

Environmental Impact Assessment (EIA) Report

FIAZ & CO

(Proposed Asphalt Plant)

Khewat No: 117, 104 Khatooni No: 152 Mouza Katcha Tehsil Hassan
Abdal District Attock



Report Submitted By:

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EXECUTIVE SUMMARY

1. Title of the Project

This report presents the findings of the Environmental Impact Assessment study of proposed installation of Asphalt Plant by Fiaz & Co.

2. Location of the Projects

The proposed project is located at Khewat No: 117, 104, Khatooni No: 152 Mouza Katcha Tehsil Hassan Abdal District Attock.

3. Name of the Proponent

The proponent of the proposed project is Fiaz Ahmed S/O Ghulam Rasool R/O Safari Valley, Bahria Town Phase 8, House No: 227, Street No: 3 Block D Rawalpindi.

4. Name of the Organization Preparing Report

To comply with IEE/EIA regulations 2022 as per Punjab Environmental Protection (Amendment) Act (PEPA) 2012, the proponent Fiaz & Co has entrusted the ***Safe Enviro-Solutions***.

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5. A Brief Outline of the Proposal

The Proponent intends to construct proposed Asphalt Plant at Khewat No: 117, 104, Khatooni No: 152 Mouza Kacha Tehsil Hassan Abdal District Attock. The total area of the plot is 25 Kanal. The proposed covered area of the project will be 5 Kanal. The proposed plant will be of 2 Ton capacity overall. The production capacity of the proposed plant is 120 Ton/hour. The estimated cost of the project is PKR 70 Million. The raw material of the proposed project is crush/stone dust and bitumen & asphalt is the final product. Asphalt plants, also called asphalt mixing plants or hot mix plants, are equipment that can combine aggregates and bitumen to produce asphalt mix for road paving. Mineral fillers and additives may be required to add to the mixing process in some cases. The asphalt mix can be widely applied for the pavement of highways, municipal roads, parking lots, airport expressway, etc.

The scope of the current EIA Study aims at collection and scrutinization of data related to physical, biological and socio-economic environment of the project area and to prepare the baseline environmental profile. It also aims at the identification, prediction and evaluation of the possible environmental impacts of the proposed project on its immediate surroundings on both short and long-term basis. Based on the nature and levels of those impacts, appropriate mitigation measures are proposed in this IEE Report. This is the legal requirement to submit before and approve the IEE/EIA of the said project from Environmental Protection Agency (EPA) according to Section 12 of Punjab Environmental Protection (Amendment) Act, 2012, which states that:

“No proponent of a Project shall commence construction or operation unless he has filed with the Provincial Agency an Environmental Impact Assessment, where the Project is likely to cause an adverse environmental effect, an environmental impact assessment, and has obtained from the Provincial Agency approval in respect thereof.”

6. Methodology

The study was conducted in accordance with Environmental Protection Agency (EPA), Government of Pakistan (GOP) Guidelines, 2000. The study was based on both primary and secondary data and information. Discussions were held with stakeholders including government officials, community representatives and a wide range of local residents. The main purpose of this approach is to obtain a fair impression on the people's perceptions of the project and its environmental impacts.

To accomplish the job in time and to produce a quality report, a proper methodology was adopted as follows:

- Meetings and discussions were held among the members of the EIA consulting team, design engineers and proponent. This activity was aimed at achieving a common ground of understanding of various issues of the study.
- Planning was carried out to assess data requirements and their sources; time schedules and responsibilities for their collection; logistics and facilitation needs for the execution of the data acquisition plan.

- Primary and secondary data were collected through observations during the field survey, environmental monitoring in the field, concerned departments and published materials to establish baseline profile for physical, biological and socio- economic conditions.
- The impacts of the project on the physical, biological and socio-economic environment prevalent in the project area were visualized at the design, construction and operational phases.
- The adequate mitigation measures and implementation mechanisms were proposed so that the proponent could incorporate them beforehand in the design phase.

7. The Major Impacts

The study team reviewed the Project with the aim to determine the likely impacts of the project on the environmental and socio-economic conditions of the area. All the necessary elements of the project were reviewed and compared with the existing conditions in the vicinity of the Project Area.

- During the construction vehicles and machinery are employed. These machines generate some dust and smoke temporarily due to which PM₁₀ and PM_{2.5} levels in the ambient air may exceed the permissible limits.
- Safety issues could also arise for workers during construction phase of the project.
- Solid waste will be produced during construction phase it may compromise the aesthetics of the area and could cause the hindrance for movement of transportation temporarily.
- The domestic wastewater will be generated during the operational phase of the project.
- Odor may also be generated if proper housekeeping will not be ensured which may affect health of workers.

8. Recommendations for Mitigation Measures

Results of the IEE Study have shown that overall the project is environmentally feasible. Most of the environmental impacts are moderate adverse in nature except the solid waste generation during the erection of the development footprint, the drainage system, the sewage plant and effluent disposal system, and the use of the land as a final recipient of runoff and effluent. However, these impacts can be mitigated by the implementation of Environmental Management Plan (EMP). Environmental Management Plan identifies monitoring needs and implementation on Environmental Management Plan is also recommended.

The following measures are recommended for the project:

- Sprinkling of water should be done to avoid soil erosion during the construction phase. However, it is short time impact, which would be stopped on completion of the construction work.
- The impact of noise will be mitigated by confining the excessive noise activities.
- Water sprinklers will be used for the suppression of dust.
- The domestic wastewater will be disposed in drain after treatment by the septic tank.
- Fire Hydrants, Fire Alarms, Gas Detectors & Fire Extinguisher's will be installed by the proponent in this unit for overcoming the hazard of fire.
- Traffic movement plan should be formulated to avoid any issue for locals

9. Proposed monitoring

Environmental monitoring has been proposed for construction and operation phase of the project. During construction phase, the construction contractor will be responsible for annually monitoring of all environmental parameters (ambient air, ground water and noise level). One (1) environmental monitoring report will be prepared on monthly basis and one (1) comprehensive report will be prepared at the end of the construction phase and will be submitted to Environmental Protection Agency Punjab.

Whereas biannually and quarterly monitoring of ambient air, ground water and noise level will be carried out by the proponent during operation phase of the project. One (1) environmental monitoring report will be prepared biannually and one (1) comprehensive report will be prepared and submitted to the EPA-Punjab. Contents of the final report will include results of environmental monitoring in comparison to the standards for the various parameters, location and sampling time along with recommendations for the future projects.

Sr. No	Monitoring Parameter	Monitoring Location	Remarks
A. Construction Stage			
1.	Noise	Construction Vehicle/ Machinery/ generators/Welding work	Construction vehicles / machinery / generators will be checked regularly for noise level by the contractor during construction phase.

2.	Smoke Emissions (CO, NO _x , PM, SO ₂ etc.)	Construction Vehicle/ Machinery/ generators	Construction vehicles / machinery / generators will be checked regularly for smoke emissions by the contractor during construction phase.
3.	Water Quality As per PEQS	Ground Water/ Surface Water	Sampling and laboratory testing will be done on monthly basis during the construction.
4.	Solid Waste	Worker Camp/ Construction Site	Collection of solid waste shall be checked regularly by the contractor during construction phase.
B. Operation Stage			
1.	Security	Plant area	Security arrangement will be made.
2.	HSE Plan	---	Health, safety and Environmental will be monitored on daily basis.
3.	Indoor Gaseous Emissions	Generators room	Will be carried out on quarterly basis from the stacks of generator

GLOSSARY

Words	Dictionary
Domestic wastewater	Wastewater from sanitary uses
Residential	For living of people
Economically viable	Suitable in monetary terms
Endangered species	Which will extinct in near future
Threatened species	Those in danger of extinction
Aesthetic beauty	Scenic beauty of the area
Ambient	Surrounding of all sides
Topography	Physical features of the site
Silence zone	Where transmission/sound cannot be received
Anticipated Impacts	Expected Impacts
Baseline	Conditions prevailing at the time of study or before initiation of any project
Environment Budget	Monetary assets reserve for Environmental activity
Evaluation	Assessment
Fauna	Variety of Animals found in an area
Flora	Variety of Plants found in an area
Million	10,00,000
Mitigation Measures	Measures aimed to curtail or entirely control an adverse impact or to compensate some loss or cause additional improvements
Orientation Session	Direction Session

Nuisance	Annoyance
pH	Negative log of hydrogen ion concentration
Potential Issue	Problems likely to arise
Proposed Project	Planned activity
Residual Impacts	Impacts left behind after implementation of the mitigation measures
Significant	Important

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INTRODUCTION

1.1 Scope of the Study

The scope of this IEE study aims at collection and scrutinization of data related to physical, biological and socio-economic environment of the project area and to prepare the baseline environmental profile. It also aims at the identification, prediction and evaluation of the possible environmental impacts of the proposed project on its immediate surroundings on both short and long-term basis. Based on the nature and levels of those impacts, appropriate mitigation measures are proposed in this EIA Report.

1.2 Study Objectives

The specific objective of the IEE study includes the following:

- Collection and scrutinization of data related to physical, biological and socio-economic environment of the project area and to prepare baseline environmental profile;
- Identification, prediction and evaluation of potential environmental impacts of the proposed project;
- Suggesting mitigation measures to minimize the adverse impacts of the project; and
- Preparation of an Environmental Management Plan (EMP).

1.3 Purpose of the Report

An Environmental Impact Assessment (EIA) study report has been prepared to identify and assess the significant environmental impacts likely to occur due to proposed project construction along with environmental impact statement followed by appropriate Environmental Management Plan. IEE of this proposed project has been carried out in order to conform to the requirements of the **Punjab Environmental Protection Act, 1997, amended in 2012 under section 12** of which no development activity can be initiated anywhere in Punjab without filing before the designated government agency an Environmental Impact Assessment or an Environmental Impact Assessment, as may be required and having an NOC for construction and operation.

The purpose of this IEE is to predict all the probable adverse environmental impacts and plan adequate mitigation measures for eliminating, controlling or compensating them and drafting the complete institutional framework for their implementation.

1.4 Identification of the Project and Proponent.

The proponent of the proposed project is Fiaz Ahmed S/O Ghulam Rasool . According to the Punjab Environmental Protection Act 1997 (Amended 2012) and its interpretation as per Review of IEE & EIA Regulations, 2022 for filling, review and approval of environmental assessments, the construction/development of this proposed Asphalt Plant, falls **Schedule II-Category B (2 'chemical Projects'))**.

1.5 Detail of Environmental Consultants

This IEE study has been carried out by Safe EnviroSolutions. This company comprises environmental engineers, Senior Environmentalists, sociologist, chemical engineers and architects having diversified experience in national system and assignments. The company address and contact information is as follow:

Office: 99 Burj/Al-Saeed building Room #110, Main Ferozepur Road, Ichra, Lahore.

Phone: 0336-8779107

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Table 1: Detail of team conducting IEE study with qualification and position in team.

Name	Qualification	Position in the IEE Team
Muhammad Rehman Majeed	M.Phil (Environmental Science) GCU Lahore	Project Incharge And Supervisor
Ammara Anwar	M.Phil Environmental Science PU-Lahore	Team Leader and Coordinator (Author of the Report)
Mohsin Ali	M. Phil Environmental Science GCU Lahore	Senior Environmentalist (Field Analyst)
Muhammad Maqbool	PhD Scholar Chemistry (UMT Lahore)	Senior Chemist
Muhammad Zeeshan	PhD Scholar Botany (PU Lahore)	Senior Botanist



Anum Waheed	BS (Hons) Environmental Science (GCU Lahore)	Research Associate (Author of the Report)
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**Only the main roles of the team members are given. However, their role was not restricted to these, rather it also includes many other studies in their respective fields in the context of this EIA studies.*

1.6 Brief Description of Nature, Size and Location of Project

Title of the Project

This report presents the findings of the Environmental Impact Assessment study of Fiaz & Co (Proposed Asphalt Plant).

Location of the Project

The proposed project is located at Khewat No: 117, 104, Khatooni No: 152 Mouza Kacha Tehsil Hassan Abdal District Attock.

A Brief Description of the Project

The Proponent intends to construct proposed Asphalt Plant at Khewat No: 117, 104, Khatooni No: 152 Mouza Kacha Tehsil Hassan Abdal District Attock. The total area of the said plot is 25 Kanal.

1.9) Structure of the Report

Section 1: Introduction briefly presents the project background, objectives, methodology and need of the IEE study.

Section 2: Policy, Legal and Administrative Framework comprise policy guidelines, statutory obligations and roles of institutions concerning IEE study of the proposed Project.

Section 3: Description of the Project furnishes information about the location of the proposed Project, cost and size of the project, its major components and alternatives considered for the proposed project to select at the preferred alternative for detailed environmental assessment.

Section 4: Environmental Baseline Profile establishes baseline conditions for physical, biological and socio-economic conditions prevalent in the project area.

Section 5: Screening of Potential Environmental Impacts and Mitigation Measures identifies, predicts and evaluates impacts of the project activities during the construction and operation stages and deals with the measures proposed to mitigate potential environmental impacts of the proposed project.

Section 6: Environmental Management and Monitoring Plan outlines institutional arrangements for the implementation of the proposed mitigation measures, training needs of the staff for implementation of the mitigation measures, monitoring requirements and monitoring cost.

Section 7: Conclusions and Recommendations provide the outcome of the study and major observations of IEE and suggestions for environmental management and pollution control.

Section 8: References.

Screening:

The proponent intends to construct proposed Asphalt Plant at Khewat No: 117, 104, Khatooni No: 152 Mouza Kacha Tehsil Hassan Abdal District Attock. The total area of the said plot is 25 Kanal.

*According to the Punjab Environmental Protection Act 1997 (Amended 2012) and its interpretation as per Review of IEE & EIA Regulations, 2022 for filling, review and approval of environmental assessments, the construction the construction/development of this proposed Asphalt Plant, falls in the **Schedule II- Category B (2) Category i.e. "Chemical Projects."***

Further, the client is required to fulfill the legal requirements of the Section-12 of the Punjab Environment Protection Act 1997 (Amended 2012).

Scoping:

SPATIAL AND TEMPORAL BOUNDARIES OF ENVIRONMENTAL ASSESSMENT

Project site is open land. After its development with time nature of area will change from open land to project site. Already operation of other Industrial units is being taking place near around. Currently there is no significant population center present nearby project. The current project site is 3 kilometers from population centers and all the parameters are within PEQS.

IMPORTANT ISSUES AND CONCERN RAISED DURING CONSULTATION

During consultation it was observed that maximum of people was in favor of project and following issues and concerns were raised which have also been discussed in length in Chapter 9 Stakeholder Consultation:

- Locals should be preferred for the job opportunities.
- Air pollution should be controlled.
- Solid waste should be managed effectively by adopting the standard practices of the area.
- Cleanliness of the area should be ensured.
- An effective EMMP should be designed and enforced with true spirit.
- Health of the workers should be ensured.
- Workers should be hired from local community.
- Indigenous trees around the facility should be planted to control air pollution.

SIGNIFICANT IMPACTS AND FACTORS TO BE DETERMINED

Main impacts and factors to be determined are;

- Site Security
- Traffic Management
- Hygiene management
- Community impacts
- Control Air emissions
- Job opportunities for locals
- Confined noisy activities



- Resource conservation
- Avoid excessive water consumption
- Energy efficient techniques must be adopted
- Proper site restoration after construction
- Tree plantation at designated green areas
- Emergency preparedness

DESCRIPTION OF THE PROJECT

3.1 Rationale of the Project

Infrastructure development has gradually become a priority among governments as it is instrumental in facilitating industrial development, which would, in turn, lead to the development of the economy. Asphalt plants are an integral part of the construction business and are responsible for preparing construction mixes efficiently.

3.2 Type and Category of the Project

The proponent of the proposed project is Fiaz Ahmed S/O Ghulam Rasool. According to the Punjab Environmental Protection Act 1997 (Amended 2012) and its interpretation as per Review of IEE & EIA Regulations, 2022 for filling, review and approval of environmental assessments, the construction/development of this unit, falls in the **B (2) Category i.e. “Chemical Projects”**. **Thus, an EIA Report is being prepared and submitted accordingly for approval.**

3.3 Objectives of the Proposed Project

- To manufacture Asphalt
- To increase the supply of Asphalt to Construction Sector
- To create job opportunities for the locals
- To raise the socioeconomic status of the area
- To establish the business of proponent

3.4 Alternatives

From the point of view of locating an industry the features, which are considered extremely important, are:

- Availability of suitable land.
- Availability of required utilities and infrastructure
- Road access to the site for easy transportation of materials and finished goods.
- Optimum investment requirement for the development of the infrastructure.

3.4.1 Do Nothing Alternative

Do-nothing alternative is not feasible due to the following reasons

- Withdraw the opportunity of employment for the locals.
- The site is owned by the owner. Hence, it is suitable for the development of this project.

- The selected site has higher potential of revenue generation.

3.4.2 Technology Alternatives

The technology being offered by Fiaz & Co (Proposed Asphalt Plant) is considered to be 'state of the art' in terms of being environment friendly, efficiency modern & process design for similar capacity of units.

The new plant will be built according to the applicable Best Available Technologies (BAT) defined for similar industry.

3.4.3 Site Alternative

The proposed location was determined to be the most convenient location in proximity to the market and domestic supply chain. The proposed site has least environmental & social impacts.

3.4.4 ENVIRONMENTAL ALTERNATIVES, THEIR SELECTION AND REJECTION CRITERIA:

Every development project causes alteration in the existing environment inevitably that can be positive as well as negative. The negative environmental impacts of the proposed factory of Fiaz & Co can be gaseous emission, increased noise levels, excessive water usage, , and surface water contamination etc. The 'no-go' alternative, also referred as the 'no-action' alternative or 'zero-alternative', can be a consideration in this case. It assumes that the activity does not go ahead, implying a continuation of the current situation or the status quo. It is basically a consideration of the original and undisturbed environment without any development. This option is considered to ensure that all possibilities have been taken into consideration before deciding on a final course of action and also to provide a baseline situation against which the other suggested alternatives can be measured.

In a situation where negative environmental impacts have high significance, the 'no-go' alternative takes on particular importance. In some cases, the 'no-go' alternative may be the only realistic alternative and then it has a critical role to play. It is not true to assume that the 'no-go' alternative is necessarily the best from an environmental perspective. In many cases, expansions and upgrades of existing industries (the 'go' alternative) permit the implementation of technological improvements such as the replacement of outdated equipment that leads to reduced emissions to the air or water, in addition to the primary aim of increased production capacity.

The 'no-go' alternative provides the means to compare the impacts of project alternatives

with the scenario of a project not going ahead. In evaluating the ‘no-go’ alternative here; the benefits of the proposed project are more valued for the country.

3.4.5. Economic Alternatives, their Selection and Rejection Criteria

Economic alternatives were considered taking into consideration the capital and operational costs for the proposed unit. Land cost, infrastructure cost and machinery cost were taken into account as the deciding economic factor. Accordingly, land is selected in an already under proponent ownership.

Also, state of the art machinery will be employed considering it as one-time investment and thus minimizing the maintenance cost during the operational phase. The technology selected for installation of above stated project is costly than a few available alternatives but less costly as compared to majority of the other available treatment technologies, but it is most efficient and convenient to use.

3.5 Location and Site Layout of the Project

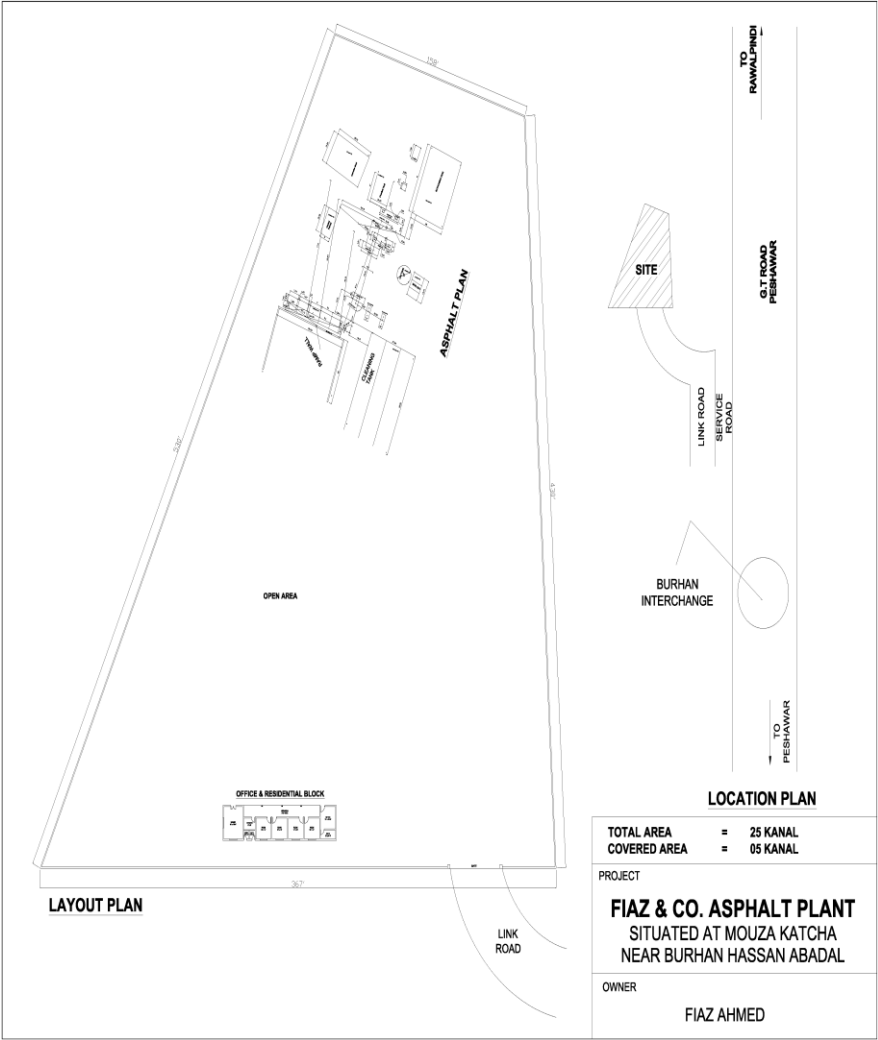
3.5.1 Location of the Project

Location of the Project

The proposed project is located at Khewat No: 117, 104, Khatooni No: 152 Mouza Kacha Tehsil Hassan Abdal District Attock.

The project is surrounded by the followings

Front	G.T Road
Back	Open Land
Left	Open Land
Right	Asphalt Plant





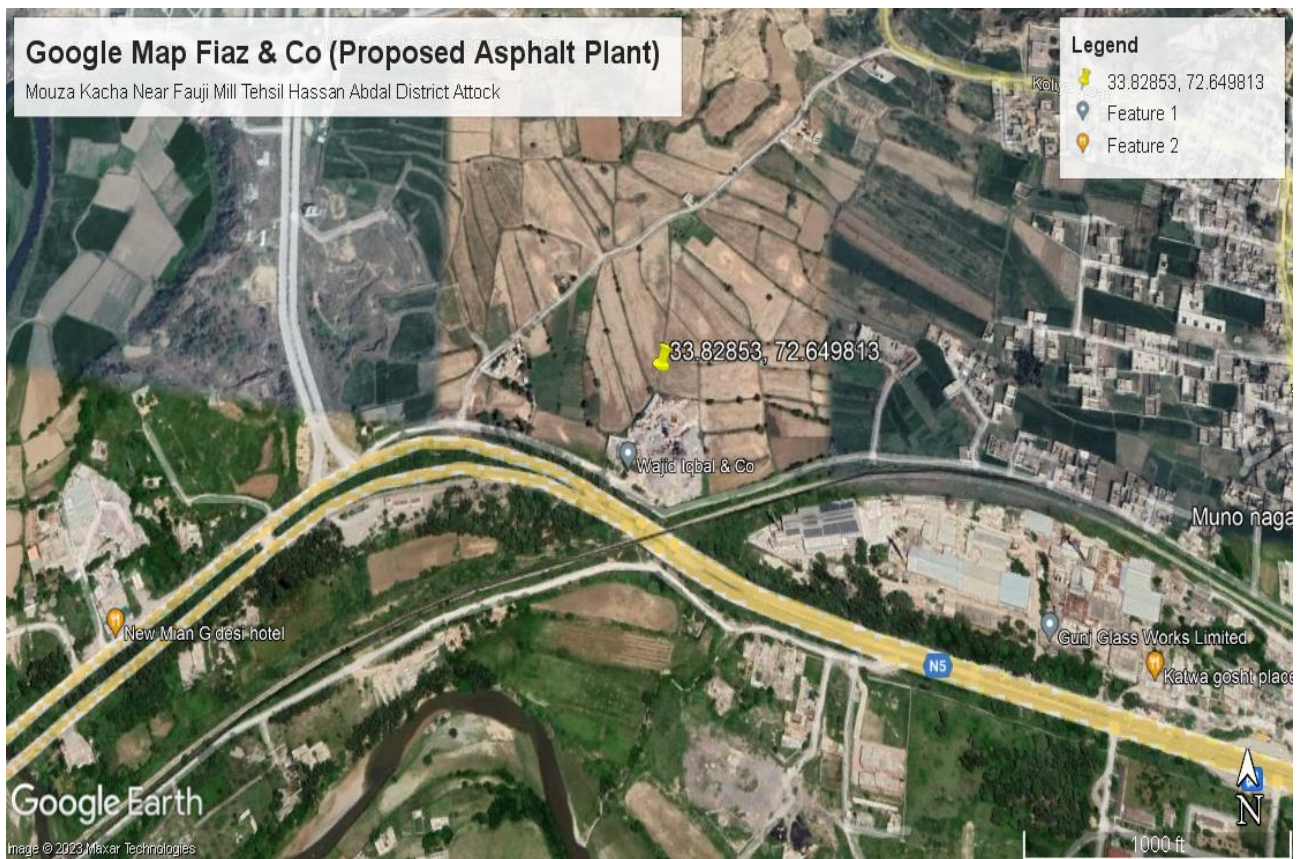


Fig: Google Map of Project Site

3.6 Road access

Main roads and markets are in easy and close access of the project site. The proposed Fiaz & Co site is situated on in easy access with GT Road & also has access of Islamabad-Peshawar Motorway.

3.7 Project Administrative Jurisdiction

The proposed project lies in the District Attock in Punjab Province.

3.8 Vegetation Features of the Site

Land is clear and there are no plants or vegetation on site. Significant or well-shaped trees and shrubs are not present on the project site. There is neither the biologically important or endangered species of plant were present and nor the plant or vegetation of any

significance stands at the site to be dismantled. However, various local plants will be grown at the project site in the open areas and grounds.

3.9 Cost and Magnitude of the Project

The total cost of the project would be around PKR 70 Million. The project includes the site survey, geotechnical investigations, site clearing work, infrastructure work, structural work, electrical and mechanical works and Activities of construction includes the following:

- a) Demarcation of the Area for various facilities
- b) Infrastructure works (Pathways, water supply, sewerage and drainage, gas, electrical works etc.)
- c) Installation of Asphalt Plant & Water tanks.
- d) Fire Fighting Arrangements

3.10 Schedule of Implementation

a- Phase-I (Start-up Phase)

Phase -1 is the start-up phase, which involves construction of boundary wall around the entire site. Most of the NOC's from various departments are in approval process and this report has been prepared to obtain NOC from EPA Punjab. It will take 2-3 months.

b- Phase-II (Main implementation Phase)

In phase II, required tanks & machinery will be purchased for installation in this unit. During this phase, machinery will be brought on site and installed. It will take 3 months.

c- Phase-III (Wrap-up Phase)

Phase-III is the wrap-up phase. In this phase, all outstanding activities will be completed, required staff will be recruited, and contracts with suppliers and purchasers will also be signed after which the operational phase finally commenced. It will take 3 months.

3.11 DESCRIPTION OF THE PROJECT:

The Proponent intends to construct proposed Asphalt Plant at Khewat No: 117, 104, Khatooni No: 152 Mouza Kacha Tehsil Hassan Abdal District Attock. The total area of the said plot is 25 Kanal from which 5 kanal will be the covered area of the plant. The production capacity of the proposed plant is 120 Ton/hour. The estimated cost of the project is PKR 70 Million. The raw material of the project is crush sand and bitumen & asphalt is the final product. Asphalt Batch Mix process will be used. The plant will be fully powered & automatic by Parkar Company.

Asphalt plants, also called asphalt mixing plants or hot mix plants, are equipment that can combine aggregates and bitumen to produce asphalt mix for road paving. Mineral fillers and additives may be required to add to the mixing process in some cases. The asphalt mix can be widely applied for the pavement of highways, municipal roads, parking lots, airport expressway, etc.

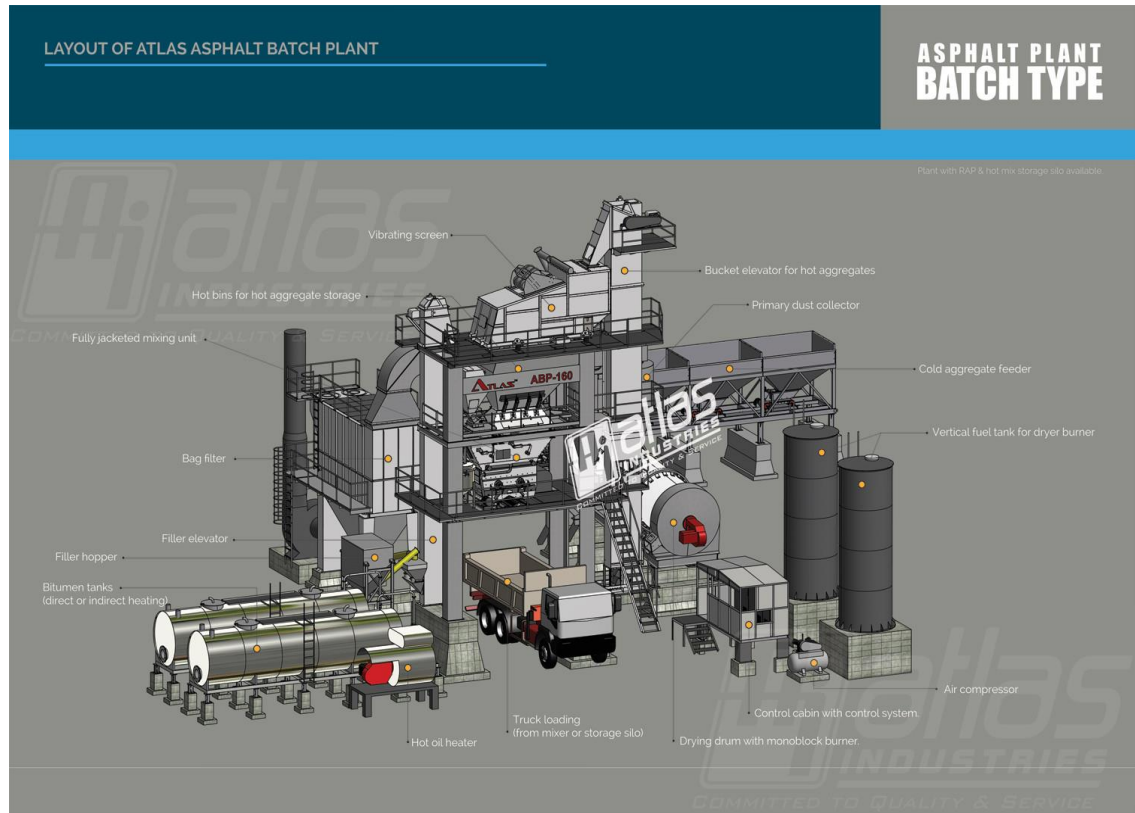
- **Asphalt Batch Mix Plant Operation:**

The operation of asphalt batch mix plant starts from feeding the aggregates into the feeder bins. The operation ends when hot mix asphalt is discharged into the truck.

- The first step is to feed unheated-raw aggregates into different bins of the cold aggregate feeder. This feeding has to be as per their sizes. There are cold feeder gates on individual bins which will control the aggregates flow.
- The aggregates are then transferred to drying drum. A charging conveyor will transfer the aggregates to the drum.
- The drying drum comes fitted with a burner. Burner heats-dries the aggregates effectively.
- Most of the hot mix plants are equipped with a primary dust collector. It is for settling heavy dust particles.
- The primary dust collector works best with secondary dust collector. This secondary dust collector is a bag filter.
- Once the heating of aggregates is done in the drum, they are transferred to the tower unit. A bucket elevator is used to transfer the aggregates.

- On top of the tower unit we have the screening unit. It is multiple layered. As the hot aggregates pass through the screens they get treated to screening effect. They will get separated and stored into different bins based on their sizes.
- Separate hot bins are there. These help to separately store each type of aggregates.
- Aggregates are then weighed. After weighing these aggregates will be discharged in to the mixing unit. In the mixer, aggregates will be mixed with bitumen and filler material.
- Bitumen tanks heats and stores bitumen. It is equipped with a pumping station. Bitumen is pumped to the weighing hopper prior to discharge. This bucket weighs it before addition into the mixer. Filler material is added in a separate container and it is pumped to its weighing hopper. Only after weighing the filler material it is discharged into the mixing unit.
- After mixing for a fixed time, the hot mix asphalt is ready to discharge into waiting trucks. In some cases it is transferred to storage silos for storing the same temporarily.
- A control panel is for using/controlling the plant.

Layout of Asphalt Batch Mix Plant:



3.12 Restoration and rehabilitation plans

There exists no human settlement on the selected project site to be displaced owing to the commencement of the Project. No structure of any significance stands at the site to be relocated or dismantled.

- The estimated life of the project may be ranging from 40-50 years. Much before the project approaches end of its first life cycle, it will be completely renovated, refurbished and even new/latest art of the equipment will replace the older one.
- All civil structures and related infrastructures will be renovated. Even during its first life cycle, preemptive modifications, replacements and refurbishing will be carried out timely. This will ensure enhancement of the life of the project at very nominal costs. In this way the project life will be further enhanced for another hundred years or so.
- All activities will be carried out in accordance with prevailing environmental management laws and controls so as to avoid any

damage to any segment of environment or human health around the project site.

- There exists no human settlement within safe radius of the selected project site to be displaced owing to the project activities. No structure of any significance stands at the site to be relocated or dismantled.
- There will be no disturbance to the vegetation and trees due to project activities as the selected project has no significant trees/vegetation cover and is an open agriculture land.
- Trees will be planted at the project site in and around the premises of the project site or as planned by the proponent.

3.13 Features of the project

3.14 Supplies

a) Water supply

The underground water of this area is fit for drinking and domestic proposes. The said project intended to install own tube wells for the extraction of the groundwater. The features of water supply are as follow:

b) Electricity

Source of power will be WAPDA. The electricity transformer connection capacity will be 400 KV. For backup system proponent is intends to install his own stand by electricity generators as

- Quantity (02)
- Capacity (500 KVA each)

c) Manpower

On the proposed project site 10-15 workers will be present daily throughout the construction period of proposed project. While during operational phase 8-10 workers will be hired by the management.

d) Fire Fighting Arrangements

The following firefighting equipment will be installed in the said Asphalt Plant for mitigating the impact associated with the fire hazard. The major firefighting equipment is given below.



a) *Fire Buckets, Fire Extinguisher QTY 06*

b) *Smoke detector QTY 54*

c) *Fire Extinguisher QTY 01*

The following equipment will also be installed.

<u>EQUIPMENT</u>	<u>QUANTITY</u>
Fire Trolley	02
Showering Pump	01
Fire Pump (750GPM)	01
HRV	11
Pressure Gauge	10
Jockey Pump	01

3.15 Management of Wastewater

Only municipal wastewater will be generated, which will be collected through sewerage system and it will be disposed of in nearby existing sewerage system.

3.16 Solid Waste Management

Waste generated during construction would include mostly construction material (mainly steel and wood), empty cement bags, excavated earth and general packaging waste. Waste will be stored within the site until transfer to the waste disposal site. Domestic solid waste during operation phase will be collected at solid waste collection point and from that point it will be carried out by TMA for disposal.

3.17 Government Approvals

Management has applied for Environmental Approval and after getting Environmental Approval, they will apply for other required approvals.

DESCRIPTION OF THE ENVIRONMENT

4.1 General

For any development project, the prevailing environmental conditions need to be assessed prior to the preliminary stages of planning, designing and execution of the project. Identification of physical, ecological and social aspects of environment and collection of relevant data is essentially important for the evaluation of impacts as well as for the suggestion of adequate mitigation measures which forms the basis of the Initial Environmental Impact Examination exercise.

The existing environmental conditions of the proposed project have been considered with respect to physical, biological and socio-economic aspects. Information has been collected from variety of sources, including published literature, field observations and surveys conducted specifically for this project have been analyzed for this study.

4.2 Methodology

For baseline data collection, following sequences of various techniques has been adopted. These techniques were chosen because of their pragmatic application in very short span of time.

1. Reconnaissance survey;
2. Field investigations/ Surveys;
3. Meteorological analysis;
4. Environmental analysis (air, noise and water quality surveys);
5. Collection and review of secondary environmental and social data; and
6. Basic parameters collection from published sources.

4.2.1 Reconnaissance Survey

Reconnaissance survey of the proposed project site was conducted on May-21, 2023 to for the collection of preliminary information about the flora, fauna and existing human intervention along with ecological characteristics. Reconnaissance survey helped us to delineate the ecological habitats and to explore the diversified ecological rich environment.

This information has become the baseline information for the detailed survey that specifically targets those areas which are going to be affected by the implementation of the proposed project. As a result of this survey, basic plants and animals' families were identified that actually prevailing in the associated habitats.

4.3 Physical Environment

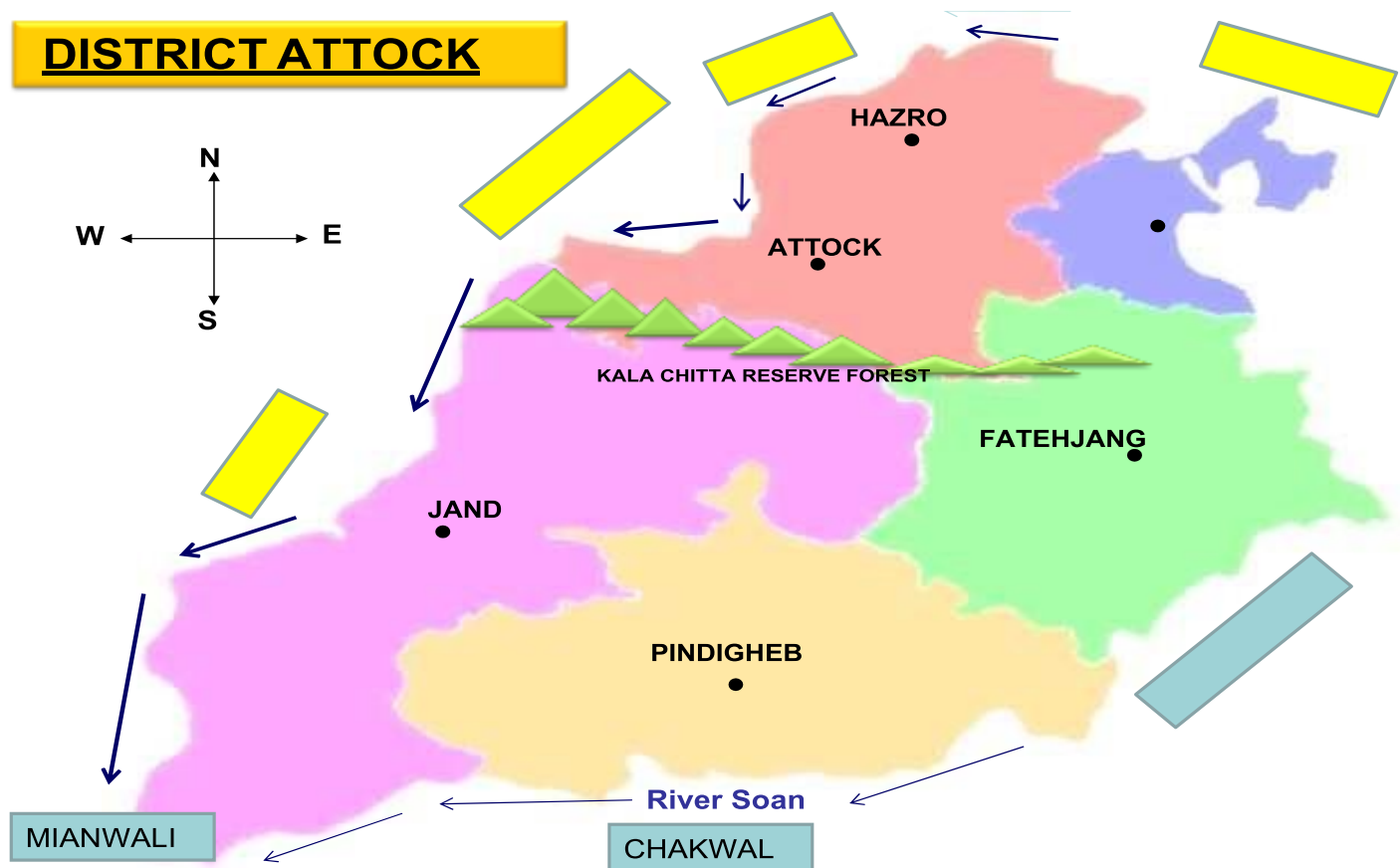
This part examines the physical resources such as topography, soil, climate, surface and ground water resources and quality, ambient air quality and geology of not only the Project site but also the city as a whole to assess whether the project under assessment can or does have any impacts on any of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

4.3 Physical Environment

3.1.1 Topography

Hassan Abdal is tehsil located in Attock district. District attock lies between $33^{\circ} 48'$ and $46.2'$ north longitudes and $72^{\circ} 39'$ and 24.9 east latitudes. Attock District is a district in Pothohar Plateau of the Punjab Province of Pakistan. Attock is the capital of the district. The district was created in April 1904 by the merging of tehsils of nearby districts. Its former name was Campbellpur. Today the district consists of 6 tehsils that are Attock, Fateh Jang, Hazro, Hassan Abdal, Jand and Pindi Gheb.

It is located in the north of the Punjab province, Attock district is bordered by Chakwal to its south, Mianwali to its south west, Attock to its east, Kohat to its west, Nowshera to its North West and Swabi and Haripur to its north. Attock is a place of great historic significance. Emperor Akbar the Great, the grandson of Babar, recognized the strategic importance of this area in 1581 and built the famous Attock Fort Complex. The fall of Mughal Empire in eighteenth century saw the rise of Sikhs in Punjab and Durrani Afghans to the West. Attock became a battle ground between two contending powers. British finally ended the feud by subjugating both Sikhs and Afghans in the nineteenth century. British at the same time also brought rail line to the area, built first permanent bridge in 1880 over the Indus River. The district was named as Campbellpur after the name of Sir Campbell who laid foundation stone of Campbellpur City in 1908 a few kilometers away on South-East of Attock Khurd Town. The district was constituted in 1904 by taking Talagang tehsil from Jhelum district and Pindi Gheb, Fateh Jang and Attock tehsils from Attock district. The city was renamed as Attock in 1978.



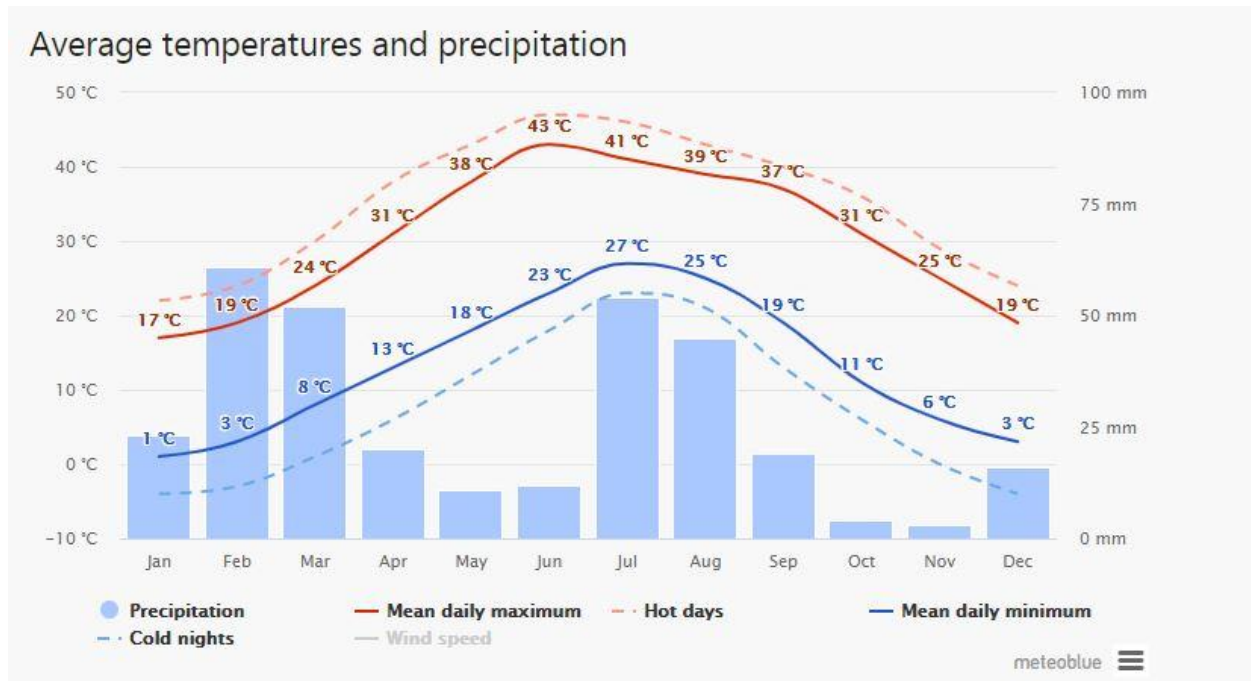
4.3.2 Soil

The soils are mainly silty and sandy loamy clay. Outcrops of limestone are also present in Kalachitta forest range. The pH of district attock, ranged between 7.5-8.5 in 94.62 percent samples while 99.60 percent samples were normal with respect to salinity/sodicity (EC less than 4 dS/m and SAR less than 15). Similarly 21.15 percent samples were light (sandy loam) and 78.70 percent were medium (loam) in texture. Soils were poor in organic matter (91.32% samples had less than 0.86% OM) and available phosphorus (99.49% samples had less than 7 mg P/kg soil).

4.3.3 Area & Climate

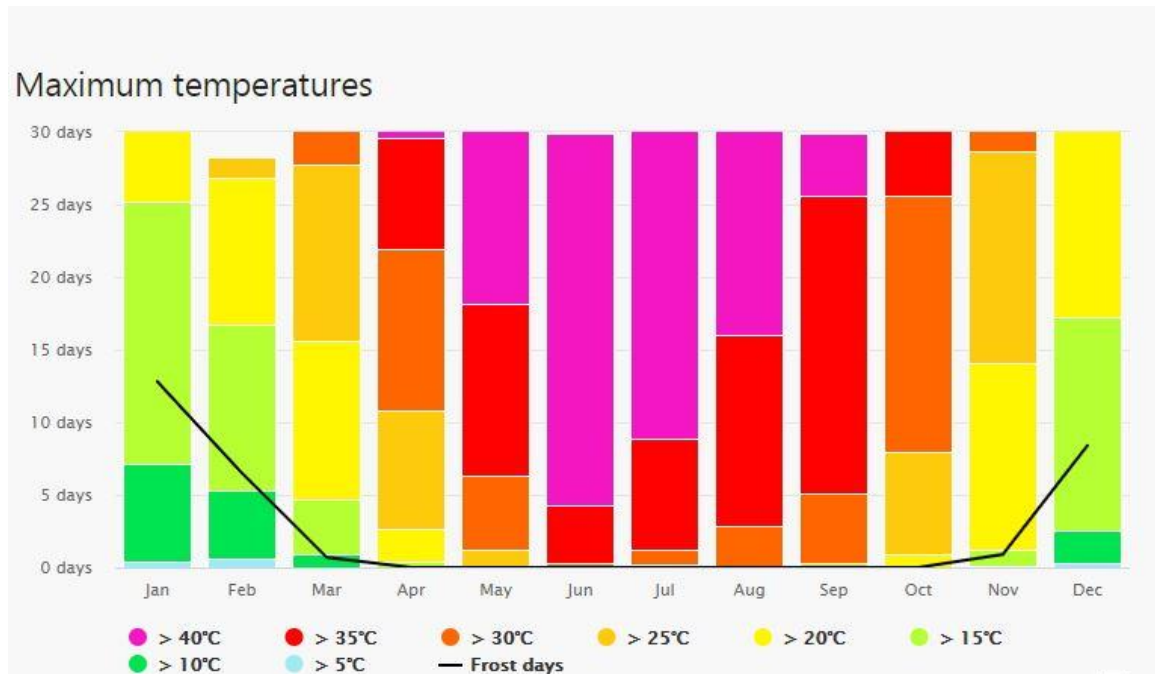
Total area of the district is 6,856.7 square kilometers consists of 6 Tehsils namely Attock, Fateh Jang, Pindi Gheb, Jand, Hazro and Hassan Abdal. There are 72 union councils 12 urban and 60 rural union councils. Attock district has a climate of hot summers and cold winters. The

Northern part of the district is more humid and is more moderate in climate relative to the Southern part of the district due to the higher altitude. Geographically, the district is mainly hills, plateaus and dissected plains. The Indus River flows on the Northern and Western borders of the district. After Haripur, the Haro River passes through the North of the tehsil of Attock where there is a flood plain with fertile soil. The district's average annual rainfall is 783 mm. The area south of the Kala Chitta is an upland plateau. It is intensely hot in summer while in winter a chilly north wind prevails. The extreme of hot and cold weathers are very severe. The high upland plateau which forms the whole of the district south of the Kala Chitta range is baked under a hot sun in the summer, and in winter iced wind prevails, the cold being often intense. In Attock tehsil the summer is short and cold weather long and severe. The climate is more variable than that of the ordinary western Punjab districts; being affected by Storms which in spring are apt to pass from Iran into Balochistan. Thus though one anticipates the end of the cold weather to come in April and the thermometer to rise thence forward till the monsoons breaks in July storms, or their aftermath, nor infrequent keep the district cooler through the end of April and the beginning of May then it was during the preceding month. In the second half of May it begins to strike up again. It is optimistic to expect the monsoons before the third week in July. Even in the worst months it is unusual to have succession of really bad nights. With the coming of rains the temperature falls considerably through the damp heat, which follows any cessation of the monsoon for more than a week or ten days is often severe. In the western portion of the district, among the rocks of Attock, the sandy slopes of Jandal, and the low hills of Nara and Makhad, summer heat is of the most intense description, and is found almost unbearable even by the native of the tract. The wells and tanks dry up, hot winds blow, and glare of the sun is intense reflected as it is by white sand and almost red-hot rocks.



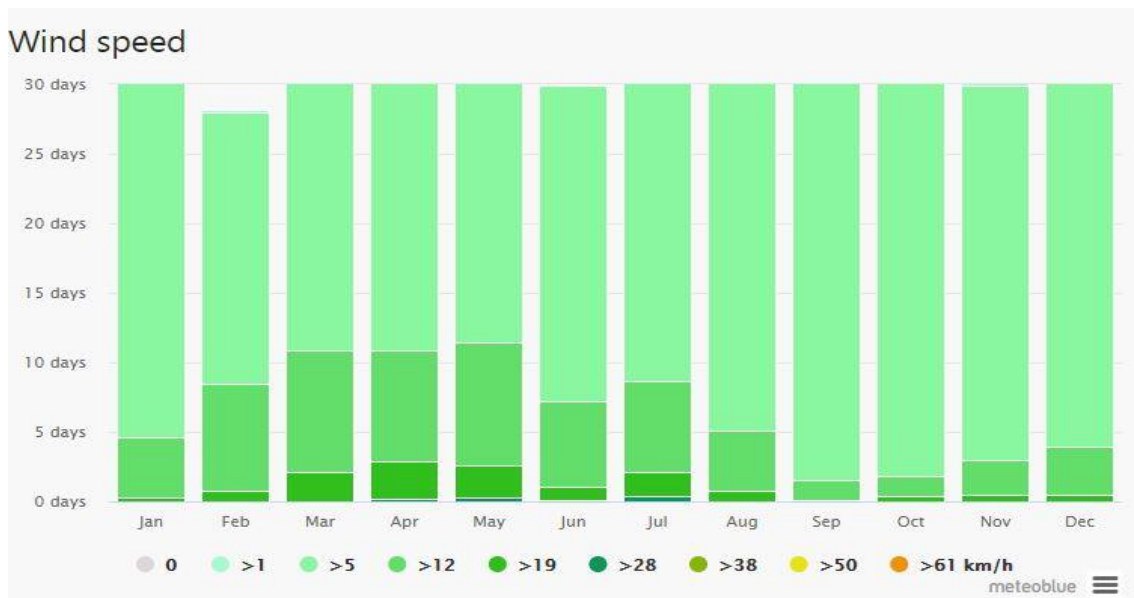
4.3.3.1 Temperature

The climate of the project area is hot in summer and cold in winter. May and June are the hottest months with maximum temperature reaching 40.4°C. January is the coldest month with minimum temperature falling to 5.9°C. The summer season starts towards the end of April and continues till September. The winter begins in November and lasts till February. The spring season exists during March and April and is pleasant.



4.3.3.2 Humidity

Annually relative humidity for this area has been worked out as 70.34%. The maximum recorded humidity for the district is 82.9% in December while the minimum humidity is 45.7% in May.



4.3.3.3 Precipitation

Probably in Attock there is more rain in the outskirts than in Attock itself, but appearances are deceitful, and Attock, in the hot weather, even after a thorough soaking, never

obstruct this fact. Contrary to it, of Pindi Gheb, it may be said that nowhere in the tehsil is the rainfall greater than at Pindi Gheb itself. General rain over the whole tehsil is uncommon, one village or one tract getting a soaking while the adjoining country gets little or nothing. The Makhad hills are often left without any rain at all when the rest of the tehsil is doing well. The further tracts lie westward from the Himalayas the less rain, as a rule it gets. The rainfall of the whole districts is much less than in the adjoining tehsils Rawalpindi and Gujar Khan of Rawalpindi District. But broken nature of the country and many ridges and hills which start up cause local exceptions to this rule. Overshadowing hills seem in some parts to attract rain, in other to repel it. The rainfall seems also to follow the river valleys in a curious manner. The valleys on the Soan banks get much more rain than those a few kilometers distant from it. For the district as a whole rainfall is somewhat scanty and very uncertain, varying greatly from year to year. The average annual rainfall is 666 mm. Most of the rain occurs during monsoon in summer which often results in flooding of the nearby water drain and canal. The groundwater level is improved toward the end of the season in September and October.

4.3.4 Ambient Air Quality

In the project area, Particulate Matter (SPM & PM10) and Oxides of Nitrogen (NOx), Sulphur Dioxide (SO₂) and Carbon Monoxide (CO) are the major air pollutants. Traffic on road is the main source of air pollutants including NOx, SO₂, CO, PM, HCs, smoke, etc. Factories and industries are also contributing to the pollution in the district

4.3.5 Ambient Noise

A common form of noise pollution is from transportation, principally motor vehicles. Other sources are car alarms, office equipment, factory machinery, construction work, audio entertainment systems, loudspeaker etc.

4.3.6 Ground Water

The area in district Attock has gentle to steep topography with deep water table (15 m) in north east (Tehsil Hazro) to very deep (120 m) in south west (Tehsils Jand and Pindi Gheb). The major source for the irrigation to crops is rain. There are different sources for irrigation surface and underground having total command area of 3000 hectares. There are 14 perennial streams and nullahs (Haro, Soan, Sill, Naindna, Dotal, Raisi, Ghambir, Namal, Soka, Gandakas, Saghar, Ghanir, Jhablat and Kala Pani), 15 small

dams, 300 mini dams, 200 water ponds and 500 lift irrigation schemes from nullahs on the surface water. Besides this, river Indus and river Soan also pass along the boundaries of district Attock from where the nearby farmers use water for irrigation. As regards underground water sources, 1500 turbines are fitted on tube wells besides 1000 open wells operated by bullocks for irrigation.

Water management department is providing services to farmers in laser land leveling, drip irrigation and sprinkle irrigation schemes, for these schemes water management department pays 60% share and 40% by the farmers. Soil conservation department is helping the farmers by establishing Mini Dams, Water Ponds, Lift irrigation Schemes and Dug wells. The 20% cost of the activity is paid by the farmers and 80% rest to the Soil conservation Department.

Source	Number
Surface water	
Perennials streams, nullahs	12
Small dams	15
Mini dams	300
Ponds	200
Lift irrigation through perennial streams, nullahs	500
Underground water	
Tube wells, turbines	1500
Open wells	1000
Total command area (ha)	30000

Water is one of the most precious natural resource and the lifeblood for sustained economic development in any country. Recently Pakistan has faced the situation of drought in almost all the areas of Pakistan. The extended drought has reduced fresh water supplies. The effect of continued low rainfall may affect the groundwater level. However, 70% of rainfall is received in monsoon (July-September) and 50% of which is lost as surface runoff, which needs to be stored in ponds/reservoirs. These will not only argument the surface water supply but also recharge the groundwater, which can be utilized in drought period The fluctuation in water table was in the range of 2.7 to 6.0 m. The drop in water table in dug wells around Shahpur dam was

quite low than drop in dug wells away from dam. There was rise in 8-9 meter of water table in wells near the dam than away from the dam under rain fed condition. The value of water quality index exceeds 100. It was due to high Total Dissolve Solids, Dissolved Oxygen and Nitrates in municipal water. The present study reveals that the municipal water of Attock City needs some treatment in order to get fit for the human consumption and also to avoid some health hazardous also.

4.3.7 Geology

Attock is located near the Haro River, a tributary of the Indus River, 80 km (50 mi) from Rawalpindi, 100 km (62 mi) from Peshawar, and 10 km (6 mi) from the Pakistan Aeronautical Complex, Kamra. The sedimentary rocks exposed in the Attock study area record 150 m.y. (Middle Jurassic to Quaternary) of gentle geologic fluctuations and slow deposition while the Indian tectonic". plate drifted northward across the Indian Ocean, followed by much more vigorous tectonic processes and rapid deposition in the shorter period since the Indian and Eurasian plates converged. The general physiographic zones trend generally east-northeast. The northern part of the area lies in the mountainous terrain of the Margala Hills, a part of the lower and outer Himalayas, which also includes the Hazara and Kala Chitta Ranges. Buried ridges of sandstone are generally covered by interbedded sandy silt and limestone gravel that locally exceed 200 m in thickness; these deposits, in turn, have been dissected and then buried under a layer of eolian loess and reworked silt that locally exceeds a thickness of 40 m. West of Attock, plains of thick, easily eroded loess are extensively dissected into shallow badland valleys. East of Attock, the folded ridge of Attock Group rocks rise above the alluvial cover to form prominent hills. Urban development is concentrated in the piedmont bench area, which is little dissected in its northern part, where Islamabad is located, but is more deeply dissected toward the south near the Scan River, where Attock is located

4.3.8 Land Use

Attock district is situated at the left bank of Indus River. The famous Attock Fort is a major land mark of district Attock. Its climate comprises of hot summers and cold winters. The district mainly occupies hills, plateaus and dissected plains. The Indus River flows on the northern and western borders of the district. Attock comprises of six tehsils: Attock, Fateh Jang, Pindi Gheb, Jand, Hazro and Hasan Abdal. The district headquarter is located at Attock.

4.4 Ecological Environment

A detail of ecological account of the Project and Study Area is given below:

4.4.1 Flora

The flora of the district is not much significant. The only forest at all worth to name in the district is that on the Kala Chitta range. There are various preserved areas, however elsewhere in the district as on the Kherimar, Kawagar, Kheri murat hills and in the Nara tract. The entire large landowners make their own “rakhs”, in which they carefully preserved the grass and wood, and allow no one to trespass. But in general the district is bare. The vegetation is poor and sparse and the country is thinly wooded. The most common tree is “phulai”. “Kikar” and “Shisham” are found along the roads and in the cultivated fields. In Soan valley there are some fine groves of “Kikar” planted and carefully preserved. Its timber is hard and durable and good for ploughs and well wheels, for cart making and a variety of other purposes, while it is also useful for burning. The bark and pods are valuable tanning agents. Wild olive and fig shrubs are found in some parts of the district.

“Shisham” is common in the richer parts of Attock and Hasan Abdal tehsils. The grasses of the district are of importance as in many places there is very little fodder to be had for the cattle. Hill

Grasses, “Chitta” and “Phalwar” are the most valuable grasses. Of all is perhaps the “Sarut” which occurs chiefly near the beds of torrents, and is generally self-sown.

Trees

A field study related to the identification of tree species in the study area was also conducted. A vast majority of trees were observed in the localities visited as well as open fields. These are Tali/Sheeshum (*Dalbergia sissoo*), Kikar (*Acacia nilotica*), Safeda (*Eucalyptus cinerea*), Neem (*Azadirachta indica*), Papaya (*Carica papaya*), Bottle Brush (*Callistemon citrinus*) and Borh (*Ficus bengalensis*).

A tabular comparison is given hereunder to explicit frequency of each species in three zones of study area:

List of Trees Identified in the Project Area

Sr. No	Common Name	Scientific Name
1	Tali/Sheshum	<i>Dalbergia sissoo</i>
2	Kikar	<i>Acacia nilotica</i>
3	Safeda	<i>Eucalyptus cinerea</i>
4	Neem	<i>Azadirachta indica</i>
5	Piple	<i>Ficus religiosa</i>
6	Papaya	<i>Carica papaya</i>
7	Shree	<i>Acacia greggii</i>

Grasses

A number of grass species were identified. These are Crow Foot Grass (*Dactyloctenium aegyptium*), Dabri Grass (*Dichanthium annulatum*) and Indian Dab (*Cynadone dactylone*).

Grasses in Study Area

Different types of grass species were also identified outside the project site during our visits to the nearer localities, these species include Dabri Grass (*Dichanthium annulatum*), Lesser Bulrush (*Typha angustifolia*) and Indian Dab (*Cynadone dactylone*).

Frequency (of occurrence) of these species in different zones of the study area is as under

Sr. No	Common Name	Scientific Name
1	Indian Dab	<i>Cynadoned actylone</i>
2	Dabri Grass	<i>Dichanthium annulatum</i>
3	Lesser Bulrush	<i>Typha angustifolia</i>

Grasses Identified in the Project Area

Herbs and Shrubs

A large number of herbs and shrubs species were identified in the area. Among these species, the most dominant were Jangli Booti (*Parthenium hysterophorus*), Bathu (*Chenopodium album*) and Ak (*Calotropis procera*). Frequency of these species in different zones of the study area is as under:

List of Herbs and Shrubs Identified in and Around the Project Area

Sr. No	Common Name	Scientific Name
1	JangliButi	<i>Parthenium</i>
2	Puth canda	<i>Achyran thesaspera</i>
3	Bathu	<i>Chenopo diumalbum</i>
4	Ak	<i>Calotropis Procera</i>
5	Bhang	<i>Canibus sativa</i>

Medicinal Plants

A number of medicinal plants in the area were identified which are AK (*Calotropis procera*), Amaltas (*Cassia fistula*), Pilak, Jangli kashni and Itsit (*Boerhavia diffusa*).

List of Medicinal Plants Identified in the Project Area

Sr. No	Common Name	Scientific Name
1	Aak	<i>Calotropis procera</i>
2	Amaltas	<i>Cassia fistula</i>
3	Itsit	<i>Boerhavia diffusa</i>
5	Bhang	<i>Canibus sativa</i>

Ornamental Plants

During our ecological survey to the nearby localities, a number of ornamental plants were identified at some houses and Deras, which are listed in table below.

List of Ornamental Plants Identified in and Around the Project Area

Sr. No	Common Name	Scientific Name
1	Bottle Brush	<i>Callistemon citrinus</i>
2	Araucaria	<i>Araucaria heterophylla</i>
3	Bougainvillea	<i>Bougainvillea spectabilis</i>
4	Milkwood pine	<i>Alstonia scholaris</i>

Vegetables**Vegetables in around and Project Site**

No vegetables are grown in or around operational project site.

Vegetables in Study Area

Some important of these are Phool Gobhi/cauliflower (*Brassica oleracea* Ver. *botrytis*), Band Gobhi (*Brassica oleracea* Ver. *capitata*) Turnip, Raddish (*Raphanus sativus*), Carrot (*Daucus carota*), Bhindi, Tomato (*Lycopersicum esculentum*), Vegetable Marrow (*Cucurbita pepo*), Baingan, etc.

List of vegetables Identified in and Around the Project Area

Sr. No	Common Name	Scientific Name
1	Bangun	<i>Solanum melongena</i>
2	Bhendi	<i>Abelmoschus esculentus</i>
3	Karela	<i>Momordica charantia</i>
4	Phool Gobhi	<i>Brassicaoleracea</i> Ver. <i>Botrytis</i>
5	Raddish	<i>Raphanus sativus</i>
6	Tomato	<i>Lycopersicum esculentum</i>

7	Marrow	<i>Cucurbitapepo</i>
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Agriculture

The major land use of the district is used for agriculture purpose about 44.90% areas is cultivated. As per statistics for 2011-12 the net sown area of the district was 230,000 Hectares and 201,000 Hectares area which is 87% of the sown area was rain fed, only 13% area is irrigated, 3% through Canals, 5% wells, 3% Tube wells, 1% Canal wells and canal Tube wells and is 1% is irrigated through other sources.

Land Holding

According to agriculture censuses 2000, 15% HHs have less the 1 acre land, 26% HHs have 1 to 2.5 acres, 23% HHs have 2.5 to 5 acres, 15% HHs have 5 to 7.5 acre, 11% HHs have 7.5 to 12.5 acres, 7% HHs have 12.5 to 25 acres, 1% HHs have 25 to 50 acres, 494 HHs have 50 to 100 acres, 123 HHs have 100 to 150 acres and 20 HHs have 150 and above acres. 83% farmers are self operators, 8% are owners cum farmers and 9% area is operated by the tenet farmers.

Area operated by the owners is 76.1% , Share cropped area is 20.6%, Leased area is 1.9% .In district Attock the landlords are known as malik or khan and the tenants are called zamindar. The prevailing trend is equal partnership but normally zamindar pays for the all inputs and malik takes 50% of the output without sharing anything in inputs. A few land lords gives two third to the zamindar as they pay for all the inputs, another prevailing system is that land lords does not keep tenets and at the time of harvesting they make harvesting contracts either on the mutual agreed fix amount or one bunch of product goes to the harvesting person after every 10th.

Farm Traction Power

The agriculture is carried out on traditional methods. Farmers use Tractors, Harvesters, Thrashers and other available technologies for agriculture. Women are actively involved in agriculture practices. There are a few progressive farmers in the district who are using modern technologies. Agriculture department is providing guidance and assistance to the farmers relating to their crops, seeds and pesticides.

Irrigation

The tube-wells and canal water are the main source of irrigation water for wheat, rice and other crops and fodder. Also, many farmers irrigate their fields with contaminated water of drain and also many studies have been conducted to assess the level of toxic heavy metals in the soil and vegetables irrigated by drain water and their ultimate impacts on human health. It has been highly recommended during these studies not to use the contaminated water of drains for agricultural practices. On the other hand, plenty of ground water is easily accessible for agriculture use.

4.4.2 Fauna

The largest wild animal found in the district is the leopard, which is sometimes, but rarely, met with in the Kala Chitta. The jackal also occurs in the hills. The urial affords the best large game in the Kala Chitta range and outlying spurs, in the Narrara hills, in a good deal of the ravine country at its base. The Chinkara or ravine deer generally called hiran, occurs in the maira of tehsil Attock and the ravines in some parts of the Pindi Gheb plateau, but is not common. Partridges, Sissy and Chakor are frequent in the hills.

Mammals

Mammals within project site

During our survey to the operational project site, some mammals were identified evidently while some were reported by the workers like Cats (*Felis catus*), Rats (*Rattus rattus*) and Squirrel (*Sciurus carolinensis*).

Mammals in Study Area

The wild and common or domesticated mammals found in the study area are Dogs (*Canis familiaris*), Cats, House Rats (*Rattus rattus*), Bats, Horses (*Equus caballus*), Donkeys (*Equus africanus asinus*), Mules, Buffaloes, Cows (*Heracleum lanatum*), Goats (*Copra hircus*) and Sheep

List of Mammals Present in and Around the Project Area

Project Site		Study Area	
Common Name	Scientific Name	Common Name	Scientific Name
Cat	<i>Felis catus</i>	Cats	<i>Felis catus</i>

Rat	<i>Rattus rattus</i>	Dogs	<i>Canis familiaris</i>
Squirrel	<i>Sciurus carolinensis</i>	Cows	<i>Heracleum lanatum</i>
-	-	Goats	<i>Copra hircus</i>
-	-	Horses	<i>Equus caballos</i>
-	-	Donkeys	<i>Equus africanus asinus</i>
-	-	Sheep	<i>Ovis aries</i>

Reptiles

Reptiles within Project Site

No reptiles were identified within the project site

Reptiles in Study Area

Above reptiles were also seen in study area in localities and field. The most common reptiles include Snakes, Pakistani Cobra (*Naja naja karachiensis*), Lizards, Varanis (Goh/large lizard), Spiders and Scorpions, etc.

List of Reptiles Present in and Around the Project Area

Common Name	Scientific Name
Lizards	<i>Lacertilia</i>
Spiders	<i>Araneae</i>
Scorpions	<i>Pandinus Imperator</i>
Pakistani cobra	<i>Naja naja karachiensis</i>
Goh/large lizard	<i>Varanis</i>

Amphibians

A number of Amphibians found in the tract include Common Frog (*Rana tigrina*), Common Toad (*Bufo bufo*) and Tortoise (*Chitra indica*).

List of Amphibians Present in and Around the Project Area

Project Site		Study Area	
Common Name	Scientific Name	Common Name	Scientific Name
Common Frog	<i>Rana tigrina</i>	Common Frog	<i>Rana tigrina</i>
Common Toad	<i>Bufo bufo</i>	Common Toad	<i>Bufo bufo</i>
-	-	Tortoise	<i>Chitra indica</i>

Birds

Different types of birds' species were identified within the project site. The bird's species identified in these areas include House Sparrow (*Passer domesticus*), House Crow (*Corvus splendens*), Common Mynah (*Acredotheres tristis*), Tatiri (*Vanellus indicus*), Cheel, Bagle, Bulbul (*Pycnon tus cafer*), Parrots (*Psittacula krameri*), Pigeons (*Columbia livia*), Dove (*Stigmatopelia senegalensis*), Surkhab, Ullu, etc. are also seen in the area.

List of Birds Present in and Around the Project Area

Sr No.	Project Site		Study Area	
	Common Name	Scientific Name	Common Name	Scientific Name
1	House Sparrow	<i>Passer domesticus</i>	Parrots	<i>Psittacula krameria</i>
2	House Crow	<i>Corvus splendens</i>	House Sparrow	<i>Passer domesticus</i>
3	Common Mynah	<i>Acredotheres Tristis</i>	House Crow	<i>Corvus splendens</i>
4	Tatiri	<i>Vanellus indicus</i>	Common Mynah	<i>Acredotheres tristis</i>
5	Pigeons	<i>Columbia livia</i>	Tatiri	<i>Vanellus indicus</i>
6	-	-	Pigeons	<i>Columbia livia</i>

7	-	-	Dove	<i>Stigmatopelia Senegalensis</i>
8	-	-	Bulbul	<i>Pycnonotus cafer</i>
9	-	-	Cheel	<i>Milvus migrans</i>

Wildlife Sanctuaries and Game Reservoirs

No wild life sanctuary or game reservoir is located in the vicinity of the project area or in the project influenced area.

Rare or Endangered Species

There are no rare or endangered species in the study area.

4.5 Socioeconomic Environment

Human settlements are symbol of typical haphazard rural growth based on ill planned developmental procedures showing common indicators of all the unorganized procedure of rural settlement of the province. These localities were developed on need oriented basis. No bye-laws, rules and obligations necessary for human settlement, construction or expansion and infrastructure development were considered. These localities are also the picture of stereotype rural residential areas which lack basic amenities, improper roads, and poor drainage system, deteriorating hygienic and sanitary conditions causing bad effects on human health.

Objectives of the Study

The main objectives of socio- economic study of the project area were:

- To furnish appropriate information about the baseline socio-economic conditions
- To identify and assess significant social impacts of the Project activities on the surrounding area and people
- To propose suitable means for probable mitigation of the significant adverse social impacts

An Overview of Socio-economic Conditions

This section describes the status of overall socio-economic baseline conditions prevailing in the study area. It deals with various socio-economic and cultural aspects of the community including income, employment, professions, basic facilities, education and health, social

structure, culture, women's status, traditions, ethnics, sectarian status and residential needs of the local people.

Area represents lacking some basic amenities of an urban area. Improper social structure, deprived status of youth and aged are common social factors in the area.

4.5.1 Analysis of Socio-economic Conditions

This section presents a locality-wise analysis of existing status of various socioeconomic parameters such as income, employment, basic facilities, education, health, recreation, migration, conflicts, ethnic status, role of women, professions, residential conditions, etc.

4.5.1.1 Sources of Income

Majority of the population is related to the agriculture other major occupations are army service, labor, government service and trade.

As per 1998 census report the major economic activity of the district is agriculture which is 32.3% of the total employed population, government employee 16.2%, private sector 11.5%, autonomous body 1.8% and self employed were 45.1%.

Major occupation groups were elementary workers which are 37.3% of the total employed population, skilled Agricultural and fisheries workers were 31.9%, service workers and market sales workers 6.7% and professionals were 3.5%.

The traditional crafts of the district Attock includes embroidered shoes, painted and lacquered wood work, calico printing, hand loom cloth and blankets. Attock and Pindi Gheb produce elegant zari embroidered shoes. Pindi Gheb is also famous for lacquer wood work, toys and legs of bridal beds. Calico printing of bed sheets, table covers and similar articles are done at Fateh Jang. Iron vessels are made at Mukhad and blankets are manufactured in Pindi Gheb and Fateh Jang tehsils.

There are 52 industrial units exists in district Attock which are Carpets, Cement, Cold Storage, Flour Mills, Food Products, Glass & Glass Products, Iron & Steel Re-Rolling, Light Engineering, Motors /Pumps, Packages, Poultry Feed, Power Generation, Textile Spinning, Vegetable Ghee / Cooking Oil and Woolen Textile Spinning /Weaving provides the employment to the 5867 peoples.

4.5.1.2 Basic Facilities

Basic facilities like electricity, roads, transport etc. are present in almost every area of the district but are disorganized and mismanaged. Civic amenities like markets are not available in some of the slum areas.

4.5.1.3 Educational Facilities

According to the Alif Ailaan Pakistan District Education Rankings 2019, Attock is ranked 3 out of 146 districts of Pakistan in terms of the quality of education. For facilities and infrastructure, the district is ranked 17 out of 146. A detailed picture of the district's education performance is also available online. Army Public School & College, Government Polytechnic Institute, Beacon Light English Model Secondary School, COMSATS University Islamabad and Punjab College Attock are a few important educational institutes in Attock.

4.5.1.4 Medical Facilities

The proper health care facilities are present in the area for both male and female population.

4.5.1.5 Recreational Facilities

Attock is a place of great historic significance. Emperor Akbar the Great, the grandson of Babar, recognized the strategic importance of this area in 1581 and built the famous Attock Fort Complex. The other famous places in the district are Rdawara Panja Sahib, Ghazi Brotha Hydropark, Tomb Lalarukh, Gurdawara.

4.5.1.6 Types of Community

The district is inhabited by different tribes and race, namely Awan, Pathan, Khattar, Gheba, Jodhra, Gujar, Maliar, Rajput, Mughal, Syed, Sheikh, etc. Most of these tribes claim to be decedents of the invaders who came from Central Asia and Afghanistan. Tribal and ethnic affiliations are still very strong. However, this trend is showing signs of weakening with the spread of modern education, social awareness besides the emergence of a new class of people working abroad in the Middle East and other places.

4.5.1.7 Types of Family

The joint/extended family system is generally prevailing among people of the whole area; however, nuclear family system is also observable in the area.

4.5.1.8 Ethnic Status

The population of Attock is 2,098,231 in 2017. 84% of the population is Punjabi, 9% is Pashtun, and 7% is from other ethnic groups.

4.5.1.9 Status of Women Literacy

A vast majority of the females of the Study Area are illiterate which shows very low educational trend among females; however, young females have high literacy rate showing positive trend in female education.

4.5.1.10 Decision Making Authority

Majority of the females have no authority in decision-making process regarding their life. This shows non-participation of the females in decision-making process regarding the females and other issues.

4.5.1.11) Role of Women

Role of female is conventional and traditional. Most of the females are engaged in housekeeping. However, females also perform outdoor activities and duties. Females are supposed to be responsible to perform all the family activities and are involved in all types of family functions.

4.6 Quality of Life Values

Attock district is connected with the network of roads and rail network within the district and adjacent areas. The district has a total metaled road length is 1981.35 Kilometers. The district is linked with Rawalpindi, Kohat, Nowshera, Haripur, Mianwali and Chakwal Districts through Metaled roads. Attock, Basal and Jand are the major Rail heads in the District. The district is linked with Rawalpindi, Mianwali, Nowshera, Kohat and Peshawar through rail network.

Majority of the people are working as labors and many do their own common business (shopkeepers). The locals of this are provided with basic facilities like electricity, roads, transport etc. but are disorganized and mismanaged. If we talk about educational facilities then education up to matric level are available in almost all the localities and are easily approachable. The proper health care facilities are present in the area for both male and female population. Open and level fields of the localities are used as playgrounds by the youth. Urs and Melas are playing a vital role to provide some recreational opportunities to the locals.

It was observed that being the members of a typical/traditional blend of rural and urban community, almost all the old people are very conservative in their life style. People practice their traditional, social and cultural values strictly in all walks of life. The joint/extended family system is generally prevailing among people of the whole area; however, nuclear family system is also observable in the area.

4.7 Lab Reports of Environmental Analysis

Testing of different parameters has been done by proponents. The copies of lab reports of different environmental parameters are given in annexure.

4.8 SITE SUITABILITY:

The present site for Fiaz & Co is under the ownership of proponent currently via rent agreement. All commodities are at a suitable distance from project site as they will not impacted by the construction and operational activities even locals will get more benefits and job opportunities. No replacement, relocation and rehabilitation are required for the development of proposed project.

All facilities of infrastructure, electricity, roads, and communication facilities are present in current location. The project site is devoid of flora & fauna having significant importance.

4 IMPACT ASSESSMENT

5.1 Methodology for Impact Identification

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

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

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

5.2 Impacts Analysis and Prediction

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

5.3 Characterization of Impacts

Impacts were characterized on the basis of following parameters:

-  Nature
-  Duration
-  Magnitude
-  Spatial Boundaries
-  Extent
-  Reversibility

The impacts characterization for the project has been given in Table 6-1.

<i>Impact Characteristics</i>	<i>Air Quality</i>	<i>Health</i>	<i>Water Quality</i>	<i>Flora & Fauna</i>
Nature	No Impact	Indirect	Indirect	Positive
Magnitude	Low	Low	Moderate	Low
Extent/location	Surroundings	Project area	Surroundings	Surroundings
Timing	Construction & operation	Construction & operation	Operation	Operation
Duration	Intermittent	Short term	Continuous	Continuous
Reversibility	Irreversible	Reversible	Irreversible	Reversible
Likelihood (risk)	Uncertainty	Probability	Probability	Probability
Significance	Global	Local	Regional	Regional

Table 6-1 Characterization of Impacts

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

5. 4 Impact Significance

After the evaluation of all the potential impacts, the impacts significance is be given using Impact matrix. The impacts significance of Physical importance, Ecological importance, Social importance is given using the matrix approach. The impacts significance is given based on the characterization of impacts. From the Table 6-1 which is showing the characterization of each impact the following significance is given to each physical, biological and socio-economic impact.

Table 6-2 Significance of Environmental Impacts

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

SCREENING OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

This section discusses the project's potential environmental impact on the area's geomorphology, soil, water resources, air, biological resources and socioeconomic condition and, where applicable, identifies mitigation measures that will reduce, if not eliminate, its adverse impact. The assessment carried out in this section is based on potential impacts on overall environmental receptors within the project area.

Objectives of screening out all possible impacts and then providing their mitigation measures are:

- To find different alternatives and ways of carrying out the project activities.
- To enhance the Environmental and Social benefits of proposal.
- To avoid, minimize and remediate adverse impacts.
- To ensure that residual adverse impacts are kept in acceptable limits

Impact Analysis and Prediction

In order to give correct categorization to the present project Rapid Environmental Assessment Procedure was followed. It revealed that there some major impacts of the project have identified which will be controlled by adopting proper mitigation measures. These impacts are mainly attributed to the release of dust e impacts are projected as moderate/minor impacts although project has many positive impacts on local public and economy. M/s Fiaz & Co will adopt proper procedures to carry out the operation in environmental-friendly way.

Meetings:

For the impact analysis and predictions detailed meetings were held with the proponent, management of and with other stakeholders. Issues were discussed that may affect the environment and also the implementation of proposed project. All possible mitigation measures were considered and incorporated in the Environmental Management Plan.

Consultations

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

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

- ***PROJECT LOCATION***
- ***PROJECT DESIGN***
- ***CONSTRUCTION STAGE***

- **OPERATION STAGE**

Environmental Parameters**5.1 Environmental impacts due to Project Location**

This section discusses the project's potential environmental impact on the area's geomorphology, soil, water resources, air, biological resources and socioeconomic condition and, where applicable, identifies mitigation measures that will reduce, if not eliminate, its adverse impact. The assessment carried out in this section is based on potential impacts on overall environmental receptors within the project area. Objectives of screening out all possible impacts and then providing their mitigation measures are:

- To find different alternatives and ways of carrying out the project activities.
- To enhance the Environmental and Social benefits of proposal.
- To avoid, minimize and remediate adverse impacts.
- To ensure that residual adverse impacts are kept in acceptable limits

Project Location

The said proposed project is located at Khewat No: 117, 104, Khatooni No: 152 Mouza Kacha Tehsil Hassan Abdal District Attock. The proponent has selected the site owing to the following reasons:

- The site is undisputed and under the ownership of the proponent.
- There is no community or human settlement on the site
- There is no fauna flora (particularly belonging to an endangered species) on the site
- Main road network runs in front
- There is no ecologically sensitive or declared protected area (PA) like forest, fish hatcheries, Territorial Waters, wildlife or game reserves, any structure of socio-cultural significance (historical or archaeological site or religious structures; Masjid, temples, etc.) within 10 km of the selected site

It can be concluded in view of these reasons that the selected site is best suited for the project, and will not pose any adverse impact or threat on any component of the environment.

5.2 Impacts Associated with Design Phase

At the design phase, considerable impact can occur on land, soil, topography, ground water, and on people of the area. The design has sought to minimize any environmental potential impacts by ensuring that the project should be in according to the environmental standards. The design to be used for proposed factory is state-of-art and environmentally friendly.

Mitigation Measures at Design Phase

At design phase special attention should be given to the design of the project in the sense that it has been designed in such a way as to cause minimum disruption and deterioration of environment and surroundings. However, in pre-construction phase a management system should be provided at design level so impacts can be reduced. Design of the said Asphalt Plant facility by Fiaz & Co will be adhere to all standard technical requirements in order to avoid adverse impacts on environment and human health. There will not be any environmental problems at any stage from design stage to its operational stage. The project is to be designed in a way that it guarantees all out compliance with the Punjab Environmental Quality Standards (PEQS). The Proponent intends to construct the unit on modern lines, meeting International Standards, with incorporation of new Technology. The design, if maintained and operated in an environment-friendly manner, is expected to cast positive impact on the Environment and will not pose any adverse impact or threat on any component of the Environment.

5.3 IMPACT DURING CONSTRUCTION / DEVELOPMENT PHASE

The potential environmental impacts of the proposed project at site and surrounding area during the development / construction phase are described as follows:

5.3.1 Physical Environment

The main impacts of the project during development / construction of the new roads, civil works, development of parks, installation / laying pipelines, sewer system and installation of utility and equipment's will be the dust and noise from transportation of construction materials and equipment's. Standard Engineering Practices will be enforced on the construction / development site.

5.3.1.1 Seismic Hazard

Impact

In this zone, distant earthquakes with fundamental periods greater than 1.0 second may cause damage to structures. This factor requires special consideration of the designers. This will be a moderate negative impact.

Mitigation

All the foundations of the structure will be designed to withstand even moderate to large earthquakes. For seismic hazard analysis updated structural and seismic evaluations will be consulted.

5.3.1.2 Impact on Soil

Impact

During construction phase the soil quality may be affected due to very small amount of discharges during vehicle and equipment maintenance and leakage from equipment's and vehicles. The impact is not significant.

Mitigation

Any spill if occur will be immediately clean up. If the problem of water logging occurs during development phase the area will be immediately reclaimed. The impact is not significant. Depending on the nature of the material, location of spill and quality of spill, soil can get contaminated. Low permeable membrane should be present at the bottom of vehicles. Proper tuning of vehicles is also necessary. Due to mitigation measures, the overall impact on soil during construction phase is minor.

5.3.1.3 Impacts on Air Quality

Following potential impacts on air quality may occur during construction phase.

(a) Emission of Dust and Particulate Matter

During the development/construction vehicles and machinery will be employed. These will generate some dust and smoke temporarily. During construction phase due to continuous operation of machinery and movement of heavy trucks and vehicles can generate gaseous emissions and can have a slight adverse effect on the surrounding environment. Combustion exhaust from vehicles and construction equipment's during construction phase can affect ambient air quality of project area.

Mitigation

All vehicles, machineries, equipment and generators used during construction activities should be in good working condition, properly and be properly maintained in order to minimize exhaust emissions. This impact is classified to be short term, reversible and limited, as it will only occur during the excavation activities. Also, these impacts are expected to be contained within the site boundaries. For dust sprinkling of water is done to avoid dust.

5.3.1.4 Solid Waste

Impact

The solid waste generated during the construction phase of Project can pose a health hazard, pollute soil, surface and ground water if not managed properly. A significant impact will be interpreted if the waste management is not carried out properly; which may effect to health of workers, pollution of soil, surface or groundwater.

Mitigation

The Potential sources of solid waste from operational activities include excavated material, construction waste, food waste, plastics, and paper. Dumping of excavated waste will be done at a designated site approved by TMA, and it will be ensured minimum degradation to the soil around the Project area. Construction waste will also be disposed off as per TMA procedures. Other generated solid

waste comprises of a domestic waste. Waste storage bins will be installed. The waste from these bins will be collected by the sanitary workers. The waste will be disposed off in accordance with the procedures of Tehsil Municipal Administration. No significant impact on the environment is anticipated from solid waste generation at the project site as the solid waste is managed efficiently.

5.3.1.5 Noise and Vibration

Impact:

When the construction work is undertaken, constant rattle of heavy machinery will raise the noise level in the Project Area. This noise and vibration will affect directly the residents of nearby areas. Noise due to the construction will be a minor negative impact.

Mitigation

Mitigation measures mentioned below will be adopted to minimize the noise pollution. Those measures include, but are not limited to the following:

- Selection of up-to-date and well-maintained plant or equipment with reduced noise levels ensured by suitable in-built dampening techniques or appropriate muffling devices.
- Confining of excessively noisy areas and limiting the work to normal working hours in the day;
- Providing the construction workers with suitable hearing protection like ear cap, or earmuffs and training them in their use; and
- Regular checkups and maintenance of the construction equipment, and oiling and greasing of the noise making mechanical parts.

5.3.1.6 Traffic Congestion and Disturbance to People

Impact

During the construction phase, the movement of heavy machinery and transportation of raw material and equipment may cause traffic congestions. As a result, the daily activities of the people of nearby localities as well as of the visitors may be disturbed, which will require proper mitigation measures. This will be a moderate negative impact.

Mitigation

During construction, following mitigation measures will be followed:

- Observation of timing by the vehicles carrying construction material of infrastructure to cause minimum disturbance to traffic on existing road. The construction equipment and machinery must be stationed in the boundary premises to avoid the traffic congestion on the main Road.

- Transportation of raw material and heavy machinery will be done early in the morning; and
- There will be coordinated planning of traffic movement by the Traffic Police and the Transport Department in accordance with the construction program with advance warnings to the affected residents and road users.
- All the machinery will stay inside the periphery of project so it will not cause disturbance in the traffic.

5.3.1.7 Workers' Safety Impact

During construction phase minor and severe injuries to workers due to operation activities may occur. The construction activities impose certain negative impacts on health and safety of the workers and public in case of unsafe and/or unfavorable working conditions. Mitigation measures will be required to minimize health and safety related negative impacts of the project. This will be a minor negative impact.

Mitigation

Mitigation measures will be required to minimize health and safety related negative impacts of the project. This will be a minor negative impact.

Implementation of the following measures will ensure health and safety of the workers and the public during the construction phase:

- Construction workers will be provided with proper safety equipment such as helmets, goggles, masks, etc.;
- Formal emergency procedures will be developed for construction site in case of an accident. First aid kits and other necessary equipment will be kept available at site along with the list of emergency phone numbers to be contacted in case of any emergency/accident;
- The safety of the public at all stages of the construction will be ensured through appropriate public education and safety measures such as use of sign boards, barriers and flags; and Proper illumination will be provided at night.

Proposed Mitigation Measures during Construction / Development Phase

The potential negative impacts during construction and operational stage of the project should be mitigated to an acceptable level. Following environmental protection measures are adopted to eliminate adverse

environmental impacts or to reduce them to an acceptable level within the legislative and regulatory framework. The proposed mitigation measures are listed below:

- Appropriate waste disposal mechanism should be followed during the construction phase. The construction waste would be disposed in a manner that does not contaminate surface or groundwater.
- The construction waste generated will be used for earth filling within the project site premises.
- The Contractor needs to make sure that their machinery and equipment are properly tuned and serviced and there is no leakage of oil from construction equipment's and machineries.
- Contractor should give assurance of quality of machineries and equipment's which will be used during excavation and construction process.
- All vehicles, machineries, equipment and generators used during construction activities should be in good working condition and be properly maintained in order to minimize exhaust emissions.
- Construction labor must be trained in safety procedures for all relevant aspects of construction
- Helmets or hard hats should be worn by workers at all time of work and everywhere on the Project Site.
- Regular checks should be carried out to ensure that the contractor is following safe working procedures and practices.
- Workers should be provided with personal protective equipment's (PPE's) such as safety jackets, ear plugs or ear muffs, special boots and dust masks.
- Use of up-to-date and well-maintained machineries or equipment with reduced noise level.
- Confining excessively noisy work to normal working hours in the day, as much as possible.
- Providing construction workers with suitable hearing protection like ear cap, or ear muffs and training them in their use.
- Ear muffs or ear caps should also be provided to those people living in nearby area

5.4 IMPACTS DURING OPERATIONAL PHASE:

The anticipated impacts related to the proposed project have been studied for operational stage and is discussed as follows:

5.4.2 Gaseous Emissions

Air emission due to establishment of this project involves particulate matter and dust.

4 Mitigation Measures

Following mitigation measures will be adopted to control the air pollution:

- The most effective way to control these emissions is to “capture” them at the point of

release and remove them by exhaust ventilation before they are dispersed into the air through local exhaust ventilation.

- Identifying sources of air pollution and quantifying emissions.
- Trees will be planted around the project area extensively to control air.
- Bag house filters must be installed to control particulate matter.

6.1.2 Wastewater

Wastewater will be generated from both domestic and process activities during operation. From domestic activities wastewater will be generated at the rate of 2 cusec/day while in process water will be used in washing of bottles. After passing through settling tank wastewater will be disposed off in water channel .

Nature of Impact

The nature of the impact will be direct, low, short-term and hence in-significant.

5 Mitigations

Following mitigation measures will be adopted:

- Monitoring of effluents shall be carried out as per requirement of Self-Monitoring and Reporting Tools (SMART) to ensure compliance with the PEQS.
- It will be ensured that no solid waste will be entered in the wastewater.
- Domestic wastewater will be treated in septic tank before disposal
- Wastewater treatment plant must be installed for safe disposal.

6.1.3 Solid waste

Solid waste generated from operational activities includes Labels, tags, bottle caps, packaging waste and domestic solid waste. Domestic solid waste will be disposed off as per area practice. Process waste will be sold to certified vendor in open market.

6 Nature of Impact

The nature of the impact will be direct, low, short-term and hence in-significant.

7 Mitigations

Following mitigation measures will be adopted:

- Waste segregation should be done before disposal
- Bins will be placed within unit and workers will be instructed to dispose off solid waste properly
- Recyclable material should get separated.
- Domestic solid waste should also be disposed off properly
- Waste should not be stored for long time at a place to avoid nuisance

6.1.4 Occupational Health and Safety

The health and safety impacts include:

- slips, trips and falls on the same level
- falls from height;
- unguarded machinery;
- falling objects;
- working in confined spaces;
- moving machinery, on-site transport, forklifts and cranes;
- contact with hot metal;
- fire and explosion;
- extreme temperatures;
- noise and vibration;
- electrical burns and electric shock;

8 Nature of Impact

The nature of the impact will be direct, low, long-term and hence significant.

9 Mitigation

The following mitigation measures are suggested that could be applied to reduce the risk of health and safety:

- Floor surfaces shall be maintained regularly, and kept clean and free of oil spills, other slippery fluids or materials and obstructions.

- Workers who may be exposed to noise levels exceeding occupational standards shall receive regular audiometric testing.
- The effective use of hearing-protection devices shall be ensured.
- Proper training will be provided to workers entering and working in the confined space of the hazards, protective measures and emergency rescue procedures;

- Transport routes shall be planned and constructed to minimize the risk of collision and with sufficient safe clearance to allow for aisles and turns, or other types of control area. Where appropriate, maps showing the proposed route should be provided.
- Transport routes shall be clear of obstructions and, where possible, without irregular surfaces.
- Loads should be lowered slowly and smoothly.

6.1.5 Socio-Economic Impact

It is envisaged that the local community may be disturbed due to increase in the traffic load. The intensity of the aforesaid project will be quite low. The installation of the aforesaid project will have a beneficial impact such as; increase in employment opportunity, increase of the wages in local area, increase in revenue generation, decrease in pollution load, provision of social welfare funds of the employees and appreciation of land value.

10 Nature of Impact

The aforesaid impact is considered to be positive and will have a direct, medium, long-term and significant impact.

11 Mitigation Measure

No mitigation measures will be required.

5.5 Potential Environmental Enhancement Measures

Tree plantation and cropping within the premises have been planned by the proponent for environmental enhancement. The Proponent will also make arrangements for protection and maintenance of trees.

Names of Trees, Plants etc.

The following plants are recommended for this project, however other trees will be consulted with gardening experts and other endangered trees will also be planted.

Local Name	Scientific Name
Cono Tree	<i>Conocar pieceo</i>

Arabic Gum tree	<i>Acacia nilotica</i>
Golden Shower tree	<i>Casia Fistula</i>
Indian Beech tree	<i>Pongamia Pinata</i>
Kachnar	<i>Bauhinia variegata</i>
Jasmine	<i>Jasminum</i>
Lilly	<i>Lilium</i>
Lotus	<i>Nelumbo Nucifera</i>
Rose	<i>Rosa Indica</i>

Excavation for planting shall include plant pits and planting beds. The minimum depths of plant pits or beds shall be measured from Asphalt Plant the grade. Plants beds and pits shall be tested for drainage before planting by filling with water twice in succession. Conditions permitting the retention of water in planting the beds or pits for more than 24 hours shall be brought to the attention of the Architect. If rock, underground construction, obstructions, tree roots or other obstructions are encountered in the excavation of plant pits, alternate locations may be select by the architect. The contractor shall be responsible for all damages resulting from any neglect and failure to comply with this requirement.

Following excavation planting pits, the pits shall be back filled with the sweet soil mixture as specified. Three day prior to planting, the pits shall then be filled with water for consolidation of soil. The dimensions of the panting pits are as follows:

- A. Trees: 3x3x3
- B. Shrubs: 2x2x2
- C. Hedges: trenching 2wide x'2 deep of required length.

D. Creepers and vines: 2wide x 2 deep of required length.

E. Edges and flowers beds: 'fill flower box with sweet soil as per the Architect's drawings. For seasonal flowers, the beds are to have the minimum of 12" sweet soil and 4" 'manure.

Planting areas and plants shall be protected all times against trespassing and damage of all kinds for the duration of maintenance period. If any plants become damage or injured, they shall be treated or replaced. Protection shall also include all temporary protections fences and barriers. all signs and all other work incidental to proper maintenance.

PUBLIC CONSULTATION, PARTICIPATION AND DISCLOSURE

7. INVOLVEMENT OF STAKEHOLDERS/PUBLIC CONSULTATION

7.1 GENERAL

This section describes the regulatory policy, planning and current practices of project proponent pertaining to the stakeholder engagements and outcomes of stakeholder consultation process initially done as part of the IEE/EIA report. The feedback from communities and other stakeholders directly or indirectly affected by the project is collected so that it may be used to adjust and improve the project's design, planning, implementation and help the implementation structure ensuring that the project is both environmentally and socially sound. The consultation process was carried out in accordance with the requirements of the Punjab Environmental Protection Act and Government of Pakistan on public consultation.

The objectives of this process were;

- To disseminate information on the project and its expected impact, long-term as well as short-term, among primary and secondary stakeholders,
- To gather information on relevant issues so that the feedback received could be used to address these issues at an early stage of the project,
- To determine the extent of the negative impacts of different project activities and suggest appropriate mitigation measures.

7.2 IDENTIFICATION OF STAKEHOLDERS

There are two types of stakeholders, i.e.

- a. Primary stakeholders
- b. Secondary stakeholders

7.2.1 Primary Stakeholders

The primary stakeholders are the initial stakeholders, such as affected persons, general public and women residing in the project area. Accordingly, the consultations / focus group discussions were made with all primary stakeholders for sharing of information about the

proposed project and expected impacts and understanding about the concerns by category of stakeholders.

7.2.2 Secondary Stakeholders

The secondary stakeholders are the representatives of Government Departments/Agencies involved in the planning, design, implementation and operation of the project,

7.3 STAKEHOLDER ENGAGEMENTS PLANNING

A two fold stakeholder engagement is planned and carried out for the proposed project as following:

(a) Stakeholder Consultation during the Preparation of EIA Report:

The consultation with the primary and secondary stakeholders has been conducted initially during the preparation of the IEE/EIA report, details of which have been given in the subsequent paragraph at 10.4.

2.2. STAKEHOLDER CONSULTATION PROCESS

The overall strategy for stakeholder's consultation is as follows:

a. Table - 9.1: Process of Stakeholder Consultation

Stakeholders	Purpose of Consultations	Methodology	Stage
Primary Stakeholder	- Information gathering and data collection. - Information sharing about the project (disclosure) - Opinion seeking (concerns and expectations) - Grievance redress	- Focus Group Discussions - Household surveys - Formal and informal Community meetings	- Base line Study - Impact Assessment

Secondary Stakeholder	• Participation in the development process • Information gathering • Authentication and validation of the development processes • Verification of the record	• One on one meetings • In-depth interviews	• During the IEE preparation • On need basis during the project implementation and
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Stakeholder consultation for this project was planned during the preparation of EIA report. In first step during the scoping, which has already taken place, consisted of meetings with individuals, groups, relevant organizations and government departments, which are in some way linked to the project and therefore considered stakeholders. The meetings were conducted to inform stakeholders about the project and how it may affect their lives/activities, and to record their concerns, whether real or perceived. Through the use of various tools the study team tried to involve the stakeholders in active decision-making. The results of this exercise are described below, where mitigation measures have been developed addressing the pertinent stakeholder concerns.

2.3. PRIMARY STAKEHOLDERS CONSULTATION

Apart from gathering of quantitative data through household survey of the area of influence of the project and survey of local community to share the information about the project and record their concerns/ feedback associated with this project. In this context, nearest community shared their view point regarding the assessment especially procedure for entering their concerns/ grievances, employment opportunities, and implementation of the project.

9.5.1. Topics for Discussion

The topics discussed in the consultations were:

- Employment and livelihoods of communities.
- Gender and women issues
- Contractor's camp and access

- Environmental issues during construction and operation of project
- Company responsibility for employment, etc
-

9.6 PROPONENT

All possible impacts and mitigation measure related to the project were discussed with the proponent and management. They assured to take all suggested mitigation measures to control any discrepancy arose by the project and to make the project environment friendly.

9.7 THE RESPONSIBLE AUTHORITY

The Fiaz & Co shall be the responsible authority to take all measures prior to start the project and during operation.

9.8 OTHER DEPARTMENTS AND AGENCIES

For the impact analysis detailed with the management, local community, educational institutes, health institutes, hospitals and NGOs. All issues were discussed related to implementation of the project. Scoping sessions, focused group discussion and way side consultations were held with the relevant stakeholders in the area.

Environmental Experts & Other Departments Discussion:

When Discussion has been made with local community. They were very much interested for this project to be constructed in the **Attock district**. This proposed unit will be equipped with state of art technologies for control of particulate matter and emissions. Regular monitoring of emissions will be practiced to comply with the PEQS. They were very much satisfied about environmental issues because there is no removal of trees and habitat destruction due to project activities as there exist no any trees or habitat at the proposed site. Tree plantation is the part of project to improve the environmental conditions of the site. Tree plantation activities will be carried out by the project proponent on regular intervals. The vehicles carrying wastes would be properly covered

to reduce the odor problem. Waste produced during the project activities would be properly managed and disposed off. Regular environmental monitoring would be ensured to meet PEQS.

Public Consultations:

The consultations were made with the local community to share the information about the project and record their concerns/ feedback associated with project.

7.4.1 Concerns Regarding the Project:

During the field survey, people were asked about their views regarding the said Project. In general, local community has positive attitude towards this said Project that this will help to improve the development of the area.

7.4.2 Major Stakeholders identified

In the Project Area, all the possible stakeholders were identified during the survey. Following is the list of potential stakeholders in the Project Area

- Local residents Teachers
- Shop owners
- Office Workers Laborers
- Pedestrians
- Mosque users.
- Transport users
- Environmental Experts
- Responsible authority & other departments

Issues Discussed

Following issues were discussed during the stakeholder 's consultation:

- Overall activities of the project and their possible impacts.
- Possible impacts on natural vegetation, flora and fauna
- Possible mitigation measures;
- Beneficial factors and involvement opportunities of the local people in the set of activities of Project; and
- Management of traffic during construction and operational phase of the project.

7.5.1 General

Majority of stakeholders appreciated the project and taken it as a necessary step towards the current situation of waste problems. Few people had some reservations regarding the emissions of gases.

7.5.2 Environmental

Few people were concerned about the gaseous air emissions due to the operation of the furnace. Some people also show their apprehension regarding noise pollution due to loading and unloading of billets and raw scraps, respectively.

7.5.3 Socio Economic

Expectations about employment opportunities and community development were extremely high among all stakeholders.

Pictorial Evidence of Public Consultation

	
Kaccha	Mouza Burhan



SOCIOECONOMIC SURVEY AND PUBLIC CONSULTATION

For ascertaining the perceptions of different stakeholders about the project, meetings were held with them. These meetings were held in an open atmosphere, in which participants expressed their views freely. Informal group discussions were also held as an additional tool for the assessment of the perceptions of the stakeholders.

Consultation Areas:

- 1. Jallo**
- 2. Burhan**
- 3. Kaccha**
- 4. Hassan Abdal**

11.1.1 List of people consulted

Name of individuals	Feedback		
Fiaz	Environmental should be taken	Enhancement	measures

Muhammad Abbas	Tree plantation should be ensured
Qadir	Plant should be away from nearby population
Zamurad Khan	To avoid any damage proper firefighting equipment should be installed
Adil Ali	It will facilitate the local construction sector
Sher Khan	Local people will get job opportunities
Nadir Khan	Fire Measures should be ensured
Javed khan	Waste management should be done Properly
Gul Khan	Local people should be preferred for employment opportunities
Adam Khan	Project enhance socio-economic status of area
Asad ali	Project should be environment friendly
Farrukh pathan	Waste management should be done Properly
Naeem Khan	Appropriate Fire & Safety Measures should be ensured
Ibrar ali	Tree Planation & proper landscaping should be done
Muhammad Fahad	Nuisance should be avoided during operational phase
Raheel	Air Pollution control devices should be installed
Irfan khan	No problem will occur as many industrial units already operation nearby

Awareness Regarding the Project

Out of total 20 respondents, 56% knew about the project whereas 44% were not aware of the project planning and implementation.

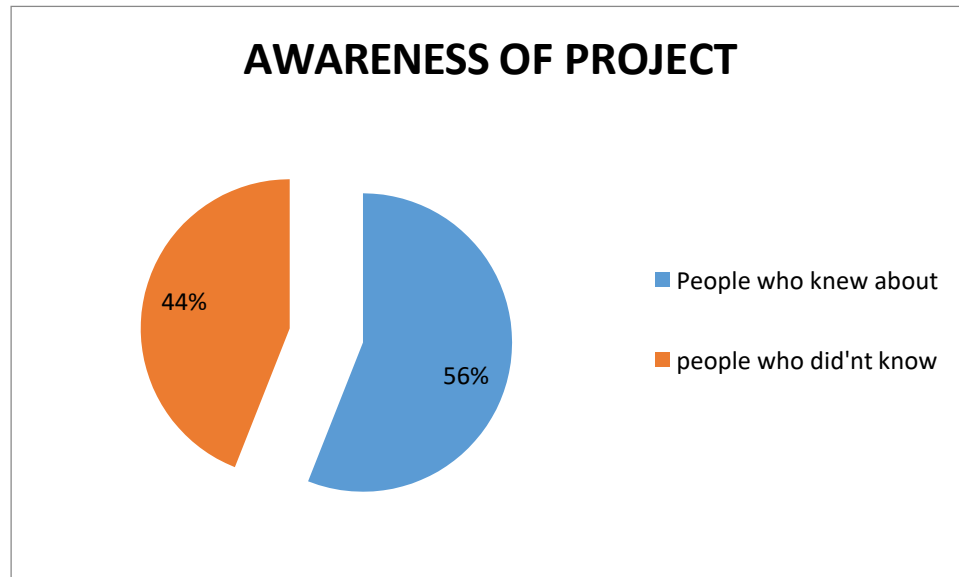


Figure 6-6: Awareness of project

11.1.2 Acceptability of the Project

Majority of the respondents, 99% favored the construction of the project keeping in view its importance. People had following comments regarding project:

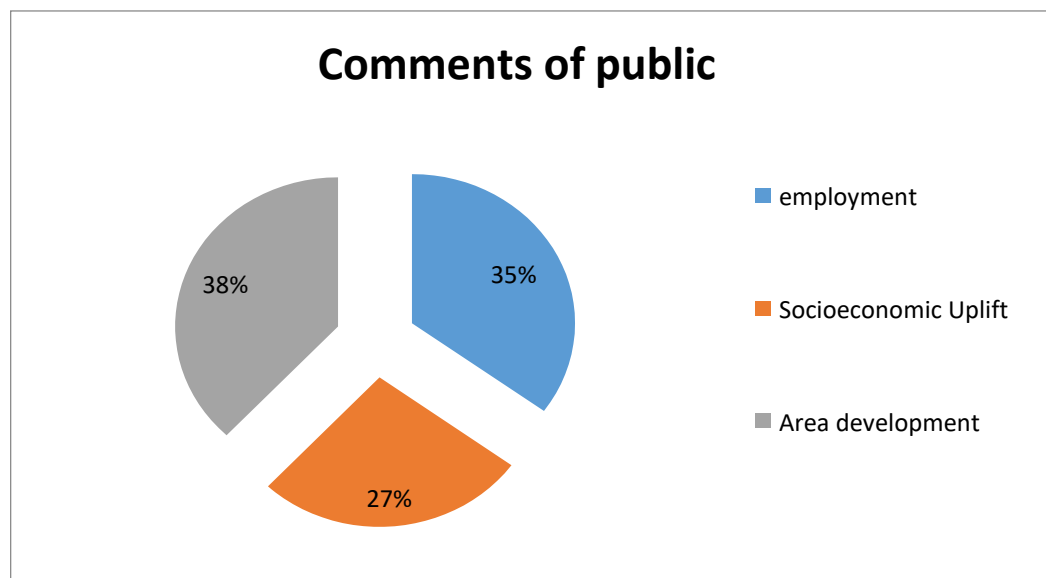


Figure 6-7: Comments of public

11.1.3 Concerns and solutions:

COMPONENTS	CONCERNS	SOLUTIONS
Environmental Enhancement	Trees should be planted to avoid any impact	- Trees will be planted along boundary of project - Indigenous trees around the facility should be planted to control air pollution
Socio-Economic Uplift	Workers should be hired from local community	Proponent has considered hiring labor from local community to enhance the socio-economic condition of the area as this aspect is included in the scope of the project.
Solid Waste	Proper disposal of solid waste should be practiced	A designated area has been planned to establish in the plant for the collection of solid waste. Solid waste will be disposed of regularly from the site as per practice.

Stakeholders Consultation

S #	Participant	Designation	Concerns/Remarks
Responsible Authority			

1	Muhammad Rafique	Inspector Environment Attock	• Environmental enhancement measures such as; Tree plantation, monitoring and safety should be ensured • Septic Tank should be constructed • Preventive measures should be adopted to avoid any unfortunate incident • Tree plantation must be ensured • Monitoring of site & implementation of EMMP
Other Departments			
1	Zamurad Khan	Mines & Minerals Department	• There is no endangered/indigenous species • However, plantation should be done to enhance environment
Proponent's Environment Management Team			
1	Proponent and Environment Management Team	Manager Fiaz & Co	• 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. • He will play a direct role in developing business goals for the mine they run, and he will help to produce a business plan to ensure that those goals are met. • Appropriate leakage mitigation measures at place
Environmental Practitioners and Experts			
1	Dr Afzaal	PhD. Environment	• Health and safety arrangements must be provided • All type of waste should be managed to avoid nuisance
2	DR Umar	PhD. Environment	• No waste will be dumped improperly • Quality will be ensured • Leakage mitigation measures should be incorporated

Affected and Wider Community			
1	Mr. Khurram	Local NGO	• Local employment should be ensured • Proponent shall work for betterment of community

ENVIRONMENTAL MANAGEMENT & MONITORING PROGRAM

This section presents the environmental management plan (EMP) for the proposed project. The EMP specifies the mitigation and management measures which the Proponent will undertake and shows how the Project will mobilize organizational capacity and resources to implement these measures.

The EMP covers information on the management and mitigation measures that will be taken into consideration to address impacts in respect of the operational phase of project.

• 8.1.1 Objectives

The objective of the Environmental Management and Monitoring Plan (EMMP) is to address all the major environmental issues and provide framework for the implementation of the proposed mitigation measures during the operational phase of the project. The proper implementation of the EMP will ensure that all the adverse environmental impacts identified in the IEE report are adequately mitigated, either totally prevented or minimized to an acceptable level and required actions to achieve those objectives are successfully adopted by the concerned institutions or regulatory agencies.

The EMMP provides a delivery mechanism to address potential impacts of the project activities, to enhance project benefits and to introduce standards of good practice to be adopted for all project works. The EMMP has been prepared with the objectives of:

- Defining roles and responsibilities of the project Proponent for the implementation of EMMP and identifying areas where these roles and responsibilities can be shared with other parties involved in the execution and monitoring of the project.
- Outlining mitigation measures required for avoiding or minimizing potential impacts assessed in the EIA report.
- Developing a monitoring mechanism and identifying requisite monitoring parameters to confirm effectiveness of the mitigation measures recommended in the IEE report.
- Defining the requirements for communication, documentation, training, monitoring, management, and implementation of the mitigation measures.

1.1 Implementation of EMMP

The implementation of EMMP should be carefully coordinated with the design and operational program of the project. This will ensure the implementation of relevant mitigation measures at the appropriate project stages. It will also ensure that adequate resources are properly allocated to achieve the desired results. This EMMP has been prepared to satisfy the requirement of “IEE and EIA Regulations, 2000”.

1.2 Environmental Budget

The environmental budget of the project has been given in Table 8-1.

Table 8-1 Environmental Budget Breakdown

Sr. No.	Item/Activity		Quantity (No.s)	Budget (PKR)	Description
1	Plantation Campaign		100	25,000/-	Cost includes plantation and maintenance up to 5 years
2	Cost of EMMP		-	200,000/-	Installation + Operational Phases
3	Environmental Monitoring	Air Quality Monitoring	01	50,000	01 sample @ 50,000/- per sample
		Noise Level Monitoring	02	25,000	02 samples @ 12,500/- per sample
		Drinking Water Quality Monitoring	01	50,000/-	01 sample @ 25,000/- per sample
4	Miscellaneous			50,000/-	Lump sum
5	Total Environmental and Social Management Cost			500,000/-	

1.3 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 construction 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 8-2: List of Individuals and their Responsibilities

Designation	Responsibilities
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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. • He will play a direct role in developing business goals for the mine they run, and he will help to produce a business plan to ensure that those goals are met.
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.
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• 8.4.1 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 measures by 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.

1.4 Proposed Environmental Management and Monitoring Plan (EMMP)

The Environmental Management and Monitoring Plan (EMMP) will be used as a management and monitoring tool for implementation of the mitigation measures identified in the EIA report.

The EMMP matrix lists down:

- The required mitigation measures recommended in the EIA report.
- The person/organization directly responsible for adhering to or executing the required mitigation measures and monitoring adherence to the mitigation measures.
- The parameters, which will be monitored to ensure compliance with the mitigation

measures.

- The timing at which the mitigation or monitoring has to be carried out.
- Budget allocated for management practices (cost of EMMP).

- Project Proponent will hold primary and overall responsibility for ensuring full implementation of the EMMP.

The Environmental Management and Monitoring Plan have been provided for both installation and operational phases of the project below:

8.5.1 EMMP for Installation Phase

The EMMP for installation phase of the project includes following:

- Air quality management & monitoring plan
- Noise management & monitoring plan
- Solid Waste management & monitoring plan
- Health and safety management & monitoring plan

Table 8-3: Air Quality Management & Monitoring Plan for Installation Phase

Management Plan			Monitoring Plan		Estimated Cost
Sr. No.	Potential Impacts	Management & Monitoring Measures	Timeframe	Responsible Party	(PKR)
Reduce Dust Emissions					
1	Dust Emissions	Monitor speed limits of vehicles operating at project site.	Throughout installation period	Proponent	0/-
		Avoid installation activities in extremely dry weathers.	Throughout installation period	Proponent	0/-
		Sprinkle water at site when necessary to reduce dust spread.	Throughout installation period	Proponent & Contractor	5,000/-
		Ensure the use of Personal Protective equipment by workers and staff.	Throughout installation period	Proponent & Contractor	5,000/-
Reduce Exhaust Emissions					
		Ensure minimization of Vehicle idling time.	Throughout installation period	Proponent & Contractor	0/-

2	Exhaust Emissions	Alternatively, fueled equipment shall be used where feasible equipment shall be properly tuned and maintained.	Throughout installation period	Proponent & Contractor	0/-
		Give awareness to vehicle drivers and operators to avoid unnecessary racing of	Throughout installation period	Contractor	0/-

		vehicle engines at loading/un-loading points. Ensure that vehicles engines must be switched off at these points.			
Sub-Total					10,000/-

Table 8-4: Noise Management & Monitoring Plan for construction Phase

Management Plan			Monitoring Plan		Estimated Cost
Sr. No.	Potential Impacts	Management & Monitoring Measures	Timeframe	Responsible Party	(PKR)
Minimization of Noise and Vibrations					
1	Noise and Vibrations	Aware vehicle and machinery operators to switch off engines of vehicles or machinery not being used to avoid excessive noise and vibrations.	During installation period	Proponent & Contractor	0/-
		Sensitize drivers to avoid gunning of vehicle engines or unnecessary hooting especially when passing through sensitive areas such as churches, mosques, residential areas and schools.	Throughout installation period	Proponent & Contractor	0/-
		Ensure that machinery is kept in good condition to reduce noise generation.	Throughout installation period	Proponent & Contractor	5,000/-
		The noisy installation works will entirely be planned during day time when most of the neighbors will be at work.	Throughout installation period	Proponent & Contractor	0/-
Sub-Total					5,000/-

Table 8-5: Solid Waste Management & Monitoring Plan for Installation Phase

Management Plan			Monitoring Plan		Estimated Cost
Sr. No.	Potential Impacts	Management & Monitoring Measures	Timeframe	Responsible Party	(PKR)
Minimization of solid waste generation and ensure efficient solid waste management					

1	Increased solid waste generation	Donate recyclable/reusable or residual materials to local community groups, institutions.	During installation period	Proponent	0/-
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	Proper waste management plan must be developed.	During installation period	Proponent	0/-
	Waste must be stored at site in covered containers.	During installation period	Proponent	10,000/-
	Containers must be emptied before they reach their carrying capacity.	During installation period	Proponent	0/-
	Littering must be prohibited at the site.	During installation period	Proponent	0/-
	Awareness will be given to the staff and workers about handling of solid waste at site.	During installation period	Proponent	0/-
	Use of an integrated solid waste management system i.e. through a hierarchy of options: 7. Source reduction 8. Reuse 9. Recycling	Throughout installation period	Proponent & Contractor	0/-
	Use of durable, long-lasting materials that will not need to be replaced as often, thereby reducing the amount of waste generated over time.	Throughout installation period	Proponent & Contractor	0/-
Sub-Total				10,000/-

Table 8-6: Health and Safety Management & Monitoring Plan for Installation Phase

Management Plan			Monitoring Plan		Estimated Cost
Sr. No.	Potential Impacts	Management & Monitoring Measures	Timeframe	Responsible Party	(PKR)
Minimization of occupational health and safety risks					

1	Health and Safety Impacts	Implement all necessary measures to ensure health and safety of workers and the general public during installation of the project.	Throughout installation period	Proponent	0/-
		Suitable overalls, safety footwear, dust masks, gas	Once off	Proponent & Contractor	5,000/-

		masks, respirators, gloves, ear protection equipment etc. should be made available and personnel must be trained to use the equipment.			
		Ensure the general safety and security at all times by providing day and night security guards and adequate lighting within and around the premises.	Continuous	Proponent	5,000/-
2	First Aid	Provision of well stocked first aid box must be ensured within the premises of the project area.	One-off/as per required	Proponent	5,000/-
		Provision must be made for persons to be trained in first aid.	One-off	Proponent	5,000/-
Sub-Total					20,000/-
Grand-Total					45,000/-

8.5.2 EMMP for Operational Phase

The EMMP for operational phase includes following:

- Air quality management & monitoring plan
- Noise management & monitoring plan
- Solid Waste management & monitoring plan
- Health and safety management & monitoring plan

Table 8-7: Air Quality Management & Monitoring Plan for Operational Phase

Management Plan			Monitoring Plan		Estimated Cost
Sr. No.	Potential Impacts	Management & Monitoring Measures	Timeframe	Responsible Party	(PKR)
Reduce Dust Emissions					
		Monitor speed limits of vehicles operating at site.	Throughout operational period	Proponent	0/-

1	Dust Emissions	Avoid operational activities in extremely dry weathers.	Throughout project lifecycle	Proponent	0/-
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		Sprinkle water at site when necessary to reduce dust spread.	Throughout operational period	Proponent & Contractor	5,000/-
		Ensure the use of Personal Protective equipment by workers and staff.	Throughout operational period	Proponent& Contractor	5,000/-
Reduce Exhaust Emissions					
2	Exhaust Emissions	Ensure minimization of Vehicle idling time.	Throughout operational period	Proponent & Contractor	0/-
		Alternatively, fueled equipment shall be used where feasible equipment shall be properly tuned and maintained.	Throughout operational period	Proponent & Contractor	0/-
		Give awareness to vehicle drivers and operators to avoid unnecessary racing of vehicle engines at loading/un-loading points. Ensure that vehicles engines must be switched off at these points.	Throughout operational period	Contractor	0/-
Sub-Total					10,000/-

Table 8-8: Noise Management & Monitoring Plan for Operational Phase

Management Plan			Monitoring Plan		Estimated Cost
Sr. No.	Potential Impacts	Management & Monitoring Measures	Timeframe	Responsible Party	(PKR)
Minimization of Noise and Vibrations					
	Noise and	Aware vehicle and machinery operators to switch off engines of vehicles or machinery not being used to avoid excessive noise and vibrations.	During operational period	Proponent & Contractor	0/-

1	Vibrations	Sensitize drivers to avoid gunning of vehicle engines or unnecessary hooting especially when passing through sensitive areas such as churches,	Throughout operational period	Proponent & Contractor	0/-
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		mosques, residential areas and schools.			
		Ensure that machinery is kept in good condition to reduce noise generation.	Throughout operational period	Proponent & Contractor	5,000/-
		The noisy production works will entirely be planned during day time when most of the neighbors will be at work.	Throughout project life	Proponent & Contractor	0/-
Sub-Total					5,000/-

Table 8-9: Solid Waste Management & Monitoring Plan for Operational Phase

Management Plan			Monitoring Plan		Estimated Cost
Sr. No.	Potential Impacts	Management & Monitoring Measures	Timeframe	Responsible Party	(PKR)
Minimization of solid waste generation and ensure efficient solid waste management					
1	Increased solid waste generation	Donate recyclable/reusable or residual materials to local community groups, institutions.	During operational period	Proponent	0/-
		Proper waste management plan must be developed.	During operational period	Proponent	0/-
		Waste must be stored at site in covered containers.	During operational period	Proponent	5,000/-
		Containers must be emptied before they reach their carrying capacity.	During operational period	Proponent	0/-
		Littering must be prohibited at the site.	During operational period	Proponent	0/-
		Awareness will be given to the staff and workers about handling of solid waste at site.	During operational period	Proponent	0/-

		Use of an integrated solid waste management system i.e. through a hierarchy of options: 10. Source reduction 11. Reuse	Throughout operational period	Proponent & Contractor	0/-
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		12.Recycling			
		Use of durable, long-lasting materials that will not need to be replaced as often, thereby reducing the amount of waste generated over time.	Throughout operational period	Proponent & Contractor	0/-
Sub-Total					5,000/-

Table 8-10: Health and Safety Management & Monitoring Plan for Operational Phase

Management Plan			Monitoring Plan		Estimated Cost
Sr. No.	Potential Impacts	Management & Monitoring Measures	Timeframe	Responsible Party	(PKR)
Minimization of occupational health and safety risks					
1	Health and Safety Impacts	Implement all necessary measures to ensure health and safety of workers and the general public during operation of the project.	Continuous	Proponent	0/-
		Suitable overalls, safety footwear, dust masks, gas masks, respirators, gloves, ear protection equipment etc. should be made available and personnel must be trained to use the equipment.	Once off	Proponent & Contractor	10,000/-
		Ensure the general safety and security at all times by providing day and night security guards and adequate lighting within and around the premises.	Continuous	Proponent	5,000/-
2	First Aid	Provision of well stocked first aid box must be ensured within the premises of the lease area.	One-off/as per required	Proponent	5,000/-
		Provision must be made for persons to be trained in first aid.	One-off	Proponent	10,000/-

Sub-Total	30,000/-
Grand-Total	50,000/-

1.5 Environmental Monitoring and Evaluation

8.6.1 Aim

In the context of Asphalt Plant , the monitoring and evaluation is carried out to achieve following objectives:

- To access whether the project site is being managed in a sustainable manner as planned or certain bottlenecks are experienced both qualitatively and quantitatively.
- To ensure compliance of environmental parameters (i.e. ambient air and noise) with PEQS.
- To ensure the implementation of mitigation measures for overall conservation of environment at the project site.
- To undertake effective environmental surveillance of the site.
- To assess effectiveness of mitigation measures and potential environmental enhanced measures.
- To ensure compliance with national environmental obligations.
- To monitor rehabilitation of recovered land including afforestation.

8.6.2 Environment, Health & Safety Policies

8.6.2.1 Environment Policy

The environment policy right from initiation of project installation to its proper operations will be based on:

- Compliance of applicable regulatory requirements;
- Conservation of natural resources;
- Assurance of sustainable development;
- Maintaining a safe working environment;
- Providing high environmental expertise and know-how; and
- Regular training and refresher courses to achieve continuous improvement of environment.

8.6.2.2 Health & Safety Policy

The proponent identifies safety and health of the personnel as integral part of every work aspect at every level. In addition to compliance with the statutory rules and regulations as the minimum acceptable, the proponent will set nationally acceptable standards for practice and will intend to achieve the above by the following:

- Provide adequate and continuous training to all personnel;

- Prepare an over-all safety & health manual giving general requirements of leadership, planned inspections, job analysis & procedures, emergency preparedness, organizational rules, necessity and use of protective equipment, health control, etc.;

levels and continuously update the over-all safety & health manual;

- Carrying out regular publicity campaigns effective personnel safety and health conscious; and
- To employ a person as in-charge for planning, training & safety and make him responsible for implementation of safety and health policy.

1.6 Equipment Maintenance Details

8.7.1 Objectives

The maintenance of equipment and machinery used during project activities is carried out to achieve following objectives:

- To avoid environmental pollution including dust issues, exhaust emissions, excessive noise and vibrations etc.
- To avoid any risk to health and safety of the workers including injuries.
- To avoid any hinderance and to ensure smooth operation of project activities.

8.7.2 Measures for Equipment Maintenance

Measures for the maintenance of equipment involve:

- All the machinery and vehicles will be inspected and monitored.
- Always keep a suitable fire extinguisher ready for emergency situations.
- Always keep a first aid box within the premises of the project site.
- Secure unbolted heavy parts or engines if necessary to leave the work.
- Monthly tuning, servicing and cleaning of machinery and vehicles.

1.7 Training Needs

There is requirement of training of the members of Monitoring and Evaluation department of multifarious environmental aspects pertaining to factory operation. Training may be arranged at a suitable institution.

• 8.8.1 Training Schedules

• Environmental Technical Assistance and Training Plan

To raise the level of professional and managerial staff, there is a need to upgrade their knowledge in the related areas. The proponent will play a key role in this respect and arrange the trainings. An environmental and social training and Technical Assistance (TA) program is to be carried out before the implementation of the project. Contractor's environmental awareness and appropriate knowledge of environmental protection is

critical to the successful implementation of the EMMP because without appropriate environmental

awareness, knowledge and skills required for the implementation of the mitigation measures, it would be difficult for the Contractor(s) workforce to implement effective environmental protection measures.

Proponent will manage the environmental training program. This will organize training courses for contractor staff to train them in specialized areas such as air and noise pollution monitoring; develop environment operation manuals in consultation with the EPA, Punjab. The training will take place in three phases:

Table 8-11: Training Schedules

Phases	Description
Phase-1	- The workers and labor force will be given basic training on project activities. They will be explained on different possible environmental impacts resulting from the project activities. - The environmental management and monitoring staff will be given basic knowledge of the possible environmental impacts, how to mitigate them and methods of personnel protection. This will take place during the design phase.
Phase-2	- Second phase of training will take place at the start of operational phase. - It will involve a hands-on experience of carrying out the different activities during operational phase, responsibilities of each individual, implementation of mitigation measures, use of personnel protective equipment and an emergency handling and exit drill
Phase-3	- All the staff will be briefed about the implementation of EMMP. - The staff and workers will be provided with suitable and required PPEs.

PROPOSED MONITORING PROGRAM TO ASSESS PERFORMANCE OR OUTPUT OF EMP

The implementation of EMMP should be carefully coordinated with the design and operational program of the project. This will ensure the implementation of relevant mitigation measures at the appropriate project stages. It will also ensure that adequate resources are properly allocated to achieve the desired results. The EMMP for installation phase of the project includes following:

- Air quality management & monitoring plan
- Noise management & monitoring plan
- Solid Waste management & monitoring plan
- Health and safety management & monitoring plan

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 Fiaz & Co 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.

ANY TRAINING NEEDS REQUIRED ENSURING IMPLEMENTATION OF EMMP:

The detail of training needs & EMMP is given above.

ENVIRONMENT MANAGEMENT PLAN & MONITORING PROGRAM

Project Activities	Type of Impact	Potential Impacts On Environment	Extent / Magnitude	Mitigation Measure	Institutional Responsibility	
					Implementing Body	Supervision
PRE-CONSTRUCTION						
Land acquirement and land use	Physical , Social and Aesthetical	Positive use of land but proper planning will be required	More/at community level and to Proponent	- Land is owned by proponent and there is no settlement so no impact will be there. - Land will be improved from open land to Asphalt Plant. Pollution load will be decreased due to establishment of said facility.	Contractor	Proponent for M/s Fiaz & Co
Use of local manpower	Social	Employment Generation	Less/Adjacent area	Local people will be hired for less technical work or non-skilled work. Proper training will be provided to non-skilled persons.	Contractor	Proponent
CONSTRUCTION						
Civil works	Physical, Social, Biological Aesthetical	Soil Erosion, Emissions, Water Contamination, Noise & Vibration, Wildlife affected, Employment, Health & Safety of Workers	More/ Adjacent area	- Record keeping and timely transfer of SW from bins to the disposal site for ultimate management and disposal - Dust emission from soil piles and aggregate storage stockpiles will be reduced by keeping the material	Contractor	Proponent

				moist by sprinkling of water at appropriate frequency • Covering the pile, for example with tarpaulin or thick plastic sheets, to prevent emission. • Noise control measures will be implemented • Paved roads are already there that will be used for transportation of raw material.	
Movement and of fueling vehicles	Physical & Aesthetical	Soil & Water Contamination due to Fuel Leakages & Spillage, Emissions, Noise & Vibration	Moderate/ at the site	• Periodic maintenance and inspection of vehicles will be done • Vehicles with leaks will be operated after maintenance. • Vehicles should not be washed or serviced in the field.	Contractor

Transportation of construction material	Bio-physical	Dust and Particulate Emissions, Noise Generation, Safety and Health Effects	Moderate/ Adjacent area	- Excessive use of horns will be avoided - PPE's will be provided to workers - Covering of trucks carrying transporting material - Night time driving of project vehicles will be limited where possible - Low speed limit will be maintained on the section of	Contractor
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				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		
Ecological Resource	Physical, aesthetical and biological	Project site is adjacent to other industrial units of different nature.	Moderate/ adjacent area	More tree plantation will be done at designated green areas.	Project Manager	Project Manager
POST-CONSTRUCTION/OPERATION						

Wastewater management	Physical/social	Degradation of water quality	Moderate/local	After settling wastewater generated from process activities will be disposed off in water channel at a distance of around 10ft that will be used for irrigation purpose.	Environment officer	Proponent
Air quality management	Physical	Dust and PM	Moderate/adjacent areas	- No waste should be burnt at the premises. - Generator should be installed with acoustic enclosure to avoid noise issues. - Regular monitoring and	Environment officer	Proponent
				maintenance of generators should be done on regular interval.		
Noise generation	Physical, social, biological	Psychological and hearing problems	Moderate/local	- There will be ban on the use of horn in the area. - Generators must be installed with proper enclosure to avoid noise issues. - Proponent has planned a proper plantation plan which will also act as barrier for noise.	Environment officer	Proponent

Solid Waste Generation	Physical, Biological, Social	Soil Contamination, effecting GW Quality, vectors production, odor, Health, Welfare	Severe/ local and global	- The solid waste from the project should not be allowed to pile up. - Solid waste includes Labels, tags, packaging waste and bottle caps that will be sold to certified vendor in open market.	Environment officer	Proponent
Health and safety	Biological	Injury may happen while handling machines	Severe	- Protective equipments like metallic gloves will be provided to the workers for protection against potential accidents and injuries during handling of machines. - Warning signs will be placed in local language. - First aid kits and other necessary equipment will be kept available at site.	HSE Manager	Proponent

DECOMISSIONING PHASE

Solid waste	Physical, Biological, social	Soil Contamination, vectors production, odor, Health, Welfare	Local	Used building materials and other waste from decommissioning must be transported and dumped in approved sites.	Contractor	Proponent
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Dust emissions	Physical, Biological, social	Dust and PM	Local	• Ensure strict enforcement of on-site speed limit regulations. • Avoid demolition work in extremely dry weathers. • Sprinkle water on graded access routes when necessary to reduce dust generation by machines. • Personal Protective equipment to be worn. • Demolished materials on site to be covered to prevent to be blown off by wind.	Contractor/HSE manager	Proponent
Exhaust emissions	Physical, Biological, social	Enhance air pollution	Moderate/at the site	• Sensitize truck drivers to avoid unnecessary racing of vehicle engines at loading/offloading points and parking areas, and to switch off or keep vehicle engines at these points, using mufflers. • Vehicle idling time shall be minimized.	Contractor/Engineer	Proponent
Noise and vibration	Biological, Social	Effect human health	Adjacent areas	• Sensitize machinery drivers and machinery operators to switch off engines of vehicles or machinery not	HSE manager/contractor	Proponent

1.1. Environmental Monitoring program

It will be in the fitness of the things to operate this project under the Environmental Management plan (EMP). The EMP will ensure that even all type of pollutants from project is within the prescribed limiting values of the PEQs. Thus, the environment and human health around the project will be safeguarded.

Regular monitoring of all the significant environmental issues is essential to check the compliance status of EMP.

The main objective of the monitoring will be;

- To verify the results of the environmental study with respects to the proposed project.
- To estimate the trends of concentrated values of the issues, which have been identified as critical and then planning the mitigating measures.
- To assess the efficiency of pollution control mechanism.
- To ensure that any additional parameters, other than those identified in the IEE report, do not turn critical after the commissioning of proposed project.

Sr. no.	Parameter/ receptor	Location	Monitoring Mechanism	Monitoring and Reporting Frequency
1	Water quality	• Ground water • Surface water	Discrete grab sampling and laboratory testing of water sample	Sampling and laboratory testing should be done on monthly basis during the Operation

				Discharge from the unit should be tested for temperature, pH and turbidity. Treated effluent discharges from the worker's camp and process water to be tested for pH, TSS and BOD5
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2	Dust emission	Track along the roads during construction periods During Operational	Ambient particulate matter monitoring	Sampling and laboratory testing should be done on monthly basis during the construction and annually during the operational stage
3	Noise levels	• Camp sites • Selected locations along the Access	Noise meter	Monthly during the operational stage
4	Stack emissions	Silencer of heavy machinery, trucks and other Vehicles	Emissions monitoring system. Monitoring of ambient air quality	Quarterly monitoring of PM ₁₀ , NO _x , SO _x , CO, VOCs during the operation Stage

Reporting

Sr. No		Detail
5.1	Clear reporting style supported by maps or other descriptive details	The said instructions have been followed in this report.
5.2	Specific term of references should be present in report	This is attached with this report.
	Appendices	
	Glossary	This is attached with this report.
	1- List of Abbreviations	This is attached with this report.
	2- List of individuals or organizations consulted along with their written feed back	This is attached with this report.
	3- Sources of data and full list of all reference material used	This is attached with this report.
	4- Terms of references for environmental reports	This is attached with this report.

	5- List of names, qualifications and roles of team members carrying out the IEE/EIA study	This is given at Page 12 of this report.
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Annexure

REFERENCES

- Guidelines for Preparation and Review of Environmental Reports
- Guidelines for Public Consultation
- Labor Laws
- Meteo Blue
- Early preventative maintenance extends asphalt pavement life
- Improving the sustainability of asphalt pavements
- Meteorology Department Data (from website)
- National Environmental Policy 2005
- National Environmental Quality Standards (Self-Monitoring and Reporting by Industries) Rules, 2001
- Pakistan Biosafety Rules 2005
- Pakistan Environmental Protection Act, 1997
- Pakistan Environmental Protection Agency (Review of IEE/EIA) Regulations, 2022.
- The Land Acquisition Act, 1894
- The Punjab Local Government Ordinance, 2001
- Punjab Environmental Protection (Amendment) Act, 2012

LIST OF ABBRIVIATIONS

SO ₂	Sulphur Dioxide
°C	Degree Celsius
PM ₁₀	Particulate Matter >10
EIA	Environmental Impact Assessment
EMMP	Environment Management & Monitoring Plan
EMP	Environmental Management Plan
EPA	Environmental Protection Agency
EPD	Environment Protection Department
PEQS	Punjab Environmental Quality Standards
SPM	Suspended Particulate Matter
HSE	Health Safety and Environment
UDT	Urban Development and Tourism
SEP	Standard Engineering Practices
ERP	Emergency Response Plan
SWM	Solid Waste Management
IEE	Initial Environmental Examination
km	Kilometer

CUM	Cubic Unit per Meter
GWT	Ground Water Table
Ltd.	Limited
HC	Hydrocarbon
mm	Millimeter
NEQS	National Environmental Quality Standards
No.	Number
NOC	No Objection Certificate
NO _x	Oxides of Nitrogen
PA	Protected Area
PEPA, 1997	Pakistan Environmental Protection Act, 1997
PEPA, 2012	Punjab Environmental Protection (Amendment) Act, 2012
PEPO	Pakistan Environmental Protection Ordinance
PKR	Pakistani Rupees
PM	Particulate Matter
PPEs	Personal Protective Equipments
Pvt.	Private
SFT	Square Foot
SOPs	Standard Operation Procedures
SO _x	Oxides of Sulphur
TMA	Town Municipal Authority

WAPDA	Water and Power Development Authority
WASA	Water and Sanitation Agency
WHO	World Health Organization

**LIST OF EIA STUDY TEAM WITH QUALIFICATION AND POSITION IN
TEAM.**

Name	Qualification	Position in the EIA/EIA Team
Muhammad Rehman Majeed	M.Phil (Environmental Science) GCU Lahore	Project Incharge And Supervisor
Ammara Anwar	MS Environmental Science PU-Lahore	Team Leader and Coordinator (Author of the Report)
Mohsin Ali	M.Phil Environmental Science GCU Lahore	Senior Environmental Analyst (Field Analyst)
Faisal Irshad	BS (Hons) Environmental Engineering (UET Lahore)	Environmental Engineer
Anum Waheed	BS (Hons) Environmental Science (GCU Lahore)	Research Associate (Author of the Report)

SOCIAL SURVEY FORM

Questionnaire for the project of

M/s “Fiaz & Co”

STAKE HOLDER’S INFORMATION:

1	Name	
2	Father’s Name	
3	CNIC Number (Optional)	
4	Age	Years
5	Gender	Male Female
6	Qualification	Under matric Matriculation Graduate Post graduate
7	Marital status	Married Single
8	Employment status	Employed Unemployed
9	Income group	Below Rs: 20,000 / month Between 20,000- 30000 Above Rs: 30000 / month

10	Do you know about asphalt plant establishment at proposed location		Yes	No
11	Should it be done?		Yes	No
12	What social change it will result?		Improvement No change Deterioration	
13	What economical change it will result?		Improvement No change Deterioration	
14	What environmental change it will result?	Without precautionary measures	Improvement No change Deterioration	
		If adequate precautionary measures are adopted	Improvement No change Deterioration	
15	Your suggestions to care for Environment			
16	Any other suggestion for benefit of the community?			

Signature:_____