EXECUTIVE SUMMARY

INTRODUCTION

This executive summary presents an overview of the main findings of the Environmental Impact Assessment (EIA) report for M/s Al Badar Engineering Company (PVT) Limited. The project is in operational phase the client is intended to take environmental approval. The project proponent is working on the safety and sustainable development of the project. To enhance its function he is going to install wastewater treatment plant and some minor changes to renovate industry. As the project is operational the proponent was fined because of the violation of section 12&16 under 1997 Act (Amended 2012). The proponent have paid the fine. The copy of the verdict and paid fee challan have been annexed with this report. Further details of the project are given below:

SALIENT FEATURES OF PROJECT

1.	Project title	M/s Al-Badar Engineering (Pvt) Limited
2.	Location	25-Km Lahore Sheikhpura Road, Sheikhpura.
3.	District	Sheikhpura
4.	Name of proponent	Mr. Mushtaq Butt
5.	Address	
6.	Area of the project	Total area of plot = 269316 SFT
6.	Type and category of project	Schedule II (EIA) – (PROPOSED PROJECT)
7.	Nature Of project	Project is duly aimed for the manufacturing of motorcycle Auto Parts

8.	Availability of resources	Transportation, electricity, gas, water supplies are available at Project area.
9.	Source of electricity	WAPDA
10.	Manpower requirement	Over all staff working in the industry are approximately 300
11.	Water requirement	The whole project will require about 700gallons of water per day for the all manufacturing and processing of the auto parts.
12.	Solid waste and its management	Nature of solid waste could be the iron scraps, aluminum that will be reused for further process. If not useable than sold to open market.
13.	Wastewater and its treatment in proposed project	Domestic wastewater and process waste water. Domestic waste water is being treated by septic tank and process waste water is being treated by settling tank at current. But process waste water will be treated by the proper waste water treatment technology. The design with technical drawing is attached herewith annexed.
14.	Material Safety Data Sheet	Material safety data sheet will be posted on prominent locations for proper use, disposal, handling and transportation of each material site. Further the MSDS are attached herewith annexed

Title and Location of Project:

The project Al-Badar Engineering is located at 25-Km Lahore Sheikhpura road, District Sheikhpura.

Total area of plot = 269316 SFT

About Proponent

Name of Proponent:

Mr. Muhammad Mushtaq Butt is the proponent for proposed project.

Address of Proponent:

Environmental Consultants:

An Environmental Impacts Assessment (EIA) study report has been prepared to identify and predict the significant environmental impacts likely to arise from the commencement of the proposed project along with environmental impact statement followed by delineation of appropriate Environmental Management Plan and Environmental Monitoring Plan to check the implementation of the EMMP. Proponent of said project has decided to conduct EIA report through environmental consultants.

Postal address: Enviro Sustainment (Pvt) Limited. 32-A, 1st Floor, Aftab Ahmed Khan Road, Jail Road, Lahore.

Contact Numbers: +92-313-6584457, +92-331-4950609

Email Address: istaqlal386@gmail.com,

A Brief Outline of Proposal

The project is about all about making and manufacturing of motorcycles auto parts. These auto parts include rim, clutch, shocks, break, footrests etc. the project is manufacturing and processing including electroplating of the auto parts by automatic system. The manual handling of the parts is not being done. The project process is solely made for the integration of the auto system to reduce the risk of the hazardous.

The project is meant and working in the safe manner by keeping in mind the security of the workers and the operation system of the unit. The project is employing approximately 300 workers including permanent and daily wages staff. Industrial unit is providing the safety measures to all the staff at each place of working to reduce the risk of any accident or incident. The structure and function of the industry including building structure and machinery are working on sustainability approach by adopting clean development mechanism to reduce the efforts by maximum output. Moreover the machineries are working on energy efficient principle by not reducing emission, and less sound.

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 project construction and operation related likely environmental impacts of the project.

The expected impacts during construction phase of the project are being managed and well monitored to keep the activity in safe manners to reduce the impacts of construction on environment. As the project is in operation phase all measures related to environmental management and monitoring is being done to ensure the safety of the workers and the environment by implementing and adopting safe measure to improve the environmental health and the health of the workers. In the chapters environmental management and monitoring plan is discussed in detail.

The general approach to Environmental Management Plan for the Project, for the operational phase 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 proposed site has been conducted for ambient air, noise, water and waste water and the reports demonstrated that results are within the limits prescribed by PEQS (2016). The detail of these parameters is 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. Further the proponent have taken many initiatives to improve the health of the environment and safety measures by strongly implementation in industry. The worker are duly addressed to work in safe manners by protecting their self by gear-up with PPEs. The worker if does not follow the rules and regulation or safety measures the fined for the violation of the act.

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.

The main key persons involved in finalizing EIA report are following;

Mr. Istaqlal Haider	**Ms. Aziz Fatima Khan**	
Environmentalist	Environmentalist	Environmentalist

For the Proponent

I have reviewed the project EIA report and found the contents to be valid and true to the best of my knowledge and belief.

_____

Mr. Muhammad Mushtaq Butt
Proponent
M/s Al-Badar Engineering (Pvt) Limited, Sheikhpura

LIST OF ANNEXURE

TABLE OF CONTENTS

CHAPTER 1: INTRODUCTION

General

The proponent is intends to work for the safety and security of the nature by improving the national assets. The input of raw material in any manufacturing or processing industry will provide benefits to many stakeholders that will finally input the national income improvement after feeding many workers.

Al Badar Engineering Company (Pvt) Ltd has been producing quality products and specialized items for automotive sector of Pakistan since 1989. The company has established an iconic reputation among its national and international customers by providing them highly advanced and technologically latest automotive parts with sheer excellence and vigilance. Its highly trained professionals, staff members under the guidance of top management, aim to ensure such brilliance by expanding company's business around the globe in near future.

Al Badar Engineering Company (Pvt) Ltd has already obtained ISO 9001-2008 certification (Certificates aattached), which provides confidence to its customers and it is also a benchmark for the organization in broader spectrum of business.

Al Badar manufacturing plants, covering areas of 27000 sqr meter, possesses state of the art technology of manufacturing motorcycle shock absorbers, motorcycle rim manufacturing, Electroplating, forging and these facilities bring **Al Badar** far ahead than its contemporaries. Its sophisticated research and development department provides matchless activities to understand the stimulated demands of market by every passing day. Undoubtedly, **Al Badar** is considered as an epitome of excellence among the Automotive parts manufacturers industry of Pakistan.

Purpose of the Report:

The report has been prepared to confirm the legal requirement of the Punjab environmental protection act 1997 (amended 2012) which states that no persons or proponent of a project shall start its construction or operation ….prior to obtain NOC from EPA Punjab. The proponent is trying to achieve the sustainably of the environment and product. The proponent was not aware of the Punjab EPA act. If he was he must comply the rules and regulation according to the described jurisdiction of the Law.

The project proponent has been issued EPO and fined. The penalty was paid by the proponent and the copy of the paid challan and verdict by honorable Environmental Tribunal is attached herewith annexed.

Identification of Proponent

Contact Person: Mr. Nasir
Address: 25-Km Lahore Sheikhpura Road, Sheikhpura.

Environmental Consultants:

The EIA has been carried out by aptly skilled and duly qualified group of professionals working for the consulting Services namely Enviro Sustainment (Pvt) Limited. The consulting team can be approached through the following contact details.

Postal address: Enviro Sustainment (Pvt) Limited. 32-A, 1st Floor, Aftab Ahmed Khan Road, Jail Road, Lahore.

Contact Numbers: +92-313-6584457, +92-331-4950609

Email Address: Istaqlal386@gmail.com

1.4 Nature and Size of Project

Said project is "M/s Al-Badar Engineering (Pvt) Limited" situated in Sheikhpura. Total area of plot approximately 270000 SFT. The project is intended to manufacturing, assembling of motorcycle Autospares parts. The cost of the project is approximately 50 million.

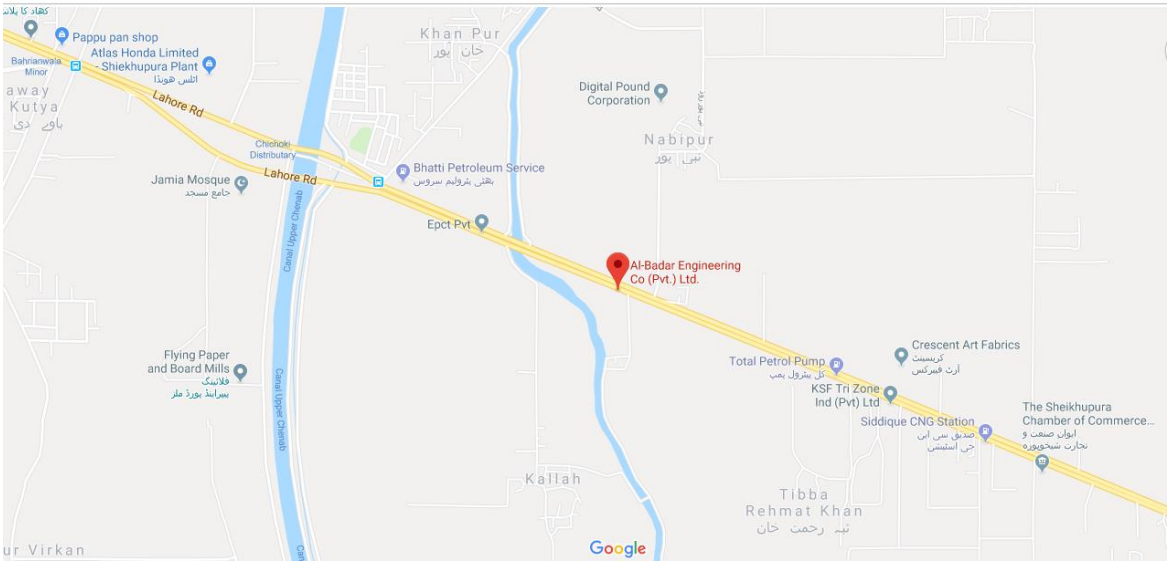
1.5 Eco-Friendly Features of the Project

1.5.1 Green technology

The technology used in the proposed project is categorized under clean and efficient which will eventually improve the quality of local environment. The proponent is working on the principle of clean development mechanism and Sustainable development goals. The project proponent has state of art machinery with sound proof or less sound and less generation of emissions. As there is no any jind of emission source in the industry except the effluent water. That currently being treated by settling tank and recovering material to again input in the process. The proponent is committed to install waste water treatment plant to zero effluents.

1.6 Location

The proposed project is located at 25-Km Lahore Sheikhpura Road, District Sheikhpura.

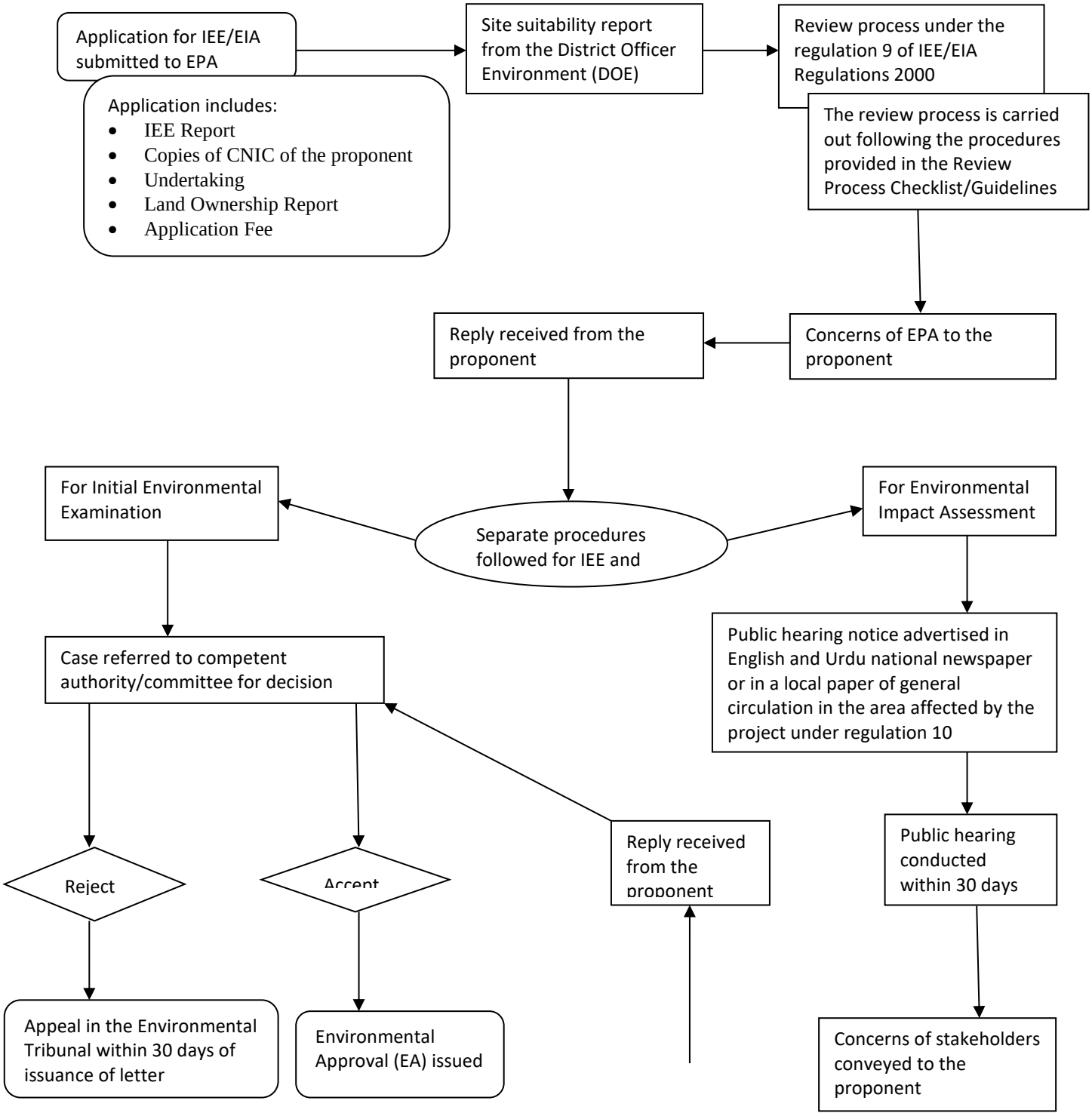


Location of the Project

1.7 Extent/scope of EIA Study

This EIA report has been conducted in accordance with the requirements of PEPA, 1997 (amended 2012), IEE/EIA regulations 2000 as well as section 2.3 of the guidelines for the perpetration and review of environmental reports, November 1997/2000. 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.

Figure 1.1: EIA Process Flowchart



The format of this EIA covers the followings:

1.8 Structure of the Report

EIA report comprises following chapters:

The format of this EIA covers the followings:

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

CHAPTER 2: DESCRIPTION OF THE PROJECT

2.1 Type and Category of Project

According to projects categorization for environmental assessment studies, the project that is "M/s Al-Badar Engineering (Pvt) Limited, Sheikhpura" falls under the projects in Schedule II of IEE/EIA regulations, the project is considered in Environmental Impact assessment (EIA). The project is consider in EIA because of the cost and severity of the project nature, as the project involves chemical input for the processing and manufacturing, assembling and testing.

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.

2.2 Mission

- Through the efficient, facilitative and cordial interaction with the public, and in collaboration with other relevant agencies, to reduce the adverse effects. To protect the health and safety of people, animals and environment by enhancing research and development.

2.3 Objectives of the Project:

The proposed project intends to generate revenues to the proponent as well as to the economic structure of the country, provide a safe, efficient, reliable and quality ensured products.

- To manufacture good quality of product to improve the input in national economy
- To improve the quality life of the people
- To provide job opportunity to boost the personal income of the individual
- To improve and upgrade the socio-Economic condition of the area
- Environmental conservation through effective management and monitoring plans

2.4 Alternatives Considerations

During the project implementation the proponent had considered many sites but the availability of the resources and land availability make the project construction here at the current location.

2.4.1 Road access and other basic infrastructure

Basic infrastructure i.e. road network for transportation of material and goods, products, water, power, telecommunication etc were available at the project site. The availability o the road infrastructure and other facilities make the project site feasible for construction and operation.

2.4.2 Availability of Man Power

One of the most suitable option for the project erection is the availability of the labor at the project site. The skilled worker and cheap labor is available at the project site that make it suitable for the project implementation.

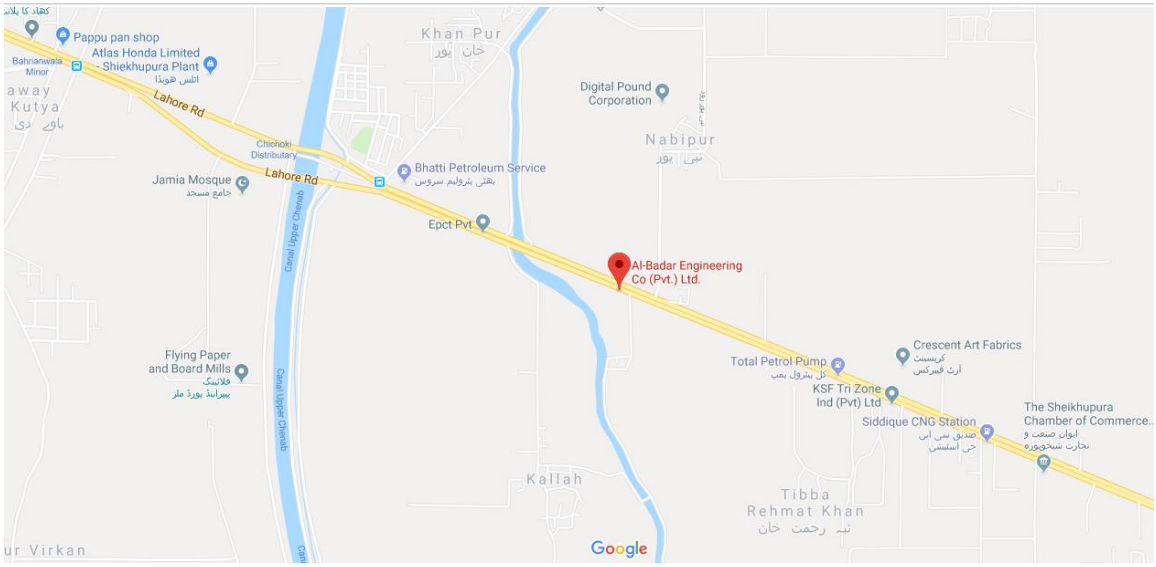
2.4.3 Market Competition

One of the most suited computability for the project manufactured product is the availability of the vendors buyers and product sales and purchase. The site is good with the infrastructure and development. The strategic approach was to sell product to mega brands like Honda. The Honda is now the client of the proponent company.

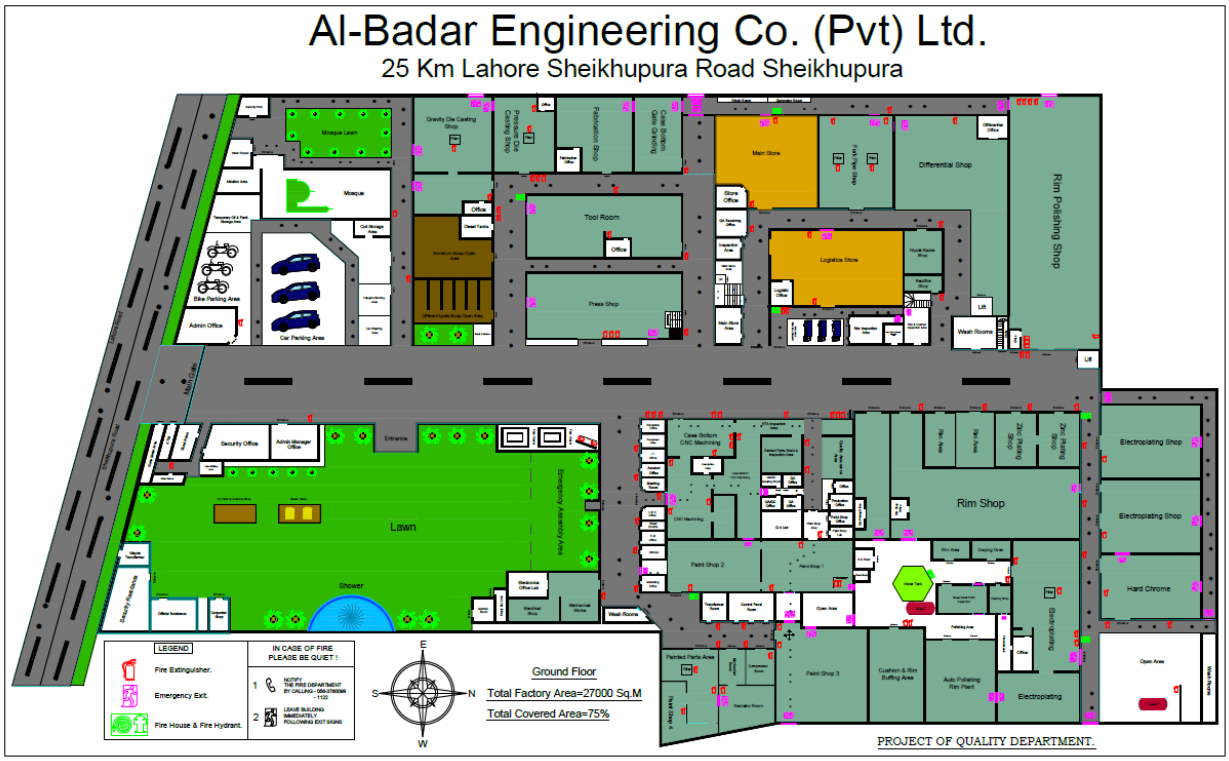
Considering all the factors for the implementation of the project, all necessary facilities are available for the project erection to operation phase. That's the site was considered suitable.

2.5 Location Plan/Map

The project is M/S Al-Badar Engineering (Pvt) Limited Sheikhpura is located at 25-Km, Lahore Sheikhpura Road, Sheikhpura.



Location Plan



Lay Out plan of the Project

Land use on the site

At present, most of the Project area is in operation phase.

2.6 Road Access

The project is connected to main Lahore Sheikhpura road. The site is easily accessible from main road, rest of city and markets of Sheikhpura and Lahore along with other cities..

2.7 Vegetation Feature on the site

Project site is developed with well lawns and trees and plants of native flora have been planted at the project site to beautify the aesthetic beauty of the project. The proponent is committed to plant more trees for the conservation of nature and natural resources.

2.8 Cost and Magnitude of operation and Associated Activities

The project total cast is less than 50million. The area of he project implementation is approximately 270000sqft. The project is about manufacturing of auto parts for motorcycle including assembling, manufacturing, pressing and plating of the parts.

2.9 Proposed Schedule of Implementation

The project have been implemented. But some of the arrangements for the construction wastewater treatment plant and small renovation in some unit.

2.10 EIA Report Process

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).

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. Necessary mitigation measures are recommended in the report to make the proposed project Environment Friendly.

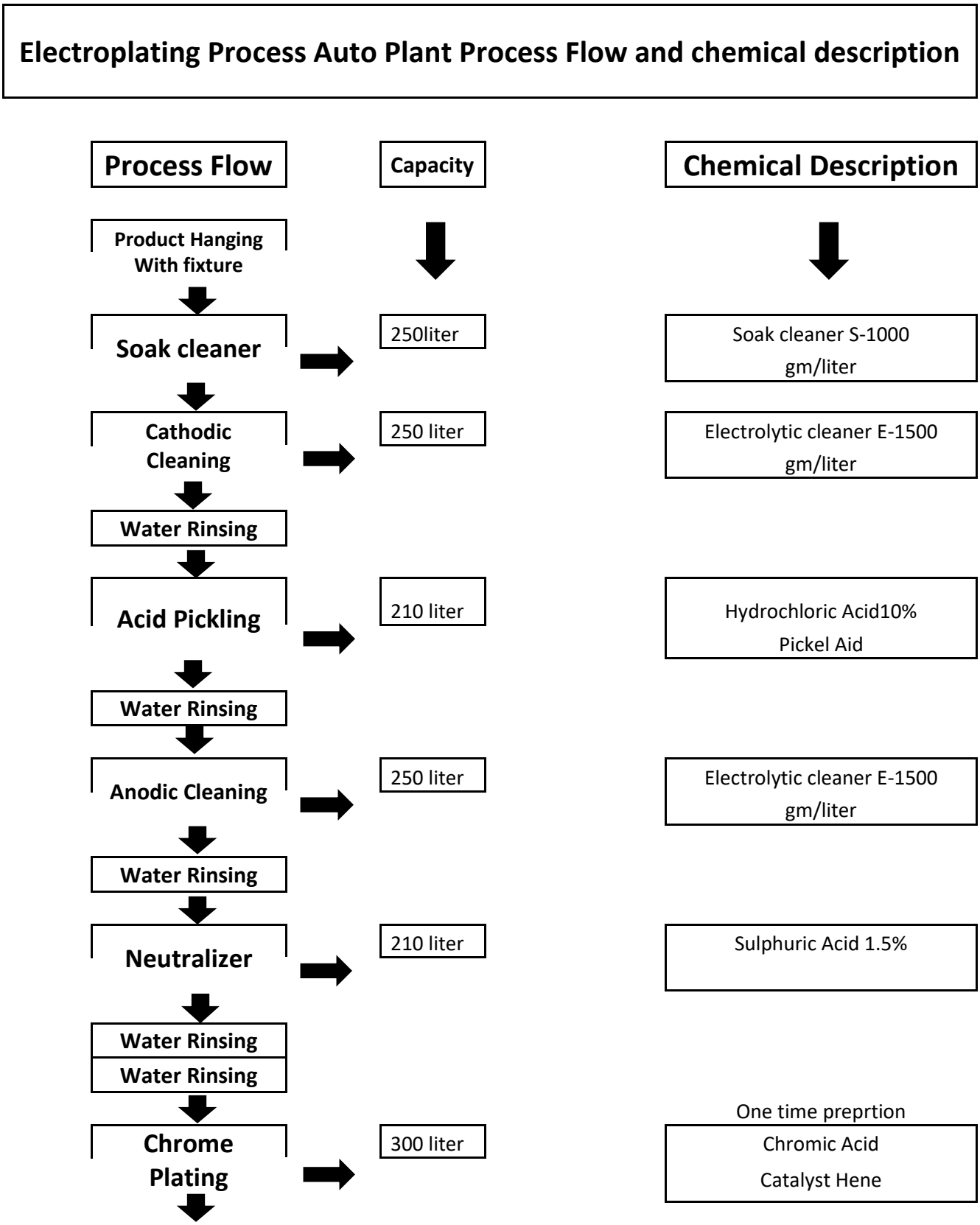
Environmental Management Plan identifies monitoring needs and implementation on Environmental Management Plan is also recommended. The EIA concludes that the proposed project have indicated that there are no significant environmental impacts associated with the construction and operation phase of the project, if the anticipated impacts are properly mitigated; therefore, no further EIA study is required.

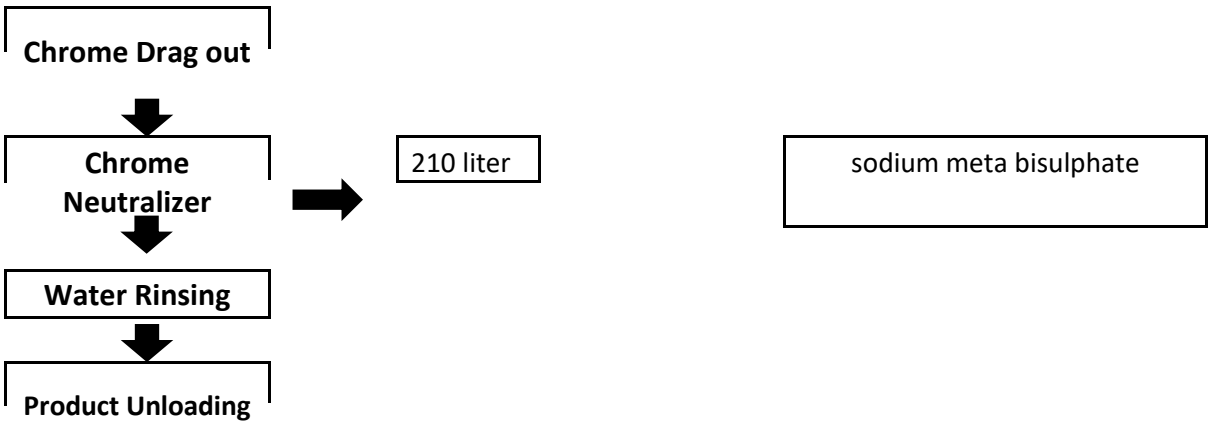
2.11 Description of the project:

The project involves following process

- CNC Shop
- Paint Shop
- Press Shop
- Rim Plant
- Nipple / Spoke
- Electroplating
- Research & Development
- Quality Control
- Human Resource
- Centerless Grinding /Front Fork Pipe
- Steering Stem Shop
- Shock Assembly
- Brake Pedal / Kick Arm Shop
- Forging Gravity Die Casting

Process Flow diagram





Process Flow Diagram

The List Of Chemicals

SR#	ITEMS NAME	SR#	ITEMS NAME
1	TRICHROME HB 1706	46	NAF CHEMICAL
2	CHROME FUME SUPERSENT 5010	47	METAL COAT T1
3	SEALING LACQUER JC-2050	48	ABREASIVE BEAD DIA 4MM
4	IEL SPECTRA 977T	49	ABREASIVE BEAD RESIN 30*30MM
5	IEL NICKEL LEVLER 247L	50	ABRASIVE POLISHING BRIGHTNER
6	IEL NICKEL WATTER 787W	51	ABRASIVE POLISHING CLEANER
7	IEL SOAK CLEANER S-100	52	THINNER STOVING MCT KANSAI
8	IEL NICKEL PURIFIER	53	THINNER EPOCY KANSAI
9	SODA ASH	54	PAINT RED 219829 BERGER
10	CAUSTIC SODA	55	PAINT ACRYLIC LACQUER 371520 BERGER
11	CYANIDE ZINC BRGHITNER	56	VARNISH MH CLEAR 9900 BUXLY
12	HYDROGEN PER OXIDE 50%	57	ABS CONVERTER BURGER
13	JIGGS INSULATION COMPOUND	58	PAINT VARNI GREY
14	CHROMIC ACID	59	PAINT STOVING ORANGE
15	HYDROFLOURIC ACID	60	METHYLENE CHALORIDE
16	ZZ-203 FOR BOILER	61	METAPHOSE CIM
17	NITRIC ACID	62	META CLEAN CIM
18	ZZ-202 FOR BIOLER	63	META CLEAN 925-L
19	GENESYS LF-60	64	METACLEAN 2325

20	GENSOL 30	65	META CHROME 3
21	WR 862	66	ADDITIVE 43L
22		67	SODIUM BI CARBONATE
			DOCTOR
23		68	SOLUTION
	NICKEL WETTER		
24	787W	69	SODIUM META BI SULPHITE
25	NICKEL WETTER 787WA	70	POTASSIUM PER MAGANATE
	NICKEL PLATING		POTASSIUM
26	CHIPS	71	NITRITE
27	ZINC OXIDE	72	CITRIC ACID
			BARIUM
28	PICKEL AID	73	CHLORIDE
			LACQUER
29	NICKEL PURIFIER CN 1090	74	AMMONIA
	CATLYST HENE		
30	PART 1	75	COVER FLUXE
	CATALYST HENE		
31	PART 2	76	PLUNGER DRESSER
	ELECTROLYTIC CLEANER		DIE COAT
32	E-1500	77	GRAPHACE
	SOAK CLEANER		
33	S-1000	78	DEGASSER
			CARBON PWDER
34	DENICKEL SALT	79	BDH
	DEGREASING		
35	SURFACTANT	80	ZINC YELLOW PASSIVATION
	NICKLE		BARIUM
36	CHLORIDE	81	HYDROXIDE
37	BORIC ACID		
	SODIUM		
38	CYANIDE		
	NICKEL LEVLER		
39	247		
	NICKEL		
40	SULPHATE		
41	ACIDE ZINC MAKEUP 475M		
	ACID ZINC BRIGHTNER		
42	475R		
43	ACID ZINC WETTER 475 S		
44	ZINC CHLORIDE		
	POTASSIUM		
45	CHLORIDE		

The list of the products

- Differential Assy Complete
- Front shoks
- Rim wheels

- Steering stem Complete
- Arm kick start CD 70
- Front shock absorber
- Spanner
- Spoke and nipple
- Brake and padle
- Case damper rear shock
- Case rear cushion bottom
- Case rear cushion upper
- Cover bottom case
- Eye bolt
- Flg, B-Exh
- Front fork Pipe
- Front fork upper cover

Emergency Response Plan

All necessary measure have been taken to combat with fire or any emergency. Proper drilling of the emergency plan have been done on monthly basis. The detail is attached herewith annexed.

2.12 Water Requirement

The whole project will require about 7500 liters of water during operational phase. The surplus water need is estimated to meet any unforeseen situation. This will be extracted from the underground. Water demand for various uses has been estimated on the basis of

WASA specifications. Underground water storage tank will be constructed. Water will be required for domestic only. Water requirement for maintenance of green belts and parks is estimated at 5 gallon per square foot per day. In order to meet the water demand of this proposed, 01 water storage tanks will be installed. Ground water is being used for the manufacturing process. The processed water is reused by settling tanks. The water reused again and again to reduce the pumping of water.

2.13 Solid Waste Management

The solid waste is in nature of iron or aluminum pieces or packing materials for the products. The hard pices are being used recycled for again production. However, solid waste generated due to human activities of 30-35 persons will be 4-5 kg/WEEK which will be disposed of using the current solid waste management and disposal services. Proper waste bins or being used to recycle the solid waste.

2.14 Wastewater Generation and Disposal

The domestic wastewater during operation phase is being treated by septic tank in seprate system. The process waste is being treated by settling tank technology. But the proper waste water treatment plant is under consideration. The objective to install the waste ater treatment plant to recovery of the material to make it possible to reduce the input material. Proper design and its technical specification will be provided.

2.15 Monitoring System:

Visual inspection will be done on regular basis. Machinery will be checked before and during working as per daily process. For the monitoring of the PEQS 2016, the proponent has done monitoring on its own behalf to improve the standards and prove the quality maintenance of the unit.

2.16 Energy Demand

The energy demand is fulfilled by WAPDA. The standby generator will be 100kv

2.17 Manpower Required

The man power in operational phase with working capacity is approximately 300 persons in three shifts. Thus the project is source of employment for economic development activities of the area.

2.18 Safety Measures

Emergency exits at project site have already been planned. Firefighting equipment including Water and Mud Fire Extinguishers, fire alarm, water sprinklers, heat detector, first Aid box, smoke masks, breathing apparatus, safety goggles, and sand bucket is installed. Adequate trainings including HSE training is being managed and done by company on monthly basis. Safety signs and other necessary equipments are displayed including safety instruction in each cell.

2.19 Emergency preparedness plan

General

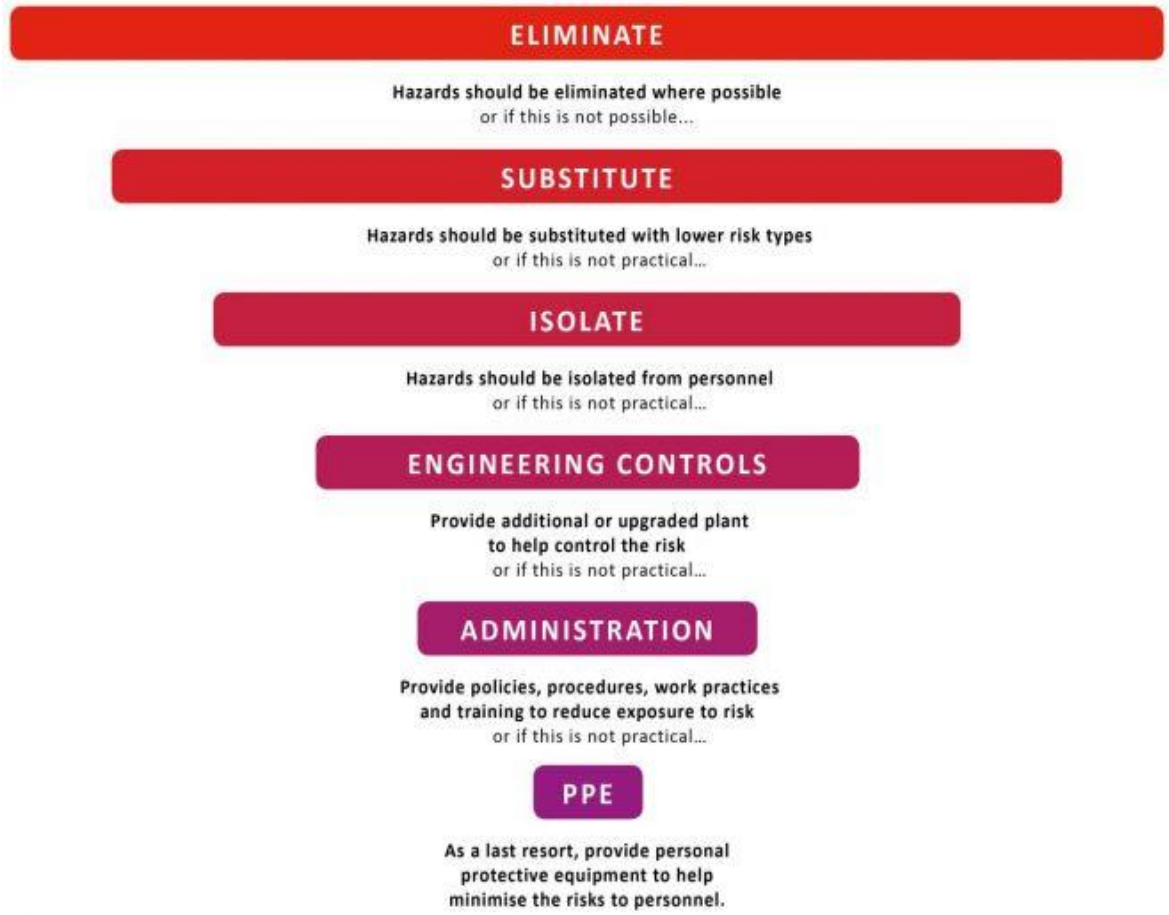
Designing safety at Project Site

When designing and implementing scheme, or when upgrading a system, we need to carefully consider the required standard of workplace health and safety, and the scope of work necessary to achieve that standard. This means understanding the relevant legislation, building codes and the requirements of the insurer.

Planning ahead to control risks

A general approach taken to minimize workplace risks involves planning ahead to prevent workplace accidents, injuries and illnesses. We do this by ensuring that systems of work are safe and that equipment is properly maintained. Employees must receive health and safety information, training and appropriate supervision.

This approach is usually expressed through a hierarchy of controls:



Fire and smoke control

We need to detect fires as early as possible, prevent them from spreading, alert all personnel, and provide safe and well-lit means of evacuation as soon as possible. A holistic fire protection system needs to attend to the full range of passive measures (e.g. fire-rated construction materials and methods), active measures (e.g. sprinklers, venting, fire-fighting equipment) and operational measures (e.g. plans, systems and training for fire prevention and response).

2.20 Emissions Control System

Whole system is systemized and in closed halls. Thus question for emission from the project activities is nil.

2.21 Restoration and Rehabilitation Plan

Said project is an open land and there is no population and sensitive area. Flora is present away from the project location even wild flora like kekar is also not present at project site and also there is also no fauna and any type of endangered species present near project site. So there will be no harm for any type of vegetation and fauna. And thus the project is totally environmental friendly.

2.22Government Approvals

Said project is applying for necessary approval from EPA, Punjab, some other government approval, registration certificates, ISO certification is attached herewith annexed.

Green Belt and Environmental Budget

A special budget of PKR 50,000/- is being designated for the environmental improvement of the environment on annual basis. Trees has been planted around of trees indigenous flora and fruits trees have also been planted in the project area. Further the proponent Is also planting tree on annually. Proponent is maintaining its own garden and nursery to uplift the environmental and aesthetic beauty.

CHPTER NO 3: 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 Initial 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.

3.1.1 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).

3.1.2 Institutional Setup

3.2 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 EIA 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 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.

3.4 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.

3.5 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 2016.

Provincial Environmental Protection Departments are also working on the formulation and enforcement of environmental statutes and by-laws. The Pak EPA has issued several policies guidelines and adopted measures for streamlining the environmental assessment. Though, the need for environmental screening and assessment has received some weight during the recent past, strict implementation of the PEQS is still a dream to be realized. The applicable laws for the environmental study of the Project are briefly described below:

3.6 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.

3.7 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 Initial Environmental Examination(IEE)or 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 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.

3.8 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.

3.9 Review of IEE / EIA Regulations 2000

The Pak EPA has issued Review of the Initial Environmental Examination and Environmental Impact Assessment Regulations 2000, to review the Initial Environmental Examination (IEE) / 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.

3.10 Guidelines for the Preparation of IEE/EIA Reports

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

3.11 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.

3.12 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".

3.13 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.

3.14 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 IV: BASELINE DATA & ENVIRONMENTAL PROFILE

4.1 GENERAL

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

4.2 PHYSICAL ENVIRONMENT

The study examines the physical resources, topography, soil, climate, surface and ground water and geology 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 Sheikhpura city and the project site is present in the following sub sections.

4.3 Geological Formation

The soil of the Sheikhpura belongs to the typical alluvium of the Indo-Gangetic plains. The majority of the soils are loamy or sandy loam consisting of soil crust of different depths. Hardly any profile characteristics are observed; soluble soils are present in considerable amounts. The lower layer consists of kankar nodules. The soils have generally an alkaline reaction and are adequately supplied by phosphorus and potash, but are deficient in organic matter and nitrogen.

Geologically the alluvium is divided into khaddar, i.e., the newer alluvium of sandy generally light colored and of less concretionary composition; and Bhangar, i.e., the older alluvium of the more clayey composition, generally of dark appearance and full of kankar.

The soil differs in consistency from drift sand to loam and from fin silt to stiff clay. A few occasional pebble beds are also present. Layers of kankar in the Indo-Gangetic alluvium of the district are also observed.

4.4 Climate

The Climate of Sheikhpura is tropical. It is very healthy and salubrious. Except of few months of summer, Sheikhpura is a suitable place to live.

The people of Sheikhpura have to experience extremes of temperature. The summers are really hot and the winters are very cold. There are three main seasons in Sheikhpura, namely, summer, winter and rainy season. During the summers Sheikhpura experiences heat waves.

Table 1: Seasons in Sheikhpura

Weather	Months
Autumn	1 Oct – 15 Nov
Winter	15 Nov – 15 Feb
Spring	15 Feb – 1 Apr
Summer	1 Apr – 30 Sep
Monsoon	July – Sep

4.5 Temperature

Sheikhpura weather is hot and humid. The city experiences an extreme climate during the months of May, June and July, when the city witnesses summer season. The temperature in Sheikhpura ranges between 40°C to 45°C, during the summer months. Sheikhpura experiences winters during the months of December, January and February. The temperature during this season varies between 5°C to 8°C. Given below are the maximum and minimum temperatures of Sheikhpura throughout the year:

4.6 Rainfall

Sheikhpura has a distinct rainy season, during which the weather is very humid. The rainiest months of the year are July and August, with June and September also gets some rain. During the rest of the year, barely any rain falls in Sheikhpura.

4.7 Topography

Sheikhpura the capital of Punjab is one of the most important cities in Pakistan and is situated along the banks of river Ravi. The city of Sheikhpura is bound by Sheikhpura district in the west and by Wagah on the east, while on south it is surrounded by the Kasur district. On the northern side, it is watered by the Ravi River. The city occupies around 404 square kilometers of land and is still expanding.

4.8 Wind Direction

The Sheikhpura region experiences westerly and north westerly winds during the winter and spring seasons, known usually as the dry stable times of year and southerly and south easterly winds during summer and monsoons. Wind speeds are low during winter picking up during spring season and peaking during the summer months.

4.9 Ambient Air Quality

Atmospheric pollution particularly in urban area has a strong impact upon daily life. Sheikhpura is the second largest city of Pakistan. Its economic growth and rising energy consumption are causing the increase in air pollution. The main sources of the air pollution are motor vehicles and industrial activities. SO2, NO2, CO2, CO, O3 and Particulate Matter (PM) are investigated as the pollution indicators.

The overall air quality in the study area is of moderate nature. Dust particles along with oxides of nitrogen, sulphur and carbon are the major causes of air pollution in the ambient air quality.

It was however observed during the visit that environment of the project area is clean as the area is far away from the city center. Results of tests conducted to assess ambient air quality of the project area are given in annexures of the report.

4.10 Water Resources

- **Surface Water**

There is no fresh surface water resource like canal or ponds, near the project area. Pajian drain is a municipal drain however running in close vicinity.

- **Ground Water**

The city of Sheikhpura is underlain by the deep permeable aquifer formed within the alluvial plain of the Ravi River, which is the part of Greater Indus Plain.

Groundwater is the principal source of municipal water supply in Sheikhpura. This is also the case in the immediate vicinity of the site. The City's drinking water is obtained from groundwater aquifer by means of tube wells located throughout the area. Groundwater is pumped from 400-800 feet and is generally good for direct consumption. About 83% of the city's population is consuming groundwater for drinking purposes. Results conducted to assess the groundwater quality in the area in context of six parameters of concern for drinking water have been annexed with this report.

4.11 Drinking Water Quality

WASA (Water and Sanitation Agency Sheikhpura) is providing drinking water to the residents of Sheikhpura. WASA claims the quality of water conform to the Drinking Water Standards.

The increase in population will have direct impact on the water sector for meeting the domestic, industrial and agricultural needs. Pakistan has now essentially exhausted its available water resources and is on the verge of becoming a water deficit country. The quality of water supplies in many cities of Pakistan is deteriorating fast. Over pumping of groundwater due to extended drought has affected the water quality adversely.

4.12 Noise Level

Sheikhpura is capital of the Punjab Province having population around ten million. There are many a large, medium and small industries which are still working within city premises. Industrial activity and vehicular emissions are causing excessive noise in the city.

The affluent areas of Sheikhpura are quieter than rest of the city; the noise level in these areas is still far higher than the standards set by the World Health Organization and the Pak-EPA. Noise pollution in the city is on the rise with most residents complaining that the noise is becoming a public nuisance.

4.13 ECOLOGICAL ENVIRONMENT

Sheikhpura is enriched with the presence of natural flora and fauna, although with the growing population and development activities, the presence of the same has been somewhat affected.

There are no significant or well-shaped trees and shrubs on the project site as the site is located in plane land within the premises of unit.

4.13.1 Flora

Trees, also called the 'lungs' of the earth, are important for the restoration of the eco-system. 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 Sheikhpura are being used in medicine and provide excess raw material for Indian ayurvedics. Trees such as Neem, Bhaira, Harrar, Dhair and Moosri have great medicinal value and can be grown easily in the city.

No trees are found in the vicinity of the project area. Therefore there is no adverse impact on the flora**.** There is no Reserve Forest in the 5 km radius. No threatened or endangered species and no medicinal plants are present in the project area.

4.13.2 Fauna

With an increase in the rate of urbanization, the ecology of Sheikhpura has been considerably affected and population of birds in Sheikhpura has reduced to just 85 including the resident and migratory ones.

Some birds and few animals like Buffaloes, cows, goats, donkeys, hen, rats, cats, dogs are present in the vicinity. Some reptiles like lizards are also present. The only amphibian seen the project area is frog. No threatened or endangered species are found in the project site. Similarly no wildlife is present.

4.14 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

4.14.1 Study Population

The target population was comprised of households around the project site which was a Sheikhpura District. Therefore, approximately a total of 10 households of different socio-economic conditions were surveyed and their heads of households were our main

respondents. Data collection tool was questionnaire; it was a 10- items based semi structured questionnaire.

4.14.2 Description of Tables:

In the following table, only frequency and percentage has been measured (by SPSS) of those parameters which are probably present in maximum quantity.

Table 4.2: Socioeconomic Questionnaire

Sr. #	Variables	Frequency	Percent (%)
1	Name & Address	-	-
2	Date	-	-
3	Address & CNIC	-	-
4	Age	89 (above 30 years)	89%
5	Education	93 (under metric)	92.8
6	Occupation	96 (Private jobs)	95.9
7	Marital Status	99 (married)	99
8	If married then no. of children	87 (> 4)	86.7
9	Total Family members	90 (< 5)	90
11	No. of earning members in family	88 (< 3)	88
12	Total income	97 (> 25 PKR)	96.3
13	Source of income	99 (Private jobs)	99

4.15 Demographic Profile of Sheikhpura

Sheikhpura comprises a large number of Pakistanis along with some foreign nationals. Sheikhpura, the capital of Pakistan is one of most important cities in the country, which is also known as “The Heart of Pakistan”. Demography of Sheikhpura is spread over an area of 1,014 square kilometers. Average household size in 1998 was recorded as 7.12. In 1998, the total number of male population was estimated to be 48 % and female population to be 52 %.

According to the 1998 census, Sheikhpura population was nearly 6.8 million. Mid-2006 government estimates put the population at somewhere around 10 million, which makes it the second largest city in Pakistan, after Karachi It is considered to be one of the 30 largest cities of the world.. The second largest city in the country was ranked the second most literate district in Punjab with a literacy rate of 64.7 percent.

Urdu, which is the official language of Sheikhpura, is mostly used in the city. However, the people in Sheikhpura also use other languages like English, Punjabi and Pashto. It is noteworthy that Pakistan is an Aslamic country, where the majority of the population is Muslim. Sheikhpura, being a city in Pakistan, could not be an exception to this. As a result, 96% of the total population in Sheikhpura is Muslim. Other religions in the city accounting for the rest 4% are Christianity, Hinduism and Sikhism.

4.16 Health facilities

The city of Sheikhpura in Punjab Province of Pakistan is served by a number of private and government hospitals offering world class medical facilities. The rural and urban areas are served by various other medical centers and dispensaries offering modern medical facilities. The hospitals, dispensaries and medical centers in Sheikhpura aim to provide the citizens best medical facilities and prevention from contagious and other harmful diseases**.** There is no health facility or any dispensary near the project area.

4.17 Educational Facilities

Sheikhpura is known as Pakistan's education capital, with more colleges and universities than any other city in the country. Sheikhpura is Pakistan’s largest producer of professionals in the fields of science, technology, IT, engineering, medicine, nuclear sciences, pharmacology, telecommunication, biotechnology and microelectronics. The current literacy rate of Sheikhpura is 64%. No educational facility is present in the vicinity of the project area.

4.18 Transportation and Communication

Sheikhpura is one of the most accessible cities of Pakistan and the only unique city of Pakistan where you can find Public and private Transport, 24 hrs a day and 7 days in a week.

Public transport is always available in the project area. To fulfill the remaining needs of transport there are thousands of rickshaws and taxis which run on compressed natural gas to reduce pollution in the city and of course about 75 percent of the residents have their own conveyances.

4.19 Industrial Activities

Sheikhpura trade and industries thrives on certain large-scale industries such as steel, textile, carpet and IT industries. Sheikhpura is known as the industrial belt of Pakistan contributing the largest share in the GDP of the country. The city is home to 20% of Pakistan's industrial producers; manufactures include textiles, rubber, iron, and steel. Handicrafts, especially gold and silver work, also flourish.

The proposed project area is also present in a plain area and is surrounded by mostly industries and little agricultural land.

4.20 Water Supply

The project has an independent water supply system comprising storage tank of sufficient capacity. Water is supplied to office and works through motor pump.

4.21 Telephone Facilities

Landline and Cellular telephone facilities are not present in the project area.

4.22 QUALITY OF LIFE VALUES

The degree to which a person enjoys the important possibilities of his/her life. Possibilities result from the opportunities and limitations each person has in his/her life and reflect the interaction of personal and environmental factors. Enjoyment has two components: the experience of satisfaction and the possession or achievement of some characteristic, as illustrated by the expression: "She enjoys good health." Three major life domains are identified: Being, Belonging, and Becoming. The conceptualization of Being, Belonging, and Becoming as the domains of quality of life were developed from the insights of various writers.

The Being domain includes the basic aspects of "who one is" and has three sub-domains. Physical Being includes aspects of physical health, personal hygiene, nutrition, exercise,

grooming, clothing, and physical appearance. Psychological Being includes the person's psychological health and adjustment, cognitions, feelings, and evaluations concerning the self, and self-control. Spiritual Being reflects personal values, personal standards of conduct, and spiritual beliefs which may or may not be associated with organized religions.

Belonging includes the person's fit with his/her environments and also has three sub-domains. Physical Belonging is defined as the connections the person has with his/her physical environments such as home, workplace, neighbourhood, school and community. Social Belonging includes links with social environments and includes the sense of acceptance by intimate others, family, friends, co-workers, and neighbourhood and community. Community Belonging represents access to resources normally available to community members, such as adequate income, health and social services, employment, educational and recreational programs, and community activities.

Becoming refers to the purposeful activities carried out to achieve personal goals, hopes, and wishes. Practical Becoming describes day-to-day actions such as domestic activities, paid work, school or volunteer activities, and seeing to health or social needs. Leisure Becoming includes activities that promote relaxation and stress reduction. These include card games, neighbourhood walks, and family visits, or longer duration activities such as vacations or holidays. Growth Becoming activities promote the improvement or maintenance of knowledge and skills.

Components of QOLV	**Meaning**	**QOLV of area**
Physical being	Being physically able to get around.	People of this area are living in mountains and enjoying a life near river
Psychological Being	Being free of worry and stress.	Greenery and water always a key component to reduce the stress.
Spiritual Being	Having hope for the future.	New development and construction of the project like rock salt lease is a hope for the community development of this are.
Physical Belonging	The house or apartment I live in. The neighbourhood I live in.	Mountins are tough place to live but the inhibitants of this area enjoying the life. They have

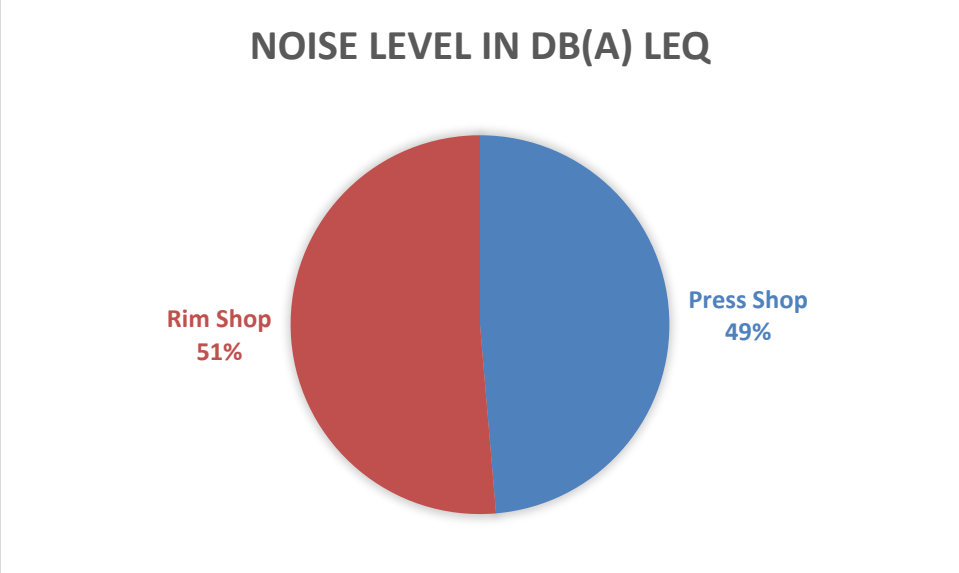
		greenry, mountains, plains and a river flowing near them in kalabagh and using it a recreational place.
Social Belonging	Being close to people in my family. Having a spouse or special person.	Area of kalabagh is well established and culture and norm of the society is being well followed. People believes in unity.
Community Belonging	Being able to get professional services (medical, social, etc.) Having enough money.	Even the area isnot much equally favourable for the communities of rich and poor, but inhibitants are enjoying good environment with money to support their life.
Practical Becoming	Doing things around my house. Working at a job or going to school.	Being a practical community most of the worker or professional are working in different domins of the life and some of them having good business.
Leisure Becoming	Outdoor activities Indoor activities	For outdoor activities Community gathering, Folk stories and political stories at dhabbas Boating and fishing in river is common.
Growth Becoming	Improving my physical health and fitness. Being able to cope with changes in my life.	Most the inhabitants especially young are playing cricket, volley ball and football.

4.23 Lab Reports

4.23.1 Ambient Air Quality Monitoring

Ambient Air Quality was monitored for the parameters according to Punjab Environmental Quality Standards (PEQS) 2016 i.e. Carbon Monoxide (CO), Sulphur Dioxide (SO_2), Nitrogen Oxide (NO), Nitrogen Dioxide (NO_2) and Particulate Matters (PM_{10}), Ozone (O_3), Carbon Dioxide (CO_2), Humidity (%), Suspended Particulate Matters (SPM) and Humidity of ambient air at proposed site of Motorway Pull, Gujranwala Tehsil & District Sheikhpura. This monitoring is carried out under standard time of monitoring i.e. 24 hrs. Monitoring reports are attached herewith Annexure.

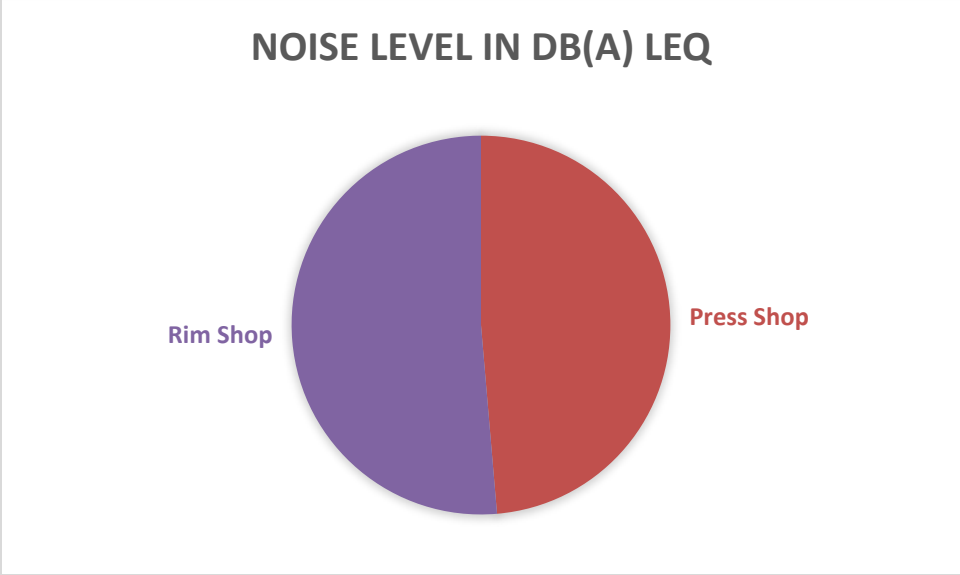
Parameter	Average Concentration	Limit Values
SO2	22.3	120
NO	23.8	40
NO2	27.2	80
O3	11.7	130
PM10	11.6	150
PM2.5	09	40
CO	0.9	5



Average concentration of Air Emissions

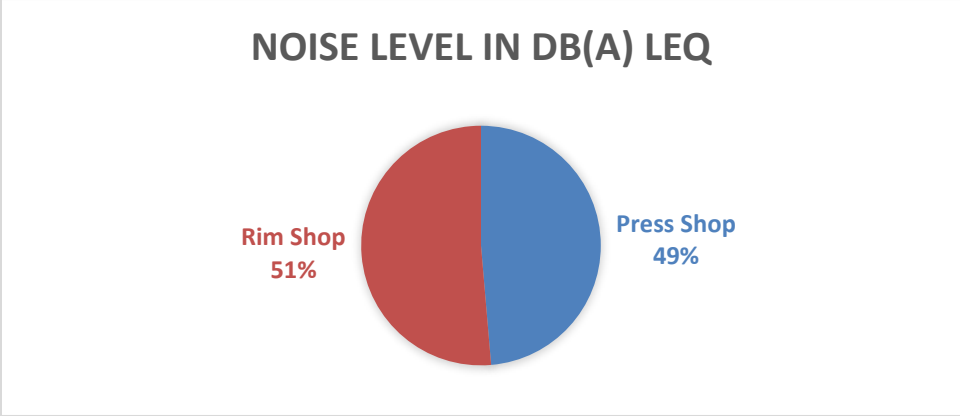
4.23.2 Ground Water Analysis

Ground water analysis was done for the 30 parameters according to Punjab Environmental Quality Standards (PEQS) 2016 i.e. Alkalinity, Calcium, Carbonates, Total Coliform, Conductivity, Hardness as $CaCO_3$, Magnesium, Odor, pH, Sulfate, Sodium, Taste, Turbidity, Nitrogen/Nitrates, Lead and Mercury, Cyanide, Copper, Cadmium, Chromium, Lead, Nikle, Boron, Zinc, Arsenic, Barium Boron, Selenium of the water samples collected from the project drinking water source. All results are with in the prescribed limits. Results obtained by Laboratory are attached herewith Annexure.



4.23.3 Noise Monitoring

Monitoring of was done according to Punjab Environmental Quality Standards (PEQS) 2016 from the project site District Sheikhpura. Results obtained by Laboratory are attached herewith Annexure.



4.23.4 Waste water Analysis

Monitoring of waste water sample was collected from the main drain of the waste water discharge at peak time working. The sampling was done according to PEQS 2016 standards to ensure the viable results. The parameters in number for the analysis is 30. Including TSS, TDS, BOD_5, COD, Chloride, Phenolic Compounds, F, Cl, CN, Sulphate, Sulfide, lead,

mercury, chromium were analysed. All are in prescribed limits of PEQS 2016. Report is attached herewith annexed.

4.24 Conclusion

The gathered and assessed data produces the conclusion that commencement of the project will prove to be beneficial for the inhabitants of the area. The project will provide job opportunities for the local inhabitants, and will provide basic religious and primary educational facilities to them, hence improving their socio economic status.

The project, overall, does not have major adverse impacts on the existing environment and people with due implantation of the mitigation measures. It is further concluded that project confirms to the local environment.

CHAPTER V

STAKEHOLDERS CONSULTATION

5.1 General

Consultation with the stakeholders is a tool for managing two-way communication between the project sponsor and the affected public. Its goal is to improve decision-making and build understanding by actively involving individuals, groups and organizations, which have a stake in the project. This involvement increases project's long-term viability and enhances its benefits to locally affected people and other stakeholders.

In order to evaluate the socioeconomic and environmental impacts, field surveys are extremely essential. In addition to the surveys at the preliminary stage, consultation with the community and the

ir active participation plays a vital role in successful implementation of the project. To identify the different types of stakeholders and ascertain their perceptions about the construction of the proposed project were measured. A social impact assessment survey was conducted. Informal group discussions were also held as an additional tool for obtaining feedback from the stakeholders that are being discussed in the following pages.

5.2 Objectives of Consultation

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

The important general objectives of the consultation process are:

- Information dissemination, education, and liaison
- Identification of problems and needs

- Collaborative problem solving
- Reaction, comment and feedback on proposed Project;
- Documenting mitigation measures proposed by the stakeholders

5.3 Methodology

The EIA Team carried out public consultations at various locations within and around the proposed project site. The methodology adopted for the purpose of socioeconomic and health assessment was based on general observations, interviews, recording of various healthparameters and matrix for the evaluation of project impacts. Area inhabitants were randomly selected for socioeconomic and health assessment. Studies were carried out on more than 20 community inhabitants in the study area. The stakeholder's consultation during this phase of the work targeted the project area, administrative and private offices etc. near the project area:

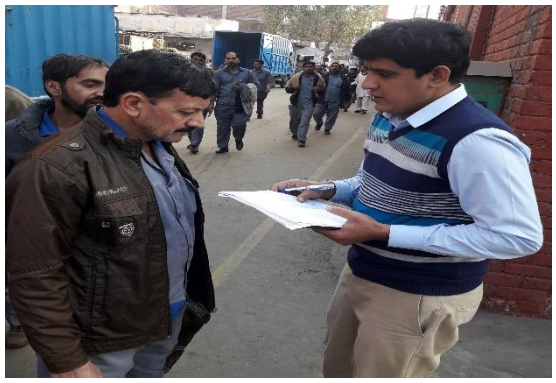
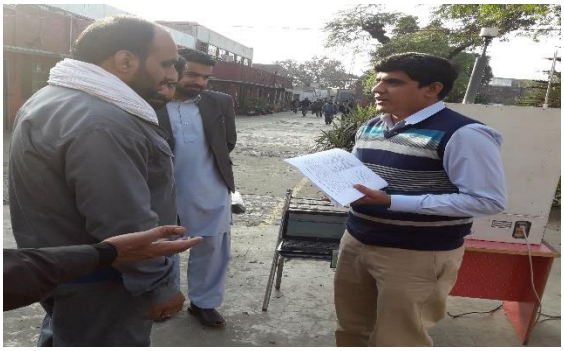
The whole information and data collected was categorized as:

- Selection of the stakeholders for consultation, reconnaissance of the proposed project site and initial discussions with the neighboring factory workers, villagers, drivers etc.
- Appraising the targeted stakeholders initially for the purpose of consultation and working out a schedule for holding regular consultation meetings
- Distribution of questionnaires to obtain opinions and concerns
- Meetings with the stakeholders through the participation of environmental consultants and social specialists and documenting the opinions of the stakeholders expressed during the meetings etc.
- Evaluation of project impacts

SOCIOECONOMIC DATA COLLECTION AND VISUAL INSPECTION OF WORKER HANDS






5.4 Categories of Stakeholders Consulted

The stakeholders contacted during the survey belonged to different categories of people as shown in the Table 5.1.

Table 5.1: Categories of Stakeholders Interviewed in the Project Area

Sr. No.	Stakeholder Category
1	Neighboring Factory Workers
2	Villagers
3	Project workers
4	Potential Distributors

5.5 Issues Discussed

Following issues were discussed during the stakeholder consultation:

- Overall activities of the project both construction and operational phases

- Possible impacts on natural vegetation, land and properties
- Possible mitigation measures
- Benefits or implications of the project specifically for the local people

5.6 Socioeconomic Conditions of the Area around the Project & Industrial Estate

This section provides an overview of the environmental, socioeconomic conditions and cultural mores in and around the project area. Socio economic conditions of the area depend upon the population, employment level, trade and businesses, customs, religion, social activities, occasions, and their social cohesion.

Social impacts can be defined as the consequences to people of any proposed action that changes the way they live, work, relate to one another, organize themselves and function as individuals and members of society.

The relationship of Environment and development is inseparable. Environment involves not only the biophysical aspects but also the socioeconomic dimension of any proposed developmental activity. People are part of the environment and are often victims of adverse effects of such developments and related activities. The major impacts associated with certain proposed actions are evidenced by changes in socio-economic factors in the project as well as surrounding areas. Emphasis on this category of the environment is more recent than focus on the physical, chemical, biological and cultural environment. A balanced development planning takes into account the environmental, social and biodiversity impacts of economic development. Environmental Impact Assessment (EIA), Social Impact Assessment (SIA) and biodiversity impact assessments are some of the methods that aid in the planning and decision making process. These impact assessments help in identifying the likely positive and negative impacts of proposed projects and policy actions.

Social impact assessment (SIA) means the consequences to human populations of any public or private actions-that alter the ways in which people live, work, play, relate to one another, organize to meet their needs and generally cope as members of society. The main types of social impacts that occur as a result of these project-related changes can be grouped

into five overlapping categories:

Lifestyle impacts– on the way people behave and relate to family, friends and cohorts on a day-to-day basis

Cultural impacts – on shared customs, obligations, values, language, religious belief and other elements which make a social or ethnic group distinct

Community impacts – on infrastructure, services, voluntary organizations, activity networks and cohesion

Quality of life impacts – on sense of place, aesthetics and heritage, perception of belonging, security and livability, and aspirations for the future

Health impacts – on mental, physical and social well being, although these aspects are also the subject of health impact assessment

The key characteristics and variables that are often correlated with adverse Social impacts of development proposals include:

Demographic change, e.g. size and composition of resident population, influx of temporary work force or new recreational users (disrupts the cohesion of a small, stable community)

Economic change, e.g. new patterns of employment/ income, real estate speculation (marginalizes long term, older residents)

Environmental change, e.g. alterations to land use, natural habitat and hydrological regime (loss of subsistence or livelihood in resource-dependent community)

Institutional change, e.g. in the structure of local institutions and government or traditional leadership, zoning by-laws or land tenure (reduced access)

5.7 Baseline Data during Stakeholders Consultation:

Observations made during survey and the analysis of data shows the socioeconomic status of the individuals of neighboring communities of the project area. Numerous visits were made to different areas for the general observations, interviews and collection of water and wastewater samples.

5.8 Project Scope

The project scope encompasses the installation of modern & latest equipment for iron, graphite and copper shed. The proposed activity is expected to reduce pollution load, energy demands and plant maintenance cost through internal efficiency improvements. The project will also result in the improvement in raw material conversion efficiencies. The proposed project is about the installation of latest machinery based on more efficient technology in terms of production and lesser consumption of resources. Environmental Impact Assessment was carried out to evaluate the consequences of the proposed project. The present chapter focused upon the socioeconomic aspects of the EIA, it deals with the social, economic and health status of the workers and area inhabitants.

5.9 Socioeconomic Aspect

The assessment of socioeconomic status of workers and people living nearby areas was based on general observations to collect baseline information, and interview method-using questionnaires.

1. Baseline Information

General observations were recorded to assess set criteria for baseline study related to socioeconomic conditions. The baseline information is based on general observations during survey of the area and data collected from secondary sources. Living conditions like appearance of houses, sanitation of the surrounding environment, mode of transportation, quality of water used, methods of getting water, availability of gas and electricity etc. were

observed in order to have idea about their socioeconomic conditions of the community inhabitants and factory employees.

2. Interviews Using Questionnaire (Semi Structured)

Twenty neighboring community inhabitants of the project area were interviewed for the socioeconomic assessment. The questionnaires were specifically designed questionnaire to address education level, occupation, family size, number of earning individuals, total income and the issues regarding housing and schools. Some questions were designed to assess their views about the installation of new industries in the area and influence of industrialization on the economic conditions of the surrounding communities. Data was analyzed for the selected parameters for the socioeconomic assessment of community members. Mean/ averages, ranges and percentages are used to analyze the data and the results are interpreted in the form of graphs.

3. Health Aspect

Health is a very important indicator of socioeconomic status of inhabitants of any area. Assessment of inhabitants of the communities of the project area was based on following methodology:

1. Interview method using questionnaires (descriptive approach)

2. Measurement and recording of some parameters i.e. (a) Height, (b) Weight and (c) Blood pressure.

4. Interviews Using Questionnaire

20 community inhabitants were interviewed to assess their health status. The questionnaire-B was designed to collect information regarding common diseases, disease patterns and the availability of medical facilities for the prevention and control of diseases. The complaints regarding ailments and sickness were also recorded. Validation of ailments was done through medical checkups.

5.10 Evaluation of Project Impacts by Matrix

To assess the social impacts resulting from proposed Project, matrix approach was used. In the matrix potential aspects or issues are listed along one axis and impacted environmental characteristics or conditions along the other axis. Potential issues addressed in the matrix are land acquisition and resettlement, public safety from traffic hazard during construction, temporary resettlement, indigenous people, Cultural resources and community esthetics. The evaluation criterion was based on five categories A, B, C, D and E:

A. Is there a risk that environmental standards or environmental guidelines are applicable to the project will be breached?

B. Is this the first time; the study area will be exposed to this type of environmental impacts from development activities?

C. Did the community express any concern about this aspect?

D. Is there a risk that the impact will affect the quality of life of the community?

E. Is there a high risk of a permanent, irreversible, and significant change to environmental conditions due to the particular project activity?

5.11 Socio-economic Data Collection around the Project

By "social impacts" we mean the consequences to human populations of any public or private actions-that alter the ways in which people live, work, play, relate to one another, organize to meet their needs and generally cope as members of society. The term also includes cultural impacts involving changes to the norms, values, and beliefs that guide and rationalize their cognition of themselves and their society. We define social impact assessment in terms of efforts to assess or estimate, in advance, the social consequences that are likely to follow from specific proposed project.

Public participation is a major part of Environmental Impact Assessment. It is the requirement of EIA to check the level of social cohesion among the inhabitants of the nearby community. After having detailed discussions on the methodology, questionnaire approach was adopted for the purpose of collecting the socio economic data. These questionnaires were designed to address education, employment and population issues, and were asked to inhabitants of different nearby communities. While asking questions, people expressed their views and indulge their selves in discussions as well. All their views were duly recorded. Some of the questions were asked not only to get the information but also to get the impression of an interviewee. The questions were designed in order to know that what inhabitants think about industrialization and it was amazing to note that majority of the population think in the positive manner about the installation and expansion of new industries in their areas. They think that there is no harm in industrialization as they provide opportunities for employment.

5.6 Social Impact Assessment

It was observed that the project have no significant adverse socioeconomic and health impacts, in fact the project is beneficial for the people in regard to the job opportunities hence proposed project will contribute in the improvement of socioeconomic status of the inhabitants. Socioeconomic and health status are interlinked. The project, not only help to provide support in terms of economic uplift but also will help in improving the health status of the inhabitants of the area.

During interviews with different inhabitants of the community, it was found that majority of the people are in favor of installation of new industries they believe that suchinstallations provide job opportunities for people of the area. For them earning at any level is more important than the environmental hazards. And as far as health and environmental issues are concerned, they give least consideration to them. Because, for them solutions for financial and social issues are their priority. Most of the people feel that there is no harm in industrialization as they provide

opportunities for employment. It is the most effective and attractive source of income for them and there is always a need for industrial expansion.

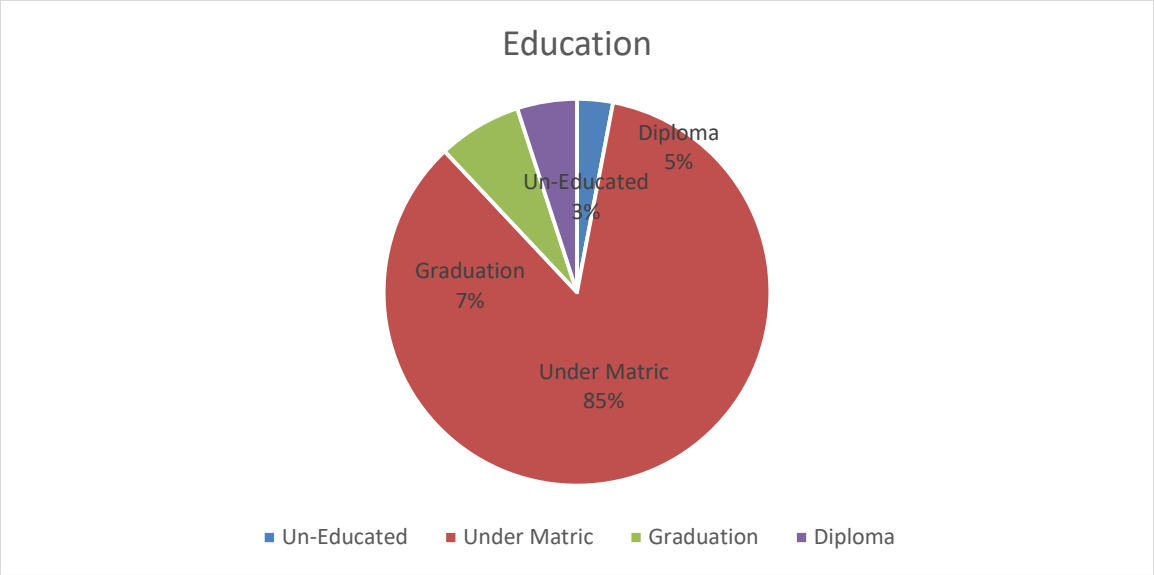
It was interesting to note that the community people are very happy with the industries, reason being, industries help the community people in one or other way. When asked about the harmful impacts of industrialization, majority of community people responded in positive manner, and were of the view that if the pollution is controlled at the source, there is no harm in setting up of industries even near residential area. Moreover the advantages of industrialization as listed by the community people were more as compared to disadvantages.

Most of the inhabitants have their own houses and very few of them were living on rent. It was observed through interviews that most of the people have the view that factories don't contribute much in spreading of diseases, and they think that diseases are more common in rainy season or they are seen more often with the seasonal variations**,** but still the common diseases narrated by the community inhabitant includes Hepatitis, Asthma and eye infections, stomach pain and seasonal diseases include common cold, Flu, fever etc. Blood Pressure was duly checked as well to study the relationship of hypertension with water that is available for drinking purpose.

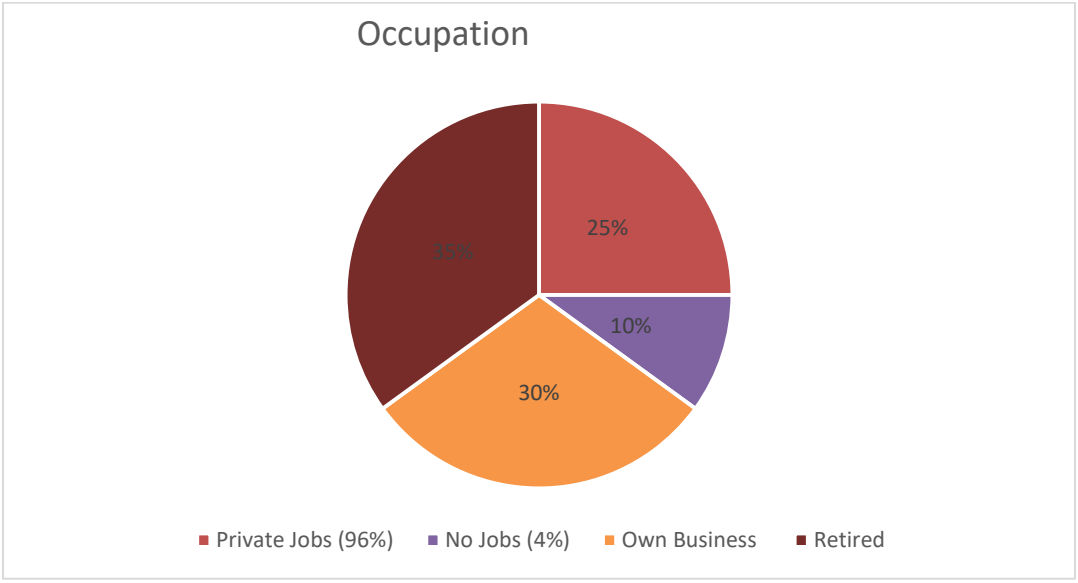
Questionnaire design and its components

Sr. #	Variables	Frequency	Percent (%)
1	Name & Address	-	-
2	Date	-	-
3	Address & CNIC	-	-
4	Age	89 (above 30 years)	89%
5	Education	93 (under matric)	92.8
6	Occupation	96 (Private jobs)	95.9
7	Marital Status	99 (married)	99
8	If married then no. of children	87 (> 4)	86.7
9	Total Family members	90 (< 5)	90
10	Religion	97 (Islam)	96.8
11	No. of earning members in family	88 (< 3)	88
12	Total income	97 (> 25 PKR)	96.3
13	Source of income	99 (Private jobs)	99
14	Source of transportation	67 (Bus)	67
15	Knowledge about company	Yes /no	8% yes
16	Problem of engineering	Negligence of person cause accidents	
17	Concept of working		
18	Place of work security		
19	Working experience		
20	Material safety/personal safety equipments		
21	In-Kind Benefits by company		
22	Environmental friendly feature of company		

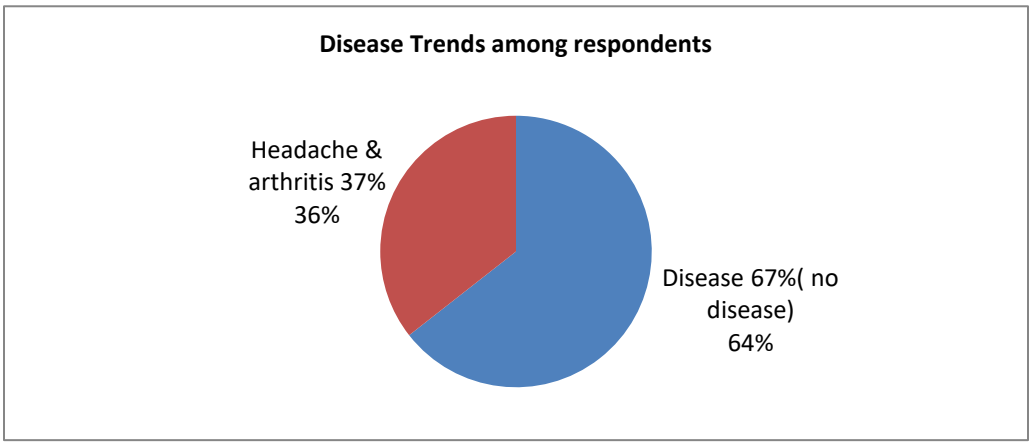
The educational status or literacy level of the community, as told by the community people was below satisfactory. According to them schooling facilities is inadequate in the communities of the project area. There are private and Government schools for boys and girls.



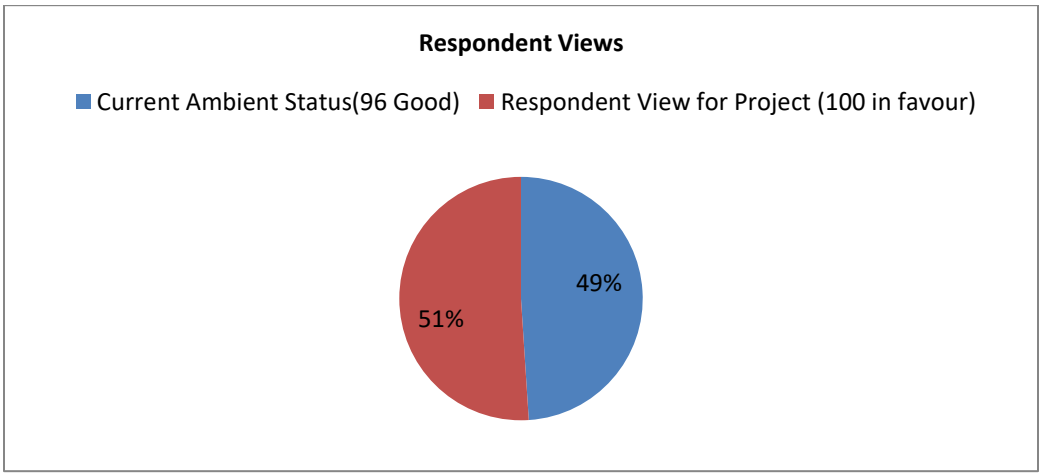
5.1 Graphical Presentation of Education around the Project Site



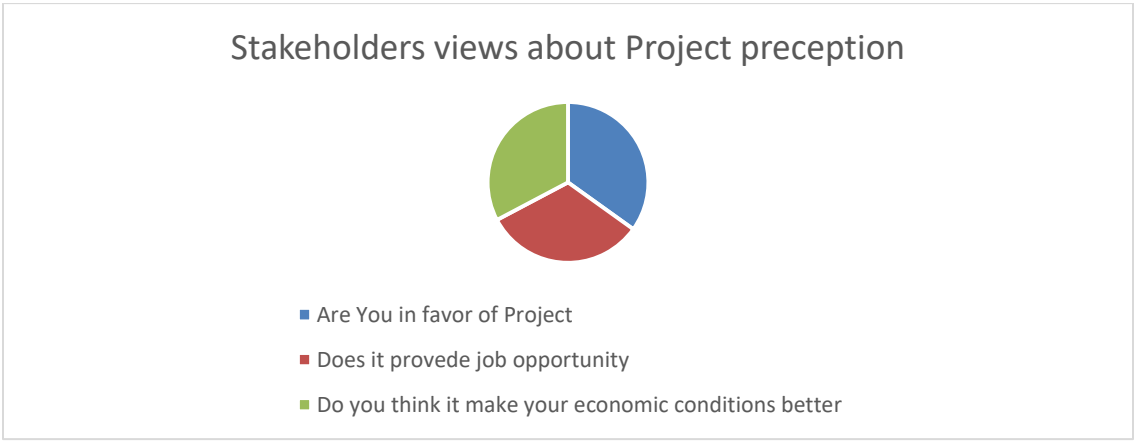
5.2 Trends of jobs around the project site



5.3 Health Status of Respondents



1.4 Respondent View about Project



1.5 Locals View about project perceptions

5.13 Conclusion

Comparison of potential adverse and beneficial impacts of the extension project shows that project will prove to be beneficial for the inhabitants of the area. The project implementation will provide job opportunities for the local inhabitants hence improve their socioeconomic status. Employment opportunities generated by the project include construction labor at the site in the initial stages of setting up of the proposed facility, skilled and unskilled labor and security during the production phase. Additional employment opportunities are envisaged, such as provision of daily raw materials. Reliance on local markets for provision of construction materials and other supplies will be a significant effect. Following mitigations are recommended for the anticipated social impacts:

a) Employment opportunities will be provided to the locals.
b) Community welfare programs will be undertaken.
c) More trees will be planted outside the proposed factory premises.

The overall socio-economic impact of the project is interpreted in relation to the existing environmental conditions. It followed that such a development that is proposed can contribute in improvement of socio-economic and health status of inhabitants of the community if environmental management measures are adopted in true sense. The project, overall, will not have major adverse impacts on the existing environment and people. Suitable mitigation measures have been recommended to minimize the adverse impacts identified in this study. With due implementation of the mitigation measures, there would be very insignificant adverse impacts on the socio-economic environment.

The project will have more beneficial impacts on the socio-economic environment than adverse impacts. This developmental activity will create employment opportunities for the local population hence improving their economic status. In conclusion, it can be said that overall the project will have positive impacts on the socio-economic and health status of the neighboring community inhabitants.

5.14 Findings of the Overall Discussion

- After the completion of the proposed project the site will be used for industrial activities.
- The proposed project will help to provide a safe and environment friendly area for manufacturing of motorcycle safety stuff that will be jeans. It will enhance the socioeconomic conditions/values of the area
- Project will increase revenue generation for the Government
- It will create employment opportunities
- Local people should be given preference for employment in the proposed project
- Construction of the proposed project should be completed in the designated timeframe to limit adverse impacts of construction
- There will be additional load on the existing infrastructure i.e. utilities of water, telephone, electricity etc. due to the development of the proposed project. This matter should be resolved with MIE & other utility agencies.

Majority of the community people are not against industrialization and are of the view that new industries should be installed at large scale as they provide employment opportunity and they think that industry doesn't contribute in pollution but some people think that only those industries should be installed that don't harm the environment and health of the people living nearby more over few people say that industries should be away from residential communities.

6.7 Health and Safety Program

Health and Safety will be one of the top priorities at M/s Muhammad Afzal Associates as a socially responsible; they actively seek to impart their best practices in the communities they operate in.

5.8 Additional Considerations

It is very important to plan a project after evaluating its cumulative socio-environment and cultural impacts. The project is a unique venture in the identified locality as it will address the environmental, social and safety issues through establishing norms of operating within the area. The project is planned after keeping all the parameters of environment, health and

safety for site identification, and operational phase. That's why the cumulative impacts of the project are negligible.

5.9 Potential Environmental Enhancement Measures

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

1. The leftover treated water will be treated by sand filtration process.

2. Rain water collection points connected with piping network to a rain water collection tank. This tank will be connected to a pump which will discharge it in the provided discharge system.

3. Trees are already planted and will be planted within the premises to beauty the surrounding area.

4. A special budget of PKR 100,000/- will be designated for the environmental improvement of the environment on annual basis. The EMC will be responsible for spending of this budget. The team leader of EMC will prepare the inventory of environmental improvement activities and communicate it with the rest of the team for implementation.

CHAPTER VI: SCREENING OF POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

The potential environmental impacts related to the project have been studied in context of construction and operational phase 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, although proposed project has all mitigation measures and all conditions are environment friendly. 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)

6.1 Environmental Problems Due to Project Location

Environmental impacts due to project location have been studied and adequate mitigation measures have been proposed.

Table 6.2: 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	The essential factors to choose or select any place is identification of the resources present at site. The current site that have been established with the unit is identified with the rich resources and availability of the man power. The selection

	consideration of the impacts that may arise due to the changes in land use patterns.	of the site is done on the basis of the industrial units and need of the project to fulfill the demand of the auto parts. The most essential factor adding to the feasibility of the project site was that it is within the succession limits of the open area thus reducing any energy loss in the transmission of electricity. Thus the site selected to reinforce the potential of the industry to the area demand.
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 resource.	In consideration of the resources is the key objective of the industry. Because every industry demands resources to fulfill its need. The site selected because of the industrial area and the most important is the identification of the resources present in the area. The resources are water, gas and electricity. The water requirements, energy requirement, social services can be approached easily. The site was selected by keeping in mind the sources i.e. gas, electricity, access roads alongside manpower with required skills and education being in the industrial area. The main pressure of resources at the project site is availability of the projected market and sale of the product.
3.	**Natural Hazards**	
	It is very important to assess the extent of damage any natural hazard e.g. earthquake, floods, landslides may cause.	The site identified within environmentally /geologically safe and does not fall in any of the

	The geological formation of the capital territory is such that it has been categorized into earthquake zones.	earthquake zones in which the capital territory is 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 proponent of the project has owned this land. The land was purchased by the project in late 80s. The project is planned on a site which has already been acquired by the proponent. The project have been constructed but still there is a need to be construct wastewater treatment plant and place for parking.
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 project site is duly constructed by the plant and in operation. Nature, size and scope of work also limit the extent of activities in perational phase.
6.	**Presence of Sensitive Areas**	
	Development interventions can degrade the quality and life expectancy of ecologically, socially and historically sensitive areas.	There are no sensitive areas of any nature (ecological, social or historical) in/around the project 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 project is well connected to the rest of the city through roads e.g. main road in front of the project and health facilities available at project site and hospital is near to the project to workers and also for the local people, and transport facilities available hence making the location ideal for the said purpose.

6.2 Environmental Problems Associated With 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 6.2** hereunder:

Table 6.2: 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 the building is simple and environment friendly and there is covered area in open area. So all mitigation measures are selected during design phase of the project. The proponent had design this in accordance with the emergency exit plan and placed all necessary emergency equipments to combat with emergency situation.
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 boundary walls. The project is on main road, the traffic is dealt with the no issue as the parking space is available. Transportation of heavy construction materials are done during less traffic hours. A car parking space is provided to avoid unplanned car parking on the roads on within the premises of the project. Planed and managed system is available to manage the traffic easily.

3.	**Fire Exits /Emergency Evacuation Plan**	
	Emergency evacuation plans especially for the project as well as the administrative block 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 is being followed in operational phase. Humidity and temperature control measures through proper ventilation is planned to control any chances of accidental fire hazard. The project have been equipped with proper firefighting arrangements to ensure increased safety. Fie fighting system and drilling on regular basis is being done to combat in any emergency situation. Moreover every leakage place, sockets, electrical instruments and outlets is being checked and all associated system is being monitored daily, if found with any problem, immediately got changed by the department.
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. Bin for waste collections have been placed for the collection of different materials. The waste bin have been designated with color to mark the specific item to be put in the specific bin.
5.	**Careful Planning of Greenbelts/Horticulture Plan**	

	Unavailability of greenbelts would create aesthetic nuisance.	The design of project is developed in such a way that it provides pace for the development of lawns and green belts. The tree and plants of ingenious flora have been plants with mature trees. The proper keeping and care of the plants and lawan have been done on regular basis. The proponent is doing this to improve carbon sequestration and reduce the pollution in the atmosphere. Moreover is to increase the aesthetic beauty of project.

6.3Environmental Problems Associated With Project Construction Stage

Table 6.3 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 6.3: 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 project site has been selected after careful consideration of the land use, presence of biodiversity and other environmental parameters. The project proponent has built this site in careful consideration to improve the aesthetic beauty of the project site. The proponent is intended to install waste water treatment plant to recover and treat water to improve the health of environment. The site for the wastewater treatment plant is not planted with any trees. The place is vacant in plain.

		Currently, there are no trees on the said location of the proposed plant rather it is a vacant plot devoid of flora and or fauna. But to ensure aesthetic value, the proponent will plant more trees once the construction of said component is complete.
2.	**Gaseous Emissions**	
	Gaseous emissions including SOx, NOx, 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 is being 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. The compliance report and the result of the all emissions are with in the limits of the prescribed by PEQS 2016. The reports of the said parameters have been attached as annexed.
3.	**Dust Emissions**	
	Generation of dust and particulate matters is an issue that could arise due to construction activities.	The whole project is covered with construction r with grass cover or plantation. The building of the said components for 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. The project proponent have provided all necessary PPEs to his worker, so that the risk of injuries should be minimized.

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 of the unit is being managed and strictly monitored by the administration and HSE supervisor to ensure the limits of the noise. As per prescribed limits mentioned in PEQS 2016 the inhouse noise level is in limits while the one point is slightly increasing by2 points that declares the alarm to use of proper PPEs mean air plugs. The working hours are 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 have been 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 assessed, segregated and dumped properly. The solid waste during construction phase will consist most of soil, packaging materials, plastic bags, cloths, iron rods, and food leftovers. Most of the items will be segregated and reuse or sold out to the local vendors. The organic portion of solid waste shall be dumped into the municipal solid waste collection system.
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 generated during construction phase will be reused in different activities like sprinkling on soil and making the construction material. Moreover the main objective of this construction is to construct the wastewater treatment plant to combat the industrial wastewater.
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 and oil shall be carried carefully and under skilled supervision of the site in-charge at designated decks.
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, each 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 proposed component of the site are not covered with vegetation. The construction activities for that components will 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 working community to avoid social issues.
11	**Training and Awareness**	
	Unskilled workers may create issues in attaining the overall health environment and safety policy of the project.	Regular onsite and offsite training of the workers is being 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.

6.4 Environmental Problems Associated With Project Operations

Environmental impacts due to project location have been studied and adequate mitigation measures have been proposed.

	POTENTIAL IMPACTS	**MITIGATION MEASURES**
1.	**Solid Waste Management**	
	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 the entire scheme. Slag and iron scraps impurities collected at the top of the molten iron, make up the largest portion of iron-making by-products.	Solid waste generation from the operational phase is of domestic and industrial waste. The domestic waste is being collected and separated by the separate bins. And collected by the sanitary workers. The other is industrial waste that include empty bins, scrap and other material that is collected in marked waste bins according to category and type of the waste.

		Some of them is being reused and other sent to scrapyard for sale. Communal bins have been provided at the each specified place to resolve the problem of collection. On site collection of material & waste is being done to minimize the time and efforts for the separation and collection. A method of integrated solid waste management system is being followed and adopted to avoid resource exploitation and Increase resource efficiency. Solid waste segregation into the organic and Inorganic and hard material, metal, scrape is being collected in separate bins to make it ease on site segregation.
2.	**Wastewater Disposal**	
	Wastewater generated due to domestic/process activities result in the spread of vector borne diseases like dengue, malaria, as well as spread the nuisance of foul smell.	Waste water is being handled with the settling tank to treat the fluid water. But the proponanet had move onto the waste water treatment technology in proper frame. The objective of this is to treat the waste water and recover the material for the further use as in put as raw material. The plan is include the construction of the waste water treatment facility. The treated waste water is being drain in the main WASA drain and its copy of challan is attached. The domestic wate water is being treated by the septic tank. The both line are separate and well developed for the separate treatment of the waste water.

3.	**Energy Conservation**	
	Excessive use of energy exerts more pressure on the already dwindling energy resources of the city/country.	The proper training is being given to workers to follow the rules of energy conservation. The workers and admin are working to reduce the energy consumption by using strategic approach. Maximum day light is being used as the hall are well ventilated and well design by maximum day light design of the hosues or workshop and working place. Besides, the environmental cell and HSE supervisor or working to ensure the safety and security, and consumption of energy in right place atright time. the machinery and equipments are being used or in good working conditions. They are being operated with less consumption energy.
4.	**Noise Generation**	
	Noise emissions due to traffic and any activities create issues to the residents.	All the machineries and equipments & instruments are working in the unit are with good quality. They are sound less or if they are, with in the limits prescribed by the PEQS 2016. The results of the noise level measures dutring the working hours is monitored and they are in range. The peak working time is slightly high with 2dB with the prescribed limits of PEQS2016, the single unit observed with that quantity. The macineray and equipments are well checked and dailty monitored to control the noise level. Any activity that will lead to noise emission Is

		restricted to day time only. Traffic load management is being done to avoid the issue of traffic noise. Installation of generators with exceeding PEQS decibels is discouraged through providing adequate sound proofing. The whole system will be well mechanized and in the closed hall. Thus issue of noise pollution is negligible. Ear muffs, ear plugs, ear canals have been provided to workers to ensure their occupational health and safety.
5.	**Emergency/Fire Hazards**	
	Emergencies e.g. fire incidents may lead to environmental, health and safety issues to the workers/staff.	Emergency preparedness plans is being done on monthly basis. Different training and is being provided to the worker to fight back with any emergency situation. Call points , suitable locations are also mentioned. Carbon fire extinguishers along with other safety have been installed vertically at the height of 4 ft from the ground level. Emergency exit and assembly points are also designated to combat any emergency situation.
7.	**Training of Staff**	
	Unskilled persons are not able to tackle environmental, health and safety related situations which may further aggravate any such issues and cause loss of human life and property.	Regular training of the staff is being conducted. Proper monitoring and reporting mechanism is developed where the team is responsible to communicate/report any illegal or hazardous situation to the team leader. Training of staff for different topics is attached with annexed.
8.	**Social Impacts**	

	Problems regarding privacy of local community may arise due to invasion of outside population.	Though the chance of any improper social conduct are negligible due to the fact that the project site is in industrial are. Are the site is being covered or surrounded by the industries. The local and the project workers will be advised to work in harmony and work with peace and brotherhood. However, having a proactive approach, improper social behaviors e.g. staring and teasing is discouraged and any such incident report directly to the site in-charge. Any misconduct and improper or miss behaviour is dealt with strict action leading to job loos with out prior notice.
9.	**Transportation**	
	Transportation for storage stuff is compulsory to make the project site suitable and environment friendly.	Transportation vehicles is being maintained in good conditions to avoid the chances of accidents. The transportation vehicles are properly fueld and checked on regularly basis. Demarcation of proper area onsite for parking of the vehicles is designated. Transport for the workers is being provided free from the company. Pick and drop for the staff and company workers are free. Now in operational phase, vehicles are entered into the project site according to schedule and need. Being in the proper maintenance and industrial area area there is a demarcation and proper plan of incoming and outgoing of the vehicles. Specific place is

		designated for the good and services providing vehicles for loading and unloading of goods and materials to ensure the safety of humanity.
10	**Terrestrial biodiversity**	
	Development should not disturb the biodiversity because biodiversity are the precious elements of the area	The project is in operation phase and the different species of indigenous flora is being planted at the site. The tree of different species is well maintained and mature in age. Adopting a vegetation program that uses indigenous stocks of local flora is being followed. The lawans and green belts are being well maintained to increase the aesthetic beauty of the nature and subject place. . Proponent is committed to plant the the more plants after completion of said components of the project to make the project environment friendly and to make the aesthetic beauty of the project.
11	**Health and safety**	
	Health and safety parameters are the key necessities of the any project in which minor negligence can have damage.	Following mitigation measures have been followed and adopted on priority basis; ➢ Enforcing site security ➢ Ensuring site safety ➢ Enhancing safety at site facilities ➢ Establishing environmental controls ➢ Regulating transportation on-site ➢ On site information ➢ Exit plans

		➢ Safety equipments ➢ Safety instruments ➢ Safety gadgets ➢ Information and guidance with proper working safety signs
12	**Emergency preparedness plan**	
	Emergency preparedness plan is fundamental factor of any project site so that in case of any emergency conditions can be tackled.	For emergency preparedness plan there is fire hydrants and fire extinguishers at certain points. They are well managed and checked on regularly basis. Each facility is well equipped with safety. The worker drilling to combat with emergency situation is being followed and training done by different departments. The emergency preparedness training is given to each facility worker to deal with emergency situation. The training attendance is attached as annexed.
13	**Socioeconomic**	
	Socioeconomic factor comes in priority parameters because it's about surrounding people income.	By reducing socioeconomic problem following measures is being adopted; The proponent is committed to give job opportunity to the locals of the area. The proponent is providing job opportunity to the native or local residence of the area.
14	**Storage of raw material and final products**	Raw material is being stored at designated ware house to keep in care full place and separate place to avoid from any incident or accidents. The final products will be transferred to the client. The demand and

		supply is depond on the market demand. The working is subject to the demand of the market.
16.	**Safety Data Sheet**	Material safety and data sheets is attached herewith annexed for chemicals.
17.	**Environmental Monitoring**	The proponent is enduring compliance to make its working legal in eyes of the law to avoid any inconvenience. That's why he is applying for the NOC to ensure the compliance under PEQS 2106. The proponant will follow the guidelines and conditions provided by the EPA, Punjab. Owner will fulfill all the demands to ensure the safety of environment.
18.	**Worker's safety plan**	SOPs are established for all activities on the site in working, operational phase, workers are being trained first and then induct to the work. They are guided to follow SOPs and provided with necessary PPEs wherever required. Careful monitoring is also be carried out to ensure the safety of the workers.
19.	**Housekeeping**	Observed tasks, daily each site inspection, each facility observation, cleanliness proper house keeping is being done to make units germ free.
20.	**Product outbound , raw material inbound, services inbound and outbound**	Co-ordinate ingoing and outgoing trips to reduce congestion at peak times. Supply materials in appropriately designed bulk containers. All vehicles to be appropriately licensed.

6.5 Risk Analysis Matrix

The impact associated and their risk score was calculated for each impact type to get an overall probability of severe impact that the project might cause during any stage of its existence. The stages have been categorized according to the guidelines and the Risk Analysis Matrix method has been employed to obtain the overall impact in terms of probability, likelihood, severity and overall magnitude of impact.

Table 6.5: Risk Analysis Matrix

Potential Impacts	**Magnitude**	
	Without EMP	**With an EMP**
Air quality	**---**	**-/0**
Waste generation	**---**	**-/0**
Traffic	**--**	**-**
Noise	**--**	**-**
Surface and water quality	**--**	**-/0**
Soil quality	**--**	**-/0**
Terrestrial biodiversity	**--/+**	**-/++**
Resource use	**--**	**-**
Health and safety	**---**	**-/+**
Landscaping and visual inspection	**---**	**-/+**
Socioeconomic	**-/+++**	**-/+++**

+++ High Potential Positive Impacts **--- high potential negative impact**

++ moderate potential positive impact -- moderate potential negative impact

\+ low potential positive impact - low potential negative impact 0 Neutral impact

CHAPTER VII: ENVIRONMENTAL MANAGEMENT AND MONITORING PLAN

7.0 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 operation Lease area. 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 project.

Sr. #	EMMP Elements	End Users
1	Background	All stakeholders – internal and external Al-Badar Engineering group Approval or consent authority e.g. EPA Punjab
2	Environmental Management	The management and supervisory staff of Al-Badar Engineering and EPA Punjab
3	Implementation	The management and supervisory staff of Al-Badar Engineering
4	Monitor and review	The management and supervisory staff of Al-Badar Engineering and EPA Punjab

Table 7.1: **Users of EMMP**

7.1 EMMP Context:

Being an environment conscious and law abiding entity, Al-Badar Engineering (Pvt) Limited is striving for the betterment of the environment and the safety of the key stake holders. In that response the company 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 2000. 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 PMDC has planned to meet pre-requisite of the Environmental Approval by drafting a meticulously planned EMMP.

7.2 EMMP Objective:

The objectives underlying the EMMP of PMDC:

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 construction phase and 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)

7.3 Environmental Policy

M/S Al-Badar Engineering Pvt Limited 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 quality product 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

The documented evidence are attached herewith annexed

Management Approach:

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

Institutional Responsibilities:

Following functionaries are involved in the implementation of EMP.

1. Project Proponent
2. HSE/ Project Manager
3. In-Charge Administration
4. Supervisor of Project
5. Environmental Engineer

7.4` Environmental Management and Monitoring Plan Structure and Responsibility

Sr. #	Positions	Significance	Stage	Environmental Responsibilities
1	Proponent / Owner	Critical	Operations	• Oversee Environmental Policy and EMMP • Serve as primary contact to the regulatory authorities • Commit resources to achieve environmental objectives
2	All Employees	Critical	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	Operational Supervisor	Critical	Operational	• Understand the environmental policy of 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 • Ensure safe transportation of good/materials to and from the project site
4	Maintenance Manager	Critical	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 all machineries /equipment are in good conditions • Ensure health and safety of the workers during 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

Table 7.2: **Roles and Responsibilities**

7.5 Environmental Management Plan for M/S PMDC

Al-Badar Engineering (Pvt) Limited believes in sustainable resource management. The company I working the objective of sustainable development goals to achieve the sustainability by adopting CDM technology and working on the health of environment, health of workers, safety of workers, eradication of poverty, development of skill labor and implementation of green & clean environment agenda. That is why it has developed a comprehensive Environmental Management and Monitoring Plan for its operational phase.

Table 7.3: Environmental Management Plan

Sr. #	Environmental Element	Construction Phase	Operational phase
1	Air quality	➢ Continues water sprinkling will be done to avoid the dust at the construction site ➢ Vehicles should be in and out from the project site according to the schedule ➢ Monitoring of vehicles to equipped with CDM to ensure the safe fuel.	➢ In the production process of all plants developed by the company are working in good conditions. The plants are working are dust free as there is no such machinery is being used for the process and if they are the proper ventilation is provided along with the treatment technology. No such issue of air pollution during operation. It can be possible the road network may disturb by excessive use of vehicles, for that the proper management of routs will be done and for the dust or road infrastructure necessary measures are being taken. ➢ For the vehicles a proper plan has been adopted to ensure the safety of all components. ➢ Enclosing the raw material storage yard, maintaining it under negative pressure and equipping it with storage room to combat and reduce the risk of any emergency..

			➢ Storage site is also covered to ensure safety of all products and raw material from rain and water. ➢ Installing adjustable measurements to reduce dropping height ➢ Ensuring proper maintenance of equipment on-site ➢ Enforcing speed limits ➢ Adopting good housekeeping measures at Al-Badar Engineering to reduce dust build-up, the moto of the company is to keep the place clean and germ free, this massage is for every worker who is working inside the factory to secure their self from any contamination or injuries. ➢ Using low-sulfur fuels and raw materials ➢ Adopting a continuous monitoring program ➢ Al-Badar Engineering is responsible to take care of all environmental, safety measures, worker safety manual, training of worker. The company providing every equipment and safety instrument , regular drill monitoring, emergency combat

			plan, fire combat plan, every place/workshop safety manual. Staff training for combat with any hard situation to improve the health and safety of the worker by reducing the risk of accident, emergencies and make it zero injuries.
2	Solid waste	➢ During construction suite there will be dust, iron pieces or wrappers ➢ During construction phase the constructing material like concrete and mud etc will be reused to filling the ground while domestic waste will be managed by solid waste manger who will further deal with solid waste contractor	➢ Minimize, reduce, reuse and recycling ethics have been adopted at the company ➢ Segregating, properly storing, as well as disposing of empty chemical and fuel tanks along with the hazardous wastes generated. For that the proponent has designated separate bins for the collection of different material to reduce the risk and time of collection or injuries. ➢ Implementing a purchasing and inventory control as well as the "First In First Out" system ➢ Onsite from manufacturing, production and workshops unit their will be no solid waste if it is, the nature is of iron pieces that are reusable and recycleabe

			➢ Domestic solid waste will also be managed properly which will also be tackled by SW Manager ➢ Proper take care and daily management of resources, segregation is being adopted.
3	Traffic	➢ During installation of waste water treatment plan and machinery plant, vehicles will regulate according to the necessarily and time schedule ➢ Traffic will not be entered into the project site	Disseminating information regarding the transportation schedule at Al-Badar Engineering (PVT) Limited ➢ Maximum working during day time ➢ Avoid movement to unpaved roads ➢ Management of traffic schedules ➢ Limiting truck movements to off-peak hours ➢ Installing adequate warning and signing at least 500 m down ➢ safety signs have been installed ➢ limit for the speed that is 1km/h ➢ Adopting on-site traffic control measures ➢ Securing place for loading and loading at specific time to reduce the risk of accidents.

5	Noise	➢ Adopting proper scheduling of construction activities ➢ Using personnel protection gear such as earplugs, muffs, etc.	➢ Maintained vehicles with well equipped silencer to avoid noise ➢ Scheduling noisy activities during the daytime periods ➢ Operating well-maintained mechanical equipment on-site are being managed. The proper fuiling, greasing and even daily monitoring is being done to ensure the safety of the workers. ➢ Ensuring that equipment that may be intermittent in use should be shut down between work periods or should be throttled down to a minimum ➢ Installing rubber coating in dumpers and entry chutes ➢ Workers are strictly monitored for the PPEs use, if they are not wearing the penalty is enforced. ➢ All the workers are provided with all necessity PPEs for their safety. ➢ Controlling air-flow generated noise by adopting adequate sizing of inlet/outlet ducts ➢ Used of control devices/ equipment/ machinery with rubber handle to reduce noise and vibration

6	Soil quality	➢ Soil will not be spoiled in deep underground mining	➢ Storing of raw material onsite with careful consideration to avoid any kind of hazardous ➢ Proper maintenance of store site ➢ Properly storing chemicals and fuels on site ➢ Developing procedures for emergency clean-up of spilled fuel ➢ Avoiding the application of agrochemicals during on-site landscaping activities ➢ Proper maintenance of green places and lawns to increase the heath of environment ➢ The proper lawn and green belts are being managed to improve aesthetic beauty
7	Terrestrial biodiversity	➢ Said project site is located in the developed area where there is only self-planted species are presents ➢ At the proposed site for construction of wastewater ➢ At the project site there was no fauna which will be	➢ Preserving existing vegetation when feasible, avoiding fires, prohibiting the disposal of wastes, ➢ Adopted a proper vegetation program that uses indigenous stocks of local vegetation ➢ Maintenance of proper green belts, trees and lawns ➢ Maintenance of soil to increase the fertility of soil

		disturbed during installation of the plant and during operation of the plant.	
8	Resource use	➢ Resources utilization during installation of WWTP plant will be done in sustainable way. ➢ The resources will be in record and properly managed so that in less resource maximum output could be achieved.	➢ Using closed loop water recovery systems as well as providing provisions for the collection and use of water ➢ Implementing a power consumption audit ➢ Using energy-efficient equipment that should be properly operated, maintained, and turned off whenever not in use ➢ Adopting computer aided deposit evaluation and preparation techniques that can be used to plan for optimal quarrying schemes
9	Trash burning	➢ Trash burning at the project site will not be allowed. Smoking and burning will be prohibited at the project site.	➢ Trash burning at the project site is strictly prohibited. Smoking and burning is strictly prohibited at the project site. ➢ Proper collection of waste is being done and segregated for the reuse and remaining is collected by sanitary worker

10	Dust	➢ During construction phase continues sprinkling of water will be done at the project site so that dust would be maintained at the surface level only.	➢ During operational phase continues dust cleaning is being done. ➢ If necessary sprinkling of water to reduce the dust is also being adopted.
11	Staff for environmental management plan	➢ Staff is properly trained regarding follow the SOPs of the system and adopt all safety measures during working so that health risk and incident risk at the plant should be minimum	➢ Staff will be properly trained regarding follow the SOPs of the system and adopt all safety measures during working so that health risk and incident risk at the plant should be minimum ➢ Time by time training schedule is being followed in whole operation of the plant so that risk factor would be negligible. ➢ The proper training on different skills, health and safety, emergency combat in situation of fire, fire fighting arrangements, rescue team, roll call team, first aid team is developed. ➢ Monthly training schedule is being followed. ➢ List is attached with annexed
12	Health and safety	➢ Restricting access to the facility by proper fencing Maintaining	➢ Restricting access to the facility by proper fencing Maintaining a buffer area around the facility

		a buffer area around the facility and the quarry with a radius of 500 m ➢ Installing warning signs in Arabic and English at the entrance of the facility to warn people about the risks associated with the cement industry ➢ Displaying emergency telephone numbers for Police, Ambulance, and Fire services ➢ Locking gates outside working hours ➢ Provide complete PEP's to the workers and encouraged them to use PEP's during working hours ➢ Provide first aid box at the site	and the project operation with a radius of 500 m ➢ Proper warning signs have been installed. The entrance of each area is being installed with safety signs to make awareness about the risk of the area. The warning sign are elaborating the associated risk of the area. ➢ Installing warning signs in at the entrance of the facility to warn people about the risks associated ➢ Displayed emergency telephone numbers for Police, Ambulance, and Fire services ➢ Proper boundary wll have been developed and construct to make the territory secure form the unauthorized access. ➢ Erecting site identification board of durable material and finish at the entrance of the site giving the name of the site, and the name, address and telephone number of the site operator ➢ Providing 4individualsfor 24 hour guard for the facility Keeping a daily record of persons and vehicles entering/leaving the site

			➢ complete PEP's provided to the workers and encouraged them to use PEP's during working hours ➢ first aid box have been provided at the project
14	Ensuring site safety	➢ Visitors report to the site office where they should sign-in and be issued a pass. ➢ Visitors should also sign out on departure and surrender their pass. ➢ Personnel and visitors to the operational areas of the site wear personal protective clothing inclusive of high visibility clothing, protective footwear, and safety helmets	➢ Visitors report to the site office where they should sign-in and be issued a pass. ➢ Visitors should also sign out on departure and surrender their pass. ➢ No visitors have been permitted to access the operational areas unless they have received the express permission and have attended a site safety briefing or are accompanied by an employee familiar and knowledgeable in site safety procedures ➢ Staff and employees working on-site must attended a safety and operational course before commencing work ➢ Personnel and visitors to the operational areas of the site wear personal protective clothing inclusive of high visibility clothing, protective footwear, and safety helmets

15	Enhancing safety at site facilities	➢ Safety is prior factor at the project site. ➢ Barriers will be maintained at the project site during installation of plant. ➢ First aid box will be at project site at certain points ➢ Emergency code will be mentioned at point so the project site ➢ Emergency numbers will be enlisted at the various points of the plant	➢ The explosive storage facility is fenced with barbwire, locked, guarded, and has access to a well-compacted road and firefighting equipment ➢ A drinking water supply is provided at the site Tanks are clearly labeled with details of contents, potential hazards (e.g. explosive, flammable, toxic etc.), and emergency services telephone numbers ➢ Electrical grounding is ensured while handrails and guard railing should be regularly inspected and maintained ➢ Compacted service roads are provided and maintained from the site entrances to the active quarry areas
16	Regulating transportation on-site	➢ Transportation will enter and leave the project site according to the requirement and schedule ➢ Only plant vehicles or staff vehicles will be entered in the project site.	➢ Vehicles should be licensed and have appropriate third party insurance ➢ Transportation will enter and leave the project site according to the requirement and schedule ➢ Only plant vehicles or staff vehicles will be entered in the project site.

17	Developing emergency/contingency plans	➢ Emergency code will be mentioned at point so the project site Emergency numbers will be enlisted at the various points of the plant	➢ A safety specialist should be responsible for the preparation, implementation and maintenance of a safety program, which should be periodically evaluated. The responsibility of the safety specialist includes performing safety training and conducting safety inspections, sessions and practice. He should also be responsible for the investigation of accidents. A safety committee should be formed and regular safety meetings should be organized. ➢ Contingency plans should be established to maintain occupational health and safety procedures for various aspects of operations, identify likely accidents, outline emergency scenarios, establish command hierarchy, organize communication lines, determine response actions, delegate responsibilities, designate evacuation signal, identify critical points mark on appropriate maps for each work area, and coordinate with local

			fire service, police and ambulance services. ➢ All safety equipment and tools should be regularly maintained. In addition, environmental friendly firefighting equipment such as dry powder extinguishers should be provided within the premises of the facility. ➢ Annual fire fighting training drills for the operating staff should be conducted. The safety specialist should prepare, implement and maintain a comprehensive fire protection and prevention program. The safety specialist should also be responsible for the inspection and maintenance of the fixed and portable fire protection equipment and for the investigation of fire incidents
18	Ensuring personnel protection	➢ Individuals working on the cement manufacturing line should be provided with overalls, PEP's type overalls for wet weather working, respiratory masks,	➢ Individuals working on the cement manufacturing line should be provided with overalls, PEP's type overalls for wet weather working, respiratory masks, eye protection plugs, ear protection plugs and defenders; and high visibility waistcoats

		eye protection plugs, ear protection plugs and defenders; and high visibility waistcoats ➢ Uniforms and Personal Protection Equipment (PPE) should be kept hygienic and in good condition. Workers should also be trained on the appropriate use of PPE and be convinced with the importance of using PPE for their own safety and welfare. ➢ The periodic health monitoring program for on-site workers should be enhanced to allow record keeping of all illnesses and accidents occurring on-site. Regular medical checkups should be provided	➢ Uniforms and Personal Protection Equipment (PPE) should be kept hygienic and in good condition. Workers should also be trained on the appropriate use of PPE and be convinced with the importance of using PPE for their own safety and welfare. ➢ Personal ID cards should be provided for all employees A trained first aider should be present on-site at all times during operational hours. First aid kits should be kept at several locations and be regularly inspected to replenish any deficiencies ➢ The periodic health monitoring program for on-site workers should be enhanced to allow record keeping of all illnesses and accidents occurring on-site. Regular medical checkups should be provided for staff on a semiannual basis

		for staff on a semiannual basis	
19	Socioeconomic	➢ Local community will be encouraged to work at the plant site ➢ It will be ensured that there will be no dispute among the staff which can cause any sort of issue at project site ➢ Respect will be priority parameter among workers	➢ Adopting policies to recruit locally and to hire local contractors when possible ➢ Adopting a monitoring plan to assess potential adverse impacts on nearby receptors ➢ Instigating a formal system which responds in a timely fashion to complaints about nuisances (air pollution, noise, etc.) ➢ Making emergency response teams available to local municipalities ➢ Making company clinics available to the surrounding community ➢ • Committing to the publishing of data and reports Coordinate with local fire fighting squadron on environmental performance

7.6 Environmental Monitoring Plan

Environmental monitoring is being followed and will be strictly 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 is including parameters that are mentioned in the Environmental Approval accorded by the Environmental Protection Agency, Punjab for getting approval under section 12.

Environmental monitoring plan will be followed during whole construction as well as operational period of the cement plant.

7.7 Institutional Arrangement

Administration under the supervision of the maintenance manager provides report directly to the Chief Executive Officer. The administration consists 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. Complete organ gram of the PMDC is attached herewith this EIA report as an annexure.

7.7.1 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.

7.7.2 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, PMDC ensures that the employees, contractors and workers receive appropriate environmental awareness training. Staff training is being conducted on regular basis and it 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 Their roles and responsibilities (including environmental incident reporting)

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

#	**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 keep the environment neat and clean • 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	• Wastewater regarding domestic waste is managed properly by the septic tanks. • There is no wastewater during operation. Waste water will be domestic in nature and will be collecting in septic tank. This waste water will be discharged after 3-4 days on regular intervals.
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

7.8 Environmental Audits and Reviews

M/S PMDC 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 the operational phase of the proposed project under the supervision of the administration.

7.9 Public Consultation

Social survey was held with the surroundings from the project area. They were of the view that the project has opportunities for surrounding people as well as will bring new income opportunities for the surrounding community ultimately helping in the reduction of poverty in the area to a greater extent. A sample of the questionnaire used for public consultation is attached along as **Annexure.**

Emphasis was placed on community 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 project area are well aware of the project and can well anticipate the activities that would entail once the project enters its operational phase. All of the respondents who participated in the public consultation process welcomed the project considering it beneficial both economically and socially. According to their point of views, the project boost to their income by providing small income generating opportunities. People foresee this project as a positive precursor that would give rise to employment opportunities and small vendor's activities. No opposition from the public was confronted for the project.

7.10 Compensation in Money Terms

The project is lies within the lease area and there is no population in the radius of 8-10 kilo meter. There is no cutting of flora and no harm to fauna by this project. There is no any structure or residence which is going to be damaged by project so there is no need for money compensation. Project is environment friendly.

7.11 Replacement, Relocation and Rehabilitation

Project plant is installed among the leases where there is neither any population nor any structure. So there is no need for replacement, relocation and rehabilitation of project. The operation of PMDC is environment friendly and sound.

7.12 Elements of Occupational Health and Safety Management System (OHMS)

For an effective OHMS, the management of the project lead towards implementation the following elements:

- Formulation of OHS Policy
- Identification of risks, hazards and countermeasures
- Adoption of OHS Targets based on OHS Policy
- Incorporation of opinions of stakeholders in OHS Plan
- Implementation and operation of OHS plan
- Establishing an organizational documentation
- Routine inspection and improvements system audits
- Revision of OSHMS

7.13 Summary Of Impacts And Their Mitigation

Considering all the impacts and their mitigation measure are anticipated to save the environment. Every impacts have been well observed and evaluated for the safety of the environment and residence of the area. The social, economic, health of the environment, locals health and their affecting components have been designated accordingly to ensure the safety of all associated components. Environmental components includes air, noise, water, water consumption, utilization of sources, construction and operation phase impacts and their associated components have been evaluated. The degree of each components and

their mitigation is given in the chapters 6&7 for the sustainability of the project implementation and longitivity of the project to increase the outcome by not deteriorating of the environment.

CHAPTER VIII: CONCLUSIONS AND RECOMMENDATIONS

M/s Muhammad Afzal Associates is going to be constructed for the formation of iron billets, iron bars, graphite powder and copper powder. The iron, graphite and copper will be in proper packed form and all protocols related to project will be adopted. The project falls under Schedule-2, the project requires an Environmental Impacts Assessment (EIA). In order to ensure compliance with the lawful provision of section 12 of PEPA 1997 (Amended 2012) read with IEE/EIA Regulations 2000, the 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 construction as well as during operational 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.

While project is itself an ideal location because there will be an open area where plantation will be planted for aesthetic beauty and against the compliance of environment friendly conditions.

All infrastructure e.g., road, sewerage, water supply, electric supply, gas etc. already exist in the project area. The project is an environmental friendly site. Sand filtration units are provided in the site premises for the treatment of domestic wastewater. The project has its own administration set up for environmental monitoring and maintenance of site during operational stage. In order to handle fire hazards, fire hydrants and sprinklers are 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.

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

The proposed project is also based on the principles of sustainable development.

7.1 Conclusion

In view of the above it has been concluded M/s Muhammad Afzal Associates project is environmental friendly and sound practice. It is therefore requested to issue the environmental approval under section 12 of PEPA 1997 (Amended 2012) for the project that will bring prosperity in context of providing iron billets, graphite and copper powder in market that will be cost effective.