ENVIRONMENTAL IMPACT ASSESSMENT

(EIA)

of

Manufacturing and Retail Unit for Shoes, Bags & Garments

by

MJMS (Pvt.) Ltd.

Formerly: Fabrizio (Pvt.) Ltd.

at

Plot # 19-D & 20-D,
Quaid-e-Azam Business Park, Sheikhupura

Prepared By

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EXECUTIVE SUMMARY

This is the study of Environmental Impact assessment of Establishment of Manufacturing and Retail unit for Shoes, Bags and Garments by MJMS (Pvt.) Limited.

Title of the Project: Establishment of Manufacturing and Retail unit for Shoes, Bags and Garments by MJMS (Pvt.) Limited formerly Fabrizio (Pvt.) Limited

Location of Project: Plot # 19-D & 20-D, Quaid-E-Azam Business Park, Sheikhupura
Coordinates 31°44'4.00"N, 74° 4'7.71"E

Proponent: MJMS (Pvt.) Limited,
Mailing Address: 161-M Quaid-e-Azam Industrial Estate, Kot Lakhpat, Lahore
Phone: +92-322-8447966
Email: mjms.com@gmail.com

Consultant: Altec Engineers
471-A, Block-B, Faisal Town, Lahore
Phone: +92-300-9106342
Email: altec.engineers@gmail.com

Brief Outline of the Proposal

This proposed project presents details about the investment opportunity in the area of leather shoes, bags and garments manufacturing. The product being focused is leather jackets, biker jackets, leather coats, bags and shoes by establishing a manufacturing and retail unit for shoes, bags and garments by the proponent by MJMS (Pvt.) Limited formerly Fabrizio Pvt. Limited at their owned Plot No. 19-D & 20-D at Quaid-E-Azam Business Park, Sheikhupura. The project cost shall be PKR 2.5 Billions. The production capacity shall be 20,00,000 pairs of shoes/year, 500,000 garments/year and 300,000 bags/year.

Total area of the plot is 555120 Square ft. Total covered area of the plot shall be 499778 Square ft. The project shall involve construction of steel sheds and RCC structures. The structure of steel sheds shall be pre-engineered building comprising main building hall and office block as major components.

According to Section-12 of PEPA 1997 (Amendment 2012), “No proponent of a project shall commence construction or operation unless he has filed with the Provisional Agency an initial environmental examination or, where the project is likely to cause an adverse environmental effect, an environmental impact assessment, and has obtained from the Provisional Agency approval in respect thereof.” According to Review of IEE and EIA regulations-2000, the

project falls under Schedule-II, therefore requires an EIA. In that context, Environmental Impact Assessment has been carried out and is being presented in the form of this EIA Report.

The scope of the EIA study includes environmental assessment of the project including collection of data related to physical, biological and socio-economic environment, assessment of impacts which may be caused by the project activities and mitigation measures for the abatement of potential environmental impacts. This includes study of all the phases of the project.

Brief detail of the project is as follows:

The Project Area

The proposed project has been planned to be constructed at Quaid-E-Azam Business Park, Sheikhupura. Quaid-E-Azam Business Park, Sheikhupura is located along Lahore-Islamabad Motorway (M2). The project is linked with all major cities, sea ports and dry ports of the country through a network of national Highways and motorways. PIEDMC has acquired 1860 acres of land from Government of the Punjab and thereon industrial estate has been established to promote industrialization in Punjab.

Knowledge on the baseline environmental conditions was obtained by collecting and reviewing the available secondary data of the project area. The review process was also helpful in establishing the scope and methodology for collection of field data inside the project area. The EIA team comprising of environmentalists, chemists, civil engineers collected area specific primary data.

Facilities

A large number of various industries shall be located here with infrastructure comparable to any modern international industrial estate. Quaid-E-Azam Business Park, Sheikhupura shall have so many facilities which qualify it as an ideal option for the proponent. There shall be road network, underground sewerage system, estate managed underground electricity distribution system, walled industrial estate with limited entry/exit points, high pressure gas pipelines, potable water, telecommunications system, fully equipped fire station (industrial safety unit), computerized weigh station, information signs, technical training facilities, estate-owned security arrangements, hospital, masaajid and petrol stations.

Environmental compliance shall also be ensured by developing and implementing environmental procedures, occupational health, safety, environmental awareness, solid waste management and combined effluent treatment plant. This new project has to avail all of these facilities to achieve their goals towards sustainable development in all of its activities.

Availability of Utilities

Main source of electricity shall be from WAPDA through Quaid-E-Azam Business Park, Sheikhupura's own dedicated Grid station. For adequate water supply, Quaid-E-Azam Business Park, Sheikhupura shall install overhead water tanks fed with tube wells, through which water for all purposes shall be supplied to the project area. Sui gas shall also be available in needed by any industry.

The summarized outline of the report has been described below:

Chapter-1: Introduction

In this chapter, an introduction to this report has been given. A little detail about project has been provided. Project background, purpose of the report, specific objectives of this EIA, identification of the project, details of proponent and consultant, project nature, size and location, extent and scope of study, EIA study team and study methodology have been described.

Chapter-2: Description of the Project

This chapter describes the specifications of the proposed project i.e. type and category of the project, project design, site layout, land use on the site, vegetation features of the site, road access, objectives, alternatives, cost and magnitude of operation, schedule of implementation, activities of construction and operation, processes and materials of the project, restoration and rehabilitation plans.

Chapter-3: Description of the Environment

This chapter describes the existing environmental conditions around the proposed project area. Information that has been collected from different sources including public, literature, reports of other studies conducted in this area, knowledge with the proponent and the concerned government departments and the first-hand surveys and field measurements has been presented in this chapter. This encompasses all the important aspects of local environment; such as Physical, Ecological and Socio-economic resources. Environmental testing has also been carried out through an EPA-Punjab certified environmental laboratory to know about quality of ambient air, ground water and noise.

Chapter-4: Potential Environmental Impacts and Mitigation Measures

This chapter identifies the potential impacts due to the implementation of project on the physical, ecological and social environment of project area. This chapter also identifies measures that will help mitigate the project's adverse environmental effects and enhance positive impacts. The potential environmental impacts of the project, mitigation measures to be taken and proposed monitoring are summarized below:

Potential Impact	Magnitude of Impact	Mitigation Measures
CONSTRUCTION PHASE		
Solid Waste Solid waste shall be generated in the form of excavation waste, broken bricks, wasted concrete material, wasted steel trimmings etc.	Major/Long term	All types of waste shall be kept segregated. The waste shall never be piled and shall be managed regularly. The construction waste shall be disposed off through construction waste contractors. The recyclable part of the waste shall be sold to recyclers.
Air Pollution Particulate matter may arise due to localized excavation in soil for foundation purpose and also due to movement of off-road or on-road automobiles. Transport of construction materials such as sand, aggregate etc. may also cause particulate pollution. Cutting, grinding and welding of steel structures may cause air pollution. Off-road or on-road automobiles may also cause exhaust pollution.	Minor/Short lived	Construction contractor shall be asked to ensure using only well-conditioned and tuned automobiles and equipment. Sprinkling of water on the exposed surfaces. Covering of all trucks loaded with sand, soil and other such loose construction materials. Regular sweeping of roads and parking areas to avoid deposition of dirt. Use of appropriate masks by workers to prevent entry of metal dust in their breathing system.
Water Quality Water shall only be needed for making concrete	Minor/Short Lived	Water consumption shall be kept at minimum. Leakage and wastage shall be prevented.

mix for foundations and also for pavement of floor.		Any wastewater shall be channelized to the drainage system of Quaid-E-Azam Business Park for disposal to nearby drain after treatment.
Noise Pollution Operation of construction machinery and equipment may be a source of noise. Cutters, grinders and welding may also cause noise. Movement of off-road or on-road automobiles.	Minor/Short Lived	Maintain all the machinery and automobiles. Lubricate all moving parts of the machinery. Use of ear plugs by workers to prevent entry of noise in their ear.
Traffic Flow There shall be a little increase in the traffic of the area because of movement of transport carrying construction materials.	Minor/Short Lived	The construction material shall be transported during off-peak hours.
Occupational Health & Safety Work at height. Cutting, grinding, welding operations may cause metal dust and have electric hazards. Ergonomic issues due to loading and off loading of construction materials e.g. Cement sacks etc. During hot season, workers may have to suffer	Minor	Work at height should be performed under supervision of HSE Officer who shall issue work at height permit after taking all appropriate measures. Construction materials should be distributed into small packs during loading and off loading. During hot season, jobs of the workers may be changed during peak hot hours. The work timing may be changed to prevent heat stress.

from heat stress.		Electric earthing shall be done to prevent electric shock to workers. Safety shoes shall be worn by the workers while performing jobs related with electric equipment. Construction workers shall be provided with adequate awareness and training about HSE aspects of the project. They shall also be provided with suitable Personal Protective Equipment. Emergency preparedness and response plan shall be prepared and adhered to.
Ecology The birds may get scared due to noisy operations. The patch of land is already barren. There is no vegetation on it which is likely to be impacted.	Minor/Temporary	The noise of the equipment shall be kept under control. The construction staff shall be guided not to interfere with the habitat of local biota.
Socioeconomic Disturbance to local population Jobs for the locals	Minor/Temporary	The construction staff shall be guided to respect the local cultural and moral values and behave well. Locals shall be preferred for job so far as possible according to their competence.
OPERATIONAL PHASE		
Solid Waste	Major/Long term	All kinds of wastes shall be kept in segregated and color coded bins.

Solid waste has been estimated to be generated in the form of packing material, Leather/Synthetic Leather cutting, Textile cutting and Municipal waste.		The municipal waste shall be stored in bins provided by QABP and shall be managed by QABP. It has been proposed to sell all of the operational waste to contractor for reuse and recycling as may be appropriate.
Air Pollution Sources of air pollution due to operations may include cotton dust as well as leather dust.	Minor/Long term	Local exhaust ventilation shall be installed. All exposed surfaces shall be either paved or grassed to prevent particulate pollution. Workers shall be provided with masks.
Water Pollution The processing involves only dry operations. No industrial waste water shall be generated.	Minor/Long term	Water wastage should be prevented.
Noise Noise generated by machines.	Minor/Long term	Better maintenance and lubrication of all the machinery may keep the noise under control. Regular monitoring of noise may be carried out every year to check the efficacy of control measures. Enclosure/confinement of the machinery may also decrease the noise levels. Glass wool sheet installed with steel shed shall control noise because of its acoustic properties. Employees shall be provided with ear plugs to prevent entry

		of sound waves into ear.
Occupational Health & Safety Ergonomics issues because the workers usually shall need to lift raw materials and finished goods. The adhesives and chemicals may pose occupational health concern. Fire safety management.	Minor/Long term	Load to be lifted by the labor staff shall be distributed in small packs of raw materials. Adequate arrangements for illumination, temperature and ventilation shall be made. Training about OHS aspects may also assist in managing the risk. The workers shall be provided with all of the required personal protective equipment to prevent any harm. Fire extinguishers, electric earthing and sand buckets shall be installed.
Ecology The patch of land is already barren. There is no vegetation on it which is likely to be impacted. Therefore, there shall be no impact on biota due to operations.	Minor	The noise of the equipment shall be kept under control to prevent disturbance to fauna especially the birds. The operation staff shall be guided not to interfere with the habitat of local biota. The proponent as part of condition by PIEDMC, shall plant 2000 trees.
Socioeconomic Disturbance to local population Jobs for the locals	Minor/Temporary	The operational staff shall be guided to respect the local cultural and moral values and behave well. Locals shall be preferred for job so far as possible according to their competence.
Traffic Flow	Minor	The transport shall be scheduled such that it may not cause

There shall be a little increase in the traffic of the area because of movement of raw materials and finished goods.		traffic blockage.

Proposed Monitoring

The purpose of monitoring is to get acquainted with actual quantitative assessment of environmental aspects to verify that their values are within permissible limits as defined by Punjab Environmental Quality Standards. Therefore, in order to remain rational with the help of quantitative assessments instead of merely making assumptions about status of environmental aspects, following environmental monitoring plan has been proposed:

Environmental Aspect	Parameters	Concerned Location	Frequency
Construction Phase			
Ambient Air	CO, SO_x, NO_x, O_3, PM	Project Site	06 Months
Ground Water	All parameters as described in PEQS	Water Connection at site	06 Months
Noise	Industrial Noise	Project Site	06 Months
Solid Waste	Generation Rate according to type of waste	Project Site	Fortnightly
Occupational Health & Safety	Fire, ERP, PPE's	Project Site	Daily
Operational Phase			
Ambient Air	PM, VOC's	Production halls	Annually
Noise	Industrial Noise	Production halls	Annually
Solid Waste	Generation Rate according to type of waste	Solid Waste Bin	Fortnightly
Occupational Health & Safety	Fire, ERP, PPE's	Whole unit	Daily

Chapter-5: Environmental Management Plan and Monitoring Program

This chapter presents the implementation mechanism in the form of an Environmental Management Plan (EMP) for dealing with the potential environmental impacts identified during EIA and reported in Chapter 4 of this document. This EMP addresses the adverse environmental impacts of the proposed project during its execution, to enhance project benefits and to introduce standards of good practices to be adopted for all project activities.

Environmental monitoring and management have been proposed to be carried out in all stages of the project namely; pre-construction, construction and operational phases. EMP will be operational to ensure legal environmental compliance. Environmental Monitoring by a third party will further support operations in environmentally sustainable fashion.

Chapter-6: Public Consultation

This chapter includes the output of consultations carried out with the people of the project area. These include local residents who also carry out different businesses such as shop keepers, farmers. Some of these include employees of Quaid-E-Azam Business Park, Sheikhupura. Their feedback regarding the project has been recorded through a questionnaire and interviewing them to fill the questions of questionnaire.

Chapter-7: Conclusion and Recommendations

This chapter recommends for issuance of environmental approval by EPA-Punjab. Construction and operations of this shoes, bags and garments manufacturing & retail unit by MJMS (Pvt.) Limited formerly Fabrizio (Pvt.) Limited will be under strict environmental management controls while sticking to the requirements of the Punjab Environmental Quality Standards (PEQS) and Punjab Environmental Protection Act 1997 (Amendment 2012). Therefore, project at the proposed site will have no adverse effects on any segment of the environment or on people of the area.

Conclusion

It is concluded that the project is a need as part of establishment of industries in the country. The project will accelerate socio-economic development and create job opportunities. The site has been examined with respect to the Pakistan Environmental Protection Agency guidelines and found to be in line with the criteria developed.

On the basis of the overall impact assessment, this has been concluded that environmental impacts during its construction and operational phases can be prevented with the mitigation measures included in this report.

CHAPTER-1

INTRODUCTION

1. INTRODUCTION

1.1 Project Background

This sub sector offers aspiring entrepreneurs a potent opportunity to establish their business in one of the top export oriented sectors of Pakistan. Easy and sustained access to high quality raw material coupled with availability of skilled labor presents this sub sector as an attractive opportunity for start-ups to venture into leather garments manufacturing in Pakistan. This is not a seasonal business as the demand in international market is always there. Therefore, the proponent MJMS (Pvt.) Limited proposes to exploit this demand of leather products by establishing a unit for manufacturing and retail of shoes, bags and garments at their owned Plot No. 19-D & 20-D at Quaid-E-Azam Business Park, Sheikhupura.

1.2 Purpose of the Report

Section-12 of the Punjab Environmental Protection Act, 1997 (Amended 2012) requires that for any development project to be commenced in Punjab, it is mandatory to obtain Environmental Approval from EPA-Punjab by filing an Initial Environmental Examination or Environmental Impact Assessment, as defined in Review of IEE/EIA Regulations, 2000 or recommended by EPA-Punjab. This involves impact assessment of such development on the environment. Section-12 reads as follows:

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

According to Review of IEE and EIA regulations-2000, this proposed project of the “Manufacturing and Retail Unit for Shoes, Bags and Garments by MJMS (Pvt.) Limited formerly Fabrizio (Pvt.) Limited” at Plot#19-D & 20-D, Quaid-E-Azam Business Park, Sheikhupura falls under Schedule-II which requires the proponent to submit an Environmental Impact Assessment (EIA) of the project. Therefore, Environmental Impact Assessment has been carried out to assess various environmental impacts and devise relevant mitigation measures and is being presented in the form of this EIA Report. The EIA report is being submitted to the Environmental Protection Agency (EPA)-Punjab.

The purpose of this EIA report is to support an application for environmental approval from the EPA-Punjab. This is in compliance with many other national and international environmental laws besides PEPA 1997 (Amended 2012) for obtaining Environmental Approval (EA) before start of the project.

The study has been conducted according to Guidelines issued by Environmental Protection Agency-Government of Pakistan in 1997. Both primary and secondary data has been used to carry out the study. This EIA Report highlights environmental aspects of the project both during

construction and its regular operation. It also provides necessary measures to be adopted to mitigate any adverse environmental impacts. It also gives information used to help decision makers i.e., EPA-Punjab, for issuing the Environmental Approval.

The proponent of the project is environmentally responsible. Therefore, considering its environmental obligations in addition to technical feasibility requirements, the proponent has proceeded for environmental feasibility of the construction and operation phase of the project.

The scope of the EIA study includes environmental assessment of the project including collection of data related to physical, biological and socio-economic environment, assessment of impacts which may be caused by the project activities and mitigation measures for the abatement of potential environmental impacts.

1.3 Specific Objectives of this EIA

The EIA study is aimed at promoting environmentally sustainable developmental activities. The specific objectives of this EIA include:

- Collection and scrutiny of data related to physical, biological, and socio-economic environment of the project area before commencement of the project in order to prepare baseline environmental profile
- Identification of environmental aspects of the proposed project area
- Identification, prediction and evaluation of likely environmental impacts of the proposed project
- Quantitative evaluation of the significance of the impacts
- Assess public perceptions and ensure the participation of all stakeholders in decision making
- Evaluation of public participation/consultation and identification of vulnerable groups present in the area
- Propose mitigation measures to keep the impact of the project activities within permissible limits i.e., PEQS
- Preparation of an Environmental Management and Monitoring Plan.
- To assist the proponent in receiving the environmental approval from the agency by fulfilling requirement of EPA-Punjab for EIA.
- To work closely with the project engineers to ensure that the project design includes environmental consideration

1.4 Identification of Project

The proponent MJMS (Pvt.) Limited formerly Fabrizio (Pvt.) Limited proposes to exploit the demand of leather products by establishing a shoes, bags and garments manufacturing & retail unit. Title of the proposed Project is “Manufacturing and Retail Unit for Shoes, Bags and Garments by MJMS (Pvt.) Limited formerly Fabrizio (Pvt.) Limited” at their owned Plot#19-D & 20-D, Quaid-E-Azam Business Park, Sheikhupura.” The manufacturing unit shall be production facility for manufacturing of shoes, bags and garments from leather. The project will involve construction of eight buildings each having

different number of floors. Total area of the plot is 555120 Square ft. Total covered area of the plot shall be 499778 Square ft. Total cost of the project shall be PKR 2.5 Billions.

1.5 Details of Proponent

The proponent, MJMS (Pvt.) Limited formerly known as Fabrizio (Pvt.) Limited are the manufacturers of the famous brand Stylo Shoes. They already have well established business of ladies' shoes and accessories throughout Pakistan. They intend to establish a manufacturing and retail unit for shoes, bags and garments at Plot No. 19-D & 20-D, Quaid-E-Azam Business Park, Sheikhupura.

MJMS (Pvt.) Limited
formerly Fabrizio (Pvt.) Limited
Project Location: Plot No. 19-D & 20-D, Quaid-E-Azam Business Park, Sheikhupura
Mailing Address: 161-M Quaid-e-Azam Industrial Estate, Kot Lakhpat, Lahore
Phone: +92-322-8447966
Email: mjms.com@gmail.com

Table 1.1: Details of Proponent

Sr	Name	Designation	Mobile	Address	E-mail
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1.6 Details of Consultant

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M/s Altec Engineers are Consulting Engineers, Architects, Turnkey Civil and Pre-Engineered Building Project Development Professionals. They have specialties in industrial, commercial and residential buildings; water and sewage treatment plants, bridges (steel and RCC), roads, public health, housing societies and rotary parking. They are registered with DHA, PHA, LDA, WASA, Lahore Parking Company, Quaid-E-Azam Business Park, Sheikhupura, Quaid-E-Azam Industrial Estate and Bahria Town.

1.7 Project Nature, Size and Location

The proponent MJMS (Pvt.) Limited proposes to establish a manufacturing and retail unit for shoes, bags and garments at their owned Plot No. 19-D & 20-D at Quaid-E-Azam Business Park, Sheikhupura (Coordinates 31°44'4.00"N, 74° 4'7.71"E). Total area of the plot is 555120 Square ft. Total covered area of the plot shall be 499778 Square ft. The project shall involve construction of pre-engineered building steel sheds and RCC structures. There shall be main production hall, office block, guard room and kitchen. The operations will involve manufacturing of plastic masterbatch. The production capacity of the unit shall be 20,00,000 pairs of shoes/year, 500,000 garments/year and 300,000 bags/year.

Quaid-E-Azam Business Park, Sheikhupura comprises 1860 acres of land, with objective to develop an industrial estate where issues of industrialists are handled and problems solved through 'One Window' operation. Quaid-E-Azam Business Park, Sheikhupura is located at approximately 56 Km from Lahore along Lahore-Islamabad Motorway M2. The purpose of this estate is to promote industrialization in Punjab. Quaid-E-Azam Business Park, Sheikhupura shall have infrastructure comparable to any modern international industrial estate. After analyzing the needs of entrepreneurs, QABP shall ensure availability of road network, underground sewerage system, estate managed underground electricity distribution system, walled industrial estate with limited entry/exit points, high pressure gas pipelines, potable water, composite effluent treatment plant, telecommunications system, fully equipped fire station (industrial safety unit), computerized weigh station, information signs, technical training facilities, solid waste collection system, estate-owned security arrangements, hospital/emergency medical services, masaajid and petrol stations.

1.8 Extent and Scope of Study

The approach adopted for carrying out the EIA study includes review of the available secondary data, collection of primary data, analysis of collected data, establishing environmental baseline of the project related to physical, ecological & social aspects of the environment. Information relating to the physical, technical and environmental parameters is collected from the proponent and other agencies. Local inhabitants were interviewed in detail to understand the socio-economic, culture and customs of the area. An extensive literature review was also carried out in this step.

The impacts of the project activities on the physical, ecological and socio-economical resources in the immediate surroundings of the project area

during pre-construction, construction and operational phases of the project have been assessed and where applicable mitigation measures have been proposed. Environmental management plan has been prepared for all of the phases so that the impacts can be within permissible limits.

1.9 Persons Performing the EIA Study

The proponent has received consultancy services from M/s Altec Engineers for carrying out environmental study and preparation of this final EIA report. The members of team who carried out EIA study are shown in Annexure-III. Only main role of the members has been described as they mostly performed multiple tasks related with this EIA study.

1.10 Study Methodology

This Environmental Impact Assessment (EIA) has been carried out to prepare this report according to “Guidelines for the preparation and review of Environmental Reports, October 1997,” approved by the Government of Pakistan. The following steps have been followed for carrying out the EIA study of the proposed project:

1.10.1 Scoping

In this step, the limits of the study have been defined. The nature of proposal and its project area has been considered for defining the limits of the study. In order to avoid wastage of resources on unnecessary investigations, the aspects of physical, biological and socioeconomic aspects have been identified. Being located in a well-defined industrial estate, the study of most of the aspects was already covered.

1.10.2 Data Collection

It involves the collection of primary as well as secondary data in order to prepare the baseline profile of the project area. Various departments have been visited to collect relevant data. These include Board of management of Quaid-E-Azam Business Park, Sheikhupura, Geological Survey of Pakistan, Pakistan Meteorological Department and many others. The data regarding construction and operations of the project has been obtained through literature review and also from the proponent. The sources of literature review included web published data as well as various books. Teachers from College of Earth & Environmental Sciences, University of the Punjab, Lahore have also been consulted.

1.10.2.1 Group Discussion/Public Consultation

Detailed group discussion was carried out with various classes of people living in the surrounding areas. These were held in the open space available in the villages. During the discussion, the relevant responses, opinions were recorded.

1.10.2.2 Interview

Local residents were interviewed. A semi-structured interview was used as a tool for data collection. Personal observations were also included in the methodology in order to collect relevant information about village and people of the community. They were asked about the project and their stakes relevant to it.

1.10.2.3 Primary Data

Quantitative data for baseline of ambient air, ground water and noise has been obtained through real-time monitoring of their samples by EPA-Punjab certified environmental laboratory.

1.10.2.4 Secondary Data

Secondary data was also used to collect important information regarding village, the people and the project. For this purpose, data provided by the project proponent and published data from other relevant sources were used. The previous reports prepared by other environmental consultants have also been consulted.

1.10.3 Qualitative Assessment of Impacts

The impacts of the project on the environmental resources during pre-construction, construction and operational phases of the project have been qualitatively assessed.

1.10.4 Mitigations Proposed

A range of cost-effective mitigation measures keeping in view of best available environmental options and best available techniques not entailing to environmental cost, have been proposed where applicable.

1.10.5 Environmental Management Plan

Environmental management plan has been prepared to manage the environmental impacts of the project during construction and operation phase of the project to ensure that impacts of the project remain within permissible limits of Punjab Environmental Quality standards.

CHAPTER-2

DESCRIPTION OF THE PROJECT

2. DESCRIPTION OF THE PROJECT

This chapter describes the specifications of the proposed project i.e. type and category of the project, project objectives, project alternatives and reasons for their rejection, project location, project site layout, land use on the site and surroundings, topographic and vegetation features of the site, cost and magnitude of the project, activities involved in construction and operation, processes and materials involved in project, project implementation schedule, details of restoration and rehabilitation plans at the end of project life and government approvals.

2.1 Type and Category of Project

The proposed project involves construction of the leather shoes, bags and garments manufacturing unit. Pak-EPA Review of IEE and EIA Regulations 2000 classify the projects under two schedules called Schedule-I and Schedule-II. Regulation 3 thereof reads that a proponent of a project falling in any category specified in Schedule I shall file an IEE with the Provincial Agency, and the provisions of section 12 shall apply to such project whereas Regulation 4 reads that a proponent of a project falling in any category specified in Schedule II shall file an EIA with the Provincial Agency, and the provisions of section 12 shall apply to such project.

According to the contents of these regulations, the proposed project falls under Schedule II. It belongs to Section-B, Category 10 i.e. “Tanning and leather finishing projects.” Therefore, it requires an Environmental Impact Assessment (EIA) in order to get Environmental Approval from Environmental Protection Agency-Punjab, Lahore.

2.2 Objective of the Project

The proponent MJMS (Pvt.) Limited formerly Fabrizio (Pvt.) Limited proposes to establish a manufacturing and retail unit for shoes, bags and garments at their owned Plot No. 19-D & 20-D at Quaid-E-Azam Business Park, Sheikhupura.

The proposed project provides information on one of the sub sectors of leather manufacturing in Pakistan namely Leather Garments. This sub sector offers aspiring entrepreneurs a potent opportunity to establish their business in one of the top export-oriented sectors of Pakistan. Easy and sustained access to high quality raw material coupled with availability of skilled labor presents this sub sector as an attractive opportunity for start-ups to venture into leather garments manufacturing in Pakistan.

This is not a seasonal business as the demand in international market is always there. However, during the winter season in Europe and other northern countries its demand increases.

This proposed project provides details about investment opportunity in the area of leather shoes, bags and garments manufacturing. The manufacturing of leather products is a viable business provided that it is operated with a

good business acumen that involves having a thorough knowledge and experience of the product range, technical requirements, operational procedures and also managing the jobs with the right type of technical manpower. When these factors combine with good and effective business development skills, the business is expected to give considerable profits which are expected to grow over the years.

The overall demand and local supply gap that prevails in the market remains largely unmet which also provides opportunities for entering in to this business. All of these reasons have motivated the proponent to opt for this nature of business.

This is an economic activity which shall not only generate revenue for the owner but also create jobs for the people. Local people of the area shall be preferred for jobs regarding the project.

2.3 Alternatives

2.3.1 Project Alternative

One of the alternatives may be not to establish this project. In that case, the alternative way to meet the demand of leather shoes, bags and garments shall be to purchase them from local market or through import and sell them as traders. This is not a viable alternative because of the high demand and less profit margin. Since the labour is expensive in most of the foreign countries, these products shall have to be purchased at expensive rates. Moreover, it shall create comparatively less jobs. Therefore, the option of manufacturing of plastic master batch locally has more benefits. Government also encourages the industrial development so that exports of Pakistan may be increased and imports may be decreased.

2.3.2 Construction Alternatives

The kind of structure of building considered include RCC roof supported by pillars and beams, double T roof supported by RCC pillars and beams as well as PEB.

2.3.2.1 Benefits of Pre-Engineered Steel Structures

Pre-Engineered steel structures are the way of building in short time and save money. Steel structures provide great commercial and residential space. PEB’s are ideal for non-residential and wide-span low-rise buildings. Some of the key advantages of PEB include:

- Low cost and economical, Low Maintenance Cost
- Safe and simple construction, faster installation
- Factory controlled quality
- Moveable and recyclable
- Environment Friendly
- Energy Efficient,
- Earth quake proof, wind Proof

- Durable, flexibility in expansion
- Easily adaptable in future modifications

Because of operational requirements, in addition to PEB, some of the structures shall be made with RCC.

2.3.2.2 Benefits of Reinforced Concrete (RCC)

(i) Concrete is basically alkaline in nature, (the principal component being Calcium hydroxide) and this prevents rusting of the steel reinforcement used;
(ii) The bond or 'grip' between the steel and concrete is established easily;
(iii) The coefficient of thermal expansion of concrete is almost identical with that of steel. This prevents the risk of cracking due to expansion at different rates.
(iv) It is durable and resistant to fire and other climate changes.
(v) Easily available almost anywhere in the world.
(vi) It can be used in any part of the structure i.e., from foundation to the top roofing.
(vii) It is more economical compared to other materials.
(ix) It has a high compressive strength (due to concrete) and a high tensile strength (due to reinforcement).

2.3.3 Technology Alternatives

The technology and equipment proposed for manufacturing of products shall be updated and state of the art. This has proved to be environment friendly, energy efficient and material efficient as evident for similar kind and size of manufacturing units. The processes shall not be generating any air pollution. There are no liquid effluents. Solid waste in the overall system of production process shall be either recycled in-house or shall be outsourced for recycling.

2.3.4 Location Alternatives

An alternative may be to construct the unit outside Quaid-E-Azam Business Park, Sheikhupura. Reasons described below justify the selection of Quaid-E-Azam Business Park, Sheikhupura as option for the proponent for establishment of the unit.

2.3.4.1 Reasons for opting this Location

Quaid-E-Azam Business Park, Sheikhupura is a purpose built industrial estate providing most of the facilities needed by the industrialists. Therefore, the project at the present site is well justified. Economic viability, investment limitations, market volume, ensured availability of raw materials, availability of dependable energy source, availability of project basic support systems and environmental management are the main considerations upon which capacity of the manufacturing unit has been determined. All these factors were taken into consideration while selecting site for the project. These have been summarized below:

i) Raw material

Raw material needed for construction and operations is readily available in the required quantity throughout the year. It shall be purchased from local manufacturers and also purchased from traders who import from other countries.

ii) Basic Infrastructure

The project site is linked with the other parts of the country through a network of roads and rail. This shall facilitate fast, convenient and cost effective movement of the construction materials during construction phases and shall also provide convenience during operational phase of the project.

iii) Availability of water

Water required for project construction is plentifully available at the project site. For operations, water shall only be needed for and drinking, cooking and sanitation purposes. This amount of water can be met with ground water supply from Quaid-E-Azam Business Park, Sheikhupura.

iv) Environment

The surrounding environmental conditions are congenial for the project. Both the construction as well as operation phases will not adversely affect the environment. All of the aspects will be kept strictly within the limits defined under Punjab Environmental Quality Standards (PEQS) and the project shall comply with Punjab Environmental Protection Act 1997 (Amendment 2012).

v) Utilities

All utilities such as electricity, gas, water, telecommunication including telephone and internet are conveniently available at the project site. There shall be an industrial safety unit with very good facilities for all emergencies.

vi) Labor

Labor is easily and at cheaper cost available in the project area.

vii) Site Availability

The proponent purchased Plot No. 19-D & 20-D, Quaid-E-Azam Business Park, Sheikhupura. Total area of the plot is 555120 Square ft. The site is fully owned by the proponent. This is under the administration of Quaid-E-Azam Business Park, Sheikhupura and is available for industrial use. Government of the Punjab has established Quaid-E-Azam Business Park, Sheikhupura to facilitate industrial development. Therefore, the site is available for this project.

viii) Site Access

The Plot No. 19-D & 20-D is situated inside Quaid-E-Azam Business Park, Sheikhupura and is accessible through Lahore-Islamabad Motorway M2.

ix) Energy availability

The power source during construction and operation will be from Water and Power Development Authority (WAPDA) through Quaid-E-Azam Business Park, Sheikhupura own Grid station.

Of all the alternatives examined on basis of above required criteria, the present option merited on all others for project. Accordingly, the present site was selected and purchased.

2.4 Location and Site Layout of the Project

The proposed site for the construction of project is located at Plot # 19-D & 20-D, Quaid-E-Azam Business Park, Sheikhupura. The Google Earth coordinates are 31°44'4.00"N, 74° 4'7.71"E. The map showing location of project area, Google map and site layout is annexed as Annexure-V.



Figure 2.1: Project Plot # 19-D & 20-D, Quaid-E-Azam Business Park, Sheikhupura

2.5 Land Use on the Site

The project site is located within the premises of Quaid-E-Azam Business Park, Sheikhupura. All the area of Quaid-E-Azam Business Park, Sheikhupura is purpose built for industrial use by Government of the Punjab.

Supporting documents are attached as Annexure-IX. Quaid-E-Azam Business Park, Sheikhupura is surrounded by residential and agricultural areas including Sahu Ki Malliyan, Chichoo Ki Malliiyan and Sheikhupura City. No agricultural activity has been observed at the project site. However, some agricultural patches can be found outside of the Quaid-E-Azam Business Park, Sheikhupura.

2.6 Road Access

The Plot No. 19-D & 20-D is situated inside Quaid-E-Azam Business Park, Sheikhupura and is accessible through Lahore-Islamabad Motorway M2. All roads inside Quaid-E-Azam Business Park, Sheikhupura shall be made of asphalt connecting them with M2.

2.7 Vegetation Features of the Site

Land is clear and there are no significant plants or vegetation present on site. Only spontaneous wild growth is present which is not of ecological importance. Quaid-E-Azam Business Park, Sheikhupura has been developed on an infertile/barren patch of the land.

Different vegetation species that are found in the vicinity of project area includes the big trees, middle size trees, ground covers, shrubs, bushes, seasonal plants and climbers including Kandiari, Akash Bel, Peeli Booti, Datura and Dahlia etc.

2.8 Cost and Magnitude of Operation

The estimated capital cost of the project shall be PKR 2.5 Billion comprising construction cost (1.2 Billion), land cost (413.6 millions) and machinery cost (1 Billions).

Total area of the plot is 555120 Square ft. Total covered area of the plot shall be 499778 Square ft. The project shall involve construction of pre-engineered building steel sheds and RCC structures. There shall be eight buildings for production halls, offices, masjid, waste materials shed, raw materials shed, guard room and kitchen.

The operations shall constitute manufacturing and retail of leather shoes, bags and garments. The production capacity shall be 20,00,000 pairs of shoes/year, 500,000 garments/year and 300,000 bags/year.

2.9 Schedule of Implementation

The estimated period required for the implementation of project is 24 months. The implementation schedule is given in Table 2.1. The exact dates for each of the phases cannot be mentioned because of ambiguity about dates of issuance of various approvals. The construction schedule has been separately elaborated in Table 2.3.

Table 2.1: Implementation Schedule

Project Phases	Details	Expected Completion
Preliminary Phase	The land for project is acquired.	Already Acquired
Start-up Phase	Start-up of construction.	Immediately after getting submission approval.
Wrap-up Phase	Completion of Construction Phase	22 Months
Commissioning	Commissioning	01 Month
Operation phase	Start up	01 Month

2.10 Description of the Project

Complete project layout is attached as Annexure-V.

2.10.1 Pre-Construction Phase

The following activities will form part of the pre-construction stage:

- Conducting necessary feasibility studies including the cost benefit analysis and the expected internal rate of return.
- Preparation of the project documents, layout/master plan, architectural & engineering designs and the cost estimates.
- Conducting investigative studies such as geo-technical studies, environmental impact assessment, and economic feasibility studies.
- Obtaining registrations, approvals, and NOCs from different departments of the Government for business purpose.
- Selecting the appropriate and the best suited machinery and equipment for fast track implementation of the project and completion of construction within the scheduled timeframe.
- Signing the contracts for construction, procurements, installations, and implementation of the project facilities.

2.10.2 Construction Phase

Complete project layout is attached as Annexure-V. The project shall be accomplished according to bye-laws of PIEDMC. For this purpose, approval for construction is being applied which is a pre-requisite for the project.

The project shall comprise four single story buildings, two double story buildings and two triple story buildings. Schedule of areas is as shown in drawings attached herewith under Annexure-V. Construction work of triple story building shall be RCC slab supported by RCC pillar and beams. Double story building shall have double T for first floor roof and PEB shed for second

floor roof. All single story buildings shall be PEB shed. The main structure of roof in case of PEB steel sheds shall be steel sheets supported by framework of steel rafter and columns. According to the requirement of PIEDMC bye-laws, 20' wide passage shall be left all around the boundary of the plot in order to facilitate movement of emergency rescue vehicles. Emergency exits shall also be designed. Separate drainage lines shall be laid for sewerage and storm water drainage. The project construction shall be completed in about 24 months. The project construction cost shall be PKR 1.2 Billion.

2.10.2.1 Workforce Required

During construction phase of the project 25 persons will be required that will include masons and labors.

Table 2.2: Brief Description of the Project

Parameter	Description
Proponent & Owner	MJMS (Pvt.) Limited formerly Fabrizio (Pvt.) Limited
Main Operations	Shoes, Bags and Garments Manufacturing and Retail Unit
Operational Hours	08 Hours/day
Plot Area	555120 Sq. ft
Project Covered Area	499778 Sq. ft.
Cost of the Project	PKR 2.5 Billion
Production Capacity	20,00,000 pairs of shoes/year, 500,000 garments/year and 300,000 bags/year.
Source of Raw Material	Local as well as imported through vendors.
Solid Waste Management	Empty sacks of raw materials. Empty cans/containers. Proposed to be sold to the approved contractor.
Air pollution control	Air conditioners. Exhaust fans. Provision of masks to workers. Local exhaust can also be installed where necessary.
Wastewater Management	The wastewater shall not be generated from production process. Sewerage shall be temporarily held in septic tank for settling of solid contents. Then it shall be allowed to flow to reach composite effluent treatment plant of Quaid-E-Azam Business Park, Sheikhupura. Here this shall be treated before ultimate disposal.

2.10.2.2 Power Supply

Electricity requirement during construction phase shall be 10 to 15 KW through temporary connection. The main source of power will be from QABP fed by WAPDA.

Table 2.3: Construction Schedule

S#		M1+M2	M3	M4	M5	M6	M7	M8	M9	M 10	M 11	M 12	M 13	M 14	M 15	M 16	M 17	M 18	M 19	M 20	M 21	M 22
1	Excavation for foundation																					
2	Pouring of lean concrete																					
3	Pouring of foundation, columns upto plinth level																					
4	Pouring of columns upto ground floor, 1st, 2nd & 3rd floor ceiling level																					
5	Pouring of ground, 1st, 2nd & 3rd floor slabs & beams																					
6	Plastering of ground floor, 1st, 2nd & 3rd floor walls, slabs, beams & columns																					
7	Flooring of roof																					
8	Finishing of building including paint, tile fixing, wood & etc.																					

2.10.2.3 Water Supply and Water Balance

During construction phase of the project, ground water through water supply line of QABP will be used. 30% Water shall be used for masonry work. Concrete mix shall not be prepared on the site. Ready mix concrete shall be brought on the project site to be used for foundations, slabs of guard room and office block. This shall need 60% water. 10% of the total needed water shall be consumed for sanitation purposes.

2.10.3 Operation Phase

2.10.3.1 Raw Materials

1) Leather
2) Heels and Soles
3) Adhesives, Chemical Adhesives and Threads
4) Rexene
5) Ornaments
6) Fabric
7) Accessories
8) Packing Material
9) Plastic Resins (imported)

2.10.3.2 Machinery Details

The kind and make of machinery is as follows. This shall cost PKR 1 Billion.

Table 2.4: Machinery Details

S#	Machinery	ORIGIN
1	PU POURING MACHINE GUSBERTI PIU 611	ITALY
2	PVC DIP MACHINE TIENKANG 996	TAIWAN
3	EVA INJECTION MACHINE TIANKANG S1	TAIWAN
4	HYDRAULIC PRESS CHENFENG TAIWAN CF710	TAIWAN
5	PVC/TPR SOLE INJECTION MACHINE KARAMASA KMS I3	TURKEY
6	PVC/TPR SOLE INJECTION MACHINE KARAMASA KMS I2	TURKEY
7	ABS INJECTION MACHINE	CHINA
8	EMBROIDERY MACHINE BARUDAN BEKS	JAPAN
9	SWING ARM CLICKER	ITALY
10	SLOTTING MACHINE	CHINA
11	HEEL SEAT LASTING MACHINE	CHINA
12	COUNTER MOULDING MACHINE	CHINA
13	BEAM CUTTING PRESS	TAIWAN
14	TOE LASTING MACHINE	TAIWAN
15	HEEL LASTING MACHINE	TAIWAN
16	CNC CUTTING MACHINE GBOS	CHINA
17	LASER CUTTING MACHINE GBOS	CHINA
18	NESTING MACHINE	CHINA

19	LASTING CONVEYOR SHENGDA	CHINA
20	BELT CONVEYOR QUAN YI	CHINA
21	SPLITTING MACHINE SHENGDA	CHINA
22	HF MACHINE DGSF	CHINA
23	TOE REACTIVATION SHENGDA	CHINA
24	IRON PRESS SHENGDA	CHINA
25	IRON PRESS HENGXIN	CHINA
26	DRYING TUNNEL QUAN YI	CHINA
27	CHILLER QUAN YI	CHINA
28	REACTIVATOR QUAN YI	CHINA
29	STAMPING MACHINE	CHINA
30	EDGE FOLDING MACHINE	CHINA
31	COUNTER SKIVING MACHINE	CHINA
32	UPPER EDGE FOLDING MACHINE	CHINA
33	FUSING PRESS	CHINA
34	RIVETING MACHINE	CHINA
35	STRAP STITCHING MACHINE	CHINA
36	COUNTER MOULDING MACHINE (HOT)	CHINA
37	EYELETING MACHINE	CHINA
38	TOE REACTIVATION MACHINE	CHINA
39	ROLLER CEMENTING MACHINE	CHINA
40	VAMP MOULDING MACHINE	CHINA
41	TOE STEAMER	CHINA
42	CHILLER	CHINA
43	HEAT SETTER	CHINA
44	COUNTER MOULDING MACHINE (2+2)	TAIWAN
45	ABS INJECTION MACHINE	CHINA
46	PU DRUM OVEN	CHINA
47	PVC CRUSHER SMALL	CHINA
48	PVC CRUSHER LARGE	CHINA
49	PU MIXER	CHINA
50	EVA COOLING CHAMBER	CHINA
51	EVA/PVC/TPR MIXER	CHINA
52	BALLY LEATHER TESTING MACHINE	CHINA
53	LEATHER SOFTNESS TESTER	CHINA
54	UNIVERSAL TESTING MACHINE	CHINA
55	NEEDLE DETECTOR	CHINA
56	BELT FLEX TESTER	CHINA
57	HEEL NAILING MACHINE	CHINA
58	ROUGHING MACHINE	CHINA
59	VAMP SETTING MACHINE	CHINA
60	DE LASTING MACHINE	CHINA
61	STRAP STITCHING MACHINE	CHINA
62	MOCASSIN STITCHING MACHINE	CHINA
63	PNEUMATIC PRESS	CHINA

64	PNEUMATIC PRESS (SINGLE)	CHINA
65	HF WELDING MACHINE	CHINA
66	LEATHER MEASURING MACHINE	CHINA
67	4 CLAW STUD MACHINE	CHINA
68	UPPER POUNDING MACHINE	CHINA
69	SHAPE FORMING MACHINE	CHINA
70	PUNCHING PRESS	CHINA
71	STRAP CUTTING MACHINE	CHINA
72	STRAP FOLDER MACHINE	CHINA
73	STAPPLE MACHINE	CHINA
74	MOPPING MACHINE	CHINA
75	HOT MELT GLUING MACHINE	CHINA
76	HOT MELT SPRAY MACHINE	CHINA
77	UPPER KNITTING MACHINE	CHINA
78	FLATBED PATTERN CUTTER	CHINA
79	LAMINATION MACHINE	CHINA
80	OVERLOCK MACHINE	CHINA
81	KAAJ MACHINE	CHINA
82	STEAM GENERATOR	CHINA
83	STEAM IRON PRESS	CHINA
84	HOT AIR BLOWER	CHINA
85	BUTTON MACHINE	CHINA
86	SNAP BUTTON MACHINE	CHINA
87	FABRIC CHECKING MACHINE	CHINA
88	WELDING PLANT	CHINA
89	LATHE MACHINE	CHINA
90	CNC MACHINE	CHINA
91	WRINKLE CHASER	CHINA
92	SLIP LASTING MACHINE	CHINA
93	SPRAY BOOTH	CHINA
94	INKJET PRINTER	CHINA
95	ULTRASONIC INSOLE MACHINE	CHINA
96	ROUND KNIFE CUTTER	CHINA
97	CEMENT MIXING MACHINE	CHINA
98	ROLLER CONVEYOR	CHINA
99	LOADING CONVEYOR	CHINA
100	POWDER COATING SPRAY BOOTH	CHINA
101	GEL PVC SOLE MAKING MACHINE	CHINA
102	ELECTRIC CART (CHINA)	CHINA
103	COMPRESSOR 37 KW	CHINA
104	FORKLIFT	CHINA
105	STACKER	CHINA
106	INSOLE ATTACHING MACHINE	CHINA
107	BACKPART TAPE APPLYING MACHINE	CHINA
108	SOLE SKIVING MACHINE	CHINA

109	SOLE MARKING MACHINE	CHINA
110	STRING LASTING MACHINE	CHINA
111	DUST COLLECTOR	CHINA
112	HEEL CROWNING MACHINE	CHINA
113	WALLED SOLE PRESSING	CHINA
114	ADHESIVE APPLICATOR	CHINA
115	HOT PRESSING MACHINE	CHINA
116	EVA SOLE UV TUNNEL	CHINA
117	SOLE TRIMMING MACHINE	CHINA
118	REINFORCE TAPE APPLYING	CHINA
119	UPPER SKIVING MACHINE	CHINA
120	OVERLOCK STITCHING MACHINE (STROBEL)	CHINA
121	SINGLE NEEDLE FLAT BED STITCHING MACHINE	CHINA
122	INSOLE BACK PART TRIMMING MACHINE	CHINA
123	SINGLE NEEDLE POST BED STITCHING MACHINE	CHINA
124	DOUBLE NEEDLE POST BED STTITCHING MACHINE	CHINA
125	BINDING STITCHING MACHINE	CHINA
126	ZIGZAG STITCHING MACHINE	CHINA
127	STRIP CUTTING MACHINE	CHINA
128	TRIMMING MACHINE	CHINA
129	PATTERN STITCHING MACHINE	CHINA

2.10.3.3 Manufacturing Process Description

Major product line of the venture includes different varieties of pumps, coat shoes, sandals, and sleepers with a variety of leather and other materials. The proposed unit will manufacture ladies shoes in all sizes starting from number 6 up to number 11. To keep the project operational throughout the year, production of different varieties of footwear will be planned according to seasonal trends. In addition to shoes, leather garments such as jackets, gloves, pants, caps shall also be manufactured.

2.10.3.3.1 The Shoe Manufacturing Process

Production process of shoe manufacturing starts with the development of shoe designs. Generally 10 to 12 different designs (including both summer and winter designs) shall be required for the whole year production cycle. Designs shall be developed either in-house by employing a full time designer for maintaining the uniqueness of designs in the market. The proposed unit will have a full time designer to produce new and creative designs. After finalizing the shoe designs, shoe “Last” shall be prepared; Last is a plastic shape that simulates the foot shape. It is later removed from the finished shoe to be used further in making other shoes. Shoe Last for the proposed unit will be outsourced from the markets. The next step shall be preparation of press cutting dyes for uppers cutting and synthetic material. Stitchers then perform various stitching operations to stitch together various components of the upper. After stitching, the uppers shall be molded into a shape of foot with the help of developed Last and sole will then be joined/attached with the upper.

Final stage of shoe manufacturing shall be 'finishing', and then, each pair of shoe will be packed in polythene bags and then finally into boxes.

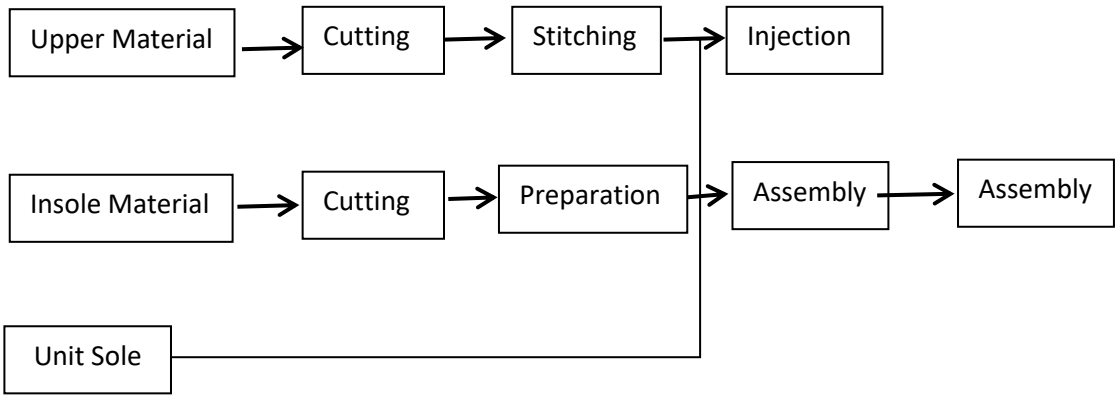


Figure 2.2: Shoe Manufacturing Process

2.10.3.3.2 The Garments Manufacturing Process

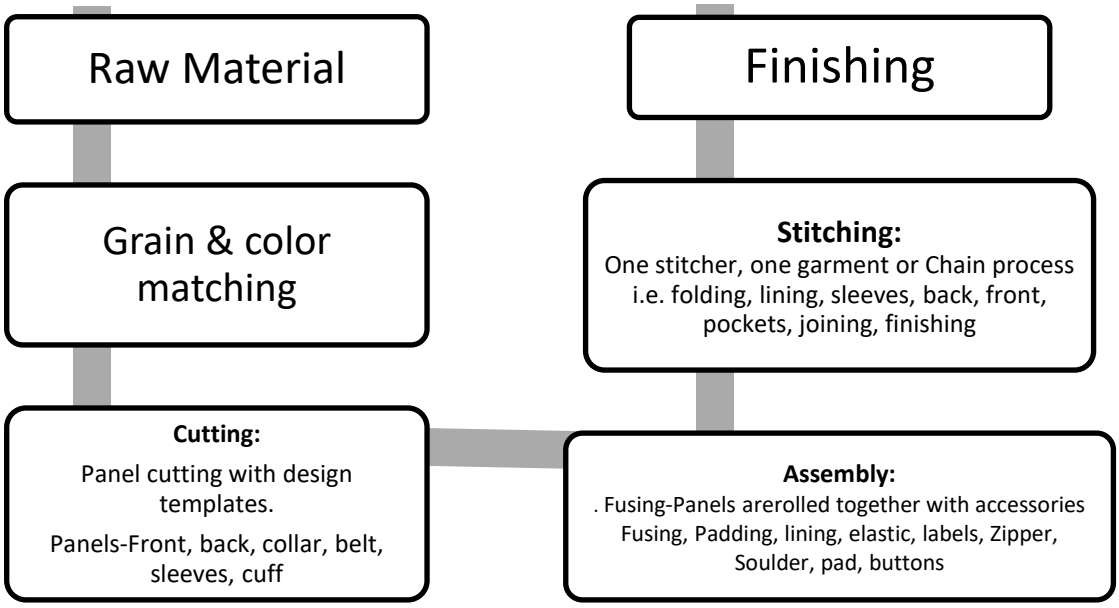


Figure 2.3: Garment Manufacturing Process

2.10.3.4 Operational Hours

The manufacturing unit will remain operational 8 hours/day.

2.10.3.5 Water Requirement and Water Balance

70000 liters = 15000 liter (Machine Cooling) + 10000 liter (Cooking & washing) + 10000 liter (Gardening) + 30000 liter (Hygiene) + 5000 liter (drinking)

Water shall be conserved by circulating with the help of cooling in cooling tower. Chiller would be installed of capacity 400 liter/min. This cooling water from machines shall be sent to cooling tower from where this shall be returned to machines again. Thus overall consumption of water shall be saved. Only the water evaporated from cooling water shall be lost. Otherwise the amount of water shall remain conserved.

500 LPH RO Plant shall be installed for treatment of water used for drinking purpose.

Water shall also be needed for hygiene purposes in toilets or for irrigation of lawns. The requirement of water will be met from ground water supply by QABP.

2.10.3.6 Electricity Requirement

The estimated electricity required during operational phase of the project shall be through a 2 MW connection. This will be met from QABP own grid station which shall be fed by WAPDA. Stand by electric generator with capacity 2600 KW/h shall be installed.

2.10.3.7 Man Power Involved in the Operation

30 persons shall be involved in the project operation. Administration shall involve CEO and General Manager. The staff shall be a mix of skilled and un-skilled manpower. These shall comprise Plant Manager, Shift Supervisor, Machine Operator, Technician/Electrician and Helper.

Table 2.5: Operational Man Power

S#	Description	No. of Employees				
		Y-01	Y-02	Y-03	Y-04	Y-05
1	Skilled	301	515	688	861	1074
2	Semi-Skilled	299	514	721	943	1146
3	Helper	212	403	555	709	896
4	Admin	151	217	278	339	400
Total		963	1649	2242	2852	3516
S#	Description	No. of Employees				
		Y-01	Y-02	Y-03	Y-04	Y-05
1	Male	820	1410	1910	2430	2990

2	Female	143	239	332	422	526
Total		963	1649	2242	2852	3516

2.11 Restoration and Rehabilitation Plans

The project site is owned by proponent and does not possess any environmentally sensitive areas which may need rehabilitation. However, after completion of construction activities, all kinds of waste either recyclable or non-recyclable has been proposed to be managed according to procedure laid down in Bye-Laws of PIEDMC and in line with legal provisions of district government laws. The surroundings shall be cleared out of all kinds of debris from construction activities. The site is located inside Quaid-E-Azam Business Park, Sheikhupura which already has been dedicated by government for establishment of such kinds of units as proposed by the proponent.

Once the useful life of this unit of MJMS (Pvt.) Limited and its components will be over, a comprehensive mechanical and civil structural overhaul will be carried out. The old parts and equipment will be sold in the market for reuse and/or recycling. These shall be replaced with new and updated ones. Thus the life time of the unit shall be increased. In case of decommissioning of the unit, the civil structure shall be demolished under all required environmental controls. This will be done conforming to avoid any damage to environment or human health.

2.12 Government Approvals Required for the Project

Environmental Approval from the EPA-Punjab, Lahore is the major requirement to start work on the project. For seeking approval from Environmental Protection Agency-Punjab, this Environmental Impact Assessment Report is being submitted. Subject to this approval, permission from PIEDMC (which is part of Government) shall be granted.

CHAPTER-3

DESCRIPTION OF THE ENVIRONMENT

3. DESCRIPTION OF THE ENVIRONMENT

3.1 General

This chapter describes the existing environmental baseline conditions in the proposed project area. An environmental baseline study is intended to establish a database against which potential project impacts can be predicted and managed later. The existing environmental conditions around the proposed project have been considered with respect to physical, biological and socio-economic aspects. For this purpose, only those environmental items from master checklist of environmental items have been considered which pertain to this project. Mitigation measures have been proposed in next chapter according to these physical, biological and socio-economic aspects defined in environmental baseline. The described information has been collected from foot survey, public consultation, literature, previous studies about project area, knowledge with the proponent and the concerned government departments. A site visit was conducted to survey the field area and to collect environmental data on physical, biological and socio-economic parameters. Real-time monitoring of samples of ambient air, noise and ground water has also been carried to know the baseline conditions.

3.2 Baseline Physical Environment

3.2.1 Topography

The topography of the project area is flat.

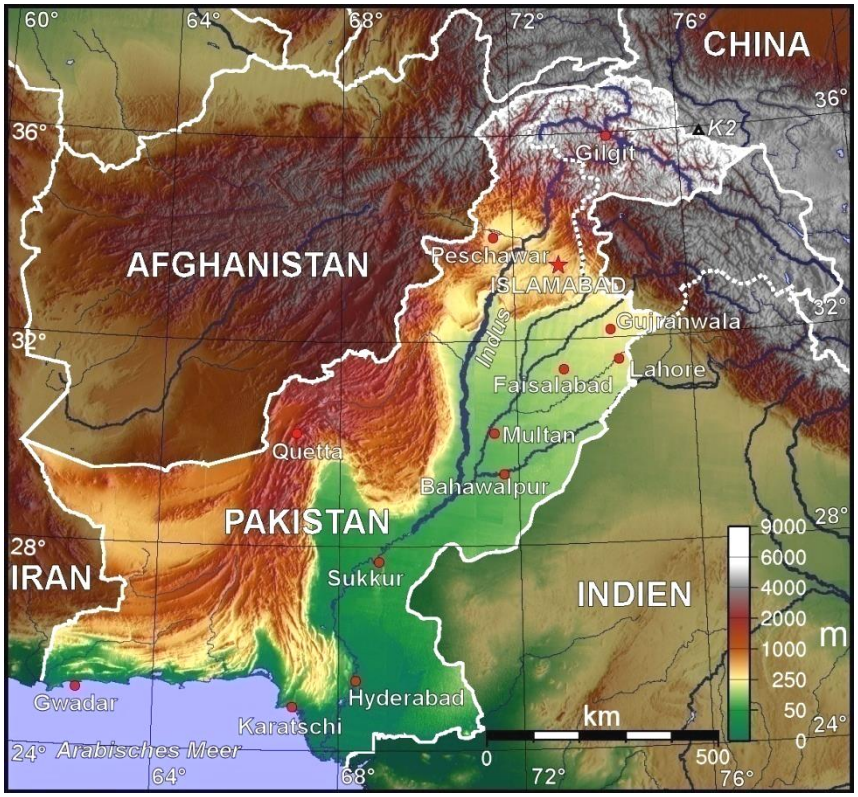


Figure 3.1: Topography of the Project Area

The ground elevation varies between 204 and 211 m above sea level. The area is a part of Rechna Doab and consists of Sub-recent sediments brought by spill channel from the Chanab River. There are some old channel levees remnants and old basins filled up with clay materials. The material is probably of Late Pleistocene age derived from mixed calcareous sedimentary and metamorphic rocks of Lower Himalayas.

3.2.2 Geography

Jahangir Abad turned Sheikhupura is situated in Ravi-Chenab corridor and fast turning from a market agricultural town to an industrial city. Adjacent to Lahore, the town is surrounded by old places like Sangla Hill (old Sakala), Nankana Sahib (birth place of Baba Guru Nanak) and Jandiala Sher Khan (last resting place of Waris Shah).

Sheikhupura is situated at a distance of about 36 Km from Lahore, the provincial headquarters. Sheikhupura lies 31°42'51.16"N latitude and 73°59'3.49"E longitude. The city is well connected with its surrounding big urban areas like Faisalabad 94 Km, Sargodha 143 Km and Gujranwala 54 Km. Sheikhupura is bounded by 6 other districts of Punjab which include Lahore, Sargodha, Nankana Sahib, Narowal, Hafizabad, and Gujranwala. To the east is the international boundary of Amritsar - Indian Punjab. Project site at Quaid-E-Azam Business Park, Sheikhupura can be traced by the coordinates 31°44'4.00"N, 74° 4'7.71"E.



Figure 3.2: Sheikhupura in Punjab Province

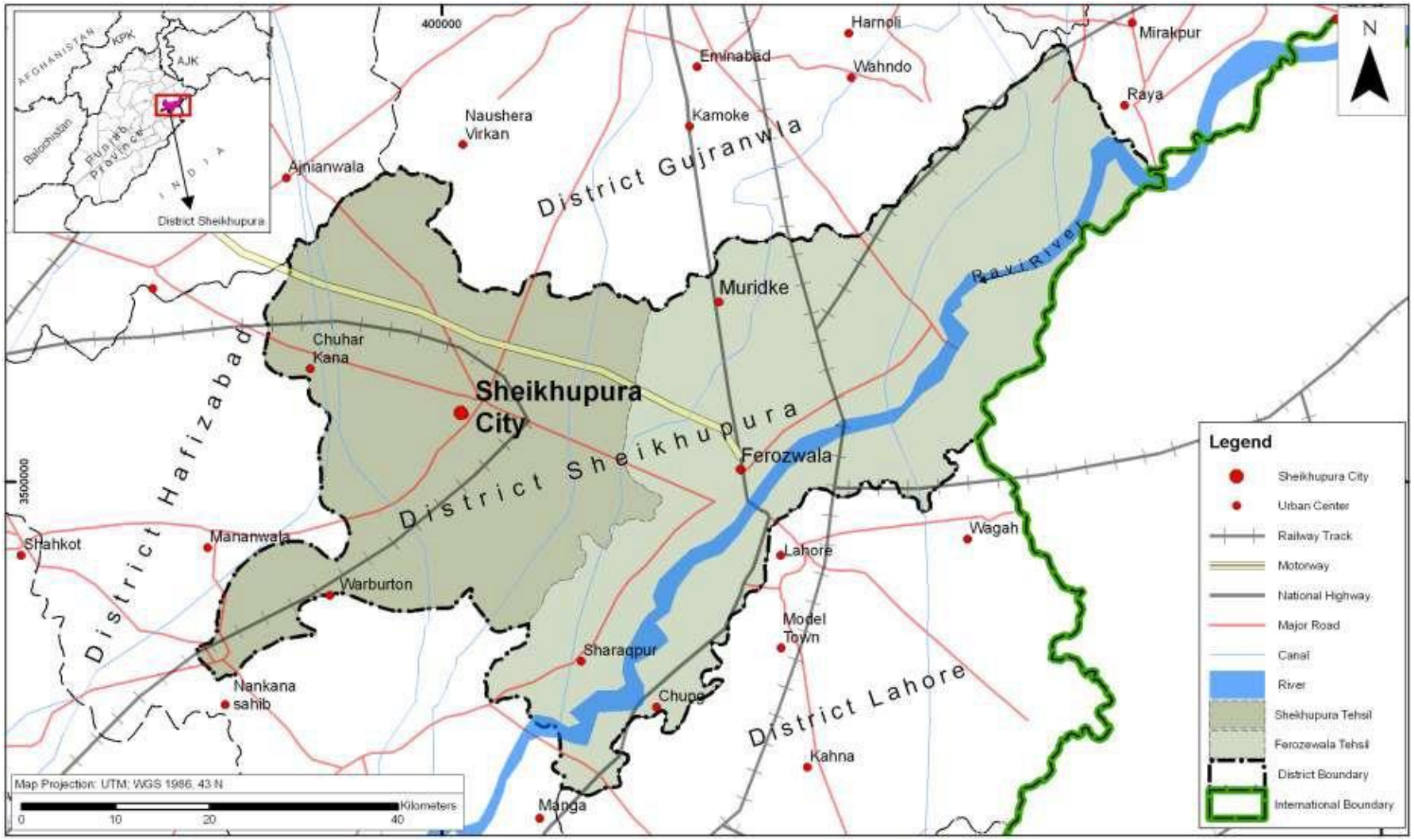


Figure 3.3: Map of District Sheikhupura

3.2.3 Regional Geological Conditions

The project is located at Quaid-E-Azam Business Park, Sheikhupura which is a part of the upper Indus plain. The project area is a part of Rachna Doab and consists of some recent sediment brought by spill channel from Chenab Canal. There are some old channel levee remnants and old basins filled up with clay materials. It is probably of late Pleistocene age derived from mixed calcareous, sedimentary and metamorphic rocks of the lower Himalayas.

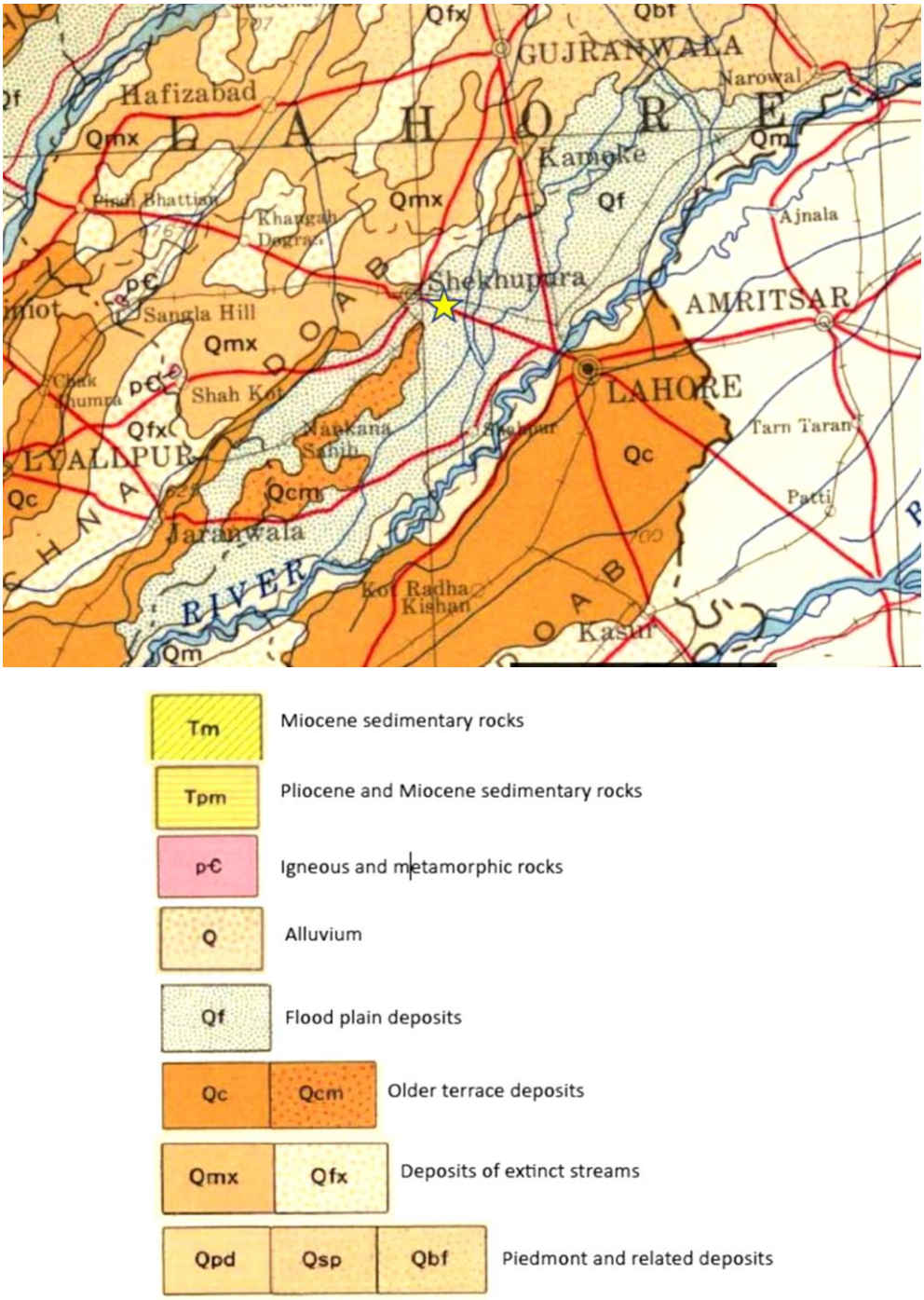


Figure 3.4: Geology of the Project Area

The only mineral products of the district are Kankar and Kallar. The small particles of Kankar may be burnt into lime. These are the features of all bare lands and are found on the surface or a little below it. Kallar is found on mounds, which are sites of old ruined habitations, and is used for the manufacture of crude saltpeter. The Kallar earth is collected and spread over filter beds, which are copiously watered from unlined wells sunk immediately along-side the filtered solution is then run down to cement-lined floors, where it is dried by the natural heat of the summer sun. The project area lies in plain field and is mainly confined with agricultural land at North West and South West location. According to Agro Ecological Zone of Pakistan, the project site falls under Zone-IV (b); the zone generally comprises sandy loam, and clay loam.

The project area has the soil consists of clay loam in texture having Bare soil i.e., popularly known as Missie. The worst type of this soil are the sand hillocks met with here and there in all tracts, and known as Tibba. The Missie lands are the most fertile, but these are not fit for rice cultivation, as they absorb moisture. The central portion, which is the Deg valley, has stiff soil. Stiff soil is either Rohi or Kallrathi according to the presence of Jess or more salts (Kallar) in it.

3.2.4 Soil

The vegetation carried by these soils is influenced by moisture and aeration. The soil in the project area is cohesionless and is of alluvial type deposited by Ravi River. Various soil layers below the ground level includes: silt, silty clay, silty sand, poorly graded sand with silt, lean clay etc. Soil Map of the project area is given in Figure 3.5. The soil is different in character and generally inclined to be dry. However, it is rich in potential plant nutrients. Soil is rich in potential plant nutrients. Alluvium is soil or sediments deposited by the river or other running water. Alluvium is made up of variety of materials including fine particles of silt and clay and larger particles of sand and gravel. A river is continually picking up and dropping solid particles of rock and soil from its bed throughout its length. Where the river flow is fast, more particles are picked up than dropped. Where the river flow is slow, more particles are dropped than picked up. Areas where more particles are dropped are called alluvial or flood plains and the dropped particles are called alluvium.

The soil of the project area is fertile. Wheat and corn are the major crops. Rice at some places where water is available is also grown. However, vegetables, pulses legumes and fodder are the other crops.

Irrigation is largely dependent on the canals. Tube wells have also been sunk at the greater depths in the project area where fresh water is available.

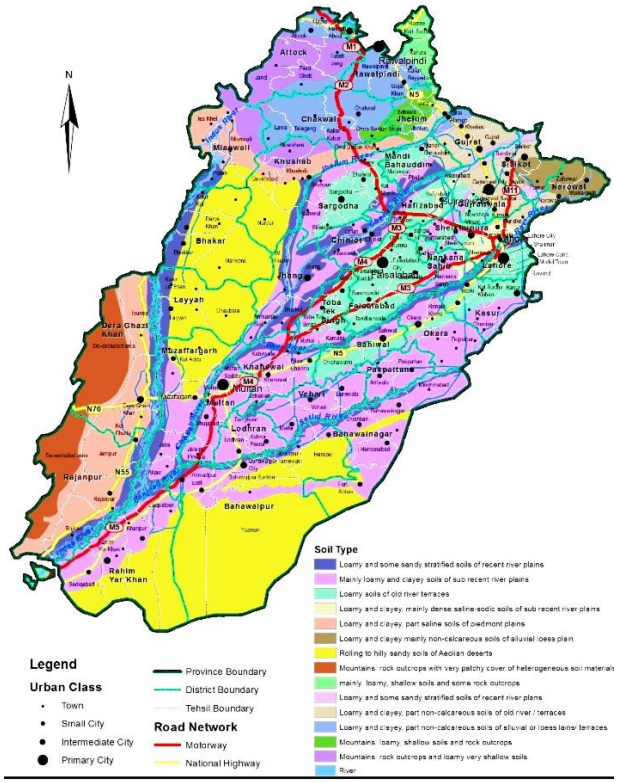


Figure 3.5: Soil map of the project area

3.2.5 Climate

The factors which influence the climatic conditions are air, humidity, precipitation, temperature and evaporation. Seasonal climatic conditions must be considered for the design and execution of project. These factors influence the construction of plant and other engineering structures. The project site, like other major parts of the province of Punjab, observes winter, summer, autumn and spring during yearly seasons. Overall effect of the climatic stresses can be determined from daily and seasonal temperature changes, site altitude, direct solar radiation, and precipitation. The project area has extreme climate, it has hot summers and cold winters.

The summer starts from April and lasts till October. May, June, and July are hottest months. The mean maximum and minimum temperature ranges from 40.4ºC and 27.3ºC respectively for these months.

The winter season lasts from November to March. December, January, and February are the coldest months. The mean maximum and mean minimum temperature ranges from 19.8ºC to 5.9ºC in January. Temperatures in the project area vary from 5.9ºC to 40.4ºC.

The project area receives rain in all the seasons but monsoon rain is pronounced and constitutes a definite rainy seasons between the months of July and September. The monsoons are at their peak during June and July,

and during these two months there is more than half of the annual rainfall. October and November are the driest months.

Pressure winds during January move from North to South-East and during July they go along South-East to North. The project area does not have any previous records of flooding.

The dust storms occur occasionally during the hot season, during June, July and August. Rainy weather alternates with oppressive weather. The rainfall is 500mm per year. The mean minimum and maximum humidity during winter is 37% and 84%.

Table 3.1 summarizes month wise temperature, precipitation, and relative humidity.

Table 3.1: Annual Meteorological Data of Project Area during 2020 (Source: Pakistan Meteorological Department, Lahore)

Month	Monthly Total Rain (mm)	Mean Max. Temp ^{o}C	Mean Min. Temp ^{o}C	Mean Humidity		Mean Wind Speed (Knot)	
				0800 PST	1700 PST	0800 PST	1700 PST
Jan	66.9	16.1	5.5	87	60	1.9	4.5
Feb	15	22.5	8.8	80	43	1.6	5.8
Mar	85.2	24.7	13.1	77	50	4.1	5.4
Apr	34	32.2	19	62	33	4.5	7.1
May	35	37.4	23.1	51	30	8.0	10.1
Jun	60.2	37.8	26	62	43	8.7	9.0
Jul	174.5	36.4	26.7	73	55	7.9	10.3
Aug	368	34.6	26.5	79	66	6.5	6.0
Sep	131.8	36.1	26	75	50	1.6	5.0
Oct	0.0	33.8	18.1	70	33	0.1	3.5
Nov	27	24.9	10.7	80	44	1.3	2.7
Dec	16.8	19.1	6.6	90	60	1.0	2.2

3.2.6 Seismicity

The area falls in Low Hazard Seismic Zone with Seismic Factor Ground Acceleration of factor ≤0.03 showing Negligible Possible Damages. According to the building code of Pakistan, it is located in the seismic zone 2A of Pakistan. Zone 2A represents peak ground acceleration (PGA) from 0.08 to 0.16g.

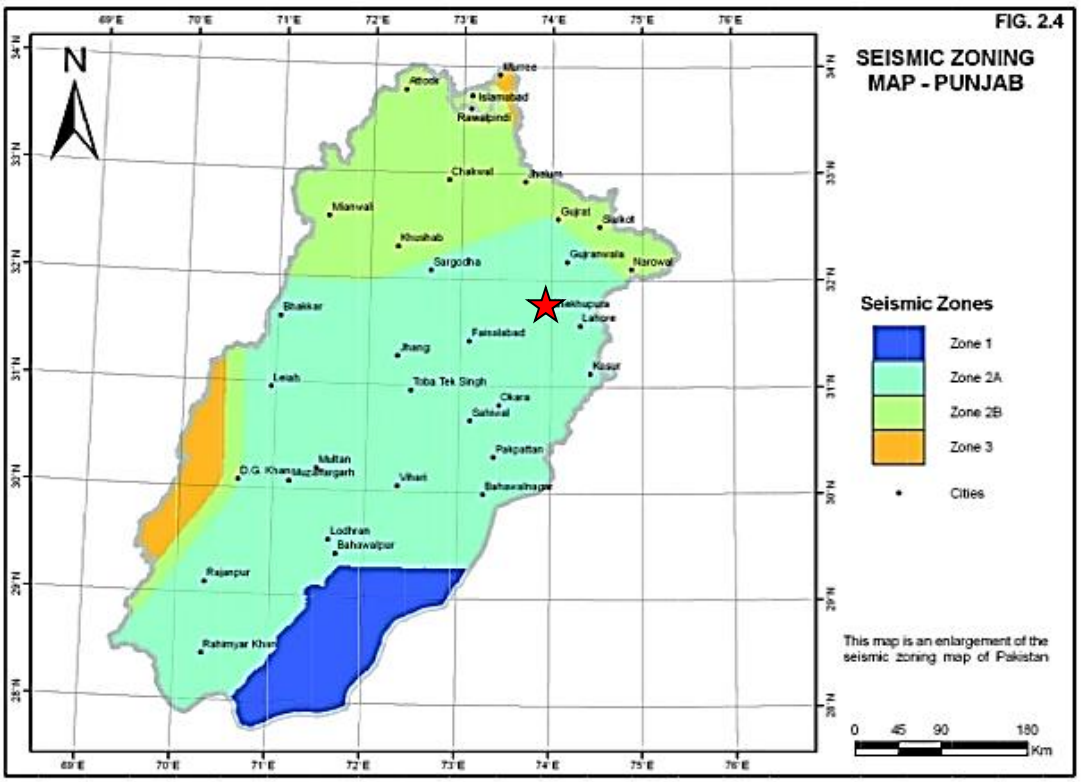


Figure 3.6: Seismic Zoning of Punjab

3.2.7 Water Resources

Seepage from the canals in the Area has considerably raised the water table resulting in water logging and salinity. The tube wells installed by the WAPDA have however considerably brought down the water table.

Major surface water body of the district is Farooqabad canal which flows throughout the year and irrigates maximum agricultural area of Sheikhupura District.

In Sheikhupura, groundwater is the major source of drinking water which is available at the depth of 80 to 120 feet. The chemical contaminants pose serious health problems. The groundwater reservoirs are polluted through industrial, agricultural and different sewerage effluents.

In the project area, however the main source of water is Farooqabad Canal, and those who afford to drill bore holes up to 400–500 ft. to acquire water from the ground. Bore water and hand pumps are used to fulfill water requirements for potable purposes.

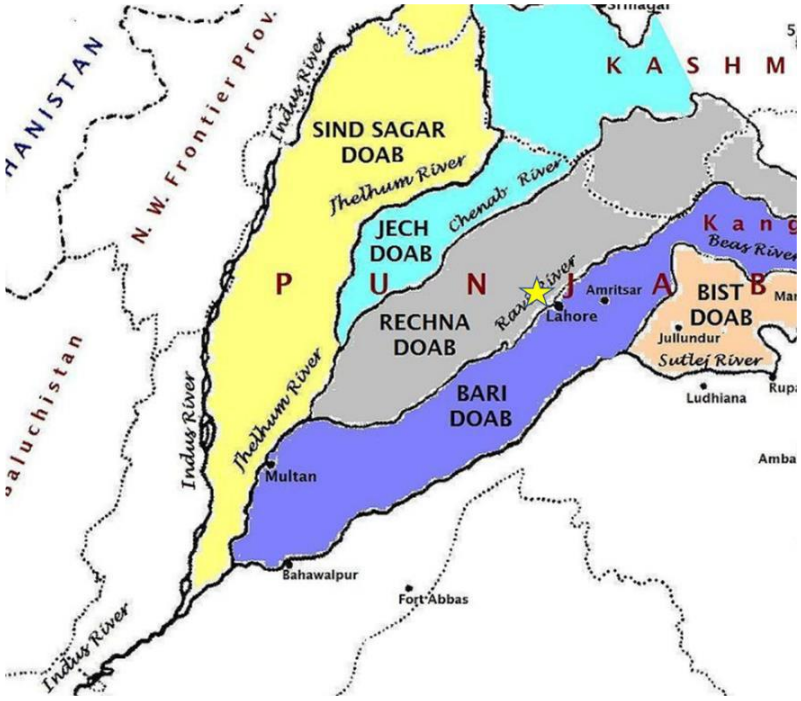


Figure 3.7: Hydrology of the project area

3.2.7.1 Municipal Water Supply

The town of Sheikhupura is supplied in municipal water by the Tehsil Municipal Administration (TMA). The water is sourced from groundwater. The municipal supply is only supplying the urban area. Outside the city, in more rural area like the project area, potable supply is sourced from individual private wells.

3.2.7.2 Domestic Water Supply

In the project area, most of the potable supply is sourced from shallow individual wells, often equipped with hand pumps or small pumps. The total population (urban and rural) was estimated at about 694,853 inhabitants in the study area (census 2017 with a normal growth rate of 2.1%). In average, it can be considered that a person is using 200 l/day. As most of the households have livestock in the area, an estimate of 220 l/day can be considered. Using this rate (estimate only), the total annual groundwater abstraction for domestic use is estimated at 55.8 Mm3 per year.

3.2.7.3 Agricultural Water Supply

The two canals, Upper Chenab Canal (UCC) and Upper Gugera Branch Canal (UGBC) are feeding the Sheikhupura region and are the main source of water for the irrigation. The canals are a main source of groundwater recharge via seepage. The total agriculture land in the study area is about 250 km2. About 60 % of the agricultural land is supplied by surface water (estimated at

8.2 Mm3/year) and the remaining 40 % is sourced from groundwater wells. The groundwater abstraction for agriculture is estimated at 4.9 Mm3/year.

3.2.7.4 Site Area Water Supply

Specifically for Quaid-E-Azam Business Park, Sheikhupura and its surrounding areas, the ground water is drawn with tube wells for drinking as well as irrigation purposes. Due to over draft caused by increased population density, the quality and quantity of ground water is degrading. Therefore, people are gradually switching to use of treated bottled water for drinking purposes.

For the project area, the ground water is the main source of water for meeting all kinds of requirements of units established in Quaid-E-Azam Business Park, Sheikhupura. There is a well-planned uninterrupted water supply to all the units of QABP through overhead water tanks. The quality of this supplied water has been tested through EPA-Punjab certified environmental laboratory. According to the data, all the parameters of water are within ranges as provided by Punjab Environmental Quality Standards. The results have been described in Table 3.2. Copy of Lab reports has been annexed under Annexure-VI.

Table 3.2: Result of Chemical Analysis Test Report (Ground Water)

S#	Parameters	Units	PEQS	Result
1	pH	--	6.5-8.5	7.3
2	TDS	mg/l	<1000	531
3	Bicarbonate	mg/l	NGVS	42
4	Conductivity	µS/cm	NGVS	817
5	Chloride	mg/l	<250	72
6	Hardness	mg/l	<500	93
7	Calcium	mg/l	200	32
8	Magnesium	mg/l	150	14
9	Turbidity	NTU	<5 NTU	0.32
10	Fluoride	mg/l	≤ 1.5	0.11
11	Iron	mg/l	0.3	0.04
12	Sodium	mg/l	NGVS	62
13	Potassium	mg/l	N.S.	3.6
14	Nitrate (NO_3)	mg/l	≤ 50	0.18
15	Nitrite (NO_2)	mg/l	≤ 3	0.02

3.2.8 Flood Control

The project area although situated near to river Ravi. However, this area has never been flooded even when Ravi gets surplus water from upstream areas.

3.2.9 Ambient Air Quality

The main sources of air pollutants are gaseous emissions from the industries and traffic on road. Environmental Protection Department of Punjab has issued Punjab Environmental Quality Standards for criteria pollutants, i.e. Particulate Matter, Ozone, Oxides of Nitrogen, Sulphur Dioxide and Carbon Monoxide. For assessing the current status of these air pollutants in the study area, these pollutants have been monitored through EPA-Punjab approved laboratory. Results have been described in Table 3.3. The monitoring reports of Environmental Testing Laboratory have been attached in Annexure-VI. All of the parameters are already within permissible limits of Punjab Environmental Quality Standards.

Table 3.3: Result of Chemical Analysis Test Report (Ambient Air)

S#	Parameters (µg/m^3)	Time	PEQS	Results
1	Carbon Monoxide (CO)	8 hours	5 mg/m^3 (01 hr)	0.41 mg/m^3
2	Nitrogen Dioxide (NO_2)	24 hours	80 µg/m^3 (01 hr)	32.4 µg/m^3
3	Nitrogen Oxide (NO)	24 hours	40 µg/m^3 (01 hr)	25.7 µg/m^3
4	Suspended Particulate Matter (SPM)	24 hours	500 µg/m^3 (01 hr)	85.2 µg/m^3
5	Respirable Particulate Matter (PM_{10})	24 hours	150 µg/m^3	124 µg/m^3
6	Respirable Particulate Matter ($PM_{2.5}$)	24 hours	35 µg/m^3	22 µg/m^3
7	Ozone (O_3)	1 hour	130 µg/m^3	23.1 µg/m^3
8	Sulphur Dioxide (SO_2)	24 hours	120 µg/m^3	73.5 µg/m^3

3.2.10 Noise

Current levels of sound in the area have been monitored. Monitoring reports annexed in Annexure-VI. Results have been described in Table 3.4. The result shows that noise levels are already within PEQS.

Table 3.4: Noise Levels of project area

S#	Measurement Point	PEQS	Min dB(A) Leq	Max dB(A) Leq
1	East	75 dB (A)	55.3	62.4
2	West	75 dB (A)	51.7	63.8
3	North	75 dB (A)	53.5	60.4
4	South	75 dB (A)	56.4	61.1
5	Central	75 dB (A)	54.9	64.3

3.2.11 Liquid Effluents

The sewerage system covers 20% of the city and serves 30% of the population. Waste water is generally disposed of through open drains to the nearby sewer system, which is noticed to cause environmental contamination and water borne diseases. The residential area is expanding continuously on all sides of the town without any proper planning, which has reduced the coverage of facility. No plans are being developed to address these issues.

Various kinds of industries at Quaid-E-Azam Business Park, Sheikhupura shall release various kinds of effluents. The Quaid-E-Azam Business Park, Sheikhupura takes responsibility of management of some of the pollutants through its combined effluent treatment plant. Others shall have to be managed by the industrial unit itself.

3.2.12 Solid Waste

Each industry inside the estate shall be responsible for management of its process/industrial waste. For management of municipal solid waste, color coded plastic bins shall be placed in front of every industrial unit. The waste in these containers shall be managed by Quaid-E-Azam Business Park, Sheikhupura.

Generally, the solid waste management outside the project area is poor. This may be attributed partly to lack of awareness among people and partly to the poor management of authorities. There is no proper waste disposal service in the area so the villagers dispose waste in an open/vacant area. and burn it.

The existing solid waste management system of Sheikhupura is being managed by the Tehsil Municipal Administration (TMA), but its performance is not up to the mark and even the waste collection bins are not available. In study area, there is no proper waste collection system and the waste is thrown by people along the road side which is seldom picked up by TMA. Major issues of the solid waste management system in Sheikhupura are, non-availability of landfill site, shortage of sanitation staff, lack of competent professionals, inadequate planning capacity, poor information and weak financial management system.

3.3 Baseline Ecological Environment

The fauna and flora of the area include: Kikar, Piple, Bohar, Eucalyptus, Popular and Sharin. There is very little of wild life in the area.

3.3.1 Fauna

The project site is surrounded by urban and agricultural area. There is very little of wild life in the area. Wild boar is met within the riverine track. Jackals and hares play havoc with crops.

3.3.1.1 Aquatic Fauna

The project site is situated near a canal wherein aquatic life such as fish may be found.

3.3.1.2 Mammals

Commonly found mammals in the area include porcupine, stray dogs, cats, house rats, wild rats and bats. However Small Indian Mongoose and Indian Palm Squirrel are also found in the area. Common domestic animals include buffalos, cows, goats, sheep, camels and donkeys, horses, cats, dogs and hare.

3.3.1.3 Birds

Water fowls are found everywhere in the Degh valley. Particularly after good rains. Black partridges are found along the Ravi and gray ones all over the district. Falcon, eagle, quail and Starling. Jungle pigeon, Russian Sparrow, all doves, all ducks and egrets, king fisher, all snipes, parrot, and local sparrow. Crow are also found in the district.

Doves, quails, House sparrow (Passer domesticus), House crow (Corvus splendens) and Mynah (Acredotheres tristis) are commonly found in the area. Along with these some of other birds were also found such as Nightingale (Pycnontus cafer), Bank Myna (Acridotheres ginginianus), Parrot (Psittacula krameri), Pigeon (Columba livia), Common Koel (Eudynamys scolopacea) and Hoopoe (Upupa epops).

3.3.1.4 Reptiles

Lizards such as Spiny tailed lizard (Uromastyx hardwickii) and fingered toed lizard (Acanthodactylus cantoris) are found in the area. Goh (iguana) and snakes are also found. The snake requires to be specially noted. The Deg valley is notorious for its poisonous variety-the Karees or the Viper. It is short, thin and of the colour of the earth. It is extremely poisonous and its bite is always fatal.

3.3.1.5 Amphibians

The amphibians found in the area include common frog (Rana tigrina) and Indus valley toad.

3.3.1.6 Critical Habitats

No wild life sanctuary or game reserve (critical habitats), exists near the project area or the study area.


Black Drongo (*Dicrurus macrocercus*)


Snipe (*Gallinago gallinago*)


Indian Palm Squirrel


Bank Myna


Small Indian Mongoose


Asian Koel

Figure 3.8: Fauna of the project area

3.3.2 Forestry

The Bar jungle has almost disappeared owing to colonization and extension of canal irrigation. Karil (Capparis aphylla) is commonly met with but is no-where bigger than shrub. Jand a much prized tree for its firewood and charcoal is becoming a variety. Van which has also become rare is kept for its shade. Shisham, Kikar along canal banks has developed into fine big trees. There is no locality without a rich growth of trees mainly Piple, Bohar, Eucalyptus, Popular and Sharin.

3.3.3 Flora

The vegetative resources around the location of the project are typical of the plains and include Kikar (Acacia arbica), Shisham (Dalbergia sissoo),Pipal (Ficus religious), Mulberry (Mourus alba), Aam (Mangiferra indica), Siris (Albizzia lebbek), Jamolan (Engenia jambolana), Amaltas (Cassia fistula) and Saffaida trees. They are the most useful and provide hard wood for construction, agriculture implement manufacture and for a variety of many other purposes like furniture manufacturing. The main tree composition in the project vicinity includes Neem, Drek, Eucalyptus and Shisham. These trees are not present on the project site.

Wild grasses and horny shrubs are also found mostly as wild growth on especially small patches of land which is out of use. The flowering plants include Sun flower, Rose, Motiya (Jasminum sambac), Shoe flower (Hibiscus rosa). The trees include Alstonia, Arjun, Gul-e-Nishtar, Neem, Ashoke, Kanair, Sukh Chayn, Bottle brush. Herbs and grasses of some types; Calotropis procera, Cynodon dactylon, Petuma sp., Nicotiana plumbajinifolia, and Poa sp. are also found.



Dalbergia sissoo



Ficus religiosa

Figure 3.9: Flora of the project area

3.3.4 Endangered Species

There are no endangered species of plants or animals in the project area.

3.3.5 Agriculture

The surrounding area of the project is predominated with agricultural use. The wheat, rice, maize, berseem, brassica (Sarson), legumes and pulses and animal fodder are among the major crops grown on the agricultural land surrounding the project area.

3.4 Baseline Socioeconomic Environment

Socioeconomic baseline has been developed for the project through a review of secondary data as well as primary data collected using checklists and discussion with locals (residents, farmers, shopkeepers, students, pedestrians, drivers) in the project area. Social survey was conducted to assess the present socio-economic and socio-cultural conditions of local population of the project area. The availability of basic amenities of life to community living in the project area is indicator of its socio-economic condition. Secondary data used include census report and previous research carried out in the area.

3.4.1 Population and Communities

The project site is situated in agricultural and industrial zone and the nearest community is present at a distance of about 5 Km. According to census of 2017, the population of Sheikhupura is 34,60,004. The average annual growth rate according to 2017 Census is 2.22%. The surrounding villages of Quaid-E-Azam Business Park, Sheikhupura are Bhamb Kalan, Sahun Ki Maliyan, Chihoo Ki Malliyan and Sheikhupura District. All these villages are nearest from the project site. Basic needs of life like electricity are present. However, natural gas, water supply and basic infrastructure like roads and drainage system are not present in these villages.

3.4.2 Political and Administrative Set-up

The project is located in Quaid-E-Azam Business Park, Sheikhupura district, one of the 36 districts of the Punjab province. The latest survey (2017), recorded a population of 3.46 million inhabitants in the Sheikhupura district, covering a surface of 5,960 km². The population density was recorded at 580 inhabitants per km². This district is divided into 5 tehsils (administrative sub-division of a district). These are Sheikhupura, Muridkay, Sharaqpur, Ferozewala and Safdarabad. The project is located in the Sheikhupura tehsil, with the city of Sheikhupura being its headquarter. It has Tehsil Municipal Administration. Under TMA, lower tiers of local government such as union councils function. Other than TMA, there are different departments involved in Municipal Services. i.e. includes Public Health Engineering Department, Provincial Highway, District Housing Department (PHATA), District Environment Department, Traffic Police and District Transport Department, District Road Department.

Sheikhupura district was created in 1919 primarily to reduce the extensive boundaries and to remove the administrative difficulties of Gujranwala district. After that Sheikhupura town got some importance and started developing, and the building of district Court was constructed. The District Headquarter Hospital building was built in 1922; College for Boys was established in 1957. M.C. Girls school building was constructed on Jandiala Road in 1957. The building of the Girls College was constructed in 1968. Bus Stand was established in 1972. In 1973 the Area development Housing Scheme along

Sheikhupura-Lahore Road was initiated by Provincial Department of Housing and Physical Planning.

Quaid-E-Azam Business Park, Sheikhupura is managed by Punjab Industrial Estate Development and Management Company PIEDMC. The facility is located in the Upper Rechna Doab, one of the main regions of the Punjab province delimited by the Chenab and Ravi rivers.

3.4.3 Industries

The project site is located in Quaid-E-Azam Business Park, Sheikhupura. The city of Sheikhupura is an industrial center. Large number of industries is present in the vicinity of the project site.

Industrial sectors that have been established are Pharmaceuticals, Food Processing, Engineering, Textile/Garments, Carpet, Paper & Board, Plastics, Electronics, Chemicals, fertilizers, paints, steel, auto parts, wood products, warehouse and fertilizer etc.

Major industrial units at Lahore Road near City Sheikhupura include ICI polyester, Tariq glass, Ghani float, Nestle, Mian Tyre, Punjab Feed, Ayesha Textile, Shaheen Shahzad Textile, Prime paper mill, Win/hard board, National flour mill, Fatima Fertilizers and Atlas Honda

3.4.4 Infrastructure

The QABP shall be a purpose built industrial estate. Therefore, it shall provide all essential facilities to all of the investors of the estate in order to encourage further industrial development. Roads, natural gas and electricity shall be available.

3.4.4.1 Potable Water Supply

The water supply in Sheikhupura is collected from ground water through a network of 41 tube wells, which covers 33% of the town and 40% of the population. The distribution system consists of 4 overhead reservoirs with a combined capacity of 290000. To rest of the areas of Sheikhupura, water supply is through bore hole. However, in village areas, people draw water through manual pumps. No plans are currently being developed to improve public water supply mechanisms.

Inside Quaid-E-Azam Business Park, Sheikhupura, consistent and adequate ground water supply shall be made available through overhead water storage tanks. These tanks shall be fed with ground water draft through tube wells.

3.4.4.2 Sanitation and Drainage

PIEDMC has issued Industrial Building Regulations containing section for sanitation and drainage. The details have been attached in Annexure-VIII. Every unit shall establish septic tank which shall disposes-off industrial as well

as wastewater of the unit to wastewater system of QABP. QABP shall establish composite effluent treatment plant which shall treat water before ultimate disposal. However, sewerage system in the surrounding villages is very poor. This is old 'Naali' system ultimately reaching open areas and drains. The project area does not have a proper sewerage network. In the Dhantpura Village and Bhamb village, open sewerage channels are commonly found, polluting open lands. But due to lack of proper sanitation people have no other choice.



Figure 3.10: Sanitation & Drainage in the project area

The sewerage system is only available in 20% of the city area which serve about 30% of population. The total length OS sewer is 30Km. The waste water is generally disposed off through open drains to the nearby sewer system, which are not only polluting the environment but also causing many waterborne diseases. The residential area is expanding continuously on all sides of the town without any proper planning, which have reduced the coverage of facility to approximately.

3.4.5 Land Use Planning

Sheikhupura was originally a planned town. Grain and vegetable markets and

retail shops were established in the centre, and the „Civil Line" of public and administrative buildings was placed to the west in the form of a rectangular grid. After 1947, development in the southern and eastern parts of the city was haphazard and lacked proper planning. Uncoordinated growth continues to the present day.

As a result, Sheikhupura has lost the character of a planned City. There is a total area about 5160 acres with the municipal limits of the city. In addition, there are about 414 acres of contiguous development outside the municipal limits which have been included for future planning of the city. Based on Land use survey the city can broadly be divided into the following three zones:

North Zone: The area to the north of the central parts of the city beyond the railway line constitutes the Northern Zone. This zone is mainly under the residential use.

Central Zone: The areas falling between the railway line and Aziz Bhatti road could broadly be taken as central Zone. In fact, the commercial and administrative activities are mainly concentrated in this area. The Grain market and main bazar s from the commercial zone through built on regular pattern but presents a picture of confusion and chaos during the day.

Southern Zone: The whole area lying to the south of the "Central Zone" has been included in this zone. According to an estimate about 50% of the total Population of the city is residing in this zone. The Degree College for Boys and Girls as well as a number of High and Primary School are located in this area.

Under the present Government system, the District Government is responsible for all land use planning according to the provincial laws. The land occupied by Quaid-E-Azam Business Park, Sheikhupura has been dedicated for industrial use only. The relevant documents have been attached in Annexure-VIII. Quaid-E-Azam Business Park has plots of various sizes with ownership rights.

3.4.6 Power Sources and Transmission

WAPDA shall be the source of all electricity in QABP. QABP shall have its own separate dedicated grid station. Transmission of power to industrial units of QABP from this grid station shall be through underground electric transmission lines.

Electric supply is also available to all of the surrounding areas through overhead transmission lines.

3.4.7 Agricultural Development

Local residents earn their livelihoods from agriculture and livestock. However, with time, the areas are getting urbanized and converted into residential

societies. The major crops include wheat, rice, fodder plants and some vegetables.



Figure 3.11: Agricultural fields across the road of the project area

3.4.8 Quality of Life Values

3.4.8.1 Main Occupations

Survey of the project area reveals that agriculture is the main source of income for people of the area. Majority of the people around the project site belongs to poor section of the society. They have elementary occupations followed by skilled agricultural and fishery workers, service workers, shop and market sales workers, brick kiln workers, craft and related trade workers. A very small group belongs to affluent portion of the society including industrialists, bankers, politicians, educationists, medical professionals, businessmen and real estate business owners.

3.4.8.2 Family Life

The elders themselves strictly follow the old traditions in every walk of life while living in the affluent society. Their children are trying to follow the life style of the affluent society. In spite of all the modernized lifestyle, virtually elders are responsible to make decisions and their decisions are valued by the family members.

Print and electronic media are influencing almost all walks of life of the people. There is a lot of awareness about education. Rich or poor all families

are trying hard to get their children educated. Mostly joint family system prevails. Most of the families are quite coherent. There is a rising trend in the society to change their old traditional socioeconomic pattern of life.



Figure 3.12: Labour class also work at these Brick Kilns



Figure 3.13: Livestock is also source of income for people of project area

3.4.8.3 Religion

Predominant religion of the area is Islam with some percentage of Christian community.

3.4.8.4 Transportation

The transport infrastructure in Sheikhupura is generally inadequate for existing requirements. There is no Signal on any Chowk and no urban bus or van services are available. On all roads mostly motorcycle rickshaws or Auto Rickshaws are being used as urban transport services.

3.4.8.4.1 Roads

Sheikhupura City is connected with Faisalabad through newly constructed road Lahore-Faisalabad Road project and also connected Faisalabad by M2 and M3 Motorway. There is a reasonable network of roads connected by small roads in the area. Most of the villages are connected with each other through these roads. Public transport is available in the form of vans, buses and railways. Due to motorway, we can find movement and stationing of goods transport trucks. Inside QABP, there shall be asphalt arterial roads. The condition of streets inside the surrounding villages is not that much good. These are paved either with bricks or with RCC. These have been found in much damaged condition. Due to poor sewerage system, the water becomes stagnant on roads during rainy season causing inaccessibility to these villages from main road.



Figure 3.14: Condition of roads inside Sheikhupura City

3.4.8.4.2 Railways

Sheikhupura serves as a railway junction. Trains coming from Lahore take these routes for Faisalabad and Shorkot. Chicho Ki Malliyan Railway station is located at a distance of 8 Km and Sheikhupura Railway Station is located at a distance of 10.6 Km from the project area which connects it to other parts of the country for movement of public, raw materials and finished goods.

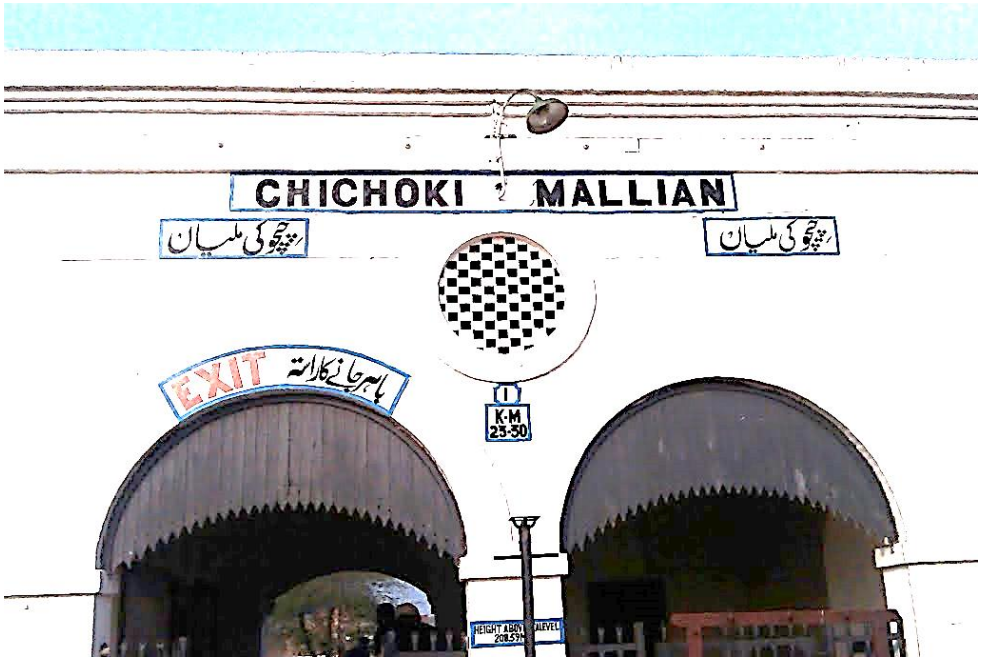


Figure 3.15: Chicho Ki Malliyan Railway station

3.4.8.4.3 Airport

Allama Iqbal International Airport, Lahore is situated at 68 Km from QABP.

3.4.8.5 Housing

Most of the people have built pacca houses. Recent development in housing sector has also influenced Sheikhupura area. We can find mushroom growth of a large number of housing societies in the area. These housing societies have upgraded the living standards of people of the area. However, we can also find migrants from other parts of the city and country coming to reside in the area of locals. This migration has both positive and negative impacts on the life of the local people.

3.4.8.6 Public Health

Sanitation facilities are very poor. Old naali system still exists. These overflow even in case of light rain. These cause muddy bumps on the roads. Drinking water supply is through bore hole pumps. WASA supply is present only in few areas surrounding the project site. Only small scale dispensaries are available at some villages of the area. There is THQ hospital in public sector. DHQ Hospital and basic health units are present all around the city.

3.4.8.7 Education

Mostly people are illiterate. They used to earn their livelihood as farmers. However, with passage of time, literacy rate is rising up. Small schools are

present in the nearby villages mostly up to middle level. For government owned higher education institutions, students have to go to Lahore. TEVTA approved Technical Training Institutes has also been established with an objective to train local people and to meet the needs of industrial units.



Figure 3.16: A primary school at Bhamb Ki Mallian Village

3.4.8.8 Recreational Resources

Hiran Minar is main recreational place present at a distance of about 10 Km from the project site. Additionally, a sports complex has also been made inside Sheikhupura city where there are grounds for hockey, football and volley ball. People are establishing some other sources of recreation.

3.4.8.9 Aesthetic and Cultural Values

Because of limited income, most of the common people live marginalized status of life. They had completely rural standards of living. Gradually the people are getting urbanized. However, old traditional and simple life typical of the Punjab villages is the prevailing cultural and aesthetic characteristic of life style of majority of the people. Old people prefer to live conservative life style. Decades old culture and customs in every walks life are dominant. General attitude to visitors is quite welcoming.



Figure 3.17: Sheikhupura Sports Complex



Figure 3.18: Hockey Ground at Sheikhupura Sports Complex

3.4.8.10 Language

Punjabi is the main language. Many dialects of Punjabi can be found in practice.

3.4.8.11 Ethnicity

The main castes and groups of Sheikhupura district are Bhatti, Arain, Kashmiri, Jutt, Rajput, Malik, Pathan, Mughal, Sheikh, Komboh, and Gujjar.

3.4.8.12 Role of Women

Women of the area are mostly illiterate. However, they do assist their male family members in all of their activities. We can find women milking the cattle, managing the livestock, working at crop fields, selling the fruits and such other activities to support earning livelihood.

3.4.8.13 Archeological and Historical Treasures

Sheikhupura is a city of Punjab Pakistan. The name of Sheikhupura is derived from a nickname of Prince Jahangir, who was known as Sheikhu by his father King Akbar. The present city of Sheikhupura was built by Mughal Emperor Jahangir in 1607. Sheikhupura is an industrial city. Old names of Sheikhupura are Kot Dayal Das, Qila Shaikhupura and Singhpuria. It is also named as Jahangirpura in Tuzk-e-Jahangiri. Sheikhupura name was changed by Mughal Emperor Jahangir from the name of this area, Virk Garh. Sheikhupura was founded by Mughal Emperor Jahangir. Nearby Important and Famous Cities and Places are Lahore, Nankana Sahib, Narowal, Hafizabad, and Gujranwala.

In old days the surroundings of Sheikhupura abounded in wild life and the Emperor used to go there regularly for hunting. In 1619 A.D, a Fort was built by Jahangir. This Fort served as a resting place for him. The town was named after Emperor Jahangir. When he was still prince Saleem, he was called Shekhu by his father Akbar the great, in reverence to saint living in the vicinity who blessed the young Prince.

Sheikhupura has a number of historical places in the city, attracting a sizable tourist population. These attractions include the Sheikhupura Fort Hiran Minar, Sheikhupura Fort (Qila Sheikhupura); Company Bagh, Shrine of Shah Jamal, Muqadssa-e-Mariam, Sacha Sodha and the Tomb of Mian Sher Muhammad Sharaqpuri.

3.4.8.13.1 Hiran Minar

Hunting grounds were an important part of the physical environment of Mughal emperors. The place where the town stands today was one of Jahangir’s (Prince Salim) princely dominions during his father Akbar’s reign. The town was founded by Jahangir, near village Sahu Malli, during his rule in 1607. The king declared the barren jungles adjoining the place as royal hunting ground.

Apart from arts, Jahangir had interest in hunting also. 'Hiran Minar' is an example of his love for the Royal deer. This monument is unique in its design. setting and architecture. This wonderful Mughal monument was constructed at a hunting reserve used by the Mughal royals. The reserve was built in a scrub forest and allowed Mughal emperors to experience a sense of semi-wilderness near the imperial city of Lahore. The game-reserve was used as a park where visitors could enjoy the sport of hunting. The minaret itself was built in 1606 C.E. as a monument to Emperor Jahangir's beloved pet

antelope, Mansiraj, or "Light of the Mind", who had been trained to lure wild animals to the tank in order to be hunted.



Figure 3.19: Hiran Minar



Figure 3.20: Pond at Hiran Minar

Hiran Minar is a high cylindrical structure built symmetrically opposite to the royal hunting pavilion. The hunting pavilion on the other side is an impressive three-story octagonal structure standing in the middle of a huge water tank. It is accessible by a beautifully arched bridge. There is a central chamber on the ground floor, surrounded by several antechambers. Two narrow staircases lead to the first floor which offers an excellent view of the pond and a vast area surrounding the complex, through its arched corridors. The second floor

is mostly open roof except for an exotic canopy in the middle which gives the building its crown and offers a magnificent view of the area. The only ground floor of the pavilion is open to the public.

3.5 Lab Reports of Environmental Analysis

For assessing the current status of baseline quality of environmental parameters including ground water supply, ambient air and noise in the study area have been monitored through Punjab-EPA approved laboratory. The monitoring reports of Environmental Testing Laboratory containing the results have been annexed in Appendix-VI.

According to the data, all the parameters of water are within ranges as provided by Punjab Environmental Quality Standards.

The main sources of air pollutants are gaseous emissions from the industries and traffic on road. Environmental Protection Department of Punjab has issued Punjab Environmental Quality Standards for criteria pollutants, i.e. Particulate Matter, Ozone, Oxides of Nitrogen, Sulphur Dioxide and Carbon Monoxide. Results have been described in Table 3.3. According to the data, all the parameters of air are within ranges as provided by Punjab Environmental Quality Standards. These may be subsequently monitored for knowing impact of project construction and operational activity on the value of these pollutants.

Current levels of sound have been monitored. Results have been described in Table 3.4. The result shows that Noise levels are already within PEQS.

CHAPTER-4

SCREENING OF POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

4. SCREENING OF POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

4.1 General

This chapter identifies the potential impacts due to the implementation of project on the physical, ecological and social environment of project area. The chapter also identifies measures that will help mitigate the project's adverse environmental effects and enhance positive impacts. This shows the environmental responsibility on the part of the proponent.

The proponent is submitting an undertaking on stamp papers with EPA-Punjab that he shall ensure that the project shall be executed throughout all of its phases strictly in compliance with all applicable legal and regulatory obligations regarding environment. Therefore, we can say that the project activities shall not have significant negative environmental impact on any aspect of the environment.

4.2 Impact Assessment Methodology

The environmental aspects of the project during all stages namely pre-construction, construction and operation have been selected from master list of environmental items which is widely used world over for this purpose. The extent of qualitative and quantitative impacts has been described and mitigation measures have been proposed to keep them within permissible limits.

The systematic strategy developed to provide an assessment of the potential impacts on the environment of the project area included:

- Considering general guidelines
- Surveying, environmental baseline monitoring and public consultations to identify potential environmental impacts
- Situational analysis to know magnitude and significance of impacts
- Proposing best available and cost effective mitigation measures

4.3 Impacts Associated with Project Location

The project envisages the construction of plastic extrusion unit at Plot#19-D & 20-D, Quaid-E-Azam Business Park, Sheikhupura. The site location is already a clear land situated at Quaid-E-Azam Business Park, Sheikhupura which is purpose built for industrial purpose. Therefore, it supports establishment of such kinds of projects in the estate.

The establishment of this shoes, bags and garments manufacturing and retail unit is not expected to cause any significant negative impact in the location of the project because all the environmental aspects shall be kept under strict controls with the help of stringent mitigation measures.

4.4 Impacts Associated with Project Design

Design stage is the most important stage where environmental consideration can comfortably be incorporated without any financial and environmental damages. Subsequent modifications in order to bring the project in compliance with legal requirements after the initiation of the project often causes wastage of valuable natural and financial resources.

The construction shall be composed of eight buildings out of which 4 shall be single story, 02 double story and 02 triple story buildings. All single floor buildings shall be pre-engineered building structure of steel. Double story shall have double T roof for first floor and steel shed for 2nd floor roof. All triple story buildings shall have RCC structure. Total area of the plot is 555120 Square ft. Total covered area of the plot shall be 499778 Square ft. The civil work will be excavation for foundations, erection of columns and rafters and masonry walls. The associated structures shall include office block, kitchen and guard room. Localized drilling shall be done to excavate for foundations.

The project has been designed to adhere to all standard technical as well as environmental requirements in order to avoid impacts on environment. The design of the project shall be implemented only after approval by PIEDMC.

Besides technical details according to its industrial buildings regulations, PIEDMC shall review whether environmental aspects of the project have been given due consideration. PIEDMC bye-laws (i.e. industrial buildings regulations) themselves contain environmental provisions (attached herewith under Annexure-VIII). After giving due consideration to environmental aspects of the design, the submission drawings shall be approved by PIEDMC. The construction contractors will be selected from among contractors who have significant experience in similar construction developments.

4.5 Impacts Associated with Construction Phase and their Mitigation Measures

The project shall be established inside Quaid-E-Azam Business Park, Sheikhupura. All the steps of construction shall be performed according to bye-laws of PIEDMC which already contain environmental provisions. Therefore the impact of construction shall be controlled.

4.5.1 Noise and Vibration

During construction activities, continuous, intermittent and instant noise and vibration may be caused by the operation of earth moving and excavation equipment, welding plant, cutting operations, concrete mixers, cranes and lifters for the transportation of equipment, materials and people. Loading and off-loading of materials and equipment shall also be a source of noise.

The noise levels shall be mostly within acceptable limits. Moreover, residential areas are very far away from the project site. Thus these shall not be impacted due to noise and vibration.

Duration:

On the whole, the duration of the noise shall be temporary. The construction activities shall be performed only during day light hours.

Mitigation Measures

- Activities with the greatest potential to generate noise to be planned during periods of the day that will result in least disturbance.
- Such equipment shall be used which has been designed by default with noise control elements.
- Using noise control devices, such as temporary noise barriers and exhaust muffling devices for combustion engines.
- Proper lubrication and maintenance of all construction equipment shall prevent unwanted sounds leading to noise.
- Operation of noise producing machinery shall be kept limited.
- Ear plugs shall be provided to workers during construction.

4.5.2 Impact on Soil

Initially the soil shall be disintegrated to a little extent due to excavation for foundation pillars. Soil disintegration may also be caused by exposure of soil surfaces to rain and wind during site clearing, earth moving, and excavation activities. The mobilization and transport of soil may result in sedimentation of surface drainage networks.

Duration:

Temporary.

Mitigation Measures

- Excavation shall be done for foundation with the help of vertical drilling thus restricting its area of impact only to the specified points of the site
- Compacting the surfaces properly
- Preventing the movement of soil particles into the water lines
- Vegetating exposed areas after construction promptly

4.5.3 Impact on Air Quality

Initially construction activities may generate emission of dust caused by a combination of on-site excavation, ground leveling, filling, movement of earth materials, contact of construction machinery with bare soil, and exposure of bare soil and soil piles to wind. A secondary source of emissions may include exhaust from combustion engines of earth moving equipment on-site.

Use of uncovered vehicles for transportation of building materials such as gravel, sand and cement as well as their storage on the construction site can lead to inadvertent dispersal of materials during heavy rains or high winds

during dry periods. This may have a little negative impact on the surroundings the form of particulate matter (PM). The principal air pollutants may be particulate matter (PM), CO_2, CO, NO_X, SO_X, and to a little extent VOC's.

Duration:

Temporary.

Mitigation Measures

- Restricting the excavation only to the specified points with the help of drilling excavator
- Covering the stockpiles of construction materials and/or watering where possible
- Minimizing dust from open area sources, including storage piles by installing enclosures.
- Covering all haul-trucks carrying earth, sand, aggregate and other materials with tarpaulin to help contain construction materials being transported within the body of each carrier.
- All contracted vehicles shall be ensured to remain tuned and maintained so that unburnt hydrocarbons may not be released into the environment in the form of VOC's.
- Use of such construction equipment and vehicles which uses environment friendly fuels
- Daily sweeping of all the surroundings where possible.
- Painting should preferably be executed with brush. Environment friendly paints should be used.
- Good housekeeping should be observed at the site generally.
- Provision of PPE's to workers to prevent entry of air pollutants in their breathing system.

4.5.4 Solid Waste

Solid waste expected to be generated from construction activities may include broken bricks, left over of sand and cement, excess fill materials, concrete waste, sanitary wares, electricity wires, wooden cuttings, scrap metals, cement packaging, empty cartons/containers, glass waste etc. Municipal solid waste will also be generated due to worker's activities. Overall the solid waste shall be combination of biodegradable and non-biodegradable kinds.

Duration:

Temporary.

Mitigation Measures

- PIEDMC bye-laws contain provisions for solid waste management. These shall be followed (attached herewith under Annexure-VIII).

- Waste management hierarchy of reduce, reuse and recycle shall be ensured for all of the construction activities.
- A comprehensive solid waste management plan will be devised and adhered to collect, segregate and dispose solid waste.
- Recyclable and non-recyclable waste will be segregated, stored separately at source.
- Segregated recyclable waste will be sold to contractors in recycling market and the non-recyclable construction debris waste will be sold to contractors who usually dump the construction waste debris in pits.
- Solid waste shall be kept covered especially during rainy season.
- No on-site burning of wastes will be allowed at any time.
- All employees shall be trained regarding proper waste management
- Collection schedule of waste will be according to the rate of generation
- Management of municipal solid waste shall also be according to solid waste management hierarchy of reduce, reuse and recycle. It will be properly disposed-off to prevent the chances of its attraction by scavengers. On the site, the color coded bins for collection of municipal solid waste shall be available. Waste from these containers shall be managed by Quaid-E-Azam Business Park, Sheikhupura.

4.5.5 Impact on Water Resources

There are no surface water resources which are expected to be impacted by the project activities. The construction activity shall use only a small amount of water for making concrete mix for foundations and pavement of the floors. For this purpose, ready mix concrete shall be used. Therefore water shall not be collected from the site for their preparation. Rest all shall be erection and installation of steel structures. However, there shall be a little additional load on ground water resources supplied by Quaid-E-Azam Business Park, Sheikhupura through overhead water tanks. The water from this source shall also be used for sanitation purposes.

Construction activities may cause the generation of sanitary wastewater discharges in varying quantities depending on the number of workers involved. This wastewater shall be channelized to join sewerage system of Quaid-E-Azam Business Park, Sheikhupura.

Duration:

Temporary/Short term

Mitigation Measures

- All kinds of wastewater shall be segregated.
- Water usage shall be kept as minimum as possible.
- Water reuse and recycling shall be ensured where possible.
- Storm water can be stored for use during construction as such or after minimal treatment such as screening and settling. Use of such storm water may include watering of bricks, open sand piles, built structures.

- Storm water shall be drained separately to join storm water drainage system of QABP and its mixing with solid waste and other wastewater shall be prevented so far as possible.
- PIEDMC bye-laws (attached herewith under Annexure-VIII) contain provisions for water and waste water management. These shall be followed.
- Excess of storm water can be allowed to percolate through exposed soil to recharge water table.
- Efforts shall be made to prevent entry of solid waste into the water.
- Adequate sanitation facilities serving all construction workers shall be provided.
- Sewage from construction camps should be disposed of by development of on-site sanitation systems i.e. septic tanks.
- The contractors need to ensure that their machinery and equipment is properly tuned and serviced and there is no leakage or spillage of oil or oily products from the construction equipment and machinery which may pollute ground water.

4.5.6 Impact on Ecological Environment

The construction activity will be carried out in the proposed site which does not have significant flora and fauna. Therefore, no adverse impact on fauna and flora is anticipated due to the proposed activity. There will be no cutting of any trees. There will be removal of grass and weeds from the location of proposed plant site.

Mitigation Measures

- The construction activities should be performed in such a manner that it does not impact habitat of local fauna.
- Tree plantation shall be carried out after construction to improve the ecological condition.

4.5.7 Impact on Socio-economic Conditions

The project area is being established at Quaid-E-Azam Business Park for which land has already been acquired. The establishment of project of MJMS (Pvt.) Limited shall not cause any displacement of population or involuntary resettlement of people.

People of the area are very poor. They are either labour class or have very small shops etc. for earning their livelihood. Positive impact is anticipated in terms of employment opportunity as many skilled, semi-skilled and un-skilled personnel will get direct and indirect employment during construction phase. Construction activities, particularly movement of haul trucks and machinery may affect the workers as well as the residents.

Mitigation Measures

- This should be ensured that local people be preferred for all kinds of jobs during construction phase.
- The contractor will select specific timings for heavy machinery operation so as to cause least disturbance to the adjoining community by considering their peak movement hours.

4.5.8 Occupational Health and Safety

Construction phase shall involve work at height which shall need safety management. A large portion of the work shall involve cutting, grinding and welding of metal parts. Moving machinery shall also have potential of injuries to the workers. Plus, there may also be electric hazards.

Handling of construction materials usually causes skin problems. Due to interaction of people from different backgrounds and health conditions, allergies may be caused if precautions not taken.

The steel shed shall be painted after installation. This activity poses hazards to painting crew.

The construction activity will be performed only 08 hours a day and additional time for lunch break. Thus there are less chances of night fatigue.

During hot season of the summer, there may be chances of heat stress.

Mitigation Measures

- Adequate scaffolding and shuttering should be established and used for all kinds of construction activities.
- Work at height should be performed only after permit to work by HSE staff who shall issue such permit to work at height after taking all appropriate measures.
- Work site layout shall be designed to minimize the need for manual transfer of heavy loads.
- Electrical cords should be located in common areas and marked corridors.
- Safety signage should be adequately displayed
- Clean drinking water availability should be ensured for use by all construction staff.
- In order to prevent spread of infectious diseases, only the workers tested for harmful infectious diseases should be hired. Screening test may be performed at the time of hiring
- Emergency response plan should be made, communicated to all and maintained during all of the construction activities
- First aid facility should be readily available for the workers at the site.
- Good house-keeping should be practiced prevent the events of slips, trips and fall.

- Mandatory personal protective equipment like harness, masks, gloves and helmets should be strictly used by the labor according to their assignments at the work site.
- Smoking should be avoided to prevent any fire incident
- Fire and any other emergency shall be managed with the help of emergency services provided by Punjab Emergency Services 1122.
- Adequate training and awareness about occupational and safety shall be provided to all of the employees.
- During hot season, outdoor work timing may be changed. Only indoor construction activities may be performed during sunny part of the day. In case of inevitable circumstances, workers should be given adequate breaks.
- Workers should be given mineralized fluids during hot season to balance electrolytes in their body.
- Painting activity should be performed with all occupational health and safety precautions for the workers.

4.5.9 Traffic Flow

The project plot is situated within Quaid-E-Azam Business Park, Sheikhupura. The transportation of construction materials shall temporarily cause increased load on the roads.

Mitigation Measures

- Transportation of construction materials shall be scheduled during off-peak hours so far as possible.
- Vehicle operators should be instructed to maintain low speed to prevent any accidents.

4.6 Impacts Associated with Operation Phase and their Mitigation Measures

4.6.1 Air Emissions

There are no direct sources of air emissions associated with operations of this leather shoes, bags and garments manufacturing unit. The particles may get out during trimming of rexene and other sheets. Chemical adhesives may also get volatilize in the surroundings.

Mitigation Measures

- The particulates shall be picked up through local exhaust ventilation to prevent dispersal of particulates in the surroundings. Moreover, workers shall be provided with dust masks to prevent entry of particulates into their breathing system.
- Better air conditioning and ventilation system to prevent any indoor air pollution.

- Environment friendly and user friendly adhesives shall be used for all purposes.
- Vegetation/Tree plantation in the surrounding areas can improve air quality.
- Workers shall be provided with masks to prevent entry of particulates into their breathing system.

4.6.2 Wastewater

The operations shall not produce any waste water. This production process shall be completely dry and shall not require water. It shall only be required for cooling the machines. This amount of water shall be conserved by circulating with the help of cooling in cooling tower. This cooling water shall be sent to cooling tower from where this shall be returned to production line again. Thus overall consumption of water shall be saved. Only the water evaporated from cooling water shall be lost. Otherwise the amount of water shall remain conserved.

Water shall also be needed for hygiene purposes in toilets or for irrigation of lawns. The source of water for meeting all needs of water for the unit shall be ground water supply connection by QABP. The sewerage shall be generated from toilets. Such waste water is not part of regular operations and may not have very hazardous composition. Overall requirement shall be 70,000 liters per month.

Water Balance Equation shall be as follows:

70000 liters = 15000 liter (Machine Cooling) + 10000 liter (Cooking & washing) + 10000 liter (Gardening) + 30000 liter (Hygiene) + 5000 liter (drinking)

Mitigation Measures

- The cooling water shall be circulated again and again though cooling tower (with capacity 400 liters/minute) to conserve amount of water.
- Solid contents of water shall be screened at source in order to decrease pollution load of effluent water.
- As part of compliance with PIEDMC bye laws for industrial establishments, the drainage lines for sewerage and storm water shall be kept separate at the unit. Thus there shall be no mixing of both kinds of water.
- As part of compliance with PIEDMC bye laws for industrial establishments, a septic tank shall be established. The wastewater after storage in septic tank may join drainage system of Quaid-E-Azam Business Park, Sheikhupura and may be treated through Composite Effluent Treatment plant of Quaid-E-Azam Business Park, Sheikhupura before ultimate disposal to nearby drain that has been specially channelized by QABP for industries of QABP.
- Periodic cleaning of lines shall be carried out.

- Better piping design shall be ensured to facilitate draining of the lines.
- The wastewater shall not be containing any kinds of pollutants having values of parameters exceeding PEQS.

4.6.3 Noise

The sources of occupational noise shall be the operations of machines including scouring, cutting etc. This noise shall not be significant and remain well below Punjab Environmental Quality Standards.

Mitigation Measures

- Machines shall have built-in containment and isolation to reduce noise.
- Guarding of the moving parts also shall reduce the noise.
- Machinery shall be arranged such that the generated noise shall be absorbed by the surrounding structures instead of reflecting it.
- Steel shed shall be equipped with fiber glass wool sheet. This has acoustic properties to absorb noise from inside and outside sources.
- Regular maintenance of equipment including lubricating moving parts, tightening loose parts and replacing worn out components should be conducted regularly to further reduce the noise generation.
- Equipment will be regularly inspected for good working condition.
- Plantation of trees along perimeter of the building shall reduce impact of noise from outside sources reasonably.
- Due to automation, workers shall be usually away from the sources of noise.
- Workers shall be provided with ear plugs.

4.6.4 Solid Waste

Empty sacks/bags, wrappers and containers of raw material and discarded packing of finished goods, leather/synthetic leather cutting, textile cutting may be source of solid waste. The volume/mass of this solid waste shall vary depending upon the type and quantity of the raw materials to be used. Some of the raw materials for example adhesives shall be received in drums/containers. Others shall be received in wrappers, sacks or bags.

Besides this operational waste arising out of manufacturing processes, municipal solid waste shall also be generated.

Mitigation Measures

- Leather/synthetic leather cutting, textile cutting shall be sold to junk handlers.
- The packing of raw materials shall form scrap and shall be sold in the market where these are reused.
- Recyclable and non-recyclable waste will be segregated and stored at source.

- Segregated waste will be sold to outsourced waste managers who shall be responsible to manage all kinds of the solid waste in an environment friendly manner. Recyclables shall be sold to recycling industry by these waste managers.
- Overall, waste management hierarchy of reduce, reuse and recycle for all of the operations shall be ensured.
- A comprehensive solid waste management plan will be devised and adhered to collect, segregate and dispose solid waste.
- Daily generated municipal waste shall be managed by providing color coded waste bins.
- No on-site burning of wastes will be allowed at any time.
- Training of all employees regarding proper waste management
- Collection schedule of waste will be according to the rate of generation.

4.6.5 Impact on Flora and Fauna

The manufacturing unit shall be established inside Quaid-E-Azam Business Park, Sheikhupura which does not have significant flora or fauna which may get impacted during operations phase of the project.

Mitigation Measures

- Ornamental plants and fruit trees have been proposed to be planted on very large sized lawns inside the plot to improve aesthetic beauty, landscape and create a suitable habitat for fauna.
- As part of EPA-Punjab requirement, 2000 trees shall be planted with their distribution according to advice of PIEDMC.

4.6.6 Occupational Health and Safety

Machinery may have mechanical hazards associated with their fast moving parts such as cutting and stitching machines. The manpower shall also have to interact with machine in case of repair and maintenance issues.

The scouring of leather/synthetic leather poses health hazards to workers.

The adhesives shall have characteristic physical and chemical properties and may pose health and safety hazards.

Due to interaction of people from different backgrounds and health conditions, allergies may be caused if precautions not taken. The loading and off-loading activities may cause musculoskeletal problems if heavy weights are to be lifted manually.

There may be heat stress during hot season. The operations activity will be performed only 8 hours a day including lunch break. Thus there shall not be chances of night fatigue.

Mitigation Measures

- Occupational health and safety management plan shall be established and adhered to during operations.
- The machines shall have built-in auto-stop mechanism to prevent trapping of human hands into the moving parts of the machine.
- All the raw materials shall be handled according to the required handling instructions provided by their manufacturers.
- The additives shall be handled according to their safety data sheets.
- Safety Data Sheets shall be displayed adequately at the unit. The information contained in these safety data sheets shall be made readable, accessible and understandable for all levels of employees. For example these may be translated in Urdu language and interpreted in the pictorial form.
- The weights of the inputs as well as outputs of the unit shall be adjusted so as to prevent musculoskeletal problems among staff.
- Safe lifting practices shall be ensured. Staff shall be trained about safe lifting practices in order to prevent musculoskeletal problems.
- Depending upon multi-skilled staff, the assignments of the employees may be changed to prevent musculoskeletal and psychological issues
- During summer season, the facility shall be equipped with bearable temperatures through air conditioning and other such facilities to prevent onsets of heat stress.
- Adequate air exchange with general ventilation should be carried out to ensure bearable temperatures in the production hall.
- Ergonomic sitting arrangements shall be ensured for all employees.
- Fire extinguishers, sand buckets and fire hydrants shall be installed according to PIEDMC bye-laws (Industrial and Commercial Building Regulations).
- Emergency response plan shall be made, communicated to all and maintained during all of the operations activities.
- Emergency services by Quaid-E-Azam Business Park, Sheikhupura as well as Punjab Emergency Services 1122 may also be availed.
- First aid facility shall be readily available for the workers.
- Good house-keeping shall be practiced to prevent slips, trips and fall.
- Mandatory personal protective equipment like gloves, masks, goggles and ear plugs shall be strictly used by the employees according to their assignments. A program shall be established focused on making available the most modern and best quality of PPEs for ensuring occupational health and safety of all levels of employees.
- Smoking shall be avoided to prevent any fire incident.
- Clean drinking water availability shall be ensured by installation of domestic type reverse osmosis (RO) based drinking water treatment plant with adequate drinking facility for use by all operational staff.
- During summer, mineralized fluids should be served to the man power to manage impacts of hot season and prevent chances of heat stress.
- In order to prevent spread of infectious diseases, only the workers tested for harmful infectious diseases shall be hired. Screening test shall be performed at the time of hiring

- Adequate training and awareness about occupational and safety shall be provided to all of the employees.
- Every incident, accident or near miss shall be reported and recorded in order to ensure safe culture and with the objective of attaining zero incidences of mishaps.

4.6.7 Impact on Socio-economic Conditions

A positive impact is anticipated in terms of employment opportunity as many skilled, semi-skilled and un-skilled personnel will get direct and indirect employment during operational phase of the proposed project.

Mitigation Measures

In order to enhance the socioeconomic benefits of the project, local people should be preferably hired for all of the operational activities so that they feel ownership of the project.

4.6.8 Traffic Flow

The project plot is situated within Quaid-E-Azam Business Park, Sheikhupura. The transportation of raw materials and finished products shall temporarily cause increased load on the road which already remains congested due to goods transport vehicles.

Mitigation Measures

- Transportation of raw materials and finished products shall be scheduled during off-peak hours so far as possible.
- Vehicle operators should be instructed to maintain low speed to prevent any accidents.

4.7 Potential Environmental Enhancement Measures

Following steps shall be taken for environmental enhancement:

- Daily sweeping and dusting/cleaning shall be ensured.
- Vacuum cleaning shall be done daily where required.
- The perimeter and lawns of the plot shall be vegetated with flowering plants and fruit trees for environmental enhancement.
- Additionally the proponent shall also plant 2000 trees inside and outside of Quaid-E-Azam Business Park, Sheikhupura as part of environmental responsibility.
- There shall be separate drainage for sewerage and rain water.
- Adequate fire fighting system will be established and maintained at all times according to PIEDMC bye-laws.
- Visual impact of the unit and its surroundings shall be given due consideration.

CHAPTER-5

ENVIRONMENTAL MANAGEMENT PLAN AND MONITORING PROGRAM

5 ENVIRONMENTAL MANAGEMENT PLAN AND MONITORING PROGRAM

5.1 General

This chapter describes the Environmental Management Plan (EMP) for the environmental and social mitigation measures identified during the Environmental Impact Assessment and reported in Chapter 4 of this document. Existing environmental regulations are complied with and potential adverse environmental impacts resulting from the project activities are minimized as practicably as possible. This EMP provides the delivery mechanism to address the adverse environmental impacts of the proposed project during its execution, to enhance project benefits and to introduce standards of good practices to be adopted for all project works.

Environmental monitoring and management has been proposed to be carried out in all stages of the project namely; pre-construction, construction and operational phases. EMP will be operational to ensure legal environmental compliance. Environmental Monitoring by a third party will further ensure operation in environmentally sustainable fashion. The proponent will ensure that the implementation of all phases of the project is in line with the EIA report and Environmental Management Plan.

5.2 Objectives of EMP

For the effective implementation and management of the mitigation measures Environmental Management Plan (EMP) has been prepared to ensure compliance with the basic provisions of the Punjab Environmental Protection Act (Amendment) 2012. The key objectives of the EMP are summarized below:

- Define roles and responsibilities for the Project proponent, contractors and construction supervision consultants for implementation.
- Mention standards which need to be achieved. All relevant legislation is complied with prescribed procedures/standards.
- All environmental safeguards are carried out correctly.
- Provide mechanism for unanticipated environmental situation.
- Identify training requirements at various levels.
- The EMP provides a delivery mechanism to address potential impacts of project activities.
- Adverse impacts on environment are minimized.
- The project is monitored for environmental impacts.

5.3 Components of EMP

The EMP of the identified environmental impacts associated with this project consists of the following components:

- Description of the activities that are to be carried during all phases of project.
- Description of aspects which are likely to be impacted due to proposed project.
- Mitigation plan to reduce the severity of associated impacts
- Institutional arrangement and framework for monitoring, reporting and supervision of EMP
- Monitoring the implementation of the EMP
- Monitoring plan to monitor the impacts and their severity
- Environmental and social trainings to raise awareness
- Allocation of resources required to implement the EMP and outline relevant expenses arrangements.

5.4 Institutional Capacity

Environmental management is basically the institutional arrangement which delegates some specific assigned responsibilities and those responsibilities are to be monitored properly.

- Project Proponent will be responsible for monitoring and evaluation, but Environment consultant of the proponent will be responsible to monitor EMP implementation in the field and reporting to the proponent. The Environment Specialist of consultant will carry out a final evaluation at the end of the project.

- For external monitoring, proponent shall engage an independent agency to conduct third party validation of EMP implementation.

- District Office of the EPA-Punjab will monitor the overall environmental performance.

For effective environmental management, responsibilities shall be set internally as follows:

5.4.1 Chief Executive Officer

- Over all in-charge of all the Environmental Management Plan (EMP) and EMtP.
- He will be responsible to ensure smooth functioning of the EMP and EMtP system.
- Daily progress on the state of the environmental performance will be reported to him by General Manager.
- All environmental management and monitoring matters, issues and problems will be reported to him.

5.4.2 General Manager

- He will be responsible to look into smooth functioning of the processes in environmentally sustainable fashion.

- He will directly report and will be answerable to the higher management in all matters relating to EMP.
- He will be responsible to rectify any problem regarding environmental matters.
- He will be responsible to get all environmental monitoring carried out according to the monitoring schedule and will keep records

5.5 Monitoring Program to Assess Performance

Environmental monitoring of the plastic extrusion unit will be carried out according to schedule and be reported to the EPA-Punjab. After the unit start-up, a comprehensive monitoring for all PEQS parameters for normal operations will be carried out. This is to establish that the plastic extrusion unit does meet the environmental commitments made in this EIA Report. This monitoring will be carried out by a third party. Thereafter, subsequent regular monitoring will be restricted to priority parameters. All monitoring data shall be reviewed and analyzed regularly in comparison with the PEQS limiting values. In case of any deviation, immediate necessary corrective actions should be taken.

5.6 Reporting and Reviewing Procedures

Monitoring schedule will be adhered to and all the data to be monitored will be scrutinized at the level of General Manager and on regular basis at the Chief Executive Officer level. For presentation of the data to the Government Agencies, approved data recording format will be followed.

5.7 Training Schedule

To enhance the capacity of the proponent as well as the contractor, training will be imparted related to the environmental and social issues of the project, implementation of mitigation measures and the monitoring protocols and reporting mechanism. The training during construction will be conducted by PMU of the project. PMU will ensure in-house training for the project staff i.e. labor, masons etc., contractor, and the supervisory staff covering environmental and social aspects of the project with emphasis on the roles and responsibilities of the proponent and the contractor’s staff. This shall be done just after recruitment of staff and also just before commencement of the construction activities. Subsequently, the proponent shall ensure that all the recruited staff receives basic training as well as recurrent training for his operational role as well as his role and responsibility regarding environmental management at the unit. Basic training shall be imparted just after recruitment of every staff and subsequently recurrent training shall be imparted annually.

5.7.1 Training Syllabus Contents

The training will include the following aspects:

- Identification of all environmental aspects of construction and operation.

- Likely impacts on these aspects of the environment.
- Measures to be adopted for avoiding or minimizing impacts on these aspects of the environment.
- Measures to be adopted for avoiding or minimizing water pollution, air pollution and safe waste disposal practices.
- Defining roles, responsibilities and authorities of every one for environmental management plan during construction and operations.
- Permissible limits for all environmental aspects according to Punjab Environmental Quality standards.
- Safety measures against hazards for workforce and the local communities arising from the construction and operation activities.
- Occupational health and safety aspects, use of personal protective equipment by the workforce during construction and operations.
- Emergency preparedness and response.
- Fire safety and management.
- Fire drill shall be performed every year during operations to aware the employees about their roles, responsibilities and authorities. This shall also help maintenance of the equipment installed for fire management.
- Safe work practices to ensure safe culture.

5.8 Environmental Management Plan

The Environmental Management Plan is meant for mitigation, management, avoidance of the adverse impacts. For each mitigation measure to be taken, its location, timeframe, implementation and supervising responsibilities are listed in the EMP. The identified impacts and suggested mitigation measures with institutional responsibilities are tabulated in Table 5.1 and Table 5.2:

Table 5.1: Environmental Management Plan of Construction Stage

Anticipated Environmental Aspects and Impacts	Proposed Mitigation Measures	Institutional Responsibility		
		Implementation	Supervision	Monitoring
Solid Waste Solid waste shall be generated in the form of excavation waste, excess fill materials, small concrete spills, broken bricks, wasted concrete material, wasted steel trimmings, scrap wood and metals, etc.	The construction site should be equipped with temporary bins for waste collection and segregation. All kinds of solid waste shall be kept segregated. Development of proper solid waste management system (Collection, storage, segregation, transportation and disposal). The waste collection and disposal schedule should be made so as to prevent any kind of nuisance at the site. The construction staff shall be trained regarding housekeeping practices. At the end of all processes, whatever left behind shall be disposed of through construction waste contractor.	Construction Staff	PMU	Proponent
Water Quality There shall be additional load	Spills and wastage should be prevented which may cause contamination of ground water.	Construction Staff	PMU	Proponent

on ground water resources supplied by Quaid-E-Azam Business Park, Sheikhupura through overhead water tanks. Construction activities may cause the generation of sanitary wastewater discharges in varying quantities depending on the number of workers involved.	Solid waste should be prevented to enter into water. Water consumption shall be kept at minimum and even the amount used also will mostly percolate to ground water table thus recharging it. Storm water shall be managed such that it can be used beneficially. The runoff shall be diverted to open areas such that it can facilitate recharge of ground water. Sanitary wastewater shall be discharged to sewerage system of QABP from where this is disposed after treatment.			
Air Quality Particulate matter may arise due to localized excavation in soil for foundation purpose, ground leveling activities, deposits of construction materials and also due to movement of off-road or on-road automobiles. Cutting, grinding and welding of	Trucks carrying, soil, sand, aggregate and other materials will be kept covered with tarpaulin to contain the construction materials being transported within the body of each carrier. Regular tuning and maintenance of engines ensures good efficiency. Waste burning will not be allowed. Sprinkling of water on regular basis	Construction Staff	PMU	Proponent

steel structures may cause air pollution. Off-road or on-road automobiles shall also cause exhaust pollution.	especially during dry seasonal conditions should be carried out to limit dispersion and suspension of particulate matter Regular sweeping of roads and parking areas to avoid deposition of dirt. The workers shall be provided with appropriate masks for use against air pollution due to cutting, grinding and welding.			
Noise During the construction phase of the project, noise sources may include heavy construction machinery, shuttering and scaffolding, cutting and grinding of metal parts, installation of columns and rafters, on-road and off-road vehicles.	All construction equipment should be maintained in good working order. The noise sources shall be enclosed with acoustic proof material to decrease the noise levels. Noise from construction equipment shall meet the applicable standard in PEQS. Avoid use of pressure horns. Provision and use of PPEs shall be ensured. Lubricate all moving parts of the machinery.	Construction Staff	PMU	Proponent
Spillage	Maintenance of the contracted and	Construction Staff	PMU	Proponent

of oil and other lubricants	outsourced logistics shall be the responsibility of outsourced contractors.			
Soil Soil may erode by exposure of soil surface to rain and wind during site clearing, earth moving, and excavation activities.	Providing adequate surface material compaction and maintenance. Only localized excavation shall be done with drilling equipment.	Construction Staff	PMU	Proponent
Traffic Flow A slight increase in traffic is apprehended due to the transportation of construction materials for proposed project at Quaid-E-Azam Business Park, Sheikhupura.	The transportation of construction materials may be scheduled during off-peak hours.	Construction Staff	PMU	Proponent
Occupational Health and Safety There may be risks associated with work at height. Due to interaction of workers from various backgrounds, there is possibility of contagious diseases. Construction activity pose	First aid facilities should be readily available Construction workers shall be provided with adequate awareness and training about HSE aspects of the project. Provision and use of suitable Personal Protective Equipment should be made mandatory. Work at height should be performed	Construction Staff	PMU	Proponent

particulate pollution hazard to workers. Fire safety measures.	under supervision of HSE Officer who shall issue work at height permit after taking all appropriate measures. Emergency response plan should be established and maintained Safety signs should be displayed. Smoking should be prevented to prevent fire hazard. Electric earthing shall be done to prevent electric shock to workers. Welding should be done with all safety precautions. Safety shoes shall be worn by the workers while performing jobs related with electric equipment. Painting of shed should be carried out with all preventive measures. QABP Industrial Safety Unit may assist in fire and other kinds of emergency management. Reporting and documentation of all			

	incidents, accidents and near misses shall be ensured.			
Construction materials such as sand, gravel etc.	Stockpiles should be covered to prevent dispersion of materials These should be surrounded by low brick wall to prevent their spreading on the ground.	Construction Staff	PMU	Proponent
Socioeconomic Impacts	Aesthetic of the area should be protected so far as possible Unnecessary use of horns should be prevented Hire local people to the maximum possible extent if competent people found from the area	Construction Staff	PMU	Proponent

Table 5.2: Environmental Management Plan of Operational Stage

Anticipated Environmental Aspects and Impacts	Proposed Mitigation Measures	Institutional Responsibility		
		Implementation	Supervision	Monitoring
Air Pollution Fabric/cotton dust from textile material and fine grains of leather due to scouring process shall cause particulate air pollution.	Local exhaust ventilation shall be ensured to pick such dusts right from the point of generation. The transport vehicles will be kept in good working condition and properly	General Manager	Environment Consultant.	Proponent

Due to movement of vehicles, ambient air may get polluted.	tuned, in order to minimize the exhaust emissions. Limited entry to vehicles under the indoor shed areas. Better ventilation in production halls. Offices and control rooms shall be kept air conditioned. Workers may be provided with specific masks to protect their breathing system. All the open soil shall be grassed or tuff tiled to prevent dispersion of disintegrated soil and fugitive dust.			
Water Quality The production processes shall not consume water. Water shall only be used for cooling of the machines. Sanitary waste from toilets.	Cooling water shall be circulated back again and again with the help of cooling tower to conserve amount of water. Screening of solid contents of water at source in order to decrease pollution load of effluent water. Drainage lines shall be periodically cleaned.	General Manager	Environment Consultant	Proponent

	There shall be separate lines for drainage of storm water and waste water. According to PIEDMC bye-laws, septic tanks shall be constructed for wastewater management. All wastewater shall flow to septic tank from where it shall reach composite effluent treatment plant of Quaid-E-Azam Business Park, Sheikhupura for treatment before ultimate disposal. Special care shall be taken to conserve, and preserve water resources. The leakage of sewage shall be strictly prevented and if such a chance happens, immediate action must be taken so that mixing of the sewage with ground water or soil will be absolutely avoided. All drainage works shall be designed and constructed in accordance with the requirements of the EPA-Punjab.			

Noise Noise may be generated by operation of the machines.	The steel shed will be lined with glass wool sheet which has acoustic properties to absorb the noise from outside and inside sources. Better maintenance and lubrication of all the machinery may keep the noise under control. Regular monitoring of noise may be carried out every year to check the efficacy of control measures. The whole machinery shall be enclosed and isolated hence decreasing the impact of noise levels. Employees shall be provided with ear plugs to prevent entry of sound waves into ear canal.	General Manager	Environment Consultant	Proponent
Solid Waste Packing material, Leather/Synthetic Leather cutting, Textile cutting shall be major solid waste. Discarded packaging of the	All of the waste shall be shredded and recycled by the unit. So nil of this goes waste. Empty sacks/bags of chemicals shall be sold to contractor. Packing shall be either reused or it	General Manager	Environment Consultant	Proponent

finished products.	shall be sold to open market for reuse or recycling. All solid waste shall be carefully segregated according to the type and sold in the market for reuse and recycling as may be appropriate. Municipal Solid Waste shall be carefully segregated according to the type. Thus the industrial solid waste shall be managed in an environment friendly manner. No on-site burning of wastes will be allowed at any time. Training of personnel in proper waste management practices. Provision of sufficient waste collection points and regular collection of waste.			
Occupational Health & Safety Particulate Air pollution due to fabric/textile material and scouring	All the dust shall be collected by local exhaust ventilation system. All adhesives/chemicals shall be	General Manager	Environment Consultant	Proponent

of leather. Handling of adhesives/chemicals Ergonomics Heat Ventilation. Safeguards. Fire Safety measures.	handled according to their safety data sheets. Better ventilation can also relieve the workers of production area from heat stress. All machinery shall be by default guarded. Provision of ergonomically designed seats for machine control panel operators. Weight of input materials should be kept as low as these may not cause musculoskeletal problems for loading staff. All employees should undergo occupational health and safety training including training about safe lifting practices. First Aid kit shall be provided. Fire extinguishers and fire buckets shall be installed for fire safety according to PIEDMC bye-laws (Industrial and Commercial Building			

	Regulations). Workers shall be provided with appropriate kind and number of Personnel Protective Equipment (PPE). All safety incidents shall be recorded and monitored with the objective of attaining zero incidences of mishaps.			
Ecology	Plantation of trees shall be carried out in and around the project site as advised by PIEDMC in compliance with the conditions imposed by EPA-Punja. A large portion of the plot has been proposed to be planted with fruit trees, flowering plants and grass.	General Manager	Environment Consultant	Proponent
Socioeconomic Impacts Local norms and values Standard of Living	Local norms and values should be respected. Unnecessary use of horns should be prevented. Local people shall be hired to the maximum possible extent if competent people found from the area.	General Manager	Env. Consultant.	Proponent

Traffic Flow A slight increase in congestion is apprehended at road due to proposed project.	The transportation may be scheduled during off-peak hours.	General Manager	Env. Consultant.	Proponent

5.9 Environmental Monitoring Program

The purpose of monitoring is to get acquainted with actual quantitative assessment of environmental aspects to verify that their values are within permissible limits as defined by Punjab Environmental Quality Standards. Therefore, in order to remain rational with the help of quantitative assessments instead of merely making assumptions about status of environmental aspects, following environmental monitoring plan has been proposed:

Table 5.3: Environmental Monitoring Plan

Environmental Aspect	Parameters	Concerned Location	Frequency
Construction Phase			
Ambient Air	CO, SO_x, NO_x, O_3, PM	Project Site	06 Months
Ground Water	All parameters as described in PEQS	Water Connection at site	06 Months
Noise	Industrial Noise	Project Site	06 Months
Solid Waste	Generation Rate according to type of waste	Project Site	Fortnightly
Occupational Health & Safety	Fire, ERP, PPE's	Project Site	Daily
Operational Phase			
Ambient Air	PM	Production rooms	Annually
Effluent Water	All parameters as advised by EPA-Punjab	Effluent outlet	Annually
Noise	Industrial Noise	Production rooms	Annually
Solid Waste	Generation Rate according to type of waste	Solid Waste Bin	Fortnightly
Occupational Health & Safety	Fire, ERP, PPE's	Whole unit	Daily

5.10 Equipment Maintenance Schedule

The project involves use of several number and kinds of machinery during operations as described in Table 2.4. Maintenance & Repair plan shall be carried out as per procedures advised by the manufacturer and on need basis. Fire safety equipment shall be kept maintained and monitored monthly. The condition of the first aid box and PPEs shall be maintained regularly. The schedule of maintenance shall be daily, weekly and monthly basis for overall cleaning and maintenance check of all of the equipment.

5.11 Environmental Management Budget

The environmental management cost aside from other costs is as follows:

Table 5.4: Environmental Management Budget

Aspect	**Quantity**	**Estimated Cost (PKR)**
Tree Plantation	3000	6,00,000
Occupational Health and Safety Management		2,00,000
Fire Safety		1,00,000
Training & Awareness		200,000
Total Environmental Budget		**11,00,000**

CHAPTER-6

PUBLIC CONSULTATION

6 PUBLIC CONSULTATION

6.1 General

This chapter includes the output of consultations carried out with the people of the project area. This elaborates the findings from the field and data collected from public. These include local residents who also carry out different businesses such as shop keepers, labour, farmers and entrepreneurs. These also include representatives of the management of Quaid-E-Azam Business Park, Sheikhupura. Their feedback regarding the project has been recorded through a questionnaire and interviewing them to fill the questions of questionnaire. Other stakeholders were also consulted.

6.2 Importance of Public Consultation

Public participation is an integral part of EIA. Public participation means that public should be consulted, informed, or involved in the decision making process and public should know about the project in detail. The “Policy and Procedures for the filing, review and approval of environmental assessments” requires proponents to consult with the affected community and NGOs during preparation of an environmental report. The “Guidelines for the preparation and review of environmental reports” contain a number of references to the need for public involvement. Public participation is compulsory under the Punjab Environmental Protection Act. According to PEPA Regulations 2000 under section 10 require that public notice should be published in English or Urdu in local newspaper in the affected area 30 days before the hearing. The public notice contains information on project type, location, name, address of the proponent and the place from where EIA report can be accessed.

The adequacy of the public consultation and information disclosure is one of the basic criteria used to determine the project compliance with the national/international safeguard policies.

6.3 Objectives

The objectives of this process were to:

- Inform the public about what is proposed project.
- Identify and involve all stakeholders, especially local residents, in the consultative and participation process;
- Share information with stakeholders on the design and construction of the proposed project and anticipated impacts on the physical, biological and socioeconomic environment of the project area;
- Understand stakeholders' concerns regarding various aspects of the project, including the existing available facilities and problems, construction of the project and the likely impacts of construction and operation related activities;

- Provide an opportunity for those otherwise unrepresented to present their views and values therefore allowing more sensitive consideration of mitigation measures and trade offs
- Understand the perceptions, assessment of social impacts and concerns of the communities in the vicinity of the proposed project;
- Provide an opportunity to the public in the public consultation session to provide valuable suggestions for the project design in a positive manner;
- Reduce the chances of conflict through the early identification of controversial issues, and consult them to find acceptable solutions.
- Increase public confidence in proponent, reviewers and decision makers.
- Provide better transparency and accountability in decision making
- Develop truly sustainable proposal.

6.4 Methodology

Guidelines for Public Consultation issued by Pakistan Environmental Protection Agency issued dated October, 1997 have been used for carrying out this process. For public consultation and participation, main stakeholders were interviewed and asked about their concerns. Subject specialists and field experts have also been consulted in order to get their technical verdict.

For ascertaining the perceptions of different stakeholders about the project (during construction/operation) consultation meetings were held with them. These meetings were carried out in the vicinity areas of Sahu ki Malliyan, Chichoo ki Malliyan, Joeyianwala Morr, Sheesh Mahal Chowk, Sheikhupura Sports Complex, Khokhar ki Mallian, Near Hiran Minar, Sheikhupura City.

Firstly, the project has been described briefly before the stakeholders in local language without going into its technical details. Their response has been recorded in the form of a questionnaire (attached herewith under Annexure-VIII). In this questionnaire, brief introduction of the stakeholder is followed by their response in the form of their answers to asked questions pertaining to the project.

6.5 Identification of Stakeholders

Stakeholders are those who have a direct or indirect interest in project development, and who will be involved in the consultation process. During the field survey, significant efforts were made to identify the possible categories of stakeholders and their stakes. These included local people, other affected communities, proponent, government agencies and interested public. The stakeholders identified during field survey also included the local residents, politicians, private land & shop owners, shop keepers (renters), customers, pedestrians. Some of the local people were found hesitant to respond. They were engaged and taken into confidence that their response shall be beneficial to them and shall never harm them. Informal group discussions were also held as an additional tool for the assessment of the perceptions of the stakeholders.

Table 6.1 List of Stakeholders consulted

S#	Stakeholder Name	Designation	Area
1	Mr. Shahzad Azam	Ex. President SIE	Sundar Industrial Estate, Lahore
2	Mr. Abdul Shakoor	Construction Labour	Bhamb Ki Mallian
3	Mr. Fayaz Jutt	Farmer	Sahu Ki Mallian
4	Mr. Matloob Hussain	Shopkeeper, General Store	Khokhar Ki Mallian
5	Mr. Ayyub Siddique	Barber	Chicho Ki Mallian
6	Mr. Ahmed Gujjar	Land Owner	Bhamb Ki Mallian
7	Mr. Muhammad Tariq	Brick Kiln Worker	Chicho Ki Mallian
8	Mr. Rana Mujahid	Qinqi Driver	Sheesh Mahal Chowk, Sheikhupura City
9	Mr. Shahid Ali	Helper in a factory	Joyeanwala Morr
10	Mr. Waseem Anjum	Livestock Farmer	Khokhar Ki Mallian
11	Mr. Allah Ditta	Livestock Farmer	Bhamb Ki Mallian
12	Mr. Rana Shaukat Ali	Farmer	Mandiala
13	Mr. Zaheer Ahmed	Plumber	Shahbaz Pura
14	Mr. Umer Hayat	Mason	Sahu Ki Mallian
15	Dr. Azhar Ali	Assistant Professor	College of Earth & Environmental Sciences, University of the Punjab, Lahore
16	Yousuf Jamal	CEO, Well-On Techniques	41-B, ZamZam Tower, Johar Town, Lahore

6.6 Concerns of the Stakeholders

The project site exists in Quaid-E-Azam Business Park, Sheikhupura. At the time of establishment of Quaid-E-Azam Business Park, Sheikhupura, public consultations were held with the people from the project area as part of its EIA. The public consultation for establishment of manufacturing and retail unit for shoes, bags and garments by MJMS (Pvt.) Limited has been carried out with specific scope of the construction and operations of this unit. The individual feedback has been annexed in Annexure-VIII. Their feedback has been summarized as follows:

- Most of the people of the study area perceive overall positive impacts as a result of establishment of this manufacturing and retail unit. Their attitude towards the project is quite positive.

- They are of the view that the project will open up new direct or indirect job and business opportunities for the people of the project area. This will result in poverty alleviation though to small extent.

- People especially comment that this area had been uninhabited since long. There was no use of this land. With the industrial development, the overall standard of living of the people has improved. The establishment of this unit shall also contribute to this phenomenon.

- Local residents of the area should be preferred for filling job vacancies of the unit.

- Some people are of the perception that the unit shall not emit hazardous air emissions and shall have relatively clean workplace.

- People responded that local people should be given jobs in this manufacturing and retail unit.

- If local people be hired, they shall go back to their homes every day. Whereas currently all almost all of the employed persons of the area work in far furlong areas from where they have inconvenience returning their homes on daily basis. If they be employed here in this manufacturing and retail unit by MJMS (Pvt.) Limited, they shall work with more dedication as they shall be enjoying proximity with their residences.

- Due to acquisition of land by Government of Punjab, we have lost our grazing areas and also agricultural fields where we used to seed food for our cattles.

- The people also perceive accelerated economic activity due to the small business opportunities likely to emerge in the area, e.g. shop keepers, traders, suppliers, contractors, transporters, labor etc.

Public also have shown their apprehensions as follows:

- After the establishment of the business park, people have been displaced. Although displaced people have been paid compensation yet this is better to get them in the circle and provide them jobs in the units which are going to be established here.

- During construction phase, a plenty of people can be employed depending upon their respective competence.

- Due to external evasion, local demography of the area shall be changed. We (the locals) do not have knowledge about the background of the incoming people.

- If our land, ground water and air do not get polluted then we do not have objections over the establishment of the unit.

- Some people have shown that they will neither be benefited nor be harmed by the project.

- The unit should manage their wastes wisely without harming local natural resources.

- People have scarcity of basic needs of life such as electricity, transport, sewerage system and clean water supply

- Something should be done about the development of the locality.

6.7 Mitigation Measures proposed for addressing the Stakeholder's Concerns

- Local residents should be given priority while hiring during construction and operation phase of the proposed project.

- The waste water shall be managed in an environment friendly manner. It shall not be pumped underground at all. This shall be channelized to dedicated drain. Treatment shall also be done if needed.

- There shall no air emissions due to operations of the unit which can harm the surrounding community.

- The solid waste shall be managed by the management of Quaid-E-Azam Business Park, Sheikhupura and also by outsourced contractor who shall manage the solid waste according to the environmental guidelines.

- There shall not be any displacement of the surrounding community due to this manufacturing and retail unit by MJMS (Pvt.) Limited.



Figure 6.1: Highlights of Public Consultation Survey-A



Figure 6.2: Highlights of Public Consultation Survey-B



Figure 6.3: Meeting with Assistant Professor, Punjab University, (Waste Water Expert)

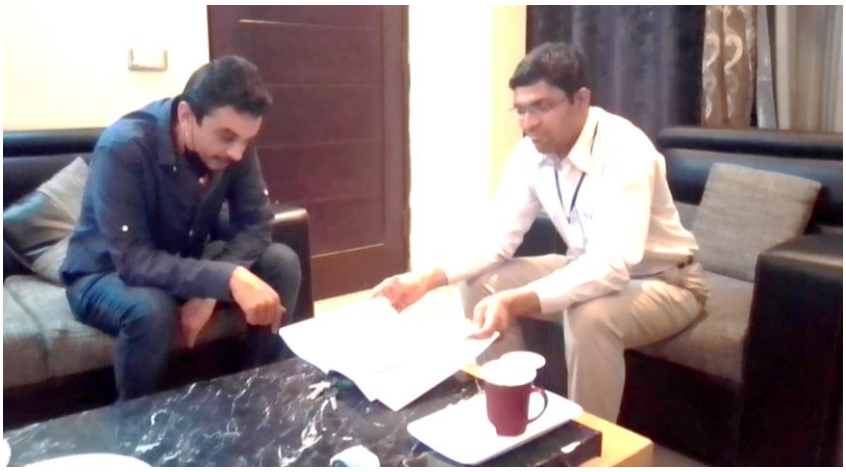


Figure 6.4: Meeting with CEO, Well On Techniques, a Water Treatment Company

CHAPTER-7

CONCLUSION & RECOMMENDATIONS

7 CONCLUSION AND RECOMMENDATIONS

7.1 Conclusion

The project aims at establishment of manufacturing and retail unit for shoes, bags and garments by MJMS (Pvt.) Limited formerly Fabrizio (Pvt.) Limited at Plot No. 19-D & 20-D, Quaid-E-Azam Business Park, Sheikhupura. According to the "Pakistan Environmental Protection Agency Review of Initial Environmental Examination and Environmental Impact Assessment Regulations, 2000" the project falls in Schedule-II. Accordingly, this Environmental Impact Assessment report has been prepared for issuance of NOC/EA by EPA-Punjab, Government of the Punjab, Lahore before initiation of the project on ground. The study has been conducted according to Guidelines issued by Environmental Protection Agency-Government of Pakistan in 1997.

On the basis of this Environmental Impact Assessment (EIA) Report of the project, it is concluded that:

i. There are no sensitive elements/segments of environment around the project site.
ii. No gaseous emissions will be generated due to the operations. Although construction phase shall cause some particulate pollution yet this shall be kept under PEQS with the help of applicable controls. Thus air emissions during both construction and operations phase of the project shall be within Punjab Environmental Quality Standards.
iii. During operations, cooling water shall be circulated again and again in the system thereby decreasing pollution load.
iv. Noise level, waste water and solid waste will remain well within the prescribed limits of the PEQS.
v. EMP as recommended in this EIA Report is to be put in place during construction as well as operations of the project.
vi. EMP shall guide about specific actions deemed necessary to assist in mitigating the environmental impact of the project.
vii. If steps described in EMP are fully practiced, the project shall not have significant harmful impacts.
viii. Monitoring of all environmental parameters by a third party shall endorse that the project will run in accordance with legal requirements.
ix. The positive impacts of the project outweigh negative impacts.
x. Endangered species have not been found in the area which is expected to be impacted by the project.
xi. The project does not involve displacement of the local population.

7.2 Recommendations

Being aware of the environmentally responsibility, the proponent has proceeded for this Environmental Impact Assessment study and making its report. The proponent aims to and commits to comply with all legal requirements pertaining to environmental protection applicable for the time being.

On the basis of the potential impacts, the project can be categorized as favorable and having only low adverse impacts. The project potential impacts will be mitigated by adopting all suggested technical/engineering best practices and measures. The EMP developed needs to be fully implemented during the both construction and operation stage of the project.

Following are the major recommendations:

1. The project should be established according to the specifications as defined in documents. If any changes needed on the ground, these should also be documented. i.e. there should not be conflict between reality and documentation.
2. Environmental monitoring should be regularly carried out according to schedule defined in this EIA report.
3. All the legal and regulatory provisions should be complied with including PIEDMC bye-laws, Punjab Environmental Quality Standards etc. during all phases of the project.

Detailed and points wise recommendations have already been described in Chapter 4 and 5 and have been summarized in executive summary of this EIA Report.

The facts summarized as above, and the whole discussion made in the foregoing chapters of this report support that the project merits for issuing Environmental Approval by the Environmental Protection Agency-Punjab, Lahore for construction and operation of the project.

ANNEXURES

ANNEXURE-I

GLOSSARY

Air Pollutant:

Any substance that causes pollution of air and includes soot, smoke, dust particles, odor, light, electromagnetic radiation, heat, fumes, combustion exhaust, exhaust gases, noxious gases, hazardous substance and radioactive substances.

Biodiversity:

The variability among living organisms from all sources including inter alia terrestrial, marine and other aquatic ecosystem and the ecological complexes of which they are part; including diversity within species, between species and of ecosystems.

Climate:

The weather conditions prevailing in an area in general or over a long period typically averaged over a period of 30 years.

Ecosystem:

A dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit.

Effluent:

Any material in solid, liquid or gaseous form or combination thereof being discharged from industrial activity or any other source and includes a slurry, suspension or vapor.

Environment:

Air, water, land; all layers of the atmosphere; all organic and inorganic matter and living organisms; the ecosystem and ecological relationships; buildings, structures, roads, facilities and works; all social and economic conditions affecting community life; and the inter-relationships between any of the aforesaid factors.

Environmental Impact Assessment:

An environmental study comprising collection of data, prediction of qualitative and quantitative impacts, comparison of alternatives, evaluation of preventive, mitigatory and compensatory measures, formulation of environmental management and training plans and monitoring arrangements, and framing of recommendations and such other components as may be prescribed.

Ergonomics:

Derived from the Greek *ergon* (work) and *nomos* (laws) Which means the science of work. It is a scientific discipline concerned with the understanding of interactions among humans and other elements of a system, and the profession that applies theory, principles, data and methods to design workplace in order to optimize human well-being and overall system performance.

Initial Environmental Examination:

A preliminary environmental review of the reasonably foreseeable qualitative and quantitative impacts on the environment of a proposed project to determine whether it is likely to cause an adverse environmental effect for requiring preparation of an environmental impact assessment.

Meteorology:
The scientific study of the atmosphere that focuses on weather processes and forecasting.

Noise:
The intensity, duration and character of sounds from all sources, and includes vibration.

Occupational Health and Safety Aspects:
Health and Safety Aspects pertaining to workplace.

Proponent:
The person who proposes or intends to undertake a project.

Standards:

Qualitative and quantitative standards for discharge of effluents and wastes and for emission of air pollutants and noise either for general applicability or for a particular area, or from a particular production process, or for a particular product, and includes the Punjab Environmental Quality Standards, emission standards and other standards established under this act and the rules and regulations made there under.

Waste:

Any substance or object which has been, is being or is intended to be, discarded or disposed of, and includes liquid waste, solid waste, waste gases, suspended waste, industrial waste, agricultural waste, nuclear waste, municipal waste, hospital waste, used polyethylene bags and residues from the incineration of all types of waste.

Weather:
The state of the atmosphere at a particular place and time as regards heat, cloudiness, dryness, sunshine, wind, rain, etc.

ANNEXURE-II

LIST OF ABBREVIATIONS AND SYMBOLS

CETP	Composite Effluent Treatment Plant
CO	Carbon Monoxide
CO_2	Carbon Dioxide
COD	Chemical Oxygen Demand
dB(A) Leq	Decibel (A) L Equivalent
EIA	Environmental Impact Assessment
EA	Environmental Approval
EMP	Environmental Management Plan
EMtP	Environmental Monitoring Plan
EPA	Environmental Protection Agency
EPD	Environmental Protection Department
ERP	Emergency Response Preparedness
IEE	Initial Environmental Examination
HSE	Health, Safety and Environment
KW	Kilo Watt
LESCO	Lahore Electric Supply Company
MSDS	Material Safety Data Sheets
MSL	Mean Sea Level
NEQS	National Environmental Quality Standards
NOC	No Objection Certificate
NO_X	Nitrogen Oxides
O_3	Ozone
OHS	Occupational Health and Safety
PEPA	Pakistan Environmental Protection Act
PEQS	Punjab Environmental Quality Standards
PGA	Peak Ground Acceleration
PIEDMC	Punjab Industrial Estate Development and Management Company
PKR	Pakistani Rupees
PM	Particulate Matter
PMU	Project Management Unit
PPE	Personal Protective Equipment
QABP	Quaid-E-Azam Business Park, Sheikhupura
RCC	Reinforced Cement Concrete
SDS	Safety Data Sheets
SIA	Social Impact Assessment
SIR	Site Investigation Report
SO_X	Sulfur Oxides
Sq. ft.	Square Feet
TEVTA	Technical Educational and Vocational Training Authority
TMA	Tehsil Municipal Administration
TOR	Terms of References
TDS	Total Dissolved Solids
VOCs	Volatile Organic Compounds
WAPDA	Water & Power Development Authority

ANNEXURE-III

Team Members of EIA Study Project

NAME	QUALIFICATIONS	STATUS IN PROJECT
Mr. Engr. Luqman Khan	ME Structural Engineering BE (Hons.) Civil Engineering;	Team Leader
Mr. Zaghum Abbas	MS Environmental Sciences; PGD Environmental Law	Environmentalist
Mr. Yousuf Jamal	MS Environmental Sciences	Environmentalist
Mr. Rana Muhammad Zahid	DAE Civil	Site Engineer; Project Coordinator
Mr. Faisal Riaz	BE (Hons.) Civil Engineering	Civil Engineer
Mr. Danish Zulfiqar	M. Phil. Chemistry	Chief Analyst
Mr. Muhammad Irfan	BS Chemistry	Deputy Analyst
Mr. Azhar Amar	M. Phil. OHS	AM Projects
Mr. Umer Kazim Ali	BS Analytical Chemistry	Analyst
Mr. Nauman Anwar	BS Environmental Sciences	Analyst
Mr. Muhammad Ahmad	BS Environmental Sciences	Customer Services Executive
Mr. Ameer Hamza	BS Environmental Sciences	Field Officer
Mr. Hashim Raza	BS Environmental Sciences	Field Executive
Mr. Ahmed Nabeel	B. Civil Technology	Draftsman

ANNEXURE-IV

Terms of Reference

Title:
Establishment of manufacturing and retail unit for shoes, bags and garments by MJMS (Pvt.) Limited at Plot No. 19-D & 20-D, Quaid-E-Azam Business Park, Sheikhupura.

Environmental Consultant Organization "M/s Altec Engineers" to carry out the Environmental Impact Assessment of the project in accordance with the guidelines of EPA-Punjab. The consultant scope includes following activities:

I. Collect all the information relevant/required for the project & are required to compile EIA Report and subsequently obtain approval of same from EPA-Punjab.
II. Description of the Proposed Project Activities
III. Review of Alternatives
IV. Field Survey
V. Collection and Review of primary and secondary data as per requirement.
VI. Review of existing environmental legislation, guidelines and standards applicable to the operation and assessing their applicability.
VII. Stakeholders' Consultation (if required)
VIII. Identification and evaluation of environmental impacts
IX. Recommendations for mitigation measures
X. Development of Environmental Management Plan
XI. Any other item deemed necessary to complete the report in-line with guidelines/requirements of Punjab Environmental Protection Act-1997 (Amended) 2012.
XI. Preparation of a Final Report to meet the requirements of Pakistan EPA.

The Environmental consultant shall prepare Environmental Impact Assessment Report and subsequently submit to relevant authority after obtaining approval from the proponent.

Consultant shall be solely responsible for obtaining the final approval after fulfillment of all pre-requisites as per Punjab Environmental Protection Act-1997 (Amended) 2012.

Overall correspondence and or other financial requirement(s) in this regard are to be taken care by the consultant.

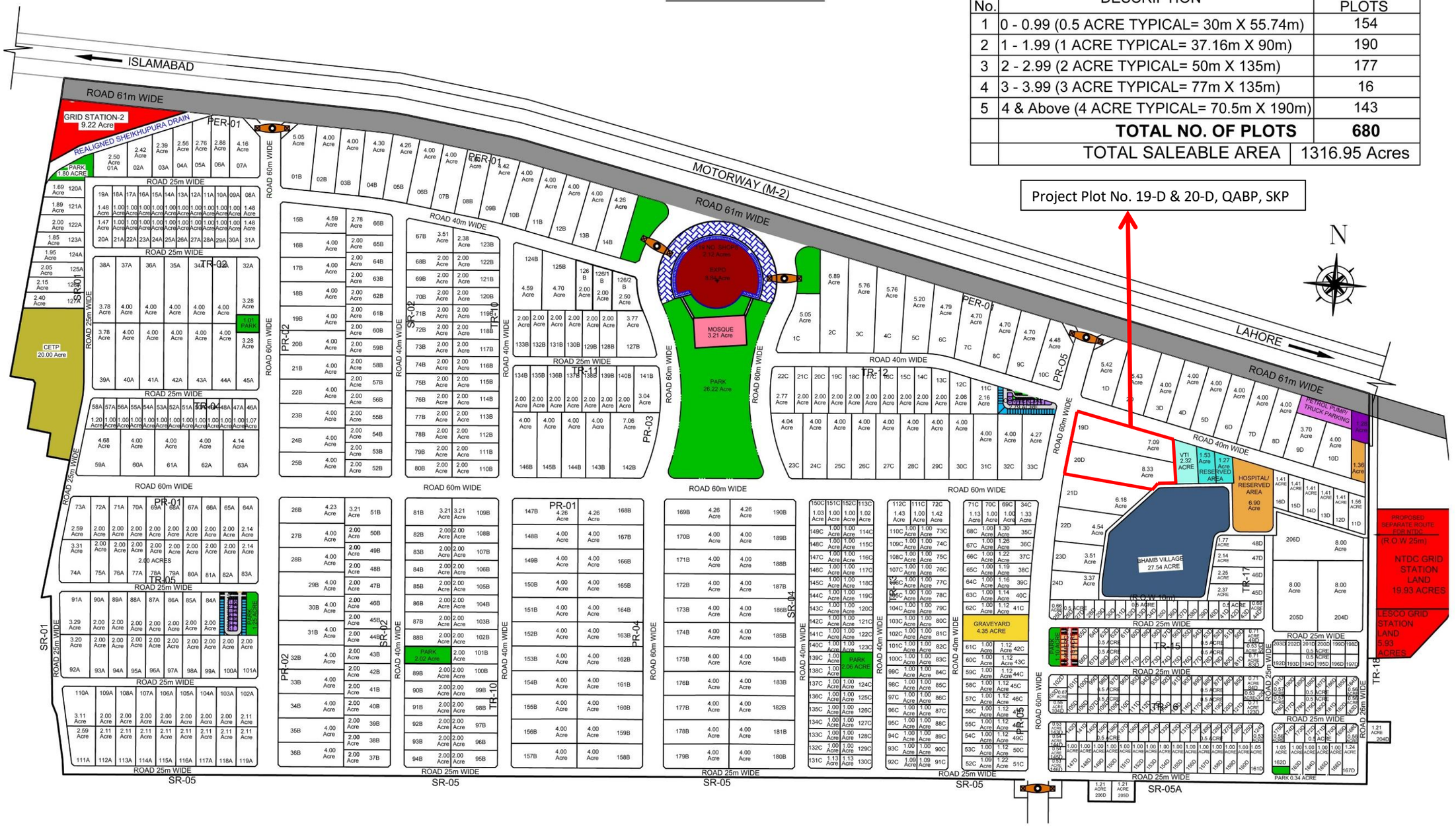
Client Signatures **Consultant Signatures**

ANNEXURE-V

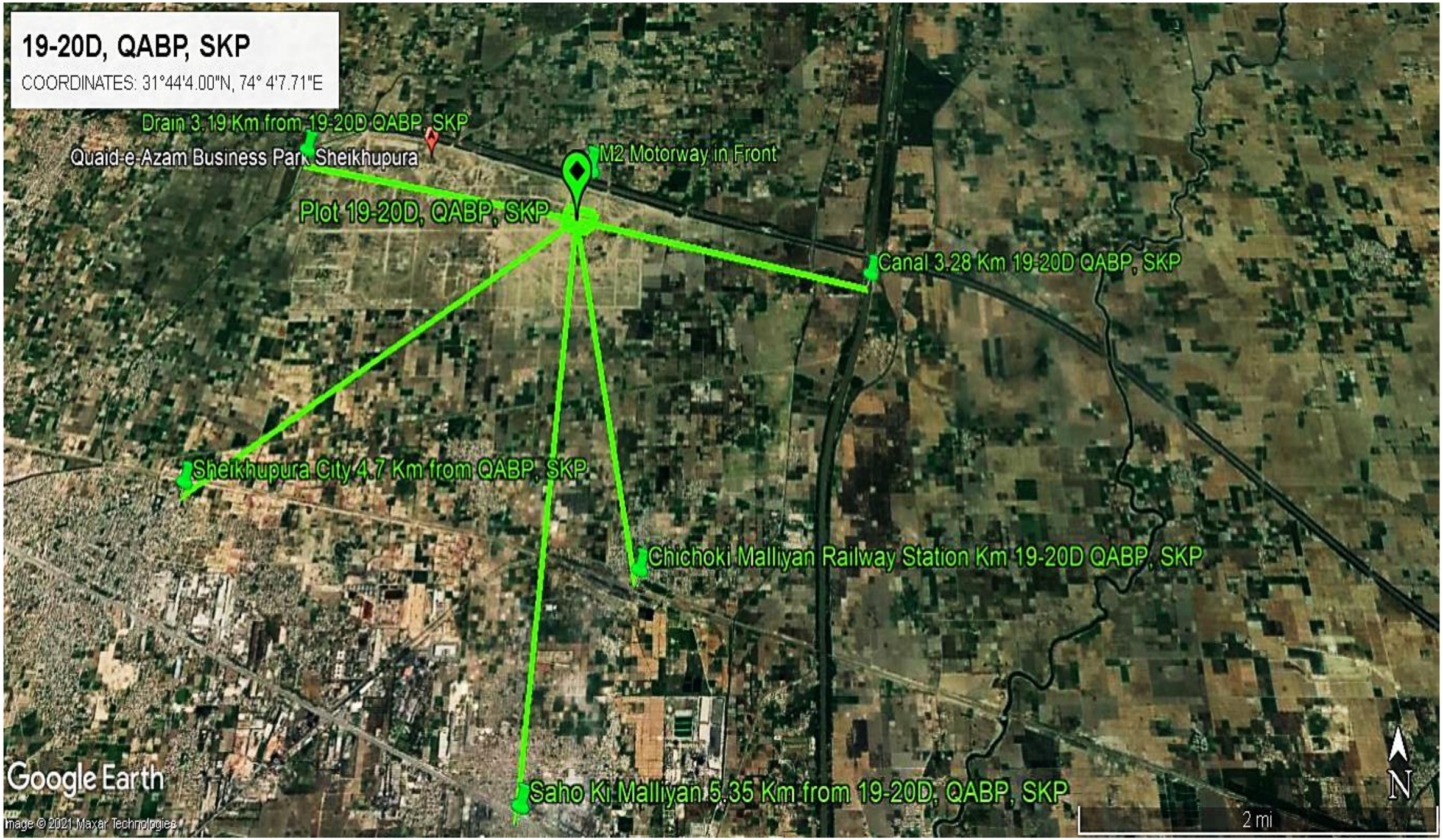
Google Map and Drawings of Proposed Project

MASTER PLAN
QUAID-E-AZAM BUSINESS PARK
SHEIKHUPURA

LEGEND		
Sr. No.	DESCRIPTION	NO. OF PLOTS
1	0 - 0.99 (0.5 ACRE TYPICAL= 30m X 55.74m)	154
2	1 - 1.99 (1 ACRE TYPICAL= 37.16m X 90m)	190
3	2 - 2.99 (2 ACRE TYPICAL= 50m X 135m)	177
4	3 - 3.99 (3 ACRE TYPICAL= 77m X 135m)	16
5	4 & Above (4 ACRE TYPICAL= 70.5m X 190m)	143
	TOTAL NO. OF PLOTS	**680**
	TOTAL SALEABLE AREA	1316.95 Acres



Location of Plot 19-D & 20-D at Quaid-E-Azam Business Pak, Sheikhupura


19-20D, QABP, SKP
COORDINATES: 31°44'4.00"N, 74° 4'7.71"E
Drain 3.19 Km from 19-20D QABP, SKP
Quaid-e-Azam Business Park Sheikhupura
M2 Motorway in Front
Plot 19-20D, QABP, SKP
Canal 3.28 Km 19-20D QABP, SKP
Sheikhupura City 4.7 Km from QABP, SKP
Chichoki Malliyan Railway Station Km 19-20D QABP, SKP
Saho Ki Malliyan 5.35 Km from 19-20D, QABP, SKP
Google Earth
Image © 2021 Maxar Technologies
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ANNEXURE-VI

Baseline Parameters Monitoring Test Reports
(Ambient Air, Ground Water, Noise)

ANNEXURE-VII

Property Ownership Documents

ANNEXURE-VIII

Output of Public Consultation

ANNEXURE-IX

Land Use, Solid Waste Management, Sanitation and Drainage related Documents

ANNEXURE-X

REFERENCES

- Information and data provided by the proponent
- Project feasibility report
- Technical design data related to the project
- Interviews with project related persons of project proponent
- Technical documents of various machinery/equipment
- Meteorological Data from Pakistan Meteorological Department
- Punjab Environmental Protection Act (Amendment) 2012
- Punjab Environmental Quality Standards for Ambient Air 2010
- Punjab Environmental Quality Standards for Noise 2010
- Punjab Environmental Quality Standards for Water 2010
- Guidelines for the preparation and review of Environmental Reports
- Pakistan Environmental Protection Agency Review of Initial Environmental Examination and Environmental Impact Assessment Regulations, 2000
- Punjab Occupational Health and Safety Act-2019
- Higher Education Department, Punjab
- School Education Department, Punjab
- Population Data from Ministry of Population
- Small and Medium Enterprises Development Authority
- An article on Hiran Minar of Sheikhupura published by Wonders of Pakistan-First Blog on Heritage, Culture and Tourism in Pakistan
- Hiran Minar on Wikipedia
- Sheikhupura City Profile-Punjab Cities Improvement Investment Program by Urban Unit

ANNEXURE-XI

COMPANY REGISTRATION DOCUMENTS