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LIST OF ANNEXURES

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B	Project Layout Map & Building Design
C	CNIC and Other Documents
D	Laboratory Analysis Reports
E	Questionnaires
F	Glossary
G	References
H	Abbreviations

LIST OF ABBREVIATIONS

ABBREVIATION	FULL FORM
EIA	Environmental Impact Assessment
PEPA	Pakistan Environmental Protection Act
PEPA	Punjab Environmental Protection Act
PEQS	Punjab Environmental Quality Standards
ToRs	Term of References
WAPDA	Water And Power Development Authority
WASA	Water and Sanitation Authority
EMP	Environmental Management Plan
EMC	Environmental Monitoring Cell
NOC	No Objection Certificate
NCS	Punjab Conservation Strategy
LAA	Land Acquisition Act
P & D Department	Planning and Development Department
Pak-EPA	Pakistan Environmental Protection Agency
WHO	World Health Organization
LESCO	Lahore Electric Supply Company
SWM	Solid Waste Management
CSR	Corporate Social Responsibility

MSWs	Municipal Solid Wastes
TMA	Town Municipal Authority
dB (A)	Decibel
PPM	Part Per Million
µg/m³	Microgram Per Cubic Meter
MTM	Metric Tons Per Month
KVA	Kilo Volt Ampere
PPEs	Personal Protective Equipment
TDS	Total Dissolved Solids
TSS	Total Suspended Solids
SS	Suspended Solids
COD	Chemical Oxygen Demand
BOD	Biological Oxygen Demand
HC	Hydrocarbons

Project Brief Summary

Section	Parameter	Details
1. Project Identification	Name of Project / M/S	M/s Service industries Limited
	Project Location	10-Km Sheikhpura Road, Muridke, District Sheikhpura
	Geographical Coordinates	<ul style="list-style-type: none"> • Latitude: 31°47'48.06"N • Longitude: 74° 9'3.92"E
2. Proponent Information	Proponent Name	Brig (R) Mahmood Sadiq
	CNIC	35202-2687947-3
	Proponent Address	82/2. Block K, Muhalla Model Town Lahore
3. Project Overview	Total Project Cost	Rs. 50 Million
	Project type	Proposed extension by constructing petroleum products/ raw chemical storage godown
	Process Description	The proposed extension involves the construction of a raw chemical products storage godown over an area of 247 Kanals with a storage capacity of 22,730 liters . It will be used to store materials like lubricants and oils under ambient conditions. The estimated project cost is PKR 50 million, and the facility will include basic safety and storage infrastructure.
	Allied Facilities	Security Room, Firefighting & Safety System, admin block
4. Waste Management	Types of Waste	Solid waste, chemical waste, Plastic waste, Mechanical Waste
	Estimated Waste Generation	511.83 KGs per Month
	Waste Handling Measures	Segregation, Recycle, Storage, Transport
	Final Disposal Plan	Solid Waste Agreement, contactor

	Inlet & Outlet Quality Reports	Lab Name: Asian Environmental Services Date: 2 July, 2024 Parameters are attached as annexure
6. Rainwater Harvesting	Harvesting Infrastructure	Pits, Storage Tanks, Recharge Wells
	Collection Source	Rooftop and ground rain water
	Implementation Status	Underground pits and storage tanks
7. Plantation & Green Development	Proposed Green Area	134521.5 SFT
	Status for Operational Projects	Planned
8. CSR & Community Welfare	CSR Budget	Rs. 1.5 million
	Activities	Health & Safety Environment & Sustainability Water, Sanitation & Hygiene (WASH)

EXECUTIVE SUMMARY

1. Title of Project:

The subject project is the proposed extension in Service industries limited by constructing raw chemical products storage godown, by M/s Service Industries Limited, located at 10-Km Sheikhpura Road, Muridke, District Sheikhpura. The total area of the plot is 247 acres. The estimated cost of the proposed project is 50 million, and the projected storage capacity is 22730 liters.

The proposed project falls under Schedule II, Category G, Clause 3 (Hazardous Substance or Waste storage Warehouse) of Review of IEE and EIA Regulations, 2022. TORs of the study under clause 5 (f) of policy and procedure for the filing, review and approval of environmental assessment are annexed.

2. Location

The proposed project is located at 10-Km Sheikhpura Road, Muridke, District Sheikhpura.

3. Land Co-ordinates:

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

- Latitude: 31°47'48.06"N
- Longitude: 74° 9'3.92"E

Direction	Description
North	Open Land
South	Road
East	Industrial Unit
West	Industrial unit



Location of Project Site

4. Project Proponent

Attribute	Details
Company Name	M/s Service Industries limited
Proponent CNIC	Brig (R) Mahmood Sadiq 35202-26879477-3
Contact	+ 92 (42) 3799 1711 - 2
Location	10-Km Sheikhupura Road, Muridke, District Sheikhupura
Business Type	Proposed extension by constructing raw chemical products storage godown,

5. Environmental Consultant

Attribute	Details
Consultant	Pak Green Enviro Engineering Pvt. Ltd
Office Address	46-M, Gulberg III, Lahore
Contact	<ul style="list-style-type: none"> ▪ 042-35441444 ▪ 0303-4442335
Scope of Services	Independent environmental consultancy for the preparation of EIA including Baseline Assessment, Stakeholder Consultations, Impact Analysis, Mitigation Planning, and formulation of the Environmental Management Plan (EMP).
Email	eia@pakgreen.pk

6. Brief outline of the proposal

The subject project is Proposed extension by constructing raw chemical products storage godown by M/s Service Industries Limited Located at 10-Km Sheikhpura Road, Muridke, District Sheikhpura

The total area of plot 247 Kanals. The cost of the proposed project is around 50 Million and the project capacity is 22730 liters.

According to section 12 of Punjab Environment Protection Act 1997(Amended 2012), project required environmental approval from EPA Punjab, Pakistan.

7. Environmental Impacts & Mitigation Measures

In order to identify all the activities associated with the project during construction and operation phase with potential to cause adverse environmental impacts and harm a thorough review has been conducted. Project will not have any major adverse impacts on the nearby community and on environment. Overall, the project will have positive impacts on the local population and country as a whole. Moreover, area for plantation is also reserved for air purification within the project vicinity.

8. Summary of Environmental Impacts & Mitigation Measures:

- Soil erosion and land disturbance during excavation and site preparation.
- Emissions of particulate matter, dust, and gaseous pollutants from construction machinery and vehicles.
- Generation of construction waste and domestic garbage from labor camps.
- Dust emissions during raw material loading/unloading and storage.
- Noise pollution during both construction and operational phases.
- Generation of wastewater from construction activities and possible chemical residues during operation.
- Potential emissions of Volatile Organic Compounds (VOCs) such as Toluene and Methyl Ethyl Ketone (MEK) during storage and handling.
- Occupational health and safety risks to workers handling hazardous materials.
- Risk of chemical spills or leakage, potentially contaminating soil and groundwater.
- Fire and explosion hazards due to storage of flammable substances.

9. Recommendations

Following measures will be adopted:

- **Soil Protection:**
Site leveling and drainage will be managed to prevent erosion.
Restoration of vegetation will be ensured after construction.

- **Dust & Emissions Control:**
Water sprinkling will be done regularly to suppress dust.
Construction vehicles and machinery will be maintained to minimize exhaust emissions.
- **Solid Waste Management:**
Waste segregation will be practiced. Construction and domestic waste will be properly collected, stored, and disposed of via approved contractors.
- **Wastewater Management:**
Temporary septic tanks will be installed. Wastewater will either be reused for landscaping or safely discharged after treatment to meet PEQS.
- **Noise Control:**
Noise-generating activities will be limited to daytime hours where possible. Machinery will be fitted with silencers.
- **Fire Safety & Chemical Handling:**
Adequate firefighting equipment (extinguishers, foam system) will be installed and maintained.
A detailed Emergency Response Plan (ERP) will be developed and implemented.
Only trained personnel will handle hazardous chemicals, following SOPs and using PPE.
- **Health & Safety:**
All workers will be provided with Personal Protective Equipment (PPE) and trained in chemical safety protocols.
Safety signs will be posted at all high-risk areas.
Material Safety Data Sheets (MSDS) for Toluene and MEK will be available on-site.
- **Spill Prevention:**
All chemical storage areas will have impervious flooring and secondary containment.
Tarpaulin sheets and bund walls will be used to prevent leaching into soil.
- **Air Quality Maintenance:**
Advanced storage techniques and ventilation systems will be used to minimize VOC emissions. Ambient air quality will be monitored and maintained within PEQS limits.
- **Housekeeping & Ventilation:**
Proper housekeeping will be ensured in storage and handling areas.
Adequate open space will be maintained for natural light and air flow.
- **Monitoring:**
Regular monitoring of air, soil, noise, water, and VOC levels will be carried out monthly or quarterly as required.
Reports will be maintained and submitted to EPA when necessary.

10. Environmental Monitoring Program

To oversee the environmental performance of the project through its lifecycle enforcing the PEQS an Environmental Monitoring Program has been conducted which ensures effective surveillance of the environmental parameters at various stages of the project development and compliances with PEQS and legal obligations.

The management will develop environmental management plan to implement the mitigation measures further. The plan will include institutional measures such as occupational health & safety planning and environmental compliance monitoring for air quality, water and noise.

11. Conclusion

After a thorough initial examination of the intended activities and the environmental setting it has been concluded that, the proposed project shall not exert any major impact on the local environment. The residual impacts of the activity are preventable provided all activities are carefully planned and the mitigation discussed herein are adequately considered during the planning and execution phase of the project. There is no public complaint against the subject project. So, it is requested for environmental approval for the said project.

12. Screening of project

According to the Environmental Protection Agency, Government of the Punjab, Lahore- "List of Projects Requiring an EIA", and the project under consideration categories falls under Schedule II, Category G, Clause 3 (Hazardous Substance or Waste storage Warehouse), because proponent is storing toluene and MEK (methyl ethyl ketone) and they are toxic and flammable. Therefore, the client is required to fulfill the legal requirements of the Section-12 of the Punjab Environment Protection Act 1997(Amended 2012).

CHAPTER: 01 - INTRODUCTION

This Section of the report provides an overview of the rationale of the Project, objective of project, requirement of the project, purpose of the report and approach adopted to conduct the Environmental Impact Assessment (EIA).

1.1 - Purpose of the report

Environmental Impact Assessment (EIA) report is being submitted to the Environmental Protection Agency (EPA), Government of the Punjab, Lahore in compliance with the legal requirement for Pakistan Environment Protection Act-1997 (PEPA-1997), Section 12- for obtaining No Objection Certificate (NOC) before starting and construction activity at the project site. The other relevant regulations and guidelines 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 sectoral 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.

1.2 - Scope of the study

The scope of study includes the preparation of Environmental Impact Assessment Report (EIA) of the proposed project for the compliance of section 12 of PEPA 1997 and to ensure the compliance with the PEQS.

1.3 - Identification of project

The project proponent intends to undertake a proposed extension by constructing a raw chemical material storage godown by M/s Service Industries Limited, located at 10-Km Sheikhupura Road, Muridke, District Sheikhupura

. The total area of plot 247 Kanals. The cost of the proposed project is around 50 million and the project capacity is 22730 liters and for this purpose proponent hired the team of Environmental Consultants to conduct the EIA report.

1.4 - Project Proponent

Mr. Brig (R) Mahmood Sadiq having CNIC: 35202-2687947-3, is the proponent of the subject project Proposed extension by constructing raw chemical products storage godown,

Attribute	Details
Company Name	M/s Service Industries limited
Proponent	Brig (R) Mahmood Sadiq
CNIC	35202-26879477-3
Contact	+ 92 (42) 3799 1711 – 2
Location	10-Km Sheikhpura Road, Muridke, District Sheikhpura
Business Type	Proposed extension by constructing raw chemical products storage godown,

1.5 - Details of Consultant

Pak Green Enviro-Engineering (Pvt.) Ltd is an independent company, whom conducts IEE, IEE, EMP and other environmental investigations through its panel of environmental consultants, public participation practitioners and experienced environmental managers. Pak Green Enviro-Engineering prides itself on its integrity, independence and skill in assisting interested and affected parties to participate meaningful in the EIA process. Pak Green Enviro-Engineering has no vested interest in the proposed project or the outcome of the application, and has declared its independence as required by the IEE/EIA Regulations.

Attribute	Details
Consultant	Pak Green Enviro Engineering Pvt. Ltd
Office Address	46-M, Gulberg III, Lahore
Contact	<ul style="list-style-type: none">▪ 042-35441444▪ 0303-4442335
Scope of Services	Independent environmental consultancy for the preparation of EIA including Baseline Assessment, Stakeholder Consultations, Impact Analysis, Mitigation Planning, and formulation of the Environmental Management Plan (EMP).
Email	eia@pakgreen.pk

1.6 - Nature, Size and Location of the Proposed Project

The proposed project is Proposed extension by constructing raw chemical products storage godown by M/s Service Industries Limited, located at 10-Km Sheikhpura Road, Muridke, District Sheikhpura

The total area of plot 247 Kanals. The cost of the proposed project is around 50 million and the project capacity is 22730 liters. The company has got approval of map for the subject proposed project.

1.7 - Location

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

- Latitude: 31°47'48.06"N
- Longitude: 74° 9'3.92"E

Direction	Description
North	Open Land
South	Road
East	Industrial Unit
West	Industrial unit



Location of Project Site

1.8 - Objective of the Report

Objectives to conduct EIA are as following:

- It is mandatory according to Punjab Environmental Protection Act-PEPA 1997 (Amended 2012).
- To identify the environmental issues pertaining to the operational site.
- To evaluate the ability of the site in view of social acceptance and environmental soundness.
- To provide the maximum information to the proponent and other stakeholders about the existing environmental conditions and the implications of the operational project.
- Collection of available data, reports, drawings and other relevant information about area of operational project.
- Review of applicable existing environmental legislation and Punjab environmental quality standards (PEQS).
- Propose mitigation measures to eliminate or to reduce the negative impacts to an acceptable level.
- Development of well-resourced environmental management and monitoring plans to identify mitigation strategies targeted towards avoidance, minimization and rehabilitation of the impacts.

1.9 - Extent of the Study

In compliance of PEPA, 1997 requirements, an EIA has been conducted by M/S Pak Green Enviro-Engineering Pvt. Ltd. This document covers the environmental impacts of the proposed project in and around the project area comprising the physical, ecological and socio-economic aspects together with identification of the potential positive and negative impacts. Any developmental activities outside the project area like rehabilitation the road and extension of the other factories outside the project vicinity have not been covered under this EIA study.

1.10 - Methodology

For the purpose of this report, environmental and social baseline data and conditions at/around the project site has been undertaken. The methodology adopted to conduct the EIA Study includes Review of Layout Plan, detail meetings with the client, orientation session, development of data acquisition plan, Analysis of Data, review of existing data, primary & secondary data collection survey, Screening of Potential Environmental Impacts and Mitigation Measures and also interviews with people near the project area has been conducted to collect their opinion regarding the proposed project and after findings it has been concluded that the project will not have any major adverse impacts on the socio-economic environment of the existing community.

1.11 - Screening of Potential Environmental Impacts and Mitigation Measures

The process of screening involves identifying the key environmental and social impacts associated with the proposed project activities and evaluating their potential significance in the context of the project's location, design, and operational characteristics. This screening exercise is critical in focusing the assessment on the most pertinent issues and in ensuring that effective mitigation measures are integrated early in project planning.

The screening for the proposed extension — the construction and operation of a chemical storage warehouse — was based on:

- Review of project design and operational details
- Field visits and consultations
- Environmental baseline conditions in and around the project site
- Legal and regulatory framework, especially Punjab Environmental Quality Standards (PEQS) and PEPA 1997 (Amended 2012)
- Sensitivity of the surrounding environment and community

1.11.1 Construction Phase Impacts and Mitigation Measures

Potential Impact	Description	Proposed Mitigation Measures
Soil disturbance and minor erosion	Site leveling and excavation may loosen topsoil, increasing erosion risk.	Use of controlled excavation techniques; minimize unnecessary soil exposure; proper leveling and compaction; temporary retention walls if required.
Air pollution (dust & PM)	Earthworks, movement of machinery, and material handling may generate dust.	Water sprinkling on dry surfaces; covering of raw material piles; restricting construction to daytime hours; use of dust masks by workers.
Noise and vibration	Machinery use and transport activities may temporarily elevate noise levels.	Regular maintenance of equipment; use of low-noise machinery; restrict noisy activities to daylight hours; provision of hearing protection for workers.
Solid waste generation	Waste from packaging, construction material offcuts, and domestic waste by workers.	Proper segregation of waste; regular collection and disposal via approved contractors; training of workers in good housekeeping practices.

Potential Impact	Description	Proposed Mitigation Measures
Temporary wastewater generation	Domestic wastewater from construction workers and site cleaning.	Provision of temporary toilets with septic tanks; no discharge of wastewater into open land; reuse of greywater for dust suppression, if feasible.
Occupational health and safety risks	Injury or exposure to unsafe practices.	Use of PPE (helmets, gloves, boots); daily safety briefings; placement of safety signage at hazard zones; emergency response training.

1.11.2 Operation Phase Impacts and Mitigation Measures

Potential Impact	Description	Proposed Mitigation Measures
Chemical spills or leakage	Improper storage or handling of hazardous chemicals can lead to spills, contaminating soil or groundwater.	Use of leak-proof, labeled containers; secondary containment systems (bunds); training of workers in chemical handling; spill kits and SOPs available at all times.
Groundwater contamination	Potential percolation of leaked chemicals into subsurface layers.	Impervious flooring in storage areas; routine inspection of containers; regular environmental audits.
Air emissions	Volatile compounds from stored chemicals may contribute to local air pollution.	Proper ventilation systems; use of low-emission substances where possible; periodic air quality monitoring.
Fire or explosion risk	Due to flammable chemicals or incorrect storage practices.	Installation of fire detection and suppression systems; flame-proof electrical fittings; maintenance of required water reserve; regular fire drills and staff training.
Noise from operational vehicles	Transport and loading/unloading of materials.	Limiting transportation to business hours; use of noise-reducing equipment; training drivers to minimize idling.

Potential Impact	Description	Proposed Mitigation Measures
Hazardous waste generation	Includes empty containers, expired chemicals, and contaminated material.	Segregation and labeling of hazardous waste; disposal via licensed hazardous waste management contractors; maintenance of waste inventory records.
Impact on nearby receptors	Community health or safety concerns, especially in case of emergencies.	Clear emergency communication plan; engagement with neighboring industries; maintenance of buffer zones and access roads for emergency vehicles.
Occupational health and safety (OHS)	Risk of exposure to harmful substances, injuries, or long-term illness.	Implementation of a site-specific Health, Safety, and Environment (HSE) Plan; PPE provision and enforcement; regular medical check-ups; maintaining SDS (Safety Data Sheets) for all stored chemicals.

1.11.3 Screening Conclusion

Based on the above screening, it was concluded that:

- The **most significant risks** arise from chemical handling and storage during the operational phase.
- **Construction-phase impacts** are **temporary, localized**, and can be effectively mitigated with standard best practices.
- With the implementation of the proposed mitigation and safety measures, **no irreversible or long-term adverse environmental impacts** are anticipated.
- The project has a low risk profile due to its limited footprint and incorporation into an already industrialized zone, but due to the **hazardous nature of stored materials**, continuous monitoring and adherence to national environmental and safety standards are mandatory.

1.12 Scoping:

Scoping is a critical step in the Environmental Impact Assessment (EIA) process, designed to define the scope, extent, and focus of the environmental assessment study. This section outlines the spatial and temporal boundaries, significant issues raised during stakeholder consultations, and the key environmental and social parameters identified for detailed analysis during the EIA study.

1.12.1 Spatial Boundaries of the Assessment

The spatial boundaries of this EIA are established based on the location of the proposed extension — a hazardous chemical storage warehouse — within the premises of an already operational industrial facility. The assessment covers:

- **Core Zone:** The immediate project site where the warehouse extension is proposed. This includes the construction footprint and all associated facilities such as internal roads, loading/unloading zones, fire safety systems, and utility connections.
- **Impact Zone (Buffer Area):** An area extending up to **500 meters radius** from the warehouse location, covering nearby roads, industrial units, residential communities (if any), natural drainage paths, and green belts. This zone was selected based on the likely dispersion of air pollutants, noise, and potential safety risks due to accidental spillage or fire incidents.
- **Extended Influence Area (where relevant):** Broader consideration was given to regional environmental aspects such as groundwater vulnerability and cumulative industrial impacts, although this is not the primary focus of the current study.

1.12.2 Temporal Boundaries of the Assessment

The EIA addresses impacts during two main phases:

- **Construction Phase:** Expected to last approximately **3–6 months**, involving minor land development, civil works, material transport, and installation of fire safety and containment systems.
- **Operational Phase:** Encompasses the long-term use of the warehouse for hazardous chemical storage. This phase is assessed in terms of routine storage practices, emission risks, worker and community safety, waste handling, and emergency response measures.

Short-term, medium-term, and long-term impacts were considered during both construction and operation, with emphasis on sustainability and compliance over the lifespan of the project.

1.12.3 Key Issues and Concerns Raised During Consultations

Stakeholder consultations were held with site personnel, nearby factory workers, local community representatives (if applicable), and internal management. The following concerns were raised and addressed:

- **Risk of accidental fire or chemical leakage** due to the hazardous nature of materials stored.
- **Impact on local air quality** during unloading or emergency situations.

- **Concerns about groundwater contamination** if chemicals seep into the subsurface.
- **Traffic congestion and safety risks** from increased transport activity, particularly of hazardous goods.
- **Inadequate awareness and emergency preparedness** among site workers and neighboring units.

These concerns have been integrated into the mitigation and monitoring plan to ensure transparent risk management and proactive safety practices.

1.12.4 Significant Impacts to be Studied

Based on the nature of the extension project and initial screening and consultations, the following environmental and social aspects were identified for detailed analysis:

- **Air Quality:** Emissions from transport vehicles and potential release during storage.
- **Soil and Groundwater Contamination:** Due to accidental spills or leakages from drums/containers.
- **Noise Pollution:** Temporary during construction and from transport operations.
- **Solid and Hazardous Waste Management:** Handling of discarded containers, packaging material, and expired/unused chemicals.
- **Occupational Health and Safety:** PPE availability, staff training, and emergency response mechanisms.
- **Fire Safety and Emergency Preparedness:** Adequacy of firefighting equipment and protocols.
- **Impact on Flora and Fauna (if any):** Within the defined buffer zone, though minimal as the site is in an industrial estate.

1.12.5 Screening and Prioritization of Impacts

The impacts were screened and prioritized based on:

- Legal compliance with **Punjab Environmental Protection Act (PEPA 1997)** and **Punjab Environmental Quality Standards (PEQS)**.
- Probability and magnitude of risk (e.g., chemical leakage vs. dust).
- Reversibility and sensitivity of receptors (e.g., community exposure vs. onsite impacts).
- Availability of feasible and cost-effective mitigation measures.

This scoping exercise ensures that the EIA remains focused, regulatory-compliant, and technically sound, addressing all relevant environmental and social parameters associated with the warehouse extension.

1.13 - Preparation of environmental monitoring program and institutional requirement

An Environmental Monitoring Program (EMP) depicting the mitigation measures and monitoring plan was also developed. Institutional capacity building of project was also reviewed and enhancement was proposed for effective implementation of the EMP.

CHAPTER: 02 - DESCRIPTION OF THE PROJECT

2.1 - Type and Category of the Project:

The Proposed extension by constructing raw chemical products storage godown, by M/s Service Industries Limited Located at 10-Km Sheikhpura Road, Muridke, District Sheikhpura.

According to the Environmental Protection Agency, Government of the Punjab, Lahore- "List of Projects Requiring an EIA", and the project under consideration categories falls under Schedule II, Category G, Clause 3 (Hazardous Substance or Waste storage Warehouse), requiring Environmental Impact Assessment. Further, the client is required to fulfill the legal requirements of the Section-12 of the Punjab Environment Protection Act 1997(Amended 2012).

2.2 - Objectives of the Project

The objective of the construction of proposed warehouse is to generate business for the proponent, keeping in view sustainable development and social soundness aspects of the surrounding society.

2.3 - Project Benefit

Project will create jobs for the indigenous people, will engage local people with construction of the project, and improve their living standards. Project is environmentally friendly in all aspects.

2.4 - Alternative Considerations and Reasons for their Rejection:

To fulfill the commercial aspects of the project under reference of this EIA Report, it is to be sited at a place where commercial/ industrial activity is either already going on or there are bright prospects of the same. Concurrently, it must also meet the legal requirements of the Punjab Environmental Protection Act, 1997 (Amended 2012). Availability of land at the best convenient place is equally important among other considerations for the site selection. Availability of access roads, communication facilities, electricity, basic infrastructure, sewerage etc. is yet the other necessary requirements.

Obviously, environmentally sound, neat and clean environment are the other considerations for site selection. The project will also facilitate the people of the area with increasing the opportunity of employment; and others related facilities.

2.4.1 - Activity Alternative:

The subject project is the Proposed extension by constructing raw chemical products storage godown, It is the requirement of the proponent for the safe storage of products in compliance with inter Punjab/ Punjab standards. Temperature limit for the storage of products is 36°C and this temperature will be maintained through design of the building.

There will be no cooling mechanism in the warehouse rather its design has been improved to make it environmentally friendly and sustainable.

2.4.2 - Location Alternatives:

For the subject project there was no location alternative.

2.4.3 - Selected Site

For the subject project site at 10-Km Sheikhpura Road, Muridke, District Sheikhpura. It is selected because many other storage units are present near the selected site. Site is good enough for the construction of storage unit for storage of industrial crap. Other reasons for selecting this site are following

2.4.4 - Reason for selection of project site:

The land was selected for the following reasons;

- ✓ Proper roads access
- ✓ Economically feasible
- ✓ Trained or untrained workforce is available
- ✓ Neighboring industries and local public have no objection regarding project activities

2.5 - Location

The proposed project is located at 10-Km Sheikhpura Road, Muridke, District Sheikhpura.

Land Coordinates:

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

- Latitude: 31°47'48.06"N
- Longitude: 74° 9'3.92"E

Direction	Description
North	Open Land
South	Road
East	Industrial Unit
West	Industrial unit



Location of Project Site

For further detail of the project, please consult the layout plan of the project attached.

2.6 - Existing Land Use

The proposed project is open area. There is no tree and vegetation in the land. The project site is situated at 10-Km Sheikhupura Road, Muridke, District Sheikhupura, All laws and by laws of the government are applicable to any land planning and use as well.

2.7 - Road Access

The main Ferozpur Road and Defence Road (near road location) it has wide paved and massive roads infrastructure. Subject project is present at 10-Km Sheikhupura Road, Muridke, District Sheikhupura, Near Muridke–Sheikhupura Road, so, road access is easy and good.

2.8 - Vegetation features of the project

The project site has few and scattered amount of vegetation that will help to avoid land clearing, mainly shrubs like Parthenium and grasses are present over there in scattered quantity. The land is almost clear and free of dense vegetation.

2.9 - Cost and magnitude of the operation

The project currently is the Proposed extension by constructing raw chemical products storage godown, by M/s Service Industries Limited, located at 10-Km Sheikhupura Road, Muridke, District Sheikhupura. The total area of plot 247 Kanals. The project capacity is 22730 liters The capital cost of the whole project is 50 million, with respect to environmental management will be the periodically replacement/filling of safety devices.

2.10 - Schedule of Implementation

New job opportunities will arise especially for the locals during construction. Detailed feasibility studies and designing of the project have been completed. Necessary legal, administrative and financial formalities are being finalized. The project is expected to be completed within 6 months from the date of environmental approval. Subsequently the operational and maintenance aspects of the project will be undertaken by the proponent.

2.11 - Project Description

The proposed project involves the construction of a warehouse facility for ambient products by M/s Service Industries Limited, located at 10-KM Sheikhpura Road, Muridke, District Sheikhpura. The warehouse is part of an extension plan on an already developed site with industrial characteristics. The total plot area spans approximately 247 Kanals, and the cost of the proposed extension project is estimated at PKR 50 million. The storage capacity of the warehouse is proposed to be 22,730 liters.

The facility is designed to store a range of chemical products, including Toluene and Methyl Ethyl Ketone (MEK), which are categorized as hazardous substances due to their physicochemical properties and potential environmental and health impacts.

2.11.1 Description of Stored Chemicals

Toluene

- Chemical Formula: C_7H_8
- Appearance: Clear, colorless liquid with a sweet, pungent odor
- Flash Point: $4^{\circ}C$
- Hazards: Flammable liquid and vapor; can cause dizziness, headaches, and in high concentrations, central nervous system depression. Long-term exposure can harm the liver and kidneys. Toluene vapors can create fire/explosion hazards in poorly ventilated areas.

Methyl Ethyl Ketone (MEK)

- Chemical Formula: C_4H_8O
- Appearance: Colorless liquid with a sharp, sweet odor
- Flash Point: $-6^{\circ}C$
- Hazards: Extremely flammable; exposure may cause eye, nose, and throat irritation, headaches, and dermatitis. High vapor concentrations can lead to nausea and unconsciousness. MEK is highly volatile and poses inhalation risks in confined spaces.

2.11.2 Nature and Degree of Hazard

Although Toluene and MEK are both classified as Class 3 flammable liquids, the warehouse is designed only for storage, not processing or manufacturing. Hence, the risk

is limited to accidental spills, fire, vapor emissions, and poor handling. However, due to their volatile and flammable nature, proper storage and handling protocols are essential to mitigate potential risks.

- Potential adverse scenarios in absence of mitigation may include:
- Fire or explosion due to ignition of vapors
- Toxic vapor inhalation affecting onsite workers
- Environmental contamination from chemical leaks/spills
- Occupational exposure leading to health complications

2.11.3 Health & Safety and Mitigation Strategy

To minimize potential environmental and human health risks associated with chemical storage, **M/s Service Industries Limited** has developed a **robust safety and mitigation plan**, including the following measures:

- **Dedicated, ventilated chemical storage zones** within the warehouse, compliant with international fire safety standards.
- Use of **fire-resistant construction materials** and **chemical-resistant flooring** in the storage area.
- Installation of **fire detection and suppression systems**, including:
 - Fire hydrants, fire water distribution network
 - Fire pumps and extinguishers (Foam, CO₂, DCP)
 - Fire buckets and sand trays
 - First aid kits and emergency eyewash stations
- Provision of **Personal Protective Equipment (PPE)** such as gloves, goggles, flame-resistant suits, and respirators for workers.
- Development of an **Emergency Response Plan (ERP)** including:
 - Spill containment and clean-up protocols
 - Evacuation drills and staff training
 - Coordination with local emergency services
- Regular **storage audits, MSDS (Material Safety Data Sheet) availability, and labeling of hazardous materials** for easy identification and control.

2.11.4 Environmental and Community Considerations

The project site is located within an **industrial-cum-agricultural zone**, where such facilities are permissible and do not conflict with local land use. The warehouse design ensures that:

- There will be **no emissions or process discharges**, as it is a passive storage facility.
- **Spill containment systems** (secondary bunds/trays) will prevent any groundwater or soil contamination.
- Adequate **setbacks and buffer zones** are maintained to ensure **minimal impact** on surrounding communities and agricultural land.

The facility will generate **positive socio-economic impacts**, including:

- **Employment creation** during both construction and operational phases
- **Skill development opportunities** for local workers
- **Increased tax revenue and industrial output**, contributing to national economic growth

2.12 - Salient Features of the Project

Total Area of Plot	247 Kanals
Storage Products	Lubricants & Oil
Total Project Cost	PKR 50 Million
Storage Capacity	22730 liters

For Further details of the project please consult the layout map of the project attached with other documents.

2.13 - Waste Products of Project Process

2.13.1 - Water Requirement

Main sources of water consumption are domestic & project related sources as washing, cleaning, & sprinkling purpose as there is no waste water due to project process as there is no manufacturing process involved it is only storage building.

About 65 gallons per day per person of water will be used during construction phase for sprinkling and domestic purposes while 80 gallons per day per person of water will be used during operation phase for drinking and domestic purposes.

2.13.2 - Waste water treatment:

About 80% of the used water will be waste water which will be treated in septic tanks and after treatment some quantity of treated water will be used for sprinkling on grassy lawns and plantation within the premises of the industry and remaining waste water will be drained out into municipal waste water channel. Monitoring of the main drain which receiving the waste water was conducted to water quality at PEQS.

2.14 - Atmospheric Emissions:

Air emissions from stacks of generator and reactors will be kept within PEQS. The air quality assessment report will be submitted to EPA prior to environmental approval for the operation phase of the subject project.

2.15 - Noise

Noise level monitored at the boundary wall for the proposed project by the Pak Green Laboratories, fall within the prescribed limits of PEQS. It will be the responsibility of project manager to take care of the noise level limits during the construction of warehouse through proper maintenance of the generators and construction machinery.

Noise Level report is annexed.

2.16 - Solid waste:

All raw materials will be recycled during the construction activities as road filling and maintenance purposes. During the construction about 16 kg per day of domestic solid waste will be generated which will be placed in solid waste bins within the project boundary wall and will be handed over to contractors.

HSE manager will be appointed by the proponent to manage the solid waste on regular basis, to ensure the good housekeeping at site and in warehouse, to inspect any discrepancies arise due to improper functioning of the HSE conditions and to adopt the proper solid waste management system.

2.17 - Sludge:

Sludge from septic tanks will be replaced on regular basis and will be disposed-off in environmentally friendly way through certified contractor; contractor can use it as composite component or incinerate it.

2.18 - Plantation

Plantation will be done as per recommendation of the EPA within the industry and area for this purpose will be reserved within the boundary walls. Plantation can also be done along the road sides with consultation of EPA.

2.19 - 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.

2.20 - Emergency Exits:

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

2.21 - Security:

The present site is secured by means of boundary wall along with the presence of two security guards round the clock which improves the security of the project site and also in its vicinity.

2.22 - Power sources and transmission:

Power requirement will be fulfilled by WAPDA & by standby Generators in case of emergency situation and during electricity shortfall.

2.24.1 - Available Facilities

- Available facilities are given below:
- Solid Management (SWM) implemented
- Line and cellular telephone facilities
- Water supply, sewerage disposal and drainage systems
- Trained staff for operation of the proposed project is available.

2.25- Personal protective equipment:

Workers will be provided with Gloves, Masks & other personal protective equipment during the working hours to insure personnel health & safety. Implementation of PPEs will be ensured by the proponent for the proposed project.

2.26- 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.

One 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.

2.27 Rainwater Harvesting System

Rainwater harvesting (RWH) is a sustainable and eco-efficient practice aimed at capturing and storing rainwater for future use. For the proposed extension of the existing facility—which includes the construction of a hazardous chemical storage warehouse—an integrated Rainwater Harvesting System is proposed to promote water conservation, reduce reliance on municipal supply, and control stormwater runoff, thereby aligning the project with sustainable environmental practices.

2.27.1 Purpose and Benefits of Rainwater Harvesting

The implementation of a rainwater harvesting system offers multiple environmental and operational advantages:

- **Reduction in freshwater demand** by supplementing water requirements, especially for non-potable uses such as floor washing, gardening, and fire-fighting reserves.
- **Groundwater recharge**, where feasible, helps restore aquifers, which is crucial given the declining water table in many industrial areas.
- **Stormwater management** by preventing localized flooding, erosion, and waterlogging, especially during monsoon periods.
- **Reduction of environmental footprint**, contributing to sustainable development and compliance with green building standards.

2.27.2 System Design and Components

The rainwater harvesting system for the proposed facility is designed based on the **roof catchment approach**, considering the total available rooftop area of both the new warehouse and existing structures.

Key Components Include:

- **Catchment Area:** Rooftop of the warehouse and other large surface areas are used as collection surfaces. The roofing material is selected to be smooth and non-toxic to ensure water quality.
- **Conveyance System:** A network of **PVC gutters and downpipes** directs the rainwater from the roof to the filtration unit. These are sloped appropriately for efficient flow and fitted with mesh screens to prevent debris entry.
- **First Flush Diverters:** These systems are installed to remove the initial dirty runoff from the roof, which may contain dust, bird droppings, and other pollutants accumulated during dry periods.
- **Filtration Unit:** A **multi-layered sand, charcoal, and gravel filter** is installed to treat the water before it is stored or recharged. This ensures the removal of turbidity, odor, and minor contaminants.
- **Storage Tanks:** The filtered rainwater is stored in **overhead and underground water tanks** constructed from RCC and/or HDPE-lined concrete. These tanks are sized based on rainfall intensity, roof area, and intended usage.
- **Overflow Arrangement:** Excess rainwater that cannot be stored is directed to **stormwater drains** or used for **groundwater recharge** through percolation pits where hydrogeological conditions allow.

2.27.3 Storage Capacity and Water Utilization Plan

- Based on Lahore's average annual rainfall (~700 mm) and the total effective catchment area (~1,500–2,000 m²), the system is estimated to harvest approximately **900,000 to 1,200,000 liters per annum**, depending on rainfall variability.

- The stored rainwater will be used for:
 - **Washing and cleaning operations** (non-process areas only)
 - **Gardening and landscaping**
 - **Fire safety water reserves**
 - **Toilet flushing** (if applicable)
 - **Recharging groundwater** during excess rainfall

2.27.4 Maintenance and Monitoring Protocol

Regular maintenance is critical to ensure system efficiency and water quality. The following protocols are established:

- **Monthly cleaning** of catchment areas and inspection of gutters and downpipes.
- **Quarterly maintenance** of filters and first flush systems.
- **Annual desilting** of storage tanks, especially before monsoon season.
- **Water quality testing**, particularly if used for activities where human exposure is possible.
- **Recordkeeping** of water collection volumes, usage, and maintenance logs.

2.27.5 Environmental Compliance and Long-Term Vision

Rainwater harvesting is a recommended best practice under **Pakistan Building Codes** and supports objectives of **Sustainable Development Goal 6: Clean Water and Sanitation**. The project aims to:

- Reduce its dependence on groundwater resources
- Demonstrate environmental stewardship within the industrial sector
- Serve as a **model for sustainable industrial development**, encouraging other industries in the Quaid-e-Azam Industrial Estate and beyond to adopt similar practices

CHAPTER: 03 - DESCRIPTION OF ENVIRONMENT

This section 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 data and field survey.

3.1 - Physical Environment/ Resources

3.1.1 - Topography:

The second largest province of Pakistan is Punjab comprising 205,344 km² area, next to Baluchistan and is located between latitudes 27.42° and 34.02° N and longitudes 69.81° and 75.23°E at the northwestern edge of the geological Indian plate in South Asia. Punjab, etymologically it is the land of five rivers namely the Sutlej, Ravi, Chenab, Jhelum and the Indus (Govt. of Punjab, 1994). Four out of these five rivers are the tributaries of the Mighty Indus River. The province comprises fertile river valleys, while sparse sandy deserts are found as extensions of Rajasthan desert (India) and the Sulaiman Range (Pakistan), including the Cholistan and Thal deserts. The Indus River and its tributaries pass through the Punjab from North to South. The landscape is largely irrigated with a network of canals all over the province. Intensity of the weather is noticeable from hot and infertile southern region to cool Himalayan Mountains in the North. The variation in temperature and rain fall occurs throughout the year, however, the temperature hardly exceeds the limit of 46°C according to metrological records. All soil types, i.e., sandy, clay and loamy are found in the province (Ahmad, 1986). The population of the province has been estimated as 70 million by the Punjab-World Gazetteer (2009) and about half of the population of Pakistan is owned by Punjab consisting of diverse tribes and communities, sometimes known as castes. Punjabi is the common language of Punjab.

3.1.2 - Topography of the project area:

The proposed site is plain area having boundary walls. Soil will be used for the filling of the plots and there will be no vegetation clearing at the site.

3.1.3 - Soil:

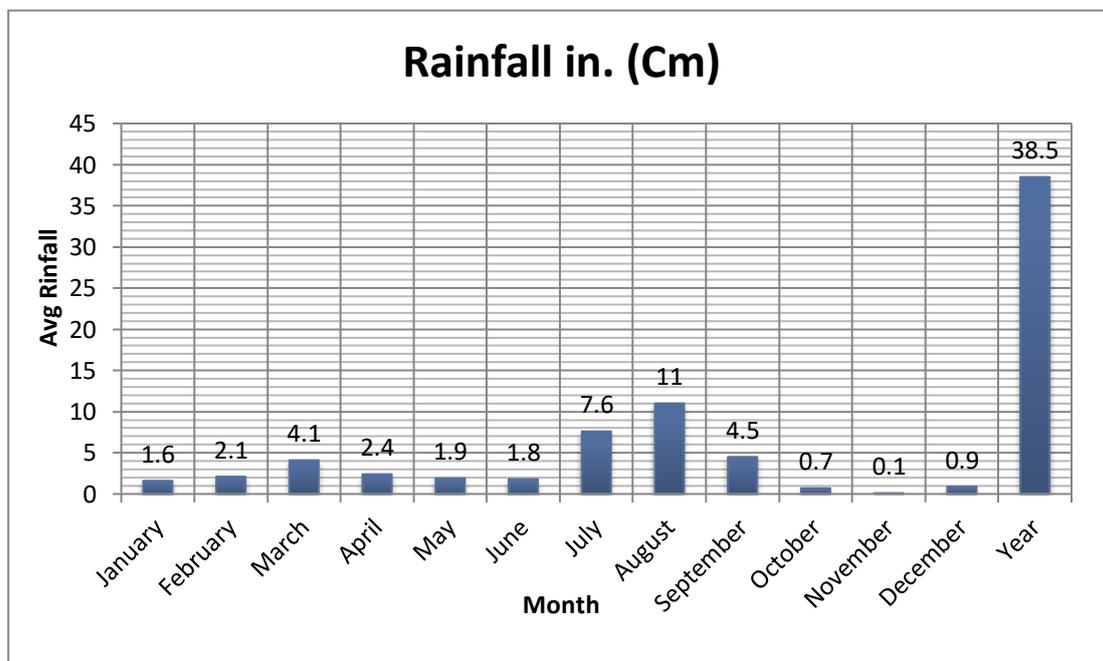
The soil of the area is quite thick and fairly homogeneous in extent. The top soil consists of brown, soft to firm clayey silt / silty clay having slight plasticity and contents of dissolved salts. The top layer is likely to extend about 3 to 6 meter below natural ground, where it is underlain by silty 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.

3.1.4 - Climate:

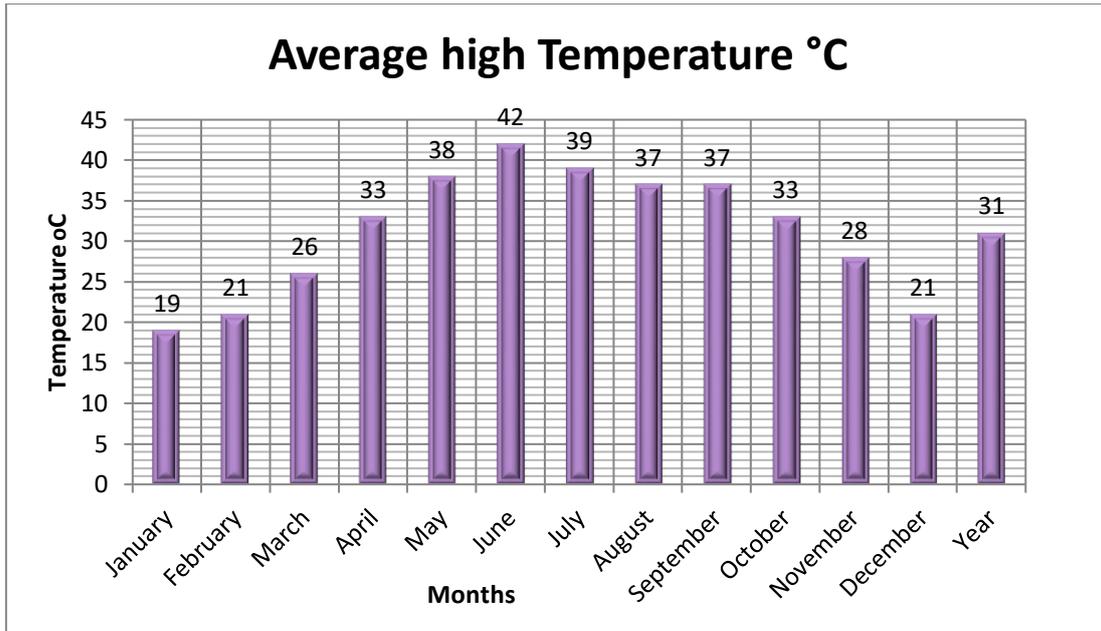
Lahore has extremes of climate; the summer season begins from April and continues till September. June is the hottest month. The mean maximum and minimum temperature for this month are about 45 and 27 degrees Celsius respectively. The winter seasons lasts from November to February. January is the coldest 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.

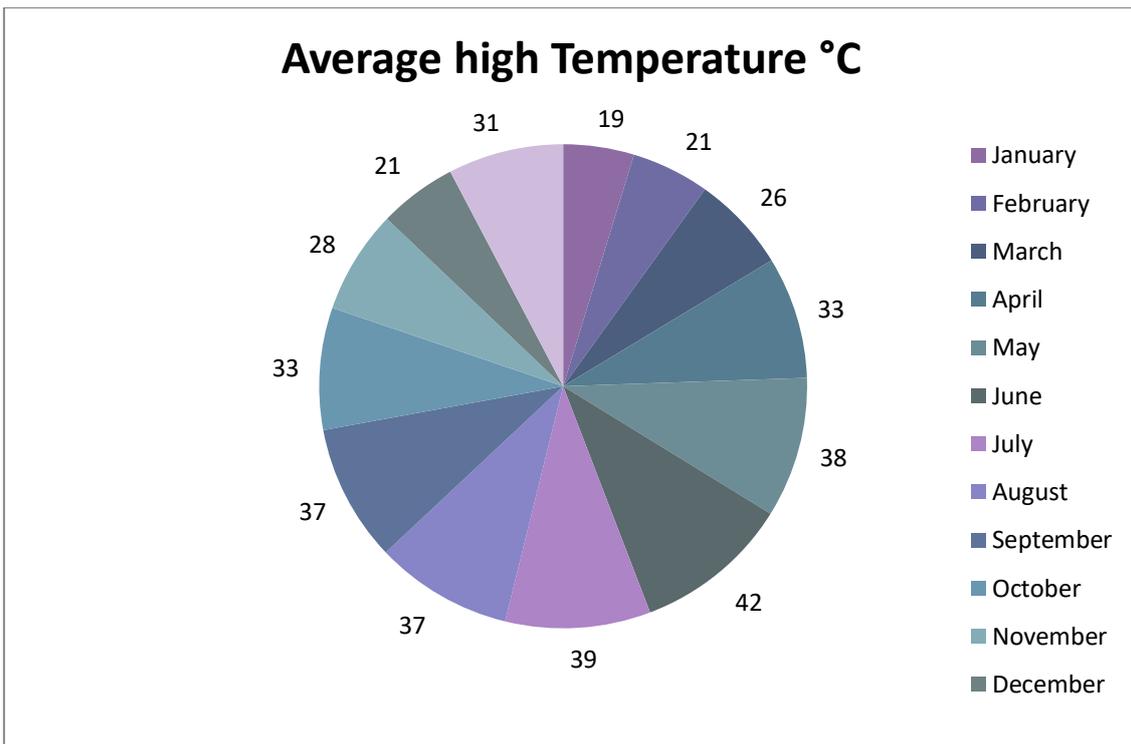
Month	Average high Temperature °C	Average low temperature °C	Rainfall in. (Cm)
January	19	03	1.6
February	21	06	2.1
March	26	12	4.1
April	33	17	2.4
May	38	22	1.9
June	42	27	1.8
July	39	27	7.6
August	37	26	11
September	37	23	4.5
October	33	16	0.7
November	28	09	0.1
December	21	04	0.9
Year	31	16	38.5



Graphical representation of average rainfall



Graphical representation of Average High Temperature



3.1.5 - Ambient Air Quality:

The project is located in industrial estate of District Lahore. The major sources of air pollution in the area are surrounding industries 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.

3.1.5.1- Instruments used for monitoring Ambient Air Quality.

Ambient air monitoring was conducted by using recommended ambient air quality analyzer as shown in figure. Results have been given in below table. Laboratory report is annexed also as **Annexure**



Fig: Ambient Air Quality Analyzer

3.1.5.2- 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 16.67 LPM. The air is then accelerated toward the first impaction stage where particulate with aerodynamic diameters greater than 10microns 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 2.5microns and smaller continue down the inlet where they are collected on a 46.2 mm diameter, ring supported filter media disc.

Laboratory reports are annexed as annexure.

3.1.5.3- Discussion of Results

The ambient air result was within the PEQS Limits during the monitoring hours. The ambient air quality was monitored during the working hours, the surrounding industries and traffic was operational.

3.1.6- Noise Level Monitoring:

3.1.6.1 - Basic Environmental conditions:

During the measurement following conditions were prevailed on workplace

3.1.6.2 - Metrological Conditions:

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

3.1.6.3 - 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



3.1.6.4 - Calibration:

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

3.1.6.5 - Specification:

- ✓ 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
- ✓ Sampling Frequency: 2/sec

3.1.6.6 - Methodology adopted:

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

3.1.6.7- Sources of Noise Pollution

Major sources of noise generation are industrial unit and vehicular traffic along the road. Noise levels were monitored at proposed project site. The noise levels are falling in the range of 63-71 dB (A).

Laboratory report is annexed also as **Annexure**

3.1.6.8 - Discussion of Results

The noise level results were within the PEQS Limits at all Points during the monitoring hours. Results can exceed the prescribed limit for the short time due to traffic and nearby industrial noise generation.

3.1.7 - Surface water:

There is no surface water channel exist within the Subject area.

3.1.8 - Ground water:

Underground water is available and its quality is satisfactory. The underground water is supplied by pumping system (motor pump, tube well, hand pump) to the industry by the Industrial area. Water quality is good at the depth of 700-900 ft while the upper-level water has biological, Arsenic and other contamination. Laboratory report is annexed also as **Annexure**

3.1.8.1 - Discussion of Results

It was a grab sample taken by the team of Pak Green Laboratory; the results can vary with the time and duration.

Waste water of the subject project will not be chemically contaminated because waste water will be generated only from the domestic source (septic tank) and will be treated at PEQS.

3.2 - Demographics:

3.2.1 - Population

According to the 1998 census, Lahore's 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.

3.2.2 - Language

Punjabi is the native language of the province and is the most widely spoken language in Lahore. Punjabi is the primary means of communication in both the city and adjoining peri urban areas. Punjabi has no official status in Lahore and some Punjabi activists has raised demands for recognition of Punjabi. English has become increasingly popular with educated and younger people due to its official status in government and preferred language status for business. Many Punjabi speakers in Lahore are known as Majha Dialect of Punjabi. According to the 1998 census, 86.2% or 6,896,000 of the population are Punjabis; 10.2% or 816,000 are Urdu speakers and the Seraikis, at 0.4%, number about 32,000.

3.3 - Ecological Resources

3.3.1 - Fisheries:

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

3.3.2 - 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.

3.3.3- Flora:

Common trees present in and around the S.I.E include:

- Acacia modesta- locally known as **Phulai**
- Acacia Arabica- locally known as **Kikar**
- Alstonia scholaris - locally termed **ditabark**
- Bombax malabaricum- locally termed **sunbalor silk cotton tree**
- Callistemon citrinus - locally termed **bottle brush**
- Dalbergia sissoo - locally termed **shisham**
- Delonix regia - locally termed **gulmohar**
- Erythrina suberosa - locally termed **coral** or **gul nister**
- Ficus benghalensis - locally termed **banyan**
- Ficus religiosa - locally termed **pipal**
- Ficus retusa - locally termed **bobari**
- Kigelia pinnata - locally termed **gul-e-fanoos** or **sausage**
- Livistona chinensis - locally termed **bottle palm**
- Mangifera indica - locally termed **aam**
- Mimusops elengi - locally termed **molseriy**
- Pongamia pinnata - locally termed **sukh chayn** or **Indian beech**
- Syzygium cumini - locally termed **jamu**
- Ziziphus zizyphus - locally termed **jujube**



The above pictures have been taken by Environmentalist/Ecologist in the project area. The above pictorial plants are native plants of the Punjab and are confined to protected area i.e. grave yard etc. these plants should be promoted because they have key role in the ecosystem of the Punjab.

3.3.4- Fauna:

There are number of birds, reptiles and mammals are present in the project area but there is no protected species.



3.3.5- Rare or endangered species:

There are no game reserves or protected lands/areas or endangered or rare species in the subject area.

3.4- Social and Cultural Study

3.4.1- Education:

Lahore is known as Pakistan's education capital, with more colleges and universities than any other city in the country. Lahore is Pakistan's largest producer of professionals in the fields of science, technology, IT, engineering, medicine, nuclear sciences, pharmacology, telecommunication, biotechnology and microelectronics. Most of the reputable universities are public, but in recent years there has also been an upsurge in the number of private universities. The current literacy rate of Lahore is 74%. Lahore hosts some of Pakistan's oldest educational institutes: Government College Lahore (now Government College University), established in 1864; Forman Christian College, a chartered university established in 1864; University of the Punjab, established in 1882; Kinnaird College, established in 1913; and University of Engineering and Technology, Lahore (UET Lahore), established in 1921. UET is also Pakistan's oldest technical degree-awarding institute and its first university in the field of engineering and technology.

Lahore's institutes in the fields of computer science, IT, and engineering include the Punjab University of Computer and Emerging Sciences (NUCES or FAST-NU) and Punjab University College of Information Technology. Notable architecture schools include Beaconhouse Punjab University, COMSATS Institute of Information Technology, University of South Asia, Punjab College of Arts and University of Engineering and Technology, Lahore. Notable business schools include the Lahore University of Management Sciences (LUMS), Lahore School of Economics, Forman Christian College, and University of Management and Technology. University of Education, established in 2002, is Pakistan's first specialized university in the field of education.

Lahore also provides education in many fields of health sciences. Notable medical colleges offering MBBS degrees include Allama Iqbal Medical College, Fatima Jinnah Medical College, King Edward Medical University, Lahore Medical and Dental College, Services Institute of Medical Sciences, Shaikh Khalifa Bin Zayed Al-Nahyan Medical and Dental College and Shalamar Medical and Dental College. Important postgraduate institutes are Punjab Institute of Cardiology and University of Health Sciences, Lahore. University of Veterinary and Animal Sciences is the only college in Lahore providing education in the field of veterinary medicine. De 'Montmorency College of Dentistry is an important college of dentistry. There are many institutes offering education in fields of nursing and pharmacy as well.

Notable schools include Aitchison College, St. Anthony's College, Lahore College of Arts and Sciences, Lahore Grammar School and Salamat School System.

Project proponent is committed to provide education to the children of the workers as it is being provided for another unit also.

3.4.2 - Culture

Lahore is referred to as the cultural heart of Pakistan as it hosts most of the arts, cuisine, festivals, music, film-making, gardening and intelligentsia of the country. The city has always been a center for publications where 80 percent of Pakistan's books are published, and it remains the foremost center of literary, educational and cultural activity in Pakistan. It is also an important religious center as it is home to hundreds of temples, mosques, churches and shrines like Data Durbar Complex. Near the project area at the distance of about 1 km an important Durbar 'Hussani Astana' is also present which shows the cultural value near the project area.

Project proponent is committed to preserve the culture and norms of the area and will provide employment to local people for the preservation of the culture.

3.4.3- Recreational Resources and Development:

The project area has not any private recreational facilities.

3.4.4- 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.

3.4.5- Archaeological and Historical Treasures:

Archaeological or historical treasures within the project area are not available.

3.5- Suitability of site

The proposed site for the construction of the Project currently comprises of empty, unutilized land plots. The Project site lies within this zone earmarked for industrial activity of warehouse by Service. The project does not fall in any environmentally sensitive area.

CHAPTER: 04 - SCREENING OF POTENTIAL ENVIRONMENTAL IMPACTS & THEIR MITIGATION MEASURES

4.1 - Rapid Environmental Assessment Procedure

In order to give correct categorization to the present project Rapid Environmental Assessment Procedure was followed. It revealed that there are no adverse impacts of the project. Only a few and moderate/minor impacts are projected. According to Pakistan Environmental Assessment Procedures, 1997 and in the light of Section 12 of Punjab Environmental Protection Act 1997 (Amended 2012), there is requirement of carrying out EIA study.

4.2 - Screening and Categorization

4.2.1 - Screening

It is the first step of the environmental study. It identifies the factors that may influence the project environments. Level of the assessment is also determined.

4.2.2 - Categorization

Categorization of the project is done as per Pak EPA, Punjab Environmental Protection (Review of IEE and EIA) Regulations, 2022. Accordingly, the project falls in Schedule II, Category G, Clause 3 (Hazardous Substance or Waste storage Warehouse) for which an EIA level study is needed.

4.3 - Consultations with Public and Stakeholders

4.3.1 - Consultations

Scoping sessions, focused group discussion and way side consultations were held with the relevant stakeholders. These included local government departments, NGOs, public representatives and local residents. The purpose of such consultations is to obtain the feedback from the relevant persons.

4.3.2 - Concerns of Stakeholders

During these discussions the participants gave their candid views about the environmental issues and their potential impacts. There was unanimous positive view about the installation of the present unit. However, they opined that mitigating measures will be taken to minimize the environmental degradation and ward off an untoward incident/accident. Some of their main concerns are given below:

- The wastes and effluents will not be thrown in the local canals/drains.
- The wastes will not be spread in the open around the building
- The locals will be consulted during every phase of the project.

- The proponent will provide the jobs preferably to local communities.
- Financial support will be provided to the surrounding communities for undertaking small projects in health, education and social sector.
- Some health facilities will be provided to the workers of the project.
- The project will not cause environmental degradation in any shape.

4.4- Environmental Issues

4.4.1- General

The environmental issues had been identified during literature review, consultation with stakeholders, relevant reports and visits to project site. Various types of environmental issues likely to crop up during the life cycle of project are grouped in the following stages:

- Planning, site selection and design stage
- Site development stage
- Construction stage
- Operation stage

4.4.2- Environmental impacts due to the project location

4.4.2.1- Project Location:

The subject proposed project is located at 10-Km Sheikhupura Road, Muridke, District Sheikhupura under the name of M/s Service Industries Limited. At the west side of the project location, access link road is present. At the north, south and east side, open plots are present around the subject project.

4.4.2.2- Impact

Subject project is present in the industrial cum agricultural area of the district Lahore. Map is annexed with the EIA and file. Only visiting vehicle have negative impact on the environment due to the parking and emissions release from the vehicles. There are no other impacts associated with the subject project location.

Attribute	Description
Impact Significance	Very Low or May Be Positive
Nature of Impact	Indirect
Duration	Short-term
Timing	Operation Phase
Reversibility	Not Applicable (N/A)
Likelihood	Low (Unlikely)
Consequences	Very Low or May Be Positive

4.4.2.3 - Mitigation measures

- Parking area for the cars and motor cycle has been reserved within the subject project
- For proper parking a Security guard will be there.
- Location can be considered as positive impact on the community due to the Jobs opportunity provided to the community.

4.4.3 - Environmental Impacts due to the project design

Subject Project is warehouse by M/s Service industries Limited, Located at 10-Km Sheikhpura Road, Muridke, District Sheikhpura. Area for parking, solid waste management and waste water treatment facility will be reserved within the subject project. Firefighting plan, health & safety plan, tree plantation plan, emergency response plan will be incorporated during the design phase of the project. The subject project will consist on;

- Power house main installation machinery building
- Security guard rooms
- Main office
- Separate water storage taken for the firefighting and domestic purposes
- Firefighting instrument room
- Parking

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

4.4.3.1- Impacts

- Structural stability of the proposed project.
- Soil structure and soil bearing capacity
- Road infrastructure design
- Emergency exit in the Proposed project
- Firefighting system
- Wastewater disposal system design
- Rain water harvesting capacity of the drainage system
- Electricity hazardous

Attribute	Description
Impact Significance	Moderate to High or May Be Negative
Nature of Impact	Direct
Duration	Long-term
Timing	Construction Phase & Operation Phase
Reversibility	Not Applicable (N/A)
Likelihood	Moderate to High
Consequences	Moderate to High or May Be Negative

4.4.3.2- Mitigation measures and recommendations

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

- Emergency exist points should be marked within the project building
- Firefighting system should be design for the emergency situations

- Electricity system should be design safe and sound,
- Electricity wires should be covered by thick plastic/electricity resistant covers.

4.4.4 - Environmental Impacts due to Construction Stage

The construction stage may involve the following Impacts

- 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.
- Any outbreak of fire due to electrical and other failures.

4.4.4.1 - Impact significance: moderate to high or may be negative

Attribute	Description
Nature of Impact	Direct
Duration	Long-term
Timing	Construction Phase & Operation Phase
Reversibility	Not Applicable (N/A)
Likelihood	Moderate to High
Consequences	Moderate to High or May Be Negative

4.4.5- Environmental Impacts during Operation Stage

Main environmental issues associated with Project operation are as follow.

- Waste water due domestic activities.
- Fire due to short circuits and other activities.

- Solid waste generation due to domestic activities.
- Noise pollution from generator and other machinery.
- Health hazards including the electricity hazardous
- Vehicle access is required especially for transportation. The site is well served with the road network. Heavy traffic will be allowed only during tight time during operational phase. The traffic issues at any stage of project life cycle will not arise.

4.4.5.1- Impact significance: moderate to high or may be negative

Attribute	Description
Nature of Impact	Direct
Duration	Long-term
Timing	Operational Phase
Reversibility	Not Applicable (N/A)
Likelihood	Moderate to High
Consequences	Moderate to High or May Be Negative

4.4.5.2- Recommendations

- Wastewater treatment facility already constructed on the reserved place with the subject site to treat the domestic waste water
- A well design firefighting system will be constructed to cope with fire situations in the subject project.
- Installed Solid waste bins should regularly clean and solid waste must be handed over to the EPA Approved contractor.
- Electricity monitoring/Thermography should be conducted by the proponent quarterly for the safe supply.
- Project proponent should submit all the monitoring report in the EPA Punjab Office for the compliance of the PEQS

4.5- General Measures

- Thick vegetation clearing will be minimized and felling of trees will be avoided.
- Unnecessary clearing of vegetation will be strictly prohibited.
- Dozers will not be used to minimize drop damage.

- Unit will be established in clearings that already exist.
- If clearing for establishing a campsite is unavoidable, rootstock will be preserved to minimize damage to topsoil.
- Trees cutting will be avoided.
- The movement of machinery will be restricted to the work corridor.
- Existing routes will be used to access the survey lines as far as possible.
- All necessary measures will be taken to avoid pollution during operation phase of the subject project.

4.6- Residual Impact:

If the mitigation measures are effectively implemented, the residual impact of the proposed activities on the area's geophysical environment is expected to be insignificant.

4.6.1- Consequences:

Mild to moderate; the scarring of a small area of land will not have a severe impact.

4.7- Potential Environmental Enhancement Measures

The proposed project will be installed with all precautionary measures to enhance and safe the environment. Following necessary measures will be adopted during construction and operation:

- Sprinkling of water will be done on dusty road and tracks
- PPEs will be provided during construction activity
- Constructional waste and domestic solid waste will be disposed-off or utilized properly
- Local people will be informed in advance when work is about to start in an area
- Machinery will never be left unattended
- Efforts should also be made to discuss traffic conditions so that regular traffic is not disturbed. Transporters engaged for the project would be forced to adhere to the load specifications of the access road. No overloading would be allowed in any case.
- Safety signs and boards will be placed during construction
- Air pollution controlling devices will be installed within the project during operation
- Scrubbing system will be installed at stack of generators
- Machinery will be kept maintained

- Waste water will be treated through waste treatment plant that will be installed within the industry
- Proper SOPs will be followed with proper schedule along with the HSE conditions
- Area will be restored with native plants. A proper tree plantation plan will be formulated to save the environment
- Solid waste will be handed over to contractors and agreement will be made.
- Noise will be controlled by adopting proper measures
- PPEs will be provided to workers during working
- Firefighting equipment's and system will be installed
- Safety signs will be placed at all locations where required
- Hygienic conditions will be ensured and proper quality will be maintained by quality control testing.
- First aid facilities will be made available

4.8- Disturbance to other Site Users

The site is not used by others as it is the property of M/s Service Industries Limited users is out of question. Industry will not be involved to emit offensive odor, noise and other objectionable pollutants/pollution so there will be no environmental pollution issues to the nearby industries.

4.9- Availability of Essential Services

Water supply, drainage and sewerage disposal systems are present at proposed site.

4.9.1- Water Supply

Water is needed for cleaning, fire protection and for drinking purpose. Minimum one day's reserve will be kept at the project site. Water will be tested for chemical and bacterial contamination.

4.9.2- Waste Water

Waste water will be treated in septic tanks and then directed to drainage system.

4.9.3- Communication Infrastructure

The project site is well served by road network.

4.10 - Availability of Construction Materials

The contractors either provide the construction materials like cement, steel and bricks at the site on as required basis or these are procured by the proponent. All the construction materials are locally available.

4.11 - Skilled and Unskilled Labor

These workers are available at economical rates all the time. The project provides the jobs to the local residents as well as to those from the suburban areas.

Extensive operational & maintenance training will be imparted to staff through well-defined training program before and during system commissioning.

4.12 - Traffic Issues

Vehicle access is required especially for transportation. The site is well served with the road network. Heavy traffic is allowed in industrial Estate. The traffic issues at any stage of project life cycle will not arise.

4.13- Main Environmental Issues

Main environmental issues associated with project are as follow.

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

4.14- Assessment of Potential Impacts

4.14.1- Assessment Criteria

The impacts were assessed in the light of criteria given as under: -

- Magnitude or degree of impact
- Time and duration of impact
- Likelihood of impact occurrence
- Sensitivity of impact
- Risk related to impact

4.14.2- Types of Negative Impacts

4.14.2.1- Minor Impacts

These are of minor intensity. For mitigation of the minor impacts routine and limited actions are required.

4.14.2.2- Moderate Impacts

These impacts need specific and additional mitigation measures.

4.14.2.3- Major Impacts

These impacts have severe adverse impact. These are intolerable. All possible preventive and multiple control measures are adopted to minimize their intensity and duration.

4.15- Impacts on Physical Environments

4.15.1- Groundwater Quality and Level

The proposed project would not affect the quality and level of groundwater. Projected impact is nil.

4.15.2- Land Utility

It will increase significantly since the project has been planned to be constructed on the existing unused area.

4.16- Impacts on Biological Environments

4.16.1- Flora

The project site is devoid of any significant vegetative cover. Only few plants are present. Nil impact is envisaged.

4.16.2- Fauna

The fauna including wildlife species do not exist at the project site. The impact will be nil.

4.17- Impacts on Socio-economic Environments

4.17.1- Security

Because of presence of security guards round the clock the security at the project site will improve as well as in its vicinity. Impact will be moderate positive.

4.17.2- Land Value

Land value in the surrounding area will increase due to completion of the present project. Impact will be moderate positive.

4.17.3- Resettlement Issues

The project does not involve resettlement issues. There is no requirement of resettling a single person. Impact is nil.

4.17.4- Dislocation of Population

The project does not involve dislocation of the people. There is no requirement of resettling a single person. Impact is nil.

4.17.5- Loss of Property/Infrastructure

No movable or immovable property and infrastructure of public and private sectors will be lost or damaged during construction and operation stages. Impact will be nil.

4.18- Mitigation Measures

4.18.1- General

The project will not cause any significant negative impact on the local environment during site selection and design stage. The project may face minor negative impacts during site development and construction stages. These can be mitigated by adopting suitable measures as given in the following:

4.18.2- Site Development Stage

4.18.3- Generation of Dust

Generation of dust will be minimized by adopting the following steps:

- Careful loading and unloading of construction materials.
- Sprinkling of water at construction site and surrounding areas.

4.18.4- Generation of Noise

Unwanted noise can be reduced by the steps given as under:

- Avoid using forbidden horns at the site.
- Do not throw heavy equipment and construction materials in haphazard manner.

4.18.5- Local Flooding

Immediate repair and maintenance of water supply pipes and sewers in case of any defect will be undertaken. The area does not fall in flood zone.

4.18.6- Outbreak of Fire

Keep the firefighting equipment at the site in good working condition.

4.18.7- Safety

- Safety of the workers and others will be ensured.

- Privacy of the neighbors will not be disturbed.

4.19- 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 Service Industries Limited entrusted with task of identifying areas where the Management of warehouse by M/s. Service Industries Limited 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.

4.20- 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. Project proponent has obtained structural stability certificate for the project's structures.

4.21- 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 respectively.

CHAPTER: 05 - ENVIRONMENTAL MANAGEMENT & MONITORING PROGRAM

5.1- 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.

5.2 - Management Approach:

The overall responsibility for compliance with the environmental management plan rests with the project proponent.

5.3 - Institutional Responsibilities/Capacity

Following functionaries will be involved in the implementation of EMP:

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

5.4 - Training Schedules

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.

5.5 - Training of building contractor

Training of building contractor & workers will be the part of the TORs regarding the construction of the building. The provisions given in EIA Report Chapter 6 Screening of Potential Environmental Impacts & Their Mitigation Measures will be followed.

TORs will be including the training and submission of reports in the following area:

1. Handling of Machineries in a safe way

2. Use of PPEs
3. Maintenance of vehicles and submission of Environmental Monitoring Reports
4. Maintenance of Water Consumption records
5. Testing of water and waste water and submission of Environmental Monitoring Reports
6. Placement of safety signs/boards during construction
7. Sprinkling of water on the roads and dusty tracks
8. Monitoring of generator emissions

Training regarding all other aspects of HSE will be ensured by the contractor during the construction phase.

5.6- Responsibility of EMP

Overall responsibility for implementation of EMP will be that of project proponent. He will appoint an HSE/Project Manager of relevant qualification. HSE/Project Manager will act as Environmental Manager and will manage the all HSE condition at the PEQS.

5.7- 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. HSE/Project Manager should play a key role in this respect and arrange the training programs.

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 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.

HSE/Project Manager will arrange Training on monthly or quarterly basis regarding health & safety, hygiene, firefighting and first aid.

Table – Mitigation Measures

Serial	Environmental Issues/ Impacts	Mitigation Measures
PLANNING, SITE SELECTION AND DESIGN STAGE		
1	Observance of administrative and legal formalities	It is recommended for obtaining of approval from other relevant departments
2	Acquisition of land	The proposed land is the property of the project proponent.
3	Loss of environmentally sensitive areas	There is no any sensitive area near the project site however the project proponent will achieve the PEQS at the boundary wall of the subject project to avoid the environmental impacts on the nearby industrial unit
4	Changes in traffic pattern	There is no need to change the traffic pattern due the development of the subject project because no. of industries has been developed at the same link road only few vehicles will visit the project on daily basis.
5	Potential conflicts with stakeholders	There is no any conflict at the current stage of the project. Neighboring industries were visited regarding their concerns. They have no any objection regarding development of the subject project as per proposed design. It is recommended to Settle the issues through scoping and specific group discussions.
6	Resettlement issues	No resettlement issues
7	Project Design	Structure Stability Assessment of soil has been done, as per building design i.e. total area of building, No. of stories, etc. (Annexure- B) Provision of Emergency Exits, Assembly Points, firefighting arrangements, water

		<p>storage for firefighting should be incorporated in the design.</p> <p>Installation of Dust/flue gases/odor controlling devices should be incorporated in the design. Project proponent is committed to provide all these provision in the design of the project.</p>
SITE DEVELOPMENT STAGE		
1	Erosion due to stripping and site clearance	Sprinkling of water on road side or dusty tracks
2	Generation of dust	<ul style="list-style-type: none"> • Careful loading and unloading of construction materials is recommended. • Sprinkling of water on construction site and surrounding areas is recommended.
3	Generation of noise	<ul style="list-style-type: none"> • Avoid suing forbidden horns at the site. • Do not throw heavy equipment and construction materials in haphazard manner.
4	Local flooding/ponding	Immediate repair and maintenance of water supply pipes and sewers in case of any defect will be undertaken.
5	Outbreak of fire	Firefighting equipment must be maintained at the site in good working condition.
6	Safety	<ul style="list-style-type: none"> • Safety of the workers and others must be ensured. • Privacy of the neighbors must not be disturbed.
7	Labor issues	<p>Employ the local labor as far as possible</p> <p>Wages of the labor should be as per Government policy</p>
CONSTRUCTION STAGE		

<p>1</p>	<p>Minor erosion of land</p>	<ul style="list-style-type: none"> • There are two types of erosions: <ol style="list-style-type: none"> 1. Wind Erosion 2. Water erosion • It is recommended to construct the boundary wall first that will reduce the soil erosion due to wind and chances of water erosion due to water flow from the adjacent will be reduced also. • Clearing of land should be step wise; vegetation should be removed only from the area where main building will be developed. • Add more vegetation, restore the land by more plantation • Sprinkle water on dusty tracks is recommended
<p>2</p>	<p>Contamination of land and water</p>	<p>Hazardous substances like oil, fuel, etc. should be kept on concreted surface.</p> <p>Essential services like water supply, sewerage disposal and solid waste management must be in working condition.</p>
<p>3</p>	<p>Impacts of dust, noise and flue gases on neighbors</p>	<p>Sprinkle water on dusty tracks is recommended</p> <p>Avoid suing forbidden horns at the site.</p> <p>Do not throw heavy equipment and construction materials in haphazard manner.</p> <p>Proper tunings of vehicles and machinery must be ensured.</p> <p>Schedule construction timings should be implemented for minimum disturbance to neighbors.</p>

		Continuous Environmental monitoring must be ensured as per proposed monitoring plan.
OPERATION STAGE		
1	Contamination of land and water sources	<p>Continuous vigilance on maintenance of services</p> <p>Tarpaulin sheets must be placed to avoid leaching of oil into ground</p>
2	Fire breakouts	<p>Training of workers regarding flammable substances will be ensured. SOPs of fire prevention will be adopted like forbidden of smoking, regular testing of electricity infrastructures and regular testing of gas supply system to the industry.</p> <p>Firefighting equipment must be kept in working condition at site</p>
3	Safety/security concerns	<p>Safety of the workers and others will be ensured.</p> <p>Privacy of the neighbors will not be disturbed.</p>
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	<ul style="list-style-type: none"> • Regular medical check-ups must be ensured to improve the working condition and efficiency of workers. • Relevant safety devices like belts, gloves and testers must be strictly used by the operators at the work site. • Safety of management, workers and visitors must be ensured. • Observance construction and safety codes must be ensured.

		<ul style="list-style-type: none"> • Provision of emergency exits must be ensured.
6	Production of Solid Waste	<ul style="list-style-type: none"> • Area for solid waste must be reserved within the subject project. • The solid waste must be managed on regular basis. • The domestic waste will be disposed-off in environment friendly way.

5.8- Equipment Maintenance Detail

The subject project is the construction of building for the storage of ambient products by M/s Service Industries Limited. The company will maintain the records for Health Safety & Environment and will hire HSE manager to check and deal with the HSE issues. The company shall maintain PPEs, medical facilities, firefighting Equipment's as fire buckets, fire hydrants and fire extinguishers and records for their periodic fillings or replacement.

5.9- Environmental Budget

The cost which is required to effectively implement the mitigation measures is important for the sustainability of the Project in operation stage of the Project.

Company has been allocated the Environmental Budget for the Training, maintenance and management of Environment is 200,000/- quarterly that will include filling and maintenance of equipment's, restoration, plantation, and availability of PPEs, strategic planning to cope with any emergency situation and formulate the disaster management plan to cope with natural disaster. Any equipment or devices failure or replacement will not be included in this budget.

HSE training	On quarterly basis
Maintenance and management of environment	On regular basis
Maintenance of Machinery/ Equipment	On regular basis
Restoration	As per requirement
Plantation	During the operation phase
Availability of PPEs	During construction and operation
Strategic planning to cope with any emergency	As per policy
Formulate the disaster management plan to cope with natural disaster	As per policy

ENVIRONMENTAL MANAGEMENT PLAN OF WAREHOUSE BY MR. SERVICE

Serial No.	Environmental Parameter /	Mitigation measure to be taken during:		Responsibility
		Construction	Regular operations	
PHYSICAL ENVIRONMENT				
1	Waste water	The waste water to be generated from domestic/construction sources will be discharged into the waste water septic tanks for its treatment and then it will drain into nearby drain	<p>The waste water to be generated due to washing, cleaning and other domestic activities shall be discharged into the waste water septic tanks for treatment at PEQS levels.</p> <p>Sewage and other waste effluents will be handled to avoid contaminating surface and groundwater.</p> <p>No contaminated effluents will be released into the environment without having been treated.</p> <p>An appropriately designed septic tank will be used to treat sewage and outlets will release treated effluent into drain. The integrity of the entire system will be maintained and monitored.</p> <p>Periodic cleaning of the septic tank is recommended</p> <p>Environmental Monitoring will be conducted on quarterly bases as per EPA-PEQS RULES 2001</p>	Environmental /HSE Manager
2-	Health & safety	Workers/people will be informed in advance when work	Training of workers will be conducted regarding health and safety,	Environmental /HSE Manager

		<p>is about to start at the project site. This may result in people keeping young children away from work areas. Machinery will never be left unattended. Safe driving practices will be adopted, particularly while passing through human settlements. Basic health facilities will be provided to workers.</p>	<p>firefighting and health hygiene. Use of PPEs will be implemented at workplace. First aid measures will be provided to workers. Shift Rotation, proper ventilation will be provided to workers in case of thermal stress. Safety signs, safety boards, exit arrows etc. will be placed on site. An Assembling point will be kept to gather in case of emergency situation such as fire hazards. Fire Fighting Equipment's & system will be enhanced Floor will be kept clean without slippery to avoid any hazard. Safe drinking water will be provided to workers and staff (admitted by the proponent)</p>	
3-	Water supply	<p>It shall be ensured that no activity tempers with the water supply system.</p>	<p>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</p>	Environmental /HSE Manager
4-	Solid wastes	<p>Limited solid wastes from the construction activities shall be segregated and duly disposed of. The solid redundant materials will be disposed of at designated sites by</p>	<p>All Solid waste form domestic and project related will be stored in solid waste bins and will be handed over to contractor Proper solid waste management system will be adopted.</p>	Environmental /HSE Manager

		<p>local Government through a certified contractor.</p> <p>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.</p> <p>Construction Solid waste will be stored in solid waste bins and will be handed over to contractors</p> <p>Construction waste will be utilized for landscaping, road repairing and maintenance purposes.</p>		
5-	Noise	<p>In order to avoid noise in the project area, vehicles will be properly tuned and training of operators/drivers will be conducted</p> <p>Ear plugs will be provided & implemented in case of heavy noise.</p> <p>Noise level monitoring has been conducted for the baseline study and results have been annexed (Annexure-D)</p>	<p>No activity producing extra ordinary levels of noise will be allowed as a policy matter.</p> <p>Standby generators will be installed in emergency situation in a specially constructed room where its noise will be curtailed within the limiting values of the Punjab Environmental Quality Standards.</p> <p>Ear plugs, ear muffs will be provided & implemented in case of any noisy work environment.</p> <p>Noise Monitoring will be conducted as per EPA-PEQS RULES 2001</p>	Environmental /HSE Manager

6-	Gaseous emissions and particulate matter/dust emissions	<p>Construction materials i.e. sand, clay shall be transported to the project site as per HSE Rules.</p> <p>Dust may generate during unloading of raw materials.</p> <p>Sprinkling will be done on dust tracks to control the particulate matter.</p> <p>All equipment, generators, and vehicles used during the project will be properly tuned and maintained in good working condition in order to minimize exhaust emissions.</p> <p>All project vehicles will be checked regularly to ensure that engines are in sound working condition and are not emitting smoke.</p> <p>Ambient air quality has been monitored for baseline study and results have been annexed</p>	<p>Project will not cause much gaseous emissions during operation.</p> <p>Diesel fired generators shall cater for emergency situation only. Their exhaust will be emitted through an adequately fabricated stack. (Generators will only function during emergency condition for limited period in case of electricity shortfall).</p> <p>Scrubbers/dust collection system will be installed at the stack of generator if required.</p> <p>PPEs such as masks will be provided.</p> <p>Monitoring will be conducted as per EPA-PEQS RULES 2001</p>	Environmental /HSE Manager
7	Odor	Nil	Nil	---
8	Soil erosion	<p>The project site has few and scattered amount of vegetation which will be to removed</p> <p>The land is almost clear and free of dense vegetation</p>	<p>Maximum plantation is recommended on suitable places and with the consultation of the concerned authority</p> <p>Rain water drainage system will be constructed.</p>	Environment/ HSE Manager

		Rain water drainage system will be planned to avoid soil erosion.		
9-	Traffic related problems	The vehicles number will be regulated in a way that no stampedes occur on the site. None of the vehicles will be parked on the road or foot paths in front of the building.	Proper parking area will be reserved for staff and visitors' vehicles. No vehicle or motor cycle will be allowed to be parked in the front of the road.	Environmental /HSE Manager
10-	Trash burning	No trash burning will be allowed in or outside the site.	No trash burning will be allowed in or outside the site.	Environmental /HSE 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. Animal/reptiles/birds Hunting will be prohibited	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 project.	Environmental /HSE Manager
13	Change in culture & language	Maximum employment of Local people is recommended to preserve the local cultural language.	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	H.R. Manager

		It will help in communication with the local people to resolve any emerging issue near the project area	emerging issue near the project area	
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 and will provide educational fee for the children of the workers.	Proponent
15	Health	The project proponent should provide first aid facilities at site and also social security and medical checkups of the workers.	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. Equal employment opportunity in suitable department of the proposed project	Women involvement in decision making process should be ensured Equal employment opportunity in suitable department of the proposed project should be ensured	Proponent

		should ensured	be		
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Pak Green Laboratory team conducted the monitoring for environmental parameters i.e., Noise level at open plot, Ambient Air, ground water supply, and for waste water from drain. Laboratory reports are annexed

5.9- Proposed Monitoring plan to assess the output of EMP

5.9.1- 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.

5.9.2- Objectives of Monitoring

Salient objectives of the environmental monitoring program are as under:

- To ensure effective surveillance of the environmental parameters at various stages of the project development
- To enable the management, undertake the required mitigation measures when needed
- To ensure compliance with the PEQS and legal obligations

5.9.3- Environmental Monitoring Cell (EMC)

EMC of the project undertake monitoring of the Safety, Health and Environmental Aspects. It ensures implementation of EMP and appraises the General management of the unit on fortnightly basis.

5.9.4- Training of Monitoring Staff

Training of the monitoring staff arranged at site and off site. Special cadres will be run about functioning of the project and apparatus including the firefighting and first medical aid.

5.10- 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.

5.11- Monitoring Plan

- The monitoring is carried out in accordance with PEQS.
- Monitoring program is undertaken for compliance of mitigation measures.
- Monitoring for various parameters is done before the construction phase as per direction from EPA.

Following aspects need to be monitored regarding the subject project.

- ✓ Air quality
- ✓ Water quality

- ✓ Noise level
- ✓ Management of utility services including firefighting, water supply, sewerage disposal, electric supply and solid wastes.

M/s Pak Green Laboratories has conducted the monitoring for ambient air quality, water quality and noise at the proposed site for the Environmental Impact Assessment study.

5.12- Proposed EMP Reporting and Reviewing Procedures

To oversee the environmental performance of the project through its lifecycle to 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.

HSE manager is responsible for reviewing the performance of the project with respect to the guidelines mentioned in EMP related to following aspects:

- Health and safety
- fire safety arrangements,
- emergency evacuation plan
- emergency preparedness response
- provision of PPEs to workers

Internal audits should be done on biannual basis to check to the project performance with respect to the guideline proposed in EMP Environmental Monitoring data log book should be maintained by the project proponent.

CHAPTER: 06 - STAKEHOLDERS PARTICIPATION

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 and accomplishing towards the steel demands in the area in local and in country as whole. 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 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. This section deals with the social acceptability of the project. Consultation with the stakeholders is a tool for managing two-way communication between the project proponent and the affected public. Its goal is to improve decision making and build understanding by actively involving individuals, groups and organizations, which have stake in the project. This involvement increases project's long-term viability and enhances its benefits to locally affected people and other stakeholders. It gives the feeling of an ownership to the local population and public indolent is also helpful in smooth implementation and success of the project.

In order to evaluate the socioeconomic and environmental impacts, filed surveys are extremely essential. In addition to the surveys at the preliminary stage, consultation with the community and their active participation plays a vital role in successful implementation of the project. To identity the different types of stakeholders and ascertain their perceptions about the proposed project social survey was conducted. Informal group discussions were also held as an additional tool for obtaining feedback from the stakeholders that are being discussed in the following pages.

6.1 - Objectives of Consultation

Public consultation plays a vital role in studying the effects of the project on the stakeholders and in the successful implementation and execution of the subject project. Public involvement is a compulsory feature of environmental assessment, which leads to better and more acceptable decision making. The objective of the consultation with stakeholders is to help verify the environmental and social issues that have been presumed to arise and to identify those which are not known or are unique to the construction of the proposed unit.

The important general objectives of the consultation process are:

- Information dissemination, education and liaison;
- Informing the stakeholders about the subject project

- Providing an opportunity to local public to raise their views and helping in more sensitive considerations for the formation of mitigation measures for the subject project
- Providing those involved in the planning stage with an opportunity to ensure that the benefits of the proposal are maximized and that no major impacts have been overlooked
- It provides an opportunity to local public to influence the design of project in a positive manner
- Increasing public confidence in front of proponent, reviewers and decision makers
- Identification of problems and needs of the stakeholders and public
- Providing better transparency and accountability in decision making stage;
- Reducing conflicts through early identification of contentious issues and working on them to find acceptable solutions
- Reaction, comment and feedback of stakeholders on project;
- Developing proposal which are truly sustainable;

6.2- Methodology of consultation:

The EIA team carried out public consultations at various locations around the Project Site. 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 neighboring factory workers, residents, shopkeepers, drivers etc.
- Environmental consultants and social specialists and documenting the opinions of the stakeholders expressed during the meetings etc.

6.3- Stakeholder identification:

Stakeholders considered at all levels according to the importance of the project. They are 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 etc.), district level (EPD, Irrigation department, Agriculture department, Wildlife department etc.) & village level (Direct & indirect affectees 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;

6.4- District Level:

1. Environmental Protection Department, Lahore
2. Agriculture Department, Lahore
3. Forest Department, Lahore
4. Wildlife Department, Lahore

5. Irrigation Department, Lahore

6.5- Local level

1. Neighboring workers
2. Shopkeepers
3. Traders
4. Drivers

6.6- Consultations:

A series of public consultations were required to get the feedback/ concerns of the different departments, industries, local public, PAPs, and general public residing near the subject area.

6.7- Proponent

Possible impacts and mitigation measures related to the proposed 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 environmentally friendly.

6.8- Responsible Authority

Management of warehouse is the responsible authority to take all measures throughout the life cycle of the project.

6.9- Other departments and agencies

For the impact analysis detailed meetings were held with the management of warehouse, 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.

6.10- Environmental Practitioners and Experts

Team of M/s Pak Green visited the project site, had discussions with stakeholders and consulted with the local people to evaluate the project socio-economic impacts. People of the area belong to different professions like mostly belong to employment, own businesses, doctors, some in abroad, in Army, teaching, in agriculture, 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 were provided with the massive information about the project and have positive remarks regarding the project development.

6.11- Affected & Wider Community

There is no affected community present in the radius of our study area. PGEE team has consulted with the inhabitants of the area. They provided positive remarks regarding the proposed project. Stakeholders' participation Performa's and socioeconomic questionnaire were get filled by the inhabitants to evaluate the project socio-economic impacts.

6.11.1- Sample size

15 sample sizes were selected by the team of consultants for conducting the socioeconomic survey. Questionnaires are attached as Annexure.

6.11.2- Statistical Analysis

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

6.11.3- Result and discussion

Local people were asked their opinion about the project and the possible pollution that maybe caused due to the project. Following results were obtained from the project;

6.11.4- Discussion

The respondents of the survey were asked about the most common diseases in the area. Most common disease in the area was Flu that was the response of 60 % people 27 % people gave the response water borne diseases as the most common disease in the area.

6.11.5- Knowledge about environment

How many participants have
Knowledge of Environmental Pollution

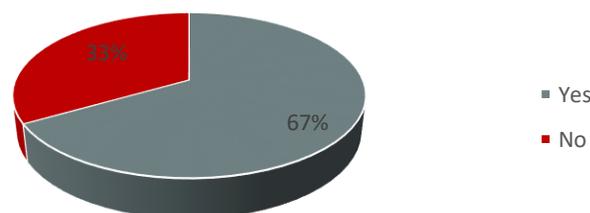


Figure- Knowledge about environment

6.11.6- Discussion

67 % of the respondents have the knowledge about the environment pollution, this is because most of the people living are educated and aware about their surroundings.

6.11.7- Opinion regarding project being source of pollution

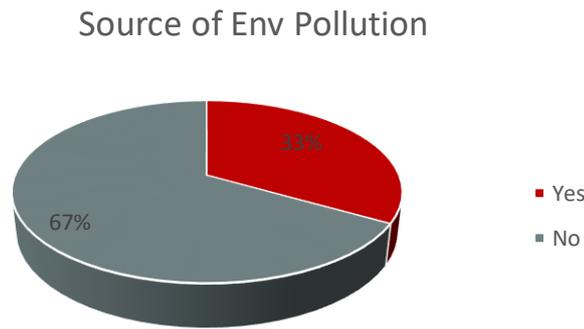


Figure Opinion regarding project being source of pollution

6.11.8- Discussion

The respondents were asked about their opinion the project being a source of pollution. 67% person people said no in response to this question and 33% people said yes. As there are industrial unit already present near the project site this project will not cause any significant amount of pollution, furthermore effluent treatment and air control devices will be installed within the project facility.

6.11.9- Opinion regarding increase in job opportunities

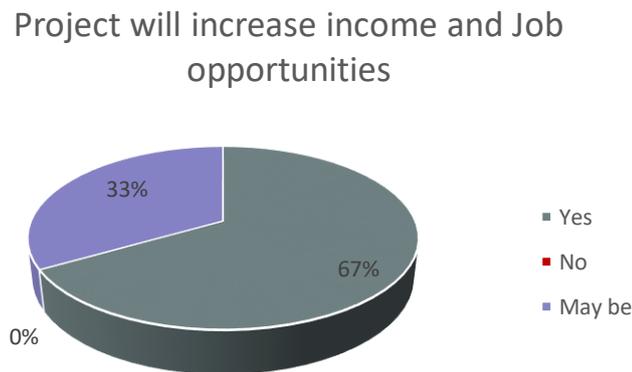


Figure Opinion regarding increase in job opportunities

6.11.10- Discussion

67% people believed that this project will increase job opportunities in the area and 33% people did not think this project will increase job opportunities of the area. 10, 000-12,000 will be employed during the operation phase of the project.

6.11.11- Type of impacts due to project

Type of Positive Impacts

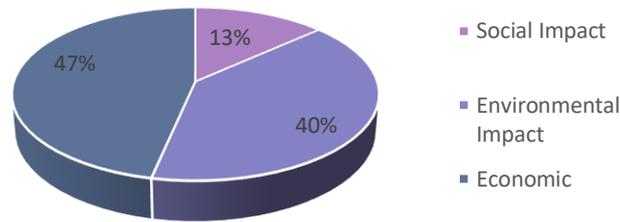


Figure Type of impacts due to project

6.11.12- Discussion

The respondent was asked which type of impacts they believed will be caused due to the project 40% people believed that positive impacts related to environment as the proponent ensured that he will manage air and water pollution caused by the project. 47% believed that Economic impacts will be caused due to the project as the project will provide job opportunities to the locals. While 18% of the people believed that socially positive impacts will be caused due to the project as project will uplift the living standards of the area.

6.11.13- Opinion regarding project

Are you in favour of Project?

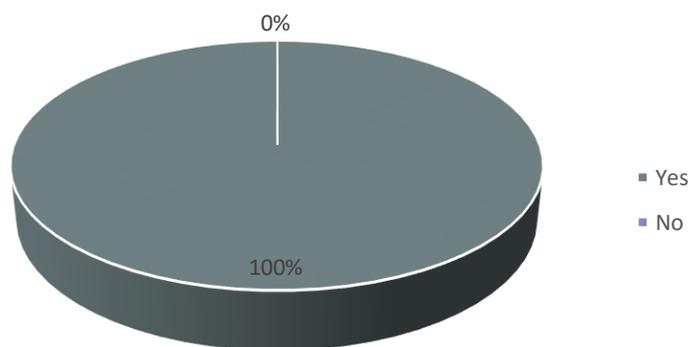


Figure Opinion regarding project

6.11.14- Discussion

All the survey respondents were in the favor of the project as the project will provide huge amount of job opportunities to the locals and uplift the living standards of the people living in this area.

CHAPTER: 07 - CONCLUSION AND RECOMMENDATIONS

Based on the study conducted for Environmental Impact Assessment (EIA) of the project, the following conclusions are made:

7.1 - CONCLUSIONS

- The EIA study reveals that the project is economically viable, socially acceptable and environment friendly.
- On completion of the project, the project proponents will sale products in local market.
- It will generate additional jobs during construction and operation phases.
- Project is environmentally friendly and pollution free
- The proponent has committed to implement the project in the environment friendly manner.
- Project proponent has ensured to install the waste water treatment system to treat the domestic waste water prior to discharge into drain or use for irrigation purposes.
- Project proponent has ensured to adopt the proper solid waste management system.
- Proponent has ensured to adopt all the necessary measures to control any impact if resulting from the project.
- Project proponent has ensured to provide the safe drinking water to all workers and staff.

- The proponent has committed to implement the project in the environment friendly manner.
- Proponent of warehouse intends to register the project with local Government.
- Project Proponent has already prepared and implemented very comprehensive Emergency Preparedness and Response Standard Operating Procedures.
- Project Proponent has already prepared and implemented very comprehensive Security and Fire Fighting Standards Operating Procedures.

7.2 - Main environmental issues are as under:

- Noise during operation and construction.
- The Domestic solid waste.
- Sewage during operation and construction phase.
- Gaseous emissions during construction and operation phase.
- Health and safety issues during construction and operation phase.

7.3 - RECOMMENDATIONS

- In view of the comprehensive screening process and findings of the present study there is no need of conducting further investigations.
- Tree plantation inside the unit and near the unit is recommended.
- Wet scrubbers will be installed at stacks to achieve PEQS.
- The untreated wastewater will not be reused for irrigating the vegetation and lawns or drained out into drain without treatment.
- Any seepage and leakage will be controlled through proper mitigation measures
- Sound proof room will be constructed for generator to control the sound of it.
- Water treatment system will be installed in case of any waste water discharge
- Use of narcotics and smoking will be prohibited during working, filling or handling of fuel.
- PPEs will be provided to workers such as gloves, masks, etc.
- Proper solid waste management system will be adopted
- Safety signs, safety boards, exit arrows etc. will be placed on site.
- Machinery will never be left in running condition.
- First Aid measures, health & safety Equipment (PPEs) will be provided to workers.

- Fire Fighting equipment & system will be installed in case of fire hazards.
- Floor will be kept clean without slippery to avoid any hazard.
- Electric wires, D.Bs will be kept covered & closed
- Shift Rotation, proper ventilation will be provided to workers in case of thermal stress.
- High standards of bio-security and safety will be enforced during operation stage. Safety of the workers will be top priority for the management.
- The management of subject project will continue to assist the local communities as a corporate/social responsibility.

The present EIA report is enough to meet the administrative and legal framework. Therefore, the environmental approval may be accorded for the present project.