documentation and literature); and the undertaking of project specific baseline studies and surveys to collect supplementary data in the following areas:

- Geology;
- Flora and fauna;
- Water quality characteristics;
- Traffic;
- Ambient air quality;
- Noise conditions;
- Socio-economic conditions;
- Archaeology.

Both the existing secondary sources and literature studies were conducted and integrated into one coherent description of baseline characteristics.

3.1.7 Evaluation of alternatives

To establish an environmentally sound preferred option for achieving the objectives of the project, different alternatives including site selection, raw material and technology alternatives were studied in collaboration with the project proponent. Technology selection was made taking in to consideration environmentally, economically and socially suitable as well as technically feasible options.

3.1.8 Stakeholder consultation

Stakeholder consultation was carried out for the project with primary and secondary stakeholders of the project. Following steps were involved to attain stakeholder consent:

- Providing information on the project activities;
- Identifying the stakeholders concerns, expectations and apprehensions about the project;
- Summarizing the process outcome.

3.1.9 Impact assessment and mitigation

The information collected in the previous phases was used to assess the potential environmental impacts of the project activities. The impact assessment approach is provided in Table 3. Impacts of project activities on environment. The issues studied during impact assessment include potential impacts on:

- Physical environment of the area
- Biological environment of the area
- Socio-economic environment of the area

Impact Characteristics	Categorise
Nature of the Impact	**Direct:** The environmental parameter is directly changed by the project. **Indirect:** the environmental parameter changes as a result of change in another parameter.
Duration of the impact	**Short term:** Lasting only till the duration of the project such as noise from the construction activities. **Medium term**: Lasting for a period of few months to a year after the project before naturally reverting to the original condition. **Long term:** Lasting for a period much greater than medium term impacts before naturally reverting to the original condition.
Geographical Location of the impact	**Local:** Within the area of project i.e. operation site and access road. Regional: Within the boundaries of the project area. **National:** Within the boundaries of the country. **Global:** Trans-boundary impacts
Timing	Construction Operation
Likelihood of the impact	**High:** High likelihood of occurrence during lifetime of operation, Regular/continuous part of operations. **Moderate:** Moderate possibility of occurrence during lifetime of operation, Periodic/occasional part of operations. **Low:** Unlikely to occur during lifetime of operation.
Impact Characteristics	Categorise
Reversibility of the impact	**Reversible:** When a receptor resumes its pre-project condition. **Irreversible**: When a receptor does not or cannot resume its pre-project condition.
Significance of the impact	**Major, Moderate, Minor, Negligible and Beneficial** Based on the consequence, likelihood, reversibility, geographical extent, duration, level of public concern and conformance with legislative or statutory requirements.
Consequence severity of impact	**High:** ▪ Serious/catastrophic damage to environment ▪ Direct legislative requirement ▪ Corporate requirement ▪ Serious threat to corporate

	reputation/profitability/ability to do business. **Medium:** ▪ Measurable damage to the environment ▪ Subject to potential future legislation ▪ Potential to affect reputation/cost ▪ Implication/reduced efficiency **Low:** ▪ Negligible damage to the environment No risk to business

3.2 Important issues and concerns raised during consultation

During consultation it was observed that maximum of people was in favor of project and following issues and concerns were raised. Stakeholder Consultation it is mentioned in detail in chapter 9.

During survey following concerns of the local community, Government Departments and Environmental Practitioners and experts were noted:

- Nuisance must be controlled.
- Latest/State of the art technology must be adopted.
- Locals should be preferred for the job opportunities.
- Monitoring should be done regularly to check efficiency of treatment plant and to comply with PEQS.
- Solid waste should be managed effectively by adopting the standard practices of the area.
- Cleanliness of the area should be ensured.
- An effective EMMP should be designed and enforced with true spirit.
- Health of the workers should be ensured.

3.3 Significant impacts and factors to be determined

Main impacts and factors to be determined are:

- Occupational Health and safety
- Site Security
- Traffic Management
- Hygiene management
- Job opportunities for locals
- Resource conservation
- Avoid excessive water consumption
- Energy efficient techniques must be adopted
- Proper site restoration after construction
- Tree plantation at designated green areas
- Emergency preparedness

4 CONSIDERATION OF ALTERNATIVES

This chapter will discuss alterative and their selection and rejection criteria.

4.1 Site alternatives (selection and rejection criteria)

For establishment of hospital, it is important that site must be selected at suitable location.

- Selected site is located in non-negative and non-agricultural area.
- Transportation infrastructure (road network) is available.
- Safe distance from sensitive receptors (protected area)
- The selected site is under the ownership of the proponent.

4.2 Design/technology alternatives (selection and rejection criteria)

The project design/technology will be up to date and will also environment and eco-friendly in available designs/technology.

4.3 Environmental alternatives (selection and rejection criteria)

Environmental considerations are of utmost importance in selecting site. Being in a commercial zone there is no sensitivity in the area from environmental setting point of view. Thus, there is no ecologically sensitive or declared protected area such as territorial waters, forest, game reserve or biodiversity parks within a 4 km radius of the project site, requiring the proponent to look for site alternatives.

4.4 Economic alternatives (selection and rejection criteria)

The technology selected for establishment of above stated project will be economical viable than alternatives present as compared to majority of the other available health technologies but it will be most efficient and convenient to use.

5 DESCRIPTION OF THE PROJECT

5.1 TYPE AND CATEGORY OF PROJECT

As per Review of Initial Environmental Examination (IEE) and Environmental Impact Assessment (EIA) Regulations, 2022 the proposed project falls in Schedule II- EIA **Category H (3) "Hospitals having more than 50 beds"**.

5.2 PROJECT OBJECTIVES

- The objectives of the proposed project are to:
- Develop hospital of national building standards, with quality building design, accommodations and medical equipment.
- Provide quality eyecare in a safe, comfortable and welcoming environment for the patients and staff.
- Manage the increasing eyecare demand of the area.
- Meet the need of better healthcare facilities.
- Create new employment opportunities to the medical professionals as a part of the project activities scope opportunity.

5.3 PROJECT DESCRIPTION

The proponent intends to Construct a hospital namely of Al Shifa Trust Eye Hospital Lahore at M.A. Jinnah Road, Adjacent Khayaban-e-Amin Interchange Roundabout Tehsil Raiwind & District Lahore of 152 overnight beds, 72 day beds and 70 outpatient consultation rooms and this hospital offers a comprehensive range of general, secondary and some tertiary eyecare services for the people of the Lahore. Hospital will have different departments to cater the patients i.e., operating theaters, diagnostic facilities, support facilities such as CSSD, laundry, catering, etc. among all other required facilities). Additionally, 1 general medical OPD cluster is planned.

5.3.1 Schedule of area

SR.NO	FLOORS	AREA (SFT)
1.	BASEMENT	47665
2.	GROUND FLOOR	42322
3.	GROUND FLOOR - SCREENING BUILDING	14473
4.	FIRST FLOOR	42322
5.	FIRST FLOOR - SCREENING BUILDING	15127
6.	SECOND FLOOR	44316

7.	THIRD FLOOR	45092
8.	FOURTH FLOOR	33893
9.	FIFTH FLOOR	33893
10.	SIXTH FLOOR	33893

5.3.2 Project's Construction Activities

5.3.2.1 Site Preparation Works

The proposed project site will be prepared for construction. This will involve clearing of vegetation, excavation works and transportation of construction materials. This will be undertaken in a phased approach to mitigate soil erosion and the impacts of excessive dust generation. Due to the nature of the proposed project, construction will involve the use of heavy machinery such as excavators. The engineers will also utilize human labor where necessary so as to create employment to the local residents especially the youth.

5.3.2.2 Storage of Materials

Building materials will be stored on site. Bulky materials such as stones, ballast, sand and steel will be carefully piled at designated areas on site. To avoid piling large quantities of materials on site, the proponent will order bulky materials such as sand, gravel and stones in quotas.

5.3.2.3 Masonry, Concrete Work and Related Activities

The construction of the building walls, foundations, floors, pavements, drainage systems, and parking silo among other components of the project involves a lot of masonry work, laying of plumbing and related activities. General masonry and related activities include, concrete mixing, plastering, slab construction, construction of foundations, and erection of building walls and curing of fresh concrete surfaces. These activities are known to be labor intensive and will be supplemented by machinery.

5.3.2.4 Structural Steel Works

The building will be reinforced with structural steel for stability. Structural steel woks involve steel cutting, welding and erection.

5.3.2.5 Roofing Works

Roofing activities will include raising the roofing materials such as tiles and structural timber to the roof and fastening the roofing materials to the roof.

5.3.2.6 Electrical Work

Electrical work during construction of the premises will include installation of electrical gadgets and appliances including electrical cables, lighting apparatus, sockets etc. In addition, there will be other activities involving the use of electricity such as welding and metal cutting.

5.3.2.7 Plumbing

Installation of pipe-work will be done to connect sewage from the ablution blocks to a sewer system. Plumbing activities will include metal and plastic pipe cuttings, the use of adhesives, metal grinding and wall drilling among others.

5.3.3 Project's Operational Activities

5.3.3.1 Facility Users

The Proposed commercial and recreational development, when completed will target both local and foreign visitors.

5.3.3.2 Solid waste

The proponent will provide facilities for handling solid waste generated within the facility. These will include Trash bins/skips for temporarily holding waste within the premises before final disposal at the designated sites. Al Shifa Trust Eye Hospital Lahore intends to develop a solid waste management plan to ensure that the volume of solid waste generated within the entire development is minimized through the principles of reduce, re-use and recycle.

5.3.3.3 Wastewater

It is proposed that an onsite solution will be implemented for dealing with wastewater generated on the site, so as to aid in recharge of the water table and discharge into surface water stream. The proponent proposes a single onsite treatment point for all the foul water generated by the development. The proponent will provide adequate and safe means of handling liquid waste generated within the facility. These will include conducting regular inspections for pipe blockages or damages and fixing them appropriately. Also, the proponent will conduct regular monitoring.

5.3.4 Infrastructure Requirement

The infrastructure requirement for the proposed project has been broadly classified into the following two categories:

1. Basic Infrastructure: includes construction material, water supply, drainage power, and parking.

2. Environmental Infrastructure: comprising drainage and sewage system, solid waste management and green areas/landscaping.

5.3.4.1 Basic Infrastructure Requirement

Construction Material

The major materials required for construction of the proposed project will be steel, cement, bricks, metal, flooring tiles/stones, wood, sanitary and hardware items, electrical fittings, water and roof materials.

Water

During construction works water is used for concrete preparation, watering the construction sites, as well as for ensuring proper conditions for workers. In total water consumption for construction phase will comprise 5.45 m^3/day. Water used for concrete preparation and watering the construction site is considered as non-return water. Water required for drinking and domestic purpose would be 0.56 m^3/day. To supply the anticipated demand during operations, one over-head water tank and one underground water tank for personal use will be constructed, apart from that one rainwater harvesting tank will also be constructed. The design and specifications are given in project layout map attached with EIA Report.

Power

During construction phase, power will be supplied WAPDA (LESCO). It is proposed that a back-up power supply of a generator of 75 KVA will be installed to power critical loads only, in the event of any emergency. The generator shall be silent set housed in approved acoustic enclosures, so as to control the noise pollution to 55/45 dBA at 1 m distance.

Solid Waste Generation

A quite high amount of solid wastes will be generated from the proposed Project. An integrated solid waste management system is recommendable. First, the proponent will give priority to Reduction at Source of the materials. The waste that is not recyclable will be sent to designate sanitary landfilling.

Sewage System

The nature of wastewater generated from the operation of proposed project would be mainly domestic. This involves the construction of concrete-made tanks to store the sludge. The wastewater from the septic tanks is then channeled to main sewer. Given the size and magnitude of the project, this is a viable option to treat wastewater.

Fire Management

The Management shall ensure that:

- The Fire Safety Management needs are considered for all areas.
- Hydrants and fire extinguisher will be available at site.
- Layout plan will be displayed at the site.
- Fire exit will be readily accessible which would not be used otherwise.
- Necessary emergency lighting system along with emergency power back up system shall be provided. In addition, emergency public address system arrangement and signage for emergency exit route shall be provided.
- Necessary auto glow signage at all appropriate places shall be provided to guide the people towards exits and assembly points during the unforeseen emergency and untoward conditions.
- Training to the staff for the first aid and firefighting along with regular mock drill shall be made.

Two tanks will be constructed for emergency situations. Fire-fighting arrangements are clearly shown on layout map which is attached with EIA report.

Emergency Response Plan

Emergency response will be determined in corresponding instructions.

- There would be an evacuation plan, technical means/equipment necessary for handling small-scale emergency situations, protective and communication means (phone, fax machine) for personnel to protect themselves and call for corresponding emergency services (fire-fighting squad, ambulance).

- Every accident will be registered and its causes will be investigated. If necessary, remediation will also be ensured.

5.3.5 Manpower

50-60 workers will be hired for construction phase. The staff for operational phase will be hired with respect to concerned department according to their qualification and almost 20-30 persons will be required.

5.4 LOCATION AND SITE LAYOUT OF PROJECT

The proposed project site is located at M.A. Jinnah Road, Adjacent Khayaban-e-Amin Interchange Roundabout Tehsil Raiwind & District Lahore.

Figure 1: Map of Al Shifa Trust Eye Hospital Lahore

5.5 LAND USE OF SITE

The land use on the site will be commercial only. The site will be used for the Construction of Al Shifa Trust Eye Hospital Lahore. There is no settlement, surface water body, grassland or preserved area in the proximity of the project area that could be damaged or dismantled.

5.6 ROAD ACCESS

The site is accessible through MA Jinnah Road.

Figure 2: Road Access to Proposed Site

5.7 VEGETATION FEATURES OF THE SITE

Proposed project site has no vegetation. No major tree cutting is involved.

5.8 COST AND MAGNITUDE OF OPERATION

The cost for the proposed project would be Approx. 8.5 Billion PKR. The activities involved in the construction phase will include site clearance, excavation, foundation, utilities (electrical, water, gas). However, of 0.5 million will be allocated for tree plantation, waste management and environmental enhancement.

5.9 SCHEDULE OF IMPLEMENTATION

Proposed project will be completed in 3-4 months.

5.10 RELOCATION AND RESETTLEMENT PLAN

No human population resides within project area. No structure of any significance (cultural, religious, archaeological, recreational or any other) stands on the land selected for the project. No flora or fauna; especially belonging to endangered species is found within a safe distance from the site which is to be removed or moved to some other part. Hence, no relocation and resettlement is required.

5.11 SITE RESTORATION PLAN

The main areas to be considered for site restoration include the construction area, camp sites area, temporary tracks; land used for vehicle and material stores, material excavation pits etc. These areas should be restored to its original condition with the maximum possible effort. The restoration work comprises the removal of temporary construction works and removal of any fence installed, leveling of areas (wherever required), etc. The following procedures will be adopted for the restoration of the site:

- All temporary construction built for the site development will be removed.
- Site for construction camps should be restored to its previous conditions as much as possible.
- All the toxic and hazardous chemicals/materials will be completely removed from the site (if any).
- Any debris from construction activities should be removed properly from the site.
- All fencing and gates will be removed and pits will be backfilled.
- Whole of the site will be covered with the original soil to the original levels and grades and re-vegetation will be done, where required.

5.12 GOVERNMENT APPROVALS

NOCs from the concerned departments will be obtained after approval from EPA, Punjab.

6 DESCRIPTION OF THE ENVIRONMENT

This chapter provides baseline data (physical, biological and socio-economic parameters) related to the project and study area. The information has been compiled by using primary and secondary data resources. This chapter also refers to the theoretical analysis of the methodology adopted for collection of baseline data. The underlying principles and practices adopted in this regard are also discussed.

6.1 Methodology

The methodology employed to collect the baseline data and information regarding the social structure and various related parameters as discussed in sub-sections below:

6.1.1 Data Collection

The primary data was collected by visiting the project area and its communities in its nearby vicinity. The secondary data regarding physical parameters (topography, geology, seismology, and climate) was obtained by visiting relevant various government departments and their official websites. The biological parameters such as flora and fauna were studied by preparing a floristic list based on visual observation and fauna was studied by using opportunities approach. The species were recorded with reference to their existence in the project area. Information on wildlife fauna species (mammals, amphibians, reptiles, birds, etc.) in the assessment area was compiled based on opportunistic observation, gathering the existing information and consultation with local experts, community members and government and Non-Government Organizations (NGOs). The socioeconomic aspects were studied and analyzed by studying detailed village profile and by conducting household surveys.

6.1.2 Social Survey

The purpose of social survey was to record the present condition of the people living in the project area and to assess the expected project impacts on their life, subsistence systems and socio-cultural conditions. Prior to conducting the field surveys, the following steps were taken:

- Clear boundaries of the project area were identified
- Decided the sampling procedure in order to draw a representative sample size of the target population and households
- Developed the tools for data collection i.e. questionnaires to access the socio-economic status of the area

6.1.3 Sampling Design

Social baseline data of the persons residing in the study area has been estimated and collected through random sampling by using pre-developed questionnaires.

6.1.4 Questionnaires

In order to test the validity and reliability of the proposed questionnaires, they were reviewed to assess whether questions needed to be clarified, changed or re-sequenced and then a final editing of questionnaires was conducted prior to their application in the project area. The sample of socio-economic questionnaires used is attached as Annexure.

6.1.5 Data Editing and Analysis

The filled questionnaires and recorded information were compiled by the same field investigators who were involved in the data collection. This was done immediately after completing the field investigations. Data sets were processed. Analysis of the data and preparation of conclusions in the minimum possible time was done using statistical techniques of data analysis.

6.2 Review of Legal and Administrative Framework

The objective of reviewing legal and administrative framework is to obtain information on all legislation pertaining project development. The Socio-Environment Team of EnviroTech Consultants Private Limited reviewed the environmental policies, national, international and provincial laws and guidelines relevant to the development of project which helped in systematic identification of impacts.

6.3 Baseline Conditions

This chapter provides baseline data (physical, biological and socio-economic parameters) related to the project and study area

6.4 Physical Environment

Pakistan Can be divided into five broad physiographical regions. These are the mountainous regions of the north, the western highlands and plateaus, the sub-mountains Indus region, the Potohar Plateau, Salt Range, and the Indus Plain. Brief description of these regions are given below:

Region	Characteristics	Location	Height
Northern Mountainous	Hindu Kush Karakoram and Himalayan Mountain Ranges	Northern Part of KPK, Gilgit Agency, Northern Areas and Kashmir.	Rises above 8,000m
Western Highlands and Plateaus	Toba Kakar, Sulaiman, Central Baruhi, Saihan, Central Makran, Makran Coastal and Kirthar Ranges	Mainly in Baluchistan, also parts of Sindh and KPK	Between 1,200 to 3,000 m

Sub-Mountains Indus	Alluvial filled Basins	Plains of Peshawar Kohat and Bannu	Less than 1,000 m
Potohar Plateau and Salt Range	Flat to gently undulating surface, broken by gullies,	Mainly northern parts of Punjab, some parts of KPK	Less than 1,000 m
Indus Plain	Flood plains of the Indus, Jhelum, Chenab Ravi and Sutlej Rivers	Punjab and Sindh	Less than 1,000 m

6.4.1 Topography and soil

Lahore is generally flat and slopes towards south and south-west at an average gradient of 1:3000. It can be divided into two parts i.e. the low lying area along River Ravi and the comparatively upland area in the east away from Ravi. The low lands are generally inundated by the river water during monsoon floods. River Ravi flows in the west of Lahore District forming a boundary with Sheikhupura District. The original physiographic features like channels remnants and levees have been destroyed or changed by the construction of urban infrastructure. Flood plains have been confined by construction of embankments (bunds) and spurs. Sub-recent flood plain is 4 to 8 meters higher than the recent flood plain and can be identified at number of places i.e. Shalimar Garden, Moghalpura and Multan Road.

Terrain of the proposed project site is predominantly flat. Lahore district is situated at an average elevation of 210 meters above mean sea level. The alluvial subsoils are of late Pleistocene and were formed by the flood plains of river Ravi. These consist of clay, silt and sand. The thickness of clay increases with distance from the river bed.

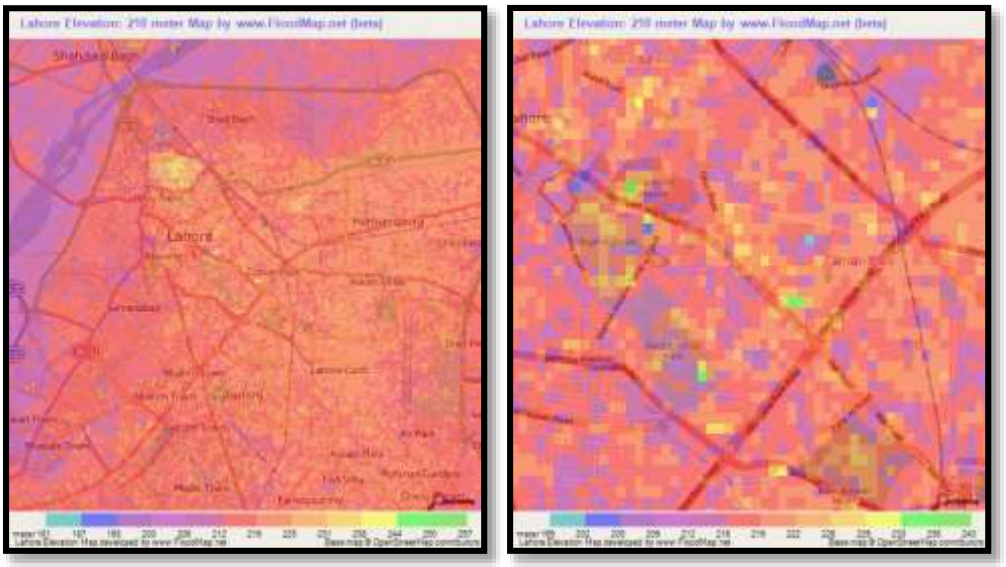

Figure 3: Topography of District Lahore

6.4.2 Climate and rainfall

Purposed project site is located in Lahore and has distinct seasons marked by wide variation in temperature. The coldest month is January in which the mean maximum temperature is 19.4 °C and the mean minimum temperature is 6.6 °C. June is the hottest month with the mean maximum temperature near 39.8 °C and the mean minimum temperature as 27.4 °C. Mean temperature of the region from 2010-2018 is given in **Figure 5.**

The average annual rainfall from 2010-2018 in Lahore works out to be 126.16 mm. Nearly 70% of it received in the form of high intensity showers during the monsoon (July, August, September) and the remaining in winter. The yearly variations are considerable. The average quarterly rainfall at Lahore during the last 9 years (2010-2018) is also shown in **Figure 6**.

The most humid period is in month of February with average humidity of 53.125 % and the least humid period is in the month of May with average humidity of 18.875 %. The average monthly humidity of Lahore region form last 9 years (2010-2018) recorded is 35.25 %. The average quarterly humidity of Lahore is shown in **Figure 7**.

During cold seasons of the year northern winds prevail and during hot seasons southern winds. Monthly mean velocity of the wind (Knots) taken for the period 2010-2018 is 5.46 and shown in **Figure 8**.

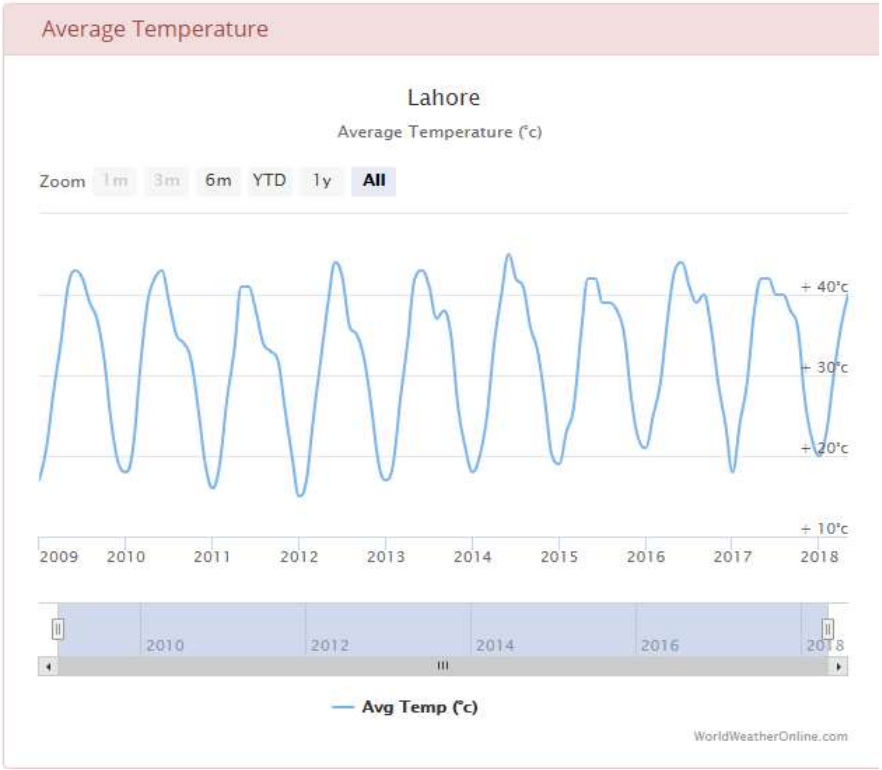

Figure 4: Temperature Data of Lahore Region (Data Source: Worldweatheronline.com, 07-07-2018/1:40 PM)

Figure 5: Average Quarterly Rainfall of Lahore Region (Data Source: Data Source: Worldweatheronline.com, 07-07-2018/2:00 PM)

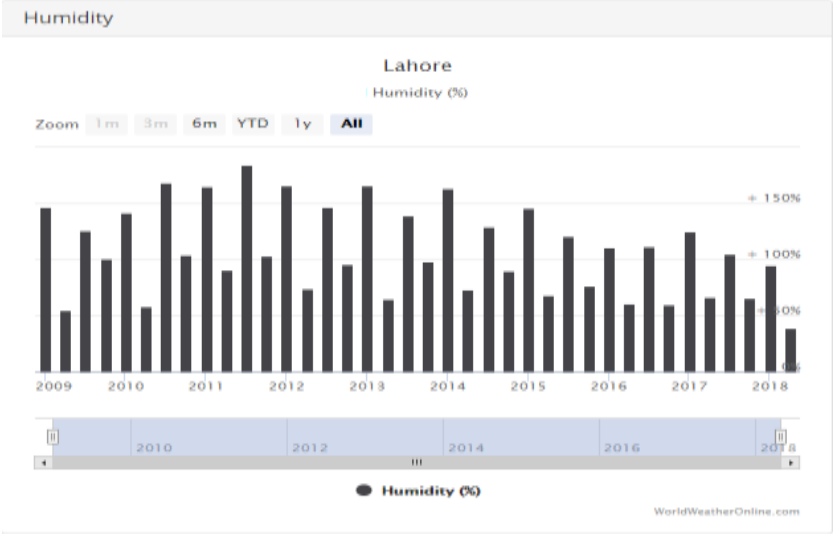

Figure 6: Average Humidity of Lahore Region (Data Source: Worldweatheronline.com, 07-07-2018/2:20 PM)

Figure 7: Average and maximum Wind Speed of Lahore Region (Data Source:

Worldweatheronline.com, 07-07-2018/4:00 PM)

6.4.3 Surface water

A Canal is present near the proposed site at 71 m approx.

6.4.4 Groundwater

The water requirements for the site for construction work will be extracted from groundwater aquifer by the help of turbines. Groundwater was encountered at around 118 feet depth below the site. Given a margin for seasonal fluctuations, the groundwater may be considered to rise/fall beyond this depth by about 10-15 feet.

6.4.5 Geology / seismology

Lahore lies on the alluvial plain called Bari Doab. Doab is a local word for area between rivers. Bari Doab is a part of the Indo-Gigantic alluvial plain formed by the Indus River and its tributaries. It is bounded by Ravi and Chenab rivers in the northwest and west and by Sutlej River in the southeast. Northeastern boundaries of Doab lies near the foothills of the Himalayan Ranges. The Bari Doab is covered by Quaternary alluvium which overlies semi-consolidated Tertiary rocks or Metamorphic and igneous rocks of Precambrian age. Except for a small area in the northeastern part of Doab where basement rock was encountered no information is available at present regarding the distribution of Tertiary and Precambrian rocks in the Doab.

The project site is situated in Tehsil Model Town District Lahore. The project site is located in Punjab which is a vast plain of alluvial material, deposited by Indus basin and five main rivers crossing the Punjab Plain. Thickness of alluvial deposits is thought to be more than 300 m which are underlain by the basement rocks of the Indian shield. The project site falls in the Punjab plain which shows low to moderate level of seismicity. The project region has also been subjected to severe shaking in the past due to earthquakes in the Himalayas. The epicenters of low to moderate magnitude earthquakes recorded in the Punjab Plain are associated with the subsurface fractures in the basement rocks which are concealed by the thick alluvial deposits. The known main active fault near Lahore is the Main Boundary Thrust (MBT) which passes at a distance of about 180 km towards northeast along the Himalayan front.

Probabilistic seismic hazard assessment recently carried out for Lahore area as part of the revision of seismic provisions of the Building Code of Pakistan shows that the project area falls in Zone 2A. Seismic zone of Pakistan is shown in figure 4.1. It is therefore recommended that the project structures should be designed to cater the requirements of Zone 2A of Building Code of Pakistan (2007). Based on the evaluation of tectonic setting and seismicity of the project region, the important project structures

are designed to withstand a horizontal peak ground acceleration of 0.15g with 10% exceeding probability in 50 year.

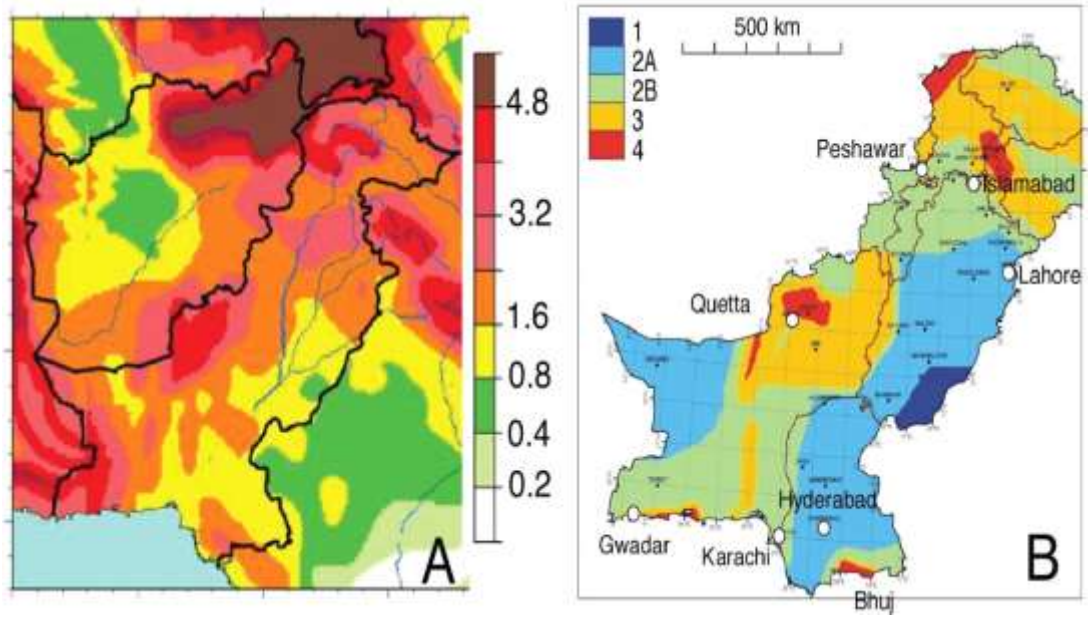

Figure 8: Seismic Zone of Pakistan (Geological Survey of Pakistan)

6.5 Description of the biological environment

The project area neither contain any forest nor falls in protected area or archaeological site and so no jurisdiction on the proposed sire area of the relevant legislations.

6.5.1 Flora

The project area is surrounded by residential land, and does not support rare, endangered or threatened plant species. Plant species present in the site are cultivated like kekar (acacia nilotica L.), sheesham (dalbergia sissoo roxb.), mango (mangifera indica L.), Phulai (acacia modesta wall.), amaltas (cassia fistula L.), dharek (melia azedarach L.), bohar (ficus benghalenses L.), pepal (ficus religiosa L.), kala toot or mulberry (morus nigra L.), eucalyptus (eucalyptus camaldulensis), guava (psidium guajava L.), jaman (syzygium cumini L.), pomegranate (punica granatum L.), bair (ziziphus jujube mill.), rose (rosa indica L.) and simbal (bombax ceiba L.) etc and some plants are ornamental like Alastonia, Golden Ficus, green Ficus, Dronta Weeds, and Palms etc. these are the tree species that are generally planted along the margins of fields. Among the above-mentioned tree species mostly are used for landscaping purposes in houses some plants are used as biomass in homes near the selected site.

6.5.2 Fauna

Only few common animals are found near the project site like dogs, cats, rodents like squirrels, rats, mice and bats. Common species of birds found include the common house sparrow, crow, pigeon, dove, yellow and white eyed mynas.

6.6 Socioeconomic Resources and Quality of life values

In order to assess the present socio-economic and socio-cultural conditions of the project area, a survey was conducted. For this purpose, base line data was collected from few commercial and residential areas adjoining to the purposed site. Interviews and social surveys were conducted to assess the present socio-economic and cultural feature of the area.

6.6.1 Population and communities

Mostly community around the purposed project area is the semi-urban. Most of them have their own business. Some of them have private jobs in different industries present in the industrial Area, agriculture and livestock profession. Only a few are government employees. Punjabi is the predominant language being spoken near the purposed project site, representing 55 % of the population, followed by Urdu and Pashto spoken by 40 % and 4.8 %. Sindhi is spoken by 0.2%.

6.6.2 Infrastructure

The project area is situated in Lahore and provides round the clock transport access. All the other the area are connected with metaled roads. The buses, motorcycle rickshaws, vans and pickups provide very convenient mode of transportation throughout the area. All bounded area have electricity provided by LESCO along with telephone and natural gas facilities. Lahore has well developed drainage system which fulfills the requirement of the town in rain season as well as in dry weather. The project site area will also be provided with the modern facilities like electricity by LESCO, natural gas by Sui Northern gas pipelines limited (SNGPL), phone facilities by Pakistan Telecommunication Company limited (PTCL), and very well designed drainage system along with a septic tank for primary treatment of sanitary water before throwing it to public sewerage. No surface water is available to the area and only source of water to the area is groundwater, which is extracted by means of motor turbines, tube wells and hand pumps

6.6.3 Educational institutions

High level education is available near site area well renowned schools and colleges are present at very a lesser amount of distance. The private education schools also exist near the project site. The project area has fortunately privileged of big colleges and universities.

6.6.4 Transportation

The project area is situated near canal road, Lahore provides round the clock transportation access. Transport services include buses, trucks, vans, cars, pickups,

motorcycles, rickshaws, and bicycles. For railway services, one can go to Lahore Railway station from where rail service is available throughout the Pakistan

6.6.5 Power sources and transmission

Electricity services are provided by Lahore electric power company to the area and it shall provide same services to the proposed project as it is the only authority which deals with the electric power sources and their availability to the expected area.

6.6.6 Agricultural and mineral development:

The project area lies in the residential zone. Agriculture mainly depends upon canal water. Underground water, where available of irrigation quality, is used for agriculture purpose through tube wells.

6.6.7 Public health

The medical facilities are available near the project site area as very good hospitals are situated in nearby area, whole area is full of clinics and hospitals thus providing very good medical facilities to the people of area.

6.6.8 Archaeological and cultural sites

No Major archaeological sites are observed in the vicinity of proposed project.

6.6.9 Gender analysis

The section describes the importance of role of women in the project area. Responsibilities of women in the area belongs to their household activities like cooking the daily meal, dishwashing, feeding and milking the cattle, cloths washing, bringing up the children as well as working in the fields. In the area, awareness regarding formal education is prescient and approximately every child in the area especially girls are getting education from the educational institutions. This is also because govt. of Punjab has made formal education totally free and also provides free of cost course books to the students till their matriculation. Majority of the working-class women are teachers in govt. school as well as in private institutions while remaining are doctors and nurses in the hospitals. The female population is found to be 49% of the total population of Lahore district.

6.7 Quality of Life Values

Socio-Economic Questionnaire and Environmental Checklist were used as survey tools by the Arom Associates & EnviroTech Consultants Pivate Limited survey team to collect desired information. Most of the respondents had the basic social facilities such as; basic health facility, electricity, water supply, roads, rail, public and private transportation to sustain life. Most of the respondents were working with the agricultural, livestock, doing their own business, shopkeepers and working as the labor

in the nearby industries. The common diseases observed in that area were Diarrhea, cough diabetics and heart diseases.

6.7.1 Occupation of Respondents

Majority of the respondents (26%) belongs to the business, 33% have their own business, 10% daily wagers, 13% attached with Govt. employee, 15% shopkeepers and remaining 18% are private employees. During survey, efforts were made to interact with people representing all walks of life. The detailed graphic representation of occupational status is given below:

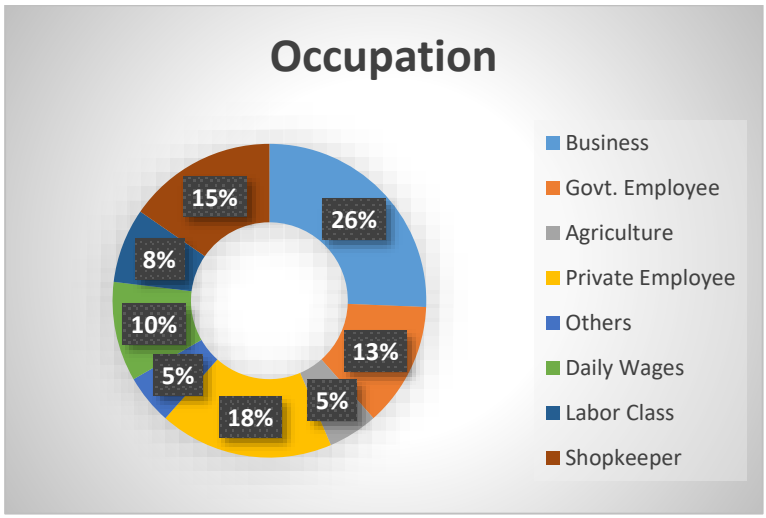

Figure 9: Occupation of Respondents

6.7.2 Personal Income

Based on the sample survey results, as the figure shows that nobody was earning less than 20,000 rupees, 69% of respondents fall within the income range of 20,000 – 25,000, 23% respondents earn 30,001 – 40,000 while only 8% of the respondents earn within the range of 40,001 – 45,000.

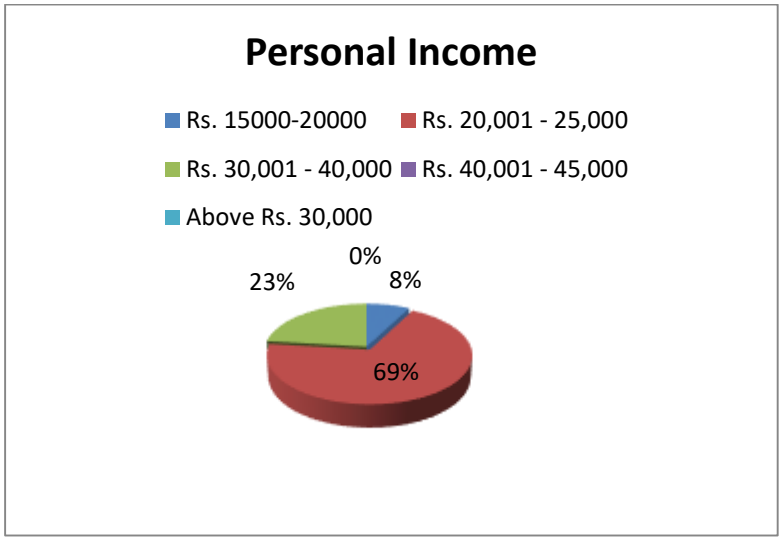

Figure 10: Personal Income

6.7.4 Facilities Available

Facilities available at the houses, shops and factories are depicted here. It shows that electricity, water supply, telecommunication, sewerage, gas supply and every other routine facility is available in study area.

6.7.5 Literacy Rate

From survey results, it was found that 14% of the studied population was illiterate, 7% was up to primary level, 43% studied up to middle level and only 36% of the respondents studied up to higher secondary level.

6.7.6 Common Diseases

According to the survey the common diseases recorded in the project area were, Diabetes, Fever, Hepatitis, Hypertension, stomach problems, Malaria, Typhoid, Nephritis and Diarrhea**.**

6.7.7 Community Issues

Community was asked about the burning issues they are facing. The majority of respondents complained about lack of sewerage system, solid waste management system, lack of safe drinking water supply, proper health and educational facilities.

6.8 Lab Reports of Environmental Analysis

Testing of different parameters was done from a certified laboratory named SEAL to check the quality of different environmental parameters. The copy of the lab reports of these parameters (ambient air analysis, water quality analysis and noise) is attached at Annexure of this IEE Report.

6S.9 Suitability of Site

Comprising all assessment of above baseline data there will be no significant ecological/ environmental impact expected in and around the present selected project site, hence it is suitable for the proposed project.

7 POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

7.1 INTRODUCTION

Assessment of impacts depends on the nature and magnitude of the activity being undertaken, as well as the type of environmental control measures that are envisaged as part of the project proposal. The potential impacts from the project area are identified and assessed based on the type and scale of the various activities associated with this project. Several aspects and potential impacts were identified for each phase (Project Location, Construction and Operation) of the development, with impacts evaluated in terms of their nature, occurrence, possibility and severity potential.

7.2 OBJECTIVES

The objective of screening is identification of the adverse as well as beneficial impacts and then mitigating the effect of adverse impacts up to acceptable limits or within PEQS. Following are the objectives of screening out all significant environmental and social impacts:

- To find different alternatives and ways of carrying out the project activities which may cause adverse impacts.
- To enhance the Environmental and Social benefits of project
- To avoid, minimize and remediate adverse impacts.
- To ensure that residual adverse impacts are kept within acceptable limits.

In the sub-sections below the impacts assessment methodology for the Construction of Al Shifa Trust Eye Hospital Lahore located M.A. Jinnah Road, Adjacent Khayaban-e-Amin Interchange Roundabout Tehsil Raiwind & District Lahore has been defined. It includes the magnitude, the extent of the impact and the nature of the anticipated impact.

7.3 METHODOLOGY

This section discusses the project's potential environmental impact on the area's geomorphology, soil, water resources, air resource, biological resources and socioeconomic condition and, where applicable, identifies mitigation measures that will reduce, if not eliminate, its adverse impact. The assessment carried out in the sub-sections below is based on potential impacts on overall environmental receptors within the project area. Impacts are evaluated on the basis of magnitude, immediacy and sustainability. Evaluation criteria are as follows:

7.3.1 Magnitude

The magnitude of the impacts associated with the proposed project include the type of impact project commencement will cause to its immediate environment and social structure. It could be direct, indirect and cumulative.

7.3.2 Immediacy

Immediacy of the impact focus on the following parameters:

- Temporal Extent (during construction and operation)
- Spatial Extent (local or widespread)

7.3.3 Sustainability and Reversibility

Sustainability and reversibility of the impact focused on the following parameters:

- Mitigability (Fully/Partially)
- Monitoring (Fully/Partially)

7.3.4 Purpose of Mitigation Measure

The basic purpose of mitigation measures is to reduce the impacts of the establishment of a hospital on the socio-environment up to the maximum possible extent. The mitigation measures are suggested based on the following parameters:

7.3.5 What is the problem?

The proposed project is the establishment of a hospital building. The study area is leveled and commercial land. In addition, to the noise and fugitive dust emissions during the development phase solid waste also requires proper management. The major impact associated with the operation of building includes wastewater, air emissions and the management of the solid waste.

7.3.6 When problem will occur and when it should be addressed?

The impacts from the establishment of hospital building unit will occur during the construction and operation due to the civil work involved and the people residing in the project area. These issues included; noise generation, fugitive dust emissions, solid waste management, wastewater disposal, top-soil removal, Health and Safety issues and change in the geographic features of the area. These all problems should be addressed on-site where they are being generated, to avoid the residual or adverse impacts.

7.3.7 Where problem should be addressed?

The problem will be generated from site development and operation of the unit. So, it should be addressed on source i.e., at site within the same timeframe.

7.3.8 How the problem should be addressed?

Proper mitigations measures will be provided according to the nature of the impacts/problems.

7.4 Ways of Achieving Mitigation Measures?

Following ways will be adopted to reduce the impacts of the proposed development:

7.4.1 Changing in Planning Design

Proposed design is developed considering environmental risk and hazards. Moreover, there is no endangered and threatened species present in the project area. Any human settlement or infra-structure will not be dislocated or dismantled due to the proposed project development. Hence, there is no need to change the design of project.

7.4.2 Improved Management and Monitoring Practices

The anticipated impacts had been reduced significantly by adopting better management activities, as it will be carried out for betterment of the society. While environmental monitoring will be conducted on the regular basis to keep the sources of the air pollution, wastewater generation, noise and public nuisances in-check. Following practices that need to be adopted to reduce the impact significantly:

a. Compensation in Money Terms

Due to the installation of proposed project, the vegetation present on-site will be removed and the geography/landscape of the area will be changed on the permanent basis, however, there is no protected or environmentally sensitive area present within 10.0 km vicinity of the project that could be impacted. Hence, no compensation in the monetary terms will be required. However, for the removal of the one tree from the project area 3-5 trees will be planted as the compensation.

b. Replacement/Relocation/Rehabilitation

The proposed project site is located in commercial area reserved for the establishment of aforesaid building. No replacement, relocation and rehabilitation will required for the commencement of the aforesaid project.

7.5 SCREENING OF POTENTIAL IMPACTS

Several impacts are likely as a result of the construction and operation of the project. Such impacts may be direct, indirect or ultimate. For the purposes of this EIA, these potential impacts (whether direct, indirect or ultimate), are assessed based on their magnitude (short-term or long-term) and effect (positive or negative). Impacts are also classified in three groups: impacts due to project location, impacts as a result of project

construction and impacts as a result of project operation. Impact Assessment checklist for the proposed project during construction and operational phases is given in Table. All the potentially significant environmental impacts from the project are grouped below:

Air Environment

- Impact on ambient air quality

Noise Environment

- Impact on ambient noise

Water Environment

- No major impacts

Land Environment

- Impacts on land use

Ecological Impacts

- Impacts on trees/vegetation

Socio-Economic Impacts

- Impacts on other infrastructure
- Impacts on employment
- Impacts on public health and safety
- Impacts on cultural resources
- Impacts on aesthetics

Table 1 Impact Assessment (Construction Phase)

ENVIRONMENTAL STANDARDS						ECOLOGICAL IMPROTANCE		SOCIAL IMPORTANCE			
Surface and Ground Water Quality	Air Quality	Noise	Solid Waste	Smell & Smoke	Fire Hazards	Destruction of Habitat / Vegetation	Disturbance to local fauna	Disturbance to Other Services	Urban Congestion	Employment Opportunities	Health & Safety
-1	**-1**	**-1**	**-1**	**0**	**-1**	**-1**	**-1**	**0**	**-1**	**+1**	**-1**

Table 2 Impact Assessment (Operational Phase)

ENVIRONMENTAL STANDARDS						ECOLOGICAL IMPROTANCE		SOCIAL IMPORTANCE			
Surface and Ground Water Quality	Air Quality	Noise	Solid Waste	Smell & Smoke	Fire Hazards	Destruction of Habitat / Vegetation	Disturbance to local fauna	Disturbance to Other Services	Urban Congestion	Employment Opportunities	Health & Safety
-1	**-2**	**-2**	**-1**	**0**	**-2**	**-1**	**-1**	**0**	**-1**	**+2**	**-1**

Key : 1 = Minor Impacts are defined as Less significant adverse impacts that may be easily prevented or mitigated

2 = Moderate Impacts are considered as likely to have adverse environmental impacts

3 = Major Impacts are defined as significant, or irreversible adverse impact

0 = This category serves no impacts from projec

7.6 IMPACTS DUE TO PROJECT LOCATION

The development will have both socio-economic and environmental implications as discussed in the sub-sections below.

7.6.1 Relocation of People

Currently, there are no infringements on the project site that may be affected therefore relocation exercises are not required.

7.6.2 Loss of Vegetation

Considering the scale of the project and commonly found flora and fauna within the project influence area, no significant adverse effects are envisaged on the ecology of the area.

7.6.3 Shifting of Utilities

There will not be any shifting of existing utilities such as water supply pipelines, sewers, electrical lines, etc. due to the proposed project.

7.6.4 Impact on Archaeological/Cultural Property

Within the project influence area there are no significant archaeological properties, hence no impact in this area is anticipated.

7.7 IMPACTS DUE TO PROJECT DESIGN

Design of the proposed project can have impacts on the environment if it is not prepared accordingly. It is necessary to consider a sustainable project approach. Sustainability is an important issue to consider in design, not only due to environmental concerns but also due to economic and social matters, promoting architectural quality and economic advantages.

Mitigation Measures

- The design process should be carried out in recognition of identified hazards and risks assessment. Accepted design solutions should focus on maximum possible opportunity for risks reduction.
- Carry out engineering surveys including environmental surveys depending on the level of complexity and potential hazards of the planned facilities in the area of construction..
- Integrate within the existing environmental infrastructure at site to facilitate sharing of services and amenities (e.g. power, water, solid refuse collection and roads), safety arrangements and waste management systems among others. This has already been catered as per the designs annexed.

- Minimize risks to health and impacts to external environment. Suitable anti-pollution facilities (solid waste containment and organized removals, waste water purification) should be part of the design.

7.8 IMPACTS DUE TO PROJECT CONSTRUCTION

Project constructions typically change the natural environment, creating negative impacts in some cases. These are short-term impacts of low magnitude, which are easily managed.

7.8.1 Contamination of Soil and Water Quality Degradation

If not properly disposed of, the spillage of oil from the machinery, cement residue from concrete mixer plants, sewage and solid wastes, might contaminate the soil.

No impact is expected on potable water, since this will be directly supplied. Surface or ground water and soil however, may be impacted as follows:

- Chemical contamination from construction materials such as cement, paint and mechanical fluids
- Increased siltation caused by surface runoff (as a result of the removal of vegetation and the placement of raw materials e.g. sand)

Mitigation measures

- Open stockpiles of construction materials (e.g. aggregates, sand and fill material) on site should be covered with tarpaulin or similar fabric during rainy season.
- Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.
- All machinery and equipment be regularly maintained and serviced to avoid leak oils.
- Maintenance and servicing of vehicle, machinery and equipment must be carried out in a designated area and where oils are completely restrained from reaching the ground. Such areas should be covered to avoid storm water from carrying away oils into the soil or water systems. Waste water/wash water from these areas should be properly disposed.
- Areas dedicated for material storage should be provided with spill containment and facilitate clean up through measures such as dedicated spill response equipment.

7.8.2 Impact on Air Quality

Potential impact on the air quality during the construction stage will be due to the fugitive dust and the exhaust gases generated in and around the construction site. Dust is a major component of air pollution, generated mainly from the following construction activities:

- Site clearance and use of heavy vehicles and machinery/equipment etc. at construction site
- Procurement and transport of construction materials, such as sand and cement to the construction site
- Excavated materials (soil) stockpiled

Mitigation measures

- Construction equipment will be maintained in good operating condition to reduce exhaust emissions.
- Construction site, transportation routes, diversions and materials handling sites to be water-sprayed on dry and windy days.
- Haulage trucks must be covered or the aggregates sprayed with water before loading the haulage trucks
- All diesel fuel in use should be low Sulphur diesel.
- The project area will be cordoned off to minimize dust migration to nearby facilities by wind.
- Speed controls by temporary speed bumps on diversions where necessary within the construction site
- Staff working in dust generating activities e.g. site preparation, excavation, concrete mixing, stone dressing should be provided with personal protective equipment (PPE) the use of PPE shall be enforced.
- Avoiding open burning of solid wastes.

7.8.3 Soil Erosion

Ground surface alterations during the project site preparation and the transportation of construction materials and equipment, using heavy trucks will disturb the soil surface, making it highly susceptible to soil erosion occurrence. The disturbed soil could easily be transported by surface runoff, causing clogging of nearby drains and sewer pipes. This is likely to be temporary impacts, ceasing after the project construction stage is completed. It is anticipated that the proposed project will not have

a significant soil erosion impact if preventive measures are undertaken during the project design and construction stages.

Mitigation Measures

- The soil erosion problem will be addressed during the project design and construction stages when the necessary control measures would be considered and incorporated in the project design and implementation.
- The soil on site should be investigated prior to site preparation for building construction and appropriate safety procedures developed to reduce the occurrence of increased soil erosion.
- Measures taken to control erosion will include clearing and grading the ground surface within approved work limits, stripping the top soil layer from the subsoil, stockpiling the removed soil in approved areas to be retrieved during landscaping and site restoration.
- Replanting the original vegetation after construction is completed.
- The soil removed from the building site will be used in landscaping around the paved areas for enhancement of environmental quality.
- The surrounding areas will be replanted with grass and flowers, and other suitable plants, and administration staff will be asked to monitor the recovery of the planted natural vegetation.

7.8.4 Noise Pollution

Noise is perceived as one of the most undesirable consequences of construction activity. Though the level of discomfort caused by noise is subjective, the most commonly reported impacts of increased noise levels are interference in oral communication, and disturbance in sleep. Noise levels in the vicinity of the site were found to be above normal limits for residential areas. Due to the various construction activities, there will be short-term noise impacts in the immediate vicinity of the project corridor, which may exceed acceptable limits and reach nuisance levels for residents. These include:

- Concreting and mixing
- Excavation for foundations with driller (if used)
- Construction plant and heavy vehicle movement (e.g. cranes)

Since the project site is surrounded by open areas, no major adverse impacts are envisaged in the project area. Also, the noise levels are not expected to exceed occupational limits; therefore no adverse effects on employees should result.

Mitigation Measures

- Reduce equipment noise at source by proper design, maintenance and repair of Construction machinery and equipment.
- Minimize noise from vehicles and power generators by use of proper silencers and mufflers.
- Use noise-abating devices wherever needed and practicable.
- The movement of vehicle should be restricted during nighttime.
- Providing workers with noise related PPE's
- Planting of trees that could serve as sound buffers.
- Noise barriers must be put in on and around the project boundary.
- Hauling trucks shall be operated at low speed to minimize vibration, promote road safety, etc.

7.8.5 Traffic Congestion

The proposed site is located in a commercial area and has easily accessible roads. There is expected be a short-term impact on traffic, especially if construction materials are being delivered during peak times. The transportation of construction material from source to site will entail the use of slow-moving heavy trucks, which have the potential to contribute to traffic build-up.

Mitigation Measures

- Construction activities that might substantially disrupt traffic e.g., delivery of materials should not be performed during peak travel periods to the maximum extent practicable.
- Warning signs should be used as appropriate to provide notice of road hazards and other pertinent information to motorists and the general public.
- Signage and barricades should be used as part of the typical construction traffic controls.
- Temporary manual traffic control should be used when construction occurs at the site entrance.

7.8.6 Solid Waste

Construction activities will lead to the generation of solid waste in significant amounts, mainly in the form of construction debris. Solid waste will be generated at the site during site preparation and construction phases. The waste may consist of excavated materials, paper/cement bags, empty paint and solvent containers, broken glass among others.

Unfit disposal of construction waste or spoil could have medium or long-term environmental and public health impact. Extent of this impact will be local to areas where waste is dumped or their immediate neighborhoods.

Mitigation Measures

- Waste, including excavated soil and debris should be properly disposed of by backfilling and landscaping.
- Construction waste should be recycled or reused to ensure that materials that would otherwise be disposed of as waste are diverted for productive uses. In this regard, the proponent/contractor should be committed to ensure construction materials left over at the end of construction will be used in other projects rather than being disposed of. Some of the waste can be sold or recycled/reused by construction companies.
- Contracted waste handlers should be licensed to transport and dispose waste at approved dumpsites only.
- During transportation of waste, it should be covered to avert dispersion along the way.
- Hazardous waste will not be mixed with other solid waste generated and should be managed by way of land-filling.

7.8.7 Ecological Impact

The proposed project site has a very limited value as wildlife habitat because of lack of vegetation cover. There are no threatened or endangered biodiversity (flora and fauna) species and protected areas known to exist within the proposed project site. For these reasons it is expected that any activities for vegetation removal, ground excavations and leveling are likely to cause minimal or no biodiversity impacts in the proposed project site.

Mitigation Measures

- Measures taken to control loss of biodiversity will include:
- Strict instructions will be given to all personnel working in project area to refrain from killing, capturing or disturbing any species of bird, reptile or mammal encountered during project activities, except in self-defense.
- No removal of vegetation will be done at the project site.
- Replanting the original vegetation after construction is completed.

7.8.8 Social Impacts

Positive Social Impact:

There will be a long-term, positive impact on the social landscape of the project area. Social impacts could result from an influx of migrant workers and associated induced development. This will ensure a rise in the consumption of consumer goods in the local area, which will further affect the wider economy. As far as possible, local labour within the project influence area will be utilized for construction purposes.

Negative Social Impact:

- Safety and Health Risks

- The generation of solid waste, sewage, fugitive dust and gaseous emissions can impact on public health and safety, if not properly managed.
- Construction activities have potential to pose occupational risks, some of which could be life-threatening, for example, fatal falls if workers do not use safety harness when working at heights. In addition, falling debris could injure workers if personal protective equipment (PPE) are not provided or properly used. Back injury could occur if workers lift heavy objects using inappropriate body posture. Other potential hazards might be; driving equipment with improper brake system, lack of concentration while working and exposure to hazardous wastes such as paints, cement, adhesives and cleaning solvents. This impact is expected to be short term.

Mitigation Measures

- Regular drills shall constantly follow on various possible incidences. This will test the response of the stakeholders. Such drills will keep workers alert and ensure response mechanism in the case of incidences are improved.
- Use signage to warn staff and/ or visitors that are not involved in construction activities.
- Restrict non-essential staff from the construction sites.
- Strict instructions shall be given for drivers of heavy equipment.
- Supervision of works shall be done regularly to ensure that safety conditions are met while any deviation from safety regulations is immediately reclaimed following the best practices regarding safety at work
- Develop evacuation procedures to handle emergency situations.
- Truck drivers should maintain a speed limit of not more than 20Km/hr.
- Speed controls by temporary speed bumps where necessary within the construction site.

- Clear marking of work site hazards and training in recognition of hazard symbols.
- Training of all personnel in fire prevention and protection.
- Regular inspection, testing and maintenance of equipment and machinery.
- Provide full first aid kits at the construction yard.
- Use of water sprays to arrest dust.
- Containment of hazardous materials.
- Provide adequate protective gear to construction workers.

7.9 IMPACTS DUE TO PROJECT OPERATION

During the operation phase, there will be impacts on the air, water and land environment, as well as on socio-economic aspects. The following sub-sections present the impacts due to the operation of the proposed project.

7.9.1 Air Environment

During operational phase, air environment may be affected by:

Generator emission: NOx and SOx will be generated. The level of Sulphur Oxides (SO_X) depends on the percentage sulphur in the oil being used in the generator.

Vehicular emissions: Carbon Monoxide (CO) is the major pollutant emitted by motor vehicle exhaust systems. This is highest when vehicles are poorly maintained, causing incomplete combustion to take place.

Mitigation Measures

- Low Sulphur fuel will be used to reduce SOx emissions.
- Proper maintenance and tuning of vehicles will be ensured to reduce emissions.
- Internal roads will be maintained properly to reduce fugitive dust and for the smooth movement of vehicles.
- Adequate greenbelt will be developed and maintained.
- High quality fuel having low Sulphur contents will be used.

7.9.2 Noise

During operational phase, no issue of noise is envisaged as it is a hospital building.

Mitigation Measures

Not Required.

7.9.3 Water Environment

Water will be required for various purposes at proposed project like for drinking a domestic use and floor cleaning and washing. During operation of hospital building only domestic wastewater will be generated.

Mitigation Measures

- Domestic wastewater generated will be treated in septic tank and then discharged to WASA drain.
- 3rd party monitoring will be carried out on quarterly basis.

7.9.4 Solid Waste

It expected that certain quantum of solid waste, domestic in nature will also be generated during the operation stage. Such waste will be collected separately once a day, and disposed of in a suitable manner; hence no major impact is expected.

Mitigation Measures

- For the collection of solid waste, receptacles will be provided at each floor and arrangements will be made to manage waste properly.
- Waste from such containers shall be collected separately on a daily basis.
- All the collection bins shall be properly maintained on regular bases. .

4.8 Potential Environmental Enhancement Measures

4.8.1 Tree Plantation

Shade trees including sheesham, neem will be grown outside boundary of project. Grasses, median plants and median shrubs will also be grown. Aesthetic and beauty plants including roses and jasmine will be planted. Trees height will be between 3-7 ft. Spacing between plants will be 6-8m. Tree plantation will be done in open spaces and along boundary of project site.

8 ENVIRONMENTAL MANAGEMENT AND MONITORING PLAN

An EIA report contains predictions about the environmental impacts of proposals and recommendations for their mitigation and management. The report is essentially a discretionary planning document. This section provides an overall approach for managing and monitoring environment and social issues and describes the institutional framework and resource allocations to implement the Environmental Management Plan (EMP) for the proposed project.

An environmental management plan (EMP), also referred to as an impact management plan, is usually prepared as part of EIA reporting. It translates recommended mitigation and monitoring measures into specific actions that will be carried out by the proponent. Depending upon particular requirements, the plan may be included in, or appended to, EIA report or may be a separate document. The EMP will need to be adjusted to the terms and conditions specified in any project approval. It will then form the basis for impact management during project construction and operation.

8.1 COMPONENTS OF ENVIRONMENTAL MANAGEMENT PLAN (EMP)

The main components of an EMP are described in the table below, which reflects practice at the World Bank. Although there is no standard format, the EMP should contain the following.

Table 3 Components of Environmental Management Plan (EMP)

Components of an Environmental Management Plan (EMP)	
Summary of impacts	The predicted adverse environmental and social impacts for which mitigation is required should be identified and briefly summarized.
Description of mitigation measures	Each mitigation measure should be briefly described with reference to the impact to which it relates and the conditions under which it is required (for example, continuously or in the event of contingencies). These should be accompanied by, or referenced to, project design and operating procedures which elaborate on the technical aspects of implementing the various measures.
Description of monitoring program	The monitoring program should clearly indicate the links between impacts identified in the EIA report and their monitoring parameters to be measure where appropriate.

Institutional arrangements	Responsibilities for mitigation and monitoring should be clearly defined, including arrangements for co-ordination between the various actors responsible for mitigation.
Implementation schedule	The timing, frequency and duration of mitigation measure should be specified in an implementation schedule, showing links with overall project implementation.
Cost estimates (Environmental budget)	These should be specified for both the initial investment and recurring expenses for implementing all measures contained in the EMP, integrated into the total project costs.

8.2 Proposed EMP reporting & reviewing Procedures

Implementation of EMP is the responsibility of proponent and contractor. This section provides institutional arrangements for environmental management during the proposed activity and defines the roles and responsibility of the various Organizations/departments. The responsibilities of different organizations/departments are summarized below:

8.2.1 Proponent

Responsibility of Proponent includes the following:

- Must take ownership of the process to ensure that its responsibilities are met.
- Supervising construction works.
- Schedule preparation and resource forecasting for engineering and other technical activities relating to the project.

8.2.2 Contractor

The contractor of construction activities will be responsible for:

- Develop and review work instructions and procedures.
- Review and improve method statements for environmental aspects prior to work starting.
- Monitor construction activities to ensure that control measures are effective and ensure compliance with the EMP.
- Coordinate with construction teams to ensure that environmental risks are identified and appropriate controls are developed.
- Coordinate environmental training for site personnel and subcontractors.

- Liaison with the project's environmental manager, and project public liaison officer.
- Ensure correct procedures are followed in the event of an environmental incident.
- Maintain training register, identify training needs and provide training where required.

8.2.3 EIA/IEE Expert

EIA/IEE Expert (Environmental Specialist) is the member of the supervising consultant's team. The responsibilities of EIA/IEE Expert include:

- Work with proponent to ensure all statutory environmental submissions under PEPA 1997 (Amended 2012) and other environmentally related legislation are thoroughly implemented.
- Work with proponent to ensure all environmental requirements and mitigation measures from the environmental assessment of the proposed project are included in the contract prequalification and bidding documents.
- Work with proponent to execute any additional EIA requirements needed due to fine tuning of the proposed project and that environmental performance targets are included in the contracts prior to project commencement.

5.2.4 Environmental Management Team along with their roles & responsibilities

The proposed institutional arrangement for the implementation of EMMP is based on the discussions held with the Forest Department, Environmental Protection Department, Local Union Council Office and Proponent. The discussion concluded that three types of institutional arrangements are essential for the effective implementation of EMMP, these are follows:

- Establishment of Environment/Social Management Group
- External Monitoring by EPA certified laboratory
- EMC established by Proponent after consultation with consultant

a. Roles and Responsibilities

Following are the designated roles and responsibilities of the employees involved in the monitoring and management of the adverse impacts:

Roles and Responsibilities		
Sr#	**Concerned Persons**	**Duties**

1	The Project Manager	Following will be the responsibilities of the Project Manager • Monitor the implementation of the EMMP throughout the project by means of site inspections and meetings. This will be documented as part of the minutes of the site meeting documents. • Ensuring project execution within defined budget and timelines • Conducting regular check of the project status and meetings with project team • Provide support and guidance to project team as and when needed • Project Manager is expected to continually monitor and improve the overall performance of their operation
2	HSE Manager	In addition to the health and safety responsibilities held by staff, managers and supervisors must do whatever is reasonably practical to ensure that both the workplace and the work itself are safe. This includes: • Ensuring that staff are appropriately trained and supervised • Identifying, assessing, and managing health and safety risks • Consulting with workers (including staff, affiliates, and contractors): i. Health and safety risk assessments ii. Decisions are made about the measures to be taken to eliminate or control these risks iii. Health and safety risk assessments • Implementing health and safety risk management programs relevant to their operations, teaching, research and consulting functions and work environment • Reporting (to the Human Resources Unit), investigating and responding to all hazards, accidents, incidents and taking action to control the risk • Assisting with the development, implementation and maintenance of a return-to-work program for injured staff. • Be fully conversant with the EIA and conditions of its approval • Be fully conversant with the EMMP • Be fully conversant with all relevant environmental legislation, policies and procedures, and ensure compliance • Undertake regular and comprehensive inspection of the site and surrounding areas in order to monitor compliance with the EMMP • Take appropriate action if the specifications contained in the EMMP are not followed. • Monitor and verify that environmental impacts are kept to a minimum, as far as possible • Review and approve construction methods, with input from the Site Manager, where necessary • Ensure that activities on site comply with all relevant environmental legislation

		• Compile progress reports on regular basis, with input from the Site Manager, for submission to the Project Manager, including a final post excavation audit • Liaise with the Site Manager regarding the monitoring of the site • All environmental problems arising on the construction area will be reported to the Site Manager by the Environmental Manager. Reports on such problems will be submitted to the Project Manager by the Site Manager

8.3 TRAINING SCHEDULE

Proponent will be responsible for providing health and safety training, and briefing environmental requirement of the project o workers and its staff before the commencement of work. Training workshops would be conducted at every six months or twice each year to share the monitoring report on the implementation of the EMP

Table 4 ENVIRONMENTAL MANAGEMENT PLAN

Activity (Summary of Impacts)	Mitigation Measures	Implementation Schedule (Timing/Frequency)	Institutional Capacity (Responsibility)
DESIGN/PRECONSTRUCTIN STAGE			
Layout and Design Preparation of design documentation for proposed construction. Procedures for approval of design documentation	• The design process should be carried out in recognition of identified hazards and risks assessment. Accepted design solutions should focus on maximum possible opportunity for risks reduction. • Carry out engineering surveys including environmental surveys depending on the level of complexity and potential hazards of the planned facilities in the area of planned construction. • The detailed engineering and equipment specifications must conform to acceptable national and international standards. • Include enhancements, techniques to reduce impacts.	During preliminary surveys and investigations	Proponent/ Environmental Specialist/ Contractor
Access to Site Sound environmental principles must be followed whilst establishing access to the site	• The location of all access points to the proposed project site must be identified and confirmed. • Marking of survey points must be done with the Proponent's approval.	Prior to moving onto site During surveys and preliminary investigations	Proponent/ Contractor
Training of Site Staff on General Environmental Conduct	• Ensure that all site personnel have a basic level of environmental awareness training.		

These points need to be made clear to staff on site before the project begins	• The Contractor must submit a proposal for this training to the workers for approval. • Site policy also needs to be explained to the construction workers. • No alcohol / drugs to be present on site. • No firearms allowed on site or in vehicles transporting staff to / from site (unless used by security personnel). • Prevent excessive noise. • Prevent unsocial behaviour. • No harvesting of firewood from the site or from the adjacent areas. • Trespassing on private / commercial properties adjoining the site is forbidden. • Other than the pre-approved security staff, no workers should be permitted to live on site.	During staff induction and ongoing	Proponent/ Contractor
Social Impacts – Visual & Noise It is important to take notice of the needs and wishes of those living of working adjacent to the site. Failure to do so can cause disruption to work and increase costs in the form of delays	• During the set up phase of the project, the Proponent and Cons. EnvironTech need to make contact with those people that are interested or affected by the development. • Construction vehicles are to be fitted with standard silencers prior to the beginning of construction. • Equipment that is fitted with noise reduction facilities should be used as per operating instructions and	Prior to moving onto site/ On site Feedback During surveys and preliminary	Proponent/ Contractor/ Environmental Specialist

	maintained properly during site operations. • Storage facilities and other temporary structures on site should be located such that they have as little visual impact on local resident as possible.	investigations and site set up	
Cultural Environment	• Prior to the commencement of construction, contractor needs to know if any possible archaeological or historical objects of value are present near the project site. • Inform the relevant department in case of any disturbance to cultural environment.	During surveys and preliminary investigations and site set up	Proponent/ Contractor
CONSTRUCTION STAGE			
Air Pollution/ Dust Exhaust gases from vehicles and machinery and dust during excavation, backfilling, compaction activity and movement of vehicles on un-paved roads Establishment of the camp site, and related temporary works can reduce air quality.	• Monitoring of gaseous emission should be conducted by 3rd party. • Well maintained machinery should be used at site and its regular monitoring should be ensured. • Use of water sprays to decrease dust generation. • Workers will be provided with Personal Protective Equipments (PPEs) such as face masks and goggles.	Throughout Construction Phase	Proponent/ Contractor

Water Resources	• Availability of water will be assessed to evaluate the impact on community resources. • Water should be obtained without depleting local water supplies. • Guidelines should be established to minimize the wastage of water during construction. • Protection of groundwater reserves from any source of contamination such as the construction and oily waste that will degrade its potable quality.	Throughout Construction Phase	Proponent/ Contractor
Wastewater	• Sanitary wastewater should be treated as per wastewater management plan. • No hazardous untreated effluents should be released to the environment. • Open stockpiles of construction materials on site should be covered with tarpaulin or similar fabric during rainy season; • Prevent the washing away of construction materials, soil, silt or debris into any drainage system; • All machinery and equipment should be regularly maintained and serviced to avoid leak oils; • Wastewater monitoring should be conducted quarterly by 3rd party.	During Construction Phase	Proponent/ Contractor

Soil Erosion	• Avoid creating excessive slopes. • Save top soil removed during construction and use to reclaim disturb areas, as soon as it is possible to do so.	During Construction Phase	Proponent/ Contractor
Solid Waste Debris and surplus construction material	• Confirm amounts of surplus rock based materials can be reused in the project or by other interested parties for public projects.	During Construction Phase	Proponent/ Contractor
Noise Construction activities are expected to increase the noise levels mainly due to plying of construction vehicles, mechanical machinery such as cranes, hammering etc.	• All machinery should be fitted with acoustic insulation. • Providing the construction workers with suitable hearing protection like earmuffs and training them in their use.	During Construction Phase	Proponent/ Contractor
Equipment Maintenance	• Prepare and keep the record of equipment maintenance log. • Prepare proper maintenance sheets for vehicles. • Use fully tuned vehicles and machinery.	During construction	Proponent/ Contractor
Workers and Public Safety	• Safety conditions during construction phase should be ensured. • Safe access and thoroughfare must be provided on site at all times. Dangerous areas should be clearly identified with appropriate signs. • Providing every worker with skull guard or hard hat and safety shoes.	During construction	Proponent/ Contractor

	• Conduct proper worker health and safety training and orientation prior to initiation of tasks.		
Social Impacts	• Use local labour as far as possible for manual work. • Use local educated people for clerical and office work where possible. • Contractor's activities and movement of staff to be restricted to designated construction areas. • The site must be kept clean to minimize the visual impact of the site. • Machinery and vehicles are to be kept in good working order for the duration of the project to minimize noise nuisance to neighbors. • Noisy activities must be restricted to the designated time.	During Construction Phase	Proponent/ Contractor
Site Restoration	• Carry out complete restoration of the construction sites. • Remove all waste, debris, unused construction material, and spoil from the worksites. • Measures taken to control erosion will include clearing and grading the ground surface within approved work limits, stripping the top soil layer from the subsoil, stockpiling the removed soil in approved areas to be retrieved during landscaping and site restoration.	After completion of project	Proponent/ Contractor

	• Replanting the original vegetation after construction.		
OPERATIONAL STAGE			
Air Quality	• Gaseous emissions from generator will be managed according to the standard procedures. • Low sulphur fuel will be used in generators. • Regular monitoring will be carried out by 3rd party to assess the nuisance of emissions from the project site. • Monitoring data should be kept in record for further correspondence.	Operational phase	Proponent
Wastewater	• Domestic wastewater generated shall be treated in septic tank. • After treatment wastewater will be discharged in the WASA drain. • Monitoring of wastewater should be carried out regularly by 3rd party to ensure compliance with the PEQS.	Operational phase	Proponent
Solid waste	• Solid waste should be disposed off through approved vendors. • Training will be provided to personnel for identification, segregation, and management of waste. • For the collection of such waste, receptacles will be provided.	Operational phase	Proponent

	• Waste from such containers shall be collected separately on a daily basis. • All the collection bins shall be properly maintained on regular bases.		
Fire Hazard	• Install fire-fighting equipment in the entire building. • Fire exit should be made which should be considered at the design phase. • Train employees to use firefighting equipment at the time of emergency.	Operational Phase	Proponent

8.4 Plan for Compliance of Hospital Waste Management Rules 2016

Rule No.	Statement	Plan
1)	**Responsibility of waste management**	The responsibility falls on waste manager and waste officer to ensure smooth compliance of the rules.
2)	**Hospital Waste Management Team**	The Management of Hospital will depute team for waste management comprising of senior waste officer, waste manager, and waste collectors.
3)	**Responsibilities of the Hospital Waste Management Team**	The waste management Team will be made fully aware of their duties and responsibilities.
4)	**Meetings of Hospital Waste Management team**	Meetings will be held every two weeks to assess the performance and review of procedures.
5)	**Waste management Plan**	A comprehensive waste management plan is developed for the hospital.
6)	**Waste Segregation**	Color coded bins will be installed at different locations for segregation of waste.
7)	**Waste collection**	Waste will be stored temporarily in storage room. The location is highlighted in layout plan. Proponent will make contract with incinerating facility after getting environmental approval from EPA, Punjab.
8)	**Waste transportation**	
9)	**Waste Storage**	
10)	**Waste disposal**	

8.5 ENVIRONMENTAL MONITORING PLAN TO ASSESS OUTPUT OF EMP

An environmental monitoring plan provides a delivery mechanism to address the adverse environmental impacts of a project during its execution, to enhance project benefits, and to introduce standards of good practice to be adopted for all project works. An environmental monitoring program is important as it provides useful information and helps to:

- Assist in detecting the development of any unwanted environmental situation, and thus, provides opportunities for adopting appropriate control measures, and
- Define the responsibilities of the project proponents, contractors and environmental monitors and provides means of effectively communicating environmental issues among them.
- Define monitoring mechanism and identify monitoring parameters.

- Evaluate the performance and effectiveness of mitigation measures proposed in the Environment Management Plan (EMP) and suggest improvements in management plan, if required,
- Identify training requirement at various levels.
- An environmental monitoring plan is suggested to monitor environmental parameters during survey, construction and post construction phase of the project.
- Following environmental record should be maintained:
- Incident record of all moderate and major spills and other incidents and accidents. The record will include:

  - Location of spill or Spilled material
  - Estimated quantity or the amount of injury
  - Nature of injury or loss (temporary or permanent)
  - Restoration measures
  - Photographs
- Description of any damage to vegetation, water resource, or community asset.
- Corrective measures taken, if any
- Waste Tracking Register that will hold records of waste generated during the construction period. This will include quantities of waste disposed, recycled, or reused.
- Records of water consumption with usage breakdown
- Survey reports, in particular, the following:
  - Vehicle and equipment noise.
  - Ambient noise survey reports.
  - Ambient level of PM
  - Vendor data—all vendors disturbed by the project and compensation paid Public infrastructure: Record of all damages and repair work undertaken.
  - Employment
  - Total number of unskilled, semi-skilled, and skilled jobs offered during Construction.
  - Name and domicile of the employed staff.
  - Project and Community Interface
  - Record of community complains and the measures taken to address them.
  - Number of meetings held in various communities and data of persons who attended
  - Environmental and social training records.

Table 5 ENVIRONMENTAL MONITORING PLAN FOR CONSTRUCTION AND OPERATIONAL PHASE

Environmental Quality	Parameters	Details of Location	Standards/Guidelines	Frequency	Responsibility
CONSTRUCTION PHASE					
Waste Collection, Storage and Disposal	Inspection of Waste Generation, collection, Storage and Disposal at site	Construction Site	Statutory Requirements	Once a week	Environmental officer/manager
Worker's safety	Injuries and accidents	Recording injuries	-	Onsite	HSE/contractor
Air Quality	Air Quality (PM_{10}) All relevant stack emissions (CO,NO_X,SO_X Smoke)	Active Construction Area	PEQS	Once a month	Environment Officer /manager
Water Quality	Groundwater Quality (Total Coliform, Fecal E.Coli, Total Colonial Count, pH, TDS, Total hardness, Alkalinity Nitrates, Chloride, Sodium, iron)	Groundwater sources near the project site	PEQS	Once a month	Environment Officer /manager
Noise Level	Noise level on dB (A) Scale	At least three locations near boundary	PEQS	At least 3 working days	Environment Officer /manager

OPERATIONAL PHASE					
Ambient Air Quality	NO_X, SO_X,	Stack of generator	PEQS	Quarterly	Environment Officer /manager
Noise Level	Noise level on dB (A) Scale	Noise level near the receptor	PEQS	Quarterly	Environment Officer /manager
Waste disposal, procedure for waste collection, storage, and disposal	Inspection of waste generation, collection, storage, and disposal will be undertaken at each site of the project activity	Visual inspection	Statutory Requirements	Once daily	Administration Officer
Safety	Injuries	Injuries will be recorded		Daily	Administrator

8.6 EQUIPMENT MAINTENANCE DETAILS

As the Proposed Project is construction of a hospital building so no specific machinery/equipment will be use. Hence, maintenance of machinery is not required. However, maintenance of green areas and generator will be required. The generator will be silent set housed in approved acoustic enclosure, so as to control the noise pollution. Maintenance of green areas will be done properly by gardeners and proper security arrangements and guards will also be there.

8.7 ENVIRONMENTAL BUDGET

Approximately 5 million PKR per year budget will be reserved for the solid waste management, fire-fighting and environmental monitoring.

9 PUBLIC CONSULTATION AND INFORMATION DISCLOSURE

Public consultation refers to the process by which the concerns of local affected persons and others who have a plausible stake in the environmental impacts of the project or activity are ascertained with a view to taking into account all the material concerns in the project or activity design as appropriate. According to the IEE and EIA Review Regulations, public consultation is mandatory for any socio-environmental study.

9.1 The Responsible Authority

Impact assessment survey and public consultation sessions held with different stakeholder groups that may be impacted by the proposed project commencement. The consultation process was carried out in accordance with the guidelines laid by Punjab-EPA. The objectives of this process were to:

- Share information with stakeholders on proposed project installation and operation.
- Access the impacts on the physical, biological, and socioeconomic environment.
- Understand stakeholder concerns regarding various aspects of the project commencement.
- Find out valuable suggestions by the stakeholders to improve the proposed project design.
- Understand the perceptions, assessment of social impacts and concerns of the affected people/communities of the project area.
- Find out the awareness level and situation of acceptability to identify any issues for the implementation of the proposed project.
- Invite people to express their views about the positive/negative impacts on their lifestyles and environment.
- Disclose information about contact offices/officers for any complaints/queries.

It is envisaged, there will be no social impact being foreseen due to the construction and operation of Al Shifa Trust Eye Hospital Lahore at the proposed location. Alkabir Town is the nearest community located at 100 meters distance from the project area. This EIA Report includes all the comments, which were taken into account during the social survey and preparing the definitive development concept for the project.

9.2 Objectives of Consultation

Public consultation plays a vital role in studying the impacts of the proposed project on stakeholders in successful implementation and execution of the project. It provides an opportunity to exchange knowledge with the beneficiaries and affected parties. Referring particularly to a project related to environmental assessment, involvement of the public is all the more essential, as it leads to better and more acceptable decision-making. The overall objective of the consultation with the stakeholders is to help verify the environmental and social issues, besides technical ones, that have been presumed to arise and to identify those which are not known or are specific to the project. In fact, discourse with many who have thoroughly observed the site conditions in the pre-development phase, goes a long way in updating the knowledge and understanding.

9.3 Identification of Stakeholders

All the people who are directly or indirectly affected or concerned with the project are the stakeholder. Besides the living population of the surrounding areas, some other stakeholders were identified and contacted which enlisted below. They are the key players including; shops, public and government offices, schools, university, hospitals, hotels, international agencies and the NGOs. Not only published material, brief or other literature were obtained on request, but also noted their views and the concerns, in an official capacity as well as on the personal basis. Following stakeholders are identified for this project:

Project Affected Persons (PAPs) include the settled families, either property owners or the tenants, businessmen (big, shopkeepers, vendors, etc.), employees of the commercial entities. PAPs are of two types, for instance:

9.3.1 Direct Stakeholders

As, no disturbance in the local community is being foreseen due to the development of hospital as the minimum distance between the community and the project area is minimal. No property loss is being envisaged due to the construction of the Al Shifa Trust Eye Hospital Lahore.

9.3.2 Indirect Stakeholders

Indirect impact will occur on those who are living or doing business within a Project Area of Influence (AOI). In the case of the proposed project, the citizens of nearby area (Alkabir Town) will get opportunities of being employed. So, in the early

development stages and during the operational phase the people will be benefited due to the establishment of the Al Shifa Trust Eye Hospital Lahore.

9.3.3 Other Departments & Agencies:

- Government agencies responsible to deal with the project related activities
- Government Agencies directly, indirectly, or widely involved in the execution and monitoring of the proposed project.
- Government departments such as TMA and Planning & Development Department, working on the other development activities are considered as indirect stakeholders.
- Workers of political, cultural, religious, or social scientific bodies, directly or indirectly related to the project.

9.4 Public Disclosure

Public disclosure is the outcome of all such activities where the public is involved at least in the information sharing process. This is an integral part of the process. So, before the proponent applies for NOC to the Punjab-EPA, this disclosure will be distributed properly among all stakeholders. It is the responsibility of the proponent and the consultants to display a public disclosure document in prominent places where community has easy access.

9.5 Consultation Process

Information disclosure, public consultation and discussion regarding the various aspects of the project with the people of the area are necessary. This process is intensified during the EIA Studies, and separate rounds of public consultations were held. Surveys were carried out in order to investigate physical, biological and socioeconomic resources falling within the immediate AOI of the project. Primary data collection included:

- Data collection regarding the socioeconomic condition of the study area
- Pre-testing of socioeconomic survey tools in the field
- To consult the locals for collection of information on biological environment
- Various meetings with the stakeholders were held the following objectives:
- Share information with stakeholders on the proposed project and expected impacts on community in the vicinity of the project.

- Understand stakeholders' concerns regarding various aspects of the project, including the existing condition of the upgrading requirements, and the likely impact of construction and operation activities.
- Provide an opportunity to the public to influence the project design in a positive manner.
- Obtain local and traditional knowledge, before decision making.
- Increase public confidence about the proponent, reviewers, and decision makers.
- Reduce conflict through the early identification of controversial issues, and work through them to find acceptable solutions.
- Dissemination of information through discussions, education, and liaison.
- Documentation of information narrated by the stakeholders and mitigation measures proposed by the stakeholders.
- Incorporation of public concerns and their address in the EIA; and eliciting their comments and feedback.
- Create a sense of ownership of the proposal in the mind of the stakeholders.

9.6 Environmental Practitioner & Experts

Officers of government departments were consulted by the socio-environmental team of the consultants and concerned details about the project were noted down through personal interviews, group meetings, etc., in their offices, for instance.

9.7 Affected and Wider Community

In addition, to the use of direct methods to evince the response of the various stakeholders in the population of the study area was ascertained by conducting a sample survey, through specially formatted questionnaires. Questions posed to the public were related to creation of possible impacts, adverse impacts and beneficial impacts, including; employment opportunities, income generation activities, change in living standards and provision of the amenity.

- Disclose the proponent plan of the construction of the proposed project.
- To share information on the design and specifications of proposed project works
- To analyze the expected impact on the socioeconomic environment
- To understand their concerns regarding various aspects of construction and operation

9.7.1 Views, Concerns and Suggestions of Various Stakeholders

Community showed a lot of concerns; a few are being mentioned here:

- Removal of shrubs and trees should be avoided to the extent possible
- The project will become the source of income for local to earn their livelihood easily and honorably.
- The area will become further developed.
- For the solid waste management and waste disposal, proper disposal techniques should be adopted.
- Employment opportunities will be generated, and locals should be hired on the priority basis.
- The air pollution is one of the major impacts of the proposed project so ambient air quality should be monitored regularly.
- Water spraying/sprinkling should be done on the regular basis during construction phase to avoid dust emissions.
- Removal of shrubs and trees should be avoided to the extent possible
- Good relations with the local communities will be promoted by encouraging Contractor to provide opportunities for skilled and unskilled employment to the locals as well as on-job training.
- The contractor should prefer hiring local labor from adjacent nearby villages.
- Indigenous tress around the facility should be planted to control air pollution and as the compensation.
- Noise reducing barriers should be installed to reduce noise pollution as the nearest community lies close.

Concerns

- Workers should be hired from local community.
- Proper disposal of solid waste should be practiced.
- Indigenous tress around the facility should be planted to control air pollution.
- Removal of shrubs and bushes should be avoided to the extent possible.

9.7.2 Addressing Public Concerns

The best mechanism of effective communication between the community and the proponent is the by the nomination of the representative of the community and all the issues/concerns must be recorded for future reference. This representative may be the member of the Grievances Redressed Committee (GRC).

a) Grievances Redressed Committee

Grievances Redressed Committee (GRC) will be formulated by the proponent to address the concerns of the locals during the construction phase. The main role of the GRC will be to resolve the issues of the community associated with the proposed project, if any.

9.8 Acceptance Level of the Project

The opinions of the respondents were noted during the public consultation. The majority of respondents (97%) of Alkabir Town were in favor of the proposed project. They expect that establishment of hospital will also increase the economic value of local assets as well as the health standards. According to them the proposed project will boost the employment opportunities, mobility access to resources and social amenities.

10 CONCLUSION AND RECOMMENDATIONS

10.1 CONCLUSION

The report presents Environmental Impact Assessment (EIA) of the proposed project of “Al Shifa Trust Eye Hospital Lahore”.

EIA of proposed project is performed according to guidelines of EPA. It includes description of the project, description of the environmental baselines, potential environmental impacts and suggested mitigation measures. An implementation mechanism for mitigation measures in the form of an Environmental Management Plan is included in the study.

The EIA elaborates all anticipated impacts (both positive and negative), associated with the project. Appropriate mitigation measures as explained in the environmental study shall reduce, if not eliminate, these impacts so that these are within acceptable limits. Moreover, no deterioration, depletion or exploitation of resources is expected to be caused by this project.

Based on overall assessment of the environmental impact of the project, it is concluded that the project is not likely to cause any significant adverse impact on the social, physical and biological environment of the area, provided that suitable mitigation measures as identified in this study are implemented.

It is accordingly recommended that Environmental Approval for the project may be issued by the Punjab Environmental Protection Agency, subject to payment of the requisite scrutiny fee by the proponent of the project.

10.2 RECOMMENDATIONS

The EIA study and survey results are finally evaluated to recommend the following:

- Implementation of EMP must be given top priority.
- Proper PPEs including ear plugs, ear muffs, mufflers, goggles, gloves and shoes etc should be provided to workers.
- Advise all operational staff to follow SOPs.
- Installation of fire extinguishers in the premises and their monitoring must be ensured.
- Equipment maintenance and efficiency must be checked.
- No compromise on public health and environment should be allowed.
- Waste minimization practices should be employed and workers should be encouraged to adopt such methods.

- Proper tree plantation plan should also be developed in order to make the project site environment friendly.
- Small waste storage bins should be installed at different corners for proper waste collection and discharge.
- The proposed Environmental Management & Monitoring Plan should be implemented.

LIST OF ABBREVIATIONS

°C	Degree Celsius
CO_2	Carbon dioxide
CPEC	China Pakistan Economic Corridor
EIA	Environmental Impact Assessment
IEE	Initial Environmental Examination
EMMP	Environmental Management and Monitoring Plan
EMP	Environmental Management Plan
EPA	Environmental Protection Agency
EPD	Environmental Protection Department
GDP	Gross Domestic Product
m^3	Cubic meter
MW	Megawatt
NEQS	National Environmental Quality Standards
No.	Number
NOC	No Objection Certificate
NO_x	Oxides of Nitrogen
PEPA, 2012	Punjab Environmental Protection (Amendment) Act, 2012
PEPC	Pakistan Environmental Protection Council
PEPO	Pakistan Environmental Protection Ordinance
PKR	Pakistani Rupees
PM	Particulate Matter
PPEs	Personal Protective Equipment
QA	Quality Assurance
RO	Reverse Osmosis
SOPs	Standard Operation Procedures
TMA	Town Municipal Authority

GLOSSARY

Aesthetic	Concerned with beauty or appreciation of beauty.
Agency	A business or organization providing a particular service on behalf of another business, person, or group.
Aquifer	An aquifer is an underground layer of water-bearing permeable rock, rock fractures or unconsolidated materials (gravel, sand or silt) from which groundwater can be extracted using water well.
Climate	The weather conditions prevailing in an area in general or over a long period.
Consultant	A person who provides professional advice or services to companies for fee.
Construction Waste	Waste generated from the buildings and construction industry and includes material like bricks, concrete, tiles, debris, ceramics and more.
Convention	An agreement between states covering particular matters, especially one less formal than a treaty.
Demographic	A single vital or social statistic of a human population, as the number of births or deaths.
Ecology	The branch of biology that deals with the relations of organisms to one another and to their physical surroundings.
Endangered species	A species of animal or plant that is seriously at risk of extinction.
Environment	Relationship of natural world (human beings, animals and plants) with physical surroundings (air, land, water).
Excavation	Excavation is the act or process of digging, especially when something specifics being removed from the ground. Archaeologists use excavation to find artifacts and fossils.
Framework	A framework is a real or conceptual structure intended to serve as a support or guide for the building of something that expands the structure into something useful.
Hazardous Waste	Hazardous Waste is waste that poses substantial or potential threats to public health or environment.
Impact	The action of one object coming forcibly into contact with another.
Livelihood	A set of activities involving Securing the basic necessities –food, water, shelter and clothing of life.
Municipal Waste	Municipal Solid Waste (MSW)—more commonly known as trash or garbage—consists of everyday items we use and then throw away, such as product packaging, grass clippings, furniture, clothing, bottles, food scraps, newspapers, appliances, paint, and batteries. This comes from our homes, schools, hospitals, and businesses.
Nature	The phenomena of the physical world collectively, including plants, animals, the landscape, and other features and products of the earth, as opposed to humans or human creations.
Ordinance	An ordinance is a law enacted by a municipal body, such as a city council or county commission (sometimes called county council or county board of supervisors).
Preservation	Preservation is the strict setting aside of natural resources to prevent the use or contact by humans or by human intervention. In terms of policy making this often means setting aside areas as nature

	reserves (otherwise known as wildlife reserves), parks, or other conservation areas.
Proponent	A person who advocates a theory, proposal, or course of action.
Policy	A policy is a deliberate system of principles to guide decision and achieve rational outcomes.
Rehabilitation	To restore to a condition of good health, ability to work, or the like.
Resettlement	The settlement of people in a different place.
Resource	A stock or supply of money, materials, staff, and other assets that can be drawn on by a person or organization in order to function effectively.
Sanitation	Conditions relating to public health, especially the provision of clean drinking water and adequate sewage disposal.
Seismic Hazards	A seismic hazard is the probability that an earthquake will occur in a given geographic area, within a given window of time, and with ground motion intensity exceeding a given threshold.
Stakeholder	A stakeholder is a party that has an interest in a company, and can either affect or be affected by the business. The primary stakeholders in a typical corporation are its investors, employees and customers.
Stage digging	Stage digging is a process by which portions of the root ball are dug over a period of time in order to allow the tree to acclimate to the stresses gradually.
Topography	Topography is the study of the shape and features of the surface of the Earth and other observable astronomical objects including planets, moons, and asteroids.
Vegetation	Plants considered collectively, especially those found in a particular area or habitat.
Valued Environmental Components	Valued environmental components (VECs) are defined as fundamental elements of the physical, biological or socio-economic environment, including the air, water, soil, terrain, vegetation, wildlife, fish, birds and land use that may be affected by a proposed project.
Valued Social Components	Sociocultural factors are customs, lifestyles and values that characterize a society or group. Cultural aspects include concepts of beauty, education, language, law and politics, religion, social organizations, technology and material culture, values and attitudes. Social factors include reference groups, family, role and status in society, time and available resources. An understanding of sociocultural factors is crucial in developing marketing strategies for businesses or organizations seeking action from particular groups.

LIST OF PEOPLE CONSULTED

SR. NO.	NAME	ID CARD NUMBER	OCCUPATION	CONCERN/VIEWS
1.	Ghulam Shabir	36303-7360882-5	farmer	Positive
2.	Ansar Ali	34101-5615463-9	Farmer	Positive
3.	Liaqat Ali	34101-527.5075-1	Farmer	Positive
4.	Abdul Rehman	34102-0434594-7	Shop Owner	Concerned about pollution
5.	Muhammad Bilal	36303-9299987-3	Shop Owner	Concerned about Noise pollution
6.	Muhammad Yousaf	36302-5965175-3	Daily Wager	Positive
7.	Muhammad Asif	36303-4107290-1	Daily Wager	Positive
8.	Muhammad Iqbal	36303-1561962-1	Vendor	Positive
9.	Abdul Hameed	36302-0474840-7	Vendor	Positive
10.	Muhammad Imran	42201-3691562-7	Daily Wager	Positive
11.	Muhammad Sabir	36303-9221124-3	Vendor	Concerned noise pollution

LIST OF ORGANIZATIONS CONSULTED

Sr. No	Name	Organization	Feedback
1	Amir Ishfaq	Co-operate HSE Advisor Lahore	It will help the region move towards sustainability
2	Anas Khan	Field Officer Horticulture department	Being developing country facility is a critical need of time.
3	Muneeb Zafar	Policy Officer Department of Agricultural Lahore	Such facility will greatly help in reducing pressure of increasing demand of quality eye care services as well as provide economic violability to local.
4	Haroon Hafeez	SDO LESCO	Positive
5	Riaz Khan	Water Quality Analyst Department of Agriculture Lahore	Establishment of this unit must be favored at all costs considering the demand of modern eye health care facilities.
6	Jawad Rehman	Senior Research Officer Department of Agriculture Lahore	Positive

SOURCES OF DATA AND FULL LIST OF ALL REFERENCE MATERIAL USED

Data was collected by:

- Field visits
- Published articles
- Stakeholder's consultation
- Client meetings'

TERMS OF REFERENCES

The consultants are required to carry out an Initial Environmental Examination study of the project under Section-12 of Pakistan Environmental Protection Act 1997/ Punjab Environmental Protection (Amendment) Act 2012.

The Study should be comprehensive and should cover all aspects which are envisaged under the relevant national and provincial laws & regulations including but not limited to:

- Identification and recommendation for suitable solution/treatment/mitigation measures for emissions and effluents such as wastewater and sludge etc. in accordance with Punjab Environmental Quality Standards (PEQS).
- Identification and recommendation for suitable solution/treatment/mitigation measures of solvents, oils (tar), hazardous waste, organic compounds, steam, flue gases, particulate matter and chemical compounds harmful for the environment and other substances leading to air, noise, water and soil pollution in accordance with PEQS.

The Study should be acceptable to the relevant national and/or provincial authorities (relevant authorities) in Punjab.

LIST OF NAME, QUALIFICATION AND ROLES OF TEAM MEMBERS CARRYING OUT IN IEE/EIA STUDY

Sr.No.	Name	Designation	Role and Responsibility
1.	Dr. Mateen Shafqat		Technical Peer Review
2.	Mr. Kamal Ahmed Cheema	Lead Environmentalist	Technical Peer review
3.	Ms. Maham Ayesha	Manager Operations	Legal framework review and Stakeholder consultation IEE/EIA Expert, Environmental & Social Baseline, Report Writing.
4.	Arslan Iqbal	Environmentalist	Project Coordination and management, Impact Assessment and Mitigation Measures, Environmental Management Plan, Technical Report Writing.
5.	Mr. Jawad Shafiqe	Zoologist	Legal framework review and Stakeholder consultation, IEE/EIA Expert, Environmental & Social Baseline, Report Writing.
6.	Ms. Amnah Hafeez	Environmentalist & GIS Expert	Legal framework review and Stakeholder consultation, IEE/EIA Expert, Environmental & Social Baseline, Report Writing. Project GIS Mapping
7.	Ms. Huda Ashfaq	ESG Expert	Legal framework review and Stakeholder consultation, IEE/EIA Expert, Environmental & Social Baseline, Report Writing.