EXECUTIVE SUMMARY

INTRODUCTION

This executive summary presents an overview of the main findings of the Envionmental Impact Assessment (EIA) report for the Establishment of "Asphalt plant By M/S MRC "located at Opposite Dry Port Sher shah Road Multan. Envionmental Impact Assessment (EIA) of the project has been conducted in accordance with the Punjab Environmental Protection (Amendment) Act, 2012 and IEE/EIA Regulations 2000. The process for conducting environmental assessment and the results of EIA are described in this document.

SALIENT FEATURES OF PROJECT:

PROPONENT NAME: Mian Muhammad Khan
PROJECT TITLE: Asphalt Plant owned by M/s MRC
PROJECT LOCATION: Opposite Dry Port Sher shah Road Multan
CONSULTANT NAME: Pak Eco Enviro-Engineering (PEEE)
TOTAL AREA: 37.6 Kanal
COST OF THE PROJECT: 80 Million
SOURCE OF WATER: Groundwater (40 ft.)
DISTANCE FROM INDUSTRY: No industry within 02 km from site
NATURE OF AREA: Barren Land/Open Land
SOURCE OF POWER: MEPCO
GENERATOR: 500 KVA
CURRENT STATUS OF PROJECT: Open Plot
WASTEWATER: Only domestic
SOLID WASTE MANAGEMENT: Will be managed by management.

BRIEF OUTLINES OF THE PROJECT

This Report presents the Envionmental Impact Assessment (EIA) of the Establishment of project namely **Asphalt Plant By M/S MRC** . The main objective of the study is to point out all possible impacts arising from the construction and operational phase of the project and to find out appropriate measures for their mitigations, to either eliminate those impacts or to bring them to acceptable level.

This Environmental Impact Assessment (EIA) identifies the baseline of environmental, physical and the socio-economic conditions and the potential impacts along with formulation

of suitable mitigation measures of an environment friendly implementation of the project.

SCREENING

As per Review of Initial Environmental Examination (IEE) and Environmental Impact Assessment (EIA) Regulations, the project of Asphalt Plant falls in B category mentioned in Schedule II in IEE/EIA Regulation 2022.

ENVIRONMENTAL CONSULTANTS:

An Environmental Impact Assessment (EIA) study report has been prepared to identify and predict the significant environmental impacts likely to arise from the commencement of the project along with environmental impact statement followed by delineation of appropriate Environmental Management Plan and Environmental Monitoring Plan to check the implementation of the EMP. Proponents of grinding unit have decided to conduct EIA report through Environmental Consultants, namely Pak Eco Enviro-Engineering at Office No.12 First Floor Ahmad Commercial Arcade Hazori Bagh Road Chongi# 9 Multan.

MAJOR IMPACTS AND 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) for impacts identified as significant, evaluation of the residual impacts and identification of the monitoring requirements, adequate and effective mitigation measures have been adopted for all construction and operation related likely environmental impacts of the project. These mitigation measures were adopted in order of attempts to eliminate or minimize the impact, provide some compensation or rehabilitate the environment by some means.

Since the project is to be commenced on Proponent owned area and no human settlement exists on site, construction related impacts are not expected to extend to the community. Anticipated impacts associated with the construction phase however include noise (machine noise and vehicular noise), air emissions from earthwork and construction machinery and vehicles, and soil contamination due to leakage from or accidents of the construction or transportation vehicles or during on-site refueling, solid waste from construction, municipal water used and safety of the workers and employment conflicts as the major adverse environmental impacts. Impacts during operational phase will be mitigated in environment friendly manner. A wet

Scrubber having cyclone separator will be installed at one end of circulating drum dryer. Cyclone Separator will entrap dust particles emitting from drying process and gasses from combustion will be captured in the wet scrubber. Water will be used as scrubbing liquid. Water will be showered in wet scrubber. Water droplets remove the particles other contaminating gasses from the exhaust gases. This will be done by breaking up the water into small droplets and bringing those droplets into direct contact with the dust-laden gases. Wet scrubber will remove smoke and PM up to allowable limits. Water will be recycled after passing through settling tanks and make up water will be added.

Key impacts related to the operation phase include:

- Wastewater
- Solid Waste
- Energy Management
- Safety, Public Health & Nuisances

ENVIRONMENTAL MANAGEMENT & MONITORING PLANS:

Environmental impact of a project is worked out using various factors and parameters, so that an Environmental Management Plan can be evolved to take mitigation measures, wherever these might be considered necessary in order of appropriateness of elimination, reduction and compensation as the goals. The development of the EMP is to make some person responsible for implementing the mitigation measures as identified so that smooth implementation of the mitigation measures can be assured. Monitoring plans have also been included to ensure the compliance of the EMP by contractors and other responsible authorities. These plans have been included in Chapter-6 of the report.

During construction, ambient air quality for dust level in particular, vehicle and equipment exhaust, noise level (tests), solid waste management and soil contamination, and community and workers' safety (visual) need to be monitored. Monitoring Plan has been included in Chapter-6. During operation solid waste management will be monitored. Plan has been included in Chapter-6.

CONCLUSION

The Environmental Impact Assessment contains description of the project, description of the environmental baselines, potential environmental impacts and suggested mitigation measures. An implementation mechanism for mitigation measures in the form of an Environmental Management Plan is included in the study. While the objectives of this study have been to describe the project and its environmental impact, it also identifies adverse environmental aspects associated with the project. Appropriate mitigation measures as explained in the environmental study should reduce, if not eliminate, these impacts so that these may remain within acceptable limits.

It is concluded in this study that all potential environmental concerns associated with the project have been adequately addressed, and no further study is required in this context. This report further draws the conclusion that the impacts identified are easily manageable and reversible, no long-term impact is expecting and no deterioration or consequential depletion of local natural resources is expected. It is accordingly recommended that Environmental Approval for the project should be issued by the Punjab Environmental Protection Agency, subject to payment of the requisite scrutiny fee by the proponents of the project.

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Chapter 1: INTRODUCTION

1.1 GENERAL

This Report presents the Environmental Impact Assessment (EIA) of the Establishment of project namely **Asphalt Plant By M/S MRC** . The main objective of the study is to point out all possible impacts arising from the construction and operational phase of the project and to find out appropriate measures for their mitigations, to either eliminate those impacts or to bring them to acceptable level.

This Environmental Impact Assessment (EIA) identifies the baseline of environmental, physical and the socio-economic conditions and the potential impacts along with formulation of suitable mitigation measures of an environment friendly implementation of the project.

1.2 IDENTIFICATION OF THE PROPONENT

Name of Proponent: Mian Muhammad Khan

Residential Address: Banglow #1/11, Quaid-e-azam road Multan Cantt

1.3 DETAIL OF ENVIRONMENTAL CONSULTANTS

An Environmental Impact Assessment (EIA) study report has been prepared to identify and predict the significant environmental impacts likely to arise from the commencement of the project along with environmental impact statement followed by delineation of appropriate Environmental Management Plan and Environmental Monitoring Plan to check the implementation of the EMP. Proponent of Asphalt Plant have decided to conduct EIA report through Environmental Consultants, namely Pak Eco Enviro-Engineering at Office No.12 First Floor Ahmad Commercial Arcade Hazori Bagh Road Chongi# 9 Multan .

1.4 IDENTIFICATION OF THE PROJECT

The Project under study is titled as Establishment of Asphalt Plant. Its salient features have been described later in this Chapter 3 and briefly in Executive Summary of the EIA.

1.4.1 Nature of Project

This project is the Establishment of Asphalt Plant.

1.4.2 Size of Project

Project is consisting of 37.6 Kanal.

1.4.3 Location of Project

This project is to be located at Opposite Dry Port Sher shah Road Multan.

1.4.4 Area of Project

Project will have total area of 37.6 Kanal.

1.4.5 Cost of the Project

Cost of project has been estimated at 80 Million including Capital and Operational Cost.

1.5 APPROACH AND METHODOLOGY

Section 12 of the Punjab Environment Protection (Amendment) Act 2012 requires the proponent of every development project in the country to conduct either an Initial Environmental Examination or an Environmental Impact Assessment where the construction and operation phase of the project is likely to cause an adverse environmental effect. This Environmental Impact Assessment (EIA) is to be submitted to obtain Environmental Approval for the project from EPA Punjab.

1.6 PURPOSE OF THE REPORT

This report serves two purposes. Firstly, it provides necessary information to the Punjab Environmental Protection Agency to determine whether the project poses any environmental threat. Secondly, it would serve as a ready-reckoned for the proponents to manage the project during the operation in an environment-friendly manner and abide especially by recommendations of the Environmental Management Plan and the Environmental Monitoring Program. The main aims and objectives of this Environmental Impact Assessment (EIA) study are to identify baseline environmental, physical and socio-economic conditions pertaining to the project, examine project alternatives, and discuss potential impact, along with formulation of suitable mitigation

measures for environment-friendly implementation of the project.

1.7 SCOPE OF THE STUDY

Laws, rules, regulations and guidelines that were considered while formulating this Environmental Impact Assessment (EIA) report include:

- Punjab Environmental Protection (Amendment) Act 2012
- Guidelines for preparation and review of environmental reports
- Guidelines for public participation
- National Environmental Quality Standards (NEQS)

This study assesses environmental, social, physical and other aspects of the project, during operation, and identifies measures necessary to be adopted to mitigate any environmental impact on any segment of the local and surrounding environment.

1.8 STUDY METHODOLOGY

This study has been completed using a common template for project, through a qualified team. Key steps followed while conducting the study were screening, scoping, data collection and compilation, environmental screening and impact assessment, documentation and consultation. Screening process comprised compilation and review of information on the project. Most of this information was obtained from the proponents and added to data on relevant legislation, regulations, guidelines and standards. Documentation was the last step of the study, which comprised collation of data and preparation of this report along with requisite appendices in proof of the study and its findings.

1.8.1 INCEPTION PROCEDURES

In order to complete the study within the time span desired by the proponents, a team was assembled to carry out the study and specific assignments were entrusted to each member of the team, each of whom were armed with the resources, tasks and instructions

1.8.2 DOCUMENT RESOURCES

The purpose of discussions with the proponents was to collect documentation and background information on the project. The reliability of a study depends on authenticity and depth of baseline information to assess possible impacts on existing environment.

1.8.4 SOCIO-ECONOMIC BASELINE SURVEY

A socio-economic survey was carried out to gather data about demographic characteristics of the project area, education and literacy, nature of businesses and vocations, income and expenditure patterns, value of assets and possible impact of the project under review on all such parameters.

1.8.6 ASSESSMENT OF ENVIRONMENTAL AND SOCIAL IMPACTS

While assessing environmental and social impacts of the project, the factors considered included, firstly, the nature, magnitude or degree of the impact; secondly, the extent of impact on development works; thirdly, time, duration and frequency of the impact; fourthly, probability of occurrence of the impact and finally, importance or the sensitivity of impact.

1.8.7 CONSULTATION WITH THE ENVIRONMENTAL PROTECTION AGENCY

In accordance with guidelines prescribed for preparation of environmental reports, consultation has been advised with the relevant Environmental Protection Agency. This serves two purposes. Firstly, by providing details about the project to the Environmental Protection Agency, a proponent is informed whether the project requires an Initial Environmental Examination or an Environmental Impact Assessment. Secondly, interaction with an environmental agency equips the environmental consultants with advancements in techniques relating to preparation of environmental studies and to keep abreast with any changes in requirements of the environmental agency. Innovations can be conveyed by the environmental agencies to proponents and environmental consultants only through a consultative process.

1.8.8 CONSULTATION WITH THE PROPONENTS

An environmental study cannot be completed in a comprehensive manner without consultation with the proponents of a project. Accordingly, the environmentalists associated with the study met the proponents on various occasions and held discussions to gather information about the background, planning, and operational stages of the project.

1.8.9 DRAFT REPORT

EIA draft report was prepared under guidelines issued by the Punjab Environment protection Agency which was submitted to the proponent for their comments.

1.9 STUDY TEAM

Table 1: List of Experts

Sr. #	Name	Qualification
Team Leader		
i.	Dr. Usama Zafar	PhD Environment
External Expert		
ii.	Dr. Jabir Syed	Port Doc. Environment
Bio Diversity Specialist		
iii	Dr. Jamshed Ch.	PhD Zoology
Environmental Scientist		
iv.	Munawar Chaudhary	M.Phil. Environment
v	Waqar Ahmad	M.Phil. Environmental Sciences
vi	M.Wajid	MSc GIS
vii.	Hassan Zaidi	BA Economics
viii.	Abdul Mannan Mirza	Chemical Engineer

1.10 DOCUMENT STRUCTURE

The report comprises of following chapters;

Chapter 1: **Introduction** (Briefly presents the project introduction, objectives and need of the Study).

Chapter 2: **Policy, Legal and Administrative Framework** (Comprises the policy, guidelines and statutory obligations concerning EIA study of the project).

Chapter 3: **Project Description** (Presents relevant information about the project and its major components).

Chapter 4: **Description of the Environment** (Establishes baseline conditions for physical, biological and socio-economic conditions of the Project area).

Chapter 5: **Environmental Impacts and Mitigation Measures** (Deals with the potential environmental impacts and mitigation measures, which have been implement to mitigate the environmental impacts of the Project).

Chapter 6: **Environmental Management Plan** (Outlines institutional structure for the implementation of the Environmental Management Plan).

Chapter 7: **Recommendations and Conclusion** (This chapter gives recommendations for elements of special interests and concludes the whole report).

Chapter: 2: STATUTORY REQUIREMENT & STANDARDS

2.1 GENERAL

This section deals with the current policy as well as legal and administrative framework related to carrying out of Environmental Impact Assessment (EIA) of the project. An efficient and effective organization 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.

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. The principal of sustainable development are in the process of being incorporated in to 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.

2.2 EXISTING REGULATION AND 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).

2.3 INSTITUTIONAL SETUP

2.3.1 ENVIRONMENTAL PROTECTION COUNCILS

The Punjab Environmental Protection Council (PEPC) is the apex decision-making

body of Punjab. It has been developed under the provision of PEPA, 2012. It is headed by Chief Minister of Punjab with other members.

2.3.2 PUNJAB ENVIRONMENTAL PROTECTION AGENCY

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.

2.3.3 ENVIRONMENT PROTECTION DEPARTMENT, PUNJAB

The Punjab Government has established Environment Protection Department (EPD) administratively headed by 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 province.

2.4 RELEVANT LEGAL / INSTITUTIONAL FRAMEWORK

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

A number of laws have been promulgated by the Government of the Pakistan (GOP) to deal with the environmental and social aspects related to the implementation of various development projects in the country.

In 1983, the GOP issued an Environmental Protection Ordinance (EPO) that was replaced by the PEPA, 1997, through an Act of Parliament. The PEPA 1997 has been confined to Federal Area and provinces have been allowed to formulate their own environmental legislation.

Under the Act, it is mandatory to carry out IEE or EIA for all development projects. The GOP has also frame guidelines for environmental assessment of projects in various developmental sectors, According to PEPA 1997, the National Environmental Quality Standards (NEQS) were established for effluents emitting from various Municipal and Industrial sources. The latest revision of NEQS as carried out in year 2001.

Provincial Environment Protection Departments are also working on the formulation

and enforcement of environmental statutes and by-laws. The GOP has issued several policies guidelines and adopted measures for streamlining the environmental assessment including the transportation sector. Though, the need for environmental screening and assessment has received some weight age during the recent past, strict implementation of the NEQS is still a dream to be realized. The applicable laws for the environmental study of the Project are briefly described below:

2.4.1 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 was necessary to carry out IEE / EIA for all development projects, but there were no IEE / EIA regulations under that ordinance.

2.4.2 PUNJAB ENVIRONMENTAL PROTECTION ACT (AMMENDMENT) 2012

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

2.4.3 NATIONAL ENVIRONMENTAL POLICY 2005

Govt. 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.

2.4.4 REVIEW OF IEE AND EIA REGULATIONS 2022

The Govt. of Pakistan has issued Review of the Initial Environmental Examination and Environmental Impact Assessment Regulations 2022, to review the Initial Environmental Examination (IEE) / Environmental 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 require an IEE rather than EIA, provided they are not located in environmentally sensitive area whereas projects listed in Schedule-II require filing an EIA.

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 Environmental approval for construction phase of the project will be valid for three years from date of accord.

2.4.5 GUIDELINES FOR THE PREPARATION OF IEE/EIA REPORTS

The Govt. of Pakistan has also framed guidelines for the preparation of IEE / EIA of projects in various developmental sectors.

2.4.6 THE LOCAL GOVERNMENT ORDINANCE, 2001

Schedules 4 and 8 of this ordinance pertain to environmental pollution. There is 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.

2.4.7 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".

2.4.8 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.

2.4.9 FACTORIES ACT, 1934

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

2.4.10 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 also 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 3: PROJECT DESCRIPTION

3.1 GENERAL

Asphalt plants mix gravel (stone crush) with coal tar (crude oil derivative) to make the asphalt used to pave roads, highways.

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.

3.2 TYPE AND CATEGORY OF PROJECT

As per Review of Initial Environmental Examination (IEE) and Environmental Impact Assessment (EIA) Regulations, the project of Asphalt Plant falls in B category mentioned in Schedule II in IEE/EIA Regulation 2022.

3.3 OBJECTIVE OF THE PROJECT

The following activities were adopted at the project site:

- Construction of plant for manufacturing of asphalt.
- The production of asphalt at competitive price.
- Socio- economic well-being of the local communities.
- Asphalt is the sustainable material for construction.
- From the production through recycling, asphalt has minimum impacts on the environment.
- Asphalt plant is environment friendly.

3.4 SITE ALTERNATIVES

The developing of an Asphalt Plant is a commercial venture. Availability of land at the adjacent to the existing plant and at reasonable price was yet the other considerations for this plant is best suited. Availability of access roads, communication facilities, electricity, basic infrastructure etc. was yet the other necessary requirements. Of course neat and clean environment was also the other consideration.

Keeping these requirements and their availability, the present site is the best suited for the construction of the project. All the other basic infrastructural requirements are available at the selected site. Accordingly, the selected site is ideally suited for construction of the asphlat Plant. Keeping these considerations in mind there is no need of alternatives to be considered.

3.5 LOCATION OF PROJECT SITE

The project site is located Opposite Dry Port Sher shah Road Multan.

3.6 AREA OF THE PROJECT

The total area of the project is 37.6 Kanal. Map of the project is attached in **Annexure-III.**

3.7 NUMBER OF WORKERS

20 workers were present during the construction phase of the project and 06 workers will be present during the operational phase of the project. All workers will be on daily wages.

3.8 LAND USE ON THE SITE

land is open plot.

3.9 ROAD ACCESS

Sher Shah road main road near the site.

3.10 VEGETATION FEATURES OF THE SITE

At present, most of the Project Area is Open Plot. The project has open area on its right, left and back sides of the project site, while Road is in front of the existing project site.

3.11 COST AND MAGNITUDE OF OPERATION

This project "Asphalt Plant" intends on construction with total area of 37.6 Kanal. The cast of project is 80 Million. It includes the planning work, site survey, geotechnical investigations, site clearing work, infrastructure work, structural work, electrical and mechanical works and Activities of construction includes the followings:

- Site clearing
- Demarcation of the Area for various facilities
- Infrastructure works (water supply, electrical works etc.)
- Installation of Machinery

- Plantation of plants

3.12 SCHEDULE OF IMPLEMENTATION

It is estimated that the entire project is ope plot.

Table 3: Schedule of Implementation

Activities	Time in Months											
	2	4	6	8	10	12	14	16	18	20	22	24
Environmental Reports												
NOC Issuance												
Construction Works												
Tree Plantation												
CSR												

3.13 DESCRIPTION OF THE PROJECT

Asphalt batching plant makes hot mix asphalt in batches. Asphalt plant process are mix of several mechanical. Electrical components that help make HMA. This equipment can be mobile or stationary. Other types of plant that are available in the market today. It is drum mix plant and counter flow plants. But in general the major categories are batch plant and continuous plants.

Asphalt batch plant process involves drying of aggregates and separating. Each aggregate in different compartments and then mixing them in a twin shaft mixer. With bitumen and filler material. In the drum mix plant. The aggregates are heated and mixed with the bitumen and filler material in a continuous process. Both the process however help in making hot mix asphalt. The difference lies in the process.

Advantages of batching plant:

- Most accurate equipment to make hot mix asphalt
- It is possible to easily incorporate recycled asphalt in the mix.
- It is possible to control the production and quality of the end product.
- Components are make a batch weighed individually before the mixing process.
- This plant helps to work with many clients as recipes. It can be changed easily without compromising on the quality.

Batch plant components:

In a batch plant aggregates are heated, weighed. Then mixed with the bitumen and filler material. In certain cases when there is a need to use recycled material. RAP is weighed separately and then mixed with the weighed aggregates in the mixing unit.

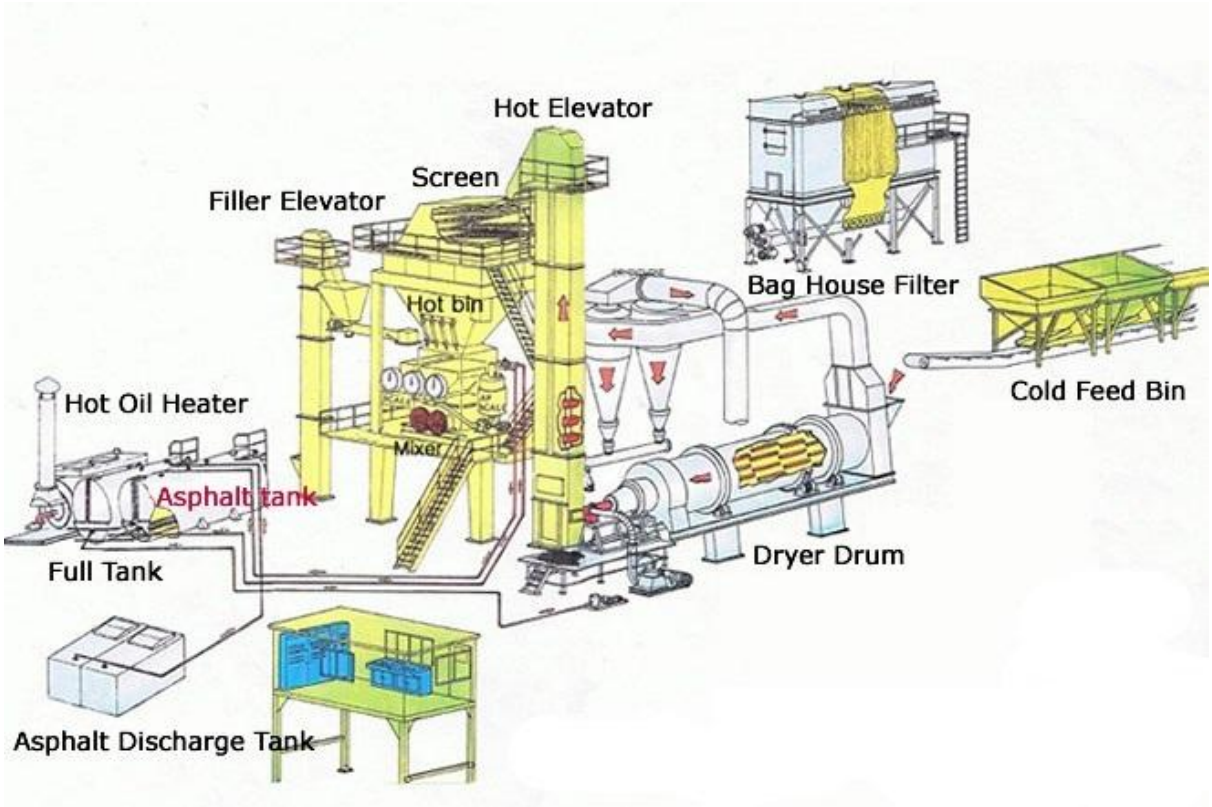
Basic components are as:

- Feeding unit
- Primary screen and charging conveyor
- Drying drum with burner
- Primary and secondary pollution control devices
- Vibrating screen
- Hot bins
- Mixing unit
- Bitumen tanks
- Hot oil heater
- Filler addition silo / hopper
- RAP feeder
- Storage silo
- Control panel

Batch plant process:

The feeder bins store different sizes of virgin aggregates in separate compartments. The aggregates are then transferred to the drying drum by the help of a conveyor. There is a primary vibrating screen for screening oversized material. Inside the drum and the virgin aggregates will undergo heating and drying process. There is a burner which helps in drying and heating the aggregates. Material enters on the opposite side of the burner and travels. The entire drum length to come out from the burners. End to be transferred to the vibrating screen on top of the tower unit. Since the entry of aggregates and burner flame is opposite to each other. This process is called as counter-flow process. The tower unit of the machine consists of multiple deck vibrating screen on the top followed by hot bins. Below the hot bins is the mixing unit. As the material enters the vibrating screen. They are screened and separated in different compartments as per their size. These storage compartments are

known as hot bins. A required recipe is set in the control panel and weighing. Aggregates are done at the hot bins. So that the required amount of aggregates are added. Each bin has individual scales which ensure that the correct proportion. Each aggregate is weighed and mixed. This ensures that the **batching plant** is most accurate. Delivers the exact material. At the same time, bitumen and filler material is weighed and added in the mixer. Mixing time is controlled by the control system. After the homogeneous mixing. The hot mix asphalt is transferred to storage silos or directly unloaded into waiting trucks. There are storage tanks for bitumen and storage facility for filler material. Dry dust collector will help trap heavy dust particles. The finer dust will be trapped by the bag filters. Bag houses are known to be the best pollution control devices for **asphalt plant**. The amount of material that the mixer makes in a specific time till it opens. Its gate for unloading is called as a batch. The total capacity of batches in an hour will determine the production capacity of the equipment.



SPECIAL FEATURES

- Proper drying and homogeneous mixing of aggregate
- Less fuel consumption
- Weather proof control panel

- High production rate at low operating cost
- Healthy and spacious structure
- Easy operation and minimize maintenance

3.13 RESTORATION AND REHABILITATION PLANS

There exists no human settlement above 1 km radius of the selected project site to be displaced owing to the commencement of the Project as it is located in open plot. No structure of any significance stands at the site to be relocated or dismantled. So there is no relocation and rehabilitation is required.

3.14 GOVERNMENT APPROVALS

The said project the Management has applied for Environmental Approval and after getting Environmental Approval, they will apply for other required approvals. The domain of stone crushing which will not generate any adverse impacts on surrounding environment and it is environment friendly at all aspects.

CHAPTER 4: DESCRIPTION OF THE ENVIRONMENT

GENERAL

This section covenants with the prevailing environmental conditions of the project area. Information that has been collected from different sources, including public literature, reports of other studies conducted in this area, knowledge with the proponent and the concerned government departments and the first-hand surveys and field measurements has been presented in this section. This chapter of Environmental Impact Assessment (EIA) encompasses all the important aspects of local environment; such as biological resources, socioeconomic development and quality of living values.

4.2 PHYSICAL ENVIRONMENT

This part examines the physical resources such as topography, soil, climate, surface and ground water resources and quality, ambient air quality and geology of not only the project site but also the city as a whole to assess whether the project under assessment can or does have any impacts on any of these parameters. The description of physical environment of Faisalabad city and the project site is presented in the following sub sections.

4.2.2 TEMPERATURE

The climate of Multan is typical of that of southern Punjab. The maximum temperature in summer reaches 42°C. In winter the minimum temperature is 4.5°C. The mean maximum and minimum annual temperatures in summer are 32.6°C and 28.6°C respectively. The summer season starts from April and continues till October. May, June and July are the hottest months, The winter season starts from November and continues till March. December, January and February are the coldest months.

Climate data for Multan [hide]													
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Record high °C (°F)	28.3 (82.9)	32.0 (89.6)	39.0 (102.2)	45.0 (113)	48.9 (120)	52.0 (125.6)	52.2 (126)	45.0 (113)	42.5 (108.5)	40.6 (105.1)	36.0 (96.8)	29.0 (84.2)	52.2 (126)
Average high °C (°F)	21.0 (69.8)	23.2 (73.8)	28.5 (83.3)	35.5 (95.9)	40.4 (104.7)	42.3 (108.1)	39.2 (102.6)	38.0 (100.4)	37.2 (99)	34.6 (94.3)	28.5 (83.3)	22.7 (72.9)	32.6 (90.7)
Daily mean °C (°F)	12.7 (54.9)	15.4 (59.7)	21.0 (69.8)	27.5 (81.5)	32.4 (90.3)	35.5 (95.9)	33.9 (93)	33.0 (91.4)	31.0 (87.8)	26.4 (79.5)	19.7 (67.5)	14.1 (57.4)	25.2 (77.4)
Average low °C (°F)	4.5 (40.1)	7.6 (45.7)	13.5 (56.3)	19.5 (67.1)	24.4 (75.9)	28.6 (83.5)	28.7 (83.7)	28.0 (82.4)	24.9 (76.8)	18.2 (64.8)	10.9 (51.6)	5.5 (41.9)	17.9 (64.1)
Record low °C (°F)	−2 (28)	−1 (30)	3.3 (37.9)	9.4 (48.9)	13.5 (56.3)	20.0 (68)	21.1 (70)	21.1 (70)	16.7 (62.1)	8.9 (48)	0.6 (33.1)	−1.1 (30)	−2 (28)

4.2.3 RAINFALL

The rainy season starts in July and ends in September. Annual rainfall is 398 millimeters. More rains occur in July and August than in any other months. Most of the winter rains are

Average precipitation mm (inches)	7.2 (0.283)	9.5 (0.374)	19.5 (0.768)	12.9 (0.508)	9.8 (0.386)	12.3 (0.484)	61.3 (2.413)	32.6 (1.283)	10.8 (0.425)	1.7 (0.067)	2.3 (0.091)	6.9 (0.272)	186.8 (7.354)
Mean monthly sunshine hours	222.3	211.6	250.8	273.3	293.5	266.8	265.0	277.6	277.6	274.9	255.0	229.2	3,097.6

received in the months of March and April.

4.2.4 WIND

The Multan 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**.** The prevalent wind speed ranges from 10-25 km/h, however on some days, there appear storms of 60 km/h.

4.2.5 TOPOGRAPHY

Multan is located in Punjab, and covers an area of 133 square kilometres (51 sq mi). The nearest major cities are Dera Ghazi Khan and Bahawalpur. Multan is located in a bend created by five rivers of central Pakistan. The Sutlej River separates it from Bahawalpur and the Chenab River from Muzaffar Garh. The area around the city is a flat, alluvial plain that is used for citrus and mango farms.

4.2.6 NOISE LEVEL

Noise is described as an unwanted sound emitted from un-avoidable sources of anthropogenic activities. Daily based natural induced sources of noise are rare to none but human induced noise sources are plenty and un-avoidable. Physically, there is no distinction between sound and noise. Sound is a sensory perception and the complex pattern of sound waves is labeled noise, music, speech, low altitude aeroplane flying etc.

The affluent areas of Multan 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 as the safe noise level; i.e. 60-85 dB(A). Environmental noise is a common cause of hearing loss of people indulged in industrial activities. Noise pollution in the city is on the rise with most residents complaining that the noise is becoming a public nuisance.

On average, the noise level ranged from 59-63 dB(A) in and around the project site recorded at temperature varying between 6 & 9 ^{o}C and slow wind 0.1-0.3 m/s blowing.

4.2.7 AMBIENT AIR QUALITY

Atmospheric pollution means the imbalance in the normal air chemistry. It can occur due to the addition of a new chemical into atmosphere or by the change in concentration of the chemicals already existing in the atmosphere. Atmospheric pollution particularly in urban area

has a strong impact upon daily life. The reasons of such changes can both be natural as well as anthropogenic.

Ambient air quality is a key to measure the concentration of the various chemicals in atmosphere; especially of the chemicals which pose detrimental effects on health, safety and environment, to have a comparison with their safe concentrations, as established in WHO Standards and NAAQS.

Multan is the Fifth largest city of Pakistan. Its economic growth, industrial progression & transport have peaked to grounds responsible for growing energy consumption leading ultimately to the consequences of increase in air pollution. The main sources of air pollution are exhaust from motor vehicles and industries. The main exhaust gases include SO_2, NO_2, CO, etc. Particulate Matter (PM) and noise are inspected as the pollution indicators. Multan experiences the values of a few of these pollutants in excess of National Ambient Air Quality Standards (NAAAQS) near the industrial establishments but PM concentration exceeds the standard value in almost the entire of Faisalabad.

It was observed during the visit that Petrol and Diesel operated vehicles are emitting smoke and exhaust gasses in excessive quantity which are the leading sources of environmental pollution and are responsible for the air quality worsening. In fact, exhaust emissions (including dangerous gases such as carbon monoxide, oxides of nitrogen, hydrocarbons and particulates) and Evaporative emissions (including vapors of fuel which is released into the atmosphere, without being burnt) are the prime reasons of deterioration of air quality.

The following table is presenting the measured parameters of the ambient air look from the center of the project area for assessment of air quality.

4.2.8 WATER RESOURCES

- **Surface Water**

  There are no surface water resources like ponds or wetlands, etc. near the project area.

- **Ground Water**

The city of Multan is underlain by the deep permeable aquifer formed within the alluvial plane of the River Ravi and Chenab, which is the part of Greater Indus Plain. Ground water is the principal source of municipal water supply in Multan. 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.

The project area lies in the district of Multan where the groundwater table normally exists 50 to 60 ft below the ground level and contains high level of salinity, and in order to assess the quality of ground water, chemical parameters were analyzed using Method (APHA). The water quality in the project area quietly meets the standards of NEQS. Following table is demonstrating the results of drinking water quality of project site.

Three rivers passes through the Multan district. The Ravi river flowed within a kilometer of Multan city till the 18th century, but now its discharge is greatly reduced due to supplies taken off by the Bari Doab Canal system, and during most of winter, its bed is dry.

Similarly, flows in the Chenab and Sutlej rivers have also decreased after construction of head works on the upstream. The south-western part of the district receives water from both these rivers, and the intervening land near the confluence of Chenab and Sutlej is regularly flooded during the summer.

Drinking Water Quality

WASA (Water and Sanitation Agency) Multan is providing drinking water to the residents of Multan. WASA claims the quality of water conforms 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 waning fast. Over pumping of groundwater due to extended drought is however affecting the water quality adversely.

4.3 BIOLOGICAL ENVIRONMENT

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

There are however no significant or well-shaped trees and shrubs on the project site. There are some trees only along the main roads.

4.3.1 FLORA

Trees, also called the 'lungs' of the earth, are important for the restoration of the ecosystem. People can benefit incalculably 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. No threatened or endangered species and medicinal plants are present anyhow in the project area.

4.3.2 FAUNA

With an increase in the rate of urbanization, the ecology of Multan has been considerably affected but there is no threatened or endangered species found in the project site. Similarly no

wildlife is present within the project corridor.

4.4 SOCIOECONOMIC ENVIRONMENT

Socioeconomic environment is represented by the human and economic development and quality of life values. For the study of socio-economic environment of the project area, field surveys were conducted and interviews were held with the general public and neighbors.

4.4.1 DEMOGRAPHIC PROFILE OF MULTAN

Multan city had a population of 1,197,384 in the 1998 census. As of 2017 census, Multan's population jumped to 1.871 million.

Historical population		
Year	Pop.	±%
1941	143,000	—
1951	190,000	+32.9%
1961	358,000	+88.4%
1972	539,000	+50.6%
1981	732,000	+35.8%
1998	1,197,384	+63.6%
2017	1,871,843	+56.3%

4.4.2 HEALTH FACILITIES

Healthcare Facilities in Southern Punjab:

District	Hospital (s) (150 beds & above)	District Head-quarter (s)	Tehsil Head-quarter (s)	Basic Health Unit (s)	Rural Health Centre (s)	Maternity Community Health Centre (s)	T.B Clinic (s)	Others (sub health centers, dispensaries and private facilities)
Pakpattan	-	1	1	74	6	1	1	-
Lodhran	-	1	2	50	4	-	-	-
Bahawalnagar	-	1	4	101	10	7	3	91
Bahawalpur	8	-	-	73	12	2	3	95
Multan	14	-	2	67	8	13	3	91
Vehari	-	1	2	76	6	3	-	4
Khanewal	8	-	-	82	4	11	2	29
Sahiwal	9	1	-	74	9	9	1	47
Rajanpur	-	1	-	32	6	1	-	2
Rahim Yar Khan	4	-	-	102	17	-	-	-
Muzaffargarh	-	1	2	71	20	4	-	3
D.G. Khan	6	-	-	52	9	6	1	69
Layyah	-	1	2	42	3	1	-	10

4.4.3 EDUCATIONAL FACILITIES

The NFC Institute of Engineering and Technology, established as the training center of the National Fertilizer Corporation (NFC) of Pakistan, is a degree awarding engineering and technology institute in Multan, serving mainly the areas of Southern Punjab province.

Bahauddin Zakariya University (formerly known as Multan University) is the main source of higher education for this region. The Swedish Institute of Technology in Multan is a campus of the Swedish Group of Technical Institutes, the largest private-sector organisation providing technical education and vocational training in the Punjab. Nishtar Medical University is a worldwide famous medical university in Multan. It offers many undergraduate and Port-graduate

Programs for medical students. It is also famous for its beautiful and ancient building. Its teaching hospital is Nishtar Hospital Multan, one of the largest hospitals in South Asia. The Institute of Southern Punjab, a private and chartered degree-awarding institution well-known for its voguish city campus and streamlined educational program is another notable educational establishment in the city of Multan. Now more universities from federal are also opening campuses in Multan, such as National University of Modern Languages (NUML). The Women University Multan is the first Government Women University offering higher education to the females of Southern Punjab. It was established in 2013.

4.4.4 TRANSPORTATION AND COMMUNICATION

Motorways

Multan is situated along the under-construction 6-lane Karachi–Lahore Motorway connecting southern and northern Pakistan that is being built as part of the $54 billion China Pakistan Economic Corridor. The 6-lane, 392 kilometre long M-5 section of the motorway is being built between Sukkur and Multan at a cost $2.89 billion. The M-5 has been under construction since May 2016. Multan will also be connected to the city of Faisalabad via the M-4 motorway, which in turn will connect to the M-1 and M-2 motorways that will provide access to Islamabad and Peshawar. Further links with the Karakoram Highway will provide access to Xinjiang, China, and Central Asia. Construction of the M3 motorway also under construction at a cost of approximately $1.5 billion, and was launched in November 2015 The motorway will branch off of the M-4 motorway and will connect Lahore to the M-4 at Abdul

Hakeem.

Rail

Multan is connected by rail with all parts of the country and lies on the main track between Karachi, Peshawar, Lahore and Quetta. The Main Line-1 Railway that links Karachi and Peshaway passes through Multan district is being overhauled as part of the China Pakistan Economic Corridor. As part of the part of the project, railways will be upgraded to permit train travel at speeds of up to 160 kilometres per hour, versus the average 60 to 105 km per hour speed currently possible on existing track, The project is divided into three phases, with the Peshawar to Multan portion to be completed as part of the project's first phase by 2018, and the entire project is expected to be complete by 2021.

Bus rapid transit

The Multan Metrobus is a bus rapid transit line which commenced service in January 2017, at a cost of 28.8 billion rupees. The BRT route serves 21 stations over the course of 18.5 kilometres, of which 12.5 kilometres are elevated. 14 stations are elevated, while the remainder are at street level. The BRT route begins at Bahauddin Zakariya University in northern Multan, and heads southward to pass by the eastern edge of Multan's old city at the Daulat Gate before turning east to finally terminate at the Kumharanwala Chowk in eastern Multan. The route will initially serviced by 35 buses, serving up to 95,000 passengers per day. The Multan Metrobus is planned to ultimately have total of 4 BRT lines covering 68.82 kilometres, which will be complemented by feeder lines.

Air

Multan International Airport is located 10 km west of Multan's city centre, in the Multan Cantonment. The airport offers flights throughout Pakistan, as well as to the Persian Gulf States. In March 2015, a new terminal building was formally inaugurated by Pakistani Prime Minister Nawaz Sharif. Following the opening of the new terminal, passenger traffic soared from 384,571 in 2014-2015, to 904,865 in 2015-2016.

4.4.6 SITES OF HISTORICAL SIGNIFICANCE

Prahladpuri Temple

Prahladpuri Temple, Multan is located It is located on top of a raised platform inside the Fort of Multan, adjacent to tomb of Hazrat Baha'ul Haq Zakariya. A mosque has subsequently built adjacent to temple. The original temple of Prahladpuri is said to have been built by Prahlad,

son of Hiranyakashipu, the king of Multan (Kashya-papura) in honor of Narsing Avatar, an incarnation of Hindu god Vishnu, who emerged from the pillar to save Prahlada

Notable saints of Multan

- Shah Yousaf Gardezi (d. 1136), tomb located inner Bohar Gate Multan
- Mai Maharban (11/12th Century), tomb located near Chowk Fawara, children complex Multan
- Bahauddin Zikarya (1170–1267), tomb located in Multan Fort
- Shah Rukne Alam (1251–1335), tomb located in Multan Fort
- Khawaja Awais Kagha (d. 1300)3, tomb located in Dera Basti graveyard Multan
- Syed Musa Pak (d. 1592)
- Hafiz Muhammad Jamal Multani (1747–1811)
- Syed Ata Ullah Shah Bukhari (1892–1961), buried in Jalal Bakri
- Syed Noor ul Hassan Bukhari (1902-1983), buried in Jalal Bakri
- Ahmad Saeed Kazmi (1913-1986), buried in Eid Gah, Multan

4.5 QUALITY OF LIFE VALUES

The population of the district consist of self-employed (including farming and trade), private employees and government employees. The main occupation of women in rural areas are house-keeping which includes attending to the cattle, extracting butter and ghee from milk, weaving and sewing of family clothes.

4.6 LAB REPORTS OF ENVIRONMENTAL ANALYSIS

Testing of different parameters was done from an EPA certified laboratory to check the quality of different environmental parameters. The copy of the lab reports of these parameters (ambient air analysis, water quality analysis) is given in annexure.

4.7 SETTLEMENT AND RESETTLEMENT ISSUE

There is no resettlement issue as the land belongs to the owners. Also there is no need of relocation of any human or non-human entity from the project area.

4.8 PROTECTED AREAS

No protected areas are present in or near the project area.

4.9 CONCLUSION

Form the survey conducted it is concluded that the project will not have major adverse impacts on the existing environment and community. As mentioned earlier the project land is owned by the proponent so there will be no issues arising like relocation or resettlement of people or other infrastructure. Moreover, the project will have positive impacts in terms of employment opportunities in case of future of the project.

Chapter 5: ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

5.1 GENERAL

This chapter brings forth the potential environmental impacts of the project, analyses their significance and suggests mitigation measures to reduce if not eliminate the potential adverse impacts of project implementation. Environmental impact of a project is worked out using various factors and parameters, so that an environmental management plan can be evolved to take mitigation measures, wherever these might be considered necessary. Weather describes an impact as having both spatial and temporal impacts, which can be described as the change in an environmental parameter over a specified period and within a defined area, resulting from a particular activity compared with the situation which would have occurred had the activity not been initiated.

- **What is the problem?**

The proposed project (Glove Manufacturing) involves the construction phase and then operational phase for the unit as well. Excavation and concrete work will be carried out as a result of which solid waste containing debris material will be generated.

During the operational phase there will be the solid waste containing fabric material. However the solid waste will be managed and handled by the waste contractors of the area, so the solid waste not going to have any impact on the surrounding areas.

- **When problem will occur and when it should be addressed**

The problem will occur during the developmental & construction phase. The problem should be addressed during the planning phase and satisfactory mitigatory measures will be proposed and described in the EMMP.

- **How the problem should be addressed?**

The problem should be addressed by creating the awareness among the workers, staff and communities through conducting seminars and meetings etc.

The establishment of the project will involve the designing, construction of unit and operation of manufacturing activities. The environmental aspects of the project identified by situation analysis are related to:

i) Physical environment

ii) Ecological environment and;

iii) Socio-economic environment

A careful consideration of project aspect, their potential environmental impacts and mitigation measures are proposed in this chapter. Evaluation criteria are as follow:

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

5.2 IMPACT IDENTIFICATION

The potential environmental impacts of the development and operation of the proposed glove manufacturing unit has been predicted based on the existing conditions and character of segments of the receiving environment that are likely to be affected by the proposed undertaken. Future developments of the project area and its immediate environs have also been considered in the determination and mitigation of identified impacts. The potential environmental impacts have been identified at the constructional and operational phases of the project.

The impact study in all these categories is designed to ensure that potential negative impact expected to arise from the development of the project are mitigated or minimized whilst maximizing the expected positive ones. This would ensure project sustainability and enhance environmental conditions for the benefit of the entire community and its immediate environs. Certain impacts of less significance have only been mentioned.

The potential major impacts of the project have been identified through literature review and field studies. Various technical studies and investigations were also conducted. These include geotechnical investigations on the geology, hydrology and the seismicity of the project site, water quality and ecological study on the flora and fauna. Further, consultations were also held with all relevant stakeholders in the project site and relevant institutions.

5.3 POTENTIAL ENVIRONMENTAL IMPACTS OF THE PROPOSED DEVELOPMENT

The proposed undertaking may have direct or indirect impacts on the physical environment namely on soil, hydrology, geology, flora, fauna, air quality, water quality, noise and landscape.

Socio economic impacts of the proposed undertaking should also be considered in terms of demography, the local community, transport and traffic, housing and employment. The different environmental impacts may be categorized as relating to the following:

- Air pollution
- Noise pollution
- Flora & Fauna
- Sewage treatment and disposal
- Storm water management
- Solid waste collection and disposal
- Production of effluents produced on site
- Machinery used will generate hydrocarbons as by-products.
- Socio economic impacts
- Traffic and transportation implication

5.4 IMPACT ASSESSMENT METHODOLOGY

5.4.1 Screening of Potential Impacts

Based on site visit, observation, brain storming, provided information and social interviews, significant impacts were anticipated and evaluated. Then qualitative and quantitative (where possible) assessment of these anticipated impacts is to be carried out.

5.4.2 Identification of Mitigation Measures

After anticipation and screening of significant impacts, certain mitigation measures are to be provided in order to enhance benefits of project and reducing impacts.

5.4.3 Evaluation of the Residual Impacts

Incorporation of suggested mitigation measures may reduce the magnitude of the environmental impacts of the project but sometimes, it may fail in bringing them within the acceptable limits. This step refers to the identification of the anticipated remaining impacts after mitigation measures have been applied.

5.4.4 Identification of Monitoring Requirements

The last step in the assessment process is the identification of minimum monitoring requirements. The scope and frequency of monitoring depends on the residual impacts. The purpose of the monitoring is to confirm that the impact are within the prescribed limits and to provide timely information if acceptable limits are being breached.

5.4.5 Anticipated Environmental Problems Due To Project Location

The environmental projects cause the impacts which may include:

- Resettlement of families displaced by the project;
- Encroachment into forests and swamplands;
- Encroachment on historical or cultural monuments, buildings, and areas;
- Conflicts in water supply rights; and
- Regional flooding and drainage hazards.

Following is the description of impacts envisaged and the recommended mitigation measures during construction Phase:

5.4.6 ANTICIPATED ENVIRONMENTAL PROBLEMS DUE

- **TO PROJECT CONSTRUCTION**

1) **Design & Layout Planning**

Incompatible layout plan and engineering design of the project's structures can undermine the overall aesthetic beauty and ambience of the project area. Also low utilization of the available spaces and not designing the structures taking into account, the prospective and futuristic needs can result in structures with low social acceptability and functionality. This impact will be temporary and moderate negative in nature.

- **Proposed mitigation measures**

All structural, layout, piping system and engineering designing of the proposed unit should be in strict accordance with the applicable bylaws and engineering parameters.

2) **Topography**

As the proposed project is located in the central Punjab so the topography of the area is plain and flat terrain. Excavation of the land is involved during the construction of unit which may contribute in the minor change in the topography.

The main impacts that will be caused during design and construction will be cutting and dismantling of the existing pavements and erosion of top soil cover which may be caused due to excavation. The changes in the topography due to the construction and design will be of localized nature. The impact is moderate and temporary in nature.

- **Monitoring requirement**

- Regular inspection of soil of the project area should be undertaken
- Document all related accidents of spillage to take corrective actions and to avoid reoccurrence.

3) Land Acquisition and Resettlement

- ✓ Any new intervention has its first and foremost impact of changing the land use pattern of the area. The impact of this nature is irreversible therefore site selection needs to have careful consideration of the impacts that may arise due to the changes in land use patterns.
- ✓ There are also some projects and installations which involve the resettlements of communities, usually the mega scale projects. As this project is on smaller scale category so it is not going to cause any resettlements of habitats.

- **Proposed mitigation measures**
  - ➢ Mitigation measures will involve careful alignment and route selection by the designer to minimize the impact by avoiding the soil erosion and geographical disturbances.
  - ➢ Adequate budget will be provided in the Project cost for the compensation to the affected land (if exists) as per Land Acquisition Act, 1894 and framing of a judicious and fair compensation package for provision of compensation on at least the prevailing market rates.

4) Air quality, noise & traffic congestion

- ✓ The construction of the proposed project will involve the drilling, excavation causing the air, noise pollution and associated health risks may increase as well. The impact is temporary and of moderate negative nature.
- ✓ Unplanned traffic management and traffic infrastructure development may lead to traffic related issues such as accidents and traffic congestion.
- ✓ Noise emissions due to transportation, movement of heavy materials, generators may create health nuisance for the workers and local community.
- ✓ The working hours shall be limited to 08 in the morning till 05 in the evening to avoid noise during night shift. Vehicle maintenance would be ensured so that emissions of any sort, be it gaseous emissions of noise generation, would be controlled. The workers will be provided with ear plugs and other personal safety equipment to avoid invoking of any health issues.

- **Proposed mitigation measures**

- ✓ Incorporate technical design features to avoid traffic congestion e.g. sign boards, speed limits and bays.

- ✓ The project has included traffic management as integral part of its overall design. The project construction activities are planned within the boundary walls. Transportation of heavy construction materials will be done during less traffic hours
- ✓ The working hours shall be limited to 08 in the morning till 05 in the evening to avoid noise during night shift. Vehicle maintenance would be ensured so that emissions of any sort, be it gaseous emissions of noise generation, would be controlled. The workers will be provided with ear plugs and other personal safety equipment to avoid invoking of any health issues.

- **Residual Impacts**

  Implementation of the proposed mitigation measures is not likely to leave any significant impact on the soil or surrounding land.

- **Monitoring requirements**

- Dust emission will be visually monitored
- Ambient air quality will be checked near or at project site.

5) Seismic Hazard

It is very important to assess the extent of damage any natural hazard e.g. earthquake, floods, landslides may cause. The proposed site identified within environmentally /geologically safe and does not fall in any of the earthquake zones.

- **Proposed mitigation measures**

No specific mitigation measure other than to construct the facility in accordance with the UBC Zone 2B.

6) Gaseous Emissions

Gaseous emissions including Sox, NOx, CO_2, lead and CO during construction phase will be released from the vehicles used for transportation of construction material. These gases are ozone depleting reagents. Besides, they also pose threat to human health.

- **Proposed mitigation measures**

- ✓ Quality fuel shall be used in the machineries, generators to avoid emission of lead.
- ✓ Vehicles, machineries with good conditions which fall on the quality standards shall be used to control the exhaust emission. Generators will be kept in the canopy to reduce the noise pollution factor.

- **Residual Impacts**

Implementation of the proposed mitigation measures is not likely to leave any significant impact on the soil or surrounding land.

7) **Dust Emissions**

Generation of dust and particulate matters is an issue that could arise due to construction activities. Dust can also arise from the earth work including excavation.

- **Proposed mitigation measures**

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.

- **Residual Impacts**

Implementation of the proposed mitigation measures is not likely to leave any significant impact on the soil or surrounding land.

8) **Solid Waste Generation**

Waste type during this phase will include earth material, plastics, scrapes, metals, cans, cardboard, wood, food leftovers, bricks, roof materials, pipes, packaging materials etc.

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.

- **Proposed mitigation measures**

Solid waste generation quantity during construction phase shall be reused in construction activities rather than dumping.

The solid waste during construction phase will consist most of soil, packaging materials, debris material, plastic bags, cloths, iron rods, and food leftovers. The organic portion of solid waste shall be collected by sanitary workers of that area.

- **Residual Impacts**

Implementation of the proposed mitigation measures is not likely to leave any significant impact on the soil or surrounding land.

9) **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. The wastewater generation during construction activities will only be of domestic nature.

- **Proposed mitigation measures**

Wastewater generation during construction phase shall be reused again for material making for construction phase and sprinkling of dust on soil. A temporary soakage pit will be constructed to dispose of waste water for domestic activities.

- **Residual Impact**

Implementation of the proposed mitigation measures is not likely to leave any significant impact on the soil or surrounding land.

10) Physical and Cultural Resources

In the old part of the city is located the shrine The mausoleum complex is a maze of narrow corridors leading to several shrines of saints. The tomb of Imam Ali-ul-Haq is to the right, through a mirrored gateway tiled with Koranic inscriptions and geometric designs.

- **Proposed mitigation measures**

➢ Incorporate technical design features to minimize the project construction activities to avoid any interference with cultural heritage site and public property as far as possible.

11) Public utilities

Due to the proposed project, affected public utilities may cause disruption of public services and economics. This impact is temporary and moderate negative in nature.

- **Proposed mitigation measures**

➢ Incorporate the technical design features in order to minimize the effect on public utilities.

➢ All public utilities likely to be affected by the proposed project need to be relocated well ahead of the commencement of work

12) Social issues

During the construction phase of the project, it might be difficult for the students to get access to their school/colleges if located on other side of track. Projects of such magnitude usually attract public uproar (especially from the neighboring residents and community) if they are not made to own the project. Conflicts usually arise mostly from the foreseen negative impacts.

- **Proposed mitigation measures**

➢ Consultation with neighbors on the mitigation measures prescribed for the negative impacts as a way of conflict resolution and neighborhood association.

➢ The proponent will give priority to the local community in allocation of jobs at both

skilled and unskilled levels

5.5 Anticipated Impacts Due To Project Design (Changing In Planning & 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: Environmental Problems/Mitigation Measures Due to Project Design

Sr. #	POTENTIAL IMPACTS	MITIGATION MEASURES
Loss or damage to natural areas		
1.	Damage can occur to the project site and the surroundings as a result of damage to the natural framework. There may be an impact upon existing open space and reserves for park and playing fields.	Once the basic natural systems of the site and surroundings are identified, it will be possible by careful design to protect these systems. Ecological sensitive areas will be avoided from any damage during designing phase. Prime agriculture areas will also be taken into design consideration.
2.	**Traffic Congestion**	
	Unplanned traffic management and traffic infrastructure development may lead to traffic related issues such as accidents and traffic congestion. There can be effect on local and regional traffic flows which will have effects on traffic congestion, air pollution and smog.	The project has included traffic management as integral part of its overall design. The project construction activities are planned within the boundary walls. Transportation of heavy construction materials will be done during less traffic hours. Manage vehicle movement to avoid traffic jam and long queues. Parking of vehicles alongside the

		road should be prohibited at all time. Such measures are generally regarded as environmental friendly. Access to housing society will be planned to minimize the impact on existing traffic.
3.	**Accessibility to Public Utility / Services**	
	The construction of the unit will automatically require connection to water, electricity and communication system. The construction of project will also generate additional traffic. Inaccessibility to public utilities will render the project uninhabitable. Local infrastructure capacity must be examined to determine its adequacy for the needs of new population.	Resolving the issues of accessibility to public utilities / services will be resolved through proper design planning of infrastructure. Provision of roads, electric supply system, telephone and gas line and storm water drainage and consideration must be given to head works and distribution networks.
Careful Planning of Greenbelts/Horticulture Plan		
4.	The visual impact is generally classified as an obstruction or an intrusion. Unavailability of greenbelts would create aesthetic nuisance.	The design of proposed project involve establishment of green belts and develop aesthetically crafted lawns around or in front of houses to increase the aesthetic value. The individual plots will be oriented and blended in the natural setting to ensure no Adverse visual impact.
5.	**Underground Sewer /Drinking Water Lines**	
	Wires and pipelines lay open and above surface may consequently	There will be no any such issue at the said project site because water will

	give rise to leakages, contamination and short circuits in the lines.	be gained from the springs present at higher elevations which is mixed with underground salty water. As per requirement water will be used from that water filtration plant. Pipelines will be checked properly. The sewer lines should not be in link with the drinking water lines.
Depletion and pollution of local ground water		
6.	The reduction in the ground water available to local communities and for other uses is likely a result of large housing projects.	The local ground water is not able to use for drinking or for any other significant purposes so there is no chance of depletion of ground water that in result may affect the supply to local community. The community will use the water coming from the springs.

5.6 ANTICIPATED IMPACTS AND MITIGATION MEASURES

- **During Operational Phase**

1) **Ecological environment (Flora and Fauna)**

The project site was devoid of any species (significant, endangered) of flora and fauna. Thus the impacts on flora and fauna will not be an issue of concern at the Project site. No negative impacts are envisaged on the flora during the operational phase.

In the operational phase the project is going to have no impact on flora and fauna and the project is environmentally friendly. Moreover, the main access road is present through which the transportation of raw materials will be carried out so there is no chance of impacts on the rows of trees and other related flora present on the way.

2) **Impact on ground water resources**

The groundwater will be used for domestic purposes at project site. Water storage will also be required for emergency response in case of a fire. Prolonged water consumption may in the long run lower/deplete the underground water table. This will be a permanent and moderate negative impact.

- **Mitigation measures**

An effective 'Water Conservation Plan' will be developed and for domestic purpose water will be gained from ground water. Following operational measures will be adopted for water conservation:

- ✓ It will be made sure that all faucets, circulating pumps etc. do not leak and are in good repair;
- ✓ Any leaking or dripping faucet, pump or toilet will be reported immediately;
- ✓ All the utility bills will be kept in a safe place to track the consumption of water; and
- ✓ Purchase and use of water-saving equipment will be practiced;
- ✓ An effective residents' training program will be implemented about water conservation.

3) Air quality

During the operational phase there is no use of machinery or any kind of instruments that can cause air emissions. However generators will be used during the period of load shedding's, they can be a reason of emissions in the surrounding environment.

- **Mitigation measures**

The generators will be kept in separate canopy to avoid from the generations of noise, vibrations and emissions in the environment.

4) Solid waste and waste water

No generation of solid waste will be caused by the proposed unit except some amount of fabric material or discarded material and household waste. There will be no process waste water generation from the operational phase; the waste water generated will be only of domestic nature.

- **Mitigation Measures**

✓ To tackle wastewater septic tank will be constructed. The wastewater will be of domestic nature and of cleaning etc.

✓ The contractors of the area would be responsible for the collection of solid waste on daily basis.

5) Emergency/Fire Hazards

Emergencies e.g. fire incidents may lead to environmental, health and safety issues to the local residents.

- **Mitigation Measures**

✓ Emergency exits in the rooms have already been planned.

- ✓ Firefighting equipment will be provided and adequate trainings will be provided to tackle any situation of fire hazards. Call points at suitable locations will be installed

6) **Security and safety**

The project will ensure that safety of all workers is accorded the needed priority with the provision of safety equipment such as steel toe boots, hard hats, protective goggles, ear and nose filters, protective gloves, protective attire etc. Further, in-house safety briefings will be periodically organized for all types of the work force by the management of Asphalt plant owned by M/s MRC.

5.7 OPERATIONAL PHASE IMPACTS ON THE SOCIAL ENVIRONMENT

This section of the report describes the socio-economic environment and considers the long term or operational phase impacts on the social environment that may be associated with the proposed activities, including the following:

- Visual impacts;
- Impact on the local economy;
- Impacts on human environment
- Impact on heritage resources.

- ***Visual impact***

The project has no negative impact with respect to aesthetics and visual sense. The landscape is occupied by industries, some trees (bushes) so it does not have so much visual significance that may be affected by project during its operational phase.

- ***Impacts on human environment***

The assessment of the environmental impact of the proposed development in relation to the human environment will be assessed in terms of employment, jobs created or lost, housing, the necessity for new accommodation, population – changes in demography.

- ***Impacts on local economy***

The proposed undertaking will in the first instance create jobs within the construction industry. The construction of the internal roads, drains, water reticulation network etc. over the entire realization of the project will have the following positive impacts in terms of employment:

1) Direct and indirect creation of employment
2) Local industry and its labor force

3) Suppliers and manufacturers of raw materials including synthetic material for glove manufacturing etc.

More specifically, during the ***construction phase***, the project will have the following ***positive impacts:***

- Job creation for consultants i.e. engineers, surveyors, architects, draughtsman etc.
- Provide work for a period of approximately18 months to semi-skilled labor i.e.
- Masons, carpenters, builders, electricians, plumbers etc.
- Increase construction industry related products i.e. wood, cement, bricks etc.

During the **operation phase** of the project, the project will have the following ***positive impacts:***

- Creation of new jobs which will directly benefit the local community
- Creation of further employment in the following sectors: car hiring and taxis,
- Restaurants, small scale industries, tour operators etc.

Fire Hazard:

In the operational phase there could be danger of fire. So, workers may in vulnerable conditions.

Mitigation:

(a) Identify all possible ignition sources in areas where dangerous substances are present

(b) Assess where ignition sources have the potential to cause a fire, explosion or chemical decomposition which could adversely affect people's safety

(c) Introduce measures to prevent those ignition sources occurring where they could cause harm to people and ensure they do not come into contact with dangerous substances or explosive atmospheres.

(d) On heating, dangerous substances could create a hazard as a result of auto-ignition, self-decomposition or an exothermic reaction. Employers should consider the effect of heat from sources such as steam pipes, heaters, flames, processing etc. Employers should also consider how the ignition of combustible materials, including packaging or rubbish, could occur and the possible escalation to involve any dangerous substances.

5.8 POTENTIAL ENVIRONMENTAL ENHANCEMENT MEASURES

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

1. Trees will be planted within the premises and outside the factory to beauty the surrounding area.
2. A special budget will be designated for the environmental improvement of the environment on annual basis probably 4 million. The administration will be responsible for spending of this budget. The team leader will prepare the inventory of environmental improvement activities and communicate it with the rest of the team for implementation.

5.9 IMPROVED MONITORING AND MANAGEMENT PRACTICES

The monitoring of the EMP and the communication and documentation mechanism that will be employed during the operational phase will be based on the Environmental Management System (EMS) of the project proponents and the certification and legal bindings. The management system of the project proponents will be the same as the certified EMS in place at the company. Approximately 0.5 million PKRper year budget will be reserved for the Environmental Monitoring and measures.

5.10 DETAILS OF RESTORATION AND REHABILITATION PLAN

Land rehabilitation is the process of returning the land in a given area to some degree of its former state, after some process (industry, natural disasters, etc.) has resulted in its damage. After construction of project there will be no need for relocation or rehabilitation because said project is located in the commercial zone where construction activities are already running. This said project is located in Multan where all measures were already predicted before construction of this commercial zone. So according to this entire scenario, said project is in favor.

5.11 COMPENSATION IN MONEY TERMS

The said project is situated on the open land, where already industrial activities are running. There will be no cutting of flora and no harm to fauna by this proposed project. There is no any structure or residence which will be damaged by proposed project so there will be no need for money compensation. Proposed project is environment friendly.

Chapter 6: ENVIRONMENTAL MANAGEMENT PLAN

6.1 GENERAL

This chapter outlines the Environmental Management Plan (EMP) for the project. Adoption of appropriate mitigation measures can significantly reduce the environmental damage caused by a project. However, occurrence of unforeseen impacts is still possible, even with proper implementation of mitigation measures.

Moreover, some of the predicted impacts may turn out to be greater than predicted, necessitating different or more rigorous mitigation measures. Therefore, regular and frequent monitoring of the environment is vital, in order to avoid or reduce the chances of such events, and to minimize the impact and cost of unforeseen events by taking prompt remedial action if such events occur.

and introduce standards of good practices to be adopted for all project works.

6.1 PURPOSE AND OBJECTIVES OF THE EMP

The primary objectives of the EMP are to:

- Facilitate the implementation of the mitigation measures identified in the EIA.
- Define the responsibilities of the project proponent and staff.
- Means of effective communication of environmental issues between them.
- Identify monitoring parameters in order to ensure the effectiveness of the mitigation measures.
- Provide a mechanism for taking timely action in the face of unanticipated environmental situations.
- Identify training requirements at various levels.

6.2 Environment Management Team

Following functionaries will be involved in the implementation of EMMP:

- The project Proponent as owners of the EMMP.
- Project contractor(s) as executors of the EMMP during

installation and operational phase of the project.

- Operational & Maintenance (O&M) and the Health, Safety and Environment team of the project as an executor of the EMMP during the installation and operational phase of the project.

Table 7-2: List of Individuals and their Responsibilities

Designation	Responsibilities
Manager	• Direct operations at the site. • He will act as team lead. • Interact with other executives, mine staff and community residents. • Effectively motivate staff to follow protocols and to work productively. • Look after the Health and Safety Related issues. • Responsible for scheduling staff and ensuring that supplies are stocked.
Accountant	• Proper management of the funds for the CSR. • Development of fund proposal for environment related expenses. • Ensuring the smooth transaction of funds for environmental related projects/activities. • He will prepare the yearly budget. • Taking minutes in meetings and other administrative duties. • During his shift timings, he will be responsible to look into smooth functioning of the process in environmentally sustainable way. • He will be responsible to rectify any problem regarding environmental matter in collaboration with concerned authorities. • Prepare reports on different events and incidents. • He will report all matters regarding E.M. to the manager.

Responsibilities of Functionaries

- **Responsibilities of Management of Project**

Management of the project will be responsible for the environmental management and supervisory affairs during the project activities. Environmental personnel designated by the management of the project will look after the environmental related issues during the project activities. The responsibilities of environmental personnel are as follows:

- Monitoring progress of the project as per planned schedule of activities.
- Exercising oversight over the implementation of environmental mitigation measuresby the contractor.
- Documenting the experience in the implementation of the environmental process.
- Preparing training materials and implementing programs.
- Maintaining interfaces with the other lined departments/ stakeholders and
- Reporting to the management of the project on the status of EMMP implementation.

6.3 PROPOSED MITGATION ACTION APPROACH

The organizational roles and responsibilities of the key players are summarized below:

Proponent*:* The project proponent will undertake overall responsibility for compliance with the EMP. Proponent will carry out verification checks to ensure that the contractors are effectively implementing their environmental and social requirements.

Contractors*:* The contractors will implement the majority of environmental and social mitigations. The contractors will carry out field activities as part of the project. The contractors are subject to certain liabilities under the environmental laws of the country, and under its contract with proponent.

PROPOSED MONITORING

An environmental management and monitoring plan provides a delivery mechanism to address

the potential environmental impacts of a Project during its construction and operational phases, to enhance project benefits, and to introduce health and safety standards of good practice to be adopted for project.

This process requires proper monitoring to report any performance or any mitigation measurement during the construction and operational phases. The proponent will ensure the proper implementation of mitigation measures for the concerned operation and maintenance phase through adequate monitoring. The proposed management and monitoring plan for is given below:

Table 0.1 Proposed Management and Monitoring Plan

Sr. No.	Category	Impact	Project Activity	Monitoring Mechanism	Frequency	Monitoring Responsibly
	Construction and Operational Phase					
1	Air Resource	Air emissions and dust	Air quality will deteriorate due to transportation and construction activities	Monitor the emissions as per standards	Once before construction phase	Proponent
2	Water Resource	Water pollution	Water quality will deteriorate due to transportation and construction activities	Water testing as per PEQS	As required	Proponent
3	Biological	Flora	Uprooting of trees during construction	Re-vegetation	After construction phase	Proponent

Proposed EMP reporting and reviewing procedures

- During construction, EMP reporting and reviewing will be done by the contractor/HSE department. Regular monitoring will be done and reports will be submitted in EPA as per condition of Environmental Approval of construction phase.
- Monitoring reports will be reviewed by EMP team and HSE department of Asphalt plant owned by M/s MRC and then will be shared with EPA.
- Photographic records will also be maintained.
- Recorded data will be reviewed by supervisory contractor/proponent so that it can be further improved if required.

6.4 INSTITUTIONAL CAPACITY OF THE UNIT:

The organizational structure for the environment management plan is outlined below:

6.4.1 Primary Responsibilities:

The primary responsibility for implementing EMP within the unit lies with the owner.

6.4.2 Operation Management & Control

Conducting the operational activities in environmentally sound manner will be the responsibility of the concerned manager for which he will be trained.

6.4.3 Supervision & Monitoring

Senior supervisor will be responsible for all environmental issues and for the implementation of EMP.

6.4.4 Communications & Documentation

An effective mechanism to store and communicate environmental information during the project is an essential requirement of an Emp.

6.4.5 Meetings

Two kinds of environmental meetings will take place during the project

- Kick-off meetings
- Weekly meetings

The purpose of the kick-off meeting will be to present the EMP to project staff and discuss its implementation and to discuss any event of environmental significance that has happened in the unit to investigate its route causes and develop its solutions.

The purpose of the weekly meetings will be to discuss the operational issues, environmental issues and their management. The proceedings of the meeting will be recorded in the form documents.

6.5 ENVIRONMENT MANAGEMENT PLAN

It lists all the mitigation measures identified in the EIA and the associated environmental or social aspect in line during operational phase with the administrative framework involving all the responsible implementing authorities who are required to take the planned actions/measures. It enhances project benefits by reducing its impacts and making it environmental friendly.

Project Activities	Type of impact	Potential impacts	Magnitude	Mitigation Measure	Institutional Responsibility	
					Implementing body	Supervision
PRE-CONSTRUCTION						
Land acquisition and land use	Physical , Social and Aesthetical	Positive use of land but proper planning will be required	More	Land is owned by proponent and there is no settlement so no impact will be there. Land will be improved from open land to industrial land.	Contractor	Proponent*
Use of local manpower	Social	Employment Generation	Less / Adjacent area	Local people will be hired for less technical work or non-skilled work	Contractor	Proponent*
CONSTRUCTION						
Civil works	Physical, Social, Biological Aesthetical	Soil Erosion, Emissions, Water Contamination, Noise & Vibration, Employment, Health & Safety	More/ Adjacent area	**Minimization:** Dust emission from soil piles and aggregate storage stockpiles will be reduced by keeping the material moist by sprinkling of water at appropriate frequency **Avoidance:** Covering the pile, for example with	Contractor	Proponent*

		of Workers		tarpaulin or thick plastic sheets, to prevent emission. Noise control measures will be implemented Use of water only from designated wells Off-road driving will be minimized in order to avoid accidental killing of fauna.		
Movement and fueling of vehicles	Physical & Aesthetical	Soil &Water Contamination due to Fuel Leakages &Spillage, Emissions, Noise &Vibration	Moderate/ at the site	**Avoidance:** Periodic maintenance and inspection of vehicles Vehicles with leaks will not be operated. Vehicles should not be washed or serviced in the field. No vehicle-related waste, such as oils, filters, old tires or parts, will be left in the field All vehicles will be maintained in good working condition All vehicles will have properly functioning silencers (mufflers).	Contractor	Proponent*
Transportation of construction material	Bio-physical	Dust and Particulate Emissions,	Moderate/ Adjacent area	**Minimization:** Excessive use of horns will be avoided PPE's will be provided to workers	Contractor	Proponent*

		Noise Generation, Safety and Health Effects		**Avoidance:** Covering of transporting material trucks Nighttime driving of project vehicles will be limited where possible Low speed limit will be maintained on the section of the access road that is adjacent to the community and site. The fence surrounding the site will be put in on during the construction to prevent access to the construction site		
Instrument installation	Physical & Social	Noise &Vibration, Spillage &Leakages, Health &Safety	Moderate/ adjacent area	**Reduction:** Use of PPE's **Avoidance:** Proper maintenance and inspection of equipment's and machinery. Warning signs will be provided to assure safety.	Contractor	Proponent*
Use of local water resources	Physical, Social & Biological	disturbance to local community	Less/ adjacent area	**Avoidance:** Initiation of water conservation program **Reduction:** Where possible, water should be recycled	Design engineer & Contractor	Proponent*

OPERATIONAL PHASE						
Heavy equipment operation	physical	Particulate Matter, Emission of GHG, Noise, Vibration	Moderate/ Local	**Avoidance:** Spill prevention trays provision Noise control plans No machinery will be left unattended, particularly in running condition All vehicles, generators and other equipment used during the construction and operation will be tuned and maintained in good working condition in order to minimize emission of pollutants Reducing equipment noise at source by proper design, maintenance and repair of construction machinery and equipment, Minimizing noise from vehicles and power generators by use of proper silencers and mufflers Use noise-abating devices wherever needed and practicable.	contractor	Proponent*

				Reduction: PPE's provision		
Solid Waste Generation	Physical, Biological, Social	Soil Contamination, effecting GW Quality, Emission of GHG, Biological, Particulate Matter, Health ,Economy, Welfare	Severe/ local and global	Separation of recyclable material Training will be provided to personnel for identification, segregation, and management of waste. Provision of Separate waste bins Quantities of waste disposed, recycled, or reused will be logged on a Waste Tracking Register.	contractor	Proponent*
Spillage from vehicles and machinery	Physical, Biological	Soil Contamination, Effecting GW Quality, Emission of GHG,	Moderate/local	**Avoidance:** Spill prevention trays will be provided and used at refueling locations On-site maintenance of construction vehicles and equipment will be avoided as far as possible Fuels, lubricants will be stored in covered bounded areas, underlain with impervious lining. Emergency plan for spill management will be prepared and inducted to the staff	Contractor	Proponent*

				for any incident of spill		
Handling of wastewater	physical, biological, social	soil contamination, effect on GW quality, GHG emission, effect on vegetation, fisheries, health, economy, welfare	severe/ local and global	**Reduction:** Provision of septic tank. **Avoidance:** Handling and storage of fuels and lubricants in areas of impervious floors Periodic monitoring including discharge rate and chemical analysis of waste water	contractor	Proponent*
Fuel Management	Physical, Biological	Spillage, Soil Contamination, Degradation of Water quality	Severe/local	**Avoidance:** Proper electrical grounding should be provided for loading and off-loading equipment. Smoking should not be permitted within 10 m of the fuel storage area. Fuel storage areas should be clearly marked to ensure that moving vehicles does not damage them.	contractor	Proponent*

6.6 ENVIRONMENTAL MONITORING PLAN

Environmental monitoring is a vital component of the Environmental Management Plan. It is the mechanism through which the effectiveness of the environmental management Plan in protecting the environment is measured. The feedback provided by the environmental monitoring is instrumental in identifying any problem or lapse in the system under implementation and planning corrective actions. The main objectives of the environmental monitoring are:

- To provide a mechanism to determine whether the project construction contractors are carrying out the project in conformity with the EMP.
- To identify areas where the impacts of the project are exceeding the criteria of significance and, therefore, require corrective actions.
- To document the actual project impacts on physical, biological, and socio-economic receptors, quantitatively where possible, in order to design better and more effective mitigation measures.

Following environmental record should be maintained:

- Periodic inspection reports of the site
- Audit reports
- Incident record of all moderate and major spills and other incidents and accidents.

Table 8: Environmental Monitoring Plan

Components	Objective of Monitoring	Parameter to be Monitored	Measurement	Frequency	Location	Responsibility
Noise Levels	To determine the effectiveness of the noise abatement measures on the sound level	Noise level on the site and adjacent area on dB(A) scale	Noise level reading will be taken	Twice a year	At least three locations on the unit boundary	Consultant / HSE
Workers safety	To check and evaluate the effectiveness of the workers' safety plan	Injuries and accidents	Recording injuries	daily	Onsite	HSE/contractor

Dust emissions	To confirm the ambient air quality	Air quality at different points	Readings will be taken	Twice a year	At least three points on mine and site	Consultant / Environmental manager

ENVIRONMENTAL TRAINING

Asphalt plant owned by M/s MRC provides periodic Environmental and HSE trainings to workers working in their existing plants. The management of Asphalt plant owned by M/s MRC feels HSE is important for moral, legal, and financial reasons. The management of Asphalt plant owned by M/s MRC has developed strict SOPs for Health and Safety of workers. These SOPs includes SOP for Personal protective equipment's, Risk Assessment, Permit to work, SOP for work at height, Fire Safety and Prevention, Confined Space entry etc. A comprehensive annual training calendar has also been developed for training on topics of HSE for management as well as labors.

Target audience	Trainers	Contents	Schedule
Selected management staff	Contractors	Key finding of mitigation measure	After every six months
All personnel	Contractors	Mitigation measures	Monthly
Technical Staff	Contractors	Waste disposal, vehicle movement restriction and other mitigation measures	After every three month
Other staff	Contractors	Waste disposal, resource conservation and such other works	Monthly

6.8 EQUIPMENT MAINTENANCE DETAILS

Equipment with high efficiency, good condition and reliability will be purchased by the Proponent. Maintenance of Equipment will be done twice year for the smooth operation.

6.9 ENVIRONMENTAL BUDGET

Approximately 4 Lakhs PKR per year budget will be reserved for the Environmental Monitoring and measures.

Table 9: Environmental Management Cost

Environmental Component	Quantity	Amount (Pkr)
Tree plantation	500	**100,000**
Health & safety measures and provision of PPE's	L.s.	**100,000**
Environmental trainings	L.s.	**100,000**
Total Environmental Management & Monitoring Cost.		**3,00,000**

6.10 SUMMARY OF IMAPCTS AND THEIR MITIGATION MEASURES

Environmental monitoring is a vital component of the Environmental Management Plan. It is the mechanism through which the effectiveness of the Environmental Management Plan in protecting the environment is measured. The feedback provided by the environmental monitoring is instrumental in identifying any problem or lapse in the system under implementation and planning corrective actions. The main objectives of the environmental monitoring are:

- To provide a mechanism to determine whether the project construction contractors are carrying out the project in conformity with the EMP.
- To identify areas where the impacts of the project are exceeding the criteria of significance and, therefore, require corrective actions.
- To document the actual project impacts on physical, biological, and socio-economic receptors, quantitatively where possible, in order to design better and more effective mitigation measures.

CHAPTER VII:
STAKEHOLDERS CONSULTATION

7.0 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 their 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 project were measured. A social impact assessment survey was conducted.

7.1 Proponent Management Team

Consultation regarding Asphalt plant owned by M/s MRC was done with Proponent's Environmental management Team and anticipated impacts were discussed. Concerns of locals, Environmental Practitioners & experts and Government departments were discussed and asked to consider them while construction of above-said project. Locals will be preferred for employment after providing proper training. Mitigations measures mentioned in EMP will be truly implemented.

7..1 The Responsible Authority

The management of Asphalt plant owned by M/s MRC is the responsible for the impacts of their projects.

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

7.2 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 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 operation of the 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 the Project;
- Documenting mitigation measures proposed by the stakeholders

7.3 IDENTIFICATION OF STAKEHOLDERS

All the people who are directly or indirectly affected or concerned with the project are the stakeholder. Besides the living population of the surrounding areas, some other stakeholders were identified and contacted. They are the key players including; shops owners, vendors, public offices, school, university, hospitals,. Not only published material (Both brief and comprehensive literature were obtained on request) but also noted their views and the concerns. Following stakeholders are identified for this project:

Project stakeholders include the settled families, either property owners or the tenants, businessmen (land owners, traders, shopkeepers, vendor's, transporters, restaurant owners etc.), employees of the commercial entities. PAPs are of two types, for instance:

7.3.1 Direct

In this case, the PAPs are those who will be benefited directly by project. No disturbance on the local community is being foreseen due to the installation of the said unit.

7.3.2 Indirect

Indirect impact will occur on those who are living or doing business within project area of influence. Indirect respondents include;

- Government agencies responsible to deal with the project related activities
- Government Agencies directly, indirectly or widely involved in the execution and monitoring of the said project
- Workers of political, cultural, religious or social scientific bodies, directly or indirectly related

7.4 PUBLIC DISCLOSURE

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

7.5 CONSULTATION PROCESS

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

- Pretesting of socio-economic survey tools in the field
- Data collection regarding the socio-economic condition of the study area
- To consult the locals for collection of information on biological environment
- Various meeting with the stakeholders were held the following objectives:
- Share information with stakeholders on the said project and expected impacts on community in the vicinity of the project
- Understand stakeholders' concerns regarding various aspects of the project, including the existing condition of the upgrading requirements, and the likely impact of construction and operation activities

- Provide an opportunity to the public to influence the project design in a positive manner
- Obtain local and traditional knowledge, before decision making
- Increase public confidence about the proponent, reviewers and decision makers
- Reduce conflict through the early identification of controversial issues, and work through them to find acceptable solutions
- Dissemination of information through discussions, education and liaison
- Documentation of information narrated by the stakeholders and mitigation measures proposed by the stakeholders
- Incorporation of public concerns and their address in the EIA; and eliciting their comments and feedback

7.5.1 Consultation Methodology

The methodology adopted for consultations is summarized below.

7.5.1.1 Consultation Material

The main document for distribution to stakeholders during the consultations was Social Impact Assessment Interview**.**

7.5.1.2 Consultation Mechanism

Primary stakeholders were consulted during informal and formal meetings held in the project area. The consultation process was carried out in the Urdu language. During these meetings a simple, non-technical, description of the project was given, with an overview of the project's likely human and environmental impact. This was followed by an open discussion allowing participants to voice their concerns and opinions. In addition to providing communities with information on the said project, their feedback was documented during the primary stakeholder consultation. The issues and suggestions raised were recorded in field notes for analysis, and interpretation.

By reaching out to a wider segment of the population and using various communication tools such as participatory needs assessment, community consultation meetings, focus group

discussions, in-depth interviews, and participatory rural appraisal EIA involved the community in active decision-making. This process will continue even after this EIA has been submitted, as well as during future EIA in which similar tools will be used to create consensus among stakeholders on specific environmental and social issues.

Secondary stakeholder consultations were more formal as they involved government representatives and local organizations, consulted during face-to-face meetings. They were briefed on the EIA process, the project design, and the potential negative and positive impact of the project on the area's environment and communities. It was important not to raise community expectations unnecessarily or unrealistically during the stakeholder consultation meetings in order to avoid undue conflict with community's leaders or local administrators. The issues recorded in the consultation process were examined, validated, and addressed in the EIA report.

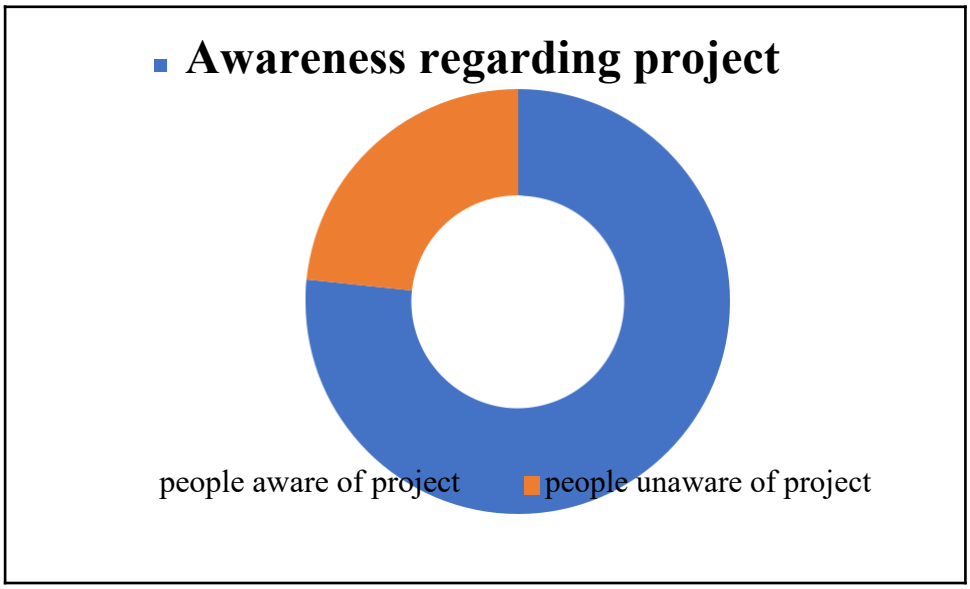
7.5.2 Primary Stakeholders Consultation

The community consultations were conducted with the community members outside their settlements to encourage and facilitate their participation. Consultation was done for 1 day.

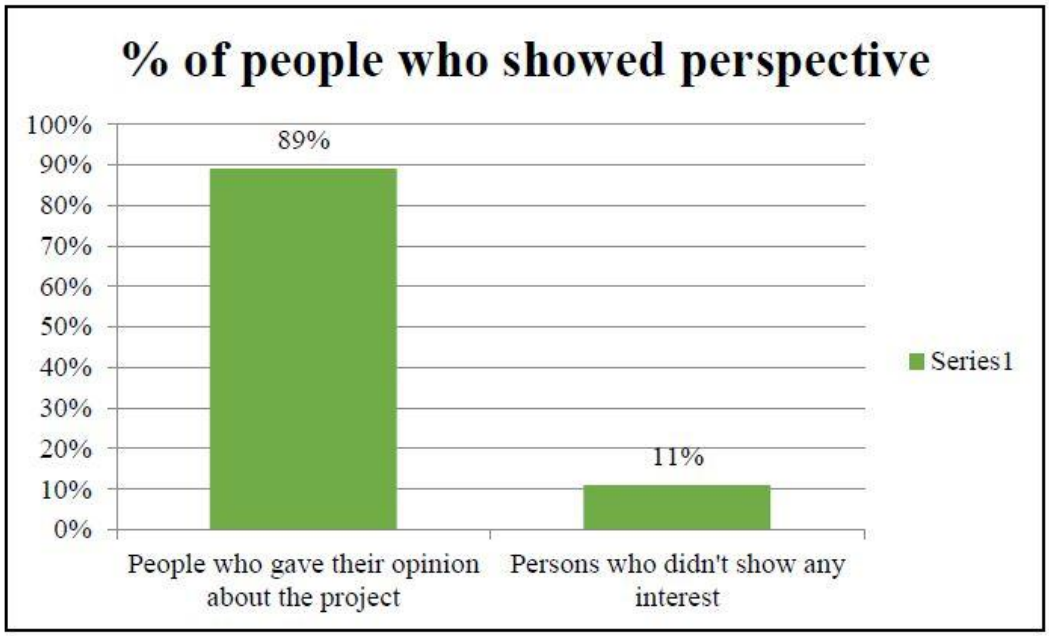
7.5.2.1 STAKEHOLDER CONCERNS AND RECOMMENDATIONS

The finding of the community consultation has been addressed in various sections of EIA. Mitigation plan has been incorporated into EMP. The summary of consultation with various stakeholders is given below

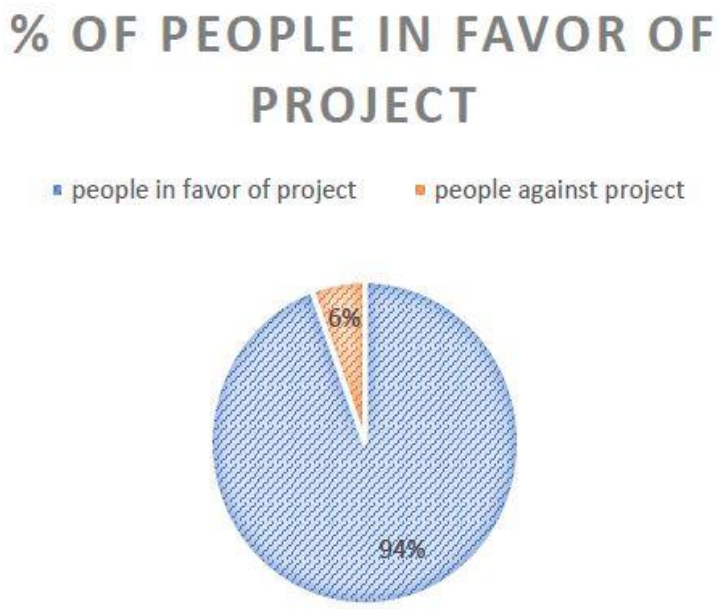
Out of total respondents of, 77% knew about the project whereas 23% were not aware of the project planning and implementation. All people were then briefed about the project.



89% commented their views about the project and 11% didn't respond.



Out of 89%, majority of the people (about 94%) favored the construction of the project keeping in view its importance and 6% people showed pessimistic views in general but mitigation measures and solutions to their concerns were provided.



Majority of people were in favor of project. They said that project will result not only in direct jobs opportunities for locals but also will enhance subsidiary business, trade, education, and community development. The people were of the view that industry might also elevate education standards, struggle for career enhancement besides improvement in standard and quality of living in area. People were also of the view that industry may also be instrumental in connecting the local people with major cities and will result in increase in GDP.

Very few near to 6 % only shows concerns over generator and noise, and health impacts. Majority of the concerns were changed in the favor of installation after communicating the participants proper solutions and mitigation measures. Some of concerns shown by public are:

- The project would encourage asphlat plant in the region
- New businesses will spring up and old ones will grow as a result of migration of people in the area.
- The local economy is likely to grow through backward and forward linkages and income and employment multiplier effects resulting from the project.
- The establishment of project in the region will contribute to industrial development.

7.6 Affected and wider community

The stakeholders contacted during the survey belonged to different categories of people as shown in the Table 7.1.

Table 7.1: Categories of Stakeholders Interviewed in the Project Area

Sr. No.	Stakeholder Category
1	Neighbor workers
2	Project workers
3	Potential Distributors

7.7 Stakeholder Concerns and Recommendations

The finding of the community consultation has been addressed in various sections of EIA. Mitigation plan has been incorporated into EMP. The summary of consultation with various stakeholders is given below:

7.7.1 Project Approval

The community consultations demonstrated that goodwill towards the project proponent indeed exists. Approval for project activities by communities was evident. The consultations were considered a good gesture and were appreciated; especially by men and women. The poverty level is such that communities are looking forward to any project proponent to improve their financial well-being to a great extent. Benefit from the project should be distributed judiciously and equitably among the primary stakeholders in the project area, and the proponent will continue to ensure that this principle is followed in this project and community development program.

7.7.2 Local Employment

Communities in the project area emphasized that local inhabitants should be given priority when employing people for related works and activities according to their skills.

7.8 Other departments and agencies

Other departments and agencies such nearby schools and other educational institutes were also surveyed during whole consultation process. The suggestions and mitigation measures has been incorporated in the Environmental Management Plan.

7.9 Environmental Practitioners and experts

Consultation with Environmental Practitioners and experts was done and attached with the File.

Chapter 8: RECOMMENDATIONS AND CONCLUSION

8.1 CONCLUSION

The EIA Report of Asphalt Plant is made to fulfill the legal requirement of Punjab Environmental Protection (Amendment) Act 2012. In order to address the potentially adverse impacts of the project, particularly during the construction phase, an EMP has been developed, which will further improve the environmental performance of the project. The EMP assigns roles and responsibilities, provides environmental guidelines and discusses the scope of Environmental Management Plan.

The construction stage will face negative impacts in form of dust, smoke and noise on account of employment of vehicles. The generation of construction waste, solid waste and oil spills/seepage will not have significant negative impacts of land and air resources, as the construction scale is too small. All such impacts are temporary and are of minor to moderate nature. The mitigation measures have been suggested in the EMP. The operational phase may cause odor, solid waste & wastewater problems, and thus mitigation measures are suggested to eliminate/reduce the impact.

The EIA Report has thoroughly assessed all the potential environmental impacts associated with the project. The environmental impacts identified by the study are manageable. Site specific and practically suitable mitigation measures are recommended to mitigate the impacts. The EIA concludes that construction and operational phase of project will not pose any major adverse environmental impacts on environment if the anticipated impacts are properly mitigated and the Environmental Management Plan is properly implemented.

Therefore, the Project does not require any further environmental study and the project of Asphalt Plant is recommended for Environmental Approval from the EPA, Punjab.

8.2 RECOMMENDATIONS

The Environmental Impact Assessment Report and survey results are finally evaluated to recommend the following:

- The plant will be provided boundary wall along with the proper plantation of trees.

- Training of the staff/employees regarding the emergency procedures/plans.
- Create environmental awareness amongst the workers.
- Provide guidance to workers on use of PPEs and also make it compulsory for them to use PPEs during working.
- Installation of fire extinguishers in the premises.
- Ensure periodic monitoring will be done during construction phase to ensure environmental protection.
- Use of equipments with low operating noise levels for construction activities.
- Use sprinkling system to prevent dust generation from the construction.

ANNEXURE-I

Glossary

Act means the Pakistan Environmental Protection Act, 1997.

Regulations means the Pakistan Environmental Protection Agency Review of Initial Environmental Examination and Environment Impact Assessment Regulations (IEE & EIA), 2022.

Screening is the first step of IEE/EIA study. It helps in determining whether a project requires an IEE or EIA.

Sensitive Receptors include, but are not limited to, hospitals, schools, daycare facilities, elderly housing and convalescent facilities. These are areas where the occupants are more susceptible to the adverse effects of exposure to toxic chemicals, pesticides, and other pollutants.

Contamination is introduction of impurities in the environment.

Environment means (a) air, water and land; (b) all layers of the atmosphere; (c) all organic and inorganic matter and living organisms; (d) the ecosystem and ecological relationships; (e) buildings, structures, roads, facilities and works; (f) all social and economic conditions affecting community life; and (g) the inter-relationships between any of the factors in sub-clause (a) to (f).

Environmental Assessment a technique and a process by which information about the environmental effects of a project is collected, both by the developer and from other sources, and taken into account by the planning authority in forming their judgments on whether the development should go ahead.

Environmental Management to carry out the developmental activities in sustainable manner.

Impact on Environment means any effect on land, water, air or any other component of the environment, as well as on wildlife harvesting, and includes any effect on the social and cultural environment or on heritage resources.

Mitigation Measures means the measures for the control, reduction or elimination of an adverse impact of a development on the environment, including a restorative measure.

Project Proponent is a person, company, NGO or any agency that sponsors and promotes a project.

Pollution means the presence in the environment or the introduction into it, of substances that have harmful or unpleasant effects.

Social Cohesion is defined as the willingness of members of a society to cooperate with each other in order to survive and prosper.

Afforestation is the planting of trees on land which was formerly used for land uses other than forestry is called afforestation.

Particulate Matter PM_{10} is particulate matter 10 micrometers or less in diameter, $PM_{2.5}$ is particulate matter 2.5 micrometers or less in diameter. $PM_{2.5}$ is generally described as fine particles. The synonyms used for them are dust, particulate matter, inhalable particles, respirable particles, smoke, mist.

ANNEXURE-II

List of Abbreviations

IEE	Initial Environmental Examination
EIA	Environmental Impact Assessment
MRC	Muhammad Ramzan & Company
NOC	No Objection Certificate
EA	Environmental Approval
MICS	Multiple Indicator Cluster Survey
EMMP	Environmental Management & Monitoring Plan
EPA	Environmental Protection Agency
OHS	Occupational Health and Safety
NEQS	National Environmental Quality Standards
PEQS	Punjab Environmental Quality Standards
GOP	Government of Pakistan
NCS	National Conservation Strategy
NGO	Non-Governmental Organization
ERP	Emergency Response Plan
PPE	Personal Protective Equipment
PPC	Pakistan Penal Code
PEPA	Pakistan Environmental Protection Act
TMA	Tehsil Municipal Authority
LAA	Land Acquisition Act
GDP	Gross Domestic Product
CSR	Corporate Social Responsibility
IUCN	International Union for Conservation of Nature
mm	Millimeters
m	Meters
dBA	Decibel Scale A
km	Kilometers
Sft.	Square Feet
PM_{10}	Particulate Matter of size ≤ 10 Micrometers
$PM_{2.5}$	Particulate Matter of size ≤ 2.5 Micrometers
N/A	Not Applicable

ANNEXURE-III

SOURCES OF DATA

- Guidelines for preparation and review of Environmental Report
- Guidelines for Public Consultation
- Labor Laws
- Meteorology Department Data (from website)
- National Environmental Policy 2005
- National Environmental Quality Standards (Self-Monitoring and Reporting by Industries) Rules, 2001
- Pakistan Environmental Protection Act, 1997
- Pakistan Environmental Protection Agency (Review of IEE/EIA) Regulations, 2022.
- Pakistan Environmental Protection Order (Pepo) 1983
- The Land Acquisition Act, 1894
- Basel Convention
- The Punjab Local Government Ordinance, 2001

ANNEXURE-IV

TERMS OF REFERENCE

Scope of Work for Consultant

Activities of the consultant will strictly follow the Guidelines given in PEPA Act 2000. An extract is narrated below:

- Complete baseline information about the environmental, social, and ecological characteristics of the project area will be collected via field surveys by keeping in view the following but not limited to location; water bodies, villages/towns/sensitive areas; accessibility, security, vegetation, flora, fauna, physical structures, livelihood, social amenities and Physical Cultural Resources (PCR's).
- Relevant information will also be collected on potential impacts of the project and the characteristics of temporary and permanent impacts.
- Various stakeholder consultations will be conducted as part of EIA study. The details of consultations including venue, date, participants, feedback, their concerns/views, etc. will be recorded and reported.
- The specific and effective mitigation measures will be suggested to minimize the adverse socio-environmental impacts and related mitigation costs.
- An Environmental Management and Monitoring Plan (EMMP) will also be developed to be implemented by the relevant authorities during the pre-construction, construction and operational phases.
- Environmental Testing / Sampling by EPA Approved Laboratory.
- Timely preparation and submission of all deliverables.
- After the completion of a comprehensive EIA report, the Proponent will also be assisted by the Consultants to receive Environmental Approval from Environmental Protection Authority (EPA), subject to the agreement of the Proponent.

Key Deliverables

- Submission of 10 hard copies and 02 soft copies of EIA Report to EPA Punjab, Lahore. EIA Report will be accompanied by:

- An Application Form set out in Schedule IV of Review of EIA/ IEE Regulations, 2022
- An Undertaking as per Schedule VII of Review of EIA/ IEE Regulations, 2022
- Review Fee in form of bank draft
- Replies of Queries raised by EPA if they require some additional information

Responsibilities of Client

- Responsible to pay all the dues of the consultant as per the agreed terms and conditions
- According to regulation 7 of the Review of EIA/ IEE 2022, proponent will pay, at the time of submission of EIA, a non-refundable fee of PKR 30,000/- in form of bank draft to EPA
- A.S would facilitate client regarding coordination with relevant EPA during processing of Environmental approval/NOC and will answer to all technical queries/ presentations related to EIA report.
- Technical Data regarding project description will be provided by client.
- You are requested to confirm all the necessary arrangements to facilitate our intervention.
- All material developed for the clients including the relevant systematic and methodology have been developed by the Company and are copyrighted by it. Clients shall not copy reproduce or disclose to third parties the data as provided by the Company without its prior written consent.

ANNEXURE-V

Table: List of Team Members

Sr. #	Name	Qualification
Team Leader		
i.	Dr. Usama Zafar	PhD Environment
External Expert		
ii.	Dr. Jabir Syed	Port Doc. Environment
Bio Diversity Specialist		
iii	Dr. Jamshed Ch.	PhD Zoology
Environmental Scientist		
iv.	Munawar Chaudhary	M.Phil. Environment
v	Waqar Ahmad	M.Phil. Environmental Sciences
vi	M.Wajid	MSc GIS
vii.	Hassan Zaidi	BA Economics
viii.	Abdul Mannan Mirza	Chemical Engineer

ANNEXURE-VI
OTHER NOC