

ENVIRONMENTAL IMPACT ASSESSMENT (EIA) REPORT

**M/S HAIDER PETROLEUM
(Reclamation Blending of used oil unit)**



Located at Back Side Jubilee Paper Mills, G.T.Road Kamoke, District Gujranwala

PROPONENT:

**Mr. Haider Javed Khan
(Managing Partner)**

CONSULTANTS:



ECOSPHERON ENVIRONMENTAL SERVICES

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EXECUTIVE SUMMARY

INTRODUCTION

This executive summary presents an overview of the main findings of the Environmental Impact Assessment (EIA) Report for **“M/S Haider Petroleum (Reclamation blending of used oil unit)” at Back Side Jubilee Paper Mills, G.T. Road Kamoke, District Gujranwala.** The unit will be involved for reclamation of blending oil which will be reused again and used in number of matters. Blended oils are the commonly uses liquid lubricants. They are normally made by using vegetable / animals/ mineral oils. The blends can be made so that the properties of lubricants get improved to suit the service conditions of the machinery. This is done by using additives. Blending is essential since no single pure lubricant serves satisfactorily.

Blending agents are used to improve various properties such as viscosity index, oxidation stability, oiliness , pour point etc. blended oil are superior to vegetables and mineral oils. Lubricating oils are widely used to reduce friction and wear by interposing a film of material between rubbing surfaces. However, the used lubricant oil does not evaporate and less subject to biodegradation. It requires proper treatment before it can be discharged to the environment. Recently, there is an increase tendency of using used lubricating oil as re-refining feedstock on a worldwide basis. Re-refining of used lubricating oil is an intelligent option for any country, more so for India, as it would conserve both the natural resources as well as foreign exchange. It would also make us near self-reliant in lube oils.

SALIENT FEATURE OF PROJECT

1.	Project title	M/S Haider Petroleum (Reclamation blending of used oil unit)
2.	Location	Located at Back Side Jubilee Paper Mills, G.T.Road Kamoke, District Gujranwala.
	GPS Coordinates	Lat; 32.006198, Long; 74.220901
3.	District	Gujranwala
4.	Name of proponent	Haider Javed Khan S/o Muhammad Javed Aslam (Managing Partner)

5.	Address	Ali Muhammad Pehlwan Street, H#5-S-4, Block 5, Mohallah Bairoon Aiman Abadi Gate, Gujranwala.
6.	Area of the project	173,695.51 SFT (31K-18M).
7.	Type and category of project	This project falls in Schedule 11 (EIA) – Category A (Energy) -5 Oil and Gas extraction projects including exploration, production, gathering systems, separation and storage).
8.	Nature of the Project	The proposed project is about to establish a blending oil unit. They will start their activities after the approval by EPA As per requirement.
9.	Total cost of the project	30 million in PKR
10.	Availability of resources	Transportation, water supplies, electricity are available at that specified area.
11.	Source of electricity	Energy is available at that specified site. STANDBY generator will also be available.
12.	Manpower requirement	10-15 workers in constructional site and 15-20 workers in operational site.
13.	Water requirement	The whole project will require about 1500 gallons of water per day.
14.	Solid waste and its management	Solid waste generated at the site involves broken bricks, wrappers, gravel which will be collected and transported to the collection station by vehicles.
15.	Wastewater and its treatment in proposed project	Domestic wastewater will be generated which will be treated by septic tank. & disposed off in main Domestic drain which is mostly nearby the project site.
16.	Raw material	Based oil
17.	Product	Blended oil

18.	By product	Nil
19.	Type of waste	Nil
20.	Quantity of waste	Nil

Environmental Consultants:

An Environmental Impact Assessment (EIA) study report has been prepared to identify and predict the significant environmental impacts likely to arise from the project activities along with project environmental impact statement followed by delineation of appropriate Environmental Management Plan and Environmental Monitoring Plan to check the implementation of the EMMP. Proponent of “M/S Haider Petroleum (Reclamation blending of used oil unit)” , Gujranwala has decided to conduct IEE report through environmental consultants; Ecosphiron Environmental Services, located Office # VII, 2nd Floor, Jalal Centre, Main Boulevard, Allama Iqbal Town, Lahore

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A Brief Outline of Proposal

Respective project is an open plot where there are no any squatter settlements. There are no any structures on the proposed site so no any structure will be demolished. Project is very simple in working as it will provide the oil which can be reused. The project is environment friendly from all aspects. WAPDA supply will be used only and there will be only domestic wastewater for which purpose septic tank will be constructed while for domestic solid waste local sanitary workers of that area will be hired who will collect the solid waste. Said project is located in the zone where already industrial activities are going on. There will be small green belt around the project which will enhance the aesthetic as well as environment beauty of the project site.

The Major Impacts & Recommended Mitigation Measures

Keeping in view, all the findings of the baseline study, and through general observation and desktop study, and understanding of the activities and processes involved in the project,

environmental impacts have been anticipated. Following impact assessment methodology; i.e. defining the criteria for evaluation of the impacts, identification of mitigation measures (all possible options), evaluation of the residual impacts and identification of the monitoring requirements, adequate and effective mitigation measures have been proposed for all construction and operation related likely environmental impacts of the project. These mitigation measures have been proposed in order of attempts to eliminate or minimize the impact, provide some compensation or rehabilitate the environment by some means.

Weather describes an impact as having both spatial and temporal impacts, which can be described as the change in an environmental parameter over a specified period and within a defined area, resulting from a particular activity compared with the situation which would have occurred had the activity not been initiated. The expected impacts from the project are mostly insignificant and others are of limited nature. In this regard possible improvements and mitigation measures have been taken. The study also shows that there will be no exploitation and consequential depletion of the local natural resources. The general approach to Environmental Management Plan for the project, for the construction and operational phases of the Project has been presented, along with an outline plan for the project Environmental Management Plans (EMPs). Site specific and practically suitable mitigation measures are recommended to mitigate the impacts.

Proposed Monitoring:

Monitoring at the project site has been conducted for ambient air, Noise level and ground water and the reports demonstrated that results are within the limits prescribed by PEQS: 2016. The values of these parameters are present in baseline study of project.

Conclusion

The Environmental Impact Assessment (EIA) contains description of the project, description of the environmental baselines, potential environmental impacts and suggested mitigation measures. An implementation mechanism for mitigation measures in the form of an Environmental Management Plan is included in the study. While the objectives of this study have been to describe the project and its environmental impact, it also identifies adverse

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

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CHAPTER I

INTRODUCTION

1.0 Purpose

“M/S Haider Petroleum (Reclamation blending of used oil unit)” is located at Back Side Jubilee Paper Mills, G.T.Road Kamoke, District Gujranwala is intending to establish the reclamation unit of blending oil where used engine oil will be passed through heating and bleaching process and further this oil will be reused for engines. The project is located where in surrounding only agricultural zone exist. The study has been carried out to estimate the potential environmental and social impact assessment, both positive and negative, on the environment as well as socio-economic fabric of the surrounding environment during construction as well as operational phase. This report intends to provide satisfactory mitigation measures to avoid/eliminate any chance of adverse environmental impact on the socio-cultural, economic and environmental components. This report also intends to fulfill the regulatory requirements set under Punjab Environmental Protection Act (Amended 2012) 1997 and its consequent legislative framework for IEE/EIA including the IEE/EIA Regulations 2022 and the guidelines drafted for IEE and EIA under numerous sectorial heads. The entire set of legislative framework requires any new development project to undergo an IEE or EIA based on the categorization of the project under Schedule I and/or Schedule II.

1.1 Identification of the Proponent

Contact Person

Haider Javed Khan S/o Muhammad Javed Aslam (Managing Partner)

Address of the Proponent:

Ali Muhammad Pehlwan Street, H#5-S-4, Block 5, Mohallah Bairoon Aiman Abadi Gate, Gujranwala..

1.2 Environmental Consultants

The Environmental Impact Assessment (EIA) has been carried out by aptly skilled and duly qualified group of professionals working for the environmental consulting Services namely **Ecosphiron Environmental Services**

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1.3 Nature and Size of Project

The project aims to be establish a blending oil reclamation unit where used engine oil will be processed through heat and bleaching earth to use again this oil in different engines and machineries. The project is located in the agricultural zone and it is located in ideal conditions where population is not present within the radius of 5-7 km. During operational phase wastewater will be of domestic while during construction phase construction wastewater will be generated which will be reused. Solid waste during construction, construction work will be generated while domestic solid waste is also included. The project is neat and clean in nature while provide the product as reclaimed oil. The total area of the project is approximately 173,695.51 SFT (31K-18M). According to EPA categorization, said project falls in the large scale category as EIA mentioned in schedule II. This is further explained under Environmental Impacts and Mitigation Measures as the proposed project will be small project. For domestic wastewater septic tank will be made in the premises of project site.

The whole project will require about 1500 gallons/day of water per day during construction phase and approximately 500 gallons/day water during operational phase. This will be met by ground water.

Solid waste during construction phase will be reused in construction activities while solid waste during operational phase will be managed by sanitary workers of that area. Adequate firefighting arrangements will be provided at the proposed project site to deal

with any case of emergency. Adequate and safe ducting and routing has been designed for electricity and telecommunication lines. Along with the secondary facilities, the proponent of the proposed project has planned provision of the basic facilities/utilities for the proposed project. Provision of natural gas, infrastructure for provision of telecommunication services will be developed to meet the future demand. Adequate open space has been provided around the building in order to maintain the aesthetic beauty of the area.

1.4 Eco-Friendly Features of the Project

Special feature of the project is its eco-friendly design through provision of unique elevation and landscaping. The basic idea of the concept is to create a safe, modern as well as environmental friendly design to ensure improved working conditions required by the potential users. The reason of adopting sustainability or 'bioclimatic' approach to the design provides opportunities to address problems relating to energy usage and air quality.

1.5 Location

The proposed project is at Back Side Jubilee Paper Mills, G.T. Road Kamoke, District Gujranwala. The project site is surrounded by:

East: Open land/Agriculture land

West: Railway Road

North: Main GT Road Gujranwala

South: Open land/Agriculture land

Based on the current land use of the proposed project, the said project is not located in an ecologically sensitive area.

1.6 Extent/scope of EIA Study

This EIA report has been conducted in accordance with the requirements of PEPA, 1997 (amended 2012), IEE/EIA regulations 2022 as well as section 2.3 of the guidelines for the preparation and review of environmental reports, December 2022. This EIA report

presents screening of potential environmental impacts of the proposed construction and operational phase and presents the necessary mitigation measures to eliminate or reduce the negative impacts to an acceptable level. The report provides an Environmental Management and Monitoring Plan and the institutional requirements for the implementation of this plan.

The EIA process followed all the complementary stages described in the guidelines for IEE/EIA preparation and review. A brief flowchart exhibiting the different stages involved is in figure 1.1.

The format of this EIA covers the followings:

- Introduction
- Project Description
- Environmental Regulatory Framework
- Description of the Environment
- Screening of Potential Environmental Impacts and Mitigation Measures
- Environmental management and Monitoring Plan
- Conclusions and Recommendations
- Annexure

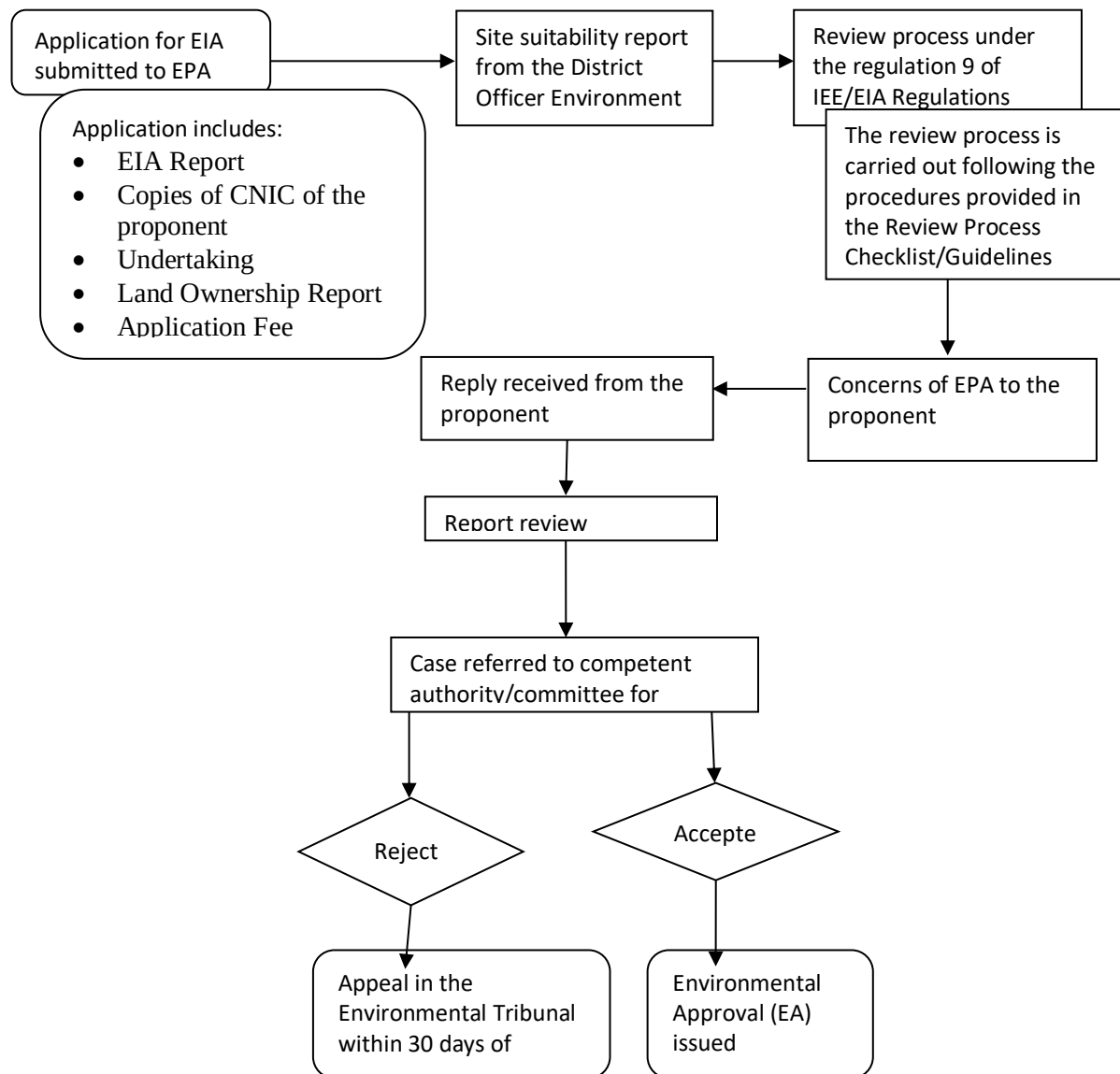


Figure 1.1: EIA Process Flowchart

CHAPTER II

DESCRIPTION OF THE PROJECT

2.0 Type and Category of Project

According to projects categorization for environmental assessment studies, the project is reclamation of used engine oil by process of heating and bleaching earth to use again in different types of engines and machinery. This project falls in Schedule 11 (EIA) – Category A (Energy) -5 Oil and Gas extraction projects including exploration, production, gathering systems, separation and storage). This report is required to fulfill the legal requirements set under section 12 of the Punjab Environmental Protection Act, 1997 (Amended 2012). This section of the study renders a detailed account of the project and its salient features, such as location and various phases. Inputs and discharges relevant to different phases of the project, such as electricity & materials etc. have also been examined as a response to possible environmental concerns.

2.1 Objectives of the Project

The objective of the proposed Project is as following;

- To make the engine oil in reuse form
- To work for reuse of engine oil in environment friendly manners
- To make the reclamation oil in good quality and sale out at competitive price of market

2.2 Site Alternatives Considerations & Road Access

The construction of this project is about to design where there is availability of access roads, communication facilities, electricity, gas, basic infrastructure, sewer etc. Of course neat and clean environment is also the other consideration.

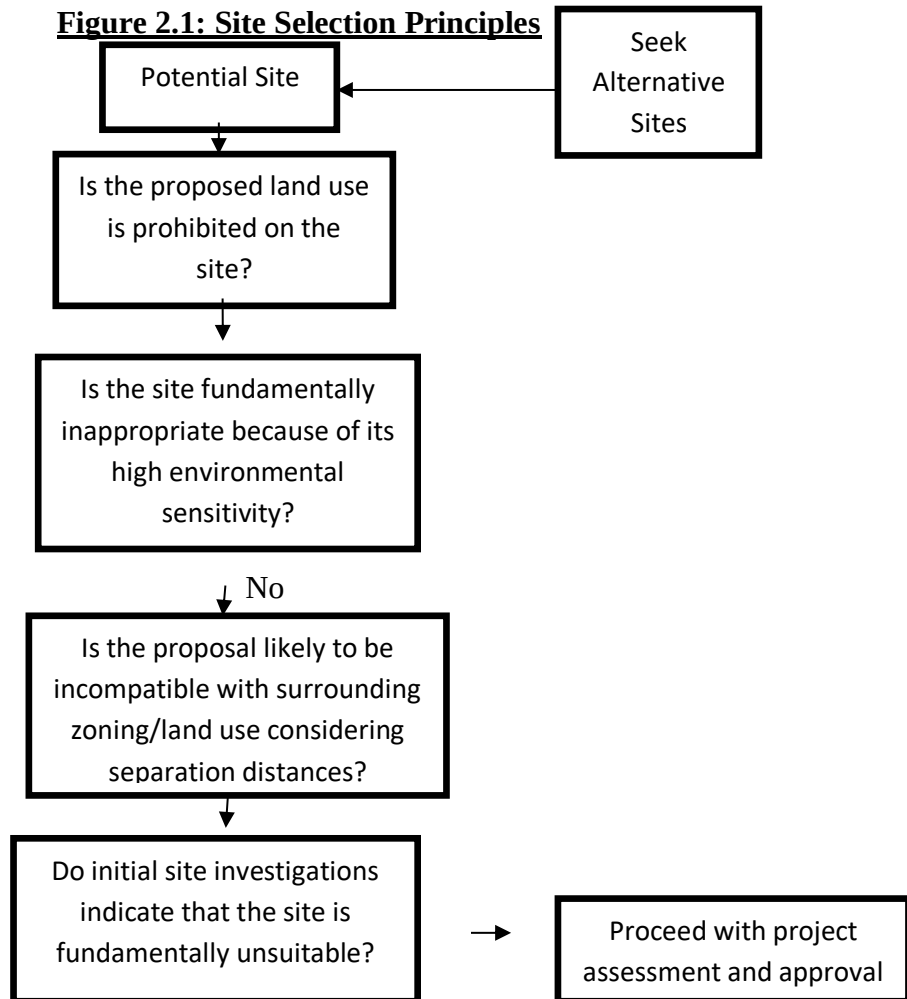
After the consideration of alternative sites, the site chosen is best suited for the project because proposed project will be developed in an open area where there is already agricultural activities are running. There is no protected area or human settlement or important religious, archaeological, historical or recreational site exists within 5-7 km of the selected site, and since the site is under the ownership of the proponent, there is no

need to consider any alternative site for the project. Moreover, there is no ecologically sensitive or declared protected area such as Territorial Waters, forest, game reserve or biodiversity parks within a 10 km radius of the project site, requiring the proponent to look for site alternatives.

The completion of construction after obtaining Environmental Approval from EPA Punjab, the proponent will take into consideration, all the locally available technology options to incorporate the best one into project operation.

In view of all these facts, it is concluded that a feasible project at the most suited location has been proposed and will employ the best locally available technology option considering all the alternatives. Keeping these requirements and their availabilities, the present site is the best suited for the construction of the project. The area is far away from the dense residential activity. All the other basic infrastructural requirements are available at the selected site.

Figure 2.1: Site Selection Principles



Moreover, there is no ecologically sensitive or declared protected area such as Territorial Waters, forest, game reserve or biodiversity parks within a 10 km radius of the project site, requiring the proponent to look for site alternatives.

2.3 Location Plan/Map

The proposed project is at Back Side Jubilee Paper Mills, G.T. Road Kamoke, District Gujranwala, Pakistan and project layout plan is attached herewith this report as annexure.

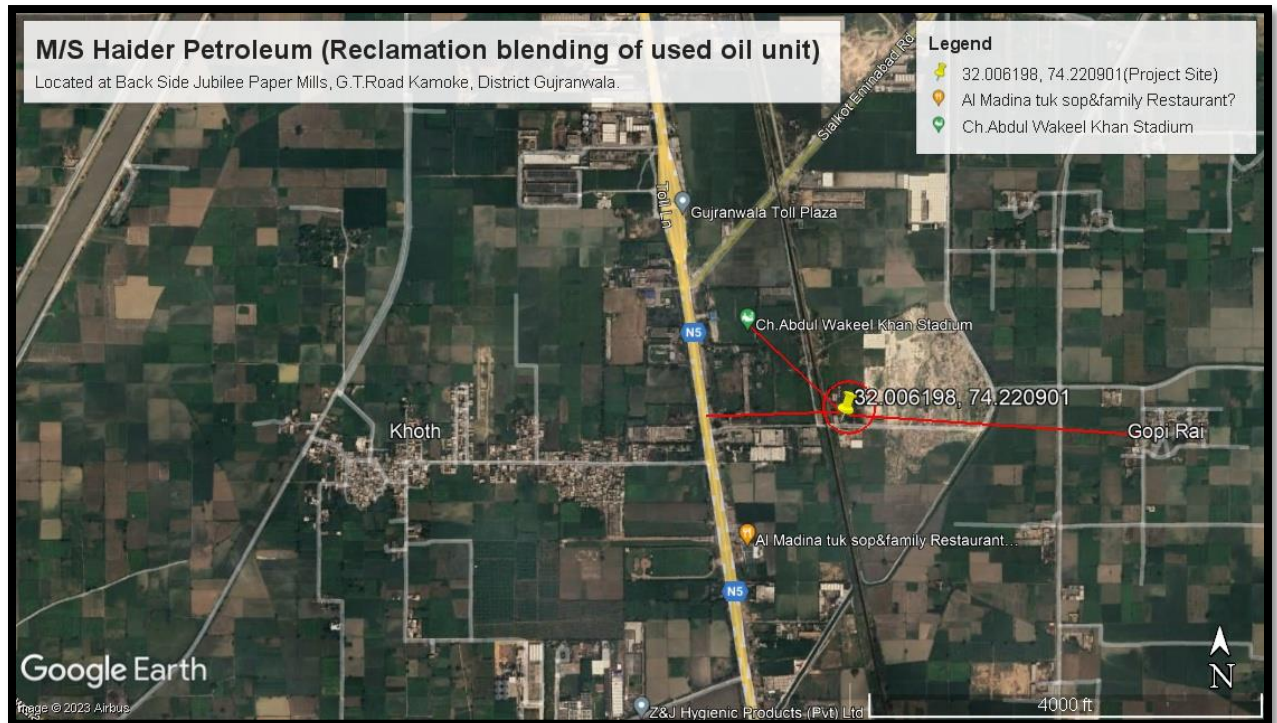


Figure 2.2: Google Map of the project

2.4 Magnitude of the Operation Including Capital Cost and Associated Activities

The project is involved reclamation of used engine oil by process of heating and bleaching earth to use again in different types of engines and machineries. The project cost is 30 million. The project will work in environment friendly conditions.

Activities at Project Site

The study team reviewed the Project site with the aim to determine the likely impacts of the project on the environmental and socio-economic conditions of the area. All the necessary elements of the project were reviewed and compared with the existing conditions in the vicinity of the Project Area. The EIA report identifies the adverse environmental impacts due to the construction and operational activities of the project and also suggests proper measures for their mitigation, as described in Environmental Management Plan (EMP).

There are no significant or well-shaped trees and shrubs on the project site. No fresh water bodies are known to exist in the vicinity of the project area; therefore there will not be any deterioration of surface water quality. During the construction vehicles and machinery will be employed. These will generate some dust and smoke temporarily which will definitely stop on completion of the construction work.

The potential negative impacts during construction and operational stage of the project will be mitigated to an acceptable level. Comparison of potential adverse and beneficial impacts of the project shows that project will prove to be beneficial for the inhabitants of the area. Hence the proposed project will prove to be beneficial and also increase the socio economic status of the nearby inhabitants, and will contribute in the overall economy of the country.

Necessary mitigation measures are recommended in the report to make the proposed project Environment Friendly. Environmental Management Plan identifies monitoring needs and implementation on Environmental Management Plan is also recommended. The IEE concludes that the proposed project have indicated that there are no significant environmental impacts associated with the construction and operation phase of the project, if the anticipated impacts are properly mitigated; therefore, no further IEE study is required.

Project Details

Proposed unit is “M/S Haider Petroleum (Reclamation blending of used oil unit)” at Gujranwala. The project will be involved for reclamation of engine oil by process of heating and bleaching earth to make the oil for reuse in engines. Reclaiming and recycling used oil offers many benefits, such as increased machine reliability, considerable cost savings on oils, less time spent on oil change-outs, reduced environmental contamination and decreased waste disposal costs. Re-refining used oil requires about one-third the energy of refining crude oil to lubricant quality.

Ecological conservation and environmental concerns have become a much greater influence in production facilities around the world in recent years. Progressive action can

also be found in the heart of major industrial operations such as steel mills, paper mills, sugar mills and process plants. Conservation, reclamation and recycling of used lube oil can be a profitable and ecologically sound activity. The engineering or technical manager of a large plant is often so busy managing production and ensuring optimal production with minimal downtime, that little attention is paid to the total lubricant cycle in the plant. After all, the plant's purchasing department looks for the lowest priced lube oil and the handling/storage department ensures that all drained lube oil is disposed of via a waste removal company.

Various local, state and federal authorities have set regulations for the handling and disposal of used engine oil. The Environmental Protection Agency (EPA) has also issued its own used oil management standards, and state regulatory authorities are required to implement them. Oil reclamation regulations shouldn't force a company to implement change.

Reclaiming oil accomplishes the following:

- Conserves a valuable resource.
- Prevents contamination of the environment.
- Saves money by reducing waste disposal costs.
- Reduces long-term liability for disposed products - from beginning to end.

When to Reclaim and When to Recycle

Reclamation and recycling are two related processes, but there are significant differences.

Recycling as an Option; The plant engineer does not have to be concerned with the details of the technology used by a recycler, and is therefore not the focus of this article except to provide guidelines for its use in the plant. It is important to ensure that the recycled lubricants are handled and processed in an environmentally acceptable manner. Ask the removal company to show an independent environmental audit of its site and processes. Ensure the company is licensed to process used oil, and make regular visits to the site.

Reclamation

Reclamation treats a charge of engine oil, preferably on-site, and returns the charge to the machine sump. Reclamation may take place off-site where the vendor of the reclamation service drains the existing charge and replaces it with previously reclaimed oil. Reclamation generally involves cleaning, drying and perhaps adsorption to remove color, acids and sludge. The reclaiming of lube oil is essentially a nonchemical process that restores in-service lube oil for reuse in a system.

Recycling

Every engine oil charge eventually reaches the end of its life and has to be drained from the machine system, whether it is engine, gearbox, hydraulic system or turbine. Oil that is recycled could be re-refined to new base oil or treated and sold as fuel oil.

When considering a reclamation service for transformer oil, check the following:

- Service providers should offer references of successful reclamation of transformer oil at other companies. Ask to contact previous clients.
- Decide on the performance target for the transformer oil in consultation with your lube supplier or an independent consultant.
- Test your charge before and after reclamation to ensure compliance with your target.
- Ask for a certificate of analysis after reclamation.
- The certificate should show breakdown voltage, moisture content, neutralization number and power factor

Purchase of used engine oil from market



Heat the oil till 360 Degree Centigrade



Cooling till 40 Degree while using water



Treating Oil with bleaching earth and warm till 200 Degree Centigrade



Filtration of Oil and Storage

Machinery Details

Source of Machinery Purchasing

Proponent has purchased machinery from local market for capacity 7 tons.

Machinery Number and Names

Reclamation Plant Machinery

Sr. #	Machinery Protocol	No. of Machinery	Capacity
1	Used oil storage tank	1	7 Ton
2	Use oil filter	1	
3	Distillation facility of temperature rating 360 c. at 100mm vacuum(capacity)	1	
4	Treatment kettle tank/vessel (capacity 7 Ton)	1	7 Ton
5	Settling tank /vessel (capacity 7 Ton)	1	7 Ton
6	Slug storage tanks	1	
7	Neutralization kettle/vessel	1	
8	Filter press	1	
9	Reclaimed storage tanks	1	
10	Boiler capacity	1	150 PSI
11	Cyclone for controlling suspended particulates as a result of rice husk burning	1	
12	Cyclone for controlling suspended particulates as a result of rice husk burning	1	
13	Cooling point	1	

14	Electric motor 15 hp+ centrifuge group	1	
15	Electric motor 10 hp (3 no) + centrifuge group	1	
16	Electric motor 7.5 hp + centrifuge pump	1	

2.5 Water Requirement

The surplus water during the construction phase of the whole project will be estimated to meet any unforeseen situation. The water demand will be fulfilled from ground water. Water demand for various uses has been estimated on the basis of WASA specifications. Water requirement for maintenance of green belts will be done on daily basis by ground water through pumps and pipes to avoid wastage of water. The water requirement for the construction phase will be 1500 gal/day while during operational phase water requirement will be 500 gal/day. The water will be in operation phase for sake for domestic, cleaning and drinking purpose only.

2.6 Wastewater Generation and Disposal

Wastewater to be generated from the project during construction phase will be reused for multi purposes like sprinkling on dust, making of construction material etc. while domestic wastewater during construction phase will be no issue because workers will use surrounding bathrooms like of masjid etc. Wastewater will be drain out after treatment by septic tanks into nearby WASA drain during operational phase. The wastewater during operational phase will be domestic only for these purpose septic tanks will be made.

2.7 Solid Waste Generation and Disposal

Estimated quantity of solid waste during construction phase is varied. The reason being, solid waste will have excavation material as major part of its overall composition. However, the earth material will be reused within the site eventually leaving zero waste due to excavation activities. Therefore, solid waste during construction phase will include the solid waste generated due to workers activities. To get rid from solid waste, sanitary workers of this area will collect this waste.

2.8 Energy Demand

The energy will be supplied by WAPDA.

2.9 Manpower Required

The man power during construction phase will be approximately 10-15 and operational stages will be approximately 15-20 for who will be involved for the processing of oil. Thus the project is source of employment for economic development activities of the area.

2.10 Proposed Schedule of Implementation

- It is estimated that the completion of construction phase of entire project will be started after getting environmental approval from EPA, Punjab.
- Activities involved are:
 - Land acquisition – already done
 - Lay out plan of project (attached herewith this IEE report)
 - Leveling of land
 - Excavation for foundation building
 - Work on pavements, roads, sewer system, electricity and telecommunication grid installation etc.
 - Construction of site
 - All finishing work of the entire construction work will be furnished after last step.

2.11 Details of Restoration and Rehabilitation at the End of the Project Life

“M/S Haider Petroleum (Reclamation blending of used oil unit)” has started its working where there are no population or commercial activities. While agricultural activities are going on at much extent in surrounding. In surrounding there are open plots as well. So there is no any matter for which restoration or rehabilitation would be considered. The project site is located where there will no demolishing of any resource will be happened. Thus project no need to consider aspect of restoration and rehabilitation of project.

2.12 Government Approvals

Acquisitions of approvals like trial base approval from OGRA has been granted and further for Environmental Approval proponent is conscious and going to apply.

2.13 Safety Measures at “M/S Haider Petroleum (Reclamation blending of used oil unit)”, Gujranwala

Emergency exits in the floors have already been planned. Firefighting equipment will be provided and adequate trainings will be provided to tackle any situation of fire hazards. Call points at suitable locations will be installed.

2.14 Vegetation Features on Site

The said project is open plot where there are no trees. There is no fauna and flora which will be affected by this project.

2.15 Project Enhancement Measures

1. PRESS CAKE:

An industrial filter press is a tool used in separation processes, specifically to separate solids and liquids. Generally, the material that will be separated is injected into the center of the press and each chamber of the press is filled. Optimal filling time will ensure the last chamber of the press is loaded before the impurities in the first chamber begin to cake. As the chambers fill, pressure inside the system will increase due to the formation of thick sludge. Then, the liquid is strained through filter cloths by force using compressed air or water. Pressurized water requires more time to pass through the chambers compared to pressurized air, but the use of water could be more cost-efficient in certain cases, such as if water was re-used from a previous process.

2. MATERIAL LEAKAGE ISSUE/ MANAGEMENT REQUIREMENTS FOR SPENT FUEL FILTERS

Used Oil is any petroleum-based or synthetic oil that has been contaminated with dirt, metals, water, or other chemicals such as solvents during use in a process.

This section greatly simplifies the management of spent fuel filters by allowing them to be handled and accumulated along with used oil filters, as long as certain requirements are followed. Failure to manage fuel filters in accordance with the legal requirements could result in being cited for violations of the hazardous waste laws, and if failure to manage them properly

resulted in fire, explosion or injury, the penalties could be severe. In addition, they must meet all of the following requirements:

- The filters must be stored and otherwise managed in accordance with applicable state and local fire code regulations,
- Gasoline filters must be stored in containers that are designed to prevent ignition of the gasoline and that are labeled "used oil 7 and gasoline filters." Check with your local fire marshal to see if they require grounding, safety lids, or special marking,
- When the filters are ready for transportation to a reclaimed or intermediate handler, the filters must be packaged, marked, labeled and transported in accordance with the applicable Department of Transportation requirements for those materials.
- If any gasoline or used oil commingled with gasoline is removed from the used oil and fuel filter accumulation container, it must be evaluated and handled properly.

3. LEAKAGE DETECTION

Leaking oil is a real problem, even in the modern manufacturing environment. It represents higher production cost, wasted resources, unnecessary disposal, and increased risk to the environment. Unfortunately, many manufacturing concerns do not have sufficient manpower or on-site technologies for the efficient identification and correction of machine leaks. The system here in M/S Haider Petroleum (Reclamation blending of used oil unit) will be semi-automatic setup.

Utilizing ultra-violet leak detection technologies, our specialists can rapidly locate equipment leaks. Photographic documentation and recommendations for corrective action complete the service.

4. FIRE FIGHTING SYSTEM

a) Main Design

The fire-fighting system of the project shall be constructed according to the project capacity; the fire-fighting water shall come from raw water over-head tank of 200 m³. The project shall adopt an independent temporary high pressure water fire-fighting system and setup an independent fire water pump house. It shall consist of one motor-driven hydrant pump. It

shall setup indoor and outdoor fire hydrant system in the whole project and setup adequate amount of moveable fire extinguishing facilities in relevant project buildings and electrical rooms according to the 'code' requirements.

b) Ingredients of fire-fighting system

1. Fire water supply system
2. Hydrant system
3. Water sprinkler system
4. CO₂ gas extinguishing system
5. Foam system
6. Moveable fire extinguishers
7. Fire detection alarm and control system

c) Fire water supply system

1. Fire water supply pipeline network
2. Indoor and outdoor fire hydrants
3. Water sprinkler system

d) Fire extinguishing facilities of M/S Haider Petroleum (Reclamation blending of used oil unit) System

Fire detection and alarm system project regional control panel will be located in the project to control room and connected with the main control panel.

4. STORAGE MEASURES

Used Oil is any petroleum-based or synthetic oil that has been contaminated with dirt, metals, water, or other chemicals such as solvents during use in a process.

There are no time limitations on storage of used oil; however, if it is stored greater than one year and there doesn't appear to be any definite plan to remove the oil, it may be considered for disposal. Used oil should only be stored in tanks and containers that are not leaking, rusting, deteriorating, or having other defects. Used oil containers and above ground tanks should be stored on a surface that does not allow used oil to seep through, such as cement or asphalt.

2.16 Lab Testing

Proponent has gotten report after monitoring by lab. The laboratory analysis report is attached herewith this EIA report.

2.17 Usage of Reclaimed Oil

Reclaimed oil will be used for hydraulic system (press machines and loom machines etc.). This oil will be used in hydraulic process after making ensure from laboratory analysis. The quality of reclaimed oil will be ideal and will not be harmful or decrease the efficiency of hydraulic system. Reclaimed oil will never be used for internal combustion.

2.18 Production of Waste during Reclamation of used Automobile Oil

The used automobile oil will be reclaimed about 6000 liters while at the end 1500 liters is remain as waste. This waste will be collected by sanitary workers of that area and will dispose of by their own standards and guidelines.

2.19 Mass Balance for Reclaiming of Oil

Firstly 5000ltr Raw Material (Black Oil) get 360°C Temperature and then get Cool at 40°C in Dehydration



Treating the 5000ltr Oil in Bleaching Kettle with Bleaching Earth at 200°C



Now 5000ltr Oil Reduce to 3500ltr in Filter and Remaining 1500ltr becomes Ashes/Dust and will move outside as Wastage

CHAPTER III

STATUTORY REQUIREMENTS

3.1 General

Sustainable development and green economy is a concept that has emerged over the past decades to describe a new framework aimed at economic and social development while maintaining the long term integrity of the ecological system and environmental resources. The principal of sustainable development is in the process of being incorporated into the national policy and legislation through various statutory instruments. This chapter describes the current legal responsibilities of the proponent in context of environmental and sustainable development, and the institutions that exist in the country that may influence the environmental management of the project.

This section deals with the current policy as well as legal and administrative framework related to carrying out of Environmental Impact Assessment (EIA) of the project. An efficient and effective organizational structure is essential for successful implementation of the mitigation measures identified for the project. Like other projects, the project, before its implementation, is required to go through an Environmental Assessment, in accordance with the provisions of the Punjab Environmental Protection (Amendment) Act 2012.

3.2 Existing Legislation and Legal Framework

The Federal Ministry of Environment was responsible authority for policy making on environmental protection in Pakistan but after 18th Amendment in the Constitution, the Provincial Governments have taken over the subject of Environment. This EIA study has been carried out in the light of the policy guidelines of the Preparation of IEE/EIA Reports under the procedures and practices formulated by the Pak EPA and adopted by the Punjab Environmental Protection Agency (EPA).

3.3 Institutional Setup

3.3.1 Environmental Protection Councils

The Punjab Environmental Protection Council (PEPC) is the apex decision-making body of Punjab. It has been developed under the provision of Punjab Environmental Protection (Amendment) Act 2012. It is headed by Chief Minister of Punjab with other members. The purpose of IEE is basically to obtain Environmental Approval from the Environmental Protection Agency (EPA), Punjab in compliance with Pakistan Environmental Protection Act (PEPA) - 1997, now having been replaced by Punjab Environment Protection (Amendment) Act 2012.

3.3.2 Environmental Protection Agencies

Pak EPA has been established at the Federal level and EPAs are established at Provincial level also. In Punjab an independent Environmental Protection Agency is constituted headed by the Director General.

3.3.3 Environment Protection Department, Punjab

The Punjab Government has established Environment Protection Department (EPD) administratively controlled by the Secretary, Government of Punjab. The EPD has its independent Minister. According to the provisions of the Punjab Environmental Protection (Amendment) Act, 2012, EPD has a significant role in policy making and implementation of the environmental laws in the Punjab Province.

3.3.4 Relevant Legal / Institutional Framework

The applicable laws for the environmental study of the project are briefly given below. The proponent of the project will abide by the applicable laws and regulations.

A number of laws have been promulgated by the Government of the Pakistan to deal with the environmental and social aspects related to the implementation of various development projects in the country. In 1983, the Government of Pakistan issued an Environmental Protection Ordinance (EPO) that was replaced by the PEPA, 1997,

through an Act of Parliament. According to the 18th Amendment in Constitution, the PEPA 1997 has been confined to Federal Area and provinces have been allowed to formulate their own environmental legislation in the subject of environment.

Under the PEP Act, it is mandatory to carry out IEE or EIA for all development projects. The Pak EPA has also framed guidelines for environmental assessment of projects in various developmental sectors, According to PEPA 1997; the Punjab Environmental Quality Standards (PEQS) were established for effluents discharges and gaseous emissions of various Municipal and Industrial sources. The latest revision of PEQS as carried out in year 2022.

3.4 Pakistan Environmental Protection Order (PEPO) 1983

In 1983, the Government of Pakistan issued an Environmental Protection Ordinance (EPO) 1983. It was the first legislation promulgated for the protection of environment. According to PEPO, 1983 it was necessary to carry out IEE / EIA for all development projects, but there were no IEE / EIA regulations under that ordinance.

3.5 Punjab Environmental Protection (Amendment) Act 2012

Section 12 of the Punjab Environmental Protection (Amendment) Act 2012 makes it mandatory for the proponent of a project to file with the Environmental Protection Agency either an Environmental Impact Assessment (EIA) as the case may be, in respect of the project.

As per definition given in the Punjab Environmental Protection (Amendment) Act 2012, Environmental Impact Assessment (EIA) means an environmental study comprising collection of data, prediction of qualitative and quantitative impacts, comparison of alternatives, evaluation of preventive, mitigatory, and compensatory measures, formulation of environmental management & training plans & monitoring arrangements, and framing of recommendations and such other components as may be prescribed. The provision of Section 12 has been incorporated “as it is” in the new Punjab Environmental Protection (Amendment) Act, 2012.

3.6 National Environmental Policy 2005

Government of Pakistan has notified National Environmental Policy 2005, for different projects/aspects in which guidelines/priorities have been given to undertake/commence the projects having significant environmental impacts.

The National Environmental Policy (2005) provides a framework for addressing the environmental issues (particularly pollution of fresh water bodies and coastal waters, air pollution, lack of proper waste management, deforestation, loss of bio diversity, desertification etc.) confronting Pakistan. It recognizes the goals and objectives of the Pakistan National Conservation Strategy (PNCS, 1992), National Environmental Action Plans, and other existing environment related national policies, strategies, and action plans. It also provides broad guidelines to the Federal Government, Provincial Governments, federally administrated territories and local governments to address their environmental concerns and to ensure effective management of their environmental resources.

3.7 Review of IEE / EIA Regulations 2022

The Pak EPA has issued Review of the Initial Environmental Examination (IEE) and Environmental Impact Assessment Regulations 2022, to review the Environmental Impact Assessment (EIA) / Environment Impact Assessment (EIA) reports. Categorization of the projects for IEE and EIA is one of the main components of the Regulations. Projects have been classified on the basis of expected degree of adverse environmental impacts. Projects type listed in Schedule I are designated as potentially less adverse effect, schedule I projects require an IEE and projects given in schedule II require EIA to be conducted.

Salient features of the Regulations are listed below:

- Categories of project requiring IEE and EIA are issued through two schedules attached with the regulations.

- A fee depending on the cost of the project has been imposed for the review of IEE and EIA.
- The submittal is to be accompanied by an application in prescribed format included as Schedule IV of the Regulation.
- The EPA is required to issue conformation of compliance within 15 days of receipt of request and complete documentation.
- The IEE / EIA approval for construction of the project will be valid for three years from date of accord.

3.8 Guidelines for the Preparation of IEE/EIA Reports

The Punjab EPA has also framed Guidelines for the Preparation of IEE / EIA of projects in various developmental sectors.

3.9 The Punjab Local Government Ordinance, 2001

Schedules 4 and 8 of this Ordinance pertain to environmental pollution. There are not withstanding any specific provisions, every local government may perform functions conferred by or under the Punjab Local Government Ordinance, 2001, and in performance of such functions may exercise such powers, which are necessary and appropriate. Under the ordinance, the local councils are authorized to restrict projects causing pollution to air, water or land. They may also initiate schemes for improving the environment.

3.10 Pakistan Penal Code, 1860

This defines the penalties for violations concerning pollution of air, water bodies and land. Sections 272 and 273 of this Act deal with the adulteration of food or drink. Noise pollution has been covered in section 268, which defines and recognizes noise as a public nuisance. "A person is guilty of a public nuisance who does any act or is guilty of an illegal omission which causes any common injury, danger of annoyance to the public or the people in general who dwell or occupy property in the vicinity, or which must

necessarily cause injury, obstruction, danger or annoyance to persons who may have occasion to use any public right".

3.11 The Land Acquisition Act, 1894

The Land Acquisition Act (1894) deals with the acquisition of private properties for public purposes. There are 55 sections in this Act mainly dealing with area notification, surveys, acquisition, compensation, apportionment awards, disputes resolution, penalties and exemptions.

Although quite old, this act laid out the legal basis for any property affected by a project and for compensating the effected owners of the land.

3.12 Factories Act, 1934

The clauses relevant to the project are those that concern the health, safety, and welfare of workers, disposal of solid waste and effluent and damage to private and public property. The Factories Act also provides regulations for handling and disposal of toxic and hazardous materials. Given that construction activity is classified as 'industry', these regulations will be applicable to the project contractors.

3.13 Labor Laws

Construction and operational activities during the course of construction may affect occupational health of workers. Employers are required to abide by labor laws in respect of their own employees and also to ensure that contractors to follow the relevant labor laws and rules relating to safety of the workforce and creating a healthy working environment. The proponents shall ensure that the labor force engaged at the project site is not exposed to any danger by monitoring the contractor's work frequently.

CHAPTER 4

DESCRIPTION OF THE ENVIRONMENT

4.1 General

The existing environment around the site of proposed project has been studied with respect to physical, ecological and socio-economic resources. The existing information to establish a database for the EIA of the project was collected from different departments, review of previous studies and through the site visits carried in out in the project area.

Gujranwala District is situated on the main railway line connecting Lahore and Peshawar. The Grand Trunk Road runs parallel to the railway line and passes through the center of the city, mostly the old city being on the west and new abadies on the east. The Chenab river forms the northern boundary of the district. Beyond the river, it is bounded by Gujrat and Mandi Bahauddin districts, on the east by Sialkot district, on the south by Sheikhupura district and on the west by Hafizabad district. Gujranwala district is spread over an area of 3,622 Square Kilometres and comprises the seven towns.

4.2 Physical Environment

The study examines the physical resources, topography, soil, climate, surface and ground water and geology is of not only the project site but also the city as whole to assess whether the project under review can or does impact on any of these parameters. The description of physical environment of District Gujranwala and the project site is present in the following sub sections.

4.2.1 Geological Formation

Gujranwala is 226 metres (744 ft) above sea level, sharing borders with Ghakhar Mandi and several towns and villages. About 80 kilometres (50 mi) south is the provincial capital, Lahore. Sialkot and Gujrat lie to its north. Gujrat connects Gujranwala with Bhimber, Mirpure Azad Jammun and Kashmir, and Silakot connects it with Jammun. About 160 kilometres (99 mi) southwest is Faisalabad. To its west are Hafizabad and Pindi Bhattian, which connect Gujranwala to Jhang, Chiniot and Sargodha. The soil is alluvial and fertile. It is a flat strip of land running roughly east to west.

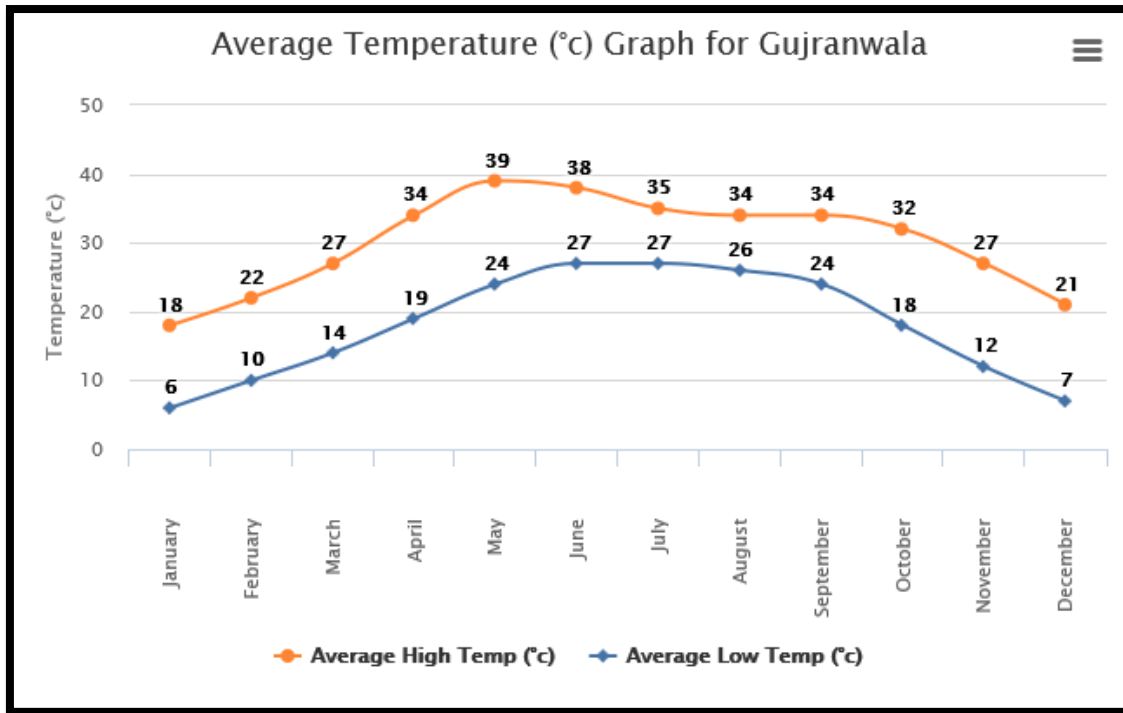
The main types of soil in the district are (i) Gora, an artificial soil highly manured, commonly found around villages and wells; (ii) Rohi, the finest natural soil and stiff clay dark/reddish dark in color; (iii) Doshair or Missi which is a fine clay soil; (iii) Maira, which is of less loam with less clay than sand; (iv) Tibba, which is inferior maira; (v) Kallar, which is a sour and barren clay unsuitable for cultivation within adequate suitable treatment and (vi) Bela of the riverain soil is a fine alluvial soil mixed with sand.

4.2.2 Climate

Gujranwala has a hot semi-arid climate according to the Köppen-Geiger system, and changes throughout the year. During summer (June to September), the temperature reaches 36–42 °C (97–108 °F). Relief is only provided by occasional dust storms. The coldest months are usually November to February, when the temperature can drop to an average of 7 °C (45 °F). The highest-precipitation months are usually July and August, when the monsoon reaches the Punjab. During the other months, the average rainfall is about 25 millimetres (0.98 in). The driest months are usually November to April, with little rainfall.

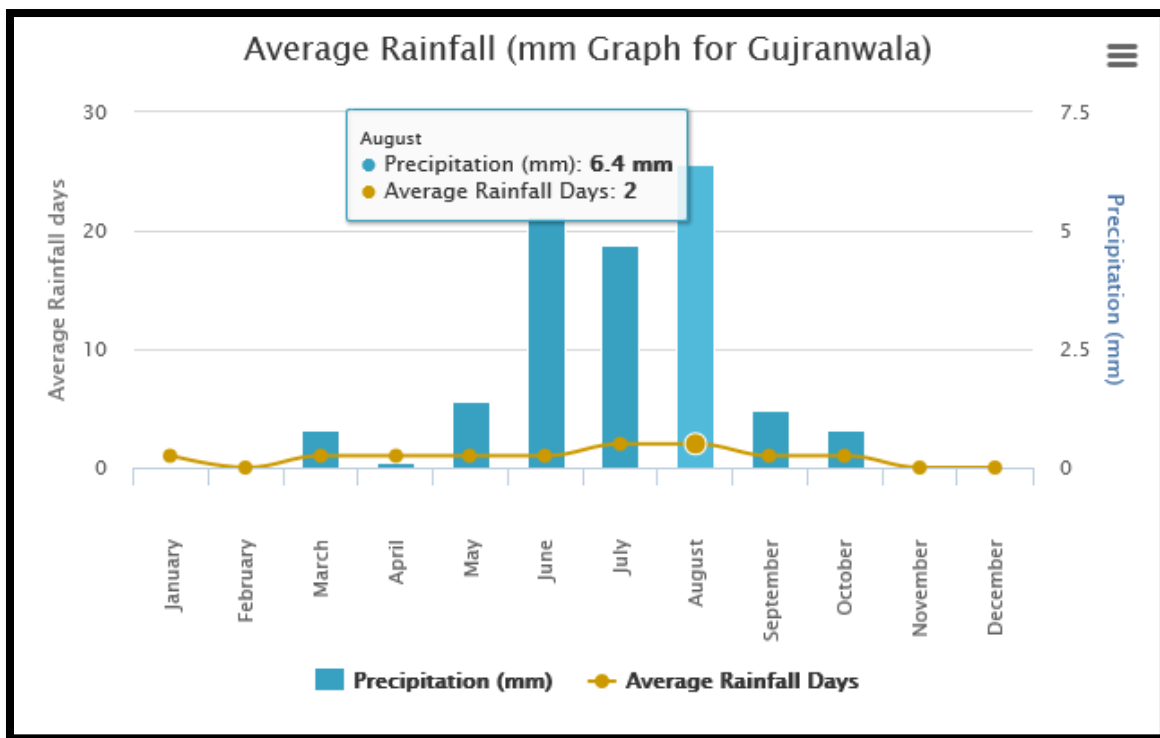
Table 1: Seasons in Gujranwala

Weather	Months
Autumn	October-November
Winter	November-February
Spring	March-April
Summer	June-September
Monsoon	July-August



4.2.4 Rainfall

The rainy season starts in July and ends in September. Average Annual rainfall during 1961-98 is about 629mm. More rains occur in July and August than any other months. Most of the winter rains are received in the months of March and April. Precipitation is the lowest in November, with an average of 5 mm. The greatest amount of precipitation occurs in August, with an average of 167 mm.



4.2.5 Topography

With the exception of the southeastern corner of the district which is traversed by the Dek nullah, the district is a flat plain. The district can broadly be divided into two parts. The low-lying area close to the Chenab river and the Dek nullah and the uploads between the two. The uplands decrease in fertility as the distance from the Himalayas increases until in the southwest it merges into what is known as the Bar tract in its natural aspect was a level prairie.

4.2.6 Altitude:

There is no variation of altitude above sea level in the land along the alignment and the short length of the distribution line means no variation between the climates of the subproject area.

4.2.7 Ambient Air Quality

The degradation of air quality in all the large cities is a major environmental concern these days. Air pollution levels in urban centers have either crossed safe limits given in the NEQS or have reached the threshold values. About 60 to 70 % of the deterioration in

the air quality is due to the vehicular emissions. The parameters which have proved to be the major threat are particulate matter and concentration of oxides of nitrogen that are relatively higher in all the large cities of Punjab. The PM_{2.5} has shown an estimated increase of more than 60 % since last 3 years. Further the present road infrastructure cannot cater the need of growing automobiles flow resulting in the mounting concentrations of NO_x and SO₂. There is dire need to adopt strict measures to obviate this issue, which is not only a hazard for the environment but also to the health and quality of life of the people.

4.2.8 Noise

Noise is generally used as an unwanted sound, or sound which produces unpleasant effects and discomfort on the ears. Noise is considered as environmental pollution, even though it is thought to have less damage on humans than water, air or land pollution. Generally, problems caused by noise pollution include stress, hearing loss, sleep disruption etc.

4.2.8 Water Resources

Irrigation is largely dependent on two irrigation canals i.e. Lower Chenab Canal and Upper Chenab Canal, but tube wells have also been sunk in the areas where water is fit for irrigation. Potable water is available. Irrigation supplies are perennial and tube wells have been installed. The strata of the subproject area are water bearing and alluvial deposits, giving groundwater potential throughout the district. The water table is not seasonal and dug wells do not generally run dry.

4.2.8.1 Drinking Water Quality

Only 35 percent people in Pakistan's 7th largest city have been provided by Gujranwala Water and Sanitation Agency (WASA) with clean drinking water while most of them are forced to intake contaminated water owing to out-of-date infrastructure of the water supply system. A survey report revealed that the WASA could only deliver water supply services to 35 percent of the population while only 70 percent of the masses in the city area have the civic amenity of sewerage system. The WASA has 87 tube-wells in the city

out of which 21 are not functioning these days while only seven water tanks out of 10 are functioning.

4.2.8.2 Irrigation:

The main sources of irrigation in the district are the two canals known as the Lower Chenab Canal and Upper Chenab canal. The Lower Chenab canal takes off from the Chenab river at Khanki head works in the Wazirabad tehsils and enters the Hafizabad district at Muradian and irrigates Wazirabad tehsil. The Upper Chenab Canal takes off from the Chenab River at Marala Head works in Sialkot district and enters the Gujranwala district at Nandipur, thirteen Kilometers to the northeast of Gujranwala city and runs southwest into the Sheikhpura district and irrigates western half of the Wazirabad and Gujranwala tehsil. The other source of irrigation is tube well. There are 29,797 tube wells in Gujranwala district.

4.3 Biological Environment

Preservation of biodiversity is of global concern, but the causes of loss and their solutions are very often local in scale. The development schemes continues to be a major player in the overall reduction of biodiversity, and proper planning at the project level can go a long way in limiting the loss, while still serving the transport need.

Wildlife, Fisheries and Aquatic Biology

Wild boar is fairly common in the forest reserve around Gujranwala and in the river area. Black buck, river deer, and hog deer are sometimes, though rarely, found in the Belas (islands in the river) around Gujranwala after heavy rains. Wolves are common in forests along the Jhang border. Hare and Jackal are fairly common all over the district. There are no reservoirs or other water bodies except Chenab River that forms the northern boundary of the district.

4.3.1 Flora

Trees, also called the ‘lungs’ of the earth, are important for the restoration of the ecosystem. People can benefit immensely from their survival and existence. Trees have also been a source of medicine for thousands of years and a refuge for various species of

birds. Several species of the trees in Gujranwala are being used in medicines. Some trees of significant medicinal value are grown easily in the city.

Trees commonly found in the district are Shisham, (*Dalbergia sissoo*), Keekar (*Acacia Arabica*), Shareen (*Albizia lebbek*), Bari (*Ziziphus Jujuba*), Guava, citrus etc. in the recent past some farmers have started growing mini forest of Poplar, eucalyptus, symbal etc. There are some marshy areas along the river Chenab where water stagnates. These areas are popularly known as Baila. These are also covered with tall grasses, reeds and spices.

There is little forestry in the district the forest area is only 1162 acres. There is no protected forest near the areas of works. There are also planted trees along canals and roads. The major trees grown in the forest are Shisham (*Dalbergia sissoo*), Kikar (*Acacia arabica*) and Poplar and Eucalyptus. In general permission should be sought from the local concerned department for the felling of any trees.

Inventory of some Flora of District Gujranwala

Sr. No.	Scientific Name	Common Name
1	<i>Amaranthaceae</i>	Ghunar
2	<i>Amaranthaceae</i>	Puthknda
3	<i>Apocynaceae</i>	Kneer
4	<i>Apiaceae</i>	Saunf
5	<i>Asclepiadaceae</i>	Dasi Ak
6	<i>Asclepiadaceae</i>	Chonga
7	<i>Asteraceae</i>	Partha
8	<i>Boraginaceae</i>	Gorkh paan

9	<i>Boraginaceae</i>	Kulfa
10	<i>Chenopodiaceae</i>	Bathu
11	<i>Cannabinaceae</i>	Bhung
12	<i>Convolvulaceae</i>	Bahar bail
13	<i>Crassulaceae</i>	Zakhm-i-hayat
14	<i>Asteraceae</i>	Chota dhatoora

Protected areas / National sanctuaries

In Pakistan there are several areas of land devoted to the preservation of biodiversity through the dedication of national parks and wildlife sanctuaries. There is no wetland, protected area or national sanctuary near the area of works and subproject area.

4.3.2 Fauna

There is no significant wild life found in Gujranwala because of huge agglomeration of human settlements. While some animals like Wild boar, Hog deer (rarely found), Wolf, Hare and Jackal are seen round the outskirts and nearby wilderness. There are no rare, threatened or endangered species of fauna in the project area. Domestic livestock includes buffalo, cattle and goats. Some of the residents also have pigeons. Different species of reptile and amphibians such as lizards and frogs are also found. Various bird species known to occur in the area include myna, bulbul, crow and sparrow. No wild animal/endangered species is found in the area except pet animals.

Inventory of some Fauna of District Bahawalpur

Sr. No.	Scientific Name	Common Name
1	<i>Suncus etruscus</i>	Mediterranean pygme shrew
2	<i>Scotophilus kuhlii</i>	Lesser house bat
3	<i>Funnambulus pennantii</i>	Northern palm squirrel

4	<i>Rattus rattus</i>	House rat
5	<i>Nesokia indica</i>	Short tailed mole rat
6	<i>Tatera indica</i>	Indian gerbil
7	<i>Meriones hurrianae</i>	Indian desert jird
8	<i>Milvus migrans migrans</i>	Indian/Black Kite
9	<i>Hoplopterus indicus</i>	Red-wattled Lapwing
10	<i>Psittacula eupatria</i>	Alexandrine/Large Indian Parakeet
11	<i>Alexandrine/Large Indian Parakeet</i>	Pied Crested Cuckoo

4.3.3 Parks and Grounds

There are many parks and grounds in Gujranwala. It includes Khawaja Ground, Sagheer Shaheed Park, Muhannadi Park, Ladies Park, model town, D-Park Sheranwala Bagh, Janat Bibi Park, Milad-e- Mustafa Park. There are important archeological/ cultural sites like Nishan –E-Manzil, Gulshan Park, Jinnah Stadium, Gold’s Gym, Jinnah Park and Rail Bazaar etc.

4.4 Socio Economic Assessment

Social change is the consequence of almost any intrusion into the community life of any society. The intrusion can be in the form of any developmental projects or nonspecific, less tangible forms such as increased exposure to other cultures, technological changes and so on. The social change that results from intrusion into community life can also be beneficial, but can have undesirable or negative outcomes. Even that change in the long run may have positive effect on the social well-being of a community.

Social Impact Assessment is a methodology used for examining social change due to external sources, especially specific developmental projects, but also government policies, technological changes and social processes or anything that has a social impact.

The objectives of the given study are outlined as follow:

- To carry out the assessment of social impact.

- Acquire socioeconomic data to evaluate and identify the project interventions.
- Assess needs of community related environmental concerns.
- To assess adverse and beneficial socioeconomic and health impacts of the activity.
- To suggest remedial measures and solutions to improve socio economic conditions.
- To analyze socio economic conditions of community, with special reference to environment and conservation of natural resources.

4.4.1 Demographic Profile of Gujranwala:

According to the 1998 census of Pakistan the population of district was 3,400,940 of which 50.17% were urban. It is thus the third-most advanced district in Punjab, the population now stands at 4,308,905.

Gujranwala is in fact a City district. The district is divided into following tehsils:

- i) Gujranwala City
- ii) Gujranwala Saddar
- iii) Wazirabad
- iv) Kamonki
- v) Naushehra Virkan

Furthermore there are following towns under these tehsils

- i) Khiali Shahpure Town
- ii) Aroop Town
- iii) Nandipure Town
- iv) Qila Didar Singh Town

v) Wazirabad Town

vi) Kamonki Town

vii) Naushehra Virkan Town

First four towns lie in Gujranwala City and Saddar Tehsils while the last three towns are under their respective tehsils, i.e. Tehsil Wazirabad, Kamonki and Naushehra Virkan respectively. Gujranwala is the distt. Headquarter while Gujranwala, Wazirabad, Kamonki and Naushehra Virkan are tehsils headquarters.

There are 192 UCs, and total area of the City is 3622 Sq Km, total Population of the City (Population reported by Urban Unit) was 3400940 in1998 and average growth rate was 2.85% (1981-98). The literacy ratio of the City was 56.5%, average household size 7.6, annual growth rate during 1981-98 was 2.85 %.(District Census Report 1998).

Indicators	Value	Indicators	Value
Total population	4.76 million	Urban population	2,431,285
Population of tehsil Gujranwala	2,773,297	Rural population	2,334,028
Population of tehsil Wazirabad	838,335	Population density (persons per sq.km)	1315
Population of tehsil Noshehra Virkan	559,422	Sex ratio (number of males over 100 females) at birth	104
Population of tehsil Kamonke	594,259	Population annual growth rate	2.85%

4.4.2 Health facilities

In district Gujranwala, thirty-one (31) health facilities were assessed, including 1 District headquarter (DHQ) hospital, 3 Tehsil Headquarter (THQ) hospitals, 9 Rural Health care (RHCs) and 18 Basic health units (BHU). An OPD, LHV's residences and labour room were available at all of the BHUs.

Table: Number of Health facilities in the District

Type	Number	Bed strength
Teaching hospital	0	0
District headquarter hospital	1	450
Tehsil headquarter hospitals	3	180
Rural health centres	9	180
Basic health units	88	176
Govt. rural dispensary	5	
MCH centre	9	
Sub health centre	34	

4.4.3 Educational Facilities:

There are 2,442 educational institutions in Gujranwala district imparting education from Mosque/Primary School to postgraduate level. There are many Government and Private Schools for Boys and Girls, College, a virtual University and Punjab College, Punjab University Campus, located at Solangi Awan at 1 km. There are also primary schools for girls and boys in each of the affected village. The number of institutions, enrolment and teaching staff available in 1995-96 is given in the following table.

Educational Institutions

TYPE OF INSTITUTION	MALE	FEMALE	TOTAL
Degree colleges	1	1	2
Higher secondary schools	2	3	5
High schools	35	8	43
Middle schools	13	26	39
Primary schools	322	367	689
Commercial/vocational institution	1	1	2

Source: Punjab Development Statistics, Bureau of Statistics, Punjab.

4.4.4 Transportation and Communication

The main Peshawar-Karachi railway line passes through Gujranwala district. The district is linked with Sialkot, Hafizabad and Gujrat districts through railway network. There is a network of metalled and un-metalled roads in the district. There are also metalled canal roads. All tehsil headquarters and important towns are connected through metalled roads.

The Motorway roads M-2 pass through Hafizabad. Railway branch line between Faisalabad and Wazirabad section is passing through Hafizabad. A Hafizabad district is not linked by air with other parts of the country but it is connected with other parts of the country through Lahore International Airport which is about 50 km from Gujranwala.

4.2.3 Groundwater and Water Supply

Irrigation is largely dependent on the canals, but tube wells have also been sunk in the areas where water is fit for irrigation. The chemical quality of ground water in the district varies in different areas and at different depths. Potable water is available in the district. Irrigation supplies are perennial and tube wells have been installed to make up the deficiencies. The strata near the DGS and TXL are water bearing and alluvial deposits, giving groundwater potential throughout the subproject area and the water table is about ten to twelve metres below the surface. The water table is not seasonal and dug wells do not generally run dry. Groundwater sources exist in the area and there are no tube wells within 500m of the proposed TXL pabs. Most of the local population near the DGS & TXL is generally reliant on supply from tube wells.

4.2.4 Surface water

Rivers and Tributaries

The river Chenab is the only one the district. The Chenab River forming the northern boundary has been described as a broad shallow stream. Its deposits are sandy, but its floods are extensive and owing to the loose texture of the soil on its banks, the moisture percolates for inland, but the weirs at Khanki and Marala have affected the river, and its usefulness as a fertilizing agent for the riverine tract has been reduced considerably.

There are several nullahs in the district which form channels for floodwater in the rains.

The most important of them are Palkhu, Aik, Khot, Beghwala and Dek.

Irrigation:

The main sources of irrigation in the district are the two canals known as the Lower Chenab Canal and Upper Chenab canal. The Lower Chenab canal takes off from the Chenab river at Khanki head works in the Wazirabad tehsils and enters the Hafizabad district at Muradian and irrigates Wazirabad tehsil. The Upper Chenab Canal takes off from the Chenab River at Marala Head works in Sialkot district and enters the Gujranwala district at Nandipur, thirteen Kilometers to the northeast of Gujranwala city and runs southwest into the Sheikhpura district and irrigates western half of the Wazirabad and Gujranwala tehsil. The other source of irrigation is tube well. There were 29,797 tube wells in Gujranwala district.

Groundwater and Water Supply

Irrigation is largely dependent on two irrigation canals i.e. Lower Chenab Canal and Upper Chenab Canal, but tube wells have also been sunk in the areas where water is fit for irrigation. Potable water is available. Irrigation supplies are perennial and tube wells have been installed. The strata of the subproject area are water bearing and alluvial deposits, giving groundwater potential throughout the district. The water table is not seasonal and dug wells do not generally run dry. Groundwater sources exist in the area. The local population is generally reliant on supply from the hand pumps in rural areas while in urban areas population using drinking water from WASA piped water supply scheme. Residents of Wapda colony are using drinking water from tubewell located within DGS colony.

Energy Sources

More than 40% housing units are using wood as cooking fuel in their houses while 34% are using gas for their purpose. About 4 percent are using kerosene oil and 21% are using other sources of cooking fuel in their houses.

4.4.8 Electric Supply

Gujranwala Electric Power Company (GEPCO) supplies electricity to Gujranwala city.

4.4.9 Telephone Facilities

Landline and Cellular telephone facilities are present in the area.

4.4.10 Sites of Historical Significance in Gujranwala:

Gujranwala was founded by **Charat Singh and Mahan Singh**, heads of a Sikh clan. Mahan Singh constructed four towers which fixed the boundaries of the town. He also laid a foundation “Sheranwala Bagh” adorned with statues of lions which still exist today.

Sardar Hari Singh Nalwa being a great admirer of nature laid a large and beautiful garden in Gujranwala. According to the Gazette of 1935 the garden became famous through Punjab for its variety of rare trees and plants, and the first Malta oranges were planted here. Baron Carl von Hugel.

The First Presbyterian church was constructed in 1875 [Plate 2]. Theological Seminary, Gujranwala was first founded by United Presbyterian missionaries from North America in 1877. The seminary is situated on a spacious campus in the Civil Lines, providing a peaceful environment for worship, study, reflection and recreation



Fig 4.1: Church in Gujranwala (1865)



Fig 4.2: Villa of Charan Singh in Civil Lines,



Fig 4.3: Villa of Banarasi Shah, Gujranwala



Fig 4.4: Darzian Di Haveli

4.5 Socio Economic Environment Agriculture and Industries

Cropping Pattern:

The major crops are wheat, barley, gram, masoor and water melon, in winter and rice, sugarcane, maize, jawar etc, in summer. The best variety on Basmati rice (Karnal) is cultivated in the fertile land of Hafizabad district. The export quality of rice is very popular in USA and the Gulf states. Pakistan earns millions of dollars by exporting rice from Gujranwala.

Horticulture:

The main fruits grown in the district are mango, orange and guava. Nearly all vegetables, found in the districts of the Punjab, are grown in this district as well. There are gardens/nurseries of flowers like rose, chambeeli (jasmine), Murva, guilder rose, etc. in and around Gujranwala. People are very fond of gardening and they have utilized their lawns and fields in urban and rural areas. There are many gardens of mangoes, jaman, guava etc. There are 2,186 acres of land excluding house nurseries under orchard as per data of revenue department of the district.

Industry:

In Gujranwala, there is a Madina Sugar Mills, Crescent greenwood (in Pindi Bhattian), 28 agricultural implements manufacturing workshops, 15 rice shellers, 735 power looms, 2 sizing plants, 10 ice factories, A mobile oil clinic, 3 pre-cast, slabs and girders factories, 18 saw mills, 68 brick kilns, 128 flour mills, 36 rice husking mills, 4 oil extracting units, 3 flour mills, 5 cold storages, 130 carpet making units and hand looms, 9 Earthen pottery making units, 22 furniture workshops, 134 embroidery machines, 38 leather shoe making industries, and 9 artificial leather and foam foot wear making industries.

4.5.1 Conclusion

Comparison of potential adverse and beneficial impacts of the project shows that project will prove to be beneficial for the inhabitants of the area. The project will provide job opportunities for the local inhabitants. Hence improve their socio economic status. Employment opportunities generated by the project will include workers, helpers and guards. The overall socio economic impact of the project is interpreted in relation to the existing environmental conditions.

The project, overall, does not have major adverse impacts on the existing environment and people with due implantation of the mitigation measures, there will be very insignificant adverse impacts on the socio economic environment. The project has more beneficial impacts on the socio economic environment than adverse impacts. In conclusion, it can be said that overall the project would have positive impacts on the socio economic status of the neighboring community inhabitants.

CHAPTER V

SCREENING OF POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

5.1 General

The potential environmental impacts related to the construction of “M/S Haider Petroleum (Reclamation blending of used oil unit)”, Gujranwala for sake of reclamation of engine oil. For this reason, project has been studied related to design, construction and operational stages of the Project. Environmental protection measures are recommended to eliminate adverse impacts on environment or to reduce them to an acceptable level within the prevailing legislative and regulatory framework. These Impacts are evaluated on the basis of magnitude, immediacy and sustainability. A careful consideration of project aspect, their potential environmental impacts and mitigation measures are proposed in this chapter. Evaluation criteria are as follow:

- Magnitude: Type of impact (direct, indirect, and cumulative)
- Immediacy: Temporal extent (during construction, after construction)
- Spatial extent (local, widespread)
- Sustainability and Reversibility:
 - Mitigability (fully, partially)
 - Monitoring (fully, partially)

5.2 Environmental Problems Due to Project Location

The potential impacts assessed due to project location are change in land use pattern, pressure on the existing natural resources, natural hazards like floods, earth quake, changes in the socio-cultural patterns of the local community, local community displacement issues, and obstruction of accessibility to the community already residing in the locality. A detailed explanation of each potential impact is given hereunder in tabulated form:

Table 5.1: Environmental Problems/Mitigation Measures Due to Project Location

	POTENTIAL IMPACTS	MITIGATION MEASURES
1.	Change in Land Use Pattern	
	Any new intervention has its first and foremost impact of changing the land use pattern of the area. The impact of this nature is irreversible therefore site selection needs to have careful consideration of the impacts that may arise due to the changes in land use patterns.	Prior to selection of site, the project proponent has had careful consideration of site alternatives and hence due to current land use nature, price, and comparatively less environmental impacts the site was selected out of the four alternatives. Another factor adding to the feasibility of the proposed site was that it involved no displacement of local community, closeness to existing industrial hub and less energy consumption for transportation.
2.	Pressure of Resources	
	Yet another impact to be considered prior to site identification is the availability of already existing resources e.g. water, gas, electricity, etc. any new intervention can exert pressure and marginalize the existing community. This could eventually create a sense of deprivation among the already existing community and may eventually result in social unrest.	Considering this very important factor, the site identification was done after evaluating the extent of provision of resources. The water requirements, energy requirement, social services (identified in the previous chapters) was done and based on the availability of resources to meet the present and future demand, the mentioned site was identified.
3.	Natural Hazards	
	It is very important to assess the extent of damage any natural hazard e.g. earthquake, floods, landslides may cause. The geological formation of the capital territory is such that it	The proposed site identified within environmentally /geologically safe and does not fall in any of the earthquake zones in which the capital territory is

	has been categorized into earthquake zones.	divided.
4.	Displacement of Local Community	
	Displacement of local community can tend to create social issues and aggravate negative feelings from the existing population towards the project.	The proposed project is planned on a site which has already been acquired by the proponents after going through its socio-culture, environmental and economic considerations.
5.	Accessibility Issues to the Local Community	
	Another important impact considered was obstruction or changes in the patterns of transportation and increase travel time/distance for the local community.	The proposed project site is a vacant plot does not involve damage to any roads. Nature, size and scope of work also limit the extent of activities during construction as well as operational phases.
6.	Presence of Sensitive Areas	
	Development interventions can degrade the quality and life expectancy of ecologically, socially and historically sensitive areas.	There are not sensitive areas of any nature be it ecological, social or historical in the proposed area.
7.	Availability of Existing Infrastructure and Services	
	Unavailability of infrastructure can render the entire project void and impractical due to absence of important community infrastructure.	The proposed project is well connected to the rest of the city through major asphalt roads. Commercial buildings, housing societies, hospitals, clinic and transport facilities available hence making the location ideal for the said purpose.

5.3 Environmental Problems Due to Project Design

Environmental issues may also arise during project design phase which may cause potential threats to the overall project life is not considered timely. The potential problems associated with project design phase are identified in the **table 5.2** hereunder:

Table 5.2: Environmental Problems/Mitigation Measures Due to Project Design

	POTENTIAL IMPACTS	MITIGATION MEASURES
1.	Increased Energy Consumption	
	The design of building plays a vital role in determining the energy demand. Unplanned design may lead to overall rise in energy demand.	The design of said project named “M/S Haider Petroleum (Reclamation blending of used oil unit)” in such way that it allows adequate energy consumption and natural ventilating process to eliminate the factor of suffocations.
2.	Traffic Congestion	
	Unplanned traffic management and traffic infrastructure development may lead to traffic related issues such as accidents and traffic congestion.	The project has included traffic management as integral part of its overall design. The project construction activities are planned within the project area. Transportation of heavy construction materials will be done during less traffic hours.
3.	Fire Exits /Emergency Evacuation Plan	
	Emergency evacuation plans especially for “M/S Haider Petroleum (Reclamation blending of used oil unit)” is necessary. Fire issues due to electric short circuit, gas leakages etc.	The project proposes Emergency Evacuation Plans in events of fire hazards. Quality of wiring work and gas lines will be ensured through installation of good quality wiring during construction and proper monitoring during operational phase. The site will be equipped with proper firefighting materials to ensure increased safety.
4.	Accessibility to Public Utility / Services	
	Inaccessibility to public utilities will render the project uninhabitable.	Resolving the issues of accessibility to public utilities / services will be resolved through proper design planning of infrastructure.

5.	Careful Planning of Greenbelts/Horticulture Plan	
	Unavailability of greenbelts would create aesthetic nuisance.	The design of proposed project involve establishment of green belts and develop aesthetically crafted lawns around the project building to increase its aesthetic value.
6	Underground Sewer /Drinking Water Lines	
	Wires and pipelines lay open and above surface may consequently give rise to leakages, contamination and short circuits in the lines.	There will be no any such issue at the “M/S Haider Petroleum (Reclamation blending of used oil unit)” because water will be gained from ground. As per requirement water will be used from ground water.

5.4 Environmental Problems Associated With Project Construction Stage

Table 5.3 provides a detailed overview of the environmental aspects and subsequent environmental impacts that may arise during project construction phase. Appropriate mitigation measures are also proposed for the remedy of any such potential impacts.

Table 5.3: Environmental Impacts/Mitigation Measures during Construction Phase

	POTENTIAL IMPACTS	MITIGATION MEASURES
1.	Loss of Vegetation Cover / Biodiversity	
	Construction activity will involve excavation and removal of top soil. This may also lead to clearing of land for construction purpose which ultimately would mean that the respective area will be cleared of any sort of flora/fauna.	The proposed site has been selected after careful consideration of the land use, presence of biodiversity and other environmental parameters. Currently, there are no trees on the said location rather it is a vacant plot devoid of flora and or fauna. But to ensure aesthetic value, the proponent will plant trees once the construction phase is complete.

2.	Gaseous Emissions	
	Gaseous emissions including SO _x , NO _x , CO ₂ , lead and CO during construction phase. These gases are ozone depleting reagents. Besides, they also pose threat to human health.	EURO II quality fuel shall be used in the machineries, generators to avoid emission of lead. Vehicles, machineries with good conditions which fall on the quality standards shall be used to control the exhaust emission. Stake with scrubbers shall be provided to reduce emissions from the generators.
3.	Dust Emissions	
	Generation of dust and particulate matters is an issue that could arise due to construction activities.	The construction materials e.g. soil, clay would be covered appropriately. Instead of open and dry dumping, sprinkling of water in a quantity that reduces the chances of dust generation would be done. The workers would be provided safety gloves, masks and ear buds and wherever necessary goggles to avoid health complications.
4.	Noise Generation	
	Noise emissions due to transportation, movement of heavy materials, excavation, generators may create health nuisance for the workers and local community.	The working hours shall be limited to 08 in the morning till 05 in the evening to avoid noise during night shift. Vehicle maintenance would be ensured so that emissions of any sort, be it gaseous emissions of noise generation, would be controlled. The workers will be provided with ear plugs and other personal safety equipment to avoid invoking of any health issues.

5.	Solid Waste Generation Unplanned dumping of solid waste generation during construction phase can lead to blockage of roads, waterways and also create unaesthetic sight of the proposed location.	Solid waste generation quantity during construction phase shall be reused in construction activities rather than dumping. The solid waste during construction phase will consist most of soil, packaging materials, plastic bags, cloths, iron rods, and food leftovers. The organic portion of solid waste shall be collected by sanitary workers of that area.
6.	Wastewater Generation Unplanned wastewater disposal may contaminate the surface water channels, surface soil and depending upon the quantity of wastewater generated, it has a potential to contaminate the ground water aquifers.	Wastewater generation during construction phase shall be reused again for material making for construction phase and sprinkling of dust on soil. Domestic wastewater will not be there at the site because at site works will use surrounding washrooms like of Masjid etc.
7.	Accidental Spills Accidental spills of oil, fuel and lubricants can cause surface water contamination and surface soil contamination. It may also lead to fire hazards depending upon the quantity and nature of spills.	Accidental spills shall be avoided by following safe transportation rules which means that the loading and unloading of fuel, oil shall be carried carefully and under skilled supervision of the site in-charge at designated decks. Designated storage areas for fuel and oil storage for the excess fuel for generators shall be

		identified. The areas for storage of fuel shall be paved to avoid ground water contamination and/or soil contamination. No fire/ignitable materials shall be taken near and/or close to the fuels/oil to avoid fire incidents.
8.	Equipment Breakdown / Accidents	
	Accidents and/or emergency breakdown of the equipment/machineries/vehicles involved may create environmental, health and safety hazards.	This situation can be avoided by regular maintenance of the vehicles for quality assurance. Besides, equipment will be checked prior to operation to avoid accidents and human health danger due to such accidents.
9.	Soil Erosion	
	Loss of vegetation cover and trees may lead to soil erosion hence resulting in dust emission and loss of fertile land cover.	The construction activities shall be planned in a way that reduces the chances of vegetation cover loss and its consequent soil erosion issues. Soil erosions are due to wind and water. The proposed project is planned for construction during the coming months after Environmental Approval, which are dry and sunny. Hence, the probability of soil erosion due to natural factor will be negligible to none.
10	Social Impacts	
.	Problems regarding privacy of local community may arise due to invasion of construction workers.	Improper social behaviors e.g. staring and teasing shall be discouraged and any such incident will be reported to the site in-charge, proponents directly. Workers will be hired from the local community to avoid

		social issues.
11	Training and Awareness	
	Unskilled workers may create issues in attaining the overall health environment and safety policy.	Regular onsite and offsite training of the workers shall be conducted. Impromptu meetings and discussions with the site in-charge and daily wages workers will be done to resolve any issues that may create health safety and environmental problems during construction phase.

5.5 Environmental Problems Associated With Project Operations

Table 5.4 provides a detailed overview of the environmental aspects and subsequent environmental impacts that may arise during project operational phase. Appropriate mitigation measures are also proposed for the remedy of any such potential impacts.

Table 5.4: Environmental Impacts/Mitigation Measures during Operational Phase

	POTENTIAL IMPACTS	MITIGATION MEASURES
1.	<u>Solid Waste Management</u>	
	Improper and unplanned solid waste dumping can cause environment, health and safety issues. It also can potentially deteriorate the living quality of the residents besides reducing the aesthetic quality of this “M/S Haider Petroleum (Reclamation blending of used oil unit)” .	At the site, only solid waste will be domestic like paper, polythene bags etc. which will be collected by sanitary workers of that area.
2.	<u>Wastewater Disposal</u>	
	Wastewater generated due to domestic/commercial activities will result in the spread of vector borne diseases like dengue, malaria, as well as spread the	To tackle wastewater septic tank will be constructed. The wastewater will be of domestic nature and of cleaning etc.

	nuisance of foul smell.	
3.	Energy Conservation	
	Excessive use of energy will exert more pressure on the already dwindling energy resources of the city/country.	The workers/employees will be encouraged to follow energy conservation strategies developed during operational phase. Machineries and equipment will be kept in good maintained shape to avoid extra fuel consumption.
4.	Noise Generation	
	Noise emissions due to traffic and any activities will create issues to the residents.	Any activity that will lead to noise emission will be restricted to the outside of “M/S Haider Petroleum (Reclamation blending of used oil unit)”. All machinery will be fully grouted and equipped and keep in closed hall. So there will be no issue for then noise pollution at all at the project site.
5.	Emergency/Fire Hazards	
	Emergencies e.g. fire incidents may lead to environmental, health and safety issues to the local residents.	Emergency exits in the rooms have already been planned. Firefighting equipment will be provided and adequate trainings will be provided to tackle any situation of fire hazards. Call points at suitable locations will be installed
7.	Training of Staff	
	Unskilled personnel will not be able to tackle environmental, health and safety related situations which may further aggravate any such issues and cause loss	Regular training of the staff will be conducted. Proper monitoring and reporting mechanism will be developed where the

	of human life and property.	team will be responsible to communicate/report any illegal or hazardous situation to the team leader.
8.	Groundwater Consumption	
	The groundwater will be used for domestic at said project. Water storage will also be required for emergency response in case of a fire. Prolonged water consumption may in the long run lower/deplete the underground water table. This will be a permanent and moderate negative impact.	An effective 'Water Conservation Plan' will be developed and for domestic purpose water will be gained from ground water Following operational measures will be adopted for water conservation: • It will be made sure that all faucets, circulating pumps etc. do not leak and are in good repair; • Any leaking or dripping faucet, pump or toilet will be reported immediately; • All the utility bills will be kept in a safe place to track the consumption of water; and • Purchase and use of water-saving equipment will be practiced; • An effective residents' training program will be implemented about water conservation.
	Storage	
	During construction phase lubricants will be store in environment friendly conditions used for machinery for construction phase.	There will be separate tank and screw will be tight so that on need it will loose and make the intentionally all conditions environment friendly.

5.6 Potential Environmental Enhancement Measures

In order to enhance the environment the following measures will be adopted:

1. Trees will be planted within the premises to beauty the surrounding area.

2. A special budget will be designated for the environmental improvement of the environment on annual basis probably 0.1 million. The administration will be responsible for spending of this budget. The team leader will prepare the inventory of environmental improvement activities and communicate it with the rest of the team for implementation.

5.7 Occupancy

Adequate number of staff will be employed to maintain various facilities and activities related to environment and resource conservation e.g. water supply, electricity and other wastewater management, security, green areas, repair and associated infrastructures etc. some employees to be engaged for the maintenance and repair will also reside within the proposed project.

5.8 Additional Considerations

It is very importance to plan a project after evaluating its cumulative socio-environment and cultural impacts. The project is planned after keeping all the parameters of environment, health and safety for site identification, design, construction phase and operational phase. That's why the cumulative impacts of the project are negligible.

CHAPTER VI

ENVIRONMENTAL MANAGEMENT AND MONITORING PLAN

6.0 Background:

The purpose of developing this Environmental Management and Monitoring Plan (EMMP) is to provide a dynamic guideline to the concerned stakeholders to define details of who, what, where and when environmental management and mitigation measures are to be implemented besides providing the contractors and proponents better on-site environmental management control over the life of the project. The scope of this Environmental Management and Monitoring Plan includes the activities during construction as well as operational and eventually a decommission phase of the proposed project. However, to ensure the compatibility of the Environmental Management and Monitoring plan in accordance with the changing socio-cultural, economic and environmental factors, it would be used as a dynamic tool which means that the EMMP would undergo necessary modifications to keep catering to the changing environmental needs of the proposed project.

Table 6.1: Users of this EMMP would include but not be restricted to the following:

Sr. #	EMMP Elements	End Users
1	Background	All stakeholders – internal and external Community groups Approval or consent authority e.g. EPA Punjab
2	Environmental Management	The management and supervisory staff of “M/S Haider Petroleum (Reclamation blending of used oil unit)” , Gujranwala EPA Punjab
3	Implementation	The management and supervisory staff of “M/S Haider Petroleum (Reclamation blending of used oil unit)” , Gujranwala Community groups, EPA Punjab

4	Monitor and review	The management and supervisory staff of “M/S Haider Petroleum (Reclamation blending of used oil unit)” , Gujranwala and EPA Punjab
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6.1 EMMP Context:

Being an environment conscious and law abiding entity, commercial building has decided to identify, develop and implement an EMMP that identifies the environmental aspects of their project besides providing them a guideline to tackle any environmental issues that may arise in the future. Under the Punjab Environmental Protection Act, 1997 (Amended, 2012), conducting an IEE/EIA prior to commencement of a project is obligatory. This is further reinforced through the IEE/EIA Rules 2022. A more elaborated guideline for Environmental Report Writing further provides a step by step procedure for drafting of an IEE/EIA report. An Environmental Management and Monitoring Plan have been made a compulsory part of the IEE/EIA report under the same guidelines. It is for this reason that “M/S Haider Petroleum (Reclamation blending of used oil unit)”, Gujranwala has planned to meet pre-requisite of the Environmental Approval by drafting a meticulously planned EMMP.

6.2 EMMP Objective:

The objectives underlying the EMMP of “M/S Haider Petroleum (Reclamation blending of used oil unit)”, Gujranwala are:

1. To provide guideline to the management and supervisory staff for conducting their activities in an environmentally responsible manner
2. To mitigate potential risks during operational phase of the project
3. To coordinate with the responsible approval authorities regarding the environmental efforts
4. To identify roles and responsibilities for the implementation of EMMP
5. To meet the regulatory obligation put forth by Punjab Environmental Protection Act, 1997 (Amended 2012)

6.3 Environmental Policy

“M/S Haider Petroleum (Reclamation blending of used oil unit)”, Gujranwala strives for environmental reverence which is why it has devised its environmental policy stating vision of the company towards environmental conservation. Our policy is:

1. to provide a modern yet sustainable and environmental friendly working condition to its employees
2. conserve natural resources through adopting less waste policy
3. energy conservation through promoting environment friendly plant designs
4. to provide trainings to all employees to meet our environmental objectives

6.4 Environmental Management and Monitoring Plan Structure and Responsibility

Table 6.2: Roles and Responsibilities

Sr. #	Positions	Significance	Stage	Environmental Responsibilities
1	Proponent / Owner	Critical	Construction / Operations	• Oversee Environmental Policy and EMMP • Serve as primary contact to the regulatory authorities • Commit resources to achieve environmental objectives
2	All Employees	Critical	Construction / Operation	• Attend training and understand their roles in the implementation of EMMP • Understand the Environmental Policy / Objectives and act accordingly • Participate in the review of EMMP • Coordinate with the responsible authorities within the project to report any noncompliance to their Environmental Policy
3	Construction	Critical	Construction	• Understand the environmental policy of

	Supervisor			the project • Operate in accordance with the environmental policy • Ensure reducing solid waste generation • Reduce water and energy wastage • Ensure all machineries /equipment are in good conditions • Ensure health and safety of the workers during construction phase
4	Maintenance Manager	Critical	Construction / Operation	• Understand the environmental policy of the project • Operate in accordance with the environmental policy • Ensure reducing the chances of increased solid waste • Reduce water and energy wastage • Ensure health and safety of the workers during construction / operational phase • Provides health, safety and environmental awareness trainings to the staff
5	Administrative Person Deal with Environment Issues	Critical	Operational	• Understand the environmental policy of the project • Operate in accordance with the environmental policy • Ensure reducing the chances of increased solid waste • Reduce water and energy wastage • Ensure all machineries /equipment are in good conditions

				• Ensure health and safety of workers during operational phase • Receive health, safety and environmental awareness trainings • Prepare and maintain accidents/environmental risk records • Timely coordination with the responsible authority
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6.5 Environmental Management Plan for “M/S Haider Petroleum (Reclamation blending of used oil unit)”, Gujranwala

“M/S Haider Petroleum (Reclamation blending of used oil unit)”, Gujranwala believes in sustainable resource management which is why it has developed a comprehensive Environmental Management and Monitoring Plan for its construction as well as operational phase.

Table 6.3: Environmental Management Plan

Sr. #	Environm ental Element	Mitigation Measures to be taken during	
		Construction Phase	Operational Phase
1	Sewage	There will be no wastewater during construction phase. Wastewater of construction will be reused in construction practices like making construction material or sprinkling on dust etc. There would be no wastewater regarding domestic because workers will use surrounding	There would be wastewater only of domestic nature and of cleaning activities. Domestic wastewater will be managed by constructing septic tank.

		washrooms like of masjid etc.	
2	Civil water supply	It shall be ensured that no activity tempers with the civil water supply system in the area, if any.	It shall be ensured that no activity tempers with the civil water supply system in the area, if any.
3	Solid waste	- Solid waste from construction phase will be reused in construction making material. - Domestic solid waste will be dump at that point from where sanitary workers will collect it.	- During operational phase, solid waste will be only domestic. - The sanitary workers will collect the waste according to their guidelines and will dispose off according to them.
5	Noise	In order to avoid the nuisance of noise the project maintenance manager shall ensure the all vehicles, equipment, machineries used during construction phase are in good working condition. The working hours of the project construction activities shall be limited to day time only i.e. 08 in the morning till 05 in the evening.	There will be no noise issue at the project site because said project is “M/S Haider Petroleum (Reclamation blending of used oil unit)”, Gujranwala because machinery will be fully equipped and grouted and all system will be closed in the closed room. Thus, the factor for noise will be no issue at the project suite.
6	Gaseous emissions and	The electricity generator to run various construction machineries and equipment will	During operational phase, no activity is envisaged to take place which may generate dust of particulate matter of any significance.

	particulate matters / dust generation	produce gaseous emissions and particulate matters. Therefore, the generators will only during shutdown of power supply from WAPDA grid. Construction materials e.g. sand and clay will be transported to the construction site under cover to avoid any fugitive dust.	Under the control of the management all care will be taken to keep the activities environmentally sound and sustainable.
7	Traffic related problems	Traffic management will be done to avoid traffic stampede/congestion. Parking on the main roads and/or blocking public accessibility will be discouraged.	Enough space for car parking will be provided to avoid random vehicle parking on roads.
8	Floor sweepings	Floor sweepings will be disposed into the municipal bins allocated along the proposed project site.	Floor sweepings will be collected in bags and disposed of with solid waste which will be ultimately collected by sanitary workers of this area.
9	Trash burning	No trash burning will be allowed in or outside the buildings.	Trash burning will be discouraged within the premises of the project.
10	Dust	The construction materials with potential to create dust issues will be kept under cover. Sprinkling of water will be conducted to avoid dust generation.	The proposed project is planned in such a way to minimize generation of dust. Green belts will be watered to avoid the issues of desertification and soil erosion.
11	Environm		Environment quality enhancement measures

	ent quality enhancem ent measures		like flower pots, green belts, planting of trees will be provided around and in the "M/S Haider Petroleum (Reclamation blending of used oil unit)", Gujranwala. Vegetation on the green belts and decoration lights will be installed to improve the aesthetic quality of the "M/S Haider Petroleum (Reclamation blending of used oil unit)", Gujranwala. The proponent also intends to plants trees within the area to give the area a natural look.
12	Staff for environme ntal manageme nt plan	Special staff will be recruited to implement this Environmental Management Plan on regular basis.	Special staff will be recruited to implement this Environmental Management Plan on regular basis. Administration will be responsible for establishment of successful implementation of EMMP.
13	Reclamati on Oil Testing	Special staff will be recruited to implement this Environmental Management Plan on regular basis.	Before dispatching the oil for hydraulic purposes, the reclaimed oil testation is compulsory which ensure that oil will never reduce the efficiency of hydraulic system.
14	Direction of Fans	Special staff will be recruited to implement this Environmental Management Plan on regular basis.	Fans direction will be opposite to the community and main road.
15	Machinery auditing	Special staff will be recruited to implement this Environmental Management Plan on regular basis. For this purpose technical staff will be hired to ensure about machinery perfection.	Machinery will be checked before operation on daily basis before operation.

6.6 Environmental Monitoring Plan

Environmental monitoring will be undertaken in accordance with the requirements of the environmental authority (EPA, Punjab) to ensure compliance to the Punjab Environmental Quality Standards (PEQS) as and when required. Proponent has decided to spend 0.1 million PKR annually for sake of Environmental Budget.

Environmental monitoring will include parameters that will be mentioned in the Environmental Approval accorded by the Environmental Protection Agency, Punjab for its construction phase.

6.7 Institutional Arrangement

Administration under the supervision of the maintenance manager will report directly to the proponent. The administration will consist of skilled personnel with expertise in health, environment and safety issues. Roles and responsibilities for the implementation of EMMP are further explained earlier under the head Roles and Responsibilities.

6.7.1 Reporting

The proponent aims to provide timely, relevant and appropriately presented information to the concerned government authorities, local community surrounding the proposed project site on the environmental, health and safety performance of the project. The commitment would be met by record keeping and presenting it to the concerned authorities as and when required.

6.7.2 Staff Training

Staff training is important parameter that needs to be fulfilled adequately in order to ensure the successful implementation of environmental objectives. Keeping this fact under consideration, “M/S Haider Petroleum (Reclamation blending of used oil unit)” will ensure that the employees, contractors and workers receive appropriate environmental awareness training. This will be obtained through a variety of methods including training sessions, formal/informal meetings and discussion and formal presentations. Environmental awareness training would take place at various stages of the persons concerned with the proposed project. This would occur at the induction of any

new employee/contractor/workers and will be made a regular on-site feature. Records of training content and attendance will be maintained.

“M/S Haider Petroleum (Reclamation blending of used oil unit)” would require the persons involved during construction as well operational phase to be aware of following responsibilities and equipment, maintenance detail:

1. Their roles and responsibilities (including environmental incident reporting)
2. The environmental impacts (potential and actual) of their activities during construction and operation
3. Natural hazards such as earth quake and floods etc.
4. The potential consequence of poor environmental performance
5. Site emergency plans and their execution procedures

Table 6.4: Persons involved during constructional and operational phase to be aware of following responsibilities and equipment, maintenance detail:

#	Description	Responsibility	Who will be involved	Outcomes
1	Air Quality	Administration	All employees	• Better understanding of the health impacts associated with air pollution • Develop a monitoring and reporting system for air pollution • Third party involvement especially EPA approved labs will be decided under potentially harmful circumstances
2	SWM	Administration	Staff	• The staff will be trained to follow the principles of recycle, reuse, reduce and will be taught to follow solid waste segregation at source • Improved understating regarding

				health impacts associated with unplanned waste management • A monitoring and reporting system that would enable the supervisor to keep control of all unnecessary scattering
3	Wastewater	Administration	Employees but specific attention to the staff	• Improved understanding of the conservation techniques • Quality assurance through lab analysis if need be found • Overflow control in the drains through continuous cleaning
4	Noise	Administration	All employee	• Monitoring and reporting system for noise related issues if detected • Appropriate measures would be identified and implemented • Guidance to the employee on adopting good practices for noise and any other practice that otherwise could lead to environmental nuisance.
5	Firefighting	Administration	All employee	• Improved understanding of keeping a tab on all potential threats that could lead to fire hazards • Understanding on how to use the firefighting equipment • Understanding regarding emergency exits and use of fire point
6	Landscaping	Administration	Staff	• Improved efforts for maintaining the green belts and tree plantations

7	Accidental Spills	Administration	All staff	Improved understanding regarding how to react during minor and major spills according to the measures identified
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6.8 Environmental Audits and Reviews

“M/S Haider Petroleum (Reclamation blending of used oil unit)”, Gujranwala will ensure conducting environmental audits to assess compliance with the conditions set under the environmental legislation and those mentioned by the EPA, Punjab during grant of Environmental Approvals. The objective of the environmental audit and review is to monitor and report both compliance and non-compliance with the statutes, EMMP and the conditions set under Environmental Approval. This would be done for both the construction as well as operational phase of the proposed project under the supervision of the administration.

6.9 Public Consultation

Social survey was held with the surroundings from the project area. They are pro project. They were of the view that the project will bring new income opportunities for the surrounding community ultimately helping in the reduction of poverty in the area to a greater extent.

Emphasis was placed on surrounding awareness and perception about the proposed project. This was an important component of the entire study as social assessments are complementary part of environmental assessment. By and large, the people of the proposed project area are well aware of the project and can well anticipate the activities that would entail once the project enters its construction and operational phase. All of the respondents who participated in the public consultation process welcomed the proposed project considering it beneficial both economically and socially. According to their point of views, the proposed project would be really beneficial by providing medical facilities. People foresee this project as a positive precursor that would give rise to employment

opportunities and small vendor's activities during construction phase. No opposition from the public was confronted for the project.

6.10 Compensation in Money Terms

The said project is situated in "M/S Haider Petroleum (Reclamation blending of used oil unit)", Gujranwala where already in surrounding agricultural activities are going on. There will be no cutting of flora and no harm to fauna by this proposed project. There is no any structure or residence which will be damaged by proposed project so there will be no need for money compensation. Proposed project is environment friendly. Said project is an open plot and within the premises where already industrial activities like of textile etc. are going on.

6.11 Replacement, Relocation and Rehabilitation

Proposed project will be done on the open plot where there is neither any population nor any structure. So there will be no need for replacement, relocation and rehabilitation of said project. This will come in operational here and will work here in environment friendly manners.

CHAPTER VII

CONCLUSIONS AND RECOMMENDATIONS

Title of proposed project is “M/S Haider Petroleum (Reclamation blending of used oil unit)”, Gujranwala. The project falls under Schedule-II (List of projects requiring an EIA). The project requires an Environmental Impact Assessment (EIA). In order to ensure compliance with the lawful provision of section 12 of PEPA 1997 (Amended 2012) read with IEE/EIA Regulations 2022, the Environmental Impact Assessment (EIA) Report has been prepared and is being filed to the Environmental Protection Agency, Lahore for issuance of environmental approval.

Accordingly, this EIA Report describes social, environmental, physical and other relevant aspects of the project during pre-construction, construction and post construction stage and at its regular occupancy. The report also specifies necessary measures to be adopted for mitigation of environmental impact on the environment. It also provides information as desired under the format used for the preparation of this EIA Report.

However, the environmental aspects and impacts associated with construction and operational phase have been considered. All infrastructure e.g., sewerage, water supply, electric supply, gas etc. already exist in the proposed project area. The project will be an environmental friendly site after its completion. Septic tank will be provided in the site premises for the treatment of domestic wastewater. Total solid waste generated from the project will comprise mainly of paper, food waste and domestic solid waste like etc. The project will have its own administration set up for environmental monitoring and maintenance of site both during construction and operation stage. In order to handle fire hazards, fire hydrants and sprinklers will be provided at many locations within the premises.

The baseline study has been conducted reviewing the available literature. The overall impact of the project can be considered positive. However, it may pose some minor and moderate negative social which will be temporary and environmental impacts which will require proper mitigation measures.

Handling and disposal of construction waste, increase in noise level, air quality, traffic disruption and disturbance to people, workers safety, sanitation and solid waste disposal

and effects on social life are vital factors during the construction stage that will require necessary mitigation measures which have been proposed in the report of this report. Responsibility for each of the mitigation has also been given in the report.

Construction of the project that is “M/S Haider Petroleum (Reclamation blending of used oil unit)”, Gujranwala will be a labor intensive process and will create employment opportunities for the local people. At the operational stage, traffic management, wastewater and solid waste generation, and emergency response are the significant impacts that need to be managed. Mitigation measures and their responsibility for each of the mitigation have been given in the report. Emergency Response Plan will be developed and adequate measures to reduce, reuse and recycle paper waste will be adopted. The proposed mitigation measures will be strictly implemented to save the environment.

For the effective implementation and management of the proposed mitigation measures, an outline Environmental Management and Monitoring Plan (EMMP) has been developed.

The aim of constructing “M/S Haider Petroleum (Reclamation blending of used oil unit)”, Gujranwala is to create an environment friendly design which should be kind to nature, healthy and sympathetic to the life style of its occupants.

- Energy Efficiency
- Water Conservation
- Use of Local Building Materials
- Materials will be used that permit the building membrane to 'breathe'.

7.1 Conclusion

In view of the above it has been concluded that said project which is a “M/S Haider Petroleum (Reclamation blending of used oil unit)”, Gujranwala is environmentally friendly with sustainable design and has no adverse effects on environment. It is therefore requested to issue the environmental approval under section 12 of PEPA 1997 (Amended 2012) for the construction and operation of the said project.

7.2 RECOMMENDATIONS

The Environmental Impact Assessment (EIA) study and survey results are finally evaluated to recommend the following:

- The present EIA Report of “M/S Haider Petroleum (Reclamation blending of used oil unit)” , Gujranwala meets the administrative and legal framework of the EPA Punjab.
- Implementation of EMP must be given top priority.
- During construction phase Create environmental awareness amongst the workers by training.
- Provide guidance to workers on use of PPEs and also make it compulsory for them to use PPEs during construction.
- Installation of fire extinguishers in the premises.
- Use of equipment with low operating noise levels within PEQS limits and regular monitoring of machines used during construction phase.