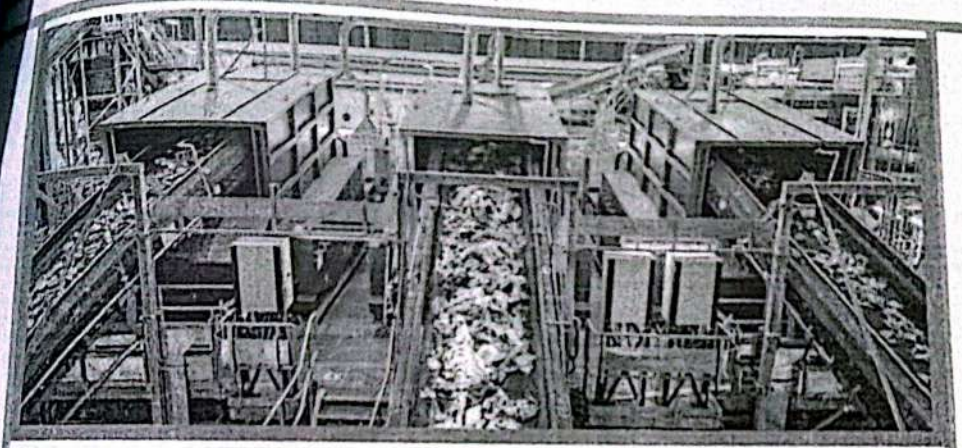
ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

REPORT



"ESTABLISHMENT OF INTEGRATED WASTE MANAGEMENT FACILITY AND INSTALLATION OF INCINERATOR BY M/S HAJI AKHTAR & SONS" SITUATED AT 3-KM LAHORE ROAD,NEAR SEAM NALA BHADDU MURADAY SHEIKHUPURA

Leads Enviro Saftey Services

Address: Office No.506,5th Floor, Gold Center, Liberty Market, Gulberg-lll,Lahore

CHAPTER # 01,

EXECUTIVE SUMMARY

1.1 Title, location and name of the project

Establishment of Integrated Waste Management Facility and Installation of Incinerator by M/S Haji Akhtar & Sons situated at 3-Km Lahore Road,Near Seam Nala Bhaddu Murad Sheikhupura

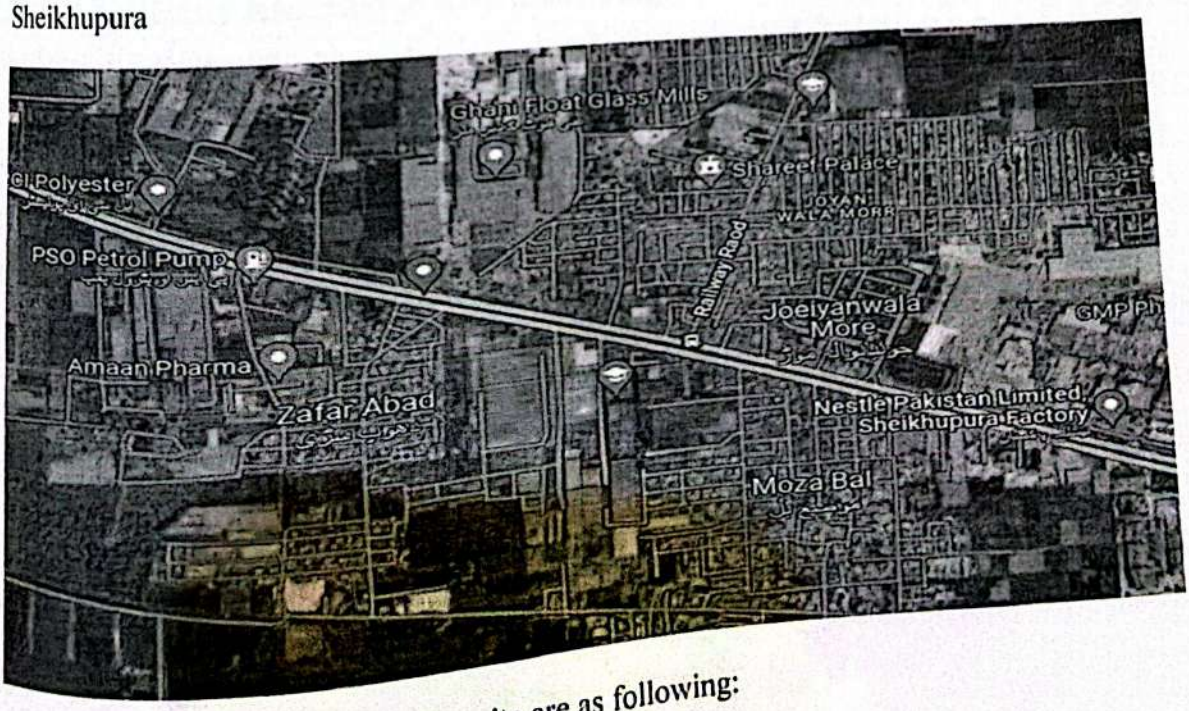
This proposed project involves the handling of hazardous substance.

The waste will be handled, as prescribed in section 12 of Punjab Environmental Protection Act (Amended 2022)". The Proponent aims to install 1 Incinerator having capacity of 1000 Kg/hr.

The estimated cost of the project is Rs. 42 million. This study is being submitted to EPA in compliance of section-12 of PEPA, 1997 (Amended 2012). TORs of the EIA study under clause 5 (C) of policy and procedure for the filing, review and approval of environmental assessment

1.2 Location:

Proposed project site is located at 3-Km Lahore Road,Near Seam Nala Bhaddu Murad Sheikhupura



The land co-ordinates of the project site are as following:

East (Front side) ..... road and across the road are Vacant Land
West (Back side) ..... Vacant Land
South (Left side) ..... Vacant Land
North (Right side) ..... Vacant Land

1.3 Project Proponent

Proponent Name: Mr. Muhammad Shaharyar Akhtar R/o Mohalla Sharqpur khurd Kot Abdulmalak, Tehsil Ferozwala and District Sheikhupura

CNIC of the proponent and land ownership documents are attached as **Annexure-B** with this report.

1.4 Name of the organization preparing the report:

The services of environmental consultant **Lead Enviro Safety Services** have been taken by the proponent for the formulation of **Environmental Impact Assessment (EIA)** Report. It is an environmental consultancy firm that has an unrivalled reputation for providing high quality tailored services. **Lead Enviro Safety Services PVT Ltd** is a dynamic, responsive and innovative in providing this cost-effective solution. **Lead Enviro Safety Services PVT Ltd** comprising of Environmental Engineers & Consultants, and rendering their services to clients in both industrial and the government sectors.

With the visionary leadership of its veteran management and enthusiasm of its team, it is committed to come up with innovative ways of maintaining and enriching the Environmental Profiles / Portfolios of its prestigious clients with activities having a strong and lasting impact to their corporate image. It has attracted and retained staff with an unrivalled depth and breadth of expertise and experience that they have from working, not just in consultancy but also in commercial, industrial and regulatory environments. With its pool of Environmental Consultants, Environmental Scientists and Environmental Engineers, company offers one stop solutions tailored to its client's needs.

CONTACT DETAILS:

Qualified professionals with relevant experiences of conducting environmental assessment have contributed to the preparation of Environmental Impact Assessment (EIA)Report. The team has been shown in Table below:

Table 1.1: List of Team Members

Name	Qualification	Role
Mr. Shoaib Ahmad	MSc. Environmental Sciences	Preparation of Plan for the assessment activity, award of assignment to the team members & review the draft of EIA. Preparation of Environmental Management Plan and impact assessment matrix.
Ms. Nayab	M.Phil. Environmental Sciences	Environmental Legal framework & preparation of EnvironmentalMonitoring Plan. Desk studies, Review of literature, Quality, monitoring of air and mitigation, and compilation of Final report.
Mr.Khuzaima	BS. Environmental Sciences	Desk Studies and draft preparation, Filed Survey

1.5 Brief Outline of the Project:

"This proposed project involves the handling, treatment, recycling, incineration, dumping, of

I. Hazardous substance
II. Hazardous waste

This proposed project involves the handling of Hazardous substance such as Sludge, hospital waste, Solvent-based paints, Pesticides and other garden chemicals, Batteries (for example car, mobile phone or regular household batteries), Motor oils (for example from cars or mowers), Petrol and kerosene, Cleaning and polishing chemicals and Swimming pool or spa bath chemicals., residues from the incineration, Municipal Liquid/sewage waste, tranquilizers/ narcotics Sludge and also includes generation, collection, consignment, transportation, treatment, disposal, storage, Recycling, Incineration. Hazardous Substance, (as Prescribed in section-12 of Punjab Environment Protection Act, 1997 (Amended 2012) which includes generation, collection, consignment, transportation, treatment, disposal,

...ENT OF INTEGRATED WASTE MANAGEMENT FACILITY
...ATION OF INCINERATOR BY M/S HAJI AKHTAR & SONS

...Storage, Recycling, Incineration.

The proponent aims to install one incinerator having capacity of 1000Kg/hr.

The Substance and waste will be incinerated, as prescribed in environmental law/ rule and regulation of Punjab Environmental Protection Act 1997 (Amended 2012)".

The construction of the proposed project will be started after obtaining the Environmental Approval and Necessary NOCs from all concerned Govt. Departments/authorities.

The project will also have safety system comprising of firefighting system and personal protective equipment's etc. and proponent will be responsible to ensure availability/maintenance of the safety equipment/system at the project site (if required)

Name of the project & Description of the project	Establishment of Integrated Waste Management Facility and Installation of Incinerator by M/S Haji Akhtar & Sons Handling of hazardous substance and hazardous waste
Location of the project:	situated at 3-Km Lahore Road,Near Seam Nala Bhaddu Murad Sheikhupura
Proposed Area:	Total area proposed for the subject project is 08 Kanals
Nature of Project:	• Hazardous Substance, (as Prescribed in section 12 of Punjab Environment Protection Act, 1997 (Amended 2012) which includes generation, collection, consignment, transportation, treatment, disposal, storage, Incineration. • The Proponent aims to install 1 Incinerator having capacity of 1000 Kg/hr.

This proposed project involves the handling/Incineration of Hazardous substance such as Sludge, hospital waste, Solvent-based paints, Pesticides and other garden chemicals, Batteries (for example car, mobile phone or regular household batteries), Motor oils (for example from cars or mowers), Petrol and kerosene, Cleaning and polishing chemicals and Swimming pool or spa bath chemicals., residues from the incineration, Municipal Liquid/sewage waste, tranquilizers/ narcotics Sludge

	Generation, collection, consignment, transportation, treatment, disposal, storage, Recycling, Incineration of Hazardous Substance, (as Prescribed in section-12 of Punjab Environment Protection Act, 1997 (Amended 2012) which includes generation, collection, consignment, transportation, treatment, disposal, storage, Incineration, as and when required as per consignment / assignment.
Cost of the project:	Total cost of the project will be approx. 42 million
Objectives of the project	• To provide quality services for proper management of wastes. • To introduce modern technologies for waste handling. • To enhance socio economic activity • To generate revenue for the government in the form of taxes
Power Requirement:	Power Requirement will be fulfilled by UPS, Solar System and WAPDA 25 KVA
Labor/ Workforce:	During construction: 10 (estimated) During Operation: 10 (estimated)
Water Requirement:	During the constructional phase of the project approximately 1000-gallon water will be required per day for constructional, kitchen and washroom uses. During the operational phase of the project approx. 100-200 Gallons/day water will be required for domestic purposes.
Solid waste:	It will be a yard for the temporary storage of different wastes. No solid waste will be generated at the proposed site.

Summary of Major Environmental Impacts during construction and Their mitigation measures

Potential Impact	Criteria for determining Significance	Key Mitigation Measures

Dust Emissions— Particulate matter emitted during construction activities and gaseous emissions from site generators and transportation vehicles can result in deterioration of ambient air quality in the vicinity of the project site, and be a nuisance to the surrounding workers.	PEQS for Ambient Air	There will be no such activity where-from dust can emit. However, sprinkling of water will be carried out if needed Vehicle speed restrictions will be applied in the project area;
Construction Noise Disturbance to surrounding communities due to operation of construction machinery at the project site.	PEQS for Noise OSHA standards	No significant construction will be carried out at the site; hence no significant noise will be generated at the site. If the noise level will exceed the permissible limits with reference to National and OSHA standards, following recommendations are suggested to take action against the high noise levels: • Proper tuning of construction machinery and vehicles is recommended. • Training of the person and professionals involved in the installation of the plant is recommended. • Ear muffs and ear plugs are recommended in case of high noise levels.

Solid waste Management— Improper waste management may generate health and aesthetic	Generation of excessive waste; Recyclable waste and reusable waste is discarded; Littering; Improper disposal.	There will be no solid waste from this project, however if there will be any solid waste it will be disposed of properly, handed over to contractors, placed in bins.
Vegetation loss or Soil erosion— Loss of vegetation as a result of land clearance for the construction Purposes	Unnecessary or excessive removal of trees and shrubs	There will be no vegetation loss during the construction or operation of this project
Water Resources— The extraction of water for the project construction activities can affect the groundwater availability for the project area communities	Water extracted for the project has directly affected the ability of the community to meet their water needs	No impact on the community groundwater needs is envisaged as a result of the project.
Soil Contamination—Oil and chemical spills can contaminate the soil	Presence of visible amount of hydrocarbon in soil	There will be no contamination of soil during construction or operation of this project.
Socioeconomic Issues Workers Safety— Safety hazards associated with the construction activity, particularly with the increase in traffic at the project site.	No specific guidelines exist. Significant impact will be interpreted if the rear complaints from the community.	Speed limit of 10 km/h will be maintained on the access road; Traffic controller will be stationed on the access road; Night driving will be kept to a minimum
Project and Community Interface—Inter-cultural	No community	Training of the non-local project staff

differences between the project staff from other areas and the local community	complaints	on local culture and norms; Avoid an of unnecessary interaction of local population with the non-local project staff

Table: Summary of Environmental impacts of the project during the operation phase and their mitigation measures:

Potential Impact	Criteria for determining Significance	Key Mitigation Measures
Air Pollution- Gasses emissions from generators, and transportation vehicles can result in deterioration of ambient air quality of the outdoor environment	OSHA Standards PEQS for Ambient Air	It will be an open yard. No industrial activity will be carried out and there will be no air emission/pollution.
Discharge of wastewater- During the operational phase of the project, wastewater will be produced from domestic sources	PEQS for Municipal wastewater	Wastewater should be drained out in the nearby drain after treatment in the septic tank
Solid waste management- Improper solid waste management may cause health problems and aesthetic issues.	Generation of excessive waste,	Waste bins should be placed at suitable places. Domestic and processed waste should be handed over to contractors/properly dispose of.
Health & Safety Issues- Health and Safety issue can arise due to short circuit and fire hazard etc.	OSHA Standards	Proper training of the staff should be conducted to avoid the accidents. First aid measures should be provided at the

		workplace. Adequate firefighting system and equipment should be installed Proper housekeeping should be ensured Security guards should be present at the project site
Groundwater—The increased withdrawal of groundwater for the project will affect the groundwater resources of the project area	Water extracted for the project has directly affected the ability of the community to meet heir water needs	No impact on the community groundwater needs is envisaged as a result of the project.

1.6 Proposed Environmental Monitoring

To oversee the environmental performance of the project through its lifecycle enforcing the PEQS an Environmental Monitoring Program should be formulated which ensures effective surveillance of the environmental parameters at various stages of the project development and compliances with PEQS and legal obligations. Monitoring for following Environmental Parameters is recommended:

1.6.1 Ambient Air

Monitoring for ambient air should be conducted on quarterly basis during constructional phase of the project and report should be submitted to EPA Punjab.

1.6.2 Noise

Regular monitoring for noise level should be maintained periodically during construction and operation phases of the project and report should be submitted to EPA Punjab.

1.6.3 Water quality

Regular monitoring of water quality should be conducted on monthly basis during construction and operation phases of the project and report should be submitted to EPA

Punjab. Record should be maintained regarding the underground water pump and consumption.

Recommendation: Environmental Monitoring data log book should be maintained by the project proponent.

Schedules of Proposed Monitoring:

Sr. No.	Parameters	Monitoring Schedules	Monitoring Duration
1	Ambient Air Monitoring (NO_x, CO_x, SO_x, VOCs, PM_{10})	Quarterly	24 Hours
2	Noise Level	Quarterly	24 hours
3	Flue Gases (vehicular emissions)	Quarterly	15 min/sample
4	Water quality	Quarterly	Some parameters on site, others in lab

CHAPTER # 02, INTRODUCTION

This chapter of the report provides an overview of the rational of the project, objective of the project, purpose of the report an approach adapted to conduct the Environmental Impact Assessment (EIA) of the project 'Establishment of Integrated Waste Management Facility and Installation of Incinerator by M/S Haji Akhtar & Sons situated at 3-Km Lahore Road,Near Seam Nala Bhaddu Murad Sheikhupura"

2.1 Purpose of the report:

Environmental Impact Assessment report is being submitted to the Environmental Protection Agency (EPA), Government of the Punjab for the compliance of Section 12 of Punjab Environment Protection Act-1997 (Amended 2012) for obtaining No Objection Certificate (NOC) / Environmental approval before starting the construction activity at the project site. The other relevant regulations and guidelines have been considered while preparing this EIA report include:

- Policy and procedures for filing, review and approval of environmental assessments.
- Guidelines for the preparation and review of environmental reports.
- Guidelines for public participation.
- Guidelines for sensitive and critical areas
- Detailed sectarian guidelines

Various aspects like environmental, social, physical and other aspects of the project both during construction and its regular occupancy are highlighted in this EIA report. Measures necessary to be adopted to mitigate any environmental impacts on any part of the environment around are also described. All the important information is also provided as described under the format used to help decision makers, EPA Punjab in the present case, before issuing the desired Environmental Approval.

2.2 Scope of the study

The scope of study includes baseline survey of the proposed project, collection of relevant data from primary and secondary sources, evaluation of the impacts related to the subject project, suggestions for the mitigation measures to control the anticipated impacts, formulation of the environmental monitoring program to check the environmental parameters at PEQS, preparation of an Environmental Management plan to implement the recommended

mitigation measures, consultation with the stakeholder or nearby community to identify their concerns about the subject project

2.3 Identification of the project and proponent:

This proposed project includes the handling of hazardous waste.

Mr. Muhammad Shaharyar Akhtar R/o Mohalla Sharqpur khurd Kot Abdulmalak, Tehsil Ferozwala and District Sheikhupura

Establishment of Integrated Waste Management Facility and Installation of Incinerator by M/S Haji Akhtar & Sons situated at 3-Km Lahore Road,Near Seam Nala Bhaddu Murad Sheikhupura.

2.3.1 Details of Consultant:

Lead Enviro Safety Services Pvt Ltd. is a techno-legal Firm, who conducts IEE, EIA, EMP and other environmental investigations through its panel of environmental consultants, public participation practitioners and experienced environmental managers.

Contact: Lead Enviro Safety Services Pvt Ltd.

Name	Qualification	Role
Mr. Shoaib Ahmad	MSc. Environmental Sciences	Preparation of Plan for the assessment activity, award of assignment to the team members & review the draft of EIA. Preparation of Environmental Management Plan and impact assessment matrix.
Ms. Nayab	M.Phil. Environmental Sciences	Environmental Legal framework & preparation of EnvironmentalMonitoring Plan. Desk studies, Review of literature, Quality, monitoring of air and mitigation, and compilation of Final report.
Mr.Khuzaima	BS. Environmental Sciences	Desk Studies and draft preparation, Filed Survey

2.4 Nature, Size and Location of the Proposed Project

This proposed project involves the handling of Hazardous substance such as Sludge, hospital waste, Solvent-based paints, Pesticides and other garden chemicals, Batteries (for example car, mobile phone or regular household batteries), Motor oils (for example from cars or mowers), Petrol and kerosene, Cleaning and polishing chemicals and Swimming pool or spa bath chemicals., residues from the incineration, Municipal Liquid/sewage waste, tranquilizers/ narcotics Sludge.

Proponent aims to install one Incinerator having Capacity of 1000Kg/hr.

Total area of the proposed project encompasses on 08 Kanals . The cost for the proposed unit is about 42 million.

2.4.1 Location:

Proposed project site is located at situated at 3-Km Lahore Road,Near Seam Nala Bhaddu Murad Sheikhupura Site is surrounded by the proponent property/ land of the project proponent, so there are not any direct impacts on the nearby community. The land co-ordinates of the project site are as following:

For further details, layout map of the project is attached as **Annexure-C**

2.5 Scoping

According to the Punjab Environmental Protection Act 1997 (Amended 2022) and its interpretation as per Review of IEE & EIA Regulations, 2000 for filling, review and approval of environmental assessments, the present project is categorized in the category G-1 of Schedule-II for EIA, of PEPA, Regulations, 2000, requiring Environmental Impact Assessment (EIA).

2.6 Screening

The proposed project is Establishment of Integrated Waste Management Facility and Installation of Incinerator by M/S Haji Akhtar & Sons situated at 3-Km Lahore Road,Near Seam Nala Bhaddu Murad Sheikhupura falls in category G of Schedule-II for EIA, of PEPA, Regulations, 2000, requiring Environmental Impact Assessment (EIA).

2.7 Spatial and Temporal Boundaries of the Assessment

Temporal and spatial boundaries for the effects assessment are defined by the characteristics of the project and the VECC being assessed. These boundaries encompass time periods and areas during and within which the VECCs are likely to interact with or be influenced by the project. Spatial boundaries vary according to the nature of the VECC but generally are defined in terms of:

The definition of the RSA may take into consideration factors such as:

- Habitat for sensitive life stages;
- Wildlife migration routes and ranges;
- Areas of potential effects from dispersed or intermittent project activities, such as, air transport, and road haul; and
- Areas within which there is potential for cumulative effects with other projects.

Temporal boundaries for project-related effects are defined in terms of the project phases:

Baseline – covers ecological, physical and human-related characteristics of the environment,

Construction – includes all activities associated with project construction and before commencement of ore processing (mill start-up) such as:

- Transportation corridors construction;
- Mobilization of equipment and supplies to the site by road and air;
- Construction of site facilities, including camp, infrastructure, ore stockpile, mill, waste rock storage dump, TWRMF, water management facilities (diversions, settling ponds, seepage collectors etc.)
- camp operations and personnel transport during construction;

Decommissioning – includes all activities to decommission site facilities and remove equipment and materials from the site, recontour the site and restore drainage patterns to stable long-term conditions, stabilize the wastes (TWRMF and waste rock) for safe long-term maintenance, and implement the final site reclamation procedures to prevent erosion and restore vegetation cover where feasible;

Closure – refers to conditions that will exist on the site after the site is abandoned and revegetation is complete.

Temporal boundaries are also defined for the cumulative effects assessment, spanning baseline to a point in the future, within which project effects on VECCs are predicted to

overlap with effects of other projects or activities. Spatial and temporal boundaries for each VECC are detailed in respective report sections.

2.8 IMPORTANT ISSUES AND CONCERNS RAISED DURING CONSULTATION

Issue	Aspect/Concern raised by Stakeholders	Project Proponent Commitments
Employment Opportunities	Expectations of employment are very high. Job opportunities are less for herders as they generally have less skills and training.	Employment is the main priority of the industry. Mostly locally skill and unskilled labor will be prioritized and also there will be job in executive level. Around 100 people will be employed by the Industry.
Training Opportunities	People are keen to consult with subject industry if the Project offers training and upgrading opportunities to enhance their trade or professional skills.	Development of the Training Strategy, including commitment of allocation of budget investment for training infrastructure, delivery and design. Installation of training facilities in for worker of the company and students will also be accommodating.
Health & safety	Truck traffic is a main concern because the road used by the Project passes through a number of small communities and different industries and there will be a high volume of trucks transporting Concrete.	Development of Transport Management Plan including traffic safety training. Traffic advisory signs will be installed along project site and all nearby specific areas.
Local economy and business development	Local service providers are keen to participate in providing services to provide raw material and expect to receive in order to adjust their businesses to meet specific needs. Local/regional companies and entrepreneurs have limited understanding about meeting the high volumes required by the Project and the quality standard, but are keen to know these requirements So they can become suppliers.	Proponent has main focus that they will all the material regarding construction and plant operation to buy from the local market. This will help the local and small business and to people who are keen interested to become suppliers.

Environmental Issues	Dust and noise impacts, particularly from the construction activities and in operation of mechanically unfit machines, are of concern to herders and other residents. Environmental degradation during road construction and use. Loss and change of vegetation due to soil degradation.	Implementation of controls under the Environmental Management Plans, including on and off-site dust and noise monitoring. A Participatory Environmental Monitoring Program will be launched to spread awareness.
Water quantity and quality	Water quality and quantity, and impacts from the wastewater disposal are all key concerns for nearby herders.	Implementation of consultation in relation to water use and development of the Participatory Environmental Monitoring Program. Water treatment will be done by the Proponent that will help to safe disposal of the water.

2.9 Significance Impact

The construction of the project can create some adverse impact on the existing environment. The acoustic impacts, dust emission, traffic congestion, safety and sanitation during the construction period would be limited to construction of building and site preparation. Since the new building would be set up in existing warehouse premises, the resettlement won't be an issue here. During construction, the contractor will adopt all necessary measures to reduce the probable environmental impacts from different aspects. There are minimal impacts during operation period and Construction will be responsible to take necessary steps during operation. The significant impacts in different phases i.e. (i) due to project location and preparation, (ii) construction phase and (ii) operation phase have been identified using the checklist process. From this process, the main potential environmental impacts, which may arise due to construction, can be grouped as follows: (i) Atmospheric emissions and Air quality, (ii) Noise generation, (iii) Water pollution and waste water disposal, and (iv) Health and safety However, the magnitude of these impacts shall be very low and insignificant

CHAPTER # 03, DESCRIPTION OF THE PROJECT

3.1 Type and Category of the Project:

The proposed project is the handling of waste under the name Establishment of Integrated Waste Management Facility and Installation of Incinerator by M/S Haji Akhtar & Sons situated at 3-Km Lahore Road,Near Seam Nala Bhaddu Murad Sheikhupura.

Hazardous Substance, (as Prescribed in section-14 of Punjab Environment Protection Act, 1997 (Amended 2022) which includes generation, collection, consignment, transportation, treatment, disposal, storage, Recycling, Incineration,

According to the Punjab Environmental Protection Act 1997 (Amended 2022) and its interpretation as per Review of IEE & EIA Regulations, 2000 for filling, review and approval of environmental assessments, the present project is categorized in the category G-1 of Schedule-II for EIA, of PEPA, Regulations, 2000, requiring Environmental Impact Assessment (EIA). Further, the client is required to fulfill the legal requirements of the Section-12 of the Punjab Environment Protection Act 1997(Amended 2022).

3.1.1 Objectives of the Project:

Objectives of the construction of the subject project are:

- To provide quality services for proper management of waste.
- To introduce modern technologies.
- To maximize human welfare.

3.1.2 Project Alternatives

No, project alternatives were under consideration.

3.1.3 Location and site layout of the project site:

Proposed project site is located at 3-Km Lahore Road,Near Seam Nala Bhaddu Murad Sheikhupura

East (Front side) ..... Road and across the road are Vacant Land

West (Back side) ..... Vacant Land

South (Left side) ..... Vacant Land

North (Right side) ..... Vacant Land

3.1.4 Reasons of selection of the subject site

Following are the reasons for which subject site selected:

- Easy road access, traffic load is low
- Subject selected site is open plot
- No nearest human settlements
- Availability of all infrastructure
- Area is commercial in nature

In the light of above-mentioned point's proponent of Establishment of Integrated Waste Management Facility and Installation of Incinerator by M/S Haji Akhtar & Sons. Considered the subject site most suitable for the subject project.

3.2 Alternatives Considered, and Reasons for their Rejection

Alternatives sites were identified initially for the proposed project. These sites were also located in district Sheikhupura, the present site has been selected after consideration of the other two alternative sites. These sites and their reasons of rejection are summarized below:

Design/technology alternatives, their selection and rejection criteria

The proposed project is Establishment of Integrated Waste Management Facility and Installation of Incinerator by M/S Haji Akhtar & Sons situated at 3-Km Lahore Road,Near Seam Nala Bhaddu Murad Sheikhupura. Site is good enough for the construction

Environmental Alternatives, their selection and rejection criteria

The project simply involves the Establishment of Integrated Waste Management Facility and Installation of Incinerator by M/S Haji Akhtar & Sons situated at 3-Km Lahore Road,Near Seam Nala Bhaddu Murad Sheikhupura. This selected site is environmentally friendly and sustainable. There is no specie present that will be harm due to Project. Hence, there is no environmentally alternative considered for this specific project.

Economic Alternatives, their selection and rejection criteria

The current selected mythology, designing and technique is economically efficient and provides extensive job creation avenues. It refers to the shift of materials used in the proposed project towards environmentally friendly and sustainable materials in present case. All machinery, equipment and materials procured for the said project will be environmentally friendly and sustainable. Hence, there is no material alternative considered in this case.

3.3 Land Use on Site:

Site selected for the proposed project is vacant and boundary wall has been constructed to secure the land. The Construction will be start after obtaining Environment Approval from EPA Punjab and other relevant Authorities/Departments.

3.4 Road Access:

Sheikhupura Road is the access road which links the project with the main Road.

3.5 Vegetation features of the site:

Wheat, rice, maize and seasonal vegetables are cultivated within the radius of 10 km of the project site. The project where project will be established has no vegetation and is open land. The land is clear and free of vegetation. The land is almost clear and free of vegetation which will help to avoid massive land clearing.

3.6 Cost and Magnitude of the project

The proposed project is Establishment of Integrated Waste Management Facility and Installation of Incinerator by M/S Haji Akhtar & Sons situated at 3-Km Lahore Road,Near Seam Nala Bhaddu Murad Sheikhupura over on area of 08 Kanals and total cost of the project will be approx. 42 million

3.7 Schedule of Implementation:

Detailed feasibility studies and designing of the project have been completed. Necessary legal, administrative and financial formalities have been also completed. The project is expected to be completed within 2-3 months from the date of environmental approval. Subsequently the operational and maintenance aspects of the project will be undertaken by the proponent.

3.8 Project Description/ working of the unit:

Management of the project will collect waste from within the city. After that hazardous waste will be segregated, Subject proposed project is located at 3-Km Lahore Road,Near Seam Nala Bhaddu Murad Sheikhupura.

3.9 Details about Project:

Name of the project and Description of the project:	Establishment of Integrated Waste Management Facility and Installation of Incinerator by M/S Haji Akhtar & Sons 1- Handling of hazardous waste
Location of the project:	situated at 3-Km Lahore Road.Near Seam Nala Bhaddu Murad Sheikhupura
Nature of Project:	This proposed project involves the handling of Hazardous substance such as Sludge, hospital waste, Solvent-based paints, Pesticides and other garden chemicals, Batteries (for example car, mobile phone or regular household batteries), Motor oils (for example from cars or mowers), Petrol and kerosene, Cleaning and polishing chemicals and Swimming pool or spa bath chemicals., residues from the incineration, Municipal Liquid/sewage waste, tranquilizers/ narcotics Sludge Waste, (as Prescribed in section-14 of Punjab Environment Protection Act, 1997 (Amended 2022) which includes generation, collection, consignment, transportation, treatment, disposal, storage, Recycling, Incineration, The Hazardous waste will be treated in an Environment Friendly way i.e, 1000 Kg/Hr. incinerator
Cost of the project:	Total cost of the project will be approx. 42 million
Objectives of the project	• To provide quality services for proper management of wastes. • To introduce modern technologies. • To maximize human welfare.
Power Requirement:	Power Requirement will be fulfilled by UPS, Solar System and WAPDA and generator if required,
Labor/ Workforce:	During construction: 10 (estimated) During Operation: 10 (estimated)

Dated: 04-05-23

Water Requirement:	During the constructional phase of the project approximately 1000-gallon water will be required per day for constructional, kitchen and washroom uses. During the operational phase of the project approx. 100-200 gallons/day water will be required for project process and domestic purposes.
Solid waste:	It will be a yard for the temporary storage of different wastes. No solid waste will be generated at the proposed site.

Collection

↓

Transportation

↓

Storage

↓

Incineration

Tentatively mass balance of the proposed project as follows;

Inflow = 4000 kg/day

Incineration = 4000 kg/day

Ash = 2% of the total amount

3.9.1 Infrastructure:

Ground water will be used as water source. Electricity will be by the UPS, Solar System, generator and Power Development Authority (WAPDA).

3.9.2 Any Historical/Archeological Site:

There is no historical/archeological place in the vicinity of the project.

3.9.3 Water requirements:

During the constructional phase of the project approximately 1000-gallon water will be required per day for constructional and domestic uses.

During the operational phase of the project approx. 100-200 Gallons /day water will be required for project process and domestic purposes.

3.10 Waste

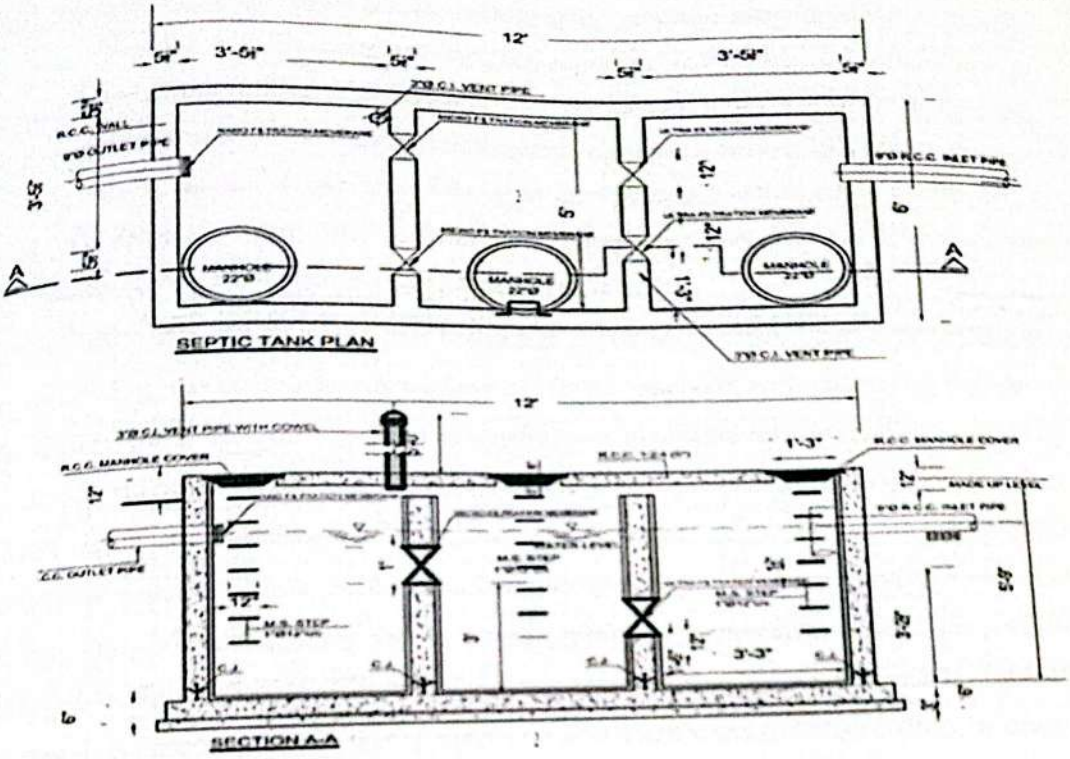
This proposed project involves the handling of Hazardous substance such as Sludge, hospital waste, Solvent-based paints, Pesticides and other garden chemicals, Batteries (for example car, mobile phone or regular household batteries), Motor oils (for example from cars or mowers), Petrol and kerosene, Cleaning and polishing chemicals and Swimming pool or spa bath chemicals., residues from the incineration, Municipal Liquid/sewage waste, tranquilizers/ narcotics Sludge

Type of Waste

- Hazardous waste
  - The Hazardous waste will be treated in an Environment Friendly way i.e., incinerators having capacity of 1000 Kg/Hr, shall also be installed at the project site.

3.11 Design of septic tank:

Septic tank will be installed within the boundary wall of the project site. Design is given in below Fig.



3.12 Atmospheric emissions:

Dust and particulate matter will be generated during the construction activities. Sprinkling of water will be done on dust tracks, stock piles: raw material will be covered by plastic sheets. Loading and unloading of raw material will be done at night.

During operation phase, only source of atmospheric emissions will be the generators (if installed) incinerator and the vehicular traffic. For the control of emissions from the generators at the project site PEQS compliance of the generators and other equipment's will be ensured.

3.13 Waste Disposal

Waste incineration residues Combustion is a thermal process during which organic waste materials change their chemical composition and break down into basic atoms after being exposed to high temperatures in the presence of oxygen. The flue gases, as well as dust particles which are not captured by filters are emitted into the air by the stack (chimney). And, large quantities of waste water from wet flue gas filter devices as well as from fly ash treatment are discharged in the environment.

Inert materials in the solid waste stream, such as stony materials, and most metals, which are incinerated together with the organic waste fraction are not combustible, and will fall through the grate slits of the furnace, and end up in the bottom ash at the end of the incineration process. Approximately 25% of the quantity of municipal solid waste (MSW) fed to the grate furnaces ends up as bottom ash after the combustion process. Bottom ash is also known as "slag". Fly ashes are small dust particles in flue gases, and are captured by electrostatic precipitators (ESP-filters) after the flue gases leave the boiler.

A third residue of waste incineration is boiler ash. Small ash particles attach to the boiler, and are removed by mechanical knocking devices, or are manually removed during periods of maintenance work. Less than 0.1% of the quantity of municipal solid waste fed to the grate furnaces is collected as boiler ash. If an incinerator is equipped with (wet) flue gas filter devices (scrubbers), various (solid) residues are produced, i.e., scrubber salts, filter cake, sludge, and gypsum. Waste incineration residues are formed by process of combustion of different kinds of wastes. They should contain plenty of chemicals as such. There will be difference in distribution of different chemicals between slag/bottom ash and fly ash/APC residues. It is necessary to say that if analysis for PCDD/Fs and/or PCBs content in ashes is rare, then analysis for other chemicals is very sporadic.

Table 2.1 Emission Factor from Incinerator

	Emission factors (μg I-TEQ/ton-waste)	Waste types
Bottom ash	7.59	Municipal
	3.17	Municipal
	3.54	Municipal
	0.7–22	Hospital
	1.5	Municipal
	0.306–31.9	Municipal
Fly ash (boiler)	0.58	Municipal
	0.5–49	Hospital
	1.94	Municipal
Fly ash (ESP and fabric filter)	18.52	Municipal
	160	Municipal
	41–3733	Hospital
	30	Hazardous
	0.17	Municipal
Stack	0.454	Municipal
	0.312	Municipal
	0.25	Hazardous
	2–44	Hospital
	0.75	Hazardous

Emission factors obtained for different types of incinerators

Waste Disposal Model

A designed structure built into or on top of the ground in which trash is isolated from the surrounding environment (groundwater, air, rain). This isolation is accomplished with a

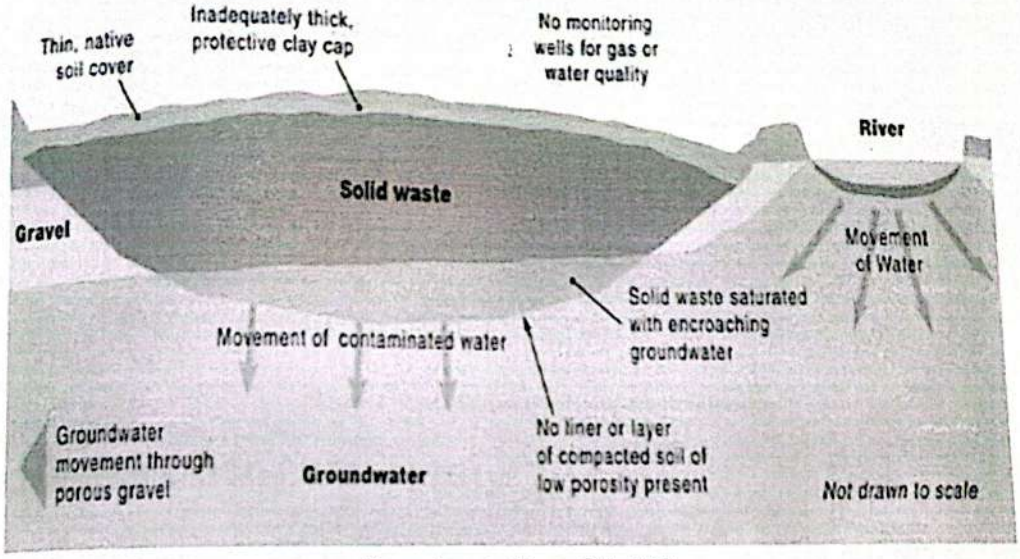


Figure 1 waste Disposal Model I

bottom liner and daily covering of soil. A method uses a clay liner to isolate the trash from the environment.

A modern waste Disposal model is designed to meet exacting standards with respect to containment of all materials, including leachates and new design specifications are predicated on minimal impact to the environment, both short- and long-term, with particular emphasis on groundwater protection. Landfill site selection is based on geology and soil type, together with such groundwater considerations as depth of water and use. In this design, the new Model is located in an excavated depression, and fresh garbage is covered daily with a layer of soil. The bottom of the landfill is lined with low-permeability liners made out of high-density plastic or clay.

The waste Disposal model sides shall consist of a mineral layer which satisfies permeability and thickness requirements with a combined effect in terms of protection of soil, groundwater and surface water at least equivalent to the one resulting from the following requirements: -

landfill for hazardous waste:

$$K <= 1.0 \times 10\text{-}9 \text{ m/s; thickness} >= 5 \text{ m}$$

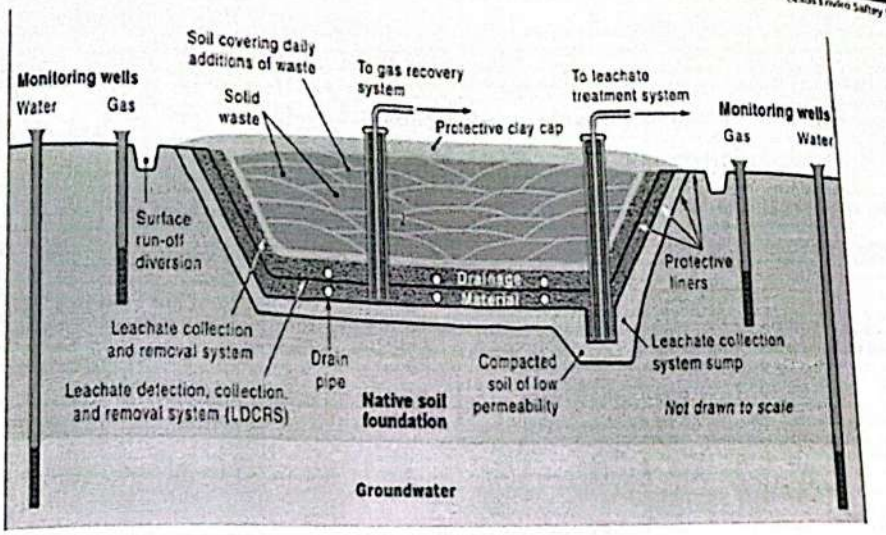


Figure 2 Waste Disposal Model Technical Design

3.14 Occupational Health and Safety:

All the methods and procedures for machinery and chemical handling and storage will be displayed and implemented at the project site. Health and safety rules for chemical handling and storage will be maintained.

3.15 Personal Protective Equipment:

Following PPEs will be available for the workers in the proposed unit:

- Ear Plugs
- Ear muffs
- Safety Boots
- Safety Gloves
- Safety Belt
- Helmet
- Goggles
- Suits

Types of PPEs used during construction and Operational activities

Protection	Occupational Hazards	PPEs
Head Protection	Falling objects, inadequate height clearance, and overhead power cords	Helmets with or without electrical protection
Hand protection	Hazardous material, cuts or lacerations, vibrations, extreme temperatures	Synthetic or Rubber gloves, leather, insulating material etc.
Eye and face protection	Flying particles, molten metal, liquid chemicals, gases or vapors, light radiation	Glasses, shield protective, etc.
Hearing protection	Noise, ultra sound	Hearing protectors like ear plugs, ear muffs
Respiratory protection	Dust, fogs, fumes, gases, smokes, vapors, oxygen deficiency	Facemasks or air supply
Body protection	Extreme temperatures, hazardous materials, biological agents, cutting and laceration	Aprons, insulating clothing etc. of appropriate materials

3.16 Fire Protection System

An addressable fire protection system with detection and alarm annunciation and other installations etc. would be provided to protect against any fire hazards. Fire buckets and fire extinguishers will be installed at all sensitive places within the unit.

Emergency Exits:

Emergency exit points will be made available for easy evacuation in case of any emergency.

3.16.1 Security:

The present site will be secured by means of boundary walls along with the presence of security guards round the clock which will improve the security of the project site and also in its vicinity.

3.16.2 Power sources and transmission:

Power requirement will have fulfilled by Solar System, Ups and WAPDA.

3.16.3 Available Facilities:

Available facilities at the proposed project site include:

- Electric supply from WAPDA
- Solid Waste Management (SWM)
- Cellular & Internet Facilities
- Water supply, sewerage disposal systems

3.16.4 Plantation

Area for plantation will be reserved and maximum plantation will be done as per recommendation of the EPA within the land at the boundary wall of project. Plantation can also be done along the road sides with consultation of EPA and District Officer Environment Gujranwala.

3.16.5 Parking Area:

Parking area will be made available within the unit for cars, motorcycles, trucks etc.

3.17 Restoration / Rehabilitation Plan

All possible precaution will be taken to prevent an untoward incident in terms of life and property losses. The demolition materials will possibly be reused and recycled. All excavated surfaces will be restored in environment friendly way.

On completion of the project, the debris will be removed from the site in order to maintain aesthetics of the project. All measures will be undertaken for ensuring occupational safety, security and clean environment in the project area. Local species of trees and flowering plants will be planted within the unit premises, along the road sides with the consultation of PHA.

3.17.1 Government approvals required for the project:

Proponent has admitted to get all the relevant government approvals and also the Environmental Approval.

CHAPTER # 04,

POLICY, LEGISLATION, LEGAL & ADMINISTRATIVE FRAMEWORKREGULATORY FRAMEWORK

Government of Pakistan is facilitating investment, both local and foreign, in Liberalization and industrialization in the country, as a policy of the Government is well reflected from its following initiatives:

4.1 Deregulation of the Economy

Deregulation is the prioritized policy of the Government of Pakistan. Under same policy there is a systematic movement towards deregulation of the economy and privatization of the state-owned companies.

4.1.1 Import Policy

Import policy has been largely liberalized through the provision of various incentives. And it is being further liberalized at a quicker pace. There is an increased reliance on development of the industrial sector and enhancement of international trade.

4.1.2 Infrastructure Facilities

To facilitate fast industrialization basic infrastructure facilities like roads network, fuel, water and power supply, means of transportation and communications etc. are being improved/ developed speedily.

4.1.3 Incentives

In order to maintain Pakistan's competitiveness in international markets and support viability of local and foreign investments in the country, the following incentives are available equally to both the foreign and the local investors:

a) Initial depreciation allowance (IDA),

b) Amortization and

c) Normal tax rates

4.2 Legal Framework

The capability of regulatory institutions for environmental management largely, ensures the success of environmental assessment for ensuring that development projects are environmentally sound and sustainable. For decision-making and policy formulation in the environmental and conservation issues, the institutional framework, as it exists in Pakistan, is described below:

4.3 National Environmental Regulatory/Legal Requirements

After the 18th Amendment to the Constitution of the Islamic Republic of Pakistan- 1973, the regulation & management of environment has been delegated to the Provinces. The Federal Ministry of Environment has been abolished and instead the Ministry of Climate Change was created which controls: Pakistan Environmental Protection Council; Pakistan Environmental Protection Agency. Since the amendment in the Constitution of Pakistan, all provincial Environmental Protection Agencies are working in their respective jurisdictions independently. The Pakistan Environmental Protection Agency, sometimes known as Pak-EPA, is an executive Government agency of Pakistan managed by the Ministry of Climate Change (formerly Ministry of Environment).

The agency is charged with protecting human health and the environment by writing and enforcing regulation based on laws passed by Parliament. The Pakistan Environmental Protection Act was passed in 1997 by the Parliament repealing the Pakistan Environmental Protection Ordinance 1983. The agency was established under the 1983 Ordinance and saved in the 1997 Act. The agency is led by an appointed director-general, who is appointed by the Prime Minister on the advice of the Minister for Environment.

4.4 National Conservation Strategy (NCS) – Pakistan

The National Conservation Strategy (NCS) – Pakistan, as approved by the Federal Cabinet in March 1992 is the guiding document on the environmental issues in the country (Ref. EUAD/IUCN, 1992). The NCS outlines the country's primary approach towards encouraging sustainable development, conserving natural resources, and improving efficiency in the use and management of resources.

The NCS has 68 specific programs in 14 core areas in which policy intervention is considered crucial for the preservation of Pakistan's natural and physical environment. The core areas

that are relevant in the context of the envisaged project are pollution prevention and abatement, restoration of supporting forestry and plantations, and preservation of cultural heritage. A mid-term review of the achievements, impacts and prospects of Pakistan's NCS was undertaken between years 1999 - 2000.

The Government of Pakistan promulgated —Pakistan Environmental Protection Act in 1977. Two organizations, the Pakistan Environmental Protection Council (Pak-EPC) and the Pakistan Environmental Protection Agency (Pak-EPA), are primarily responsible for administering the provisions of the Act. The Pak-EPC oversees the functioning of the Pak-EPA. Among its major members include representatives of the Federal and Provincial Governments especially the Provincial Environmental Protection Agencies, industry, non-governmental organizations, academia, environment experts, Federation of Chamber of Commerce and Industry and the private sector.

4.5 Pakistan Penal Code (1860)

The Pakistan Penal Code usually called PPC is a penal code for all offences charged in Pakistan. Pakistan Penal Code is a general criminal law, applies all over the country, and contains specific provisions on the subject. Thus, it prohibits mischief by killing or maiming animals, or damaging works of irrigation or a river or a road or a bridge or drain or firing explosive substances with intent to cause damage. The Code also prohibits public nuisance by acting negligently to spread the infection of disease or disobeying quarantine rule or causing adulteration of food or drink or drug, or fouling water or making the atmosphere noxious to health etc.

4.6 Pakistan Environmental Protection Act, 1997

The promulgation of the Environmental Protection Ordinance, 1983 was the first codifying legislation to the issue of environmental protection. Later, the Government passed the Pakistan Environmental Protection Act (PEPA), 1997, which is the basis of IEE/EIA studies carried out for the projects in Pakistan.

PEPA, 1997 is a comprehensive legislation and provides protection, conservation, rehabilitation and improvement of the environment. It contains concrete action plans and programs for the prevention of pollution and promotes sustainable development. The salient features of the law are:

- It covers the air, water, soil, marine and noise pollution including pollution caused by motor vehicles.
- The Act provides Punjab Environmental Quality Standards (PEQS) for wastewater, air emissions and noise.
- Law provides clear cut guidelines for IEE/EIA for various projects as per their magnitude and anticipated impacts.
- Law also empowers Federal Government to issue notices and to enforce them for the protection of the environment.

For the effective implementation of the provisions of PEPA, 1997, Pakistan Environmental Protection Agency, headed by a Director General was constituted. On the same pattern, Provincial Environmental Protection Agencies (EPA's) were created in all the provinces. Environmental Tribunals were also constituted according to PEPA, 1997.

The Punjab Environmental Protection (Amendment) Act 2012 covers aspects related to the protection, conservation, rehabilitation and improvement of the environment and the prevention, control of pollution and promotion of sustainable development.

The Punjab Environmental Protection (Amendment) Act [PEP(A)A] 2022establishes complete regulatory and monitoring bodies, policies, rules, regulations and national environmental quality standards. To ensure enforcement, the act establishes regulating bodies i.e. Punjab Environmental Protection Council (PEPC) and responsible bodies i.e. Punjab Environmental Protection Agency (Punjab EPA) at Provincial level. The act extends to the whole of Punjab Province.

Punjab -EPA has the power to arrest without warrant any person against whom reasonable suspicion exists of his having been involved in an offence under the [PEP(A)A] 2012, and enter, inspect and search without warrant any premises, vehicle or vessel. It also provides for seizing any plant, machinery, equipment, vehicle or substance, record or document. [PEP(A)A] 2012 also provides the power to summon and enforce the attendance of any person and issuance of Environmental Protection Order, PO 16, an Environmental Protection Order (EPO), in relation to a person who is contravening a provision of the [PEP(A)A] 2012.

Dated: 04-05-23

4.7 Policy and Procedures for the Filing, Review and Approval of Environmental Assessments

This document sets out the key policies and procedural requirements. It contains a brief policy statement on the purpose of environmental assessment and the goal of sustainable development and requires that environmental assessment be integrated with feasibility studies. It also defines the jurisdiction of the Federal and Provincial EPA's. It lists down the responsibilities of the proponent and states the duties of responsible authorities. It provides schedules of reports that require either an IEE or EIA.

4.8 Guidelines for the Preparation and Review of Environmental Reports (November 1997/2000)

These guidelines are descriptive documents regarding the format and content of IEE/EIA reports to be submitted to EPA for — No Objection Certificate (NOC)/Environmental Approval (EA). Following are the major areas, which are covered by these guidelines:

- The EIA report (scope, alternatives, site selection, and format of EIA report).
- Assessing impacts (identification, analysis and production, baseline data, significance).
- Mitigation and impact management (and preparing an environmental management plan)
- Reporting (drafting style, main features, shortcomings, other forms of presentation).
- Review and decision making (role, steps, remedial options, checks and balances).
- Monitoring and auditing (systematic follow up, purpose effective data management).
- Project Management (inter-disciplinary teams, programming and budgeting)

4.9 Punjab Environmental Quality Standards (PEQS)

The Punjab Environmental Quality Standards (PEQS) were first promulgated in 1993 and have been amended in 1998 and 2000. The following standards are specified therein:

a) Maximum allowable concentrations of pollutants (32 parameters) in municipal and liquid industrial effluents discharged to inland waters, sewage treatment facilities, and the sea (three separate sets of numbers).

b) Maximum allowable concentrations of pollutants (32 parameters) in Drinking water (including physical, chemical, biological, organic and radioactive parameters).

c) Maximum allowable concentrations of pollutants (112 parameters) in gaseous and particulate matter emissions from industrial sources.

d) Maximum allowable concentrations of pollutants in gaseous and particulate matter emissions from ambient air.

e) Maximum allowable concentrations of noise in ambient air.

4.10 Regulations for Environmental Assessment

Under Section 12 (and subsequent amendment) of the PEPA-1997, a project failing under any category specified in Schedule I (SRO 339 (I)/2000), requires the proponent to file an IEE with the concerned PEPA. Projects falling under any category specified in Schedule II require the proponent to file an EIA with the federal agency. Within ten working days of the IEE or EIA having been deposited, the federal/provincial agency will confirm that the document submitted is complete for review. During this time, should the federal/provincial agency require the proponent to submit any additional information, it will return the IEE or EIA to the proponent for revision, clearly listing those aspects that need further discussion. Subsequently, the federal agency shall make every effort to complete an IEE review within 42 days and an EIA review within 90 days of filing. At the time of application, the project proponent is also required to pay a specified official fee to the PEPA to process the case.

4.11 Punjab Environmental Quality Standards for Ambient Air- November- 2010

The Ministry of Environment, Government of Pakistan vide its Notification, Islamabad, the 18th October 2010 under S.R.O. 102 (1)/2010 established standards which provide the maximum allowable limits, in the ambient air, of Sulphur Dioxide (SO2), Oxides of Nitrogen

as (NOx) and as (NO), Suspended Particulate Matter-(SPM), Reparable Particulate Matter-PM10, Reparable Particulate Matter-PM2.5, Lead and Carbon Monoxide (CO).

4.12 Punjab Standards for Drinking Water Quality - November 2010

The Ministry of Environment, Government of Pakistan vide its Notification, Islamabad, the 18th October 2010 under S.R.O. 102(1)/2010 established standards for Drinking Water Quality. The major quality parameters fixed depend upon Bacterial, Physical and Chemical ones.

4.13 Punjab Environmental Quality Standards for Noise - November 2010

The Ministry of Environment, Government of Pakistan vide its Notification, Islamabad,18th October 2010 under S.R.O. 102(1)/2010 established standards for Noise. These standards are based on Category/zone i.e. residential area, Commercial area, Industrial area and Silence zone. The limiting values for day and night have also been fixed for all categories/zones.

4.14 Sectoral Guidelines for Environmental Reports

These guidelines identify the key environmental issues that need to be assessed as well as mitigation measures and project alternatives to be considered in the actual EIA. These guidelines include:

- Sector overview of the industry and the processes
- Potential impacts on the environment
- Mitigation measures
- Monitoring and reporting
- Management and training
- Checklist of likely environmental impacts and mitigation measures

4.15 Guidelines for Sensitive and Critical Area

These guidelines identify sensitive and critical areas in Pakistan, in relation both to the natural environment and the cultural aspects.

4.16 National Resettlement Policy and Ordinance

At this point, the only legislation relating to land acquisition and compensation is the Land Acquisition Act (LAA) of 1894. Following a national consultative process, a national resettlement policy and a related ordinance were drafted. The draft policy and the ordinance are presently being reviewed by the provinces, and have yet to be approved and notified by the government. The salient applicable features of the Draft Resettlement Policy are given below:

- The Pak-EPA will be responsible for both environment-related as well as resettlement-related matters.
- The responsibilities for implementation at a provincial level are to be delegated to the concerned provincial EPAs with overall control of the provincial Planning and Development (P&D) Departments.
- All categories of loss 'arising from development projects that entail resettlement, need to be addressed: these include not only loss of land, built-up property, other infrastructure, and crops and trees, but also loss of income, job opportunities, and access to natural resources, etc.
- Vulnerable groups whose issues need to be addressed include: women, children, destitute persons, tribal communities, squatters, those with usurper rights, and landless groups.
- There should be a special emphasis on consultation with affected groups when preparing a Resettlement Action Plan (RAP).

The provisions of the Draft Resettlement Policy are consistent with the requirements of the World Bank OD 4.30 on involuntary resettlement.

4.17 Forest Act 1927

All India Forest Act, 1927 was adopted by the Government of Pakistan, which was subsequently implemented by the respective provinces. Basically, the law was enacted to

conserve and protect the forest resources of the country for sustainable development. It lays down Rules and Regulations for exploitation of various categories of forests such as reserved, protected or unclassified. Further, the Act spells out the licensing method for timber cutting, grazing, hunting etc. It also gives the details of magisterial powers of Forest Department officers and penalties for offences committed about forest resources and products.

4.18 Industrial Relation Ordinance, 2002

The ordinance has been promulgated to amend, consolidate and rationalize the law relating to formation of trade unions, regulation and improvement of relations between employers and workmen and avoidance and settlement of any differences or disputes arising between them Pakistan's labor laws trace their origination to legislation inherited from India at the time of partition of the Indo- Pak subcontinent. The laws have evolved through a continuous process of trial to meet the socio-economic conditions, state of industrial development, population and labor force explosion, growth of trade unions, level of literacy, Government's commitment to development and social welfare. To meet the above-named objectives, the government of the Islamic Republic of Pakistan has introduced many labor policies, since its independence to mirror the shifts in governance from martial law to democratic governance.

While Article 18 of the Constitution affords every citizen with the right to enter upon any lawful profession or occupation, and to conduct any lawful trade or business, the Industrial and Commercial Employment (Standing Orders) Ordinance was enacted in 1968 to address the relationship between employer and employee and the contract of employment. The Ordinance applies to all industrial and commercial establishments throughout the country employing 20 or more workers and provides for security of employment. In the case of workers in other establishments, domestic servants, farm workers or casual labor engaged by contractors, their labor contracts are generally unwritten and can be enforced through the courts based on oral evidence or past practice.

The Constitution of Pakistan contains a range of provisions with regards to labor rights found in Part II: Fundamental Rights and Principles of Policy.

- Article 11 of the Constitution prohibits all forms of slavery, forced labor and child labor;
- Article 17 provides for a fundamental right to exercise the freedom of association and the right to form unions;

- Article 18 proscribes the right of its citizens to enter upon any lawful profession or occupation and to conduct any lawful trade or business;
- Article 25 lays down the right to equality before the law and prohibition of discrimination on the grounds of sex alone;
- Article 37(e) makes provision for securing just and humane conditions of work, ensuring that children and women are not employed in vocations unsuited to their age or sex, and for maternity benefits for women in employment.

4.19 Punjab Industrial Relations Bill 2010

In December 2010 Punjab Assembly passed new legislation that will govern the formation of trade unions, relations between industries and their workers, and the process for the settlement of labor disputes.

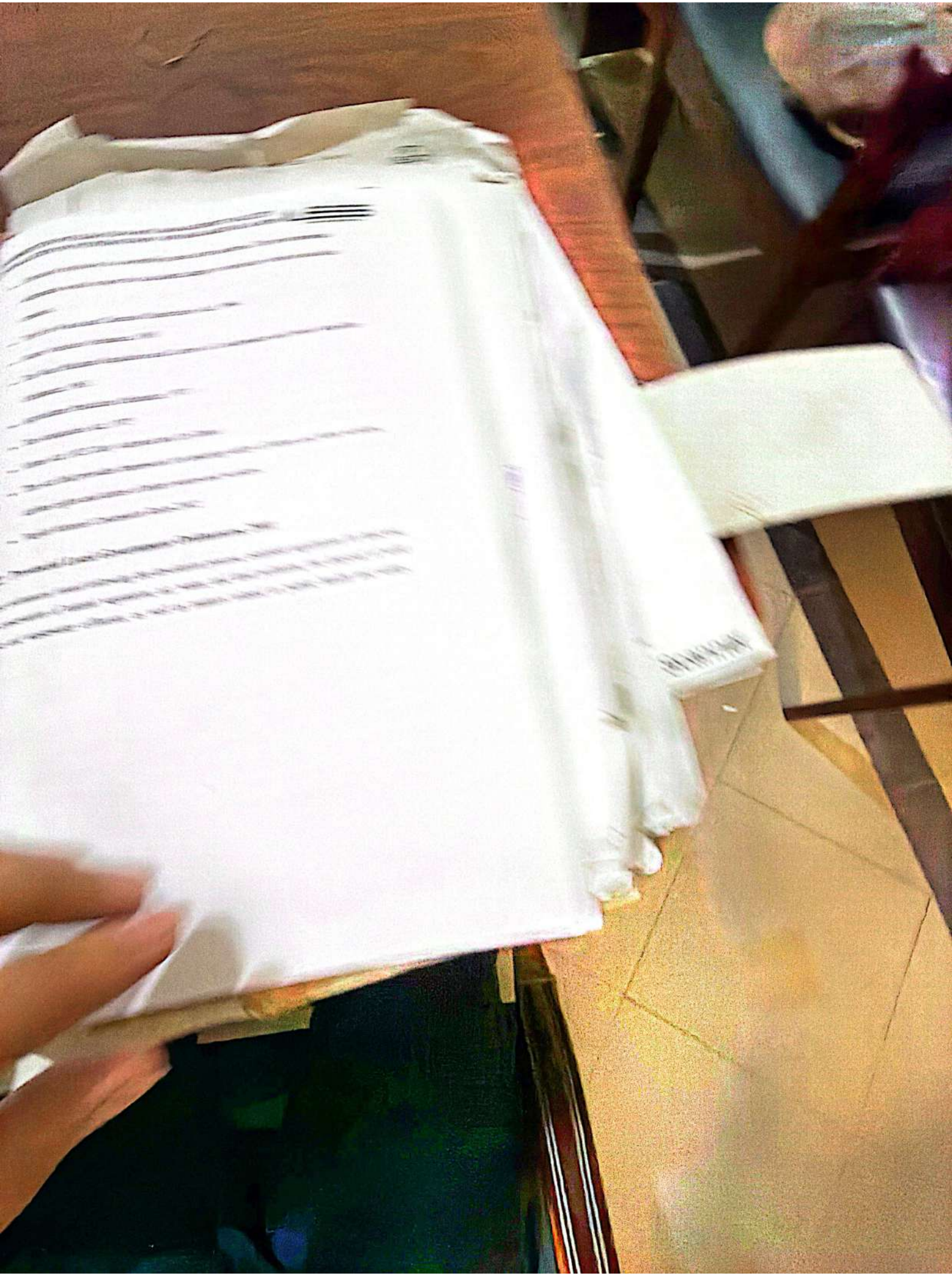
4.20 Industrial Relations Ordinance 2011 Promulgation

The Government has promulgated Industrial Relations Ordinance 2011. The Ordinance has been approved by the President on the Advice of the Prime Minister. The Government has promulgated Industrial Relations Ordinance, 2011 in view of the current legal vacuum created due to deletion of the concurrent Legislative List through the 18th Constitutional Amendment. The Industrial Relations has also been transferred to the Provinces which have promulgated provincial laws to regulate industrial relations. However, there is no law in place to deal with Industrial Relations in the Islamabad Capital Territory or in respect of national level trade federations and for resolutions of trans-provincial industrial issues. The Parliament has yet to promulgate the Ordinance as law.

4.21 Other Relevant Documents/Regulations

The list of other relevant documents/ regulations is as follows:

- Canal and Drainage Act, 1873
- The Explosives Act, 1884



CHAPTER # 05, DESCRIPTION OF ENVIRONMENT

This chapter describes the baseline conditions, which cover the existing Physical, ecological and socio-economic environment of the project as well as study area.

Data was collected by reviewing secondary source and field survey and previous similar studies for the subject project in the Sheikhupura city.

5.1 Physical Environment/ Resources

5.1.1 Topography:

Topographically speaking, Sheikhupura lies between the river Ravi which flows along its boundaries with India and river satluj which flow its boundary with Sheikhupura District. The districts may be divided into two parts, a low lying or riverine area along the two bordering rivers and upland, away from the rivers. The riverine area is generally inundating during monsoon season. The water level in this area is higher than in the upland. The soil is sandy. The upland is flat plains sloping from north-west to south-west. The general height of the area is from 150 to 200 meters above the sea level.

5.1.2 Soils:

These are river transported deposits (alluvium), which are quite thick and fairly homogeneous in extent. The top soil consists of brown, soft to firm clayey silt / silty clay having slight plasticity and contents of dissolved salts. The top layer is likely to extend about 3 to 6 meter below natural ground, where it is underlain by silty fine sand/fine sand. This layer generally continues to deeper depths. These layers of silty clay and sandy gravel may also exist below 10-meter depth.

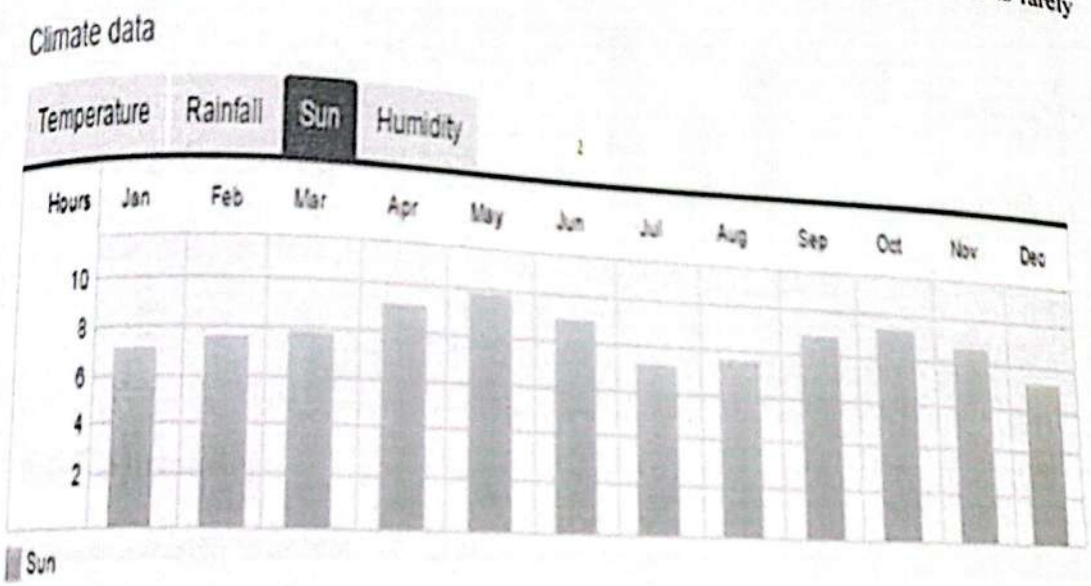
5.1.3 Climate:

Sheikhupura has extremes of climate; the summer season begins from April and continues till September. June is the hottest month. The mean maximum and minimum temperature for this month are about 45 and 27 degrees Celsius respectively. The winter seasons lasts from November to February. January is the coldest month. The mean maximum and minimum temperatures for the coldest month are 22 and 0 degree Celsius respectively. Rainfall Towards the end of June monsoon conditions appear and during the following two and a half

months the rainy season alternates with sultry weather. The winter rain falls during January, February and March ranging from 23 to 31 millimeters.

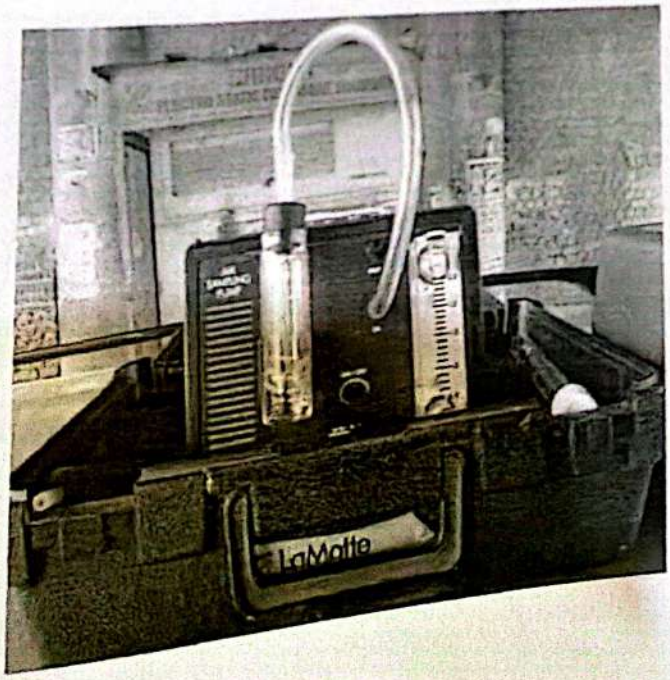
5.1.4 Temperature

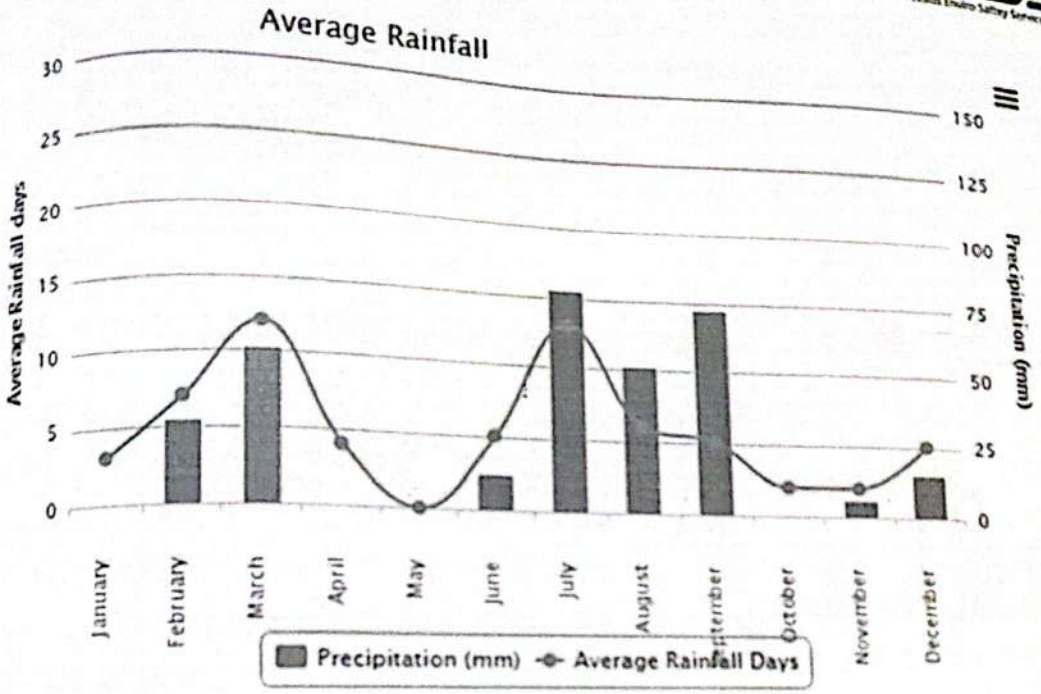
Over the course of a year, the temperature typically varies from 5°C to 30°C and is rarely below 2°Cor above 44°C.



5.1.5 Precipitation

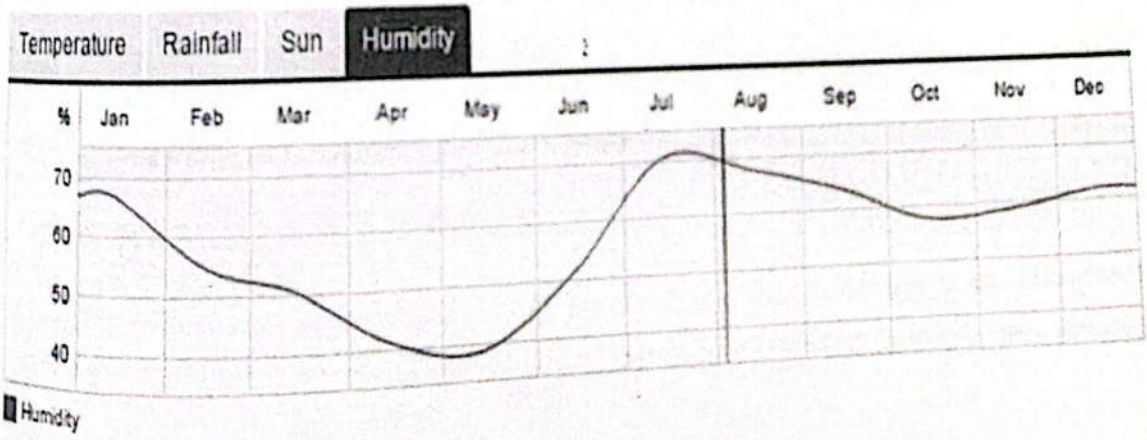
The probability that precipitation will be observed at this location varies throughout the year. Precipitation is most likely around July and September and. Precipitation is least likely around May and October.





5.1.6 Humidity:

Maximum average humidity of district Sheikhupura is in month of July and minimum humidity is observed in April as shown in graph below;



3.1 Ambient Air Quality:

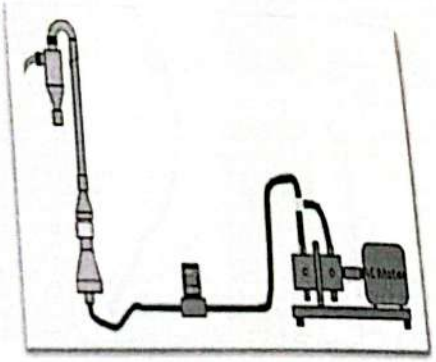
The project is located in commercial area of District Sheikhupura. The major sources of air pollution in the area are surrounding industrial activities and transportation or vehicular traffic.

To record the baseline ambient air quality of the project area, monitoring was conducted at advised locations to assess the concentration of priority pollutants (Carbon monoxide, Nitrogen dioxide, Sulphur dioxide and PM10) in the air.

Instruments used for monitoring Ambient Air Quality.

Ambient air monitoring was conducted by using Lamotte Kit.

5.1.7 3.2.1 Particulate Matter (PM10)



For PM10 mini volume air sampler was used. In PM10 Sampler air is drawn into the omnidirectional inlet head at a flow rate of 20 LPM. The air is then accelerated toward the first impaction stage where particulate with aerodynamic diameters greater than 10 µm are collected (filtered out). The air stream, carrying particulate 10 microns and smaller, continues down the inlet toward the second impaction stage where particles larger than 2.5 microns are collected. Finally, particulate 2.5mm and smaller continue down the inlet where they are collected on a 46.2 mm diameter, ring supported filter media disc.

Lab results for Ambient Air Quality

PEQS: Punjab Environmental Quality Standards

5.1.8 3.2.2 Discussion of Results

The ambient air result was within the PEQS Limits during the monitoring hours. The ambient air quality was monitored before construction, the market business, industrial processes and traffic was operational.

5.1.9 Noise Level Monitoring:

Basic Environmental conditions:

During the measurement following conditions were prevailed on site

Metrological Conditions:

During the noise level monitoring weather was dry and sky was clear. Air was blowing at high speed

Monitoring Instrument:

The description of the instrument used for the noise level monitoring is given below:

Name: Digital sound level meter

Model: AR824

Company: Intel Instruments plus



Features:

- ✓ +/-1.5 dB accuracy with 0.1 dB resolution
- ✓ A&C weighting
- ✓ Four Measurement Level Ranges
- ✓ Overall range: 30-130 dB
- ✓ Frequency Range: 31.5 Hz to 8 kHz
- ✓ AC and DC output
- ✓ Record Max values over time
- ✓ Over range indication
- ✓ Auto power off and Max Hold functions
- ✓ Utilizes 0.5"(12.7mm) condenser microphone

Calibration:

Self-calibration time: 10 sec (every turn on)

Specification:

- ✓ Display: Large 5 Digit LCD
- ✓ Resolution: 0.1 dB
- ✓ Overall Range: 30 to 130 dB "A", 35 to 130 dB "C"
- ✓ Sound Level Ranges: 30-80 dB, 50-100 dB, 60-110 dB, 80-130 dB
- ✓ Basic Accuracy: +/-1.5 dB
- ✓ Time Weighting: Fast or Slow
- ✓ Sampling Frequency: 2/sec

Methodology adopted:

Noise level measurements were carried out in a way that monitoring round was completed in one go.

Sources of Noise Pollution

Major sources of noise generation are industrial activities and vehicular traffic along the main road. Noise levels were monitored within and outside of boundary walls of the project site. Noise profile of the project site near the main road is shown in sub-section.

Lab Results for Noise level

Discussion of Results

Noise level at west boundary was higher the PEQS Limits during the monitoring hours due to link road present at that side and traffic was flowing. At the time of monitoring the surrounding industries and traffic was operational.

Water Quality:

The surface water is of good for irrigation.

5.1.10 Ground water:

Underground water is available and its quality is not enough good for drinking at lesser depths. The residents of area mostly use ground water for drinking which is contaminated due to industrial activities in the area. Water is continuously being contaminated by the injection of industrial wastewater through injection well in the study area.

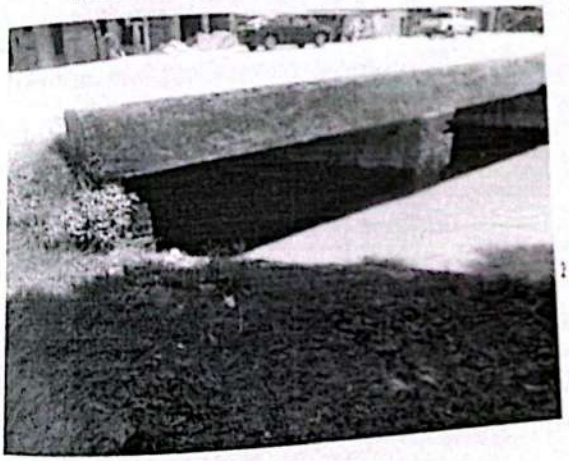
Lab analysis results of ground water in the area:

5.1.11 Wastewater/ surface water:

Proper sewerage system is not available in the area; there is no drain for the disposal of industrial wastewater as well. Mostly industries are injecting water in ground or may use in their own land for irrigation. It is highly recommended that water from the industries must be treated before use in irrigation. Govt. must take steps to provide proper industrial and domestic sewerage system in the area.

Surface water of the area is good for irrigation







3.2 Population

According to the 1998 census, Sheikhupura population was 6,318,745. Mid-2006 government estimates put the population at somewhere around 10 million, which makes it the second largest city in Pakistan, after Karachi. It is considered to be one of the 30 largest cities of the world.

Language

1 Punjabi

2 Urdu, being the national language of Pakistan is universally spoken and understood, while English is also understood and spoken by educated people. Famous singer ustad bade Ghulam Ali khan was also from Sheikhupura gharana of Indian classical music

Ecological Resources

5.1.12 Fisheries:

The project area is almost free from any commercial fishing activity. There are no lakes, even natural water ponds in the vicinity. Therefore, Fishery or any worth mentioning aquatic biology in this area is out of question.

5.1.13 Biodiversity:

Natural capital of a country mainly includes all of the country's wilderness areas and scenic landscapes, including also with their associated flora and fauna. Pakistan has a total of nine major ecological zones. The contribution of the "Natural Capital" is recognized at three distinct levels: species, genera, and communities (habitat and ecosystem) both collectively and within each level, the range or variety of the resources are referred to as the "Biological Diversity". The term has relevance for each of Pakistan's administrative units district, province, and particularly country. The more the number of species, genera, and habitats and ecosystems present within these units, the greater is said to be the biodiversity. The biodiversity of the area, with this background, is discussed as under.

5.1.14 Flora:

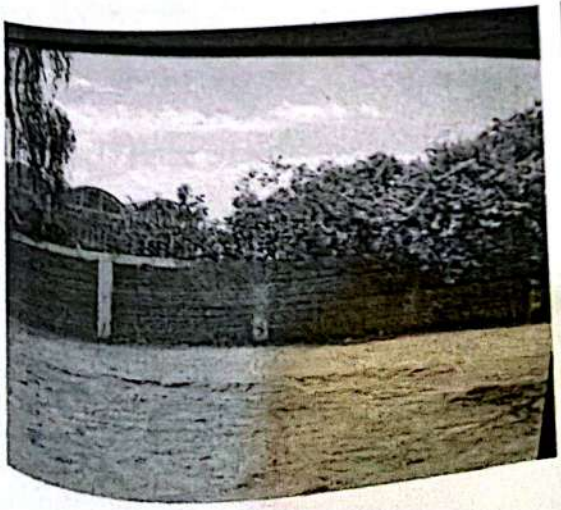
Project site is free from any protected plant species. Flora of the district has been greatly modified by human agency of the old open forests of small trees and shrubs; there remains only a few Rakhs or portions of forest which are kept as gazing ground for cattle etc. Amongst trees the most important are Kikar (Acacia arbica), Shisham or Tahli (Dalbergia sissoo), Beri (Zizyphus jajaba), Toot (Morus marlaccae), Sharin (Albizzia lebbek, Dharek (Malia azerdaracb), Phulahi (Acacia modesta), and Nim (Melia indica), Piple (Ficus indica) are planted for shade.The growth in Rakhs is composed mainly of three kinds of trees Jand (Prosopis spicigera), Karril (Capparis aphylla), and van or Jal (Salvadora obeoides). Occasionally pelu (acacia Loucophhloea) and Farash (Tamarix articulate) are also found.

Pilchi (Tamarix gallio) is found on moist sandy soil along the rivers and is used for wicker-work, basket making etc.











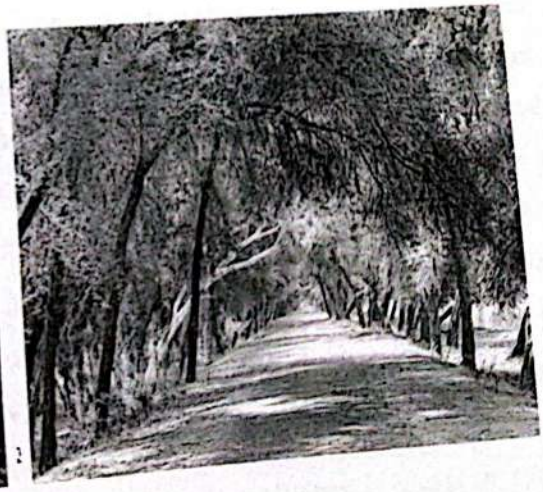
5.1.15 Fauna:

Project site is free from any protected animal species. Wolf and jackal are the only wild animals of an importance. The former being met with occasionally in the low land wastes of Sheikhupura but jackal is found everywhere.

5.1.16 Forests:

An area of 13784 acres is under forest in the district. There is also linear plantation of 1604 kilometers alongside the roads/rails/canals in the district. Trees grown in the area are Kau, Phalai, Kikar and Shisham.





5.1.17 Rare or endangered species:

There are no game reserves or protected lands/areas or endangered or rare species either in the area in the range of 5km from the project site.

5.1.18 Education:

Sheikhupura is having a higher literacy rate when it is compared with other cities of the country. It is made possible due to its prolific educational institutions.

5.1.193 Tribes & People

The principal tribes and tribes residing in Sheikhupura District are Pathan, Ansari, Bhatti, Malik, Arain, Jut, Sherwani, Safdar, Sunyare Rajput, Rehmani Mayo, Dogar, and Sheikh, the refugees from East Punjab that settled in the district largely belong to these tribes and clans. There are mueens or village artisans including Christians, blacksmiths, carpenters, potters, barbers, weavers etc. These mueens are found in all villages and are generally paid in kind at the time of each harvest.

5.1.20 Dress:

The local dress consists of a Kurta without collar covered by a waist-coat or Kurti and a loose loin cloth or trousers. A long piece of cloth called Chaddar is usually thrown over the willers. Achkan and Sherwani are worn on formal occasions by most people, but quite a large number of Muhajirs (refugees) wear these as normal dresses. In the villages, a Kurta with Tehband (sheet round of legs) and Safa on willers is the most common dress. The Pagri still carries a sign of respectability and some people in the cities while most people in the villages have this as the sole head-dress. The women's clothes are generally more colorful with popular shades of red and yellow. Women clothing consists of Shalwar, Kamiz and Dopatta or Chaddar to cover their heads and upper part of the body. Phulkari is a silk embroidered shawl often fancied by the rural women-folks. Saree is only worn by women in towns and cities on formal occasions. The most common footwear for men in the villages is shoes of rough leather usually made by the village shoemaker. Boots are worn by those living in the cities and towns while women folk-wear sandal or slippers. Purdah is very common amongst the lower, middle and upper middle-class women but rare amongst women of upper class.

3.3 Public Health/ welfare:

Though earlier very few specialist doctors were available and most of the people resorted to the adjacent city of Sheikhupura for their health care needs. But now, in Sheikhupura District

Headquarter Hospital is providing health facilities. Where as many small hospitals and clinics are providing basic health services as well, in rural and urban area.

3.4 Recreational Resources and Development:

The project area has not any private recreational facilities.

5.1.21 Aesthetic Values:

Like the general trend among the citizens of area, most of the people have low awareness about environment. Even then, some people take cleanliness and neatness of the environment lightly. Some people throw municipal solid wastes (MSWs) on the streets. Sense of personal responsibility to keep the environment clean as good citizens is even now lacking among a few people.

5.1.22 Quality of Life Values

5.1.23 Religion

The population of Sheikhupura is over 99% Muslim.

5.1.24 Customs

The peoples are very much concerned about castes and beliefs, visiting shrines is very common among them.

5.1.253.8.3 Languages and Major Casts

Punjabi, and Urdu are spoken in the city. Main castes are chishty, Rehmani, LAK, Chadhar, Jut, Tagga, Ansari, Butt, Dulu, Sayal, Kamboh, Bhadru, Mughal, Dogar, Sanpal, Gujjar, Arain, Rajput, Tajra, Hiraj and Shaikh Awan.

5.1.26 Dress

Majority of the people wear Qameez and Shalwar. English dress, shirt and Trousers are also common in Sheikhupura as well like other big cities of Pakistan.

5.1.27 Electric Supply

WAPDA power supply will be available at the site.

5.1.28 Telephone Facilities

Both Landline and Cellular telephone facilities are present in the project area.

5.1.29 Educational Facilities

No educational facility is present in the vicinity of the project area.

5.1.30 Agriculture

Major crops of the town are wheat, grain, peas, barley are the important crops of Rabi season, while Kharif crops are cotton, sugarcane, potato, bajra, oil seeds which are shipped by rail and road to other parts of the country.

5.1.31 Site of physical, cultural heritage:

There are no documented or protected sites of archaeological, cultural, historical & religious significance in the project area. No visible signs were observed of such sites while conducting the field work.

5.1.32 Suitability of site

The site does not fall in environmental sensitive area and all commodities are at a suitable distance from project site as they will not impacted by the construction activities even locals will get more benefits and job opportunities. No replacement, relocation and rehabilitation are required for the development of proposed project.

IMPACTS ASSESSING

This section discusses the potential environmental impact, methodologies for impact identifications and characteristics of impacts including nature, magnitude, extent and location, timing, duration, reversibility, risk the assessment carried out in this Section is based on potential impacts on overall environmental receptors within the project area.

Methodology for Impact Identification

The potential impacts due to project can be both positive (beneficial) and negative (adverse) depending on the resources and receptors involved along with other parameters such as geographical scope (magnitude and extent), temporal scope (duration) and reversibility.

It is anticipated that this project will have positive impacts on sectors such as the economy, employment and foreign exchange earnings among others. Moreover, the project is expected to result in negative impacts of short-term duration and transient in nature.

Environmental sensitivity of the project area is described through a thorough review of the project activities and the evaluation of significance of impacts is carried out through Environmental Checklists and GIS and computer expert system. In checklists, the impacts have been given magnitude based on their severity. A detailed map of the project area is developed on GIS to study the impacts on nearby environmental settings. This chapter then suggests effective mitigation strategies to help combat the adverse nature of these impacts and delivers a monitoring scheme to manage them.

Impacts Analysis and Prediction

The impacts on different environmental settings were analyzed by conducting different consultation sessions with environmental experts and individuals. Their views were recorded and incorporated in the report. The list of stakeholders and individuals consulted will be provided in the chapter of Stakeholder's Consultation.

Characterization of Impacts

Impacts were characterized on the basis of following parameters:

- **Nature**
- **Magnitude**
- **Duration**
- **Spatial Boundaries**

- **Extent**
- **Reversibility**

The impacts characterization for the project has been given in Table

Characterization of Impacts

Environmental Component	Impacts		Nature of Impact		Duration			Spatial Boundaries			Likelihood			Reversibility Risk	
	Positive	Negative	Direct	Indirect	Short Term	Intermediate	Long term	Local	National	Global	Low	Moderate	High	Reversible	Irreversible
Water Resources	Nil														
Acid Mine Drainage	Nil														
Land Resources	■		■				■	■				■			■
Air Quality		■	■		■			■			■			■	
Climate Change	Nil														
Noise		■	■		■			■			■			■	
Solid waste		■	■		■			■			■			■	
Wastewater		■	■		■			■			■			■	
Flora & Fauna	■		■				■	■				■			■
Community Amenity		■		■	■			■			■				■
Afforestation	■		■				■	■				■			■
Local Economy, Community Development and Employment	■		■			■		■				■			■
Resettlement	Nil														
Health & Safety		■	■			■		■				■			■

Impact Significance

After the evaluation of all the potential impacts, the impacts significance is be given using Impact matrix. The impacts significance of Physical importance, Ecological importance, social importance is given using the matrix approach. The impacts significance is given based on the characterization of impacts

Significance of Environmental Impacts

Environmental Parameters	Significance
Water Resources	None
Land Resources	None
Air Quality	Require mitigation
Climate Change	None
Acid Mine Drainage	None
Noise	Require mitigation
Solid waste	Require mitigation
Wastewater	Require mitigation
Flora & Fauna	Acceptable
Community Amenity	Acceptable
Afforestation	Acceptable
Local Economy,Community Development and Employment	Acceptable
Health & Safety	Require mitigation

CHAPTER # 06,

SCREENING OF ENVIRONMENTAL POTENTIAL IMPACTS AND MITIGATION MEASURES

The following chapter describes the overall possible impacts of said project on the physical, biological and socioeconomic environment due to the location, Design, during construction phase, during operation phase of the project and mitigation measures to minimize the significance of the possible impacts. The anticipated impacts related to propose project under the name of Establishment of Integrated Waste Management Facility and Installation of Incinerator by M/S Haji Akhtar & Sons situated at 3-Km Lahore Road,Near Seam Nala Bhaddu Murad Sheikhupura have been assessed and mitigation measures provided accordingly.

6.1 Environmental impacts due to the project location

6.1.1 Project Location:

The subject proposed project under the Name of Establishment of Integrated Waste Management Facility and Installation of Incinerator by M/S Haji Akhtar & Sons situated at 3-Km Lahore Road,Near Seam Nala Bhaddu Murad Sheikhupura

Surrounding of the area is as follows.

- Left road and across road Vacant plot
- Right Vacant plot
- Front road and across the road are open land
- Back Vacant plot

6.1.2 Impact:

Subject project is present in the commercial area of the district There is no residential present in the vicinity of subject project. So, if the proponent/owner fulfills all the HSE conditions and development laws and rules than this project will not cause any adverse environmental impacts on the society. Development of this project increases the living standards and employments for the local people of the district. Overall, the impacts of this development due to the location are positive on the local community of district and country.

Impact significance: very Low or may be positive

Dated: 04-05-23

Nature of impact: indirect

Duration: Long-term

Timing: Operation phase

Reversibility: NA

Likelihood: Low (unlikely),

Consequences: very low or may be positive

6.1.3 Mitigation measures

- Proponent should build the boundary wall all around the project
- Proponent should enhance the road infrastructure within the project.
- Proponent/Developers should place all the safety and location signs and maps at the specific indemnified place.
- Proper parking arrangements should be maintaining during the construction and operational phase of the development
- Location can be considered as positive impact on the community due to the facilities provided to the community.

6.2 Environmental Impacts due to the project design

Subject project under the name of Establishment of Integrated Waste Management Facility and Installation of Incinerator by M/S Haji Akhtar & Sons situated at 3-Km Lahore Road,Near Seam Nala Bhaddu Murad Sheikhupura. A proposed project for the collection of hazardous waste and substance. Proposed project will have office, yard, storage room, wash rooms, guard room, over on area of 08 Kanals .

Following are the major Environmental impacts due to the development related to the design:

6.2.1 Impacts

- Structural stability of the proposed project
- Soil structure and soil bearing capacity
- Road infrastructure design
- Emergency exit in the building for the emergency situations
- Firefighting system

Dated: 04-05-23

- Wastewater disposal system design
- Rain water harvesting capacity of the drainage system
- Electricity hazardous

Impact significance: moderate to high or may be negative

Nature of impact: direct

Duration: Long-term

Timing: Constructional phase & Operation phase

Reversibility: NA

Likelihood: moderate to high

Consequences: moderate to high or may be negative

6.2.2 Mitigation measures and recommendations

Following are the mitigation measures and recommendation to minimize the anticipated impacts

- Design and map of the project is attached with file.
- Road infrastructure should be according to the laws and regulations
- Emergency exits should be design during the designing phase of the project
- Firefighting system should be design for the emergency situations
- Waste water drainage should be design vast to bear the rain water capacity of the project.
- Electricity system should be design safe and sound, electricity wires should be covered by thick plastic/electricity resistant covers.
- All the design should be approved from the TMA to minimize the impacts due to the designing.

6.3 Environmental impacts during the construction phase

Establishment of Integrated Waste Management Facility and Installation of Incinerator by M/S Haji Akhtar & Sons situated at 3-Km Lahore Road,Near Seam Nala Bhaddu Murad Sheikhupura. Environmental impacts during the constructional phase are following

6.3.1 Construction Stage Impacts

Establishment of Integrated Waste Management Facility and Installation of Incinerator by M/S Haji Akhtar & Sons situated at 3-Km Lahore Road,Near Seam Nala Bhaddu Murad Sheikhupura during the construction phase may cause the following anticipated impacts/vulnerabilities on the environment:

Impacts on Physical Environments

- Grubbing and stripping
- Leveling and compaction of the land
- Demarcation of project building and other facilities
- Generation of dust during loading and unloading of construction materials.
- Generation of noise on account of vehicular use and construction activities.
- Gaseous emission due to the vehicles and stand by generator (if any)
- Local flooding due to over-use of water and leakage of pipes.
- Safety of construction workers, people in the surroundings and passersby.
- Any outbreak of fire due to electrical and other failures.
- Solid waste generation due to domestic and construction activities.
- Wastewater generation from the domestic and constructional activities
- Ground water quality affects due to the development

➢ Construction Stage

The construction stage may involve the following vulnerabilities:

- Generation of dust during loading and unloading of construction materials.
- Generation of noise on account of vehicular use and construction activities. It will be noted that background noise level will be less than PEQs limits.
- Local flooding due to over-use of water and leakage of pipes.

- Safety of construction workers, people in the surroundings and passersby.

Occupational Health & Safety means to provide and maintain a working environment in which employees are not exposed to hazards.

- There must be no release of noxious or offensive odors or contaminants beyond the project site to cause any harm at any odor sensitive place. These places include schools, hospitals, park, shops and residences.
- Any outbreak of fire due to electrical and other failures.

➢ Operation Stage

- About 10 persons will occupy the project site. The projects' operations will be kept in working condition so that the workers may give their input in environment friendly conditions.
- Management Committee will supervise the smooth functioning of the project site. All the activities will be managed by the qualified and experienced engineers.

➢ Main Environmental Issues

Main environmental issues associated with project are as follow.

- Waste water due to construction activities.
- Fire due to short circuits and other activities.
- Solid waste generation due to domestic/ commercial activities.
- Noise pollution from generator and other machinery.
- Health hazards

➢ Operation Stage

Following points must be implemented during the operation stage.

- Keep water supply, sewerage disposal and electric supply in working condition.
- Wastewater will pass through septic tank Then it will be disposed in existing nearby

TMA/WASA drain

- Keeps the firefighting arrangements in working condition at all times at gas storage area. Contacts of fire brigades are displayed at prominent places in the project's building.

Table – Mitigation Measures

Serial	Environmental Issues/ Impacts	Mitigation Measures
PLANNING, SITE SELECTION AND DESIGN STAGE		
1	Observance of administrative and legal formalities	• Project proponent has submitted their documents in below mentioned departments like • TMA • WAPDA • Civil defense
2	Acquisition of land	Proponent has paid the total money to land owners and now land has been transferred in the name of project proponent.
3	Loss of environmentally sensitive areas	Avoid utilizing such patches of land.
4	Changes in traffic pattern	Prepare suitable in/out traffic plans
5	Potential conflicts with stakeholders	Settle the issues through scoping and specific group discussions.
6	Resettlement issues	No resettlement issues
SITE DEVELOPMENT STAGE		

1	Erosion due to stripping and site clearance	Sprinkling of water on road side
2	Generation of dust	• Careful loading and unloading of construction materials is recommended. • Sprinkling of water on construction site and surrounding areas is recommended.
3	Generation of noise	• Avoid suing forbidden horns at the site. • Do not throw heavy equipment and construction materials in haphazard manner.
4	Local flooding/pounding	Immediate repair and maintenance of water supply pipes and sewers in case of any defect will be undertaken.
5	Outbreak of fire	Keeps the firefighting equipment at the oil storage area.
6	Safety	• Safety of the workers and others must be ensured. • Privacy of the neighbors must not be disturbed.
7	Labor issues	Employ the local labor as far as possible
CONSTRUCTION STAGE		
1	Minor erosion of land	• Add more vegetation, restore the land by more plantation • Sprinkling of water on dusty tracks is recommended

2	Contamination of land and water	Essential services like water supply, sewerage disposal and solid waste management must be in working condition.
3	Impacts of dust, noise and smoke on neighbors	Schedule construction timings to cause minimum disturbance to neighbors.
	OPERATION STAGE	
1	Contamination of land and water sources	Continuous vigilance on maintenance of services is recommended Tarpaulin sheets must be placed to avoid leaching of oil into ground
2	Fire breakouts	Firefighting equipment must be kept in working condition at specific area
3	Safety/security concerns	Safety of the workers and others must be ensured. • Privacy of the neighbors must not be disturbed.
4	Malfunction of utilities	It is proposed to appoint maintenance engineer with technicians like plumber and electrician for smooth operation of utility services.
5	Occupational Health, Safety and Environment	• Regular medical check-ups are recommended to improve the working condition and efficiency of workers. • Safety of management, workers and visitors must be ensured.

		• Observance construction and safety codes must be ensured.
6	Production of Solid Waste	• Area for solid waste is reserved within the subject project. • The solid waste must be managed on regular basis. • The domestic waste must be disposed in municipal channel. • Other kind of solid waste may be disposed of in environment friendly manner and inclinator will be installed if required.

6.4 Corporate Social Responsibility (CSR)

CSR means "the continuing commitment by business to behave ethically and contribute to economic development while improving quality of life of the workforce and their families as well as of the local community and society at large. CSR Committee of M/S Haji Akhtar & Sons, entrusted with task of identifying areas where the Management of Establishment of Integrated Waste Management Facility and Installation of Incinerator by M/S Haji Akhtar & Sons could participate positively to the development and improvement of better society in the project area. The Committee's mandate is to initiate, facilitate, coordinate and monitor CSR projects of the Company.

6.4.1 Structural Stability

While carrying out the detailed designing of the project building structural, engineering, safety and seismic considerations have been taken into account to make it structurally viable and environment friendly.

6.4.2 Undertaking

The proponent has committed to comply with the relevant construction by-laws/ safeguards and the environmental enactments for the environmental preservation. Project proponent has given Undertaking and Affidavit a respectively.

Consultation with the Fire Fighting Department, Paramedics and Civil Defense

Summary of major Impacts and their mitigation measures

Sr No	Constructed Phase Impacts	Operational phase impacts
1	Waste water generation	Noise from machinery
2	Dust and emissions during construction phase	Emissions/ noise from generators and vehicles
3	Worker's health and safety issues	Waste water from workers camp and from other sources
4	Disturbance of flora and fauna (if tree cutting will involve)	Worker's health and safety issues
5	Solid waste generation	Fire
6	Traffic problem due to transportation of material	Safety and security issues
7	Waste water generation	Noise from machinery
8	Dust and emissions during construction phase	Emissions/ noise from generators and vehicles

Potential Environmental Enhancement Mitigation measures

Sr. No.	Mitigation measures for construction phase and operational phase
1	Septic tanks will be constructed for the treatment of waste water generating from worker's camp. And waste water treatment plant will be constructed for the treatment of waste water generating from project
2	During construction phase Roads will be sprinkled with water to keep dust emissions within PEQS. Only mechanically fit vehicles along with low emissions and noise will be allowed to works at project site.
3	Contractor will be responsible for the provision of Personal Protective Equipment's (Goggles, Masks, Safety shoes and Safety Helmet, Ear Plug and Ear Muff etc) to workers.
4	Excessive tree plantation in and around the project premises.

5	Construction of hall around the generator along with installation of silencers to reduce noise
6	Installation of fire safety equipment (DCP Cylinders, Water based cylinder, Installation of fire alarm system, smoke detector, safety signs). Provision of emergency exit in the building so that in case of any disaster safe evacuation of workers may be possible.
7	Movement of vehicles is recommended during night time specially when traffic load is negligible to avoid traffic congestion

6.5 Changing in planning and design

There will be no change in project plan and design as design/ layout plan submitted along with EIA report will be implemented as provided.

6.5.1 Improved monitoring and management practices

For monitoring of pollution sources or any minor or major source pollution so mitigate it a system of monitoring and management will be adopted. HSE manager will be responsible for the monitoring, identification of pollution source and then its management. Management will monitor their systems as per the direction of the agency. They will submit their monitoring reports on regular basis to EPA to check PEQS. if any parameter found exceeding the PEQS limit proponent/ HSE manager will take immediate action to keep its level within limit by adopting proper mitigation measures. Fire system will be monitored after every month. Workers will be provided training to cope any emergency within the project. Installed machinery and vehicles will be inspected after 15 days to check there working efficiency.

6.5.2 Compensation of money terms

Management has purchased land directly from its owner and cost of land has been paid to its owner and now land has been transferred in the name of project owner. So, there is no effected community to whom compensation will be paid. Furthermore, project is a poultry farm it will not disturb surrounding flora and fauna so no need to pay any compensation.

6.5.3 Replacement, relocation and rehabilitation plan

From project activity trees will be damaged and quality of solid may be affected as replacement new trees will be planted and quality of soil will be improved by tree plantation, grassing and flowering.

6.5.4 What is problem?

Due to project activity below mentioned is list of impacts which may occur during construction and operational phase of the project.

6.5.5 Construction phase problems

Below mentioned impacts may occur construction phase of the project

Sr. No.	Problem	Time of occurrence
1	Waste water generation	During construction activities and workers camp
2	Dust and emissions during construction phase	Vehicular movement, construction activities
3	Worker's health and safety issues	Construction activities, loading and unloading of goods
4	Disturbance of flora and fauna (if tree cutting will involve)	Leveling of land, construction of homes
5	Solid waste generation	Worker's camp, construction activities
6	Traffic problem due to transportation of material	Loading and unloading of goods

6.5.6 Operational phase impacts

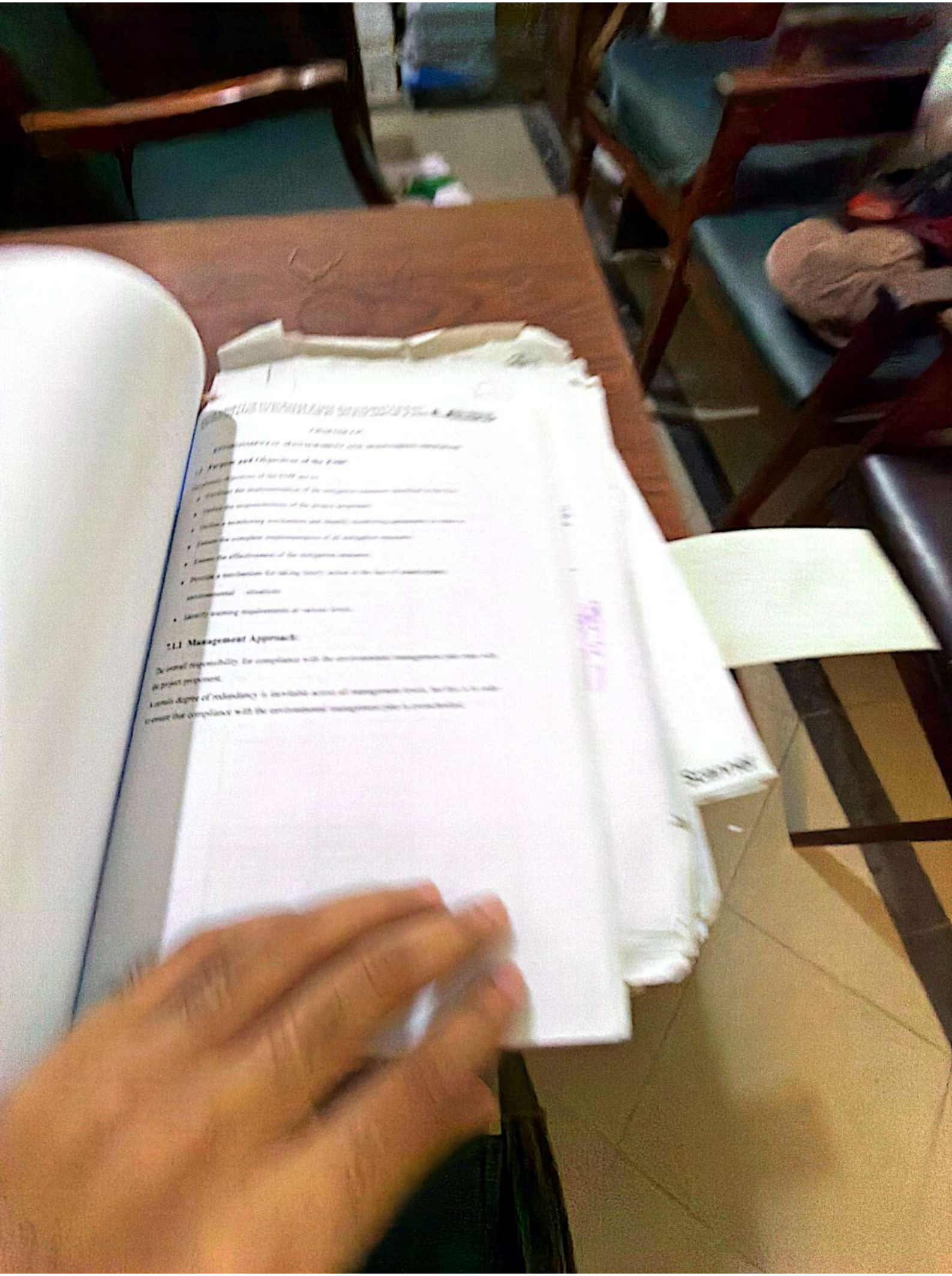
Sr. No.	Problem	Time of occurrence
1	• Noise from machinery/ vehicles	Construction of project/ construction activities
2	• Emissions/ noise from generators and	Construction of project/ construction

	vehicles	
3	• Waste water from workers camp and from other sources	activities During development work and construction of project
4	• Worker's health and safety issues	Construction activities, loading and unloading of goods
5	• Fire	Construction work
6	• Safety and security issues	When project will be fully developed
7	• Traffic issues due to raw material movement	During constructing material transportation
8	• Disturbance to flora and fauna if excessive tree cutting will be done	Construction and development activities.

6.5.7 Where the problem will be addressed

Sr. No.	Mitigation measures	Where it should be addressed
1	Septic tanks will be constructed for the treatment of waste water generating from workers/ office camp.	During construction and operational phase
2	During construction phase Roads will be sprinkled with water to keep dust emissions within PEQS. Only mechanically fit vehicles along with low emissions and noise will be allowed to works at project site.	During construction and operational phase
3	Contractor will be responsible for the provision of Personal Protective Equipment's (Goggles, Masks, Safety shoes and Safety Helmet, Ear Plug and Ear Muff etc.) to workers.	During development and construction activities
4	Excessive tree plantation in and around the project premises.	During project development

5	Construction of hall around the generator along with installation of silencers to reduce noise	During generator installation time
6	Installation of fire safety equipment (DCP Cylinders, Water based cylinder, Installation of fire alarm system, smoke detector, safety signs). Provision of emergency exit in the building so that in case of any disaster safe evacuation of workers may be possible.	During construction and development phase
7	Movement of vehicles is recommended during night time specially when traffic load is negligible to avoid traffic blockage.	During transportation of construction material



7.2 Environmental Management Plan M/S Lead Enviro Safety Services(Pvt.) Ltd.,

Serial No.	Environmental Parameter/ Element	Mitigation measure to be taken during: Construction	Regular operations	Responsibility
	Physical Environment			
1	Waste water	The sewage to be generated shall be discharged into the SEPTIC TANK for its treatment and then it will drain into nearby drain Domestic/construction waste water after Treatment in septic tank will be drained into nearby local sewage drain. Periodic cleaning of the SEPTIC TANK is recommended	The sewage to be generated shall be discharged into the SEPTIC TANK for treatment at PEQS levels. As there will be no chemical contamination, therefore, simple oxidation may reduce its pollution load. Road cuttings to lay sewer shall be done after due permission from the concerned authority. Sewage and other waste effluents will be handled to avoid contaminating surface and groundwater. No contaminated effluents will be released into the	Environmental/Project Manager

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			Monitoring will be conducted by EPA certified lab if required	
2-	Health & safety	Local people will be informed in advance when work is about to start in an area. This may result in people keeping young children away from work areas. Safe driving practices will be adopted, particularly while passing through settlements Job opportunity will be provided to local people of the area Basic health facilities will be provided to employees	Fire Fighting Equipment's & system will be installed. Basic health facilities will be provided to employees Security guards will be present Job opportunity will be provided to local people of the area	Environmental/Project Manager
3.	Water supply	It shall be ensured that no activity tempers with the water supply system.	It shall be ensured that no activity tempers with the water supply system. Project proponent committed to provide safe drinking water to all workers and staff	Environmental/Project Manager
4.	Solid wastes	Limited solid wastes from the construction	Solid waste will be handed over to the	Environmental/Project Manager

		activities shall be segregated and duly disposed of. The solid redundant materials will be disposed of away from the city adequately. None of these wastes shall be accumulated on site. It shall be ensured that none of the wastes or materials of construction spread on the public roads or on the foot path or else. Construction Solid waste will be stored in solid waste bins and will be handed over to TMA Solid waste management division, and also construction waste will be used for road repairing and maintenance purpose.	local Government after collection from project. Solid waste bins will be placed at suitable places Area for solid waste disposal will be allocated within the subject project Sludge will be replaced on regular basis. Proper solid waste management system will be adopted. Hazardous waste will be disposed in environment friendly way and incinerate if required.	
5.	Noise	In order to avoid noise in the project area, vehicles to carry raw materials, shall be operated during night time as far as possible. The project construction activities don't involve any	In order to avoid noise in the project area, vehicles to carry domestic and commercial materials, shall be operated during night as far as possible. No activity	Environmental/Project Manager

		activity which may create high noise levels. Ear plugs will be provided & implemented. Noise level monitoring has been conducted by EPA certified lab & results are incorporated within the report.	producing extra ordinary levels of noise will be allowed as a policy matter. Generators will be installed in a specially constructed room where its noise will be curtailed within the limiting values of the National Environmental Quality Standards. Monitoring will be conducted by EPA Certified lab as per PEQS if required	
6.	Gaseous emissions and particulate matter/dust emissions	Construction materials i.e., sand, clay and like shall be transported to the project site during night time and will be stored away from the road or foot path. They will be kept under cover to avoid any fugitive dust. Dust may generate during unloading of raw materials. All equipment, generators, and vehicles used during the project will be	Diesel fired generator shall cater for emergency situation only. Their exhaust will be emitted through an adequately fabricated stack. Scrubbers/dust collection system will be installed at the stack of generator if required. Monitoring will be conducted as per PEQS if required	Environmental/Project Manager

		properly tuned and maintained in good working condition in order to minimize exhaust emissions. All project vehicles will be checked regularly to ensure that engines are in sound working condition and are not emitting smoke. Ambient air quality has been monitored by EPA certified Lab and results are incorporated within the report.		
7	Soil erosion	The clearing of vegetation along proposed site will be minimized as far as possible. Minor & scattered vegetation is present that include shrubs and grasses only. Open fires will not be allowed anywhere outside the proposed site. Fuel-wood and shrubs will not be used as fuel during project activities.	Maximum plantation is recommended within at outside the land subdivision and for this area is reserved. Tarpaulin sheets will be placed under generator (s), and other leaching substances. Land will be restored by planting indigenous plants	Environmental/Project Manager

8-	Traffic related problems	The vehicles number will be regulated in a way that no stampedes occur on the site. As far as possible, large size vehicles in very limited number may visit the project site during night time.	The project site has additional area reserved exclusively for parking cars and motor cycles. No vehicle or motor cycle will be allowed to be parked in the front of the road and project as well.	Environmental/Project Manager
9-	Trash burning	No trash burning will be allowed in or oust side the unit building.	No trash burning will be allowed on the roads and streets.	Environmental/Project Manager
10-	Dust	The open place in front of the building will be duly cleaned after sprinkling of water to avoid any dust to spread around.	Plantation will be ensured in open space to avoid dust.	Environmental/Project Manager
BIOLOGICAL ENVIRONMENT				
11	Fauna and Flora	Proposed site is devoid - off any protected species of both fauna & flora	Awareness programs will be planned regarding the protection of fauna & flora. Species of Indigenous plants will be planted at site.	Environmental/HSE Manager
SOCIOECONOMIC IMPACTS				
12	Resettlement issues	There is no any issue of resettlement due to the construction of the subject project.	There will not be any issue of resettlement due to the operation of the subject	Environmental/HSE Manager

		Maximum	project.	
13	Change in cultural language	employment of Local people is recommended to preserve the local cultural language. It will help in communication with the local people to resolve any emerging issue near the project area	Maximum employment of Local people is recommended to preserve the local cultural language. It will help in communication with the local people to resolve any emerging issue near the project area	proponent
14	Education	School and colleges exist in the area. The project proponent will initiate an educational awareness program.	School and colleges exist in the area. The project proponent is committed to initiate an educational awareness program	Proponent
15	Health	Heath facility already exists near the project site at the distance of about 8 km. The project proponent should provide first aid facilities at site and also social security and medical checkups of the workers.	Heath facility already exists near the project site at the distance of about 8-km. The project proponent is committed to provide first aid facilities at site and also social security and medical checkups of the workers.	Proponent

16	Culture, Norms of the area	Maximum local employment should be ensured to preserve the culture of the area	Maximum local employment should be ensured to preserve the culture of the area	Proponent
17	Gender inequality	Women involvement in decision making process should be ensured.	Women involvement in decision making process should be ensured	Proponent
Others				
18-	Environment quality enhancement measures: flowers and plants and decoration lights.	---	Flower pots containing flowers and plants will be planted in front of the buildings to add to the improvement of the environment around. Street lights will be provided on the front side of the building to add beauty to the front site and the environment around.	Environmental/Project Manager
19.	Staff for catering the Environmental Management Plan	---	Special staff will be recruited to implement this Environmental Management Plan on regular basis.	Environmental/Project Manager
20.	Enhancement of aesthetic beauty of the building	---	All other necessary measures shall also be taken to maintain	Environmental/Project Manager

	and the area.		standards of cleanliness so that the building may add to the scenic/aesthetic beauty of the area around.	

7.3 Monitoring Plan

Proponent will ensure overall monitoring the project so that all intended activities may take place in accordance with environmental assessment.

7.4 Training Schedule

Training for the management/contractors/engineers and workers on environmental aspects of the project will be arranged. It will be imparted by a team of experienced trainers.

7.5 Institutional Responsibilities

Following functionaries will be involved in the implementation of EMP:

- HSE/Project Manager
- In-Charge Administration
- Supervisor of project
- Environmental Engineer/Officer of Contractor

7.5.1 Responsibility of EMP

Overall responsibility for implementation of EMP will be that of HSE/Project Manager. He will act as Environmental Manager. He will be assisted by supervisor of project and In-charge Administration. Project Manager will be responsible to the Project Proponent in all respects. He will make liaison with all stakeholders and EPA Punjab.

7.6 Need for Disaster Management and Emergency Response System

In order to cope up with the possible hazards it is imperative to prepare the Disaster Management Plan and rehearse it frequently. To evaluate effectiveness of the system preparedness exercises and drills should be undertaken frequently. Small courses should be run to train the relevant persons about their actions during emergency. The administration staff need be familiar with the firefighting procedures and equipment.

7.7 Components of Fire Management Plan

➢ Background Information

- The likely causes of the breakout of fire are short-circuiting of electricity, throwing of cigarette buts, combustible materials catching fire and damaged gas pipes.

➢ Immediate / First Line Actions

The occupants must evacuate the building using the stairs, ramps & lobby and emergency exits. Evacuation plan should be hoisted at many places. Evacuation of building should be completed within 2/3 minutes' time.

➢ Calling the Fire Brigades

The contacts (telephones, call and fax numbers) of local fire brigades should be boldly written at each floor on the notice boards so that any person may call them for immediate assistance. Information about the firefighting facilities in the nearby urban centers should also be handy all the time.

➢ Medical Aid

Information be immediately passed to the nearby medical hospitals and centers for recovery of the wounded persons. First aid boxes should be kept at suitable places. Some of the employees should obtain formal training about medical first aid

7.8 Fire Fighting Procedures

- To ensure availability of adequate water for firefighting purpose dedicated water tank should be earmarked.

- It should be ensured that during firefighting operation enough space is available for movement of vehicles and personnel.
- In addition to the above the firefighting personnel from Fire Brigade Department should be in possession of the required pieces of equipment like fire man suit, fire blankets, Fire torch special for looking in smoke, gloves (rubber & canvas), goggles, helmets plastic, gum boots, gasmasks, Oxygen cylinder/breathing apparatus, fireman axe, shovel, first aid box (complete), ladder, metal detector.

Regular monitoring of all the significant environmental issues is essential to check the compliance status of EMP. The main objective of the monitoring will be;

- To verify the results of the environmental study with respects to the proposed project.
- To estimate the trends of concentrated values of the issues, which have been identified as critical and then planning the mitigating measures.
- To assess the efficiency of pollution control mechanism.

To ensure that any additional parameters, other than those identified in the EIA report, do not turn critical after the commissioning of said project.

7.9 Aim of Monitoring

The aim of monitoring is to oversee the environmental performance of the project through its lifecycle enforcing the PEQS. Timely implementation of mitigation measures leads to sustainable environmental management of the project.

7.9.1 Environmental Monitoring Plan

- The monitoring will be carried out in accordance with PEQS.
- Monitoring program will be undertaken for compliance of mitigation measures.
- Monitoring for various parameters will be done during construction, commissioning and operation stages.

7.10 Performance Indicators

The performance indicators / parameters having significant impact on physical, biological and socio-economic environments will be evaluated. These are given below:

- **Ambient Air Quality**

  PM10, CO, NOx, HC and SO_2

- **Water Quality**

  TDS, TSS, COD, oil and grease, chloride, lead, zinc and cadmium

- **Noise Levels**

- **Soil Quality**

  Lead, chromium, cadmium hydrocarbons

- **Tree plantation**

7.11 Environmental Monitoring Cell (EMC)

EMC of the project will undertake monitoring of the Safety, Health and Environmental Aspects. It will ensure implementation of EIA report and apprise the General management of the project on fortnightly basis.

7.11.1 Environmental Technical Assistance and Training Plan

In order to raise the level of professional and managerial staff, there is a need to upgrade their knowledge in the related areas. Environment/HSE/Project Manager should play a key role in this respect and arrange the training programs.

Environment/HSE/Project Manager will provide training to staff and workers about the best environmental management practices at the construction site and affective implementation of the EMP.

The training modules will include air, noise and water pollution monitoring, social awareness, Environmental Laws, Punjab Environmental Quality Standards (PEQS), Usage of personal protection equipment's, and health and safety related issues on the construction site.

The Environment/HSE/Project Manager will train all workers & staff in basic sanitation and health care issues (e.g., how to avoid malaria and transmission of Sexually Transmitted

Infections (STI) HIV/AIDS and in general health and safety matters, and on the specific hazards of their work. Training should also consist of basic hazard awareness, site specific hazards, safe work practices, and emergency procedures for fire, evacuation. Environment/HSE/Project Manager will arrange Training on monthly or quarterly basis regarding health & safety, hygiene, firefighting and first aid.

7.11.2 Monitoring of Quality

The EMC will arrange monitoring of the quality of air, water, noise and waste water on quarterly or monthly basis from any EPA Certified/approved laboratory if required.

7.12 Monitoring Stages/Plan

7.12.1 Monitoring Stages

Monitoring of environmental parameters need to be carried out during the following stages in addition to post-project period:

- Construction Stage
- Operation Stage

7.12.2 Monitoring Plan

Following aspects need to be monitored during construction and operation stages:

- Air quality
- Water quality
- Noise level
- Management of utility services including water supply, sewerage disposal, electric supply and solid wastes.

➢ Training Schedule

HSE manager will conduct training for staff so that workers may deal any emergency took place within project premises. Management will have close liaison with district emergency services like Rescue 1122, Civil Defense and Fire brigade. Training sessions will be conducted for staff along with firefighting equipment's inspection by Rescue and Civil

Defense officials after 2-3 months. Fire drills will be conducted by the staff once in a month so that they may prepare themselves for any emergency like fire.

Summary of impacts and their mitigation measures

Summary of major Impacts and their mitigation measures

Sr No	Constructed Phase Impacts	Operational phase impacts
1	Waste water generation	Noise from machinery
2	Dust and emissions during construction phase	Emissions/ noise from generators and vehicles
3	Worker's health and safety issues	Waste water from workers camp and from other sources
4	Disturbance of flora and fauna (if tree cutting will involve)	Worker's health and safety issues
5	Solid waste generation	Fire
6	Traffic problem due to transportation of material	Safety and security issues
7	Waste water generation	Noise from machinery
8	Dust and emissions during construction phase	Emissions/ noise from generators and vehicles

Mitigation measures

Sr No	Mitigation measures for construction phase and operational phase
1	Septic tanks will be constructed for the treatment of waste water generating from worker's camp. And waste water treatment plant will be constructed for the treatment of waste water generating from houses
2	During construction phase Roads will be sprinkled with water to keep dust emissions within PEQS. Only mechanically fit vehicles along with low emissions and noise will be allowed to works at project site.
3	Contractor will be responsible for the provision of Personal Protective Equipment's (Goggles, Masks, Safety shoes and Safety Helmet, Ear Plug and Ear Muff etc.) to workers.

4	Excessive tree plantation in and around the project premises.
5	Construction of hall around the generator along with installation of silencers to reduce noise
6	Installation of fire safety equipment (DCP Cylinders, Water based cylinder, Installation of fire alarm system, smoke detector, safety signs). Provision of emergency exit in the building so that in case of any disaster safe evacuation of workers may be possible.
7	Movement of vehicles is recommended during night time specially when traffic load is negligible to avoid traffic congestion

7.13 Equipment maintenance detail

The subject project is construction of poultry farm in district Sheikhupura. The proponent of the subject project will maintain records for Health Safety & Environment and will hire Environment/HSE manager to check and deal with the HSE issues. The subject project will maintain medical facilities, firefighting Equipment's as fire buckets, fire hydrants and fire extinguishers and records for their periodic fillings or replacement and will ensure proper housekeeping and essentials facilities.

Below mentioned is a list of machinery which will be used for construction purpose.

- Tractor
- Trolley
- Trucks
- Vans
- Crane
- Generators

These equipment's will be monitored after every week. There engine oil, filter repair issues will be addressed on priority when and where required. No unfit machinery exceeding PEQS in terms of noise, emission etc. will be allowed to work at site. Environmental manager / contractor will be responsible to have a check and balance on these issues and they will

prepare a inspection record (date of inspection, time of inspection, next due date of inspection, fault trace, measures taken and any observation).

Proposed project will be waste handling unit hence there will be no machinery during operational phase which will be monitored.

7.13.1 Environmental Data Review:

All environmental data should be reviewed and analyzed regularly in comparison with the PEQS limiting values. And in case of any deviation/violation immediate necessary corrective actions should be taken.

However, overall monitoring once year by a third party will be Preferred.

7.13.2 Reporting and reviewing procedures

Monitoring schedule, reporting and reviewing as explained above will be strictly followed. All monitored data are to be scrutinized at the level of Shift Engineer/ In Charge and on monthly basis at the Manager level. The data will be documented according to the SMART format. Discrepancies will be duly addressed to. For presentation of the data to the Government Agencies, approved data recording to the SMART format will be adopted.

7.14 Environmental Management Plan

a) Purpose and Objectives of the EMP

The primary objectives of the EMP are to:

- Facilitate the implementation of the mitigation measures identified in the EIA.
- Define the responsibilities of the project proponent.
- Define a monitoring mechanism and identify monitoring parameters in order to:
- Ensure the complete implementation of all mitigation measures
- Ensure the effectiveness of the mitigation measures
- Provide a mechanism for taking timely action in the face of unanticipated environmental situations
- Identify training requirements at various levels.

b) Components of the EMP

The EMP consists of the following:

- Organizational structure
- Mitigation plan
- Environmental monitoring
- Communication and documentation
- Change management
- Environmental training
- Waste disposal plan
- Restoration and rehabilitation

The components listed above are discussed in the report.

c) Management Approach:

The overall responsibility for compliance with the environmental management plan rests with the project proponent. A certain degree of redundancy is inevitable across all management levels, but this is in order to ensure that compliance with the environmental management plan is crosschecked.

7.15 Environment Budget and schedule of implementation

For the improvement of environment, tree plantation RS 100,000 rupees will be the environment budget which will be utilized only for the beautification of the environment like tree plantation, flowering etc.

Detailed feasibility studies and designing of the project have been completed. Necessary legal, administrative and financial formalities have been also completed. The project is expected to be completed within 2-3 months from the date of environmental approval. Subsequently the operational and maintenance aspects of the project will be undertaken by the proponent.

7.16 Environmental Practitioners and Experts/Environmental Management Team

Name	Post	Qualification
Talha Abid	HSE Manager	MPhil Environmental Sciences (NEBOSH)
Ali Malik	HSE Officer	MPhil Environmental Sciences
M Abuzar	Senior Environmentalist	BS Environmental Sciences
fajar Waheed	Senior Environmental Officer	MPhil Environmental Sciences
Mubeen Sohail	HSE Officer	BS Environmental Sciences
Haris Razzaq	Environmentalist	BS Environmental Sciences
Abdul Rehman	Environmentalist	BS Environmental Sciences

Following functionaries will be involved in the implementation of EMMP:

- The project Proponent as owners of the EMMP.
- Project contractor(s) as executors of the EMMP during installation and operational phase of the project.
- Operational & Maintenance (O&M) and the Health, Safety and Environment team of the project as an executor of the EMMP during the installation and operational phase of the project.

Designation	Responsibilities
Manager	• Direct operations at the site. • He will act as team lead. • Effectively motivate staff to follow protocols and to work productively. • Look after the Health and Safety Related issues. • Responsible for scheduling staff and ensuring that supplies are stocked.

Accountant	• Proper management of the funds for the CSR. • Development of fund proposal for environment related expenses. • Ensuring the smooth transaction of funds for environmental related projects/activities. • He will prepare the yearly budget. • Taking minutes in meetings and other administrative duties. • During his shift timings, he will be responsible to look into smooth functioning of the process in environmentally sustainable way. • He will be responsible to rectify any problem regarding environmental matter in collaboration with concerned authorities. • Prepare reports on different events and incidents. • He will report all matters regarding E.M. to the manager.

(21)

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7.17 Proposed Monitoring Program to Asses performance or output of EMP Monitoring Instrument:

Particulate Matter (PM10)

For PM10 mini volume air sampler was used. In PM10 Sampler air is drawn into the omnidirectional inlet head at a flow rate of 20 LPM. The air is then accelerated toward the first impaction stage where particulate with aerodynamic diameters greater than 10 µm are collected (filtered out). The air stream, carrying particulate 10 microns and smaller, continues down the inlet toward the second impaction stage where particles larger than 2.5 microns are collected. Finally, particulate 2.5 mm and smaller continue down the inlet where they are collected on a 46.2 mm diameter, ring supported filter media disc.

Noise Level

The description of the instrument used for the noise level monitoring is given below:

Name: Digital sound level meter

Model: AR824

Company: Intel Instruments plus



Features:

- ✓ +/-1.5 dB accuracy with 0.1 dB resolution
- ✓ A&C weighting
- ✓ Four Measurement Level Ranges
- ✓ Overall range: 30-130 dB
- ✓ Frequency Range: 31.5 Hz to 8 kHz
- ✓ AC and DC output
- ✓ Record Max values over time
- ✓ Over range indication
- ✓ Auto power off and Max Hold functions
- ✓ Utilizes 0.5"(12.7mm) condenser microphone

Calibration:

Self-calibration time: 10 sec (every turn on)

Specification:

- ✓ Display: Large 5 Digit LCD
- ✓ Resolution: 0.1 dB
- ✓ Overall Range: 30 to 130 dB "A", 35 to 130 dB "C"
- ✓ Sound Level Ranges: 30-80 dB, 50-100 dB, 60-110 dB, 80-130 dB
- ✓ Basic Accuracy: +/-1.5 dB
- ✓ Time Weighting: Fast or Slow
- ✓ Sampling Frequency: 2/sec

Methodology adopted:

Noise level measurements were carried out in a way that monitoring round was completed in one go.

Sources of Noise Pollution

Major sources of noise generation are industrial activities and vehicular traffic along the main road. Noise levels were monitored within and outside of boundary walls of the project site. Noise profile of the project site near the main road is shown in sub-section.

WaterQuality:

Lab analysis results of ground water in the area has already submitted in EPA, with case submission documents.

CHAPTER # 08,

STAKEHOLDERS PARTICIPATION

Sheikhupura in order to seek public involvement and active participation of all stakeholders, public discussions were held with the inhabitants of the surrounding area. They are quite positive to the project and see the project as development of the area. The people observe strong positive impacts regarding employment opportunities and structural development due to this project. EIA findings depict that people perceive overall positive social and economic impacts by the project. Their attitude towards the project installation is highly optimistic. Majority of the people are convinced for development in the area and they correlate this progress with the pace of their social mobility. Proponent has ensured to maintain the aesthetics of the area, reclaim the land and also to provide jobs/employment during construction and at the time of functioning of the project. Moreover, project proponent admitted to adopt all the mitigation measures to control any impacts resulting from the subject project.

Public discussions were held with the inhabitant of the surrounding area. They are quite positive to the project and see the project as growing business. The people observe strong positive impacts regarding employment, business and structural development due to this project. EIA findings depict that people perceive overall positive social and economic impacts by the project. Their attitude towards the project installation is highly optimistic. Majority of the people are convinced for development in the area and they correlate this progress with the pace of their social mobility.

8.1 Methodology of consultation:

Identification of stakeholders is an essential task during the EIA process in order to provide them with adequate opportunities to participate in identifying issues, possible impacts and mitigation measures. Considering their genuine concerns into the project design and mitigation measures not only makes the project more widely acceptable, but is also likely to lead to a more environmentally friendly project. Public consultation during EIA of transport infrastructure related projects in Gujranwala is representative for other parts of the country. The EIA team carried out public consultations at various locations around the Project Site and conducting group meetings with different groups of stakeholders. The stakeholder's

consultation during this phase of the work targeted the project area, administrative and private offices, Govt. offices, shops, etc. near the Project area:

- Selection of the stakeholders for consultation, reconnaissance of the project site and initial discussions with the local community, residents, education institutes, health institutes, hospital and NGOs, shopkeepers, drivers etc.
- Environmental consultants and social specialists and documenting the opinions of the stakeholders expressed during the meetings etc.

8.2 Stakeholder identification:

Stakeholders must be considered at all levels according to the importance of the project. They may be at provincial, district and village level. The process of consultation is an ongoing process which continues during the project life cycle and even after the submission of this environmental assessment report and so on. Therefore, three-tier approach was adopted. Stakeholders were identified, categorized and consulted at provincial (EPD Punjab, Irrigation department, Agriculture department, Wildlife department, metrological department etc.), district level (EPD, Irrigation department, Agriculture department, Wildlife department etc.) & village level (Direct & indirect affected and Locals).

Consultations with government, provincial and district level departments were carried out through meetings and visits while consultations with locals, villagers, neighbors and directly affected peoples were under taken during baseline study of the area.

Consultations were held with the followings;

8.3 Provincial Level:

- Environmental protection department, Punjab
- Agriculture department, Punjab
- Forest Department, Punjab
- Irrigation Department, Punjab
- TMA

8.4 District Level:

- Environmental protection department, Punjab
- Agriculture department Gujranwala
- Forest Department, Gujranwala
- Irrigation Department, Gujranwala

8.5 Village Level:

- Project Affected Peoples (PAPs) & local community
- Neighboring workers
- Shopkeepers
- Traders
- Drivers

8.6 Proponent

Possible impacts and mitigation measures related to the subject project were discussed with the project proponent and management. They assured to take all suggested mitigation measures to control any discrepancy arose by the project and to make the project environmental friendly.

8.7 Responsible Authority

Management of Establishment of Integrated Waste Management Facility and Installation of Incinerator by M/S Haji Akhtar & Sons is the responsible authority to take all measures prior to start the activity. Other departments and agencies. For the impact analysis detailed meetings were held with the management of Establishment of Integrated Waste Management Facility and Installation of Incinerator by M/S Haji Akhtar & Sons local community, education institutes, health institutes, hospital and NGOs. Issues were discussed that may affect the environment and also the implementation of proposed project. All possible mitigation measures were considered and incorporated in the Environmental Management Plan.

Scoping sessions, focused group discussion and way side consultations were held with the relevant stakeholders in the area. The purpose of such consultations is to obtain the feedback from the relevant persons.

8.8 Environmental Practitioners and Experts

Team of Establishment of Integrated Waste Management Facility and Installation of Incinerator by M/S Haji Akhtar & Sons visited the project site, had discussions with stakeholders and consulted with the local people of nearby and other villages to evaluate the project socio-economic impacts. People of the area belong to different professions like mostly belong to employment, own businesses, industrial jobs, teaching, laborers, etc. Women were also consulted for their point of view regarding the betterment of the area by this project, some of them communicated but according to social value of the area they mostly hesitate to communicate comfortably and get pictured. People provide the massive information about the project and have positive remarks regarding the project development.

Environmental Practitioners and Experts/ Management team

Name	Post	Qualification
Talha Abid	HSE Manager	MPhil Environmental Sciences (NEBOSH)
Ali Malik	HSE Officer	MPhil Environmental Sciences
M Abubaker	Senior Environmentalist	BS Environmental Sciences
Aqsa Waheed	Senior Environmental Officer	MPhil Environmental Sciences
Mubeen Sohail	HSE Officer	BS Environmental Sciences
Abdul Rehman	Environmentalist	BS Environmental Sciences
Ali Ahmed	Environmentalist	BS Environmental Sciences

8.9 Other Departments and agencies

Proponent applied for other department NOC and will be provided in an operational phase of the project

8.10 Affected & Wider Community

There is no affected community present in the radius of our study area. Establishment of Integrated Waste Management Facility and Installation of Incinerator by M/S Haji Akhtar & Sons team has consulted with the inhabitants of the different villages. They provided positive remarks regarding the subject project and in the favor of the subject activity for the proposed project. Stakeholders' participation Performa's and socioeconomic questionnaire were get filled by the inhabitants to evaluate the project socio-economic impacts. Stakeholders' participation Performa & socioeconomic questionnaires are attached with file.

8.10.1 Sample size

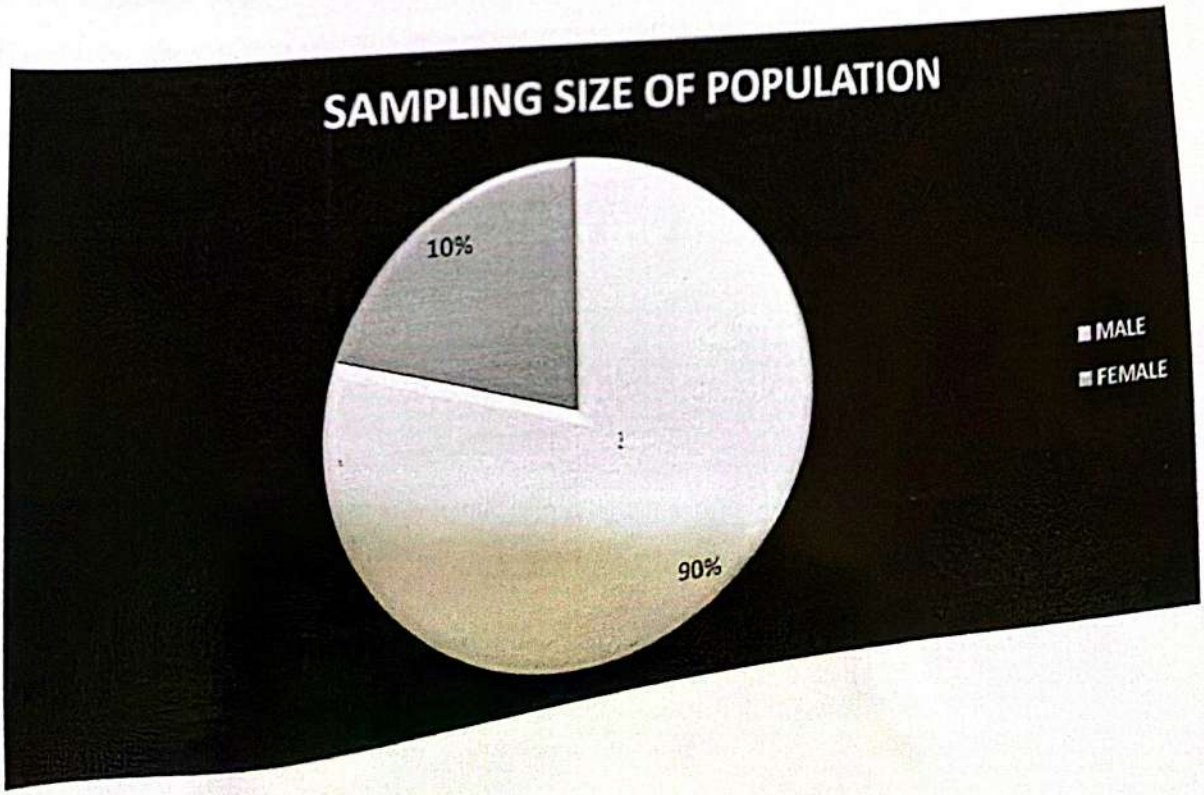
Sample size of 40 respondents was selected by the Team of consultants for conducting the socioeconomic survey. Women were also consulted for the said survey; while most of them were not willing to give personal information.

8.10.2 Statistical Analysis

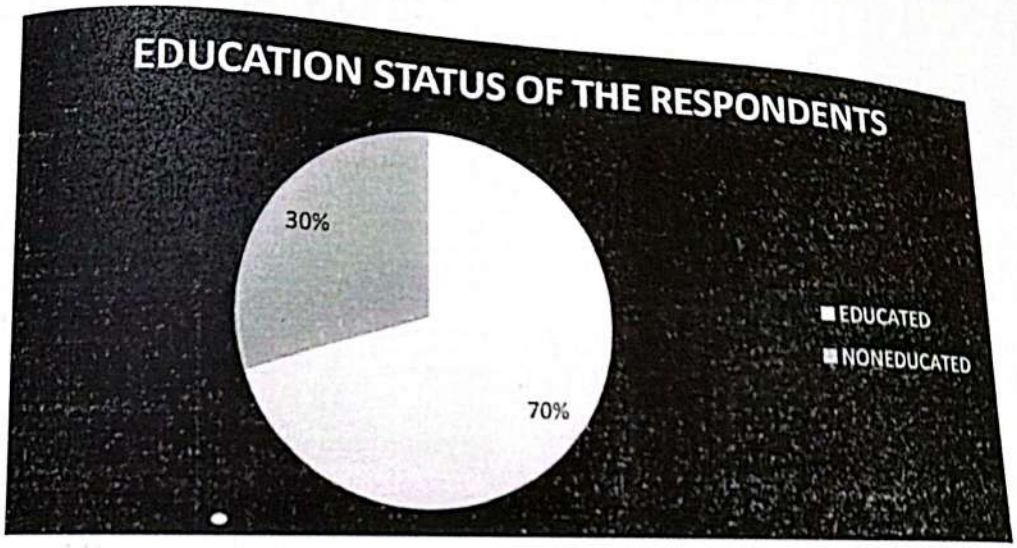
SPSS 19.0 has been used for the statistical analysis of the data collected during the visit of study site area through questionnaires.

Graphical representation of analysis is given below:

8.10.3 SAMPLING SIZE OF POPULATION:



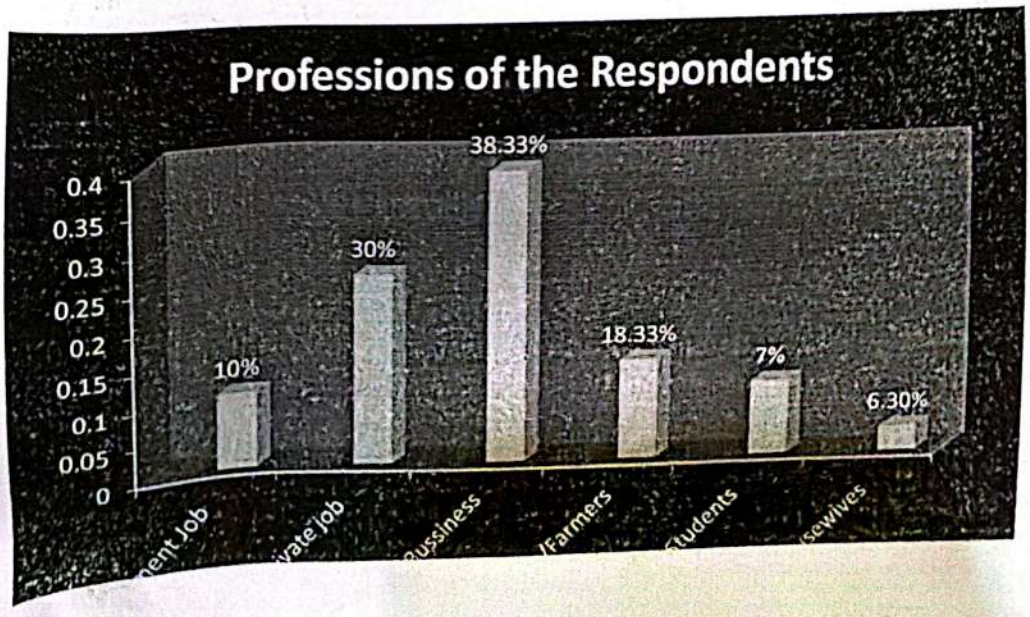
In the sampled population, 90% were male respondents and 10% were female respondents, whose percentage ratio has been shown in the graph above. The number of female respondents is less as compared to male respondents because according to the social binding female hesitates to respond or communicate comfortably.



8.10.4 Education status of the respondents

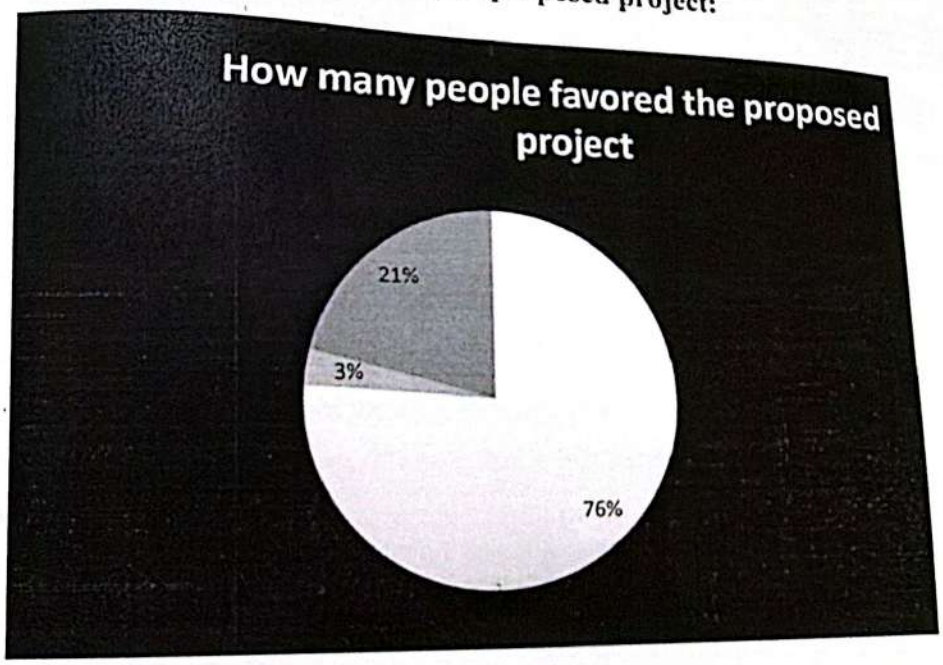
In the sampled population, 70% respondents were educated while 30% were not educated. The survey shows that overall education status of the area is good.

8.10.5 Professions of the respondents

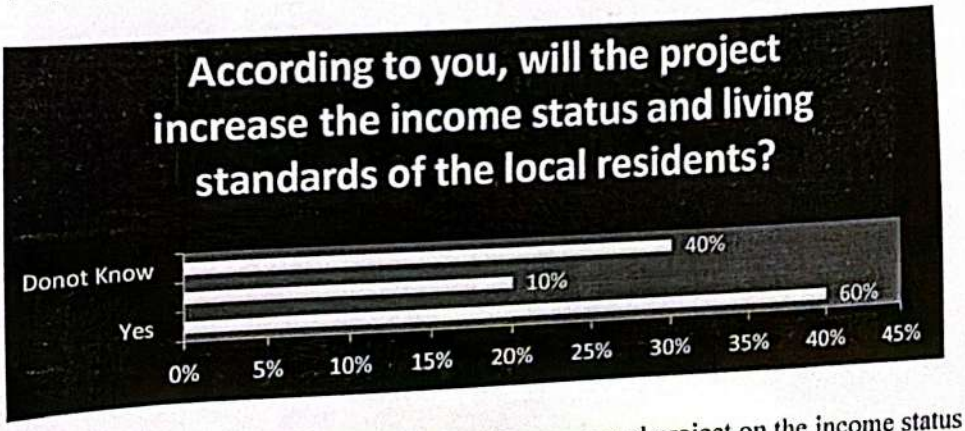


Above graph is showing the percentage distributions of the professions of the sampled population. Graph shows that the highest percentages of the respondent population have their own businesses e.g., mostly are shopkeepers or they have small factories or transporters etc. Second highest percentages of population do the private jobs third highest percentages of population are laborers or farmers, remaining sampled population belong to the government jobs or they are students or housewives etc.

8.10.6People in favor of the subject proposed project:

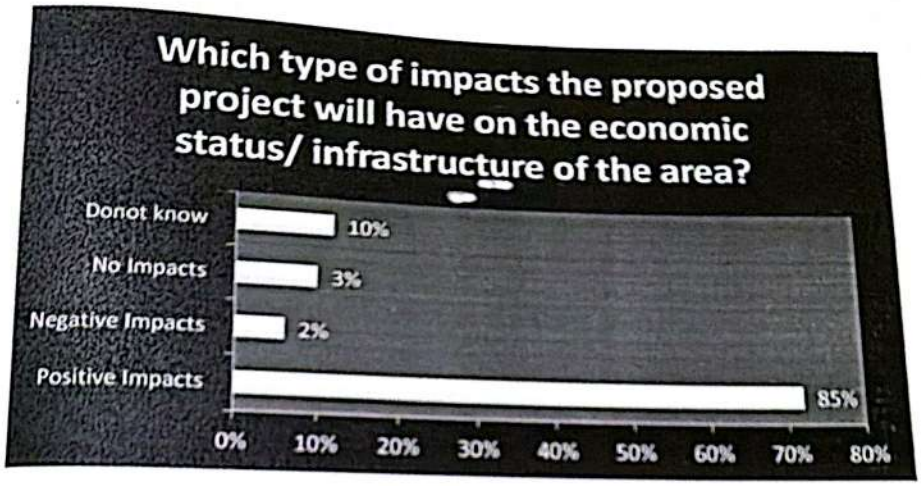


In the sampled population, 76% people favored the proposed project, 3% did not favored while 21% people gave no comments regarding the subject proposed project.

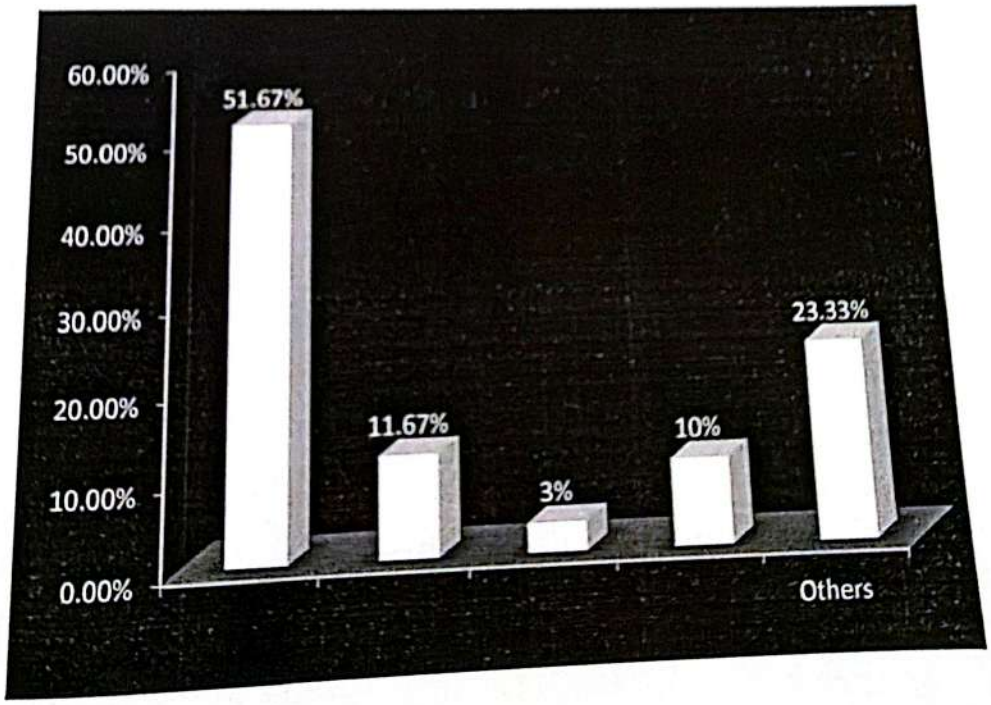


When people were asked about the effect of the subject proposed project on the income status and living standards of the local residents, 60% said that the project will increase the income

status and living standards of the local residents, 10% said that it will have no effect while 40% gave no opinion on the asked question.



When the people were asked that which type of impact the proposed project will have on the economic status/ infrastructure of the area, 85% said that it will have positive impact, 2% said that the impacts will be negative, 3% said that it will have no impact while 10% gave no opinion.



During the public consultation, when people were asked that according to you, what type of pollution will be caused by the subject project, 51.67% responded that it may cause air pollution, 11.67% said that it may cause water pollution, 3% said that soil pollution may be

caused by the subject project, 10% responded that noise pollution may be caused and 23.33% indicated some other annotations.