

EXECUTIVE SUMMARY

This Environmental Impact Assessment (EIA) report has been prepared for the proposed project titled “Construction of Textile Unit (Warping, Sizing, Weaving, Processing, Stitching and Embroidery) along with an Effluent Treatment Plant (ETP) and Boiler by M/S Rafiq Jamil Textile Industries Pvt. Ltd., located at Plot #160 Allama Iqbal Industrial City, Faisalabad.” The project involves the establishment of a textile manufacturing facility comprising various production processes including warping, sizing, weaving, processing, stitching, and embroidery. As part of the processing section, dyeing and printing operations will be carried out to impart color and design to the fabric. Dyeing involves the application of chemical or natural dyes to achieve uniform coloration, while printing and screen-printing techniques are used to develop specific patterns and designs on the fabric surface through controlled application methods. The project also includes the installation of an Effluent Treatment Plant (ETP) to manage and treat the wastewater generated during processing operations. The ETP is designed to treat wastewater through a combination of physical, chemical, and biological processes to remove contaminants such as dyes and other compounds. The treated water will be managed in accordance with applicable standards and may be reused within the facility or safely discharged. This EIA study has been conducted in compliance with the Punjab Environmental Protection (Amendment) Act, 2012 and the IEE/EIA Regulations, 2000, to ensure that the proposed project meets all regulatory requirements.

➤ Salient features of project:

Sr. No.	CONSTITUENT	DESCRIPTION
1)	Title of Project	Construction of Textile unit (Warping, Sizing, Weaving, Processing, Stitching and Embroidery) along with an Effluent Treatment Plant (ETP) and Boiler by M/S Rafiq Jamil Textile Industries Pvt. Ltd, situated at Plot #160 Allama Iqbal Industrial City, Faisalabad
2)	Project Location:	Situated at Plot #160 Allama Iqbal Industrial City, Faisalabad
3)	Project Overview:	The proposed project is an “Construction of Textile unit (Warping, Sizing, Weaving, Processing, Stitching and Embroidery) along with an Effluent Treatment Plant (ETP)

CONSTRUCTION OF TEXTILE UNIT (WARPING, SIZING, WEAVING, PROCESSING, STITCHING AND EMBROIDERY) ALONG WITH AN EFFLUENT TREATMENT PLANT (ETP) AND BOILER BY M/S RAFIQ JAMIL TEXTILE INDUSTRIES PVT. LTD

		and Boiler by M/S Rafiq Jamil Textile Industries Pvt Ltd situated Plot #160 Allama Iqbal Industrial City, Faisalabad”. The subject project falls in category II B (Manufacturing and Processing) (6) (Textile units comprising of dyeing & Printing) of Schedule II, any other project for which filling of an EIA is required by the Federal Agency under sub-regulation (2) of Regulation 5, of PEPA, Regulation, 2000 requiring EIA. Further required to full fill the legal requirements of section 12 of the PEP Act 1997 (Amended 2022).
4)	Project Proponent & Contact Person	Umer Javed S/O Muhammad Javed Iqbal R/O Model Co-operative Housing Society, House No. 15 C, Okara
5)	Total Area:	35 acres(12,60274 Sq ft)
6)	Total Project Cost	PKR 240 million
8)	Production Process (Processing Unit.)	Construction of Textile unit (Warping, Sizing, Weaving, Processing, Stitching and Embroidery) and effluent treatment plant and Boiler by M/S Rafiq Jamil Textile Industries Pvt Ltd situated Plot #160 Allama Iqbal Industrial City, Faisalabad Warping: Warping is the process of arranging yarns parallel to each other before weaving. Yarns are taken from multiple cones and wound onto a warp beam in a specific sequence and length. It ensures proper yarn alignment and uniform tension for smooth weaving operations. Sizing: Sizing is a process applied to warp yarns to improve their strength and abrasion resistance during weaving. The yarns pass through a size solution containing materials like starch and binding agents. After squeezing and drying, a protective coating forms on the yarns, reducing breakage and improving weaving efficiency.

		Weaving: Weaving is the process of interlacing warp and weft yarns to produce fabric. Warp yarns are kept under tension on a loom, while weft yarns are inserted across them. Different looms and interlacing patterns are used to create various fabric designs and textures. Processing: Processing is a series of treatments applied to fabric to improve its appearance, texture, and quality. It includes bleaching, dyeing, washing, and finishing processes carried out using specialized machines and controlled conditions. These treatments remove natural color, add desired shades, eliminate excess chemicals, and enhance properties such as softness, strength, and overall appearance. Stitching: Stitching is the process of converting fabric into finished garments by joining fabric pieces using sewing machines. The fabric is first cut into required shapes and sizes according to design patterns, then assembled into products like shirts and trousers. It requires precision and skill to ensure proper fitting, durability, and good quality of the final garment. Embroidery: Embroidery is a decorative process of creating designs on fabric using threads. It can be done manually or with computerized machines using different techniques and threads. This process enhances the aesthetic value of garments by adding detailed and unique patterns. Final Products and Production Capacity The proposed textile unit of M/S Rafiq Jamil Textile Industries Pvt. Ltd. will produce Bed Sheets and Polyester
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		Fabric through integrated Warping, Sizing, Weaving, Processing, Stitching, and Embroidery operations. The production capacity of the unit is 150,000 meters/day (1.5 lakh meters/day) of Bed Sheets and 345,000 meters/day (3.45 lakh meters/day) of Polyester Fabric. Boiler: Two coal-fired boilers, each with a capacity of 20 tons, will be installed to provide continuous steam supply for textile processing operations including sizing, dyeing, drying, and finishing. The boilers generate steam by converting water through heat produced from coal combustion. This steam is distributed across the plant to ensure efficient and uninterrupted production. Effluent Treatment Plant Process Flow <pre> graph TD A[Water Collection] --> B[Screening] B --> C[Primary Treatment] C --> D[Secondary Treatment] D --> E[Sludge Treatment] E --> F[Disposal] </pre>
Environmental Precise		
1)	Project Environmental Consultant	Entertech Labs Pvt Ltd (Environment Division) 114 E Nawab Town, Raiwind Road, Lahore. Phone: +92 423 2326882, +92 334-9776233, Email: Waqas.ahmed@iesolutions.pk
2)	Water Requirement	Water Requirement of proposed project is about 08 gallons per capita per day of water will be required for the workers. Domestic Water will be used for the proposed project. 150 m³/Day is used in operational phase of the process.

3)	Electricity Requirement	The design criterion for the electrical works will be in compliance with the requirements of WAPDA. Maintenance will be carried out by the management of the Industry, Tehsil & District Faisalabad
4)	Solid Waste Management	Solid waste will primarily consist of the domestic solid waste from the project. About 500 kg to 1,000 kg per day of domestic solid waste will be generated from the project. The garbage will be collected at a designated area within the area as an intermediate garbage disposal. From this place, garbage will be collected and transported to a suitable location for final disposal. The location for this final disposal will be decided in consultation with the City Faisalabad.
5)	Tree Plantation	Trees will be planted in all open spaces and boundary of the Project Area. Green belts will also be developed

➤ **Major impacts and recommended for mitigation measures:**

The construction of the proposed textile unit, which is a new development project, may result in certain temporary impacts on the surrounding environment. These impacts are mainly associated with site preparation activities and construction of buildings and infrastructure. During this phase, issues such as dust emissions, noise generation, increased traffic movement, and concerns related to worker safety and site sanitation may arise. However, these impacts will be limited to the construction period and are expected to be short-term in nature. As the project involves the establishment of a new facility at the proposed location, no resettlement or displacement of population is anticipated. The construction activities will be carried out under proper supervision, and the contractor will implement necessary measures to minimize any potential disturbances to the environment and nearby areas. The potential impacts associated with the project have been identified for different phases, including site preparation, construction, and operation, using a systematic checklist approach. The key environmental aspects that may be affected during construction include air quality due to dust emissions, noise levels from machinery and equipment, possible contamination related to wastewater disposal, and occupational health and safety concerns. Overall, these impacts are expected to be of

low magnitude and temporary in nature, and with proper management and mitigation measures, they will remain insignificant. During the operational phase, the industry will ensure that all necessary measures are adopted to manage and control environmental aspects effectively.

➤ **Environmental Impact and Mitigation Measure during Construction Phase**

Activity	Environmental Impact	Mitigation Measure
Construction Phase Construction of building including Site Preparation,	• Change in land profile and disturbance of natural drainage pattern • Generation of construction waste such as debris, concrete, and scrap materials • Increased water consumption and possible wastewater generation • Wastewater generation and sanitation concerns • Dust emissions, exhaust gases, and noise generation • Increased traffic movement and emissions within industrial area	• Proper drainage facilities will be provided along the roads. • Reuse of excavated material for backfilling and proper disposal of waste at designated sites • Controlled use of water and provision of temporary drainage for safe disposal • Provision of proper sanitation facilities and waste management system at site • Proper scheduling of transport and use of designated routes

Operational Phase During operational phase solid waste management, wastewater mitigations	• Generation of solid waste and increased demand for resources such as water and electricity • Generation of domestic solid waste and sewage • Generation of wastewater from industrial processes • Air pollution due to vehicular emissions and combustion gases from boilers • Noise generation within industrial premises • Demand for additional resources like water and electricity	• Efficient resource management practices and regular monitoring of consumption • Proper collection, segregation, and disposal of solid waste through authorized waste management system and provision of sewage disposal facilities • Installation and proper operation of Effluent Treatment Plant (ETP) to treat wastewater before discharge or reuse • Regular maintenance of vehicles and boilers, use of cleaner fuels, Latest technology boilers with built in scrubbers will be used, and compliance with air quality standards • Installation of noise control measures and proper maintenance of equipment • Use of energy-efficient machinery and optimized energy utilization practices
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To oversee the environmental performance of the project through its lifecycle enforcing the PEQS an Environmental Monitoring Program should be formulated which ensures effective surveillance of the environmental parameters at various stages of the project development and compliances with PEQS and legal obligations.

➤ **Brief Outline of Proposal**

The proposed project is titled “Construction of Textile Unit (Warping, Sizing, Weaving, Processing, Stitching and Embroidery) along with an Effluent Treatment Plant (ETP) by M/S Rafiq Jamil Textile Industries Pvt. Ltd., located at Plot #160 Allama Iqbal Industrial City, Faisalabad.” The project

involves the establishment of a complete textile manufacturing unit where raw materials will be processed through sequential stages to produce finished textile products. The manufacturing process will begin with warping, where yarns are arranged in parallel form on beams, followed by sizing, in which a protective coating is applied to strengthen the yarns for further processing. The sized yarns will then undergo weaving, where interlacing of warp and weft yarns is carried out to produce fabric. The fabric will subsequently pass through the processing stage, which includes dyeing and printing operations to enhance the appearance and quality of the material. Dyeing involves the application of dyes to impart uniform color, while printing, including screen printing techniques, is used to apply decorative patterns and designs onto the fabric surface. After processing, the fabric will be converted into finished products through stitching, where fabric pieces are cut and sewn into garments. Embroidery may also be carried out to add decorative designs and improve the aesthetic value of the final products. In addition to these manufacturing processes, an Effluent Treatment Plant (ETP) will be installed as part of the project to treat wastewater generated during processing operations. The ETP will ensure that the wastewater is properly treated before discharge or reuse within the facility.

➤ **Proposed Monitoring:**

Monitoring at the proposed site has been conducted for:

- Air Environment (Meteorology, Ambient Air Quality, Noise Levels, Traffic Pattern, etc.)
- Water Environment (Quality, and Quantity of all potential water sources: Surface and Groundwater)
- Ecological Environment (Terrestrial and Aquatic Flora & Fauna)
- Socio-Economic Environment (Demographic profile, Occupational structure, educational status, literacy status, etc.)

➤ **Environmental Management Plan & Proposed Monitoring**

Environmental impact of a project is worked out using various factors and parameters, so that an Environmental Management Plan can be evolved to take mitigation measures, wherever these might be considered necessary in order of appropriateness of elimination, reduction and compensation as the goals. The development of the EMP is to make some person responsible for implementing the mitigation measures as identified so that smooth implementation of the mitigation measures can be assured.

Monitoring plans have also been included to ensure the compliance of the EMP by contractors and other responsible authorities.

➤ **Conclusion and Recommendation**

The Environmental Impact Assessment contains description of the project, description of the environmental baselines, potential environmental impacts and suggested mitigation measures. An implementation mechanism for mitigation measures in the form of an Environmental Management Plan is included in the study. While the objectives of this study have been to describe the project and its environmental impact, it also identifies adverse environmental factors associated with the project. Appropriate mitigation measures as explained in the environmental study should reduce, if not eliminate, these impacts so that these are within acceptable limits. It is further concluded that all potential environmental concerns associated with the project have been adequately addressed, and no further study is required in this context.

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Chapter # 01

Introduction

This Section of the report provides an overview of the rational of the Project, objective of project, requirement of the project, purpose of the report and approach adopted to conduct the Environmental Impact Assessment (EIA).

Construction of Textile Unit (Warping, Sizing, Weaving, Processing, Stitching and Embroidery) along with an Effluent Treatment Plant (ETP) and Boiler by M/S Rafiq Jamil Textile Industries Pvt. Ltd., located at Plot #160 Allama Iqbal Industrial City, Faisalabad. The purpose of this Environmental impact Assessment (EIA) guideline is to provide clear and concise information to all stakeholders (Proponents, Consultants, Government Ministries, Departments and Agencies, Members of the Public, Expert in relevant disciplines and interested groups, the organized private sector, non-governmental organizations, professional bodies, host and project affected communities) to improve and streamline the EIA study carried out for textile unit. This guideline will also assist stakeholders to identify the environmental issues, mitigation measures and alternatives that need to be assessed and considered during the study.

1.1 Purpose of the report

Environmental Impact Assessment (EIA) report is being submitted to the Environmental Protection Agency (EPA), Government of the Punjab, in compliance with the legal requirement for Punjab Environment Protection Act-1997 (Amended 2022), Section 12- for obtaining No Objection Certificate (NOC) before starting and construction activity at the project site. The other relevant regulations and guidelines considered while preparing this EIA report

The other relevant regulations and guidelines considered while preparing this EIA report include:

- Policy and procedures for filing, review and approval of environmental assessments.
- Guidelines for the preparation and review of environmental reports.
- Guidelines for public participation.
- Guidelines for sensitive and critical areas.
- Detailed sectorial guidelines.

Various aspects like environmental, social, physical and other aspects of the project both during construction and its regular occupancy are highlighted in this EIA report. Measures necessary to be adopted to mitigate any environmental impacts on any part of the environment around are also described. All the important information is also provided as described under the format used to help decision makers, EPA Punjab in the present case, before issuing the desired Environmental Approval

1.2 Identification of project and proponent

Project: Construction of Textile Unit (Warping, Sizing, Weaving, Processing, Stitching and Embroidery) along with an Effluent Treatment Plant (ETP) and Boiler by M/S Rafiq Jamil Textile Industries Pvt. Ltd., located at Plot #160 Allama Iqbal Industrial City, Faisalabad.

Proponent: Umer Javed S/O Muhammad Javed Iqbal R/O Model Co-operative Housing Society, House No. 15 C, Okara

1.3 Scope of study

The scope of the EIA Study includes collection and scrutinizing of data related to physical, biological and socio-economic environment of the project area and to prepare the baseline environmental profile. It also aims at the identification, prediction and evaluation of the possible environmental impacts of the proposed Project on its immediate surroundings on both short and long-term basis. Based on the nature and levels of those impacts, appropriate mitigation measures along with the cost have been incorporated in this EIA Report. This report will be submitted to Pakistan Environmental Protection Agency (Pak-EPA) for approval.

1.4 Objective of Study

The overall objective of this EIA is to carry out a detailed environmental assessment of the project area; to assess impacts caused by the different activities of the proposed project and to address measures to mitigate adverse environmental impacts arising from the execution of the proposed project.

The specific objectives of the EIA Study are as follows:

- To assess the existing environmental conditions of the project area prior to the construction of the proposed textile unit and Effluent Treatment Plant (ETP), in order to evaluate any changes during and after project implementation.

- To identify and document the environmental resources, including physical, biological, and socio-economic components, that may be affected by the construction and operation of the textile unit comprising warping, sizing, weaving, processing, stitching, and embroidery.
- To evaluate the potential environmental impacts associated with various phases of the project, particularly construction activities and operational processes such as dyeing, printing, and wastewater generation.
- To provide detailed information to the project proponent and relevant stakeholders regarding the environmental implications of the proposed textile unit and ETP.
- To recommend appropriate mitigation and management measures to minimize adverse environmental impacts arising from project activities.
- To ensure that the proposed project complies with applicable environmental laws and regulations, including the Punjab Environmental Protection (Amendment) Act, 2012 and IEE/EIA Regulations, 2000.
- To facilitate informed decision-making by regulatory authorities based on a comprehensive assessment of environmental impacts and proposed mitigation strategies.

1.5 Requirement of EIA Study for the Proposed Project

The development projects bring about changes, both positive and negative, in the environmental and social settings of the project area. The intensity and level of change, however, depends upon the nature of the project and the baseline environmental conditions of the area. For the last four decades, this aspect has gained a momentum both at official and public level. As a result of this, official regulations and laws have been promulgated for the protection and conservation of the physical, biological and social environment. The law makes it mandatory to carry out environmental assessment studies before commencement of construction activities of any project. EIA is mandatory according to the Pakistan Environmental Protection Act (PEPA1997) Section 12 (1) of the PEPA-1997, which states that:

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

According to Pakistan Environmental protection Agency (Review of IEE and EIA) Regulations 2000, the proposed project falls under category II B (6) of Schedule II, which requires EIA before commencement of construction. In addition, the projects with total cost of 90 million rupees and above qualify for an EIA.

1.6 Scope of Services and Approach to Carry Out the Study

The Terms of references stipulated following major objectives of this study i.e.

- Identify adverse environmental and social impacts associated with various project components and phases of project implementation.
- Describe baseline environmental and social conditions of the whole project corridor.
- Identification of environmental and social impact of the project and suggest mitigation measures.
- To assess and establish the existing environmental and socioeconomic conditions in the Project area.
- To implement and execute environmental safeguards considering the harmful effects due to the Project.
- To propose mitigation and monitoring measures that can be incorporated into the design of the Project to remove or reduce the damaging effects of various factors, as far as possible, and to control and monitor, residual factors. To facilitate environmental decision making.
- To facilitate an appropriate follow up process with requirements for monitoring, management, audit and evaluation.
- To assess the proposed activities and to ensure that they comply with the relevant environmental and social regulations and standards.
- Describe the governing national and international laws & regulatory framework on environment and institutional arrangements.
- Prepare Environmental Management Plan (EMP) and Environmental Costs etc.
- To prepare an EIA report as per the relevant guidelines for submitted to the Provincial Environment Protection Department.
- Specific Tasks for the Study Team
- Based upon the available information, a set of tasks has been conceptualized for the Project viz.

1.7 Specific Tasks for the Study Team

Task 1: Examination and analysis of relevant environmental regulations

Task 2: Initial consultations with the relevant agencies and stakeholders

Task 3: Description of the Project and alternatives

Task 4: Description of the Environment

Task 5: Prediction and Evaluation of the impacts

Task 6: Institutional and legal aspects

Task 7: Environmental Management Action Plan

Task 8: Consultation with stakeholders

1.8 Detail of Consultant

The services of environmental consultant Entertech Labs Pvt Ltd (Environment Division) have been taken by the proponent for the formulation of Report. It is an environmental consultancy firm that has an unrivalled reputation for providing high quality tailored services. Entertech Labs Pvt Ltd (Environment Division) is a dynamic, responsive and innovative in providing this cost-effective solution. Entertech Labs Pvt Ltd (Environment Division) comprising of Environmental Engineers & Consultants and rendering their services to clients in both industrial and the government sectors.

With the visionary leadership of its veteran management and enthusiasm of its team, it is committed to come up with innovative ways of maintaining and enriching the Environmental Profiles / Portfolios of its prestigious clients with activities having a strong and lasting impact to their corporate image. It has attracted and retained staff with an unrivalled depth and breadth of expertise and experience that they have from working, not just in consultancy but also in commercial, industrial and regulatory environments. With its pool of Environmental Consultants, Environmental Scientists and Environmental Engineers, company offers one stop solutions tailored to its client's needs.

CONTACT DETAILS:

Qualified professionals with relevant experiences of conducting environmental assessment have contributed to the preparation of EIA Report. The team has been shown in Table below:

Table 1.1: List of Team Members

Sr. #	Name	Highest Qualification
	Mr. Waqas Ahmad Khan	PhD. Environmental sciences
Members		
	Muhammad Ali Shahid	M.Phil. Environmental sciences, GIS Expert, PGD in Environmental Law (Pu)
	Mr. Abdul Rehman	MPhil Environmental Sciences (UOL)
	Bilawal Zafar	BS(Hons) Environmental Sciences (UOL)
	Fajar Waheed	MPhil Environmental Sciences (UOL)
	Usama Bin Zaffurallah	BE Energy and Environment Engineering
	Samra Mehboob	MPhil Environmental Sciences(GCU)
	Muhammad Momin	BS Environmental Sciences (UOL)
	Javeria Khalid	BS Polymer Engineer(UET)
	Tayyaba Jamil	PhD. Chemical Engineering(UET)
	Eiman Ishaq	BS Biotechnology(UCP)

1.9 Nature, Size and Location of Project

Keep in view the design, construction and operation phases of the project along with potential impacts generated during the course of the project, the proposed plan is subjected to fall under the such categories of the projects that requiring EIA as per Pakistan Environmental Protection Agency (PAK-EPA) (2000) regulations.

The proposed project is “Construction of Textile Unit (Warping, Sizing, Weaving, Processing, Stitching and Embroidery) along with an Effluent Treatment Plant (ETP) and Boiler by M/S Rafiq Jamil Textile Industries Pvt. Ltd., located at Plot #160 Allama Iqbal Industrial City, Faisalabad.”. This guideline will also assist stakeholders to identify the environmental issues, mitigation measures and alternatives that

need to be assessed and considered during the study. The proposed project is Construction of Textile Unit (Warping, Sizing, Weaving, Processing, Stitching and Embroidery) along with an Effluent Treatment Plant (ETP) and Boiler by M/S Rafiq Jamil Textile Industries Pvt. Ltd., located at Plot #160 Allama Iqbal Industrial City, Faisalabad occupied a total area of 35 acres(12,60274 Sq ft).

Location

M/S Rafiq Jamil Textile Industries Pvt. Ltd, situated at Chak No. 200RB, Lathianwala, Near Sitara Valley, Faisalabad. The land co-ordinates of the project site are as follows:

East..... Road

West.....Open Land

North..... Industrial Unit

South..... Industrial Unit

Spatial and Temporal Boundaries of the Assessment

Temporal and spatial boundaries for the effects assessment are defined by the characteristics of the project and the VECC being assessed. These boundaries encompass time periods and areas during and within which the VECCs are likely to interact with or be influenced by the project. Spatial boundaries vary according to the nature of the VECC but generally are defined in terms of:

The definition of the RSA may take into consideration factors such as:

- Habitat for sensitive life stages;
- Wildlife migration routes and ranges;
- Areas of potential effects from dispersed or intermittent project activities, such as, air transport, and road haul; and
- Areas within which there is potential for cumulative effects with other projects.

Temporal boundaries for project-related effects are defined in terms of the project phases:

Baseline – The baseline covers ecological, physical, and human-related characteristics of the environment, as characterized in 2025, prior to the initiation of the construction phase.

Construction – Includes all activities associated with the development of the proposed textile unit prior to commencement of production operations (mill start-up), such as:

- Construction of internal roads, drainage system, and transportation access within the industrial estate;
- Mobilization of construction equipment, machinery, raw materials, and labor to the project site;
- Development of site infrastructure including administrative buildings, production units (warping, sizing, weaving, processing, stitching, and embroidery sections), storage areas, and utility areas;
- Installation of essential facilities such as boilers, Effluent Treatment Plant (ETP), water supply system, and power distribution network;
- Construction of wastewater management system including collection channels, equalization tanks, and treatment units;
- Establishment of worker camps, material storage yards, and temporary construction facilities.

Decommissioning – includes all activities to decommission site facilities and remove equipment and materials from the site, recontour the site and restore drainage patterns to stable long-term conditions, stabilize the wastes (waste rock) for safe long-term maintenance, and implement the final site reclamation procedures to prevent erosion and restore vegetation cover where feasible;

Closure – refers to conditions that will exist on the site after the site is abandoned and revegetation is complete.

Temporal boundaries are also defined for the cumulative effects assessment, spanning baseline to a point in the future, within which project effects on VECCs are predicted to overlap with effects of other projects or activities. Spatial and temporal boundaries for each VECC are detailed in respective report sections.

Important Issues and Concerns raised during consultation.

Issue	Aspect/Concern raised by Stakeholders	Project Proponent Commitments
Employment Opportunities	Expectations of employment are very high. Job opportunities are less for herders as they generally have less skills and training.	Employment is the main priority of the industry. Mostly locally skill and unskilled labor will be prioritized and also there will be job in executive level. Around 100 people will be employed by the industry.

CONSTRUCTION OF TEXTILE UNIT (WARPING, SIZING, WEAVING, PROCESSING, STITCHING AND EMBROIDERY) ALONG WITH AN EFFLUENT TREATMENT PLANT (ETP) AND BOILER BY M/S RAFIQ JAMIL TEXTILE INDUSTRIES PVT. LTD

Training Opportunities	People are keen to consult with subject industry if the Project offers training and upgrading opportunities to enhance their trade or professional skills.	Development of the Training Strategy, including commitment of allocation of budget investment for training infrastructure, delivery and design. Installation of training facilities in for worker of the company and students will also be accommodating. The internship program will offer to the students to develop professional skills.
Health & safety	Truck traffic is a main concern because the road used by the Project passes through a number of small communities and different industries and there will be a high volume of trucks transporting concentrate.	Development of Transport Management Plan including traffic safety training. Traffic advisory signs will be installed along project site and all nearby specific areas.
Local economy and business development	Local service providers are keen to participate in providing services to provide raw material and expect to receive in order to adjust their businesses to meet specific needs. Local/regional companies and entrepreneurs have limited understanding about meeting the high volumes required by the Project and the quality standard, but are keen to know these requirements so they can become suppliers.	Proponent has main focus that they will all the material regarding construction and plant operation to buy from the local market. This will help the local and small business and to people who are keen interested to become suppliers.
Environmental Issues	Dust and noise impacts, particularly from the construction activities and in operation of mechanically unfit machines, are of concern to herders and other residents. Environmental degradation during road construction and use. Loss and change of vegetation due to soil degradation.	Implementation of controls under the Environmental Management Plans, including on and off-site dust and noise monitoring. A Participatory Environmental Monitoring Program will be launched to spread awareness.
Water quantity and quality	Water quality and quantity, and impacts from the wastewater disposal are all key concerns for nearby herders.	Implementation of consultation in relation to water use and development of the Participatory Environmental Monitoring Program. Water treatment will be done by the proponent that will help to safe disposal of the

		water.
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Significance Impact

The construction of the project can create some adverse impact on the existing environment. The acoustic impacts, dust emission, traffic congestion, safety and sanitation during the construction period would be limited to construction of building and site preparation. During construction, the contractor will adopt all necessary measures to reduce the probable environmental impacts from different aspects. There are minimal impacts during operation period and Construction will be responsible to take necessary steps during operation. The significant impacts in different phases i.e. (i) due to project location and preparation, (ii) construction phase and (ii) operation phase have been identified using the checklist process. From this process, the main potential environmental impacts, which may arise due to construction, can be grouped as follows: (i) Atmospheric emissions and Air quality, (ii) Noise generation, (iii) Water pollution and wastewater disposal, and (iv) Health and safety However, the magnitude of these impact shall be very low and insignificant.

1.10 Field Visit

The consultant team visited the Project site and adjoining areas frequently to collect baseline data and investigate physical, biological, and socioeconomic resources. In addition, meetings were held with the stakeholders and community members in the Project area to collect primary information about the Project and record their views and concerns regarding the proposed project.

The rapid Social Appraisal methodology was applied to discover the facts (empirically verifiable observations or verifying the old facts) on the prevailing socio-economic and cultural conditions of the Project area. Various aspects of the physical environment probed during the survey.

1.11 Policy, Legal and Administrative Framework

This section comprises policy, guidelines, statutory obligations and roles of institutions concerning EIA study of the proposed project.

The objective of the review of legal and administrative framework is to obtain information on all legislation pertaining to the Project development. The Consultant Experts reviewed the environmental policies, national, international and provincial laws and guidelines relevant to the Project. A synopsis of all relevant laws is included in the Report.

1.12 Identification of Impacts

The impacts have been identified for the methodical consideration of likely or possible significant impacts on the environment because of construction and operational activities. The aim of this task was to assess the associated risks with these impacts. The identification of impacts is a key activity in the environmental assessment process, which is based on the professional judgment of team's experience supported by national and international guidelines.

1.13 Evaluation of Impacts

Each impact identified has been evaluated against its significance in the terms of its severity and likelihood of its occurrence. The impact evaluation process was carried out to prioritize each potential impact and screen out insignificant or inconsequential impacts. The significance of the impacts has been assessed in terms of the effects on the natural ecosystem, level of public concern and conformity with legislative or statutory requirements. The assessment of the severity was to consider the nature, magnitude, extent and location, timing and duration and reversibility of the potential impact. The evaluation of the significant impacts will outline the basis for development of environmental mitigation and monitoring program.

1.14 Identification of Mitigation Measures

The objective of identification of mitigation measures is to identify practices, technologies or activities that would prevent or minimize all significant negative environmental impacts and propose physical and procedural controls to ensure that mitigation is effective. On the basis of the impact evaluation performed, changes or improved practices have been suggested, where practical, in the planned activities, to prevent and control unacceptable adverse impacts resulting from normal or extreme events. Monitoring requirements have been defined and institutional arrangements for monitoring have been suggested.

1.15 Development of Environmental Management Plan and Environmental Monitoring Plan

An Environmental Management Plan (EMP) has been developed for effective implementation of the recommended mitigation measures. The EMP includes controls to minimize the identified impacts, and monitoring program to monitor residual impacts, if any, during the operation. The EMP also describes procedures to be followed during the operation of the Project and identify roles and responsibilities of all concerned personnel, including reporting in the operational phase. Together with Environmental Management Plan, an Environmental Monitoring Plan has been framed to ensure that all the corrective actions to counter the adverse environmental impacts have been taken.

Alternatives Considered, and Reasons for their Rejection

Alternatives sites were identified initially for the proposed project. These sites were also located in district Faisalabad the present site has been selected after consideration of the other two alternative sites. These sites and their reasons of rejection are summarized below:

Design/technology alternatives, their selection and rejection criteria

The proposed Construction of Textile unit (Warping, Sizing, Weaving, Processing, Stitching and Embroidery) along with an Effluent Treatment Plant (ETP) and Boiler by M/S Rafiq Jamil Textile Industries Pvt. Ltd, situated at Plot #160 Allama Iqbal Industrial City, Faisalabad. The site is suitable enough for the construction.

Environmental Alternatives, their selection and rejection criteria

The proposed Construction of Textile unit (Warping, Sizing, Weaving, Processing, Stitching and Embroidery) along with an Effluent Treatment Plant (ETP) and Boiler by M/S Rafiq Jamil Textile Industries Pvt. Ltd, situated at Plot #160 Allama Iqbal Industrial City, Faisalabad. This selected site is environmentally friendly and sustainable. There is no specie present that will be harm due to Project. Hence, there is no environmentally alternative considered for this specific project.

Economic Alternatives, their selection and rejection criteria

The current selected mythology, designing and technique is economically efficient and provides extensive job creation avenues. It refers to the shift of materials used in the proposed project towards environmentally friendly and sustainable materials in present case. All machinery, equipment and

CONSTRUCTION OF TEXTILE UNIT (WARPING, SIZING, WEAVING, PROCESSING, STITCHING AND EMBROIDERY) ALONG WITH AN EFFLUENT TREATMENT PLANT (ETP) AND BOILER BY M/S RAFIQ JAMIL TEXTILE INDUSTRIES PVT. LTD



materials procured for the said project will be environmentally friendly and sustainable. Hence, there is no material alternative considered in this case.

Chapter # 02

Project Description

2.1 General

Textiles industry has around 4.5 crore employed workers including 35.22 lakh handloom workers across the country. The domestic textiles and apparel market stood at an estimated US\$ 100 billion in FY19.

The global demand for the Textile Yarn Market was valued at USD 11.9 Billion in 2019 is expected to reach USD 16.0 Billion in 2026 and is anticipated to grow at a CAGR of 4.0% Textile is one of the basic needs of human population. Textile industry is witnessing huge demands in Asia Pacific regions due to population explosion. The adoption of new trends globally and introduction of new fabrics are some of the major factors driving demand for textile yarns.

A continuous length of long interlocked fibers is known as yarn; it used in the various process of the textiles production such as weaving, sewing, embroidery, rope making, knitting, and crocheting. The thread is kind of textile yarn specially intended for sewing by machine or hand. Embroidery threads are also the type of textile yarns, which is designed for a machine, or hand embroidery. The textile yarn is made up of numerous synthetic or natural fibers. Natural fibers are little elastic and extremely breathable. Cotton is the most common plant fiber, while synthetic fibers come in the three forms such as a filament, staple, and tow. Filament and spun are basic types of the textile yarn.

Rapid growth in the urbanization and increasing requirement of the industries are the major factors that anticipate driving the market growth. The shift in consumer preference towards affordable and comfortable clothing increases the demand for high-value fabrics

Blended varieties of fibers are also taking immense growth in the market owing to significant features of both artificial and natural yarn thus opening up new growth opportunities in the coming years. However, instability in the production of plant and animal source yarn and the strict regulation that is imposed on the trade of textile yarn products restraints the global textile yarn market to some extent.

Objective of the Project

Pakistan is the 4th largest producer of cotton with the third largest spinning capacity in Asia after China and India and contributes 5% to the global spinning capacity. Spinning mills are significant for textile industries as they transfigure fiber into yarn and yarn into fabric. Spinning process is an initial step to produce textile layout such as garments, fabric, home textile and so on. People used to convert fibers into yarn i.e., the spinning process by hand before a couple of decades which has now been mostly replaced by advanced technology of mechanical spinning carried in textile mills.

2.2 Type and category of the project

The project is based on Construction of Textile Unit (Warping, Sizing, Weaving, Processing, Stitching and Embroidery) along with an Effluent Treatment Plant (ETP) and Boiler by M/S Rafiq Jamil Textile Industries Pvt. Ltd., located at Plot #160 Allama Iqbal Industrial City, Faisalabad. The subject project falls in the category II B (6) of Schedule II, any other project for which filing of an EIA is required by the Federal Agency under sub-regulation (2) of Regulation 5, of PEPA, Regulation, 2000 requiring EIA. Further the client is required to full fill the legal requirements of section 12 of the PEP Act 1997 (Amended 2022).

2.3 Current status of the project

As proponent is seeking for Environmental Approval so they can start their construction on immediate basis. No activity is performed in the premises till the approval of the Environmental NOC.

2.4 Project Justification

A proponent shall provide necessary and adequate information on the justification for the project. This shall include a summary of the report of the Project's feasibility study; the need, value and sustainability (social, cultural and economic) of the Project. Such justification shall expressly define the benefits of the project to its intended end-users and indicate the over-riding advantages or positive impact of the project over its anticipated environmental impacts. The justification may also include the rationale for selecting the project amongst various available options or alternatives and any socioeconomic factor is justifying the project.

2.5 Alternatives Considered, and Reasons for their Rejection

Alternatives sites were identified initially for the proposed project. These sites were also located in district Faisalabad the present site has been selected after consideration of the other two alternative sites. These sites and their reasons of rejection are summarized below:

2.5.1 Alternative site



Figure 1 Alternative site location

2.5.2 Reasons of Rejection

The reasons of rejection of this site are:

- Agriculture land
- Underground water was deep and not easy to extract. Ground water quality was not good.
- Nearest to residential area
- Security threat was present
- Wastewater disposal drain was not existing

Selected Site:

- ❖ The reasons of selection of this site are:
- ❖ Availability of access roads

- ❖ Communication facilities
- ❖ Availability of electricity
- ❖ Basic infrastructure
- ❖ Sewerage system
- ❖ Approved drainage system
- ❖ Less/few vegetation/plantation
- ❖ Less fauna species at site
- ❖ Convenient plot layout
- ❖ Subject selected site surrounded by industrial area except one site which is open land

Obviously, environmentally sound, neat and clean environment are the other considerations for site selection. The project will also facilitate the people of the area with increasing the opportunity of employment and others related facilities. Keeping these requirements and their feasibility and other basic infrastructural requirements at the site, the selected site is ideally suited for M/S Rafiq Jamil Textile Industries Pvt. Ltd., located at Plot #160 Allama Iqbal Industrial City, Faisalabad. In reference to the alternatives to the project site, several lands were evaluated. The final selection of site is based on following criterion:

- **Accessibility:**

The site should be accessible from a permanent road to allow ready transport.

- **Water Supply:**

Availability of adequate water supply, which should also, meets drinking water standards.

- **Soil condition for civil Structure:**

Suitability and stability of soil condition required for the civil structure.

- **Sufficient Land Availability:**

Availability of sufficient land to design and layout plan in an appropriate manner, with consideration of future expansions.

Electricity:

Availability of electricity from the WAPDA for an uninterrupted supply of power, required for the project.

2.6 Location of project

The proposed project is by M/S Rafiq Jamil Textile Industries Pvt. Ltd, situated at Plot #160 Allama Iqbal Industrial City, Faisalabad, occupied an area of 35 acres.

CONSTRUCTION OF TEXTILE UNIT (WARPING, SIZING, WEAVING, EMBROIDERY) ALONG WITH AN EFFLUENT TREATMENT PLANT AND BOILER BY M/S RAFIQ JAMIL TEXTILE INDUSTRIES PVT. LTD



PROCESSING, STITCHING AND (ETP)

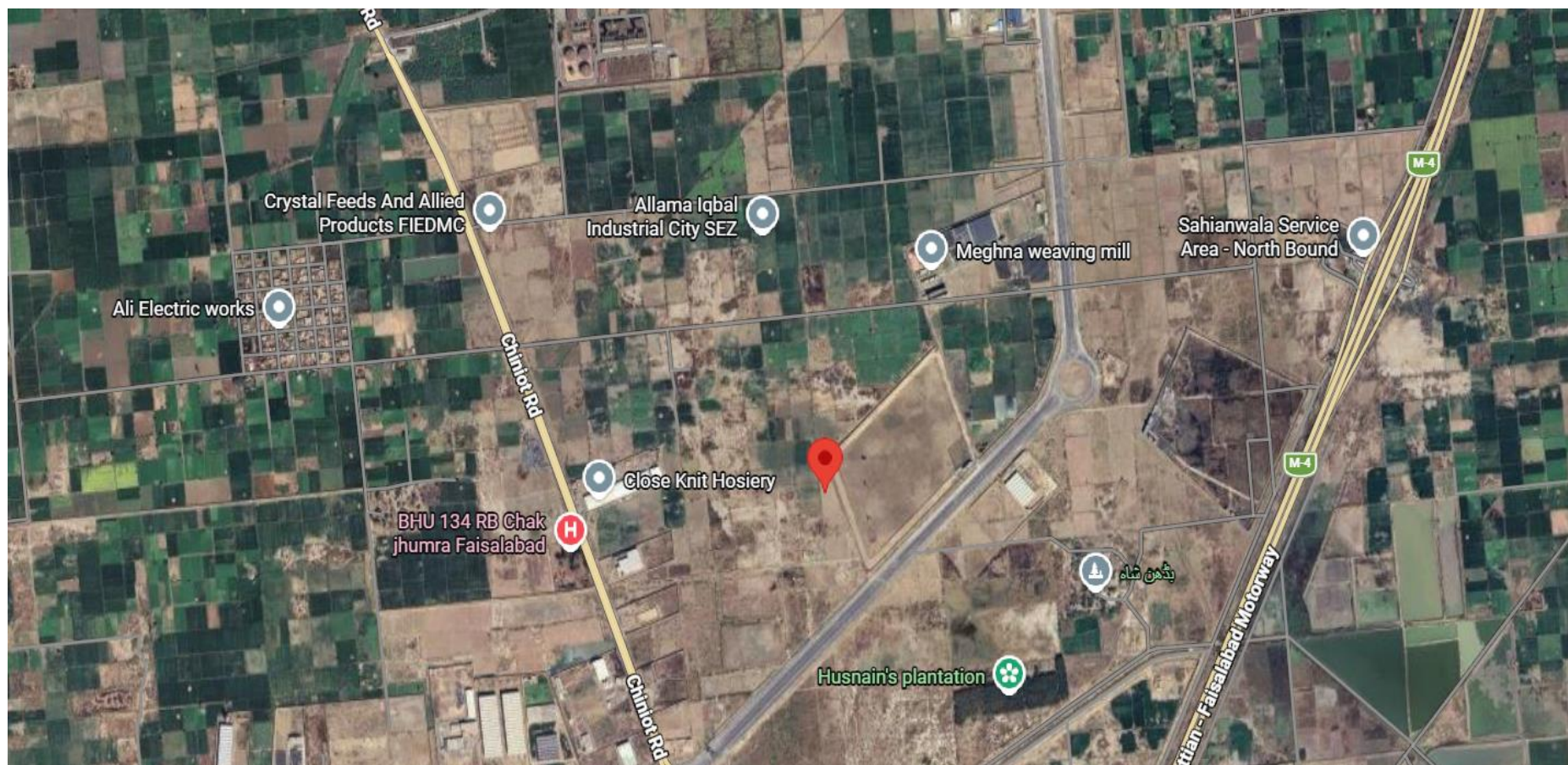


Figure 2 Google Map of Project

2.7 Land Acquisition

M/S Rafiq Jamil Textile Industries Pvt. Ltd., located at Plot #160 Allama Iqbal Industrial City, Faisalabad is the property of the owner. The total area of 35 acres. It is an open land, and no person or any kind of human being is not being displaced from the area.

Road Access

The site is easily accessible from M-4 Sahianwala Interchange.

2.8 METHODOLOGY

2.8.1 Study Area

- a) On-site assessments and interviews were conducted with relevant personnel including workers, management staff, and nearby community members to understand the existing environmental and social conditions of the project area.
- b) Detailed understanding of operational activities of the proposed textile unit including warping, sizing, weaving, processing (dyeing and printing), stitching, embroidery, as well as boiler operations and Effluent Treatment Plant (ETP) functioning.
- c) Collection of samples from process effluent, treated wastewater, and groundwater sources followed by laboratory analysis to evaluate water quality parameters.
- d) Preparation of the EIA report based on field surveys, stakeholder consultations, and technical data obtained from the project proponent and site observations.
- e) Review of relevant literature, environmental guidelines, and regulatory standards to support the assessment and identify key environmental considerations related to the textile industry.

2.9 Project Process

The proposed textile unit comprises a sequence of interconnected operations including warping, sizing, weaving, processing, stitching, and embroidery. These processes are supported by utility systems such as boilers for steam generation and an Effluent Treatment Plant (ETP) for wastewater treatment. Each stage is carried out under controlled conditions to ensure product quality and process efficiency.

- **Warping**

Warping is the initial operation in the textile manufacturing process, where yarns are prepared for weaving by arranging them in parallel form on a warp beam. Yarn packages are mounted on a creel, and each yarn is drawn through guides and tension devices to maintain uniform tension. The yarns are then wound onto a beam in a predetermined order and length. Precision in alignment and tension control is critical, as any variation may lead to defects in subsequent processes. Modern warping machines are equipped with automatic stop motions and monitoring systems to detect yarn breakage and ensure uniform winding.

- **Sizing**

Sizing is a crucial preparatory step that enhances the strength and abrasion resistance of warp yarns. In this process, yarns pass through a size bath containing substances such as starch, polyvinyl alcohol (PVA), binders, and lubricants. The purpose of sizing is to reduce friction, improve cohesion among fibers, and minimize yarn breakage during weaving. After impregnation with the size solution, excess liquid is removed using squeeze rollers, and the yarns are dried over steam-heated cylinders. The steam required for drying is supplied by boilers. Proper control of parameters such as temperature, viscosity of size solution, and drying rate is essential for effective sizing.

- **Weaving**

Weaving is the process of fabric formation by interlacing warp and weft yarns. The warp beam is mounted on the loom, and yarns are passed through heddles and reeds to maintain spacing and control movement. The loom performs three main operations: shedding (raising and lowering warp yarns), picking (inserting weft yarn), and beating (pushing the weft into place). This results in the formation of grey fabric. Advanced looms such as air-jet or rapier looms may be used for higher efficiency and productivity. The quality of fabric depends on proper synchronization of loom operations and uniformity of yarns.

- **Processing (Pre-treatment, Dyeing, Printing and Finishing)**

Pre-treatment

Pre-treatment processes are carried out to prepare the fabric for dyeing and printing. Singeing removes protruding fibers from the fabric surface using controlled flame exposure. Desizing eliminates the size materials applied during sizing, typically through enzymatic or chemical treatment. Scouring removes natural impurities such as waxes, oils, and dirt, while bleaching improves whiteness by removing natural coloration. These processes ensure better dye absorption and uniformity.

Dyeing

Dyeing is the process of imparting color to the fabric using dye solutions. The fabric is immersed in dye baths under controlled conditions of temperature, time, and pH. The selection of dye depends on the type of fiber and desired color fastness properties. Boilers supply steam required for heating dye baths and maintaining process temperatures. Continuous agitation and circulation of dye liquor ensure uniform color distribution. After dyeing, the fabric is rinsed thoroughly to remove unfixed dyes.

Printing

Printing is used to apply decorative patterns onto fabric. In this process, designs are transferred onto the fabric surface using printing machines. Screen printing is widely used, where a mesh screen with a prepared stencil allows selective passage of color paste onto the fabric. Other methods such as rotary or digital printing may also be employed depending on production requirements. After printing, the fabric is dried and subjected to heat treatment to fix the design.

Finishing

Finishing processes are carried out to enhance the physical and aesthetic properties of the fabric. These may include calendaring, where fabric is passed through rollers to improve smoothness and luster, and other treatments to improve softness, strength, and dimensional stability. Drying and finishing operations often utilize steam generated by boilers.

- **Stitching**

Stitching is the process of converting processed fabric into finished textile products. The fabric is first inspected and then cut into specific shapes using cutting machines or manual methods based on design patterns. The cut pieces are assembled and stitched using sewing machines. Various types of stitching techniques are employed depending on product requirements. Quality control measures are implemented during stitching to ensure proper alignment, seam strength, and finishing of garments.

- **Embroidery**

Embroidery is a decorative process used to enhance the visual appeal of textile products. It involves the creation of patterns and designs on fabric using threads. The process can be carried out manually or through computerized embroidery machines, which allow precise and intricate designs. Different types of threads, colors, and stitching techniques are used to achieve the desired aesthetic effect. Embroidery adds value to the final product and improves its marketability.

- **Final Products and Production Capacity**

The proposed textile unit of M/S Rafiq Jamil Textile Industries Pvt. Ltd. is designed to manufacture high-quality textile products through integrated Warping, Sizing, Weaving, Processing, Stitching, and Embroidery operations. The final products of the facility will primarily include Bed Sheets and Polyester Fabric. The designed production capacity of the unit is approximately **150,000 meters/day (1.5 lakh meters/day) of Bed Sheets** and **345,000 meters/day (3.45 lakh meters/day) of Polyester Fabric**.

- **Boiler System (Utility Section)**

Boilers are an essential part of the textile unit and are used to generate steam required for various processes such as sizing, dyeing, drying, and finishing. The project will include the installation of two boilers, each having a capacity of 20 tons, to ensure sufficient and continuous steam supply for all processing operations. The boilers will operate using coal as the primary fuel source, where combustion of coal produces heat that converts water into steam. This steam is then distributed through pipelines to different sections of the plant where controlled heating is required. Proper operation and maintenance of boilers ensure efficient energy utilization and continuous production.

- **Effluent Treatment Plant (ETP)**

The Effluent Treatment Plant (ETP) is installed to treat wastewater generated from processing operations. The treatment process begins with screening to remove large particles, followed by equalization to balance flow and composition. Chemical treatment is then carried out to neutralize pH and remove suspended and dissolved impurities. Biological treatment processes are used to degrade organic matter. Finally, treated water is clarified, filtered, and tested to ensure it meets regulatory standards. The treated water may be reused within the plant or safely discharged. The designed treatment capacity of the ETP is **1920 m³/day (equivalent to approximately 80 m³/hr)**, ensuring adequate handling of wastewater generated from the textile processing unit.

2.10 Vegetation features of the project

The project site has few scattered amount of vegetation, only five trees will be cut during construction. Project site is open land that will help to avoid land clearing, mainly shrubs, weeds and grasses are present over there in scattered quantity.

2.11 Magnitude of the operation including capital cost, and associated activities

The proposed project involves the construction of a textile unit comprising warping, sizing, weaving, processing, stitching, and embroidery sections along with an Effluent Treatment Plant (ETP) and boiler facilities with all the associated infrastructure. The project is being developed by M/S Rafiq Jamil Textile Industries Pvt. Ltd., located at Plot #160 Allama Iqbal Industrial City, Faisalabad. The total area allocated for the project is **35 Acres**. The total cost of the subject proposed project will be 240 Million PKR for land development, plotting, planning, and construction.

2.12 Time Schedule

The planning of the proposed project includes the layout plan and overall design of the textile unit comprising warping, sizing, weaving, processing, stitching, and embroidery sections, along with designated areas for solid waste management and the Effluent Treatment Plant (ETP). The project is being developed by M/S Rafiq Jamil Textile Industries Pvt. Ltd., located at Plot #160 Allama Iqbal Industrial City, Faisalabad. The construction of the proposed textile unit, including the ETP and boiler systems, is expected to be completed within approximately six months after obtaining environmental approval. The project will also generate employment opportunities, particularly for the local population, during the construction phase as well as the operational stage.

2.13 Water Requirement:

Water Requirement of proposed project is about 08 gallons per capita per day of water will be required for the workers. Domestic Water will be used for the proposed project. 150 m³/Day is used in process.

2.14 Sources of Water

Underground water at the project site is available at the depth of 150-200 feet and source of water for the industrial process will be the tube well. According to the chemical analysis report water is fit for drinking.

2.15 Wastewater Treatment Specification:

Water Requirement of proposed project is about 08 gallons per capita per day of water will be required for the workers. Domestic Water will be used for the proposed project. 150 m³/Day is used in process.

As According to Punjab water supply, Sewerage and Drainage Scheme

Domestic Water Consumption

Design Population	Per Capita Consumption per day
700-2000	8 gallons
2000-5000	10 gallons
5000-10000	15 gallons
10000-25000	20 gallons
10000-25000	30 gallons (with Sewerage Facilities)
25000-1 lac	40 gallons (with Sewerage Facilities)
Above 1 lac	50 gallons (with Sewerage Facilities)

Wastewater Treatment Specification

Wastewater treatment (WWT) is a broad term that applies to any process, operation or combination of processes and operations that can reduce the objectionable property of water that carried waste and render it less dangerous.

Effluent Discharge Data

Parameters	Discharge values in mg/l
pH	7.9
COD	184
BOD	23
Ammonia as NH ₃	62
Total nitrogen suspended solids	32

(TSS)	
Phosphorus as PO ₄	0.18
Total nitrogen	6.4
Temperature	22oC
Total alkalinity as CaCO ₃	86

Critical parameters and their Limiting Discharge values after treatment

Constituent group of Parameters	Discharge values (in mg/l) after treatment of the effluent
COD	150
BOD	50
Ammonia as NH ₃	20
Total suspended solids (TSS)	30
Phosphorus as PO ₄	10
Total nitrogen	40
Temperature	40°C
Total alkalinity as CaCO ₃	86

Based on the data given in the data analysis and laboratory result above a new treatment system for Ethiopian Textile industry can be suggested to reduce the environmental impact. The suggested treatment method is called wetland treatment system. Because wetland treatment systems have the following advantages over conventional treatment system:

- High removal efficiency in BOD, COD, TSS and it regulates pH.
- Low or no energy requirement.

- Have high design flexibility.
- Effective option for on-site wastewater treatment

Flow equalization: Equalization tank is the tank used to collect the effluents discharged from sizing, desizing, scouring, mercerizing, bleaching, dyeing and printing departments. The wastewater flow rates from waste generating sites vary according to

- a. The type and size of the facility
- b. The degree of water reuse
- c. The on-site wastewater treatment methods.

Therefore, flow equalization is the process used to give equal flow rate and uniform waste load for next operations.

Neutralization: Wastewater of Textile industry has high alkaline content and contains other polluting chemicals. The alkalinity of the wastewater is neutralized (treated) at neutralization tank before entering to other treatment steps. The chemical used in neutralization process are H_2SO_4 or HCl .

Coagulation

It is the process whereby chemicals are added to a wastewater resulting in a reduction of the force tending to keep suspended particles apart. Chemical coagulants used for this purpose are various such as alum, iron salt, ferrous sulfate, ferric chloride and ferric sulfate. These chemicals are most effective when wastewater is slightly alkaline, and wastewaters of Textile industry are alkaline in nature.

Settling tank

Settling tank is first filled with incoming wastewater from coagulation tank and can rest for a certain detention time. During this detention period, the suspended solids settle down at the bottom of the tank, at the end of the period the effluent is drawn off through the outlet line.

Mass Balance and Sample Design of ETP

Mass Balance (Settling Tank)

Let:

$Q_5 = \text{Total influent flow} = 1,920 \text{ m}^3/\text{day}$

Assume sludge removal (Q_6) $\approx 2 \text{ m}^3/\text{day}$

So:

$$Q_5 = Q_7 + Q_6$$

$$Q_7 = Q_5 - Q_6$$

$$Q_7 = 1,920 - 2 = 1,918 \text{ m}^3/\text{day}$$

Design of the Plant

1. Design of Equalization Tank

Given Data:

Flow rate (Q) = $1,920 \text{ m}^3/\text{day}$

Depth (H) = 3 m

Detention time (t) = 4 hours

Volume of Tank (V):

$$V = Q \times t \times (1/24)$$

$$V = 1,920 \times 4 \times (1/24)$$

$$V = 320 \text{ m}^3$$

Area (A):

$$A = V / H$$

$$A = 320 / 3$$

$$A = 106.7 \text{ m}^2$$

Assuming square tank:

$$B^2 = 106.7$$

$$B \approx 10.3 \text{ m}$$

Take $B = 10 \text{ m}$

Final dimensions (with 25% extra capacity):

$$V = 1.25 \times (10 \times 10 \times 3)$$

$$V = 375 \text{ m}^3$$

2. Design of Neutralization Tank

Neutralization tank volume $\approx$ Equalization tank

$$\text{Volume} = 320 \text{ m}^3$$

Dimensions:

$$\text{Length} = 10 \text{ m}$$

$$\text{Width} = 10 \text{ m}$$

$$\text{Depth} = 3 \text{ m}$$

Chemicals Used:

- H_2SO_4 or HCl for pH control

3. Design of Coagulation Tank

Given:

$$\text{Flow} = 1,920 \text{ m}^3/\text{day}$$

$$\text{Detention time} = 30 \text{ min}$$

Tank Volume:

$$V = (1,920 / 24) \times (30 / 60)$$

$$V = 80 \times 0.5$$

$$V = 40 \text{ m}^3$$

Power Requirement

Using:

$$P = G^2 \times \mu \times V$$

Where:

$$G = 50/\text{sec}$$

$$\mu = 1.14 \times 10^{-3} \text{ Ns/m}^2$$

$$V = 40 \text{ m}^3$$

$$P = (50)^2 \times (1.14 \times 10^{-3}) \times 40$$

$$P = 2500 \times 0.00114 \times 40$$

$$P \approx 114 \text{ Watt}$$

Paddle Area

$$A = 2P / (C_D \times \rho \times V_p^3)$$

Where:

$$C_D = 1.8$$

$$\rho = 1000 \text{ kg/m}^3$$

$$V_p = 0.5 \text{ m/s}$$

$$A = (2 \times 114) / (1.8 \times 1000 \times 0.125)$$

$$A \approx 228 / 225$$

$$A \approx 1.01 \text{ m}^2$$

Alum Requirement

$$\text{Dose} = 12 \text{ mg/L}$$

$$M = Q \times \text{Dose} \times 10^{-3}$$

$$M = 1,920 \times 12 \times 10^{-3}$$

$$M = 23.04 \text{ kg/day}$$

4. Design of Settling Tank

Given:

$$\text{Flow} = 1,920 \text{ m}^3/\text{day}$$

$$\text{Detention time} = 3 \text{ hours}$$

$$\text{Depth} = 3 \text{ m}$$

Volume:

$$V = Q \times t \times (1/24)$$

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$$V = 1,920 \times 3 \times (1/24)$$

$$V = 240 \text{ m}^3$$

Area:

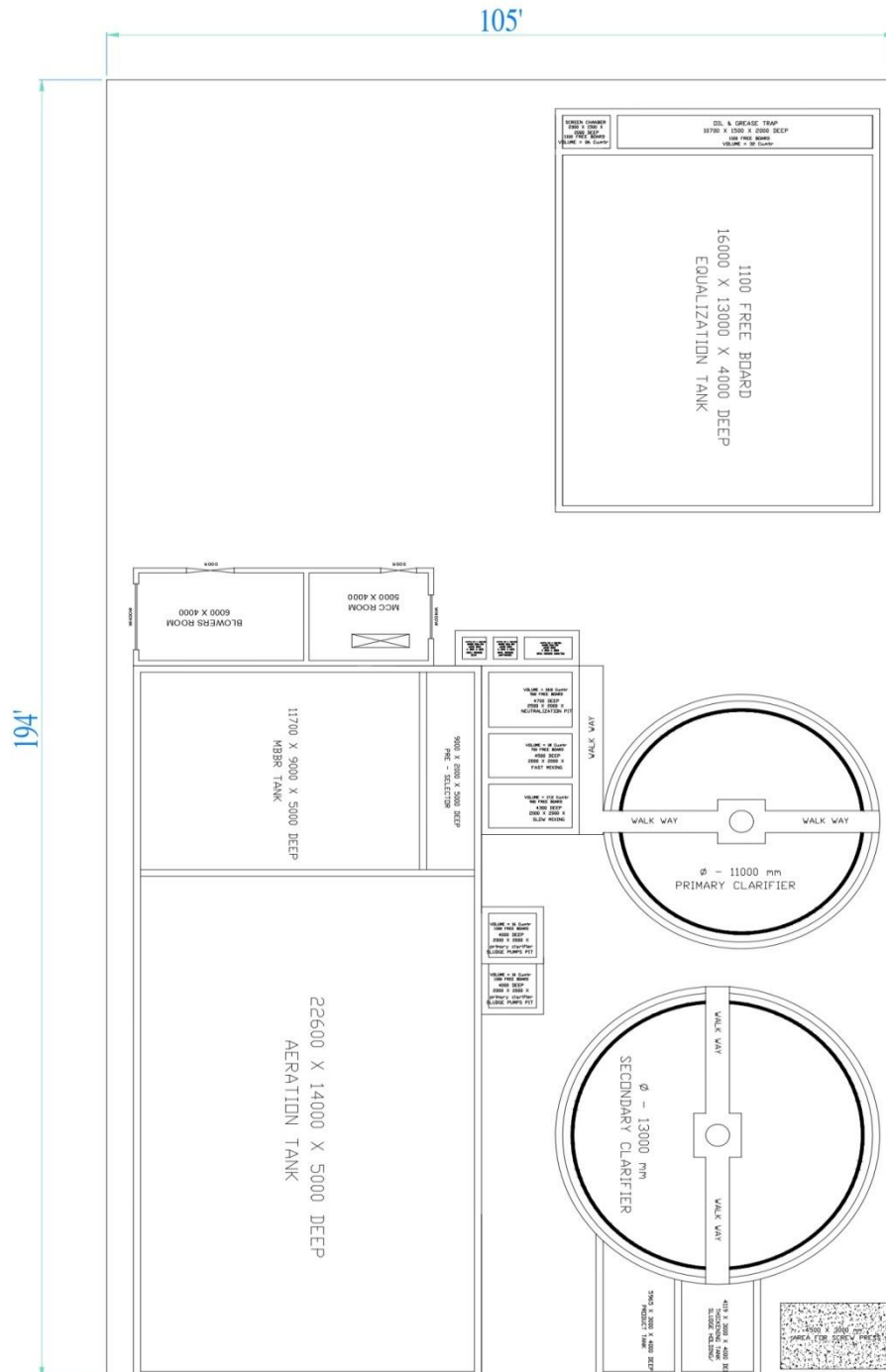
$$A = V / H$$

$$A = 240 / 3$$

$$A = 80 \text{ m}^2$$

CONSTRUCTION OF TEXTILE UNIT (WARPING, SIZING, WEAVING, PROCESSING, STITCHING AND EMBROIDERY) ALONG WITH AN EFFLUENT TREATMENT PLANT (ETP) AND BOILER BY M/S RAFIQ JAMIL TEXTILE INDUSTRIES PVT. LTD

Layout Map of Effluent Treatment Plant (These Layout are also attached as supporting document).



2.16 Solid Waste Management

Solid waste will primarily consist of the domestic solid waste from during construction. About 500 kg to 1,000 kg per day of domestic solid waste will be generated from the project. The garbage will be collected at a designated area within the area as an intermediate garbage disposal. From this place, garbage will be collected and transported to a suitable location for final disposal. The location for this final disposal will be decided in consultation with the City District Government.

2.17 Atmospheric Emissions:

Dust and particulate matter will be generated during the construction activities. Sprinkling of water will be done on dust tracks, stock piles; raw material will be covered by plastic sheets, loading and unloading of raw material will be done at night etc.

2.18 Electrical Works

The design criterion for the electrical works will be in compliance with the requirements of WAPDA. Street lights will be provided and their maintenance will also be carried out by the management of the industrial stakeholders. Sui gas will be provided after approval from the department.

2.19 Fire Protection System

An addressable fire protection system with detection and alarm annunciation and other installations etc. would be provided to protect against any fire hazards. Fire buckets and fire extinguishers will be placed at all sensitive places within the proposed project. There will be five security guards round the clock which improves the security of the project site and also in its vicinity.

2.20 Restoration / Rehabilitation Plan

All possible precaution will be taken to prevent an untoward incident in terms of life and property losses. The demolition materials will possibly be reused and recycled. All excavated surfaces will be termite proofed.

One completion of the project, the debris will be removed from the site in order to maintain aesthetics of the project. All measures will be undertaken for ensuring occupational safety, security and clean environment in the project area. Ornamental trees and flower plants will be planted on inside peripheral of the unit premises to restore the land.

2.21 Government approvals required by the project:

Project proponent has obtained approval for disposal of liquid waste. Approval from Social Security Departments, Labor departments and others concerned departments are in process.

Suitability of the Site

The site does not fall in environmental sensitive area and all commodities are at a suitable distance from project site as they will not impacted by the construction activities even locals will get more benefits and job opportunities. No replacement, relocation and rehabilitation are required for the development of proposed project

CHAPTER # 3

DESCRIPTION OF ENVIRONMENT

3.1 Introduction

This chapter describes the baseline conditions, which cover the existing physical, ecological, and socioeconomic environment of the Study Area. Information on these aspects has been derived from the desk study of available data, field visits to the project area as well as information obtained through visits to the Government departments and other agencies namely Irrigation Department, Meteorological Department, Forest offices and prevailing environmental laws and environmental quality standards etc.

3.2 General

An environmental baseline study is intended to establish a database against which potential project impacts can be predicted and managed later. This section covers a comprehensive description of the project area, including environmental attributes which are expected to be affected by the project, as well as", those which are not expected to be directly affected by the construction and operation of the project. The existing environmental conditions around the project have been considered with respect to physical, biological and socio-economic aspects. A site visit was conducted to survey the field area and to collect environmental data on physical, biological and socio-economic parameters. Further, consultations were held with the general public and stakeholders of the project area in order to seek the public opinion on the implementation of the subjected project.

3.3 Physical Environment

3.4 Location:

Faisalabad lies in the rolling flat plains of northeast Punjab, at 186 meters (610 ft.) above sea level. The city proper comprises approximately 1,230 square kilometers (470 sq. mi) while the district encompasses more than 16,000 square kilometers (6,200 sq. mi). The Chenab River flows about 30 kilometers (19 mi), and the Ravi River meanders 40 kilometers (25 mi) to the

southeast. The lower Chenab canal provides water to 80% of cultivated lands making it the main source of irrigation. Faisalabad is bound on the north by Chiniot and Sheikhpura, on the east by Sheikhpura and Sahiwal, on the south by Sahiwal and Toba Tek Singh and on the west by Jhang.

3.5 Geology

The district of Faisalabad is part of the alluvial plains between the Himalayan foothills and the central core of the Indian subcontinent. The alluvial deposits are typically over a thousand feet thick. The interfluvies are believed to have been formed during the Late Pleistocene and feature river terraces. These were later identified as old and young floodplains of the Ravi River on the Amalia and Chenab Plains. The old floodplains consist of Holocene deposits from the Ravi and Chenab rivers.

The soil consists of young stratified silt loam or very fine sandy loam which makes the subsoil weak in structure with common kankers at only five feet. The course of the rivers within Faisalabad are winding and often subject to frequent alternations. In the rainy season, the currents are very strong. This leads to high floods in certain areas which do last for a number of days. The Rakh and Gogera canals have encouraged the water levels in the district however the belt on the Ravi River has remained narrow. The river bed does include the river channels which have shifted the sand bars and low sandy levees leading to river erosion. Faisalabad is situated at the center of the lower Rachna Doab, the area is located between the Chenab and Ravi rivers. There is a mild slope from the northeast to the southwest with an average fall of 0.2-0.3 meters per kilometer (1.1-1.6 feet per mile). The city is situated at an elevation of about 183 meters (600 ft.). The topography is marked by valleys, local depression and high ground.

Faisalabad stands in the rolling flat plains of northeast Punjab, between longitude 73°74 east, latitude 30°31.5 North, with an elevation of 184 meters above sea level.

There are no natural boundaries between Faisalabad and adjoining districts. The Chenab River flows about 30-Km (19 mi) to the north-west while the River Ravi meanders about 40 km (25 mi) south-east of the city. The lower Chenab canal is the main source of irrigation water, which meets the requirements of 80% of cultivated land. The soil of Samundari-Faisalabad comprises

alluvial deposits mixed with loess having calcareous characteristics, making it very fertile. Due to its high evaporation - transpiration, Faisalabad features an arid climate.

The entire land mass up to long distances is flat and sizeable area is under industrial use. Canal water and sub soil are used for irrigation and industry. The project area contains unfolded sedimentary alluvial deposits which are seismically stable within a radius of 100-km. The nearest fault is the Salt Range Thrust (SRT) fault with no significant tectonic activity.

3.6 Soils

Soils form major relation with environment. They influence environment by their special qualities and more so through fertility. Types of soils besides providing food, clothes or housing population serve with special food and lumber products, medicinal plants etc. Soil should not be taken as a lifeless residual layer but it is a very dynamic element of environment in which very complicated physical, chemical and biological activities are constantly proceeding. In this way it is a dynamically changing and developing body. Soil scientists restrict the word soil or solemn merely to the surface material, which has come to have distinct layers or horizon over the extended period of time.

Soils have different meanings for different people. To a Soil Scientist, it means the upper a few layers created through weather effect in which plants are grown. The solid portion of soil is both organic and inorganic. The organic part consists of both living and decayed plant and animal materials.

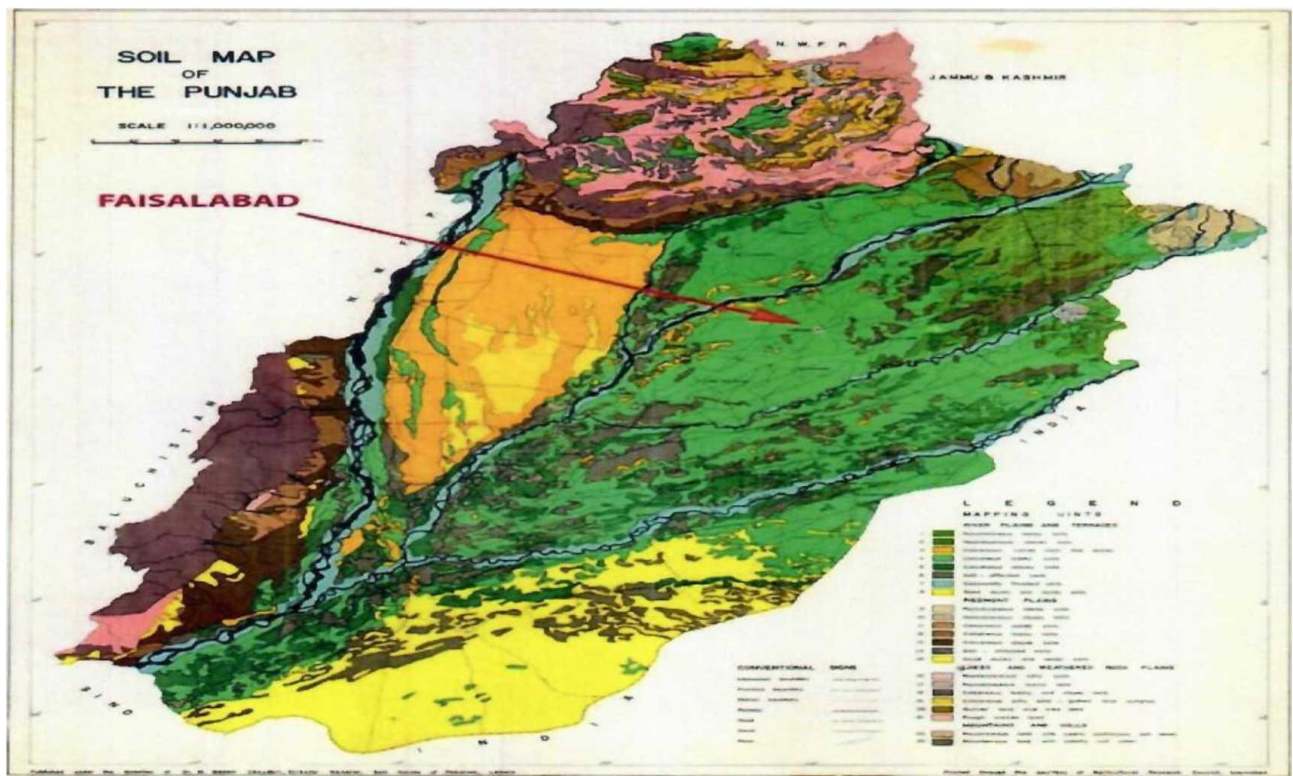


Figure 3 Indicates Project Area in Punjab Soil Map

The soils of the adjoining project area are fertile and rich in both organic and inorganic mass because the project site lies right into the center of the Ravi and Chenab River called as Rachna Doab. The area is made up of flood plain deposits of Qmx (Stream bed and meander belt deposits) and Qfx (flood plain deposits of lower terraces).

The adjoining rural area gives higher yields of crops through the use of synthetic fertilizers and pesticides. Their irrational use is adding to pollution of soil, and water bodies.

3.7 Climate:

Pakistan extends from 24° N to about 37° N with its western border lies close to 62° E. north eastern border extends to about 74°/120° E and lies on the western margin of one of the major climatic regions of the world. Therefore, her climate is more continental. Reversal of wind system and variable character of monsoon are quite complex. A major part of Pakistan is dominated by dry climate. Temperature and amount of rain fall determine type of natural vegetation in any area.

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These physical features have great bearing on climatology of the area like the entire country; the project area has also four seasons distinctly:

Cold weather season - December to March

Hot weather season - April to June

Monsoon season - June to September

Post Monsoon season - October and November

With the arrival of summer, the area becomes heated and low-pressure area is created. In the month of July atmospheric pressure rises 996.0 millibars in the area under reference. The major sources of the rain fall in the area include the Monsoon Rainfall (July, August & September), Western Depression Rainfall by western depressions and Thunderstorms Rainfalls (spring & autumn rainfall).

The weather in the city is monitored by the Pakistan Meteorological Department. The Pakistan Meteorological Department regularly provides forecasts, public warnings and rainfall information to farmers with the assistance of the National Agromet Centre. Average annual rainfall is approximately 784 millimeters (30.9 in). It is at its peak in July and August during monsoon season though western disturbances during winter months also bring considerable rainfall associated with hail.

Climate data for Faisalabad													[hide]
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Record high °C (°F)	26.6 (79.9)	30.8 (87.4)	37 (99)	44 (111)	47.5 (117.5)	48 (118)	46.1 (115.0)	42 (108)	41.1 (106.0)	40 (104)	36.1 (97.0)	29.2 (84.6)	48 (118)
Average high °C (°F)	19.4 (66.9)	22.2 (72.0)	27.4 (81.3)	34.2 (93.6)	39.7 (103.5)	41.0 (105.8)	37.7 (99.9)	36.5 (97.7)	36.6 (97.9)	33.9 (93.0)	28.2 (82.8)	22.1 (71.8)	31.6 (88.9)
Average low °C (°F)	4.8 (40.6)	7.6 (45.7)	12.6 (54.7)	18.3 (64.9)	24.1 (75.4)	27.6 (81.7)	27.9 (82.2)	27.2 (81.0)	24.5 (76.1)	17.7 (63.9)	10.4 (50.7)	6.1 (43.0)	17.4 (63.3)
Record low °C (°F)	-2.9 (26.8)	-1.4 (29.5)	1 (34)	7 (45)	13 (55)	17 (63)	19 (66)	18.6 (65.5)	15.6 (60.1)	9 (48)	2 (36)	-1.3 (29.7)	-4 (25)
Average precipitation mm (inches)	31.5 (1.24)	41.3 (1.63)	49.1 (1.93)	43 (1.7)	24 (0.9)	103 (4.1)	202.4 (7.97)	190.6 (7.50)	100.3 (3.95)	9.8 (0.39)	2.6 (0.10)	20.4 (0.80)	743 (29.3)

Table- 3.1 Monthly Temperature and Precipitation

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During winter the weather usually remains cloudy associated with frequent fog. Record-breaking rainfall of 264.2 millimeters (10.40 in) was recorded on 5 September 1961 by the Pakistan Meteorological Department.

3.8 Dust Storm

Storms rarely occur in the project area.

3.9 Earthquakes

The area is not listed in the seismic potential zone.

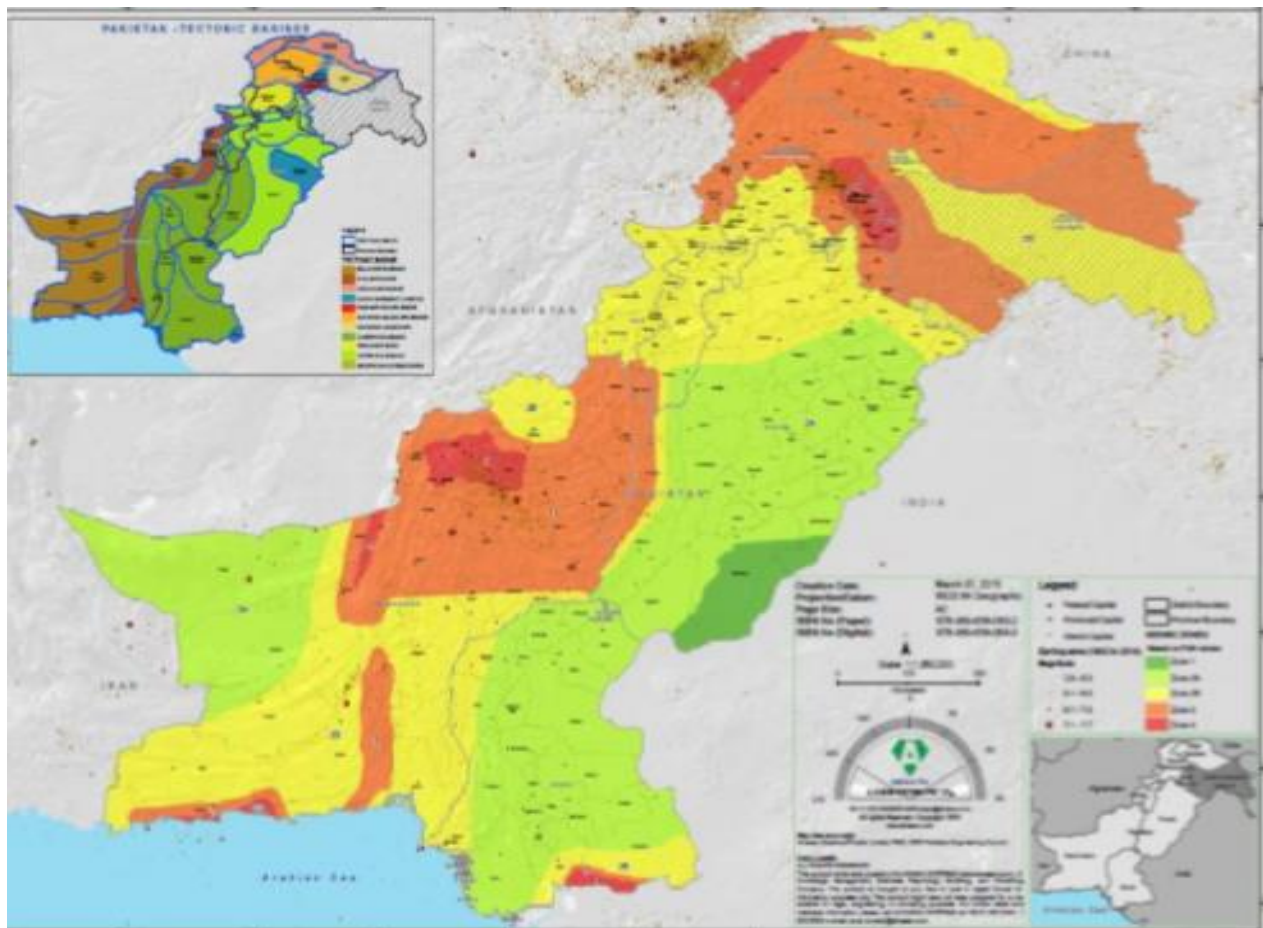


Figure 4 Pakistan Seismic Activities and Zoning Map

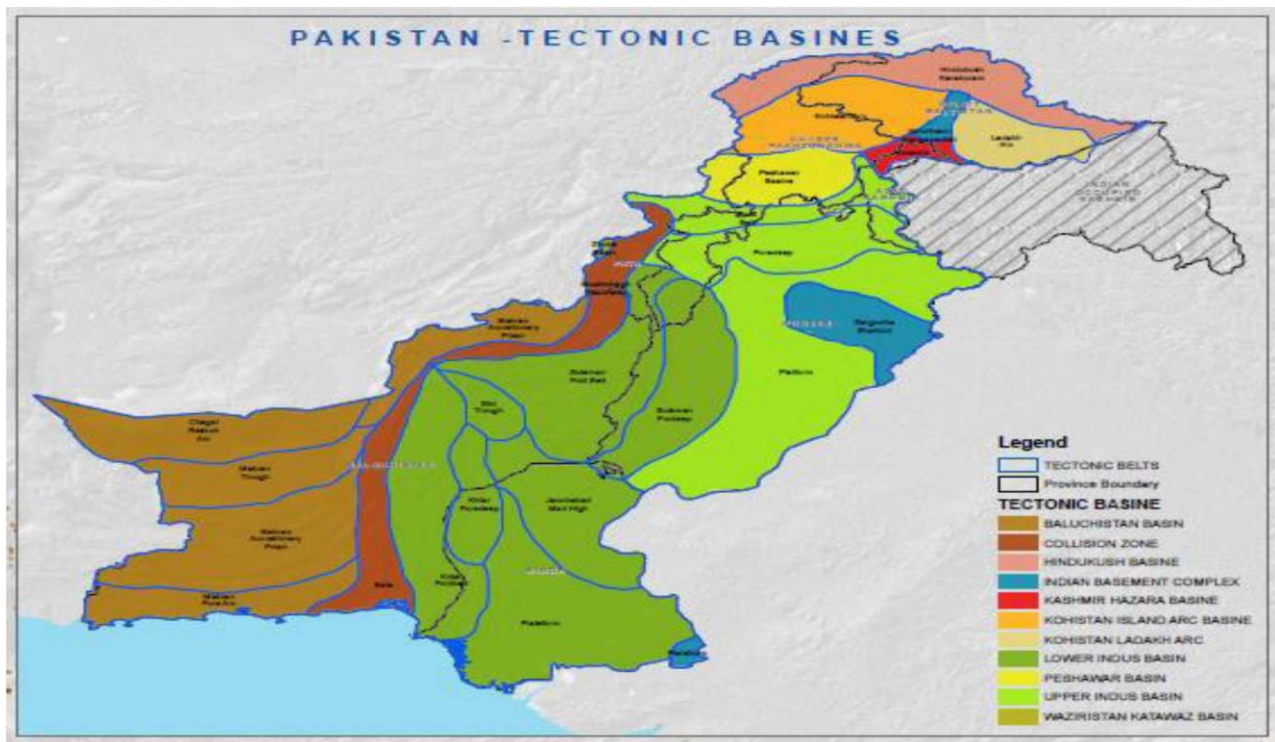


Figure 5 Pakistan Tectonic Basins

3.10 Biological Resources

There is no fish farming in the area either naturally or commercially.

3.11 Fishery and Aquatic Biology

The nearest natural drain has no fish. There is no fish farming in the area either naturally or commercially.

3.12 Biodiversity

Mainly a country's wilderness areas and scenic landscapes with their associated flora and fauna form natural capital of a country. Both collectively and within each level, the range or variety of the resources is referred to as the "Biological Diversity". The contribution of the "Natural capital" is recognized at three distinct levels including genera, species, and community -habitat and ecosystem.

Pakistan comprises of a total of nine major ecological zones and the term has relevance for each of Pakistan's administrative units—district, province, and particularly country. The greater the number of genera, species and habitats and ecosystems present within these units, the greater is the biodiversity. It is in this background that the biodiversity of the area is discussed below.

3.13 Wildlife in the Project Area

The project is to be sited within the urban area of Faisalabad city; therefore, there is no likelihood of any wildlife, game reserves or else around the project site. On very limited scale the following native birds like sparrows, pigeons, crows, doves, rats, lizards, snakes, etc., are found here and there, like in all Punjab.

3.14 Flora in the Project Area

Since the project site is situated within the urban area of the city of Faisalabad. Therefore, there is no likelihood of any forest or any type of flora worth mentioning around the project area.

3.15 Socioeconomic development:

3.16 Economy of Faisalabad:

Faisalabad contributes over 20% toward Pakistan's annual GDP; therefore, it is often referred to as the "Manchester of Pakistan". Faisalabad's average annual GDP is \$20.55 Billion (USD), of which 21% comes from agriculture. The surrounding countryside, irrigated by the Lower Chenab River, produces agricultural commodities such as cotton, rice, sugarcane, wheat, fruit and vegetables. The city has carved a niche as an industrial Centre with its highways, railways, railway repair yards, processing mills, and engineering works. It is a producer of industrial goods and textile manufacturing including cotton and silk textiles, super phosphates, hosiery, dyes, industrial chemicals, clothing, pulp and paper, printing, agricultural equipment, ghee (clarified butter), and beverages.

The Faisalabad Chamber of Commerce and Industry monitors industrial activity in the city and reports their findings to the Federation of Pakistan Chamber of Commerce and Industry and provincial government. The city has a major dry port and international airport.

Faisalabad is recognized as the center of the textile industry in Pakistan, contributing to half of Pakistan's total textile shipments. At the end of June 2012, textile mills employed 20% of the nation's workforce, and generated 1.3 trillion rupees (\$13.8 billion) in textile products, most of which were exported to the US and Europe. While Punjab's economy is driven primarily by agriculture, the textile industry along with leather products and light engineering goods play an important role, with more than 48,000 industrial unit spread across Punjab. In an effort to boost bilateral trade, Romania and Turkey have honorary- consulates in Faisalabad which enable trade links with the city. The Faisalabad clock tower and its eight bazaars (markets) remain a major trading zone in the city. Each of the eight bazaars has a special name and is known for selling certain goods as follows:

- i. Aminpur Bazaar supplies stationery and interior decor
 - ii. Katchery Bazaar, named for the court (Katchery) is known for its mobile phone and accessory market.
 - iii. Kharkhana Bazaar is known for herbal medicines.
 - iv. Jhang Bazaar supplies fish, meat, vegetables and fruits.
 - v. Bhawana Bazaar supplies electrical and electronic goods.
 - vi. Rail Bazar is a gold and cloth market.
 - vii. Chiniot Bazaar is known for allopathic and homoeopathic medicinal stores, cloth, blankets, sofa cloth, and curtains. It also has poultry feed wholesale shops.
 - viii. Montgomery Bazaar (also known as Sutar Mandi) is known for yarn and raw cloth trading.
 - ix. Gol Bazaar contains dry fruit, as well as wholesale soap, oil, and ghee shops.
- Samundari-Faisalabad has received substantial funding from the government of Punjab and the city district government to improve infrastructure and roads to rural areas. In an effort to deal with the energy crisis, the FCCI has been working with private companies to develop renewable energy resources such as solar energy and the construction of dams within the district. CAE, a German- based renewable energy company, has disclosed plans to establish the first solar panel manufacturing facility in Faisalabad, second of its kind in Asia, with intentions of investing upwards of €100 million (Rs 12.9 billion) for its development

3.17 Traditional Crafts

There is no traditional craft worth mentioning in the Tehsil Samundari District Faisalabad. Samundari-Faisalabad has the greatest concentration of power looms in the country. More than 90,000 power looms are reported working in the Samundari Tehsil

3.18 Geographical Indications

The Project Director (Geographical Indications), Industries, Commerce & Investment Department, Government of the Punjab has identified the following Important Geographical Indications in the district:

- Power Looms (Textile Cloth)
- Agricultural Implements.

3.19 Education

Faisalabad is home to the University of Agriculture, Government College University as well as the Ayub Agricultural Research Institute. Divisional Public-School Faisalabad and National Textile University. The city has its own cricket team, Faisalabad Wolves, which is based at the Iqbal Stadium. There are several other sports teams that compete internationally, including hockey and snooker as well as other sporting events.

The education system is monitored by the District Education Officer of the City District Government of Faisalabad. The city government reports its findings to the Ministry of Federal Education and Professional Training and the Minister for Education. Funding is provided by the Government of Punjab, Pakistan. City District Government and the fees collected from schools. There are four levels of the education system in the city: Primary. Elementary. High and Higher Secondary Level.

3.20 Main Crops

Sugarcane. Wheat. Cotton. Maize. Moong and Rice are the main crops grown in the district. Besides. Tobacco. Bajra, Jawar, Mash, Masoor. Gram, Oil Seed such as Sunflower and Rape seed, Mustard Seed is also grown in minor quantities in the district.

3.21 Main Fruits

Guava, Citrus and Mango are the main fruits grown in the district. Besides, Banana, Phalsa, Pears and Peach are also grown in minor quantity in the district.

3.22 Main Vegetables

Potato, Cauliflower, Onion, Lady Finger and Tomato are the main vegetables grown in the district. Besides, Bottle Gourd, Carrot, Turnip, Brinjal, Garlic, Chilies, Radish, Bitter Gourd and Peas are also grown in the district in minor quantities.

3.23 Quality of Life Values

3.24 Roads

The majority of roads are under the control of the National Highway Authority, linking Faisalabad with other cities in the country.

3.25 National Highways and Motorways Passing Through Faisalabad

- Faisalabad is connected to various parts of the country by several National Highways and Motorways
- The Grand Trunk Road, otherwise known as GT Road, is the original highway that links Faisalabad to most parts of Pakistan as well as neighboring countries. GT Road was the main highway that ran through the district before the completion of the motorways
- The M3 motorway (Pakistan) or M3 is a controlled-access motorway connecting Faisalabad with the M2 motorway (Pakistan) or M2 via the Pindi Bhattian Interchange. The M2 was the first motorway connecting Rawalpindi and Islamabad to Lahore.

- The M4 motorway (Pakistan) or M4 is an access-controlled motorway connecting Faisalabad to Multan. The M4 once complete will join the M5 which will run to the southern city of Karachi.

The district government has worked with the National Highway Authority to connect Multan and Faisalabad. The construction of the M4 is completed and opened for commutation. The new motorway will help reduce congestion, boost trade, and reduce travel times and transportation costs from Faisalabad, a major textile hub to the major trade centre of Multan. One section of the M4 was inaugurated on 16 March 2015 which links Faisalabad to Gojra.

3.26 Buses

The Faisalabad Urban Transport System Service (FUTS) is the main bus operator within the city. It was launched in 1994, and operates a number of large CNG buses and smaller Toyota Hiace vans connecting the majority of the city. There is another public-private run bus operator. Brothers Metro, which is a consortium between the government of Punjab and a private firm who operates a fleet of air-conditioned CNG buses.

3.27 Rail

The Faisalabad railway station is the central railway station in the city. The railway line forms part of the Khanewal-Wazirabad railway line. Rail services are operated by Pakistan Railways, owned and operated by the Ministry of Railways.

Cargo Express services are operated by Pakistan Railways which runs from Karachi to Faisalabad via Multan. Twenty-seven bogies comprise the goods train, and are handled respectively by private contractors at the station. The station has a special cargo facility operated by the Ministry of Railways (Pakistan) for handling various goods from the city to other regions of the country. An express parcel service runs from Karachi to Lahore via Faisalabad

3.28 Air Traffic

Faisalabad International Airport is approximately 15 kilometers (9.3 mi) from the city center and is a major airport for domestic and international travel. The airport includes a cargo facility. As of January 2016, passenger flights are run by the national flag carrier, Pakistan International Airlines, and a number of Middle Eastern carriers. There are seasonal Hajj operations to Jeddah and Medina operated by Shaheen Air. Fly Dubai became the first international carrier to launch operations from the city followed by Qatar Airways, Air Arabia and Gulf Air.

In 2015. Significant upgrades and renovations to the airport were initiated by the Pakistan Civil Aviation Authority, including updates to aviation technology, construction of additional areas and services for travelers, and the expansion of air traffic capabilities to accommodate wide-body aircraft such as the Boeing.

3.29 General Quality and Availability of Sub-Soil Water

Underground water resources are generally brackish and are not suitable for human consumption and for irrigation. Tube wells have been installed along the banks of canals to supply drinking water to the inhabitants of cities.

3.30 Effluent Disposal Facilities

There are 93 drains nullahs in the district of varying lengths for effluent disposal. However, prior written permission from Irrigation and Power

Department. Government of the Punjab is necessary for discharge of effluent in the nullahs/drains, after pre-treatment to remove harmful ingredients.

3.31 Power Supply

There are 25 grid stations in the district ranging in capacity from 66 KV to 220 KV.

3.32 Natural Gas Availability

Natural gas is available in all main towns of the district.

3.33 Tele-Communication Facilities

There are 113 telephone exchanges operating in the district, ranging in capacities from 100 lines to 20630 lines. Cellular phone services are available in the district.

3.34 Industrial Estate

The Faisalabad Chamber of Commerce and Industry monitors industrial activity in the city and reports their findings to the Federation of Pakistan Chamber of Commerce and Industry and provincial government. The city has a major dry port.

Punjab Small Industries Corporation has established an industrial estate at Sargodha Road, Faisalabad over an area of 244 acres. A total number of 1020 of plots varying in sizes from 7 marlas up to 4 kanals have been developed. Out of which 65 allotments have been made to the Pakistani Entrepreneurs living abroad as well as allotted to different domestic entrepreneurs yet the colonization of estate is only about 80%.

3.35 Dry Port

Faisalabad Dry Port Trust handles imports and exports of various items. The export items are bleached cloth, printed cloth, dyed cloth, cream cloth (white color), grey cloth, garments, made ups, gents & ladies/children dresses, cotton yarn, cotton working gloves, power looms & parts, major starch, etc.

CHAPTER # 4

Screening of Potential Environmental Impacts and Mitigation Measures

4.1 General

This chapter identifies the potential environmental impacts associated with the proposed project titled “Construction of Textile Unit (Warping, Sizing, Weaving, Processing, Stitching and Embroidery) along with an Effluent Treatment Plant (ETP) and Boiler by M/S Rafiq Jamil Textile Industries Pvt. Ltd., located at Plot #160 Allama Iqbal Industrial City, Faisalabad.” The impacts are assessed for different phases of the project including design, construction, and operational stages. Environmental protection and mitigation measures are proposed to minimize or eliminate adverse impacts in accordance with the applicable environmental regulations. The impacts are evaluated based on magnitude, immediacy, and sustainability.

4.2 Project Location

The proposed project is located at Plot #160 Allama Iqbal Industrial City, Faisalabad.

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

Table 4.1 Typical Impacts during the project and its Mitigation Measures

Impacts	Typical Mitigation Measures
Soil	• Installation of proper drainage systems and runoff channels • Minimize surface disturbance during construction • Reuse excavated material for site leveling • Proper monitoring and control of construction equipment to avoid soil degradation
Resources – fuel / construction materials, etc.	• Use of resources efficiently • Preference for materials that can be replenished naturally • Avoidance of unnecessary wastage of fuel and raw materials
Deforestation	• Plantation within and around project area • Development of green belts • Compensatory plantation programs where required
Water pollution	• Provision of storm water drainage system • Treatment of wastewater through Effluent Treatment Plant (ETP) • Groundwater monitoring • Use of biodegradable chemicals • Neutralization and sedimentation of wastewater • Proper sludge handling and disposal • Control of sewage and industrial discharge • Spill prevention plans • Installation of containment and treatment systems
Air Pollution	• Regular water sprinkling to control dust • Control of vehicle speed within premises • Proper maintenance and washing of vehicles and equipmen

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	• Covering materials during transport • Installation of dust collection systems • Maintaining emissions within permissible limits • Provision of PPE such as masks
Noise Pollution and Vibrations	• Installation of mufflers and acoustic enclosures • Mounting equipment on vibration-absorbing pads • Proper scheduling of high-noise activities • Use of well-maintained machinery • Regular maintenance and lubrication • Application of noise control techniques such as damping and insulation
Social	• Implementation of worker health and safety measures • Development of traffic management plan • Improvement of internal roads • Ensuring public involvement and communication • Coordination with local stakeholders
Occupational Health and Safety	• Provision of sanitation and medical facilities for workers • Periodic health check-ups • Provision of PPE • Fire prevention and firefighting systems • Emergency preparedness measures
Construction	• Implementation of transport management plan • Control of traffic movement • Planning and scheduling construction activities to minimize disturbance

Solid / Hazardous Wastes	• Proper handling and storage of excavated material • Collection and disposal of solid waste through authorized contractors • Segregation of hazardous waste • Regular removal of waste; prohibition of on-site burning
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Environmental Management Plan

- The administrative and technical organizational structure to ensure proposed project monitoring programmed for approved mitigation measures are implemented including the involvement of the ministry and other stakeholders.
- The EMP devised to mitigate the adverse impacts of the project should be detailed including allocation of resources and responsibilities for plan implementation.
- Details of the emergency preparedness plan and on-site and off-site disaster management plan should be discussed extensively.
- Environmental Monitoring Program should be detailed to provide specific information on; monitoring pollutants at receiving environment for the appropriate notified parameters – air quality, ground and surface water, land etc. during project phases; specific program to monitor safety and health of workers, appropriate monitoring network has to be designed and proposed, to assess the possible residual impacts on environmental components and details of in-house monitoring capabilities and the recognized Ministry, department and agencies for conducting the monitoring.

Remediation Plans after Decommissioning

- The need to decommission the project (temporarily or permanently) at any point.
- Develop appropriate plan for the restoration of the environment to include soil, air, water, land, vegetation, fauna, socio-economic, cultural and other components.

4.3 Impacts during the Design Phase

The potential environmental impacts of the establishment work along with the mitigation measures during the pre-establishment/design stage of the Project are described in this Section.

4.3.1 Seismic Hazard

Seismic Zoning Map of Pakistan showing Project site area.

Mitigation

Structure of the project is designed for even moderate to large earthquakes. For seismic hazard analysis, updated structural and seismic evaluations are consulted.

4.3.2 Traffic Congestion and Disturbance to People

Due to the establishment of the proposed industrial project, the traffic in the Project area will increase and may result in traffic disruption if proper parking facilities are not provided within the establishment area. This will be a temporary and moderate negative impact.

Mitigation

Adequate parking facilities for the workers will be provided within the premises during establishment to avoid any disturbance in the traffic flow on the project's road. Parking space will be provided during operational phase.

4.3.3 Emergency Response

Disasters such as earthquakes, flooding and other manmade disasters, such as fires, may occur which have to be considered for minimizing their impacts. This will be a permanent and moderate negative impact.

Mitigation

Complete equipment control system, fire escape stairs and secured access system supplemented with close circuit surveillance equipment/alarms will be included in the design of project.

Adequate internal and external water distribution system will be designed, which could also supply adequate quantity for fire-fighting during emergency.

4.3.4 Energy Conservation

- Energy conservation lights will be used to put a minimum load on the electricity system.
- Design of the building will be energy efficient (30-40% less energy consumption as compared to conventional methods) and the building will be centrally air conditioned.
- Local material will be used up to maximum level to avoid transportation.

4.4 Likely adverse impacts during construction phase

The anticipated environmental impacts related to the establishment Project have been studied for the establishment stage and are discussed here with.

- Establishment Noise
- Dust Emission during Establishment
- Change of Land Use
- Water Sourcing
- Vehicle and Equipment Exhaust
- Soil Contamination
- Socioeconomic Impacts
- Community and worker's Safety
- Traffic Disturbance
- Employment Conflicts
- Poverty Alleviation
- Project and Community Interface

These impacts are discussed and their mitigation measures are also written below:

4.4.1 Placement of Establishment Material on Site

Improper and hazard placement of the establishment material can block the roads, passages and walkways. This is a temporary and moderate negative impact.

Mitigation

All establishment material will be placed at the specified place and kept covered within the project site premises and will not be placed on roads / passages / walkways. Only authorized persons will be allowed to access the material.

4.4.2 Disposal of Establishment Waste/ Excavated Material

Dumping of establishment wastes/excavated material in the surrounding area may result in dust pollution. This will be a temporary and moderate negative impact.

Mitigation

Management of Establishment activities will be done in a way to ensure minimum degradation to the soil around the Project area and dumping of excavated waste will be done at a designated site. The contractors will be bound by contractual obligations to take care of the waste generated from the establishment activities to avoid any discomfort to the community.

4.4.3 Dust Generation

Substantial quantity of dust in and around the active establishment area may be generated from the, traffic/machinery movement and transportation of establishment material at the project site. Prolonged exposure to dust might result in respiratory tract infections and asthmatic problems to the establishment workers, the natives of the area and commuters. This will be a temporary and moderate negative impact.

Mitigation

Establishment phase of the new building can be effectively mitigated by the implementation of simple procedures by the Contractor including but not limited to the following:

- During establishment the activities will be conducted in a controlled way with water sprinkling to avoid the dust pollution.
- All excavation work will be sprinkled with water.
- Establishment workers will be provided with masks for protection against the inhalation of dust; and
- Vehicle speed on the roads along the Project Site will be prescribed and controlled accordingly.

4.4.4 Noise

When the establishment work is undertaken, constant operating of machinery will raise the noise level in the Project Area. Since noise is a by-product of human activity, the area of exposure increases as a function of the mobility and establishment of structures. Noise due to the establishment will be a temporary and minor negative impact.

Mitigation

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

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

4.4.5 Flora

Operation phase Project will not involve any cutting of bushes and trees. However new trees will be planted by the management to keep the environment clean. This will be a moderate positive impact.

Mitigation

Not required

4.4.6 Fauna

There is no wildlife present in the Project area. Also, the local animals and bird species of the area are very much domesticated and will not be adversely affected by the Project execution.

Mitigation

Not required

Relocation of Utilities

The establishment of the operation phase for the project structure will not involve relocation of any public utilities.

Mitigation

Not required

4.4.7 Poverty Alleviation

Establishment of the operation phase of the project structure will generate the employment opportunities for the population living in the area. This will be a temporary minor positive impact.

Mitigation

Not required

4.4.8 Sanitation and Solid Waste Disposal

During the establishment stage, solid waste and sanitary wastewater will be generated at the Project site due to the establishment activities and presence of the temporary toilet(s). Staggering of solid waste on the ground will give rise to unhygienic conditions and spread of diseases. Similarly, if the wastewater is allowed to stagnate in water ponds on the site, it can

create unhygienic conditions and some of the wastewater may also percolate the soil, thereby, polluting the groundwater. This may pose a moderate negative impact.

Mitigation

All the solid waste will be disposed-off in accordance with the regulations. The contractor will provide septic tank for the toilet waste to treat the sanitary wastewater before its discharge into public sewer.

4.4.9 Workers' Safety and Hygienic Conditions

The establishment activities impose certain negative impacts on health and safety of the workers and public in case of unsafe and/or unfavorable working conditions. Mitigation measures will be required to minimize health and safety related negative impacts of the Project. This will be a moderate negative impact.

Mitigation

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

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

- Sides of the excavation area will be covered with corrugated protection sheets to avoid any sliding of soil;
- Only one entrance will be provided in the area excavated for foundations;
- Warning signs will be displayed in local language.
- Fence will be used all around the site.

4.4.10 Air Quality

During the construction phase of the proposed textile unit (Warping, Sizing, Weaving, Processing, Stitching, and Embroidery) along with the Effluent Treatment Plant (ETP) and coal-fired boilers, emissions may be generated due to the continuous operation of construction machinery and movement of heavy vehicles. These emissions may cause minor air quality deterioration, leading to temporary public health concerns and nuisance in the surrounding bio-physical environment. However, this impact will be short-term and localized in nature, and can be effectively managed through appropriate mitigation measures.

Mitigation

The Establishment Contractor of the Project will ensure regular spraying of water on the access roads to minimize the dust generation and regular monitoring of all vehicles, equipment, and machinery used for establishment. All vehicles, machinery, equipment and generators used during establishment activities will be kept in good working condition and properly tuned and maintained in order to minimize the exhaust emissions.

4.5 Likely adverse impacts during Operation stage

The anticipated environmental impacts related to the operation phase Project have been studied for the operational stage as discussed herewith.

4.5.1 Air Quality

During the operational phase of the proposed textile unit (Warping, Sizing, Weaving, Processing, Stitching, and Embroidery) along with the Effluent Treatment Plant (ETP) and coal-fired boilers, air emissions may be generated from continuous operation of generators,

boilers, and other auxiliary equipment such as air handling units. These emissions may cause slight deterioration in ambient air quality in the surrounding area, resulting in a minor but permanent negative impact. However, this impact will be controlled through proper maintenance of equipment, installation of emission control systems, and regular air quality monitoring in compliance with PEQS standards.

Mitigation

In order to minimize air pollution, following mitigation measures are recommended:

- An air quality monitoring and improvement plan will be developed to keep the air pollution levels from generator, air conditioners, plant room etc. within the limits of National Environmental Quality Standards (PEQS);
- Level of air pollution (as specified in the (PEQS) will be monitored on regular basis and appropriate mitigation measures will be implemented;
- For control of indoor air quality, carbon filters will be used in addition to normal filters to remove odor from circulating air; and
- Vehicles with excessive smoke emissions will not be allowed to enter the building.

4.5.2 Noise

During the operational stage, noise levels are anticipated to increase. Noise will be generated due to increased number of visitors, movement of vehicles in the parking area, operation of machinery and generators etc. for which proper mitigation measures are required. This will be a permanent and moderate negative impact.

Mitigation

Noise generation from the generators will be minimized through the application of engineering solutions through noise proofing of the generator's room. The good quality generators will be purchased that will generate minimum noise. Noise levels of generators, machinery etc. will be monitored and staff working near them will be provided with ear muffs and noise protection. In the absence of ambient noise standards in the Country will be followed.

4.5.3 Groundwater Consumption

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

Mitigation

An effective ‘Water Conservation Plan’ will be developed and staff will be trained in operational water conservation measure such as use of water efficient/economy appurtenances and reuse of wastewater for gardening of the trees/plants. Less water consumption will also reduce the load on the sewerage system.

Following operational measures will be adopted for water conservation:

- Taps will not be kept running while cleaning and buckets will be used for holding water instead;
- It will be made sure that all faucets, circulating pumps etc. do not leak and are in good repair;
- Any leaking or dripping faucet, pump or toilet will be reported immediately;
- All the utility bills will be kept in a safe place to track the consumption of water; and
- Purchase and use of water-saving equipment will be practiced;
- An effective training program will be implemented about water conservation.
- Rainwater will be harvested for use in landscaping purposes.

4.5.4 Wastewater Generation

During the operational phase of the proposed textile unit (Warping, Sizing, Weaving, Processing, Stitching, and Embroidery) along with the Effluent Treatment Plant (ETP) and boilers, wastewater will be generated from both domestic and process-related activities. Domestic sewage from workers and staff will be one of the primary sources of wastewater, while additional effluent will be generated from processing operations such as washing, dyeing, and finishing.

Mitigation

Domestic wastewater will be treated in septic tanks before being discharged into the sewerage system. Industrial wastewater from processing will be treated in the Effluent Treatment Plant (ETP) with a capacity of 1,920 m³/day (80 m³/hr) to meet PEQS standards. Proper operation and regular maintenance will be ensured to avoid any environmental contamination.

4.5.5 Solid Waste

Solid waste generation is an important issue. Improper management of solid waste directly affects the health of the people and becomes breeding place for the mosquitoes, other insects and rodents.

Mitigation

All raw materials will be recycled during the activities as road filling and maintenance purposes.

HSE manager will be appointed by the proponent to manage the solid waste on regular basis, to ensure the good housekeeping at site and in production unit, to inspect any discrepancies arise due to improper functioning of the HSE conditions and to adopt the proper solid waste management system.

4.5.6 Emergency Response

The operation of the of the project site will involve staff, occupants and visitors who may have accidents. In addition, disasters such as earthquakes and fires may occur which have to be considered for minimizing their impacts. This will be a permanent and moderate negative impact.

Mitigation

- An Emergency Response Plan for earthquakes and manmade disasters will be developed by the Management. Emergency Response Plan will be implemented in close consultation with the Fire Fighting Department, Bomb Disposal Squad and Paramedics. Emergency

drills will be carried out periodically. A full-time First Aid Provider will be employed to help the affected in case of any accident.

- Exact time of evacuation in case of a potential emergency can be precisely estimated after carrying out emergency drills (when the building is completed and operational). However, it can be assumed that the whole building will be evacuated within 6 minutes of an emergency.

4.6 Potential Environmental Enhancement Measures

The operation phase of the project has a number of positive impacts, which include:

- The project does not involve any land acquisition issue because the land is already owned by the Project proponent.
- No residential and commercial structures will be affected.
- The project has a potential to create employment opportunities, and will improve the standard of living/ livelihood of the population in the project area.
- The project will help in economy growth of Pakistan

4.7 Corporate Social Responsibility (CSR)

CSR means “the continuing commitment by business to behave ethically and contribute to economic development while improving quality of life of the workforce and their families as well as of the local community and society at large”. CSR Commit entrusted with task of identifying areas where the Management could participate positively to the development and improvement of better society in the project area. The Commit Processing factory mandate is to initiate, facilitate, coordinate and monitor CSR projects of the Company.

4.8 Structural Stability

While carrying out the detailed designing of the project building structural, engineering, safety and seismic considerations have been taken into account to make it structurally viable and environment friendly. Project proponent has obtained structural stability certificate for the project’s structures.

4.9 Undertaking

The proponent has committed to comply with the relevant Establishment by-laws/ safeguards and the environmental enactments for the environmental preservation. Project proponent has given Undertaking and Affidavit a respectively

4.10 Base line environmental data

Base line environmental data of the project area was monitored. Environmental data was collected through actual onsite monitoring for ambient air quality, noise levels and through laboratory testing of various water samples. Required details of monitoring are reported as under.

4.10.1 Ambient Air Quality

Details of the monitored gaseous pollutants and particulates are given under respective headings as below.

- Gaseous
- For obtaining site specific base line (primary) data, ambient air quality monitoring was done at 5 Points on the quarries and outside boundary lines.
- DRAGER, Germany manufactured ambient air quality monitoring equipment was used. Monitoring was carried out for Sulfur dioxide (SO₂), Nitrogen oxides (NO_x-NO and NO₂) and Carbon monoxide (CO).
- Particulates
- Particulate's monitoring was done at 5 locations of the project site.
- Iso-Kinetic the Casella System (Instrument) designed to comply with BS 3405 and ISO-9096 for compliance monitoring of particulate matter (particulates) was used for the monitoring.

4.10.2 Noise Levels

LEADER Sound Level Meter, Japan was used for noise levels monitoring. Monitoring for noise levels was carried out at 05 points within project site and outside boundary lines.

4.10.3 Water Quality

Water samples was collected from project sites, Laboratory test results of these water samples are reported.

CHAPTER # 5

ENVIRONMENTAL MANAGEMENT PLAN & MONITORING PROGRAM

5.1 Purpose and Objectives of the EMP:

- The primary objectives of the EMP are to:
- Facilitate the implementation of the mitigation measures identified in the EIA
- Define the responsibilities of the project proponent.
- Define a monitoring mechanism and identify monitoring parameters in order to:
- Ensure the complete implementation of all mitigation measures
- Ensure the effectiveness of the mitigation measures
- Provide a mechanism for taking timely action in the face of unanticipated
- Environmental situations identify training requirements at various levels

5.2 Management Approach:

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

A certain degree of redundancy is inevitable across all management levels, but this is in order to ensure that compliance with the environmental management plan is crosschecked.

5.3 Institutional capacity

Following functionaries will be involved in the implementation of EMP:

- Project Proponent
- HSE/Project Manager
- In-Charge Administration
- Supervisor of project
- Environmental Engineer

Training for the management/contractors/engineers and workers on environmental aspects of the project will be arranged. It will be imparted by a team of experienced trainers.

5.4 Training of building contractor

Training of building contractor & workers will be the part of the TORs regarding the construction of the scheme. The provisions given in EIA Report *Chapter 4 Screening of Potential Environmental Impacts & Their Mitigation Measures* will be followed.

TORs will be including the training and submission of reports in the following area:

1. Handling of Machineries in a safe way
2. Use of PPEs
3. Maintenance of vehicles and submission of Environmental Monitoring Reports
4. Maintenance of Water Consumption records
5. Testing of water and waste water and submission of Environmental Monitoring Reports
6. Placement of safety signs/boards during construction
7. Sprinkling of water on the roads and dusty tracks
8. Monitoring of generator emissions
9. Training regarding all other aspects of HSE will be ensured by the contractor during the construction phase.

5.5 Responsibility of EMP

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

Table 5.1 Summary of Impacts and mitigation measure

Serial	Environmental Issues/ Impacts	Mitigation Measures
PLANNING, SITE SELECTION AND DESIGN STAGE		
1	Observance of administrative and legal formalities	It is recommended for obtaining of approval from other relevant departments
2	Acquisition of land	The proposed land is the property of the project proponent.
3	Loss of environmentally sensitive areas	There is no any sensitive area near the project site however the project proponent will achieve the PEQS at the boundary wall of the subject project to avoid the environmental impacts on the nearby industrial unit
4	Changes in traffic pattern	There is no need to change the traffic pattern due the development of the subject project because no. of industries has been developed at the same link road only few vehicles will visit the project on daily basis.

5	Potential conflicts with stakeholders	There is no any conflict at the current stage of the project. Neighboring industries were visited regarding their concerns. They have no any objection regarding development of the subject project as per proposed design. It is recommended to Settle the issues through scoping and specific group discussions.
6	Resettlement issues	No resettlement issues
7	Project Design	Structure Stability Assessment of soil has been done, as per building design i.e., total area of building, etc. Provision of Emergency Exits, Assembly Points, firefighting arrangements, water storage for firefighting should be incorporated in the design.
SITE DEVELOPMEN STAGE		
1	Erosion due to stripping and site clearance	Sprinkling of water on road side or dusty tracks

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2	Generation of dust	Careful loading and unloading of construction materials is recommended. Sprinkling of water on construction site and surrounding areas is recommended.
3	Generation of noise	Avoid suing forbidden horns at the site. Do not throw heavy equipment and construction materials in haphazard manner.
4	Local flooding/ponding	Immediate repair and maintenance of water supply pipes and sewers in case of any defect will be undertaken.
5	Outbreak of fire	Firefighting equipment must be maintained at the site in good working condition.
6	Safety	Safety of the workers and others must be ensured.
7	Labor issues	Employ the local labor as far as possible Wages of the labor should be as per Government policy
CONSTRUCTION STAGE		

1	Minor erosion of land	There are two types of erosions: Wind Erosion Water erosion It is recommended to construct the boundary wall first that will reduce the soil erosion due to wind and chances of water erosion due to water flow from the adjacent will be reduced also. Clearing of land should be step wise; vegetation should be removed only from the area where main building will be developed. Add more vegetation, restore the land by more plantation Sprinkle water on dusty tracks is recommended
2	Contamination of land and water	Hazardous substances like, fuel, etc. should be kept on concreted surface. Essential services like water supply, sewerage disposal and solid waste management must be in working condition.

3	Impacts of dust, noise and flue gases on neighbors	Sprinkle water on dusty tracks is recommended Avoid suing forbidden horns at the site. Do not throw heavy equipment and construction materials in haphazard manner. Proper tunings of vehicles and machinery must be ensured. Schedule construction timings should be implemented for minimum disturbance to neighbors. Continuous Environmental monitoring must be ensured as per proposed monitoring plan.
OPERATION STAGE		
1	Contamination of land and water sources	Continuous vigilance on maintenance of services Tarpaulin sheets must be placed to avoid leaching of into ground

2	Fire breakouts	Training of workers regarding flammable substances will be ensured. SOPs of fire prevention will be adopted like forbidden of smoking, regular testing of electricity infrastructures and regular testing of gas supply system to the industry. Firefighting equipment must be kept in working condition at site
3	Safety/security concerns	Safety of the workers and others will be ensured. Privacy of the neighbors will not be disturbed.
4	Malfunction of utilities	It is proposed to appoint maintenance engineer with technicians like plumber and electrician for smooth operation of utility services.
5	Occupational Health, Safety and Environment	Regular medical check-ups must be ensured to improve the working condition and efficiency of workers. Relevant safety devices like belts, gloves and testers must be strictly used by the operators at the work site. Safety of management, workers and visitors must be ensured.

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		Observance construction and safety codes must be ensured. Provision of emergency exits must be ensured.
6	Production of Solid Waste	Area for solid waste must be reserved within the subject project. The solid waste must be managed on regular basis. The waste will be disposed-off in environment friendly way.

Table 5.2 ENVIRONMENTAL MANAGEMENT PLAN

Serial No	Environmental Parameter/ Element	Mitigation measure to be taken during:		
		Construction	Regular operations	Responsibility
Physical Environment				
1	Wastewater	During construction, domestic wastewater generated by workers will be managed through properly designed septic tanks. No untreated wastewater will be discharged onto open land or into water bodies. Temporary drainage arrangements will be developed to avoid stagnation and contamination. Periodic inspection and cleaning of septic systems will be ensured.	During operation, all industrial and domestic wastewater generated from sizing, dyeing, processing, and washing operations will be treated in the Effluent Treatment Plant (ETP) with a capacity of 1,920 m³/day (80 m³/hr) . Treated effluent will comply with PEQS before discharge or reuse. Sludge generated from ETP will be dewatered and disposed of through approved contractors. Regular monitoring of BOD, COD, TSS, and pH will be conducted.	Environmental/Project Manager

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PROCESSING, STITCHING AND (ETP) AND



2-	Health & safety	Construction workers will be provided with personal protective equipment (helmets, gloves, safety shoes, masks). First aid facilities will be available on-site. Safety training and awareness programs will be conducted regularly.	An Occupational Health & Safety Management System will be implemented. Regular medical checkups of workers will be conducted. Fire detection and firefighting systems will be installed. Emergency response plans and drills will be carried out periodically.	HSE Manager
3-	Water supply	Construction activities will be managed to avoid contamination of groundwater sources.	A comprehensive water conservation plan will be implemented, including reuse of treated wastewater from ETP for	Project Manager

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PROCESSING, STITCHING AND (ETP) AND



		Water usage will be controlled and wastage minimized. Temporary water supply systems will be properly maintained.	gardening and cleaning purposes. Regular inspection of pipelines and fixtures will be carried out to prevent leakage and excessive consumption.	
4	Hazardous Waste	Fuels, oils, and chemicals will be stored in designated areas with proper containment measures. Spill kits will be available at site to manage accidental spills.	Hazardous waste including dyes, chemicals, used oil, and ETP sludge will be handled, stored, and disposed of in accordance with environmental regulations. Spill prevention and control plans will be implemented.	HSE Manager
5	Solid wastes	Construction waste such as debris, packaging materials, and scrap will be segregated and disposed of through approved waste handlers.	Solid waste generated from textile operations will be segregated and recycled wherever possible. Waste bins will be provided at designated locations and waste will be disposed of	Environmental Manager

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PROCESSING, STITCHING AND (ETP) AND



		No waste will be dumped on open land or roads.	through authorized municipal or private contractors.	
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6	Noise	Noise generated from construction activities and machinery will be minimized by restricting work to daytime hours, using well-maintained equipment, and installing temporary noise barriers where required. Workers exposed to high noise levels will be provided with ear protection. Ear plugs will be provided & implemented.	During operation, noise generated from weaving machines, compressors, generators, and boilers will be controlled through acoustic enclosures, vibration isolation pads, and regular maintenance. Workers will be provided with PPE (earplugs/earmuffs) and periodic noise monitoring will be conducted.	HSE Manager
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7	Air Quality (Dust & Emissions)	Dust emissions during site preparation, excavation, and transportation of materials will be controlled through regular water sprinkling, covering of construction materials, and limiting vehicle speeds. Construction machinery and vehicles will be properly maintained to minimize exhaust emissions. All project vehicles will be checked emitting smoke. Ambient air quality has been monitored by EPA certified Lab and results are incorporated within the report.	Air emissions during operation will mainly originate from coal-fired boilers (2 units, each 20 tons capacity) and standby generators. Adequate stack height will be maintained, and emission control devices such as dust collectors or scrubbers will be installed. Ambient air quality (PM, SO₂, NO_x) will be monitored periodically to ensure compliance with regulatory standards. Plantation will be ensured in open space to avoid dust.	Environmental Manager
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8	Soil erosion	Soil disturbance during excavation and construction will be minimized by controlled site activities. Construction materials, fuels, and chemicals will be stored properly to avoid leakage or spillage. Any contaminated soil will be removed and disposed of appropriately.	During operation, chemical storage areas (dyes, acids, alkalis) will be designed with impervious flooring and secondary containment systems to prevent soil contamination. Greenbelt development will be implemented to enhance soil stability and environmental aesthetics.	Environmental Manager
9	Traffic related Problems	Movement of construction vehicles will be planned to avoid congestion. Designated routes will be used, and speed limits will be enforced within the project area.	Adequate parking facilities will be provided within the premises. A traffic management plan will be implemented to ensure smooth movement of vehicles and avoid disturbance to surrounding areas.	Project Manager
10	Boiler Emissions		The project includes two coal-fired boilers (20 tons each). Emissions will be	Environmental Manager

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			controlled through installation of appropriate pollution control equipment and maintaining adequate stack height. Regular monitoring of particulate matter, SO ₂ , and NO _x will be conducted to ensure compliance with PEQS.	
11	ETP Operation		The Effluent Treatment Plant will be operated by trained personnel. All treatment units (equalization, neutralization, coagulation, settling, biological treatment) will be maintained regularly. Performance monitoring will ensure treated effluent meets discharge standards.	Environmental Manager
BIOLOGICAL ENVIRONMENT				

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PROCESSING, STITCHING AND (ETP) AND



12	Fauna and Flora	Site clearance activities will be minimized to avoid unnecessary removal of vegetation. No protected species are present; however, care will be taken to avoid disturbance to local ecology.	Plantation of indigenous trees and shrubs will be carried out within the project boundary to develop a greenbelt. This will improve air quality, reduce noise, and enhance biodiversity in the area.	Environmental Manager
SOCIOECONOMIC IMPACTS				
13	Employment Opportunities	Preference will be given to hiring local labor during construction, contributing to local economic development.	The project will generate long-term employment opportunities for the local population, improving socio-economic conditions in the area.	Project Proponent
14	Community Safety	The construction site will be properly fenced and warning signage will be installed to restrict unauthorized access. Public awareness will be ensured regarding construction activities.	A grievance redress mechanism will be established for the local community. Continuous coordination with stakeholders will be maintained to address any concerns.	Environmental Manager

5.6 Environmental Technical Assistance and Training Plan

In order to raise the level of professional and managerial staff, there is a need to upgrade their knowledge in the related areas. HSE/Project Manager should play a key role in this respect and arrange the training programs.

HSE/Project Manager will provide training to staff and workers about the best environmental management practices at the construction site and affective implementation of the EMP.

The training modules will include air, noise and water pollution monitoring, social awareness, Environmental Laws, Punjab Environmental Quality Standards (PEQS),

Usage of personal protection equipment's, and health and safety related issues on the construction site. The HSE/Project Manager will train all workers & staff in basic sanitation and health care issues (e.g., how to avoid malaria and transmission of Sexually Transmitted Infections (STI) HIV/AIDS and in general health and safety matters, and on the specific hazards of their work. Training should also consist of basic hazard awareness, site specific hazards, safe work practices, and emergency procedures for fire, evacuation. HSE/Project Manager will arrange Training on monthly or quarterly basis regarding health & safety, hygiene, firefighting and first aid.

5.7 Monitoring Plan

Proponent will ensure overall monitoring the project so that all intended activities may take place in accordance with environmental assessment.

5.8 Training schedules

Training for the management/contractors/engineers and workers on environmental aspects of the project will be arranged. It will be imparted by a team of experienced trainers.

5.9 Need for Disaster Management and Emergency Response System

In order to cope up with the possible hazards it is imperative to prepare the Disaster Management Plan and rehearse it frequently. To evaluate effectiveness of the system preparedness exercises and drills should be undertaken frequently. Small courses should be run to train the relevant persons about their actions

during emergency. The administration staff need be familiar with the firefighting procedures and equipment.

5.10 Equipment Maintenance Detail

The subject project is M/S Rafiq Jamil Textile Industries Pvt. Ltd, situated at Plot #160 Allama Iqbal Industrial City, Faisalabad. The proponent of the subject project will maintain records for Health Safety & Environment and will hire Environment/HSE manager to check and deal with the HSE issues. The subject project will maintain medical facilities, firefighting Equipment's as fire buckets, fire hydrants and fire extinguishers and records for their periodic fillings or replacement and will ensure proper housekeeping and essentials facilities.

5.11 Environmental Budget

The cost required to effectively implement the mitigation measures is important for the sustainability of the Project both in the construction and operation stages of the Project. Project proponent will allocate the Environmental Budget for the Training, maintenance and management of Environment is 200,000/- quarterly that will include filling and maintenance of equipment's, restoration, plantation, and strategic planning to cope with any emergency and formulate the disaster management plan to cope with natural disaster. Any equipment or devices failure or replacement will not be included in this budget.

Schedule of implementation

The proponent is waiting for the environmental approval from environmental protection department. No Construction work has been initiated so far as the company is waiting for the Environmental Approval from the Department. After the approval, the project construction work would be carried out within 6-8 months.

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Sr. #	Activities	2.5 Months			2.5 Months			2.5 Months			2.5 Months		
		4W	4W	2W	4W	4W	2W	4W	4W	2W	4W	4W	2W
1	Detailed Designing												
2	Mobilization of Contractors												
3	Lean Development Period												
4	Peak installation Period												
5	Plantation at Site												
6	Commissioning												*
W=Weeks													

Environmental Practitioners and Experts

Name	Post	Qualification
Hassan Waqas	HSE Manager	MPhil Environmental Sciences (NEBOSH)
Usama Zafar	HSE Officer	BE Energy and Environment Engineering
Fajar Waheed	Senior Environmentalist	BS Environmental Sciences
Abdul Rehman	Senior Environmental Officer	MPhil Environmental Sciences
Bilawal Zafar	HSE Officer	BS Environmental Sciences
Iqra Zahid	Environmentalist	BS Environmental Sciences
Momin Ashraf	Environmental Officer	BS Environmental Sciences

Following functionaries will be involved in the implementation of EMMP:

- The project Proponent as owners of the EMMP.
- Project contractor(s) as executors of the EMMP during installation and operational phase of the project.
- Operational & Maintenance (O&M) and the Health, Safety and Environment team of the project as an executor of the EMMP during the installation and operational phase of the project.

Designation	Responsibilities
Manager	• Direct operations at the site. • He will act as team lead. • Interact with other executives, mine staff and community residents. • Effectively motivate staff to follow protocols and to work productively. • Look after the Health and Safety Related issues. • Responsible for scheduling staff and ensuring that supplies are stocked. • He will play a direct role in developing business goals for the mine they run, and he will help to produce a business plan to ensure that those goals are met.

Accountant	• Proper management of the funds for the CSR. • Development of fund proposal for environment related expenses. • Ensuring the smooth transaction of funds for environmental related projects/activities. • He will prepare the yearly budget. • Taking minutes in meetings and other administrative duties. • During his shift timings, he will be responsible to look into smooth functioning of the process in environmentally sustainable way. • He will be responsible to rectify any problem regarding environmental matter in collaboration with concerned authorities. • Prepare reports on different events and incidents. • He will report all matters regarding E.M. to the manager.
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Responsibilities of Functionaries

- Responsibilities of Management of Project

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

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

Proposed Environmental Management and Monitoring Plan (EMMP)

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

The EMMP matrix lists down:

- The required mitigation measures recommended in the EIA report.
- The person/organization directly responsible for adhering to or executing the required mitigation measures and monitoring adherence to the mitigation measures.
- The parameters, which will be monitored to ensure compliance with the mitigation measures.
- The timing at which the mitigation or monitoring has to be carried out.
- Budget allocated for management practices (cost of EMMP)
- Project Proponent will hold primary and overall responsibility for ensuring full implementation of the EMMP.

EMP Review and Revision

The EMP shall specify the procedures for the review and revision of the EMP during Project implementation and have a version control procedure. At a minimum, the site-specific EMP shall be reviewed by the Contractor to determine if an amendment or a major revision is warranted:

- At least once every six (6) months or on a seasonal basis;
- As a result of changes in the project or changes in the anticipated environmental effects of the project;
- After corrective actions have been taken in response to an environmental incident;
- after an adaptive management measure has been proposed
- A material revision is one which would be relevant to the question of whether an adverse environmental effect is more likely to occur, or become more adverse, and

be significant;

- After a material revision of the EMP is proposed that changes a commitment such as:
 - a reduction or increase of monitoring or reporting requirements; or making a specification less stringent or more stringent.

CHAPTER # 6

INVOLVEMENT OF STAKEHOLDER/ PUBLIC CONSULTATION

6.1 EIA and Public Consultation Process

Stakeholder participation in planning and management of the social and environmental issues assists in reducing the concerns of stakeholders and hence increases public acceptance towards development programs. Consultation process entitles the stakeholders with opportunities to participate in key decisions that will affect their lives. Therefore, detailed public consultation meetings were arranged at different levels of the planning process. For this purpose, periodic consultation meetings were held with various project stakeholders. Different aspects and impacts of the proposed project were highlighted regarding their impacts on the physical, biological, and socio-economic environment of the project area. Stakeholders' trepidations regarding various aspects like existing environment, and impacts of the project on the surrounding environment were emphasized and have been added to this EIA report.

6.2 Proponent

Umer Javed S/O Muhammad Javed Iqbal R/O Model Co-operative Housing Society, House No. 15 C, Okara.

6.3 Objectives of the Public/Stakeholders Consultation

Public consultation plays a vital role in studying stakeholders' perspectives regarding the project and henceforth the successful implementation and execution of the proposed project. Public involvement is a compulsory feature of Environmental Impact Assessment, which leads to improved and acceptable decision-making. The primary objective of the stakeholders' consultations was to learn and know the apprehensions, concerns, and opinions of the key stakeholders over environmental implications of the project activities from public perception. The consultation sessions also served as a source of firsthand information about the users and

the beneficiaries' expectations from the project. Dialogue with the stakeholders and recording their concerns at appropriate stages of the project would help to tailor the project in line with stakeholders' aspirations and so increases the likelihood for public acceptance of the project and its subcomponents. It also helps to develop and maintain communication links between the project proponents and stakeholders, providing opportunities to the public to influence the project design in a positive manner. This ensures that the views and concerns of the stakeholders are incorporated into the project design and implementation with the objectives of reducing or offsetting negative impacts and enhancing benefits of the proposed project.

6.4 Methodology

6.4.1 Responsible Authority

The consultation process began with the identification of the most pertinent stakeholders. Identification of the stakeholders for the proposed project plays a crucial role in development and also assists in quantifying the role of different stakeholders involved. Impacts identified by the stakeholders are measured through matrix method and mitigation measures are proposed according to the intensity of the identified impacts. Efforts were made to identify the relevant stakeholders through a systematic process based on the nature and degree of their actual and perceived stakes related to the project.

6.4.2 Issues Discussed with the stakeholders

Following issues were discussed during the stakeholder consultation meetings:

- Concerns, apprehensions, and views of the community and the stakeholders over the project activities relating to design, construction and operational aspects.
- Probable adverse impacts of the project activities on various components of the environment i.e., physical, biological, and social components
- Possible remedies for the concerns and apprehensions, how the concerns can be effectively addressed?

Identification of any specific personal or site related concerns

- How the project operations can happen in accordance with user/beneficiaries' expectations?
- Beneficial factors and involvement opportunities of the local people in the set of activities of project during construction and operational phases.
- Material's transport management during construction and operational phase of the project.
- Management of water, wastewater and solid waste during construction and operational phase of the project.
- Natural hazards, associated risks and precautionary measures.
- Traffic issues subjected to activities during different phases of the project.

6.5 Environmental Practitioners and Expert

According to the EIA rules and regulations this report will be compiled and submitted to the Environment Protection Department (EPD) and after the review on the report this report will be disseminated to the public. This dissemination and information sharing exercise will then be followed by public participation through print media in which the public will be requested for their reviews. The copies of the report will be placed in the EPA for comments from the public which will be incorporated in the report. As per rules and regulations, Environment Protection Department will hold a public hearing at the proposed project site.

Other Departments and agencies

Proponent applied for other department NOC and will be provided in an operational phase of the project

Responsible Authority

HSE manager will be responsible for all the operational activities

Environmental Practitioners and Experts

Name	Post	Qualification
Hassan Waqas	HSE Manager	MPhil Environmental Sciences (NEBOSH)

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Usama Zafar	HSE Officer	BE Energy and Environment Engineering
Abdul Rehman	Senior Environmental Officer	MPhil Environmental Sciences
Fajar Waheed	Senior Environmentalist	BS Environmental Sciences
Bilawal Zafar	HSE Officer	BS Environmental Sciences
Iqra Zahid	Environmentalist	BS Environmental Sciences

Proponent Environment Management Team

Hassan Waqas	HSE Manager
Usama Zafar	HSE Officer
Abdul Rehman	Senior Environmentalist

Affected and Wider Community

There is no population present in the safe radius of the site that's why community will not be disturbed due to project operation. Although the opportunity of employment will increase if the project will approve.

Summary Of Issues Raised By Stakeholders

A summary of the key issues raised by stakeholders and how these are being addressed by Project Proponent is provided in Table below.

Issue	Aspect/Concern raised by Stakeholders	Project Proponent Commitments
Employment Opportunities	Expectations of employment are very high. Job opportunities are less for herders as they generally have less skills and training.	Employment is the main priority of the industry. Mostly locally skill and unskilled labor will be prioritized and also there will be job in executive level. Around 100 people will be employed by the industry.

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Training Opportunities	People are keen to consult with subject industry if the Project offers training and upgrading opportunities to enhance their trade or professional skills.	Development of the Training Strategy, including commitment of allocation of budget investment for training infrastructure, delivery and design. Installation of training facilities in for worker of the company and students will also be accommodating. The internship program will offer to the students to develop professional skills.
Health & safety	Truck traffic is a main concern because the road used by the Project passes through a number of small communities and different industries and there will be a high volume of trucks transporting concentrate.	Development of Transport Management Plan including traffic safety training. Traffic advisory signs will be installed along project site and all nearby specific areas.
Local economy and business development	Local service providers are keen to participate in providing services to provide raw material and expect to receive in order to adjust their businesses to meet specific needs. Local/regional companies and entrepreneurs have limited understanding about meeting the high volumes required by the Project and the quality standard, but are keen to know these requirements so they can become suppliers.	Proponent has main focus that they will all the material regarding construction and plant operation to buy from the local market. This will help the local and small business and to people who are keen interested to become suppliers.
Environmental Issues	Dust and noise impacts, particularly from the construction activities and in operation of mechanically unfit machines, are of concern to herders and other residents. Environmental degradation during road construction and use. Loss and change of vegetation due to soil degradation.	Implementation of controls under the Environmental Management Plans, including on and off-site dust and noise monitoring. A Participatory Environmental Monitoring Program will be launched to spread awareness.

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Water quantity and quality	Water quality and quantity, and impacts from the wastewater disposal are all key concerns for nearby herders.	Implementation of consultation in relation to water use and development of the Participatory Environmental Monitoring Program. Water treatment will be done by the proponent that will help to safe disposal of the water.
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CHAPTER NO # 07

ASSESSING IMPACTS

7.1 Methodological Approach to Assessing Impacts

The main impacts of the policy which need to be assessed are summarized below.

Social / Public Health impacts
• Changes in health outcomes for patients
Economic impacts
• Changes in expenditure on pharmaceuticals (plus any changes in other healthcare costs) • Costs incurred by industry in providing additional information to patients • Costs of enforcing information provision standards • Administrative burdens associated with notifying the regulatory body of information provision • Other possible impacts (e.g. on competition and innovation)
Environmental impacts
• No significant environmental impacts have been identified.

A number of elements of research have been carried out to gather data to inform an assessment of these impacts:

- The literature review has generated some useful qualitative and quantitative material relevant to the impact of providing information to patients about medicinal products and health-related issues in order to gather evidence on.
 - The effects on patients, health professionals, health systems and public health of the provision of information to patients on medicinal products and illnesses.
 - The distinction between information and advertising.
 - The relative effectiveness of different information channels, such as the internet and written information.

- The effects of how information is presented (drawing on behavioral economics research into framing effects).

7.2 Evaluation of Identified Impacts

Methodology adopted for the identification, evaluation and analysis of environmental impacts by the proposed project is “Matrix Method and Significance Rating of Impacts”.

7.3 Environmental impact Matrices

The environmental impact matrices have been developed to evaluate magnitude of the impacts of various project activities on different environmental settings for construction and operation phases and are shown in **Tables** respectively.

A Matrix method helps in identifying the potential temporal & spatial impact and screens the project for environmental and social soundness. Each project activity is screened separately with regard to its construction and operation phases according to the various physical, ecological and social parameters. These impacts are characterized on the basis of extent, timing, magnitude, reversibility, probability, nature and duration. **Table 7.1** shows the characterization of impacts

Table 7.1 Environmental impact Evaluation Matrix during Construction Phase

	VEC/VSE	VEC/VSE Rating	Establishment and Functioning of Construction Camps workshops etc.	Excavation Operation of burrow and quarry Areas.	Transportation of construction Materials and Equipment's	Open storage of Construction materials, fuels etc.	Operation of Concrete	Functioning of Power generators	Land Acquisitions	Solid & Liquid waste management	Impact Score
Components	Air Quality and dust	0.10	-3	-3	-2	-2	-3	-2	0	-1	-1.6
	Soil Erosion & contamination	0.05	-2	-2	-3	-2	-3	-1	0	-3	-0.8
	Ground water Quality	0.10	-3	-2	-2	-2	-2	-1	0	-2	-1.4
	Noise	0.10	-3	-4	-2	0	-3	-3	0	-1	-1.6

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PROCESSING, STITCHING AND (ETP) AND



	Flora	0.12	-1	-2	-2	-1	-1	0	0	-1	-1.0
Bi physical environment	Fauna	0.06	-2	-2	-2	-1	-2	-2	-2	-2	-0.9
Socioeconomic Environment	Traffic management	0.20	-3	-3	-4	-3	-2	-1	0	-2	-3.6
	Social and cultural conflict	0.07	-3	0	-1	-1	-1	-1	-4	-2	-0.9
	Health and safety of Workers & community	0.10	-3	-3	-3	-2	-3	-2	0	-3	-1.9
	Employment/ Economic activity	0.10	3	3	2	0	1	1	-4	3	0.9

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		Legend	+Positive	0	No impact	2	Minim impact	4	Severe impact		
			-Negative	1	Negligible impact	3	Moderate impact				

Environmental Impact Evaluation Matrix during Operational Phase

	Components	Valued Ecological components	VECs Rating	Activities			
				Movement of Vehicles	Vehicles Emission	Dumping of solid waste in drain	
		Flora	0.05	0	-2	0	-0.10

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PROCESSING, STITCHING AND (ETP) AND



	Biophysical Environment	Fauna	0.05	-3	0	0	-0.15
		Noise and Vibration	0.10	-3	0	0	-0.30
		Drainage	0.20	-2	0	-3	-1.0
	Socio Economic Environment	Road Safety	0.20	-4	0	-4	-1.60
		Economic Activity	0.15	3	0	0	0.45
		Traffic Management	0.25	4	0	-3	0.25
Legend	Positive (+)	0	No impact	2	Minor impact	4	Severe impact
	Negative (-)	1	Negligible impact	3	Moderate impact		

Table 7.2 Characterization of Impacts

Extent	Timing	Magnitude	Reversibility	Probability	Nature	Duration
Site Specific	Short Term	Negligible	No Change	Very Unlikely	Indirect	Temporary
Local Impact	Medium Term	Low	Reversible	Unlikely	Direct	Permanent
Area Impact	Long Term	Medium	Slowly Reversible	Likely		
Regional Impact	Multi-year and Permanent Impact	High	Irreversible	Certain		

In addition to assigning the numerical values to each marked box in the Matrix, plus (+) or minus (-) sign are used to show whether an impact is beneficial or adverse. The weighted matrix was applied to the environmental components listed on the y-axis against the activities of the proposed project listed on the x-axis prior to mitigation measures. In this process, numerical values were assigned from 0 to 1 for biophysical environment and socio-economic environment to indicate the significance of the affected environmental and social components. These numerical values were then multiplied with the individual project activity rating/values and all added to get an overall impact score. This impact score gives the relative significance of impacts for a specific component. The highest impact score gives the level of significance of that impact.

7.3.1 Identification of VECs

Biophysical and human environments that, if altered by the project, would be of concern to regulatory agencies, indigenous community, resource managers, scientists, stakeholders, and/or the general public. VECs are typically selected for assessment on the basis of regulatory issues, guidelines, and requirements; consultation with regulatory agencies, the public, stakeholder groups; field reconnaissance; and the professional judgment of the Study Team.

7.3.2 Significance Rating of Impacts

The overall significance of the impacts was defined based on the result of a combination of the ratings. Each identified impact was analyzed individually according to a number of criteria including descriptions of their extent, timing, magnitude, reversibility, probability, nature and duration. Taking into account these criteria, potential significance was classified as either:

- Low: The impact which has a slight influence on the natural and socio-economic environment;
- Medium: The impact which can be eliminated/ mitigated after applying the appropriate mitigation measures; and
- High: an impact, which, if not mitigated, could stop the project from proceeding

7.4 Delineation of Project Corridor of Impact (COI)

COI is a limit which identifies the area where direct and indirect impacts of the project activities are envisaged like existence of forests, game reserves, wetlands, archaeological sites etc. The limit for COI for the proposed project is taken as 250 meter radius for collection of baseline information, impacts assessment and mitigation measures of physical, ecological as well as social resources. As the location of construction/contractor camps, vehicles, equipment yard, material

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quarry areas and access tracks have not been defined yet, so impacts evaluated due to these facilities in this section will be of generic nature

CHAPTER NO # 8

MITIGATION AND IMPACT ASSESSMENT

8.1 Purpose of Mitigation Measure

The basic purpose of mitigation measures is to reduce the impacts of the establishment of Construction of Textile unit (Warping, Sizing, Weaving, Processing, Stitching and Embroidery) along with an Effluent Treatment Plant (ETP) and Boiler by M/S Rafiq Jamil Textile Industries Pvt. Ltd, situated at Plot #160 Allama Iqbal Industrial City, Faisalabad, on the socio-environment up to the maximum possible extent. The mitigation measures are suggested based on the following parameters:

8.2 When problem will occur and when it should be addressed?

The potential environmental impacts associated with the Construction and Operation of the Textile Unit (Warping, Sizing, Weaving, Processing, Stitching and Embroidery) along with an Effluent Treatment Plant (ETP) and Boilers by M/S Rafiq Jamil Textile Industries Pvt. Ltd., located at Plot #160 Allama Iqbal Industrial City, Faisalabad, are expected to arise during both the construction and operational phases. These impacts primarily result from civil works, installation of machinery, and increased human activities in the project area. Key issues include noise generation, fugitive dust emissions, wastewater discharge, solid waste generation, topsoil disturbance, occupational health and safety risks, and minor changes in land use and local environmental conditions. All such impacts will be effectively managed and mitigated at their source through appropriate environmental management practices to minimize adverse and residual effects on the surrounding environment and community.

8.3 Where problem should be addressed?

The problem will be generated from site development and operation of the unit. So, it should be addressed on source i.e. at site within the same timeframe.

8.4 How the problem should be addressed?

Proper mitigation measures will be implemented in accordance with the nature and scale of impacts associated with the construction and operation of the proposed textile unit (Warping, Sizing, Weaving, Processing, Stitching, and Embroidery) along with the Effluent Treatment Plant (ETP) and coal-fired boilers. To control dust emissions, regular water sprinkling will be carried out on unpaved areas and construction sites. Solid waste will be managed through proper segregation, collection, and disposal in coordination with authorized agencies. All wastewater generated from processing and domestic activities will be treated through the ETP (capacity: 1,920 m³/day or 80 m³/hr) prior to safe discharge or reuse. Emissions from coal-fired boilers will be controlled through appropriate air pollution control systems, while occupational health and safety measures will be strictly enforced to protect workers and nearby communities.

8.5 Ways of Achieving Mitigation Measures?

Following ways will be adopted to reduce the impacts of the quarrying:

8.5.1 Changing in Planning Design

For the process, industrial land is selected. The process selected for Construction of Textile unit (Warping, Sizing, Weaving, Processing, Stitching and Embroidery) along with an Effluent Treatment Plant (ETP) and Boiler by M/S Rafiq Jamil Textile Industries Pvt. Ltd, situated at Plot #160 Allama Iqbal Industrial City, Faisalabad. Project is the controlled system where physical, biological and chemical hazards are controlled or managed effectively. The chances of the biological contamination are reduced significantly. There is no endangered and threatened species present in the project area that could be impacted due to the installation of the facility. Moreover, there isn't any human settlement or infra-structure that will be dislocated or dismantled due to the proposed project development. No adverse impact is therefore being envisaged due to the installation of the facility in the proposed location as the process employed is controlled as for the management of the wastewater a septic tank will be installed and for the management of the solid waste and by-products a proper waste management plan will be formulated. Hence, there is no need to change the design of project.

8.5.2 Improved Management and Monitoring Practices

The anticipated impacts had been reduced significantly by adopting better management activities, as it will be carried out for betterment of the society. While environmental monitoring will be conducted on the regular basis to keep the sources of the wastewater generation, solid waste management, by-product management, noise and public nuisances in-check. Following practices that need to be adopted to reduce the impact significantly:

a. Compensation in Money Terms

Due to the construction of the facility, the vegetation present on-site will be removed and the geography/landscape of the area will be slightly changed on the permanent basis, however, there is no protected or environmentally sensitive area present within 10.0 km vicinity of the project that could be impacted due to the Construction of Textile unit (Warping, Sizing, Weaving, Processing, Stitching and Embroidery) along with an Effluent Treatment Plant (ETP) and Boiler by M/S Rafiq Jamil Textile Industries Pvt. Ltd, situated at Plot #160 Allama Iqbal Industrial City, Faisalabad, project Hence, no compensation in the monetary terms will be required. However, for the removal of the one tree from the leased area 3-5 trees will be planted as the compensation along the facility boundary.

b. Replacement/Relocation/Rehabilitation

The proposed project is located in industrial area. There is no sensitive area, population or natural resource is present which could be impacted due to the installation of the facility. No replacement, relocation and rehabilitation are required because construction and operational phase

CHAPTER # 9

CONCLUSION AND RECOMMENDATIONS

1. Textile processing units play a vital role in the textile industry by converting raw yarn and greige fabric into value-added finished products. The proposed textile unit of **M/S Rafiq Jamil Textile Industries Pvt. Ltd.** comprises integrated operations including **Warping, Sizing, Weaving, Processing, Stitching, and Embroidery**, which collectively transform raw materials into high-quality bed sheets and polyester fabrics. Modern machinery and advanced production technologies enhance product quality, operational efficiency, and resource utilization. The study of textile processing helps in understanding the various manufacturing stages involved in fabric production and the techniques used to achieve the desired quality, design, and finish of textile products.
2. Whilst voluntary actions from industry are welcome, regulatory action is needed to most rapidly and effectively protect population health in the Region. Furthermore, a regulatory framework would “level the playing field” for all industry, local and international, small and large, and provide equal benefits to all sectors of society (particularly rural and poor populations).

8.6 Conclusion

- ❖ The EIA study reveals that the project is economically viable, socially acceptable and environment friendly.
- ❖ On completion of the project Construction of Textile unit (Warping, Sizing, Weaving, Processing, Stitching and Embroidery) along with an Effluent Treatment Plant (ETP) and Boiler by M/S Rafiq Jamil Textile Industries Pvt. Ltd, situated at Plot #160 Allama Iqbal Industrial City, Faisalabad, it will generate additional jobs opportunities for locals during operation phases.
- ❖ Project is environmentally friendly and pollution free
- ❖ The proponent has committed to implement the project in the environment friendly manner

- ❖ Project proponent has ensured to install the Waste Water Treatment Plant to treat the wastewater prior to discharge into drain or use for irrigation purposes.
- ❖ Project proponent has ensured to adopt the proper solid waste management
- ❖ Proponent has ensured to adopt all the necessary measures to control any impact if resulting from the project
- ❖ Project proponent has ensured to provide the safe drinking water to all workers and staff
- ❖ Project proponent has prepared and implemented very comprehensive Emergency Preparedness and Response Standard Operating Procedures
- ❖ Project proponent has prepared and implemented very comprehensive Security and Fire Fighting Standards Operating Procedures

Main environmental issues are as under:

- Production of Solid Waste
- Generation of waste water
- Generation Noise
- Traffic issues
- Health and Safety issues

9.2 Recommendations

- ❖ In view of the comprehensive screening process and findings of the present study there is no need of conducting further investigations.
- ❖ Tree plantation inside and near the society is recommended.
- ❖ RO Plant recommended for the safe drinking water supply to the workers of industry
- ❖ Waste water treatment Facility should be installed.
- ❖ Proper solid waste management system should be followed according to direction of the Local Government.

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- ❖ The untreated wastewater should not be reused for irrigating the vegetation and lawns without treatment.
- ❖ High standards of bio-security and safety should be enforced during operation stage. Safety of the workers should be top priority for the management.
- ❖ Industry should continue to assist the local communities as a corporate/social responsibility.
- ❖ The present EIA report is enough to meet the administrative and legal framework. Therefore, the environmental approval may be accorded for the present project.

ANNEXURES

Terms of Reference for Environmental Impact Analysis

1.0 Introduction

Entertech labs Pvt Ltd (Environment Division) has been asked to submit the technical proposal for this project to fulfill the legal requirements under Pakistan Environmental Protection Act 1997 (amended 2012).

Part A- Completion of EIA

2. Environmental Impact Analysis

The proponent is required to prepare an environmental assessment study and get approval from EPA prior to commencement of the project.

3. Responsibility of Consultant

The consultant would undertake surveys, conduct studies, consult with the community and compile the EIA report. The EIA should cover all likely construction and operation activities and will include, but not to be limited to, an assessment of the environmental and social impacts relating to the land.

The following tasks shall be conducted for the completion of work.

1) Procedure of Environmental Assessment

After the award of work of Environmental Assessment study, consultant will carry out following activities:

- a. Kick off meeting with client to collect the requisite information regarding project i.e. Design reports, drawings, feasibility study, topographic survey etc. Site topographical surveys and underground reservoir survey reports will be shared by client.
- b. Site survey and environmental monitoring of groundwater, noise, wastewater and ambient air quality.
- c. Socioeconomic survey of the area.

- d. Secondary data collection from district department (Forest, drainage, meteorological)
- e. Assessment of environmental and socioeconomic project and mitigation measures
- f. Preparation of environmental management and monitoring plan.
- g. Environmental assessment report preparation and submission to client for review and comments if any.
- h. Follow up of case in EPA till its final Environmental Approval Responsibilities of the Client

Responsibilities of the Client

- I. Provision of necessary documents and studies about the features and description of the project.
- II. Provision of copy of the geotechnical study including seismic study.
- III. Site topographical surveys and underground reservoir survey reports.
- IV. Basic data for quantification of solid waste, water use, wastewater and its safe disposal.
- V. Detail of each commercial activity and its expected magnitude.
- VI. Provision of review fee for EPD.
- VII. Health and safety plan.

B) Securing NOC and Approval from Govt. Departments

- a. Consultant will prepare and submit a complete final Environmental Assessment report to the client along with requisite documents provided by the proponent for onward submission to EPA Punjab securing NOC.
- b. Consultant, as required by environmental law, will submit the report along with bank draft of review fee in the name DG EPA, application, affidavit and undertaking provided by the client.
- c. EPA Punjab raises queries on EIA report and sends to the client. At this stage, consultant will reply all the queries raised by EPA. Client/Consultant will submit the reply to EPA.

- d. After the approval of Environmental report, a notice for the committee of experts for the proposed project will be issued by EPA Punjab. Consultant will prepare and deliver presentation before committee of experts. All the questions raised by committee of experts will be responded by the consultant.
- e. After committee of experts, NOC is issued to the client.
- f. Consultant will facilitate the client till the issuance of NOC by concerned Government Department from EPA Punjab.

Glossary

- ❖ **Ambient:** relating to the immediate surroundings of something
- ❖ **Base line:** Conditions prevailing at the time of study or before initiation of any project
- ❖ **Baseline:** Conditions prevailing at the time of study or before initiation of any project
- ❖ **Discharge:** means spilling, leaking, pumping, depositing, seeping, releasing, flowing out, pouring, emitting, emptying or dumping
- ❖ **Effluent:** means 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 budget:** Monetary assets reserve for environmental activity.
- ❖ **Environment:** means air, water and 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 factors mentioned
- ❖ **Environmental Impact Assessment:** means an environmental study comprising collection of data, prediction of qualitative and quantitative impacts, comparison of alternatives, evaluation of preventive, migratory 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
- ❖ **Fauna:** Animal life occurring in particular region or time.
- ❖ **Flora:** plant life occurring in particular region or time.
- ❖ **Initial Environmental Examination:** means 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 environmental effect for requiring preparation of an environmental impact assessment

- ❖ **National Environmental Quality Standards:** means the permissible standards for emission of air pollutants and noise and for discharge of effluent and waste
- ❖ **Nuisance:** A person, thing or circumstances causing inconvenience or annoyance.
- ❖ **pH:** negative log of hydrogen concentration:
- ❖ **Proponent:** the person who intends to carry-out a proposed project.
- ❖ **Sustainability:** means such developments that meet the needs of the present generation without compromising the ability of future generations to meet their needs
- ❖ **Waste:** means any material, substance, or by-product eliminated or discarded as no longer useful or required after the completion of a process

List of Abbreviation

BOD	Biochemical Oxygen Demand
C&I	Commerce and Investment
CEPT	Common Effluent Pretreatment Plant
COD	Chemical Oxygen Demand
DCP	Dry Chemical Powder
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EMMP	Environmental Mitigation & Monitoring Plan
EPA	Environmental Protection Agency
EPD	Environmental Protection Department
EPO	Environmental Protection Ordinance
GOP	Government of Pakistan
GOPb	Government of Punjab
HSE	Health, Safety & Environment
HC	Horticulture Committee
IEE	Initial Environmental Examination
Kmp/h	Kilo Meter Per Hour
Km	Kilo Meter
LESCO	Lahore Electricity Company
PEQS	Pakistan Environmental Quality Standards

CONSTRUCTION OF TEXTILE UNIT (WARPING, SIZING, WEAVING, PROCESSING, STITCHING AND EMBROIDERY) ALONG WITH AN EFFLUENT TREATMENT PLANT (ETP) AND BOILER BY M/S RAFIQ JAMIL TEXTILE INDUSTRIES PVT. LTD



NOC	No Objection Certificate
NWFP	North West Frontier Province
OSHA	Occupation Health and Safety
PEPA -97	Pakistan Environmental Protection Act, 1997
PCGIP	Punjab Cities of Governance Improvement Project
PM	Particulate Matters
PEPO-83	Pakistan Environmental Protection Ordinance, 1983
TDS	Total Dissolved Solids
TMA	Tehsil Municipal Administration
UC	Union Council
WAPDA	Water and Power Development Authority
WWTF	Waste Water Treatment Facility
WHO	World Health Organization
API	American Petroleum Institute
CO ₂	Carbon dioxide
°C	Degree Celsius
M/S	Masses
INR	International normalized ratio
FY	Fiscal Year

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