

**CONSTRUCTION OF GARMENTS MANUFACTURING,
DYEING AND FINISHING UNIT BY M/S BIN NAWAB
(PRIVATE) LIMITED**

**LOCATED AT MEERAN WALA BANGLA, 03 KILOMETERS
DRAINAGE CANAL, CHAK NO. 51 JB, DISTRICT
FAISALABAD**



ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

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GLOSSARY

TERM	DEFINITION
Air Quality	Measurement of the pollutants in the air; a description of healthiness and safety of the atmosphere.
Alloys	A mixture or metallic-solid solution composed of two or more elements (e.g., brass, steel). Complete solid solution alloys give a single solid phase microstructure.
Aluminium	The most abundant metallic element in Earth's crust and the most widely used nonferrous metal.
Consultation	Two-way transfer of information or joint discussion between project staff and the affected population to improve project outcomes and participation.
Coordinates	A group of numbers used to indicate the position of a point, line, or plane.
Contaminate	To make impure or to pollute.
Cyclone	Separation devices (dry scrubbers) that use inertia to remove particulate matter (larger pieces) from flue gases as a pre-cleaner.
Environmental Management	Attempting to control human impact on and interaction with the environment to preserve natural resources.
Land Acquisition	The process whereby a person is compelled by a public agency to cede land for public purpose in return for compensation.
Mitigation	The action of reducing the severity, seriousness, or painfulness of something.
Monitoring	Supervising activities in progress to ensure they remain on-course and on-schedule to meet objectives.
Production Capacity	The volume of products or services that can be produced by an enterprise using current resources.
Proponent	A person or entity who advocates a theory, proposal, or course of action.
Rehabilitation	Compensatory measures to re-establish lost incomes, livelihoods, and social systems (excludes compensation for assets).
Resettlement	Measures taken to mitigate adverse impacts on livelihood and property, including compensation, relocation, and rehabilitation.
Stakeholders	Affected persons and communities, proponents, private and public businesses, NGOs, and the EPA.
Ton	A unit of gross internal capacity, equal to 100 cubic feet (2.83 cubic meters).
Topography	Details of the surface features of land, including mountains, hills, creeks, and other geographic variations.

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EXECUTIVE SUMMARY

This report presents the Environmental Impact Assessment (EIA) for the establishment of a Garments Manufacturing and Stitching Unit by M/s Bin Nawab (Private) Limited. at Meeran Wala Bangla, 03 Kilometers Drainage Canal, Chak No. 51 JB, District Faisalabad. The proposed project covers a total area of 15 Kanal and involves an estimated investment of PKR 90 million to establish a modern garment manufacturing facility with an estimated production capacity of 2.5 million garments per annum. The facility will undertake fabric cutting, stitching, finishing, quality inspection, packing, and storage for domestic and export markets.

The EIA evaluates the potential environmental impacts associated with the construction and operation of the project, including wastewater generation, solid waste, air emissions, noise, and the consumption of natural resources. In accordance with the Punjab Environmental Protection Act, 1997 (as amended) and the applicable Punjab EPA Regulations, appropriate mitigation measures have been proposed through a comprehensive Environmental Management Plan (EMP).

The assessment concludes that the anticipated environmental impacts are site-specific, manageable, and reversible, provided that the recommended mitigation measures and EMP are effectively implemented. The proposed project is expected to promote industrial development, employment generation, and economic growth while ensuring compliance with environmental regulations and sustainable environmental management. Consequently, the project is considered environmentally acceptable for the issuance of Environmental Approval by the Punjab Environmental Protection Agency (EPA).

I. Project Need

The establishment of the Garments Manufacturing and Stitching Unit by M/S Bin Nawab (Private) Limited. is essential to meet the increasing domestic and international demand for high-quality garments, knitwear, and made-up textile products. The project aims to strengthen Pakistan's textile and apparel industry by establishing a modern production facility capable of manufacturing quality products for both local consumption and export markets. The proposed facility, with an estimated investment of PKR 90 million, will incorporate modern cutting, stitching, finishing, quality inspection, and packing operations to ensure efficient production and consistent product quality. The project will contribute significantly to employment generation, promote industrial development in Faisalabad, enhance export potential, and support the growth of allied industries such as textile processing, packaging, transportation, and logistics. Furthermore, the project demonstrates a commitment to environmentally sustainable industrial development by implementing effective pollution control measures and a comprehensive Environmental Management Plan (EMP). Through efficient resource utilization, proper waste management, and compliance with the Punjab Environmental Protection Act, 1997 (as amended) and the Punjab Environmental Quality Standards (PEQS), the proposed project will contribute to sustainable economic growth while minimizing environmental impacts.

II. Objectives of the Project

The main objectives of the Garments Manufacturing and Stitching Unit by M/S Bin Nawab (Private) Limited. are outlined below:

- To establish a modern garment manufacturing and stitching facility with an estimated production capacity of 2.5 million garments per annum to meet the growing domestic and international demand for high-quality textile products.
- To manufacture a wide range of garments, knitwear, made-ups, and other textile products through efficient production processes including fabric inspection, cutting, stitching, finishing, quality control, packing, and dispatch.
- To optimize industrial infrastructure by utilizing the 15 Kanal project site for an integrated manufacturing facility equipped with modern machinery and production lines.
- To ensure the production of high-quality garments by implementing stringent quality assurance and quality control measures at every stage of the manufacturing process.
- To generate direct and indirect employment opportunities, contribute to the economic development of the region, and strengthen Pakistan's textile and apparel industry by promoting value-added manufacturing and exports.
- To comply with the provisions of the Punjab Environmental Protection Act, 1997 (as amended) and the Punjab Environmental Quality Standards (PEQS) by implementing a comprehensive Environmental Management Plan (EMP) during both the construction and operational phases.
- To minimize environmental impacts through efficient utilization of water and energy resources, proper management of wastewater and solid waste, air emission control, noise reduction measures, and the adoption of environmentally sustainable manufacturing practices.
- To ensure a safe and healthy working environment by implementing occupational health and safety measures, emergency preparedness procedures, and regular environmental monitoring in accordance with applicable regulatory requirements.

III. Environment Category of the Project

Based on the Punjab Environmental Protection Act, 2012 and the Review of IEE & EIA Regulations, 2022 for filing, reviewing, and approving environmental assessments, the present project is classified under Schedule II class B (6) **manufacturing and processing**. This regulatory framework ensures that the project is developed and implemented in a socially, economically, and environmentally sustainable manner.

IV. Title and Location of the Project

Title	Construction of Garments Manufacturing, Dyeing And Finishing Unit By M/S Bin Nawab (Private) Limited. at Chak No. 51 JB, District Faisalabad.
Location	Meeran wala Bangla, 03 kilometers Drainage Canal, Chak no. 51 JB, District Faisalabad.

**Construction of Garments Manufacturing, Dyeing and
Finishing Unit by M/S Bin Nawab (Pvt.) Limited
*Environmental Impact Assessment (EIA) Report***



Figure 0-1: Location Map

V. Name of Organization Preparing the Report

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VI. Name of the Proponent

Name	Ali Akbar
Address	House No. 1047-C, People's Colony No. 2, District Faisalabad, Punjab

VII. Brief outline of the Proposal

The proposed project involves the construction and operation of a Garments Manufacturing and Stitching Unit by M/S Bin Nawab (Private) Limited, dedicated to the production of high-quality garments, knitwear, and made-up textile products for domestic and export markets. The facility will undertake an integrated manufacturing process comprising fabric inspection, pattern making, fabric cutting, stitching, and embroidery (where applicable), finishing, ironing, quality inspection, packing, and dispatch. The company is committed to carrying out its operations in accordance with best industrial practices, occupational health and safety requirements, and environmental protection standards.

VIII. Brief Outline of The Project

BRIEF OUTLINE OF THE PROJECT	
Land Available	15 Kanal
Project Estimated Cost	90 Million Million Rupees
Raw Material for garment manufacturing unit by M/S Bin Nawaz Private Limited.	• AI Fabric (Cotton, Polyester & Blended Fabrics), • Sewing Thread • Buttons, • Zippers • Labels • Elastic • Interlining • Packaging Material (Poly Bags & Cartons) • Trims & Accessories
Capacity of the Project	2.5 million garments per annum

IX. Project Impacts and Recommendations for their Mitigation

Table 1 shows the project impacts; related with construction and operation and accordingly mitigation measures have also been proposed to safeguard the environment and for sustainable development.

Table 0-1: Project Impacts and their Mitigations Measure
Screening of possible Impacts during Design/Pre- Construction phase

S/No.	Potential Issue	Likelihood	Consequence	Risk Level	Residual Impact
1	Inadequate site drainage and storm water management leading to waterlogging	Unlikely	Moderate	Medium	Long Term
2	Non-compliance with zoning and land-use requirements for industrial development	Rare	Major	High	Long Term
3	Inadequate provision of fire protection and emergency evacuation systems in the facility design	Unlikely	Major	Medium	Long Term
4	Insufficient planning for wastewater collection, treatment, and disposal systems	Likely	Moderate	Medium	Long Term
5	Inefficient plant layout resulting in excessive energy consumption and poor workflow	Likely	Minor	Low	Long Term
6	Inadequate storage design for fabrics, chemicals, dyes (if applicable), and finished products	Unlikely	Moderate	Medium	Long Term
7	Insufficient allocation of space for solid waste collection and recycling facilities	Possible	Moderate	Medium	Long Term
8	Failure to incorporate occupational health and safety measures in the facility design	Possible	Major	High	Long Term
9	Inadequate ventilation and lighting design affecting worker health and productivity	Possible	Moderate	Medium	Long Term
10	Lack of provision for rainwater harvesting, water conservation, and energy-efficient systems	Likely	Minor	Low	Long Term

Screening of possible Impacts during Construction phase

S/No.	Potential Issue	Likelihood	Consequence	Risk Level	Residual Impact
1	Dust generation from excavation, site preparation, and construction activities	Likely	Moderate	Medium	Short Term
2	Noise pollution from construction machinery,	Likely	Minor	Low	Short Term

S/No.	Potential Issue	Likelihood	Consequence	Risk Level	Residual Impact
	equipment, and vehicle movement				
3	Improper disposal of construction debris, packaging materials, and excavated waste	Unlikely	Moderate	Medium	Long Term
4	Traffic congestion and road safety issues due to transportation of construction materials and machinery	Likely	Minor	Low	Short Term
5	Soil compaction and temporary alteration of natural drainage patterns	Unlikely	Moderate	Low	Long Term
6	Occupational health and safety risks to construction workers	Likely	Moderate	Medium	Short Term
7	Accidental spillage of diesel, lubricants, paints, or other construction chemicals	Unlikely	Major	Medium	Long Term
8	Increased consumption of water and electricity during construction activities	Possible	Minor	Low	Short Term
9	Potential damage to existing underground utilities or nearby infrastructure	Rare	Major	Medium	Long Term
10	Temporary loss of vegetation and disturbance to the surrounding environment	Unlikely	Minor	Low	Long Term
11	Temporary air quality deterioration due to dust and vehicle exhaust emissions	Likely	Moderate	Medium	Short Term
12	Positive socio-economic impacts through local employment and procurement of construction materials	Likely	Minor	Low	Short Term

Screening of possible Impacts during Operational Phase

S/No.	Potential Issue	Likelihood	Consequence	Risk Level	Residual Impact
1	Air emissions from standby diesel generators and boiler (if installed)	Likely	Moderate	Medium	Long Term
2	Wastewater generation from domestic use and garment washing/finishing operations (where applicable)	Likely	Moderate	Medium	Long Term
3	Noise pollution from sewing machines, compressors, generators, and other production equipment	Likely	Minor	Low	Long Term

S/No.	Potential Issue	Likelihood	Consequence	Risk Level	Residual Impact
4	Generation of solid waste including fabric scraps, packaging materials, threads, and rejected products	Likely	Moderate	Medium	Long Term
5	Occupational health and safety risks due to prolonged machine operation, needle injuries, dust, and ergonomic stress	Likely	Moderate	Medium	Short Term
6	Increased consumption of electricity and water during manufacturing operations	Likely	Minor	Low	Long Term
7	Improper disposal of wastewater and solid waste leading to environmental pollution	Possible	Moderate	Medium	Long Term
8	Fire hazards due to storage of fabrics, packaging materials, chemicals, and diesel for generators	Unlikely	Major	Medium	Short Term
9	Indoor air quality deterioration due to fabric dust, lint, and inadequate ventilation	Possible	Moderate	Medium	Long Term
10	Increased traffic due to transportation of raw materials and finished garments	Likely	Minor	Low	Long Term
11	Accidental spills of lubricants, diesel, cleaning agents, or finishing chemicals during storage and handling	Possible	Moderate	Medium	Long Term

X. Proposed Monitoring

The monitoring program for the Garments Manufacturing and Stitching Unit of M/S Bin Nawab (Private) Limited. has been developed to ensure compliance with the environmental requirements of the Punjab Environmental Protection Agency (Punjab-EPA). The Monitoring Plan (MP) provides a framework for evaluating the effectiveness of the proposed mitigation measures during both the construction and operational phases of the project. Regular monitoring of environmental parameters will ensure compliance with the Punjab Environmental Quality Standards (PEQS) and promote environmentally sustainable and safe industrial operations.

Table 0-2: Proposed Monitoring Plan

Sr. No.	Monitoring Parameters	Monitoring Mechanism	Frequency	Responsibility
Construction Phase				
1	Dust & Air Quality	Ambient PM ₁₀ and PM _{2.5} monitoring at the project boundary	Quarterly	Proponent & Contractor
2	Noise Levels	Noise level monitoring using a calibrated sound	Quarterly (Third Party)	Proponent & Contractor

Sr. No.	Monitoring Parameters	Monitoring Mechanism	Frequency	Responsibility
		level meter		
3	Soil Contamination	Visual inspection for diesel, oil, or lubricant spills from construction machinery	Daily	Contractor / HSE Officer
4	Occupational Health & Safety	Inspection of PPE usage, housekeeping, site safety, and emergency preparedness	Daily	Proponent & Contractor
5	Construction Waste Management	Inspection and record keeping of construction waste collection, segregation, and disposal	Weekly	Contractor
Operation Phase				
1	Noise Levels	Monitoring of sewing machines, compressors, generators, and other production equipment as per PEQS	Quarterly (Third Party)	Proponent / EHS Officer
2	Air Quality	Monitoring of emissions from standby diesel generator and indoor air quality (fabric dust/lint)	Quarterly	Proponent / EHS Team
3	Wastewater Quality	Analysis of domestic and process wastewater (where applicable) for compliance with PEQS	Quarterly	Proponent
4	Solid Waste Management	Inspection of segregation, storage, recycling, and disposal of fabric waste, packaging materials, and other solid waste	Monthly	Production & EHS Team
5	Water & Energy Consumption	Monitoring of water and electricity consumption through utility records	Monthly	Facility Management
6	Occupational Health & Safety	Inspection of machine guards, emergency exits, fire extinguishers, first-aid facilities, and PPE compliance	Daily	EHS Officer
7	Fire Safety	Inspection of fire detection systems, extinguishers, hydrants, emergency response equipment, and evacuation routes	Monthly	EHS Officer
8	Housekeeping & Chemical Storage	Inspection of storage areas for lubricants, cleaning chemicals, and housekeeping practices	Weekly	Production Supervisor / EHS Officer

XI. Environmental Management Cost

The cost for environmental management and monitoring will form an integral part of the contracts awarded to the Contractor and Consultants. A dedicated budget has been allocated by the project proponent, M/S Bin Nawab (Private) Limited, to implement environmental mitigation measures, environmental monitoring, occupational health and safety, and regulatory compliance throughout the construction and operational phases of the project. This allocation will ensure compliance with the Punjab Environmental Protection Act, 1997 (as amended) and the Punjab Environmental Quality Standards (PEQS).

Table 0-3: Environmental Management Cost

Sr. No.	Environmental Mitigation / Monitoring Item	Unit	Amount (PKR)
1	Air Quality Monitoring (Construction & Operational Phase)	Per Event	150,000
2	Noise Level Monitoring	Per Event	150,000
3	Wastewater Quality Testing	Per Event	150,000
4	Solid Waste & Environmental Monitoring	Per Event	150,000
5	Development and Updating of Environmental Management Plan (EMP)	Lump Sum	250,000
6	Implementation of EMP (Environmental Controls & Signage)	Lump Sum	200,000
7	Green Belt Development & Tree Plantation	Lump Sum	150,000
8	Waste Collection, Segregation & Disposal Facilities	Lump Sum	150,000
9	Occupational Health & Safety Training and PPE	Lump Sum	200,000
10	Fire Safety & Emergency Response Equipment	Lump Sum	150,000
11	Third-Party Environmental Monitoring & Compliance Audit	Per Audit	100,000
Total	Estimated Environmental Management Cost		PKR 1,800,000

XII. Stakeholder Consultations

Stakeholder consultations were conducted with the local community, nearby industrial units, and other representatives in the vicinity of the proposed project site at Meeran Wala Bangla, 03 Kilometers Drainage Canal, Chak No. 51 JB, District Faisalabad. The stakeholders welcomed the establishment of the Garments Manufacturing and Stitching Unit by M/s Bin Nawab (Private) Limited, recognizing its potential to create employment opportunities, promote industrial development, and support the local economy.

The stakeholders emphasized the importance of effective wastewater management, proper solid waste disposal, occupational health and safety, and compliance with the Punjab Environmental Quality Standards (PEQS). The project proponent assured that all project activities would be carried out in accordance with the Punjab Environmental

Protection Act, 1997 (as amended) and the proposed Environmental Management Plan (EMP). Overall, the project received positive support from stakeholders, who considered it environmentally acceptable subject to the implementation of the proposed mitigation measures.

XIII. Conclusion

The study was conducted to assess the environmental aspects of the proposed Garments Manufacturing and Finishing Unit by M/s Bin Nawab (Private) Limited. at Meeran Wala Bangla, 03 Kilometers Drainage Canal, Chak No. 51 JB, District Faisalabad. Potential environmental impacts associated with the construction and operational phases have been identified and evaluated, and appropriate mitigation measures have been proposed in accordance with the Punjab Environmental Protection Act, 1997 (as amended) and the Review of IEE & EIA Regulations, 2022.

Based on the baseline environmental conditions and the implementation of the proposed Environmental Management Plan (EMP), it is concluded that the project is environmentally feasible and that any anticipated impacts can be effectively mitigated through proper environmental management and monitoring. The project is expected to contribute to employment generation, industrial development, and the growth of Pakistan's textile and garment sector while complying with the Punjab Environmental Quality Standards (PEQS). Overall, the proposed project is considered environmentally acceptable and is recommended for the issuance of Environmental Approval by the Punjab Environmental Protection Agency (EPA).

1 INTRODUCTION

Sustainable industrial development in Punjab requires strict compliance with the environmental regulations and guidelines of the Punjab Environmental Protection Agency (EPA) to ensure that economic growth is achieved in an environmentally responsible manner. As the textile and apparel sector continues to expand, the demand for high-quality garments and value-added textile products has increased significantly in both domestic and international markets. Establishing modern manufacturing facilities equipped with efficient production technologies is essential to enhance Pakistan's export competitiveness, generate employment opportunities, and strengthen the country's textile industry.

To meet these growing market demands, M/S Bin Nawab (Private) Limited. has proposed the Construction of a Garments Manufacturing, Dyeing and Finishing Unit at Meeran Wala Bangla, 03 Kilometers Drainage Canal, Chak No. 51 JB, District Faisalabad. The proposed facility will occupy an area of 15 Kanal with an estimated project cost of PKR 90 million and an estimated production capacity of 2.5 million garments per annum. The manufacturing process will incorporate modern production techniques, including fabric inspection, cutting, stitching, embroidery (where applicable), finishing, quality inspection, packing, and storage, to produce high-quality garments for domestic and export markets.

The project has been designed to operate in accordance with national and provincial environmental requirements by incorporating resource-efficient technologies, proper wastewater and solid waste management systems, occupational health and safety measures, and pollution control practices. A comprehensive Environmental Management Plan (EMP) has been developed to minimize potential environmental impacts, ensure efficient utilization of natural resources, and maintain compliance with the Punjab Environmental Quality Standards (PEQS) throughout the construction and operational phases of the project.

In accordance with the requirements of Section 12 of the Punjab Environmental Protection Act, 1997 (as amended) and the Punjab Environmental Protection Agency (Review of IEE & EIA) Regulations, 2022, the project proponent is required to obtain Environmental Approval before the commencement of the proposed project. Therefore, this Environmental Impact Assessment (EIA) has been prepared and is being submitted to the Environmental Protection Agency (EPA), Government of the Punjab, for review and approval.

1.1 Purpose of the Report

In accordance with Section 12 of the Punjab Environmental Protection Act, 1997 (as amended), no project proponent is permitted to commence construction or operation of any project likely to cause environmental impacts without first submitting an Environmental Impact Assessment (EIA) or Initial Environmental Examination (IEE), as applicable, to the Punjab Environmental Protection Agency (Punjab-EPA) for review and approval. Considering the nature and scale of the proposed Garments Manufacturing, Dyeing and Finishing Unit by M/s Bin Nawab (Private) Limited., an Environmental Impact Assessment (EIA) has been prepared to identify, evaluate, and mitigate the potential environmental and social impacts associated with the construction and operation of the project.

The proposed facility, to be established at Meeran Wala Bangla, 03 Kilometers Drainage Canal, Chak No. 51 JB, District Faisalabad, will involve modern garment manufacturing processes including fabric inspection, cutting, stitching, embroidery

(where applicable), finishing, quality inspection, packing, and storage. These activities require effective management of wastewater, solid waste, air emissions, noise, resource consumption, and occupational health and safety to ensure compliance with the applicable environmental regulations.

Accordingly, Environmental Approval is required from the Punjab Environmental Protection Agency (Punjab-EPA) before commencement of the project. This report has therefore been prepared to fulfill the statutory requirements for obtaining Environmental Approval for the proposed Garments Manufacturing, Dyeing and Finishing Unit by M/s Bin Nawab (Private) Limited. at Meeran Wala Bangla, 03 Kilometers Drainage Canal, Chak No. 51 JB, District Faisalabad.

This Environmental Impact Assessment (EIA) provides detailed information on the project's baseline environmental conditions, anticipated environmental and social impacts, proposed mitigation measures, and the Environmental Management Plan (EMP). The report demonstrates that the proposed project has been planned in accordance with the principles of sustainable development and will comply with the Punjab Environmental Protection Act, 1997 (as amended), the Punjab Environmental Quality Standards (PEQS), the Punjab Environmental Protection Agency (Review of IEE & EIA) Regulations, 2022, and all other applicable environmental and occupational health and safety requirements of the Government of Punjab.

1.2 Objectives of the Project

The primary objective of the proposed project is to establish a modern Garments Manufacturing, Dyeing and Finishing Unit by M/S Bin Nawab (Private) Limited. to produce high-quality garments and textile products for domestic and international markets. The project aims to strengthen Pakistan's textile and apparel industry while ensuring environmentally sustainable and efficient manufacturing operations.

The project fulfills the following core objectives:

- **Quality Production:** Manufacture high-quality garments, knitwear, and made-up textile products using modern cutting, stitching, finishing, and quality control technologies.
- **Operational Efficiency:** Improve productivity and optimize resource utilization through efficient production processes and modern machinery.
- **Regulatory Compliance:** Ensure compliance with the Punjab Environmental Protection Act, 1997 (as amended), Punjab Environmental Quality Standards (PEQS), and other applicable environmental and occupational health and safety regulations.
- **Employment Generation:** Create direct and indirect employment opportunities and contribute to the socio-economic development of the region.
- **Sustainable Manufacturing:** Promote environmentally responsible production through efficient resource utilization, proper waste management, pollution control measures, and implementation of a comprehensive Environmental Management Plan (EMP).

By achieving these objectives, the proposed project will contribute to the growth of Pakistan's textile sector, enhance export potential, support local economic development, and ensure environmentally sustainable industrial operations.

1.3 Scope of Work

To meet the growing demand for high-quality garments and textile products, the proposed project titled "**CONSTRUCTION OF A GARMENTS MANUFACTURING, DYEING AND FINISHING UNIT BY M/S BIN NAWAB (PRIVATE) LIMITED.**" comprises the following major components:

- **Construction of a Modern Manufacturing Facility:** Development of a garment manufacturing unit over a 15 Kanal site, including production halls, administrative offices, warehouse, utility areas, and finished goods storage.
- **Installation of Modern Production Machinery:** Installation of advanced fabric cutting, stitching, embroidery (where applicable), finishing, ironing, quality inspection, packing, and material handling equipment to achieve an estimated production capacity of 2.5 million garments per annum.
- **Development of Supporting Infrastructure:** Construction of raw material and finished goods warehouses, loading/unloading areas, internal roads, parking facilities, and utility services required for efficient plant operations.
- **Installation of Utility Systems:** Provision of electricity, water supply, standby diesel generator, internal drainage network, fire protection system, ventilation, lighting, and wastewater collection facilities to support uninterrupted manufacturing operations.
- **Implementation of Environmental and Safety Measures:** Installation of wastewater management facilities, solid waste collection and segregation systems, noise control measures, fire safety equipment, green belt development, and implementation of a comprehensive Environmental Management Plan (EMP) in accordance with the Punjab Environmental Protection Act, 1997 (as amended) and the Punjab Environmental Quality Standards (PEQS).
- **Training of Operational Staff:** Training of employees on garment manufacturing techniques, quality assurance, occupational health and safety, fire safety, emergency response, environmental protection measures, and efficient resource utilization.

A comprehensive site layout has been developed to ensure smooth movement of raw materials, efficient production processes, and safe storage of finished products. The proposed facility has been planned to optimize operational efficiency while minimizing environmental impacts through proper resource management, pollution control measures, and compliance with all applicable environmental and industrial safety regulations.

1.4 Environment Category of the Project

Based on the Punjab Environmental Protection Act, 2012 and the Review of IEE & EIA Regulations, 2022 for filing, reviewing, and approving environmental assessments, the present project is classified under Schedule II class B (6) **manufacturing and processing**. This regulatory framework ensures that the project is developed and implemented in a socially, economically, and environmentally sustainable manner. Following list shows the projects included in Class B.

B. Manufacturing and Processing

1. Cement plant
2. Chemical manufacturing units, including pharmaceuticals and cosmetic

3. Sugar mills and Distilleries
4. Food processing industries including, beverages, milk and dairy products with total cost more than Rs 200 million
5. Paper and paperboard, paper pulping, paints and dyes,
- 6. Textile units comprising of dyeing & printing**
7. Pesticides and fertilizer manufacturing units
8. Poultry waste processing units / rendering units
9. Tannery and leather units
10. Rubber projects with total cost more than Rs. 100 million
11. Battery Manufacturing and Recycling Plants
12. Ceramics and glass units
13. Electro plating and nickel/chrome plating including Surgical Units
14. Cutlery units
15. Slaughter House
16. Iron and steel rolling mills
17. Steel Furnaces
18. Smelting plants
19. Auto mobile manufacturing and assembling units
20. Resource Recovery Unit

1.5 Objectives of the EIA Report

The primary objective of this Environmental Impact Assessment (EIA) is to evaluate the potential environmental and social impacts associated with the Construction of a Garments Manufacturing, Dyeing and Finishing Unit by M/s Bin Nawab (Private) Limited. The study ensures that environmental considerations are integrated into the planning, construction, and operational phases of the project while promoting sustainable industrial development in accordance with the requirements of the Punjab Environmental Protection Agency (Punjab-EPA).

The specific objectives of this EIA study are to:

- Facilitate the Project Proponent in ensuring the environmental, technical, and social sustainability of the proposed garment manufacturing facility.
- Establish Baseline Environmental Conditions by assessing the existing physical, biological, and socio-economic environment of the 15 Kanal project site and its surrounding area.
- Identify and Evaluate Potential Environmental Impacts associated with the construction and operation of the garment manufacturing and stitching unit, including wastewater generation, solid waste, air emissions, noise, and resource consumption.
- Recommend Appropriate Mitigation Measures to minimize adverse environmental impacts through effective pollution control, waste management, resource conservation, and occupational health and safety practices.

- Ensure Stakeholder Participation by incorporating the views and concerns of the local community, neighboring industries, and relevant stakeholders into the environmental assessment process.
- Develop a Comprehensive Environmental Management Plan (EMP) that outlines mitigation measures, environmental monitoring requirements, institutional responsibilities, and capacity-building measures to ensure compliance with the Punjab Environmental Protection Act, 1997 (as amended), the Punjab Environmental Quality Standards (PEQS), and the Punjab Environmental Protection Agency (Review of IEE & EIA) Regulations, 2022.

1.6 Proponent of the Project

Name	Ali Akbar
Address	House No. 1047-C, People's Colony No. 2, District Faisalabad, Punjab

1.7 Title and Location of the Project

Title	Construction Of Garments Manufacturing, Dyeing And Finishing Unit By M/s Bin Nawab (Private) Limited. At Chak No. 51, District Faisalabad.
Location	Meeran wala Bangla, 03 kilometers Drainage Canal, Chak no. 51 JB, District Faisalabad

1.8 Details of Consultant

Integrated Environment Consultants

Head Office: 218, Street No. 5 Upper Mall Scheme Lahore

Phone: (042)-37897273

Email: inenvconsultants@yahoo.com

Peshawar Office: Zaye Apartments, Warsak Road, Peshawar

1.9 Brief Description of Nature, Size and Location of project

The proposed project involves the Construction of a Garments Manufacturing, Dyeing and Finishing Unit by M/s Bin Nawab (Private) Limited, located at Meeran Wala Bangla, 03 Kilometers Drainage Canal, Chak No. 51 JB, District Faisalabad. The facility will occupy a total area of 15 Kanal with an estimated project cost of PKR 90 million. The unit is designed with an estimated production capacity of 2.5 million garments per annum to meet the increasing domestic and international demand for high-quality garments and textile products.

The proposed manufacturing facility will utilize modern production technologies and equipment to ensure efficient operations and consistent product quality. The major components of the production process include:

- **Fabric Inspection and Cutting Machines:** Advanced fabric inspection systems and computerized cutting machines for accurate cutting and reduced material wastage.
- **Industrial Sewing and Stitching Machines:** High-speed stitching machines for efficient garment assembly and production.

- **Embroidery and Finishing Equipment (where applicable):** Modern embroidery, ironing, pressing, trimming, and finishing equipment to enhance product quality and appearance.
- **Quality Control and Inspection Facilities:** Dedicated quality assurance systems for inspection of garments at different production stages to ensure compliance with customer specifications and international quality standards.
- **Packing and Storage Facilities:** Organized packing, labeling, warehousing, and dispatch facilities for efficient handling and distribution of finished products.

The project has been planned to operate in accordance with best industrial practices by incorporating efficient resource utilization, proper wastewater and solid waste management systems, occupational health and safety measures, and environmental protection practices to ensure compliance with the Punjab Environmental Protection Act, 1997 (as amended) and the Punjab Environmental Quality Standards (PEQS).

1.10 Approach and Methodology

The approach and methodology adopted for this Environmental Impact Assessment (EIA) involved a systematic review of applicable environmental regulations, baseline environmental conditions, and project-specific information to evaluate the potential impacts associated with the proposed Garments Manufacturing, Dyeing and Finishing Unit by M/s Bin Nawab (Private) Limited. The study was carried out to ensure that the project is planned, constructed, and operated in an environmentally sustainable manner. The methodology included the following:

- a) **Review of Legislative Framework:** A detailed review of the Punjab Environmental Protection Act, 1997 (as amended), the Punjab Environmental Protection Agency (Review of IEE & EIA) Regulations, 2022, and the Punjab Environmental Quality Standards (PEQS) to ensure compliance with all applicable environmental requirements.
- b) **Site Assessment and Land Use Analysis:** Site visits, review of **satellite** imagery, and assessment of the 15 Kanal project site at Meeran Wala Bangla, 03 Kilometers Drainage Canal, Chak No. 51 JB, District Faisalabad to evaluate existing land use, surrounding environment, and project compatibility.
- c) **Baseline Environmental Assessment:** Collection and evaluation of **physical**, biological, and socio-economic baseline data, including air quality, noise, soil, water resources, surrounding vegetation, and nearby communities.
- d) **Impact Assessment and Mitigation Planning:** Identification and evaluation of potential environmental impacts associated with the construction and operation of the garment manufacturing facility, followed by the development of appropriate mitigation measures and an Environmental **Management** Plan (EMP) to minimize adverse impacts.

Both primary and secondary data sources were used to collect site-specific environmental information. The adopted methodology ensures that the findings and recommendations of this EIA are based on recognized environmental assessment practices and comply with the requirements of the Punjab Environmental Protection Agency (Punjab-EPA).

1.11 Review of Environmental Laws and Institutional Requirements

The project is required to comply with all applicable national as well as international environmental policies, laws, guidelines, acts and legislations.

1.12 Impact Assessment and Mitigation Measures

A systematic approach was adopted for the identification and assessment of the potential environmental and social impacts associated with the proposed Garments Manufacturing, Dyeing and Finishing Unit by M/s Bin Nawab (Private) Limited. The assessment commenced with project screening and scoping to identify key environmental issues and evaluate their significance during the different phases of the project.

Potential impacts were assessed based on their nature, magnitude, duration, extent, and reversibility, and were correlated with the various stages of the project, including:

- **Design Phase:** Site selection, facility layout, utility planning, wastewater drainage, fire safety provisions, and storage arrangements for raw materials and finished products.
- **Construction Phase:** Site preparation, civil works, transportation of construction materials, installation of machinery, generation of dust and noise, construction waste management, and occupational health and safety.
- **Operational Phase:** Garment manufacturing activities including fabric cutting, stitching, finishing, packing, wastewater generation, solid waste management, air emissions from standby generators, noise from machinery, resource consumption, and occupational health and safety.

Based on the impact assessment and the outcomes of stakeholder consultations, appropriate mitigation measures have been proposed to minimize potential environmental and social impacts. Environmental impact matrices were used to evaluate the significance of identified impacts, while site assessments were conducted to determine the project's interaction with the surrounding environment. The recommended mitigation measures have been incorporated into a comprehensive Environmental Management Plan (EMP) to ensure compliance with the Punjab Environmental Protection Act, 1997 (as amended), the Punjab Environmental Quality Standards (PEQS), and the Punjab Environmental Protection Agency (Review of IEE & EIA) Regulations, 2022, thereby ensuring environmentally sustainable operation of the proposed garment manufacturing facility.

1.13 Environmental Management Plan (EMP)

A systematic approach was adopted for the development of the Environmental Management Plan (EMP) for the proposed Garments Manufacturing, Dyeing and Finishing Unit by M/s Bin Nawab (Private) Limited. The EMP has been prepared to ensure that all potential environmental impacts identified during the Environmental Impact Assessment (EIA) are effectively managed through appropriate mitigation measures, monitoring programs, and institutional responsibilities throughout the project lifecycle.

The Environmental Management Plan has been developed by considering the potential impacts associated with the following project phases:

- **Design Phase:** Incorporation of environmental considerations into the facility layout, wastewater drainage system, fire protection measures, ventilation, utility services, and storage areas for raw materials and finished products.
- **Construction Phase:** Management of dust emissions, noise, construction waste, traffic, occupational health and safety, and protection of the surrounding environment during civil works and installation of machinery.

- **Operational Phase:** Management of wastewater, solid waste, air emissions from standby generators, noise generated by production equipment, efficient utilization of water and energy resources, fire safety, occupational health and safety, and implementation of pollution prevention measures.

Based on the findings of the environmental impact assessment and stakeholder consultations, appropriate mitigation measures have been incorporated into the EMP. The plan defines environmental monitoring requirements, implementation responsibilities, reporting procedures, emergency response measures, and staff training programs to ensure compliance with the Punjab Environmental Protection Act, 1997 (as amended), the Punjab Environmental Quality Standards (PEQS), and the Punjab Environmental Protection Agency (Review of IEE & EIA) Regulations, 2022. Effective implementation of the EMP will ensure that the proposed project operates in an environmentally responsible manner while minimizing adverse impacts on the surrounding environment and promoting sustainable industrial development.

1.14 Environmental Monitoring Plan

An Environmental Monitoring Plan (EMnP) has been developed to systematically assess the implementation and effectiveness of the proposed mitigation measures during the construction and operational phases of the proposed Garments Manufacturing, Dyeing and Finishing Unit by M/s Bin Nawab (Private) Limited. The primary objective of the EMnP is to ensure compliance with the Punjab Environmental Protection Act, 1997 (as amended), the Punjab Environmental Quality Standards (PEQS), and other applicable environmental regulations.

The Environmental Monitoring Plan provides a structured framework for the regular monitoring, recording, and reporting of key environmental parameters, including ambient air quality, wastewater quality, noise levels, solid waste management, water and energy consumption, and occupational health and safety. Regular monitoring will enable the project proponent to evaluate the effectiveness of pollution control measures, identify any environmental non-compliance at an early stage, and implement timely corrective actions. Effective implementation of the EMnP will ensure environmentally responsible operation of the facility while minimizing its environmental footprint and supporting sustainable industrial development.

1.15 Structure of Report

This report contains the following ten chapters:

- **Chapter 1– “Introduction”** describes introduction, location of project, objective and purpose of the EIA report.
- **Chapter 2–“Screening of the project”** describes the process of categorizing the project to determine the level of environmental assessment required by law.
- **Chapter 3–“Scoping of the project”** identifies the specific environmental issues and boundaries that need to be prioritized and analyzed within the study.
- **Chapter 4 – Analysis of Project Alternatives”** discusses the available options and selection of the most suitable options based on specific criteria.
- **Chapter 5 – “Project Description”** provides an overall project description, including its background, features and key components, timeframe and costs.

- **Chapter 6– “Description of the Environment”** comprises a detailed narrative of the existing (baseline) conditions of the project area, with respect to its physical, biological and socio-economic environment.”
- **Chapter 7– “Anticipated Environmental Impacts & Mitigation Measures”** elaborates the likely impacts of the project on the physical, biological and socio-economic environment during the construction and operation stages and lays down the proposed measures to mitigate the adverse impacts of the project.
- **Chapter 8 – “Environmental Management Plan and Institutional Requirements”** provides the mechanism to be adopted for the implementation of measures and monitoring the environment during all stages.
- **Chapter 9 – “Public Consultation and Information Disclosure”** provides a summary of consultative sessions with the local community as well as with other stakeholders, including local government officials for their opinions and suggestions on the project.
- **Chapter 10– “Conclusion and Recommendations”** gives the conclusion of the EIA study and recommendations for the construction and operational stages.

2 SCREENING OF THE PROJECT

Based on the Punjab Environmental Protection Act, 2012 and the Review of IEE & EIA Regulations, 2022 for filing, reviewing, and approving environmental assessments, the present project is classified under Schedule II class B (6) **manufacturing and processing**. This regulatory framework ensures that the project is developed and implemented in a socially, economically, and environmentally sustainable manner. Following list shows the projects included in Class B.

C. Manufacturing and Processing

1. Cement plant
2. Chemical manufacturing units, including pharmaceuticals and cosmetic
3. Sugar mills and Distilleries
4. Food processing industries including, beverages, milk and dairy products with total cost more than Rs 200 million
5. Paper and paperboard, paper pulping, paints and dyes,

6. Textile units comprising of dyeing & printing

8. Pesticides and fertilizer manufacturing units
9. Poultry waste processing units / rendering units
10. Tannery and leather units
11. Rubber projects with total cost more than Rs. 100 million
12. Battery Manufacturing and Recycling Plants
13. Ceramics and glass units
14. Electro plating and nickel/chrome plating including Surgical Units
15. Cutlery units
16. Slaughter House
17. Iron and steel rolling mills
18. Steel Furnaces
19. Smelting plants
20. Auto mobile manufacturing and assembling units
21. Resource Recovery Unit

M/s Bin Nawab Private Limited. Necessitates the preparation of an Environmental Impact Assessment (EIA) due to the scale and complexity of their operations, as well as the potential environmental and health risks associated with industrial metal manufacturing and high-temperature thermal processes. Given the stringent regulatory requirements governing environmental protection, industrial safety, and public health, an EIA is essential to evaluate the project's impacts on air, water, soil, and surrounding communities. Furthermore, the EIA ensures that appropriate mitigation measures are identified and implemented during the design, construction, and operational phases. It also facilitates informed decision-making and encourages public participation, thereby promoting transparency, sustainability, and compliance with the Punjab Environmental Protection Act, 1997 (Amended 2012).

3 SCOPING OF THE PROJECT

The scoping process outlines the essential concerns and impacts requiring detailed investigation. It establishes the spatial and temporal limits, crucial concerns raised during consultations, and significant impacting factors impacting the project.

3.1 Spatial and Temporal Boundaries of Environmental Assessment

The establishment of appropriate spatial and temporal boundaries is essential for assessing the environmental impacts of the proposed project in a comprehensive manner. Spatial boundaries define the geographical area that may be directly or indirectly affected by the project, while temporal boundaries consider the impacts during the design, construction, operational, and decommissioning phases. These boundaries enable the identification of potential environmental and social impacts, facilitate the development of effective mitigation measures, and support sustainable project planning.

The proposed Garments Manufacturing, Dyeing and Finishing Unit by M/s Bin Nawab (Private) Limited. is located at Meeran Wala Bangla, 03 Kilometers Drainage Canal, Chak No. 51 JB, District Faisalabad. The project will be established on a 15 Kanal site situated within an industrial area where the necessary infrastructure and utility services are available. The environmental assessment has considered both the project site and the surrounding area that may be influenced by the construction and operational activities of the proposed facility.

Latitude	31°30'01.7"N
Longitude	73°01'22.6"E

3.2 Important issues and concerns raised during consultation

The Environmental Impact Assessment (EIA) for the proposed Garments Manufacturing, Dyeing and Finishing Unit by M/s Bin Nawab (Private) Limited. incorporated a stakeholder consultation process through meetings with the local community, nearby industrial units, and relevant government representatives. The primary objective of these consultations was to identify potential environmental and social concerns associated with the construction and operation of the proposed facility and to incorporate stakeholder feedback into the environmental assessment process.

The consultations focused on key issues such as wastewater management, solid waste disposal, air emissions from standby generators, noise generated by production machinery, traffic movement, occupational health and safety, and employment opportunities for the local community. Stakeholders emphasized the importance of complying with the Punjab Environmental Quality Standards (PEQS), implementing effective pollution control measures, and maintaining a safe working environment throughout the project lifecycle. Where required, additional public consultations will be conducted to obtain broader community participation and address any further concerns raised by local residents, workers, neighboring industries, and other interested stakeholders. This participatory approach ensures transparency, strengthens environmental decision-making, and supports the environmentally sustainable implementation of the proposed garment manufacturing project.

3.3 Significant impacts and factors to be determined

For the proposed Garments Manufacturing, Dyeing and Finishing Unit by M/s Bin Nawab (Private) Limited, the determination of significant impacts involves a comprehensive assessment of the environmental, occupational, and socio-economic aspects associated with garment manufacturing operations. The key factors considered include:

- **Air Quality:** Potential air emissions from the standby diesel generator, dust and lint generated during fabric cutting and handling, and indoor air quality within the production facility.
- **Resource Consumption:** Efficient utilization of water and electricity required for manufacturing processes, lighting, utility services, and other operational activities.
- **Waste Management:** Proper collection, segregation, recycling, and disposal of fabric scraps, packaging materials, domestic waste, and wastewater generated during the operational phase.
- **Occupational Health and Safety:** Potential risks to workers from sewing machines, cutting equipment, electrical systems, ergonomic issues, fire hazards, and workplace noise.
- **Community and Infrastructure:** Potential impacts on local traffic, public utilities, employment generation, and the surrounding industrial environment due to project activities.
- **Emergency Preparedness:** Development and implementation of emergency response procedures, including fire prevention and firefighting systems, first-aid facilities, emergency exits, and regular safety training for employees.

Identification and effective management of these impacts are essential to protect the environment, ensure worker health and safety, minimize adverse environmental effects, and maintain compliance with the Punjab Environmental Protection Act, 1997 (as amended), the Punjab Environmental Quality Standards (PEQS), and other applicable environmental regulations throughout the lifecycle of the project.

3.4 Development of an Environmental Management Plan

The Environmental Management Plan (EMP) for the proposed Garments Manufacturing, Dyeing and Finishing Unit by M/s Bin Nawab (Private) Limited, is a key component of the Environmental Impact Assessment (EIA). The EMP provides a systematic framework for minimizing environmental impacts, ensuring compliance with environmental regulations, promoting sustainable industrial practices, protecting worker health and safety, and facilitating continuous environmental monitoring throughout the project lifecycle.

The key components of the EMP include:

- **Project Description:** An overview of the proposed garment manufacturing and stitching facility, including its production processes, utilities, and operational activities.
- **Impact and Risk Assessment:** Identification of potential environmental impacts related to wastewater generation, solid waste, air emissions, noise, resource consumption, and occupational health and safety.

- **Mitigation Measures:** Practical measures to control pollution, manage wastewater and solid waste, conserve water and energy, reduce noise, and ensure safe working conditions.
- **Environmental Monitoring and Reporting:** A structured monitoring program for air quality, wastewater quality, noise levels, solid waste management, and occupational health and safety to ensure compliance with the Punjab Environmental Quality Standards (PEQS).
- **Emergency Response and Safety Planning:** Procedures for fire prevention, emergency response, spill management, first aid, and evacuation to minimize risks to workers and the surrounding environment.
- **Stakeholder Engagement:** A communication mechanism for maintaining coordination with regulatory authorities, the local community, and other relevant stakeholders regarding environmental performance.
- **Review and Continuous Improvement:** Periodic review and updating of the EMP to improve its effectiveness and ensure continued compliance with applicable environmental regulations as project activities and operational requirements evolve.

Together, these components provide a comprehensive framework for managing the environmental aspects of the proposed garment manufacturing facility, minimizing adverse impacts, and ensuring compliance with the Punjab Environmental Protection Act, 1997 (as amended), the Punjab Environmental Quality Standards (PEQS), and other applicable environmental regulations.

4 ALTERNATIVES OF THE PROJECT

The alternatives for the proposed project and their relative potential impacts on the environment were considered to evaluate the best project option. The following alternatives were considered for the project.

4.1 Project Alternatives

- No project option/worst scenario option.
- Site Alternative
- Technology Alternative

4.2 No Project Option / Worst Scenario Option

4.2.1 Analysis

Strengths and Opportunities

If the proposed Garments Manufacturing, Dyeing and Finishing Unit by M/s Bin Nawab (Private) Limited. is not established at Meeran Wala Bangla, 03 Kilometers Drainage Canal, Chak No. 51 JB, District Faisalabad, the environmental impacts associated with the construction and operation of the facility will be avoided. There will be no construction-related dust, noise, traffic, wastewater generation, or solid waste production. The existing land use and surrounding environment will remain unchanged, and no additional pressure will be placed on local infrastructure, water resources, or utility services.

Weaknesses and Threats

However, the No Project Option would result in the loss of significant socio-economic benefits associated with the proposed project. Employment opportunities for skilled and unskilled workers would not be created, and the local economy would lose potential business opportunities related to textile manufacturing, transportation, packaging, and other supporting industries. The project would also fail to contribute to Pakistan's textile and apparel sector through the production of value-added garments for domestic and export markets. Furthermore, the opportunity to introduce modern, environmentally responsible manufacturing practices in compliance with the Punjab Environmental Protection Act, 1997 (as amended) and the Punjab Environmental Quality Standards (PEQS) would be lost.

Conclusion

However, the No Project Option would result in the loss of significant socio-economic benefits associated with the proposed project. Employment opportunities for skilled and unskilled workers would not be created, and the local economy would lose potential business opportunities related to textile manufacturing, transportation, packaging, and other supporting industries. The project would also fail to contribute to Pakistan's textile and apparel sector through the production of value-added garments for domestic and export markets. Furthermore, the opportunity to introduce modern, environmentally responsible manufacturing practices in compliance with the Punjab Environmental Protection Act, 1997 (as amended) and the Punjab Environmental Quality Standards (PEQS) would be lost.

4.3 Site Alternatives

The proposed project site for the Garments Manufacturing, Dyeing and Finishing Unit by M/s Bin Nawab (Private) Limited. has been carefully selected based on its

suitability for industrial development, availability of infrastructure, and accessibility. The project site is located at Meeran Wala Bangla, 03 Kilometers Drainage Canal, Chak No. 51 JB, District Faisalabad and is owned by the project proponent, eliminating the need for additional land acquisition and facilitating timely project implementation. The selected site has been assessed for its environmental suitability and is considered appropriate for the proposed development.

The site offers several advantages, including:

- **Suitable Industrial Location:** The project site is situated in an area compatible with industrial activities, minimizing potential conflicts with surrounding land uses.
- **Accessibility:** The site has convenient access to major roads and transportation networks, facilitating the movement of raw materials, finished products, and employees.
- **Availability of Infrastructure:** Essential utilities such as electricity, water supply, drainage, and communication facilities are available to support the proposed manufacturing operations.
- **Proximity to Textile Hub:** The location in Faisalabad, Pakistan's major textile and garment manufacturing center, provides easy access to raw material suppliers, skilled labor, supporting industries, and domestic and export markets, thereby reducing transportation costs and improving operational efficiency.

The selected site is considered technically, economically, and environmentally suitable for the proposed project. Therefore, no alternative site is considered more feasible, and the proposed location is recommended for the Construction of the Garments Manufacturing, Dyeing and Finishing Unit by M/s Bin Nawab (Private) Limited.

4.4 Technology Alternative

4.4.1 Design / Technology Alternatives, Their Selection and Rejection Criteria

For the proposed Garments Manufacturing, Dyeing and Finishing Unit by M/s Bin Nawab (Private) Limited, the selection of appropriate manufacturing technology is essential to achieve high product quality, operational efficiency, energy conservation, and environmental compliance. Various garment production technologies were evaluated based on production capacity, quality, resource efficiency, and environmental performance. The selected technology is summarized below:

Technology / Equipment	Best Use Case	Key Advantage	Status	Rationale
Computerized High-Speed Sewing Machines	Large-scale garment stitching	High productivity, precision stitching, and low defect rate	Selected	Selected for high production efficiency, consistent product quality, and reduced operational costs.
Conventional Mechanical Sewing Machines	Small-scale garment	Low initial investment	Rejected	Rejected due to lower

Technology / Equipment	Best Use Case	Key Advantage	Status	Rationale
	production			production efficiency, higher labor requirements, and inconsistent product quality.
Computerized Fabric Cutting Machine	Mass production with precise cutting	Accurate cutting, reduced fabric wastage, and improved productivity	Selected	Selected to minimize fabric waste, improve cutting accuracy, and increase production efficiency.
Manual Fabric Cutting	Small-scale production	Simple operation with low capital cost	Rejected	Rejected because of higher material wastage, lower productivity, and reduced cutting precision.
Automated Steam Pressing & Finishing Equipment	Garment finishing and quality enhancement	Uniform finishing, improved appearance, and faster processing	Selected	Selected to ensure superior product quality, efficient finishing, and compliance with export quality standards.

The selected production technologies offer higher efficiency, improved product quality, lower material wastage, reduced energy consumption, and better occupational safety compared to conventional manufacturing methods. These technologies also support compliance with the Punjab Environmental Protection Act, 1997 (as amended) and the Punjab Environmental Quality Standards (PEQS) while promoting environmentally sustainable garment manufacturing.

4.5 Environmental Alternatives, Their Selection and Rejection Criteria

The primary objective of the proposed Garments Manufacturing, Dyeing and Finishing Unit by M/s Bin Nawab (Private) Limited. is to achieve efficient production while minimizing environmental impacts through sustainable manufacturing practices. The project has been designed to optimize the use of raw materials, reduce waste

generation, conserve natural resources, and comply with applicable environmental regulations. The selected environmental alternatives are described below:

4.5.1 Waste Reduction

- Fabric cutting will be optimized through efficient cutting layouts to minimize fabric waste, while reusable fabric scraps will be segregated and sent to authorized recyclers.
- Proper segregation and disposal of domestic, recyclable, and non-recyclable wastes will reduce environmental pollution and improve workplace cleanliness.
- Efficient resource management will reduce the consumption of raw materials, lower waste generation, and minimize the environmental footprint of the facility.

4.5.2 Resource Conservation and Sustainable Production

- The project will utilize modern stitching and finishing equipment that consumes less electricity and improves production efficiency.
- Water and energy conservation measures, including efficient lighting, regular equipment maintenance, and controlled water usage, will be implemented to reduce resource consumption.
- Environmentally sound manufacturing practices, proper wastewater management, and recycling of suitable materials will support sustainable industrial development and compliance with the Punjab Environmental Quality Standards (PEQS).

Overall, the selected environmental alternatives promote cleaner production, efficient utilization of resources, reduction of waste generation, and protection of the surrounding environment. These measures will ensure that the proposed garment manufacturing facility operates in an environmentally responsible and sustainable manner throughout its operational life.

4.6 Economic Alternatives, Their Selection and Rejection

The proposed Garments Manufacturing, Dyeing and Finishing Unit by M/s Bin Nawab (Private) Limited. has been planned by considering economically viable and environmentally sustainable production alternatives. Efficient utilization of raw materials, energy, and labor is essential to minimize production costs while maintaining high product quality and environmental compliance.

The adoption of modern garment manufacturing technology will reduce fabric wastage, improve production efficiency, and optimize the use of electricity and water. Fabric scraps and recyclable packaging materials will be segregated and sold to authorized recyclers, generating additional revenue while reducing waste disposal costs. Proper maintenance of machinery and implementation of energy-efficient equipment will further lower operational expenses and enhance productivity.

If the project is not implemented, the region will lose opportunities for employment generation, industrial growth, and increased textile exports. Local suppliers, transporters, packaging industries, and other supporting businesses would also miss the economic benefits associated with the project. Furthermore, the opportunity to promote value-added textile manufacturing and strengthen Pakistan's garment sector would be lost.

The selected economic alternative provides the most sustainable and cost-effective solution by maximizing resource efficiency, reducing operational costs through modern technology, creating employment opportunities, and contributing to regional economic development while ensuring compliance with environmental regulations. Therefore, the proposed project is considered the most feasible economic alternative.

4.7 Design as per International Quality Standards

The proposed garment manufacturing facility will adopt internationally accepted quality management practices to ensure efficient production and high-quality products. The manufacturing processes are planned in accordance with recognized industrial standards, emphasizing:

- **Operational Efficiency:** Optimized production flow from fabric inspection, cutting, stitching, finishing, packing, and storage to maximize productivity.
- **Quality Consistency:** Standardized manufacturing procedures and quality control inspections at every production stage to ensure product consistency and customer satisfaction.
- **Worker Safety:** Provision of ergonomic workstations, machine guarding, adequate ventilation, fire safety systems, and employee training to maintain a safe workplace.
- **Continuous Improvement:** Implementation of quality management practices to improve productivity, minimize defects, and reduce material wastage.

4.7.1 Conclusion

The proposed Garments Manufacturing and Stitching Unit has been designed by integrating internationally accepted engineering and quality management principles with the requirements of the Punjab Environmental Protection Act, 1997 (as amended) and the Punjab Environmental Quality Standards (PEQS). The project emphasizes efficient resource utilization, environmental protection, occupational health and safety, and high-quality garment production.

Accordingly, the project will adopt:

- **International quality management standards (ISO 9001:2015)** to ensure consistent product quality and efficient manufacturing processes.
- **Occupational health and safety standards (ISO 45001:2018)** to provide a safe and healthy working environment.
- **Environmental management standards (ISO 14001:2015)** to minimize environmental impacts and promote sustainable manufacturing.

This integrated approach will ensure regulatory compliance, operational efficiency, environmental sustainability, and the production of high-quality garments for domestic and international markets.

5 DESCRIPTION OF THE PROJECT

This chapter presents a concise description of the proposed Garments Manufacturing, Dyeing and Finishing Unit by M/s Bin Nawab (Private) Limited, including its salient features, project location, major components, and operational activities. The project involves the construction and operation of a modern garment manufacturing facility for the production of high-quality garments through fabric cutting, stitching, finishing, quality inspection, packing, and storage operations.

This chapter also describes the project requirements, including land, water, electricity, fuel, raw materials, and manpower, along with the expected outputs and environmental aspects such as wastewater generation, solid waste, air emissions, noise, and their proposed management and disposal methods during both the construction and operational phases. The information presented in this chapter forms the basis for evaluating the potential environmental impacts of the project and developing appropriate mitigation measures under the Environmental Management Plan (EMP).

5.1 Type & Category of the Project

The proposed project involves the Construction of a Garments Manufacturing, Dyeing and Finishing Unit by M/s Bin Nawab (Private) Limited. at Meeran Wala Bangla, 03 Kilometers Drainage Canal, Chak No. 51 JB, District Faisalabad. The facility will be developed over an area of 15 Kanal with an estimated project cost of PKR 90 million. The unit is designed with an estimated production capacity of 2.5 million garments per annum and will undertake modern garment manufacturing operations, including fabric inspection, cutting, stitching, embroidery (where applicable), finishing, ironing, quality inspection, packing, and storage.

The project will utilize modern stitching machines, computerized cutting equipment, finishing machinery, and supporting utility systems to ensure efficient production and high-quality garments. Raw materials will primarily include fabric, sewing threads, buttons, zippers, labels, packing materials, and other garment accessories.

Considering the scale of the proposed development and the potential environmental impacts associated with construction activities, wastewater generation, solid waste, air emissions, noise, and utility consumption, the project falls under the provisions of the Punjab Environmental Protection Act, 1997 (as amended) and the Punjab Environmental Protection Agency (Review of IEE & EIA) Regulations, 2022. Accordingly, a comprehensive Environmental Impact Assessment (EIA) has been prepared to evaluate potential environmental impacts and ensure compliance with the Punjab Environmental Quality Standards (PEQS) and other applicable environmental regulations.

5.2 Objectives of the Project

The proposed project involves the construction and operation of a Garments Manufacturing, Dyeing and Finishing Unit by M/s Bin Nawab (Private) Limited, located at Meeran Wala Bangla, 03 Kilometers Drainage Canal, Chak No. 51 JB, District Faisalabad. The facility will be established on a 15 Kanal site and is designed to serve as a modern manufacturing unit for the production of high-quality garments to meet the growing domestic and international market demand. The project location has been strategically selected to provide easy access to transportation networks, skilled labor, and supporting industrial infrastructure.

The project represents an investment of approximately PKR 90 million and aims to establish a production facility with an estimated capacity of 2.5 million garments per annum. The scope of the project includes the installation of modern fabric cutting, stitching, finishing, ironing, quality inspection, and packing equipment, along with the development of warehouses, utility services, administrative facilities, and supporting infrastructure. By adopting efficient manufacturing technologies, implementing effective environmental management practices, and utilizing resources responsibly, the project will contribute to employment generation, strengthen the textile and apparel sector, and promote sustainable industrial development in Punjab while complying with all applicable environmental regulations.

5.3 Location and Site Layout of the Project

The proposed Garments Manufacturing, Dyeing and Finishing Unit by M/s Bin Nawab (Private) Limited. is located at Meeran Wala Bangla, 03 Kilometers Drainage Canal, Chak No. 51 JB, District Faisalabad. The project site is situated in an area suitable for industrial activities and has been selected considering the availability of essential infrastructure, accessibility, and proximity to the textile industry. The total area of the proposed project is 15 Kanal.

The facility has been planned to accommodate production halls, fabric storage, finished goods warehouse, administrative offices, utility areas, parking space, internal roads, and green areas. The site layout has been designed to ensure smooth movement of raw materials and finished products, efficient production operations, proper drainage, fire safety, and compliance with environmental and occupational health and safety requirements. The project location provides adequate access to transportation networks, utilities, and supporting industrial services, making it suitable for the proposed garment manufacturing operations.

Google Coordinates:

Google coordinates of the project site are as follows:

Latitude	31°30'01.7"N
Longitude	73°01'22.6"E

Surroundings of the Project Site

The Project Boundaries are provided below:

North	Open land
South	Road
East	Open Land
West	Open land



Figure 5-1: Location Map of the Proposed Project

5.4 Land Use on The Project Site

The proposed project site for the Garments Manufacturing, Dyeing and Finishing Unit by M/s Bin Nawab (Private) Limited. is located at Meeran Wala Bangla, 03 Kilometers Drainage Canal, Chak No. 51 JB, District Faisalabad. The site is situated in an area suitable for industrial development and is compatible with the surrounding land use. The proposed land is already owned by the project proponent and covers a total area of 15 Kanal, eliminating the need for additional land acquisition.

The surrounding area comprises predominantly industrial and commercial activities, with access to the necessary infrastructure and utility services required for the proposed project. The selected location provides sufficient space for the construction of production halls, warehouses, administrative buildings, utility areas, internal roads, parking facilities, and green areas while maintaining safe operational distances from surrounding developments.

At present, the project site is vacant/open land and has been selected due to its accessibility, availability of utilities, and suitability for industrial operations. The proposed land use is consistent with the existing industrial character of the area and is expected to minimize land-use conflicts while supporting sustainable industrial development in Faisalabad.

5.5 Road Access

The proposed Garments Manufacturing, Dyeing and Finishing Unit by M/s Bin Nawab (Private) Limited. is located at Meeran Wala Bangla, 03 Kilometers Drainage Canal, Chak No. 51 JB, District Faisalabad, with convenient access to the regional road network. The project site is well connected to the main roads of Faisalabad, facilitating the efficient transportation of raw materials, finished garments, and movement of employees and visitors.

The surrounding road network is suitable for the movement of commercial vehicles and container trucks required for the delivery of fabric, accessories, packaging materials, and the dispatch of finished products to domestic and export markets. The availability of all-weather paved roads ensures uninterrupted transportation throughout the year.

The excellent road connectivity enhances the operational efficiency of the proposed facility by reducing transportation time and logistics costs. It also facilitates emergency response, routine inspections by regulatory authorities, and easy access to supporting industries and service providers, thereby contributing to the overall feasibility and sustainable operation of the project.

The road access map is shown in the Figure 5-2 below.

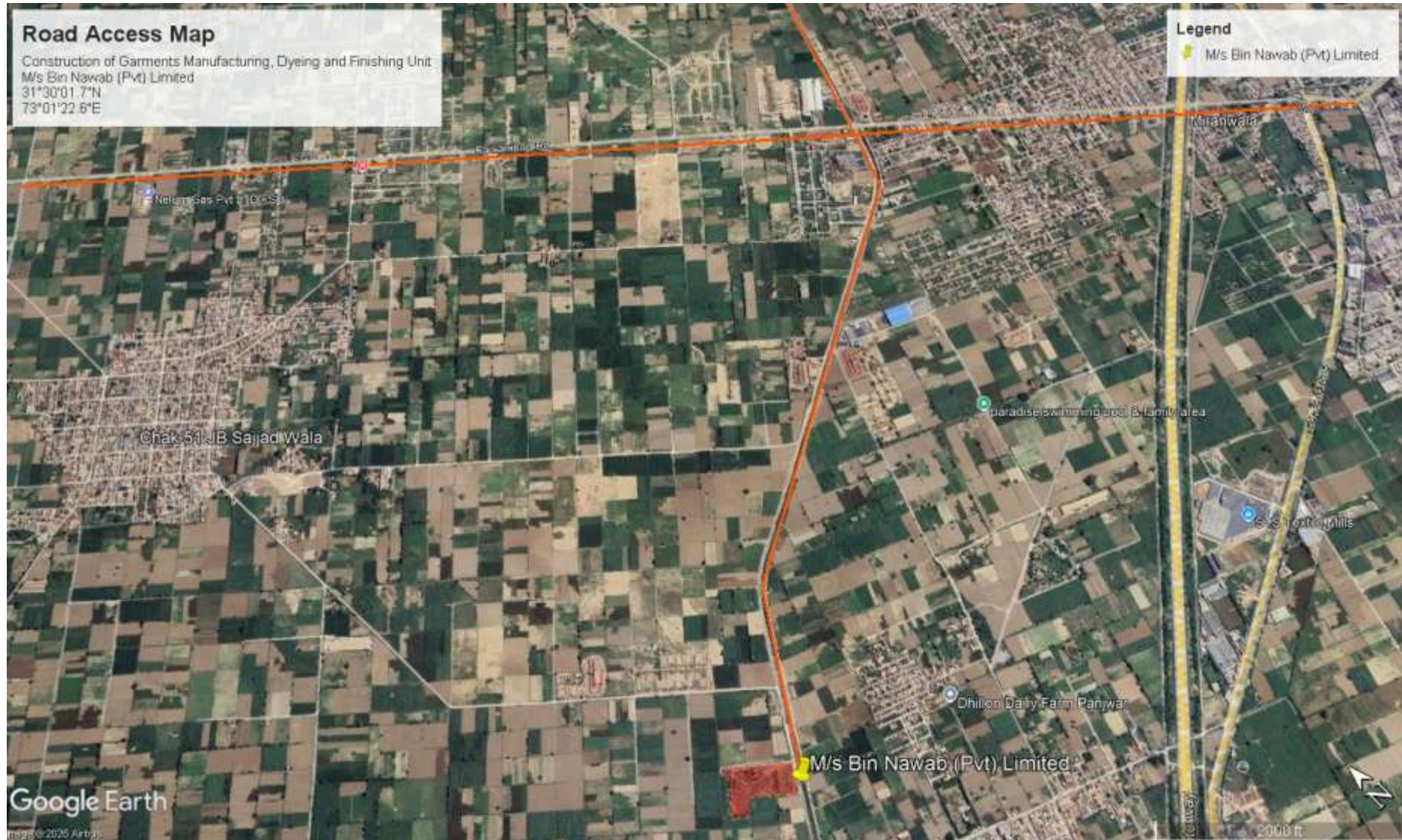


Figure 5-2: Road Access near the project site

5.6 Vegetation Features of The Site

The proposed Garments Manufacturing, Dyeing and Finishing Unit by M/s Bin Nawab (Private) Limited. is located at Meeran Wala Bangla, 03 Kilometers Drainage Canal, Chak No. 51 JB, District Faisalabad, on a 15 Kanal site designated for industrial development. The project site currently consists of vacant/open land with sparse natural vegetation, mainly comprising seasonal grasses and scattered shrubs.

There are no forests, protected areas, wetlands, ecologically sensitive habitats, or endangered plant species present within or adjacent to the project site. The surrounding area is predominantly industrial and agricultural in nature, with limited roadside plantations and cultivated fields located outside the project boundary. Therefore, the construction and operation of the proposed garment manufacturing facility are not expected to cause any significant adverse impacts on local vegetation or biodiversity.

To enhance the site's environmental quality and aesthetics, the project proponent will undertake landscaping and green belt development along the project boundary by planting suitable native tree and ornamental plant species. These measures will help improve the microclimate, reduce dust, and contribute to the overall environmental sustainability of the project.

5.7 Cost and magnitude of the operations

The total capital investment for the proposed Garments Manufacturing, Dyeing and Finishing Unit by M/s Bin Nawab (Private) Limited. is estimated at PKR 90 Million. The proposed project will be established over a 15 Kanal site at Meeran Wala Bangla, 03 Kilometers Drainage Canal, Chak No. 51 JB, District Faisalabad, with an estimated construction and commissioning period of approximately 6 months.

The project is designed with an estimated production capacity of 2.5 million garments per annum to meet the increasing demand of domestic and international markets. The project cost includes the construction of production halls, warehouses, administrative offices, utility facilities, and supporting infrastructure, along with the procurement and installation of modern fabric cutting machines, high-speed stitching machines, finishing and ironing equipment, quality inspection systems, packing facilities, and utility services. The investment also covers environmental protection measures, fire safety systems, wastewater management facilities, and green belt development to ensure environmentally sustainable operations and compliance with applicable environmental regulations.

5.8 Schedule of Implementation

The proposed implementation schedule for the Garments Manufacturing, Dyeing and Finishing Unit by M/s Bin Nawab (Private) Limited. is planned to ensure timely completion of the project, subject to the availability of resources and regulatory approvals. The estimated project implementation period is approximately 6 months, comprising the following stages:

5.8.1 1st Stage: Planning and Regulatory Approvals

- Topographic survey and site preparation.
- Finalization of architectural drawings and plant layout.
- Approval of building plans and obtaining Environmental Approval from the Punjab Environmental Protection Agency (Punjab-EPA).

- Procurement planning for machinery and equipment.

5.8.2 2nd Stage: Civil Works and Infrastructure Development

- Site clearing, excavation, and foundation works.
- Construction of production halls, warehouses, administrative offices, and utility buildings.
- Installation of internal roads, drainage systems, water supply, electricity, and fire protection systems.
- Development of wastewater collection and disposal facilities.

5.8.3 3rd Stage: Machinery Installation and Finishing Works

- Installation of computerized fabric cutting machines, high-speed stitching machines, finishing and ironing equipment, quality inspection systems, and packing machinery.
- Installation of electrical systems, ventilation, lighting, compressed air systems, and other utilities.
- Completion of internal finishing works and utility connections.

5.8.4 4th Stage: Testing, Commissioning, and Staff Training

- Testing and commissioning of all production machinery and utility systems.
- Trial production of garments to evaluate production efficiency and product quality.
- Training of technical, production, and safety personnel on machine operation, quality control, occupational health and safety, and environmental management practices.

5.8.5 5th Stage: Commercial Operation

- Commencement of full-scale garment manufacturing operations.
- Implementation of the Environmental Management Plan (EMP) and Environmental Monitoring Plan (EMnP).
- Routine environmental monitoring and compliance with the Punjab Environmental Protection Act, 1997 (as amended), the Punjab Environmental Quality Standards (PEQS), and other applicable regulatory requirements.

5.9 General Description of the Proposed Garment Manufacturing

The proposed project involves the establishment of a modern Garments Manufacturing, Dyeing and Finishing Unit by M/s Bin Nawab (Private) Limited. at Meeran Wala Bangla, 03 Kilometers Drainage Canal, Chak No. 51 JB, District Faisalabad, covering a total area of 15 Kanal. The project aims to establish a fully equipped and environmentally compliant garment manufacturing facility for the production of high-quality garments to meet both domestic and international market demands.

The facility will comprise dedicated production sections including fabric inspection, computerized fabric cutting, stitching, embroidery (where applicable), finishing, ironing, quality inspection, packing, and storage. Modern high-speed sewing machines, computerized cutting machines, finishing equipment, quality control systems, and packing facilities will be installed to ensure efficient production and consistent product quality. Separate storage areas will be provided for raw materials,

garment accessories, packaging materials, and finished products to facilitate smooth manufacturing operations.

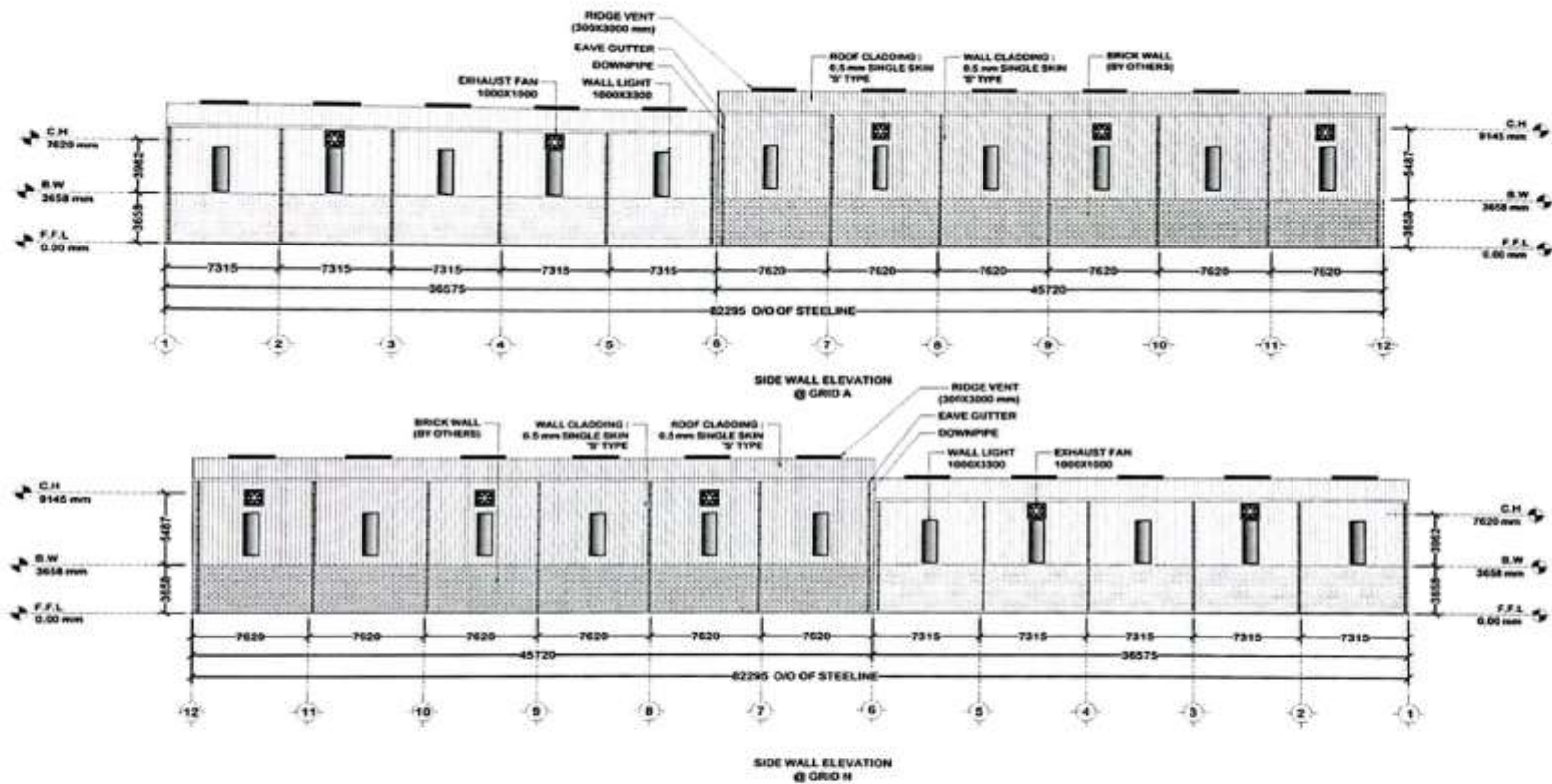
The project will incorporate appropriate environmental protection measures, including wastewater collection and management systems, solid waste segregation and recycling facilities, fire protection systems, ventilation arrangements, and occupational health and safety measures in accordance with the Punjab Environmental Quality Standards (PEQS). Administrative offices, utility areas, warehouses, parking facilities, and green belt development will also be provided to support efficient plant operations.

The facility will be constructed using Reinforced Cement Concrete (RCC) and Pre-Engineered Building (PEB) structures to ensure structural durability, operational efficiency, and compliance with industrial safety standards. With a total project investment of approximately PKR 90 million and an estimated production capacity of 2.5 million garments per annum, the project will contribute significantly to Pakistan's textile and apparel sector by creating employment opportunities, strengthening the regional textile value chain, promoting exports, and supporting environmentally sustainable industrial development.

Table 5-1: Project Specifications (M/S Bin Nawab. Private Limited.)

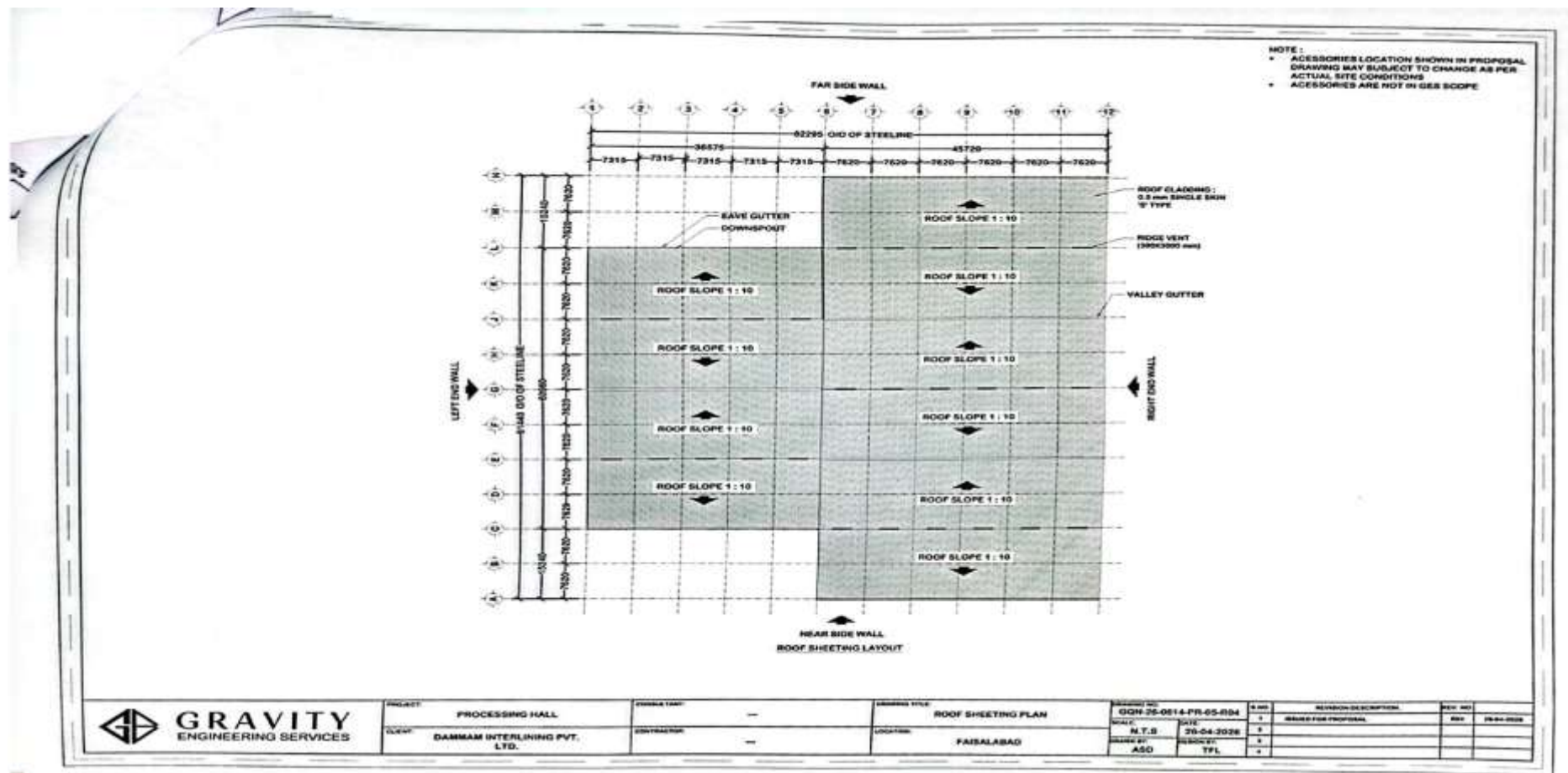
Feature	Specification
Project Type	Garments Manufacturing, Dyeing and Finishing Unit
Proponent	M/s Bin Nawab (Private) Limited.
Location	Meeran Wala Bangla, 03 Kilometers Drainage Canal, Chak No. 51 JB, District Faisalabad
Total Land Area	15 Kanal
Primary Products	Ready-Made Garments, Knitwear, and Textile Apparel
Production Capacity	Approximately 2.5 Million Garments per Annum
Estimated Project Cost	PKR 90 Million
Environmental Control	Wastewater Management System, Solid Waste Segregation & Recycling, Air and Noise Control Measures
Regulatory Standards	Punjab Environmental Protection Act, 1997 (Amended), PEQS & Occupational Health and Safety Requirements
Design Standards	Modern Garment Manufacturing & Industrial Engineering Practices
Infrastructure	Reinforced Cement Concrete (RCC) & Pre-Engineered Building (PEB) Structures
Power & Utilities	Grid Electricity, Standby Diesel Generator, Water Supply & Internal Drainage System
Compliance Body	Punjab Environmental Protection Agency (Punjab-EPA)
Quality Control Facilities	Quality Control (QC) & Garment

Feature	Specification
	Inspection Section
Strategic Access	Connected to Faisalabad Road Network for Raw Material Supply and Product Distribution
Primary Beneficiaries	Textile Industry, Export Market, Local Workforce, and Regional Economy



PROJECT:	PROCESSING HALL	CONSULTANT:	---	DRAWING TITLE:	SIDE WALL SHEETING ELEV.	DRAWING NO:	GGN-26-0614-PR-04-R04	S. NO.	REVISION DESCRIPTION	REV. NO.	DATE
CLIENT:	DAMMAH INTERLINING PVT. LTD.	CONTRACTOR:	---	LOCATION:	FAISALABAD	SCALE:	N.T.S.	1	ISSUED FOR PROPOSAL	001	26-04-2026
						DESIGN BY:	ASD	2			
						REVIEW BY:	TFL	3			
								4			

Construction of Garments Manufacturing, Dyeing and
Finishing Unit by M/S Bin Nawab (Pvt.) Limited
Environmental Impact Assessment (EIA) Report



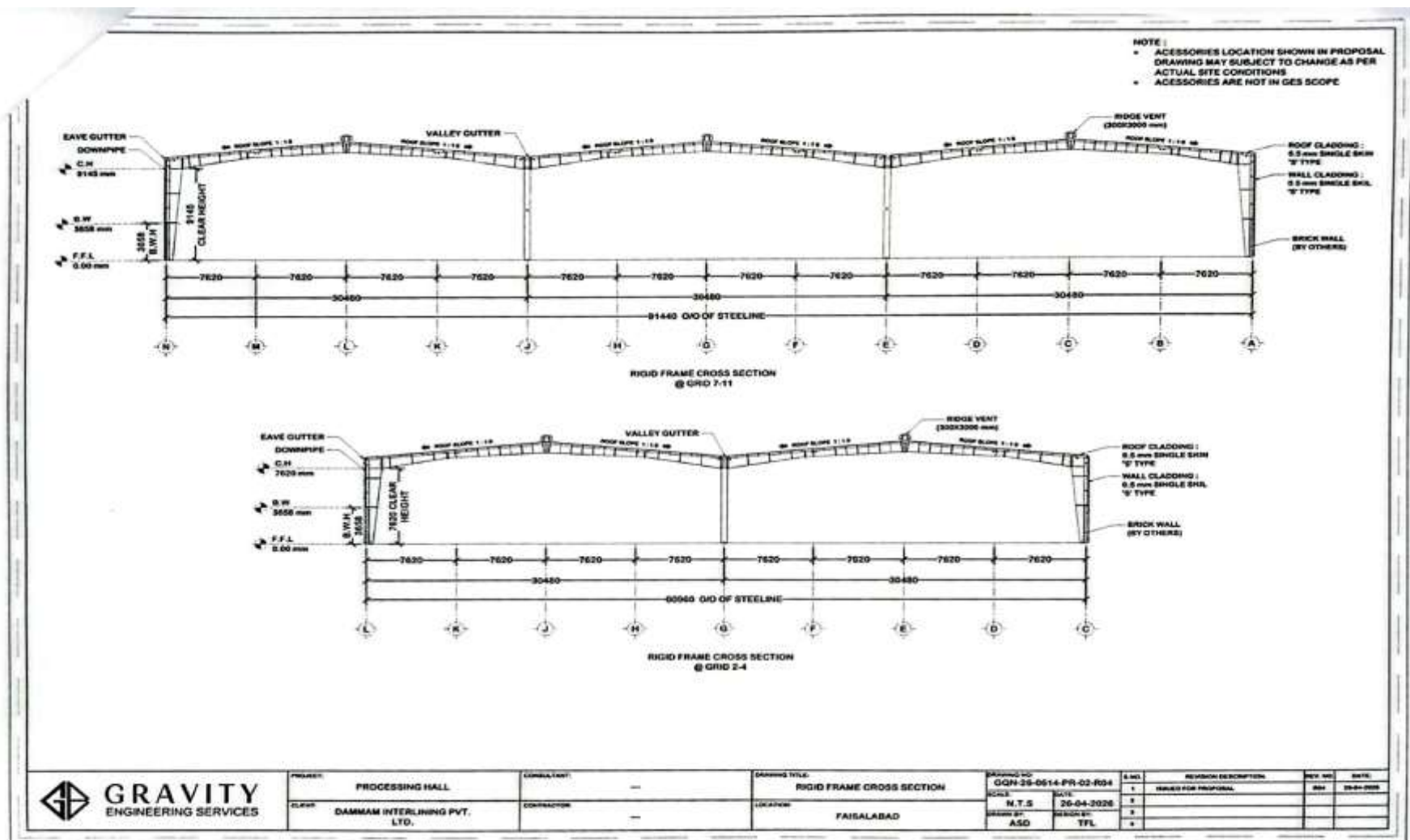


Figure 5-3: Layout Map of the Project

5.10 Project components

The proposed project by M/S Bin Nawab (Private) Limited. is focused on the manufacturing and stitching of ready-made garments. The production process involves fabric inspection, cutting, stitching, embroidery (where applicable), finishing, ironing, quality inspection, packing, and dispatch. The facility will comprise dedicated production sections supported by warehouses for raw materials and finished products, administrative offices, utility areas, and appropriate environmental management facilities to ensure efficient and environmentally compliant operations.

5.10.1 Raw materials

- Raw materials such as knitted and woven fabrics, sewing threads, buttons, zippers, labels, elastic, interlining, packing materials, and garment accessories will be procured from approved and certified suppliers.
- All incoming materials will be inspected against supplier specifications before being accepted for production.
- Raw materials will be stored in designated storage areas under suitable environmental conditions to prevent damage, contamination, and moisture absorption.
- Fabric rolls will be stored on racks in dry and clean warehouses, while accessories and packing materials will be kept in separate organized storage sections.
- Chemicals used for finishing, stain removal, and cleaning will be stored in properly ventilated areas with appropriate safety measures.

Raw material requirements for the proposed project are as follow;

Category	Raw Material	Purpose / Function
Fabric	Knitted Fabric	Primary raw material for manufacturing garments.
	Woven Fabric	Used for shirts, trousers, uniforms, and other apparel.
Sewing Materials	Sewing Thread	Stitching and assembly of garments.
	Needles	Used in industrial sewing machines.
Garment Accessories	Buttons	Garment fastening.
	Zippers	Used in trousers, jackets, and other apparel.
	Labels & Tags	Product identification and branding.
	Elastic Tape	Used in waistbands and cuffs.
	Interlining	Provides shape and strength to garment components.
Finishing Materials	Steam	Garment pressing and wrinkle removal.
	Stain Removers & Spot Cleaning Chemicals	Removal of stains before packing.
Packing Materials	Polybags	Individual garment packaging.
	Cartons	Packing for storage and transportation.
	Adhesive Tape & Packing Labels	Carton sealing and shipment identification.
Utilities	Lubricating Oil	Maintenance of sewing and cutting machines.
	Cleaning Materials	Housekeeping and equipment cleaning.



Fabric



cloth cutter machine



sewing machine

Figure 5-4: Raw Materials for garment manufacturing unit

5.11 Machinery Requirement for Textile Dyeing & Finishing Unit

Sr. No.	Images	Machinery / Equipment	Function / Purpose	Proposed Quantity
1		Fabric Inspection Machine	Inspection of incoming fabric for defects	02
2		Automatic Fabric Spreading Machine	Uniform spreading of fabric before cutting	01
3		Computerized Fabric Cutting Machine	Precision cutting of garment panels	02
4		Band Knife Cutting Machine	Cutting multiple layers of fabric	01
5		High-Speed Single Needle Lockstitch Machine	Main stitching of garments	120
6		Overlock (Overedge) Sewing Machine	Edge stitching and seam finishing	35

Sr. No.	Images	Machinery / Equipment	Function / Purpose	Proposed Quantity
7		Flatlock Sewing Machine	Joining knit fabrics and decorative stitching	10
8		Button Hole Machine	Automatic buttonhole making	04
9		Button Stitching Machine	Attachment of buttons	04
10		Bartack Machine	Reinforcement at stress points	04
11		Steam Ironing & Vacuum Table	Garment pressing and wrinkle removal	12
12		Boiler (Steam Generator)	Steam supply for ironing section	01
13		Air Compressor	Compressed air supply for pneumatic equipment	01
14		Needle Detector Machine	Detection of broken needles/metal fragments	01
15		Garment Quality Inspection Table	Final inspection of finished garments	04

Sr. No.	Images	Machinery / Equipment	Function / Purpose	Proposed Quantity
16		Packing Table & Sealing Machine	Folding, packing, and carton sealing	04
17		Diesel Generator (Backup Power)	Emergency power supply	01

5.12 Steps for Manufacturing of Garments

The production cycle at **M/S Bin Nawab (Private) Limited.** is designed to ensure efficient manufacturing, high product quality, and compliance with international garment manufacturing standards. The major production stages are as follows:

a. Raw Material Inspection

The process begins with the receipt and inspection of fabrics, sewing threads, buttons, zippers, labels, and other accessories. All materials are checked against quality specifications before being accepted for production.

b. Fabric Spreading

Approved fabric rolls are spread evenly on cutting tables using manual or automatic spreading machines. Proper spreading ensures accurate cutting and minimizes fabric wastage.

c. Fabric Cutting

The spread fabric is cut into garment components according to approved marker patterns using computerized cutting machines and band knife cutters. Cut panels are then bundled according to garment size and style.

d. Embroidery / Printing (Where Applicable)

Garment components requiring embroidery, logos, or printing are processed before stitching to meet customer specifications.

e. Stitching and Assembly

The cut garment panels are stitched using high-speed industrial sewing machines, overlock machines, flatlock machines, and other specialized equipment to assemble the finished garment.

f. Finishing

After stitching, garments undergo finishing operations including thread trimming, attachment of buttons, zippers, labels, elastic, and other accessories to ensure the required appearance and functionality.

g. Ironing and Pressing

Finished garments are pressed using steam ironing equipment to remove wrinkles and provide a neat, professional finish prior to inspection.

h. Quality Inspection

Each garment is thoroughly inspected for stitching quality, measurements, appearance, workmanship, and compliance with customer specifications. Defective garments are repaired or rejected.

i. Folding and Packing

Approved garments are folded, packed in polybags, labeled, and placed into cartons according to customer and export requirements.

j. Storage and Dispatch

Packed garments are stored in the finished goods warehouse before being dispatched to domestic and international markets under controlled storage conditions.

This systematic manufacturing process ensures efficient production, consistent product quality, minimum material wastage, and compliance with environmental, occupational health, and safety requirements.

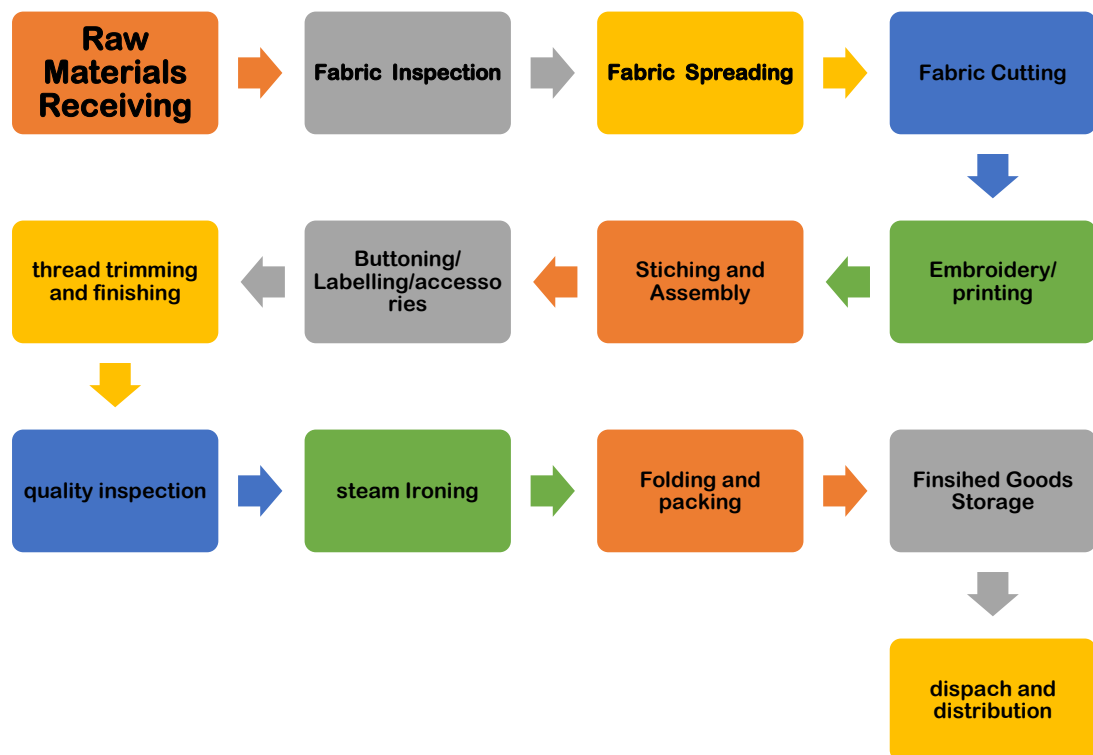


Figure 5-5: Process Flow diagram, M/S Bin Nawab (Private) Limited.

D. Quality Assurance and Product Validation

The proponent has established a comprehensive Quality Assurance (QA) system to ensure that all processed fabric consistently meets the required quality, performance,

and safety standards. Quality control is carried out at every stage of the production process, from raw material inspection to final product dispatch.

- **Raw Material Inspection:** All incoming raw materials, including grey (greige) fabric, chemicals, bleaching agents, dyes, and coal, are inspected to verify compliance with approved specifications and supplier quality certificates before being released into production.
- **Process Quality Control:** Production parameters at each stage, singeing, de-sizing, reduction, mercerization, drying, bleaching, dyeing (jet/jigger), stentor, and calendaring are continuously monitored to ensure uniform shade consistency, proper chemical concentration, correct temperature and time cycles, and minimal defects such as uneven dyeing, shrinkage, or fabric damage.
- **Product Testing:** Finished fabric undergoes routine testing for colour fastness, shade matching, GSM (grams per square metre), shrinkage percentage, tensile strength, and visual appearance (finish, handfeel, and surface uniformity) to ensure compliance with buyer specifications and applicable textile quality standards.
- **Final Inspection and Storage:** Only fabric that successfully passes all quality checks after the comfort finishing and folding stages is approved for packing and dispatch. Approved fabric is properly folded/rolled, labeled, and stored in designated, moisture-free storage areas to prevent contamination or damage before transportation to customers.

E. Finalization and Product Dispatch

Upon completion of processing and quality inspection, the finished fabric is prepared for delivery through the following systematic stages:

- **Final Quality Verification:** Samples from each production lot are tested to confirm compliance with the required shade, colour fastness, GSM, and shrinkage specifications.
- **Visual and Dimensional Inspection:** Every roll/piece of fabric is checked for shade variation, weaving or dyeing defects, width consistency, and finishing quality before approval.
- **Packaging and Labeling:** Approved fabric is folded or rolled, wrapped, and labeled with batch number, processing date, fabric specifications, and quantity to ensure complete traceability.
- **Storage and Dispatch:** Finished fabric is safely stored in the designated warehouse until dispatch. It is then loaded using appropriate material handling equipment and transported to customers, garment manufacturers, and stitching units while ensuring protection against moisture, dust, and damage during transit.

Table 5-2: Products to be manufactured at the M/S Bin Nawab (Private) Limited facility

Sr. No.	Product Name	Product Category	Primary Use/Indication
1	Bleached & Dyed Fabric (Intermediate)	Processed Textile Fabric	Base processed fabric used internally for garment stitching, with surplus dispatched to third-party garment/hosiery units.
2	Ready-Made	Textile	Casual, formal, and retail every day wear for

Sr. No.	Product Name	Product Category	Primary Use/Indication
	Garments	Apparel	domestic and international markets, cut and stitched from in-house processed fabric.
3	Knitwear	Textile Apparel	T-shirts, hoodies, sweatpants, and flexible sportswear/leisurewear.
4	Woven Apparel (Shirts & Trousers)	Textile Apparel	Formal shirts, structured trousers, uniforms, and casual denim/twill outerwear.
5	Custom Embroidered / Printed Apparel	Textile Apparel	Branded clothing, corporate apparel, and garments featuring specialized logos or designs.

5.13 Project Capacity

The following table details the comprehensive manufacturing capabilities of M/S Bin Nawab (Private) Limited for its garment product range, including ready-made garments, knitwear, woven apparel, and custom embroidered/printed apparel. The facility is equipped to handle high-volume production, with a total annual capacity reaching up to 2.5 million garments. The proponent has ensured that this production scale maintains a consistent supply of quality apparel to meet domestic and export market demands.

Table 5-3: Daily and Annual Manufacturing Capacities of M/S Bin Nawab (Private) Limited

Product Range	Daily Capacity	Annual Capacity (Estimated)
Ready-Made Garments	3,500 units	1.05 Million units
Knitwear	3,000 units	0.9 Million units
Woven Apparel (Shirts & Trousers)	1,500 units	0.45 Million units
Custom Embroidered / Printed Apparel	350 units	0.105 Million units
Total Facility Output	8,350 units	2.5 Million units

5.14 Electricity

FESCO (Faisalabad Electric Supply Company) will be the primary source of electricity for the M/S Bin Nawab (Private) Limited facility at Chak No. 51/JB, Meeran Wala Bangla, Faisalabad. The electrical infrastructure is designed to support high-precision industrial machinery, including the dyeing machines (jet/jigger), stentor, drying units, mercerization range, and calendering and folding equipment. To ensure uninterrupted operations and maintain the consistency of the dyeing, drying, and finishing processes, the proponent has ensured that a high-capacity standby generator will provide emergency power during load-shedding or grid failure. This ensures that critical systems, such as the stentor and drying units (operating at elevated process temperatures) and the dyeing and finishing lines, remain operational to prevent production delays, shade inconsistency, and batch loss.

5.15 Water Supply

The primary water source for the M/S Bin Nawab (Private) Limited facility will be groundwater extracted through on-site tube well(s), as the facility is not connected to a centralized industrial estate water network. This groundwater will undergo on-site treatment (including filtration and softening) to ensure it meets the quality requirements for industrial processing, particularly for bleaching, dyeing, and rinsing operations where water hardness and impurities can directly affect shade consistency and fabric quality. The proponent has ensured that these treated water outputs are managed effectively to support the de-sizing, scouring, bleaching, dyeing (jet/jigger), and washing stages of the production process, as well as boiler feed water and general facility maintenance.

5.15.1 Operational Water Usage

- The water supply is primarily utilized in the bleaching, dyeing (jet/jigger), and washing stages, where the proponent has ensured consistent circulation and controlled dosing to maintain uniform shade quality and prevent process defects.
- The proponent has ensured that water used in the de-sizing and scouring stages is properly treated and monitored to remove sizing agents and impurities, preventing residue build-up and maintaining fabric surface finish quality.
- The proponent has ensured that the industrial water management system adheres to applicable environmental sustainability guidelines and water conservation practices, with treated wastewater being managed in accordance with Punjab Environmental Quality Standards (PEQS) prior to discharge.

5.16 Natural Gas / Fuel

The facility at Chak No. 51/JB, Faisalabad utilizes FESCO-supplied electricity and SNGPL-provided natural gas to power its fabric processing and garment manufacturing systems. A high-capacity standby generator fueled by High-Speed Diesel (HSD) ensures operational continuity for the dyeing, stentoring, and garment stitching lines during power fluctuations or load-shedding. Coal is additionally utilized as a supplementary boiler fuel to maintain uninterrupted steam supply for the bleaching and dyeing processes. The proponent has ensured that all industrial utilities are configured to maintain the process consistency and quality of M/S Bin Nawab (Private) Limited's fabric and garment product range. This infrastructure supports an integrated production capacity of up to 2.5 million garments annually, ensuring a reliable supply for domestic and export apparel markets.

5.17 Water Requirement and Management

5.17.1 Construction Phase

During the construction phase, water will be primarily required for civil works, concrete mixing, curing, and dust suppression (sprinkling), as well as meeting the domestic needs of the construction workforce.

- **Quantity Required:** The estimated water consumption during this phase is 400 gallons per day.
- **Source & Extraction:** This requirement will be met entirely via groundwater, extracted safely using a motorized pump installed at the site.

5.17.2 Operational Phase

Once the fabric processing and garment manufacturing plant is fully operational, water consumption will be split between industrial processes and the domestic needs of the staff.

- **Quantity Required:** The total water requirement during optimum plant operation is estimated to be approximately 1,800 liters per day.
- **Primary Consumptive Uses:** Water will be utilized across three main areas:
 - **Domestic Use:** Drinking, sanitation, and hygiene facilities for the 150–160 operational workers.
 - **Industrial Processes:** Bleaching, dyeing (jet/jigger), de-sizing, scouring, and steam **generation** necessary for fabric processing.
 - **Site Maintenance:** **Periodic** sprinkling for dust control and green belt maintenance.
- **Source of Supply:** To ensure a reliable and continuous supply, groundwater remains the primary source, extracted on-site via an efficient motor pump system.

5.18 Wastewater Generation & Disposal

- All process wastewater will be treated in an on-site **Packaged Wastewater Treatment Plant** to meet PEQS before discharge.
- Domestic wastewater will be directed to the municipal sewer system or estate-provided sewerage network.
- Continuous monitoring and proper operation of the Packaged Wastewater Treatment Plant will ensure **zero discharge of untreated effluent**, protecting local water bodies and the environment.

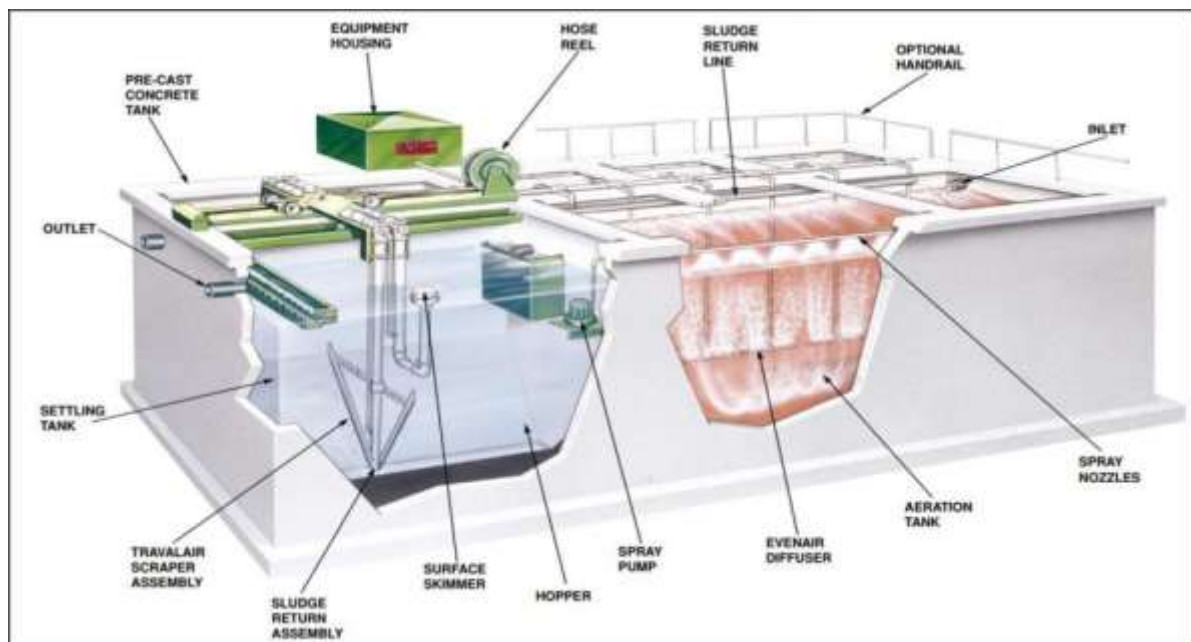


Figure 5-6: Process Flow diagram of packaged Wastewater Treatment Plant

5.19 Air Emissions and Control Measures

Air emissions from the proposed Bin Nawab (Private) Limited Textile Dyeing and Finishing Unit are expected to be localized and manageable. The primary sources include:

- Boiler/steam generator (coal and gas-fired) used for de-sizing, bleaching, dyeing, and drying processes
- Standby diesel (HSD) generator for backup power during load-shedding
- Exhaust from stentor, drying, and calendering/finishing machines
- Fugitive emissions such as dust from handling powdered chemicals, dyes, and salts

Emissions may consist of CO₂, NO_x, SO₂, and particulate matter, depending on fuel use (coal/gas) and machinery operation. Adequate stack heights, proper ventilation, and regular maintenance of the boiler and standby generator will ensure compliance with Punjab Environmental Quality Standards (PEQS).

Fugitive dust and minor chemical vapors from dye and chemical handling will be controlled using local exhaust ventilation systems and enclosed storage areas. With these measures, no significant adverse impacts on ambient air quality or worker health are anticipated, and emissions will remain within permissible limits.

5.20 Noise Control

All Noise emissions from the proposed Bin Nawab (Private) Limited Textile Dyeing and Finishing Unit will primarily arise from:

- Dyeing, washing, and finishing machinery (jet/jigger dyeing machines, dryers, stentor, calendering, and folding equipment)
- Standby HSD diesel generator
- Boiler and associated utility equipment
- Vehicular movement for raw material (grey fabric) delivery and finished product/garment transport

Noise levels inside production areas are expected to range between 65–80 dB(A) depending on machinery operation, while noise at the site boundary will remain within the permissible limits set by the Punjab Environmental Quality Standards (PEQS).

5.21 Solid Waste Management System & Practices

The proposed Bin Nawab (Private) Limited Textile Dyeing and Finishing Unit, located at Chak No. 51/JB, Meeran Wala Bangla, Faisalabad, will generate solid waste from the following specific sources associated with its fabric processing and garment manufacturing operations:

5.21.1 Sources of Solid Waste

- **Non-Hazardous Production Residues:** Fabric off-cuts, selvage trimmings, and lint generated during de-sizing, cutting, stitching, and finishing (calendering, folding) of garments.

- **Packaging Waste:** Cardboard cartons, plastic wrapping, and polybags used for packing finished garments and fabric rolls, along with packaging materials from incoming raw materials (dyes, chemicals, coal).
- **General/Domestic Waste:** Office waste and canteen/domestic waste generated by the facility's 150–160 operational staff.
- **Hazardous Waste:** Used/empty chemical and dye containers and spent bleaching agent drums from the bleaching, dyeing, and de-sizing processes.
- **Boiler Ash/Residue:** Coal ash and clinker residue from the boiler used for steam generation in the dyeing and finishing processes.

5.21.2 Waste Management Practices

- Waste will be **segregated** at source into recyclable, non-hazardous, and hazardous categories, with clearly marked collection bins across production, packing, and office areas.
- **Recyclables** (fabric off-cuts, cardboard, plastic packaging) will be sold or sent to licensed recycling vendors.
- **General/domestic waste** will be collected by municipal or locally approved waste contractors for disposal at designated landfill sites.
- **Hazardous waste** (used chemical containers, spent dye drums) will be stored in a dedicated, secured, and labeled storage area and disposed of through licensed hazardous waste handlers in accordance with the Punjab Environmental Protection Act and applicable EPA guidelines.
- **Boiler ash** will be collected and disposed of through approved contractors, with potential reuse in brick-making or construction where feasible.

5.22 Area and Layout

The total area for the M/S Bin Nawab (Private) Limited project is approximately **15 Kanal**, located at Chak No. 51/JB, Meeran Wala Bangla, near Sargodha Road, Faisalabad, Punjab. The site layout has been planned to optimize workflow, ensuring a smooth, logical progression from raw grey fabric receiving and storage through de-sizing, bleaching, dyeing (jet/jigger), stentoring, calendering, and finishing, up to garment cutting, stitching, and packing/dispatch — while prioritizing environmental safety, worker protection, and efficient waste containment.

5.23 Government Approval

In compliance with local regulatory frameworks, the proposed project site for M/S Bin Nawab (Private) Limited is located on a plot measuring approximately 15 Kanal at Chak No. 51/JB, Meeran Wala Bangla, near Sargodha Road, Faisalabad, Punjab. Obtaining formal environmental approval in accordance with Section 12 of the Punjab Environmental Protection Act, 1997 (Amended 2012) is a mandatory legal requirement for the project prior to the commencement of construction and operational activities.

5.24 Restoration/Rehabilitation at The End Of Project Life

During construction, M/S Bin Nawab (Private) Limited will ensure zero damage to the surrounding infrastructure at Chak No. 51/JB, with all civil debris, waste, and minor spills immediately cleared and the land leveled under constant water sprinkling for dust control. Long-term ecological rehabilitation is not required since the 15 Kanal site is proponent-owned. At the end of the project's operational lifespan, the facility

will be carefully dismantled using standard demolition safety codes to minimize pollution and protect nearby properties. High-value salvage materials like structural steel, dyeing/finishing machinery, and boiler components will be segregated for recycling or resale, while all remaining non-recyclable debris will be disposed of in an environmentally sustainable manner in strict compliance with Punjab EPA and local regulatory frameworks.

6 DESCRIPTION OF THE ENVIRONMENT

This chapter describes the baseline conditions, which cover the existing physical, ecological, and socio-economic environment of the Study Area surrounding the M/S Bin Nawab (Private) Limited project site at Chak No. 51/JB, Meeran Wala Bangla, Faisalabad. Information on these aspects has been derived from a desk study of available data, field visits to the project area, as well as information obtained through visits to relevant Government departments and other agencies, namely the Irrigation Department, Meteorological Department, Forest offices, and prevailing environmental laws and environmental quality standards, etc.

6.1 Corridor of Impact (COI)

The Corridor of Influence (COI) includes the actual project footprint as well as the surrounding area in which positive and adverse impacts may be foreseen due to the construction and operation of M/S Bin Nawab (Private) Limited. The area of influence encompasses the location likely to be affected by the project, including all its ancillary aspects such as access roads leading to the site off Sargodha Road, waste disposal zones, and construction material storage areas, as well as unplanned developments induced by the subproject.

For the purposes of the environmental assessment, the area of influence for the proposed facility at Chak No. 51/JB, Meeran Wala Bangla, Faisalabad, has been defined as a 300-meter radius from the boundary of the project site. Additionally, a focused area of 100 meters has been designated as the immediate area of influence for the proposed construction and installation works to monitor localized effects such as noise, dust, and vibration.

6.2 Physical Environment

6.2.1 History of the area

Faisalabad, one of Pakistan's leading industrial cities, is where a colonial-era planned settlement has grown into the country's textile manufacturing hub. Faisalabad is located in Punjab province, founded in 1890 by James Broadwood Lyall and named after Faisal of Saudi Arabia, having originally been known as Lyallpur before being renamed. Its coordinates are approximately 31°25'0"N, 73°5'28"E, and the district lies between longitude 73°–74° East and latitude 30°–31.5° North, at an elevation of around 605 feet above sea level. There is no natural boundary between Faisalabad and its adjoining districts; it is bounded by Hafizabad and Sheikhpura to the north and northeast, by Sheikhpura, Okara, and Sahiwal to the east and southeast, and by Jhang and Toba Tek Singh to the west and southwest.

The Faisalabad District has a total area of around 5,856 km², while the urban area controlled by the Faisalabad Development Authority (FDA) spans approximately 1,300 km². The city itself covers about 1,330 km², with roughly 840 km² as land area. As of the 2023 census, the district's population stood at over 9 million, making Faisalabad city the third largest in Pakistan after Karachi and Lahore.

Faisalabad enjoys strong road, rail, and air connectivity with the rest of the country. Faisalabad International Airport serves the city with domestic and international flights, and Faisalabad Railway Station functions as a key junction on the national rail network. The city is linked to Lahore, Multan, and other major urban centers via national highways and motorway connections, and is well connected to Sargodha

Road, on which the present project site (Chak No. 51/JB, Meeran Wala Bangla) is situated.

Faisalabad has become a major industrial and distribution hub owing to its centrally located infrastructure of connecting roads, rail, and air transport, and is popularly known as the "Manchester of Pakistan" due to its dominant textile industry. The city's economy is built around spinning, weaving, dyeing, finishing, and garment manufacturing units, supported by a skilled labor force and dense industrial infrastructure. This concentration of textile expertise and supporting ancillary industries including dyeing chemicals, machinery, and logistics makes Faisalabad a natural location for facilities such as the proposed M/S Bin Nawab (Private) Limited textile dyeing, finishing, and garment manufacturing unit.

6.2.2 Topography

The Faisalabad's flat, fertile plains and well-developed connectivity to Faisalabad's textile industrial belt make this a suitable and strategically located site for the proposed textile dyeing and finishing facility.

Topographically, Faisalabad District lies within the lower Rechna Doab — the alluvial plain formed between the Ravi and Chenab rivers — and consists predominantly of flat to gently sloping terrain. The district exhibits a mild slope from northeast to southwest, with an average fall of approximately 0.2–0.3 meters per kilometer. Faisalabad City is situated at an elevation of roughly 183–185 meters (approximately 605–612 feet) above mean sea level, with elevations across the wider division ranging from about 180 to 200 meters.

The Ravi River flows along the eastern side of the district while the Chenab River forms its western boundary, though there is no natural topographic boundary separating Faisalabad from its adjoining districts. The Upland (interior) areas of the district, formed on relatively older alluvial deposits, lie above the reach of the rivers' flood spills and comprise the majority of the district's land, characterized by fertile loamy and silt-loam soils well-suited to agriculture. The subsoil consists of young stratified silt loam or fine sandy loam, with occasional calcareous "kanker" deposits found at shallow depths.

The project site at Chak No. 51/JB, Meeran Wala Bangla, near Sargodha Road, lies within these upland plains, characterized by level to near-level topography typical of the Rechna Doab, with no significant natural drainage or flood-risk features affecting the immediate site based on available site photographs.

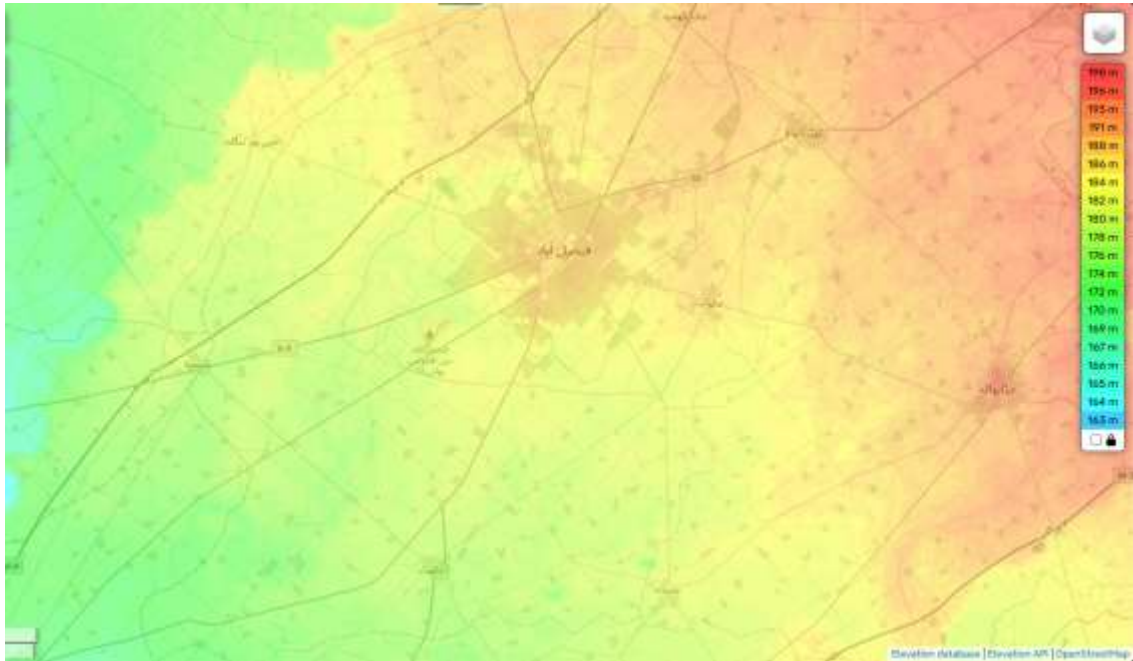


Figure 6-1: Map Showing the Digital Elevation of the Project area

6.2.3 Geology and Soil

The soil of Faisalabad District is entirely alluvial in origin, deposited over time by the Ravi and Chenab rivers, and is generally rich in plant nutrients, supporting the district's status as a major agricultural zone within the Rechna Doab. The soils are predominantly fertile alluvial loams, though texture varies across the district ranging from sandy loam to clay loam with subsurface layers typically comprising silty clay and clayey silt overlying medium-dense sand and fine sand at greater depths.

These soils are generally well-drained and support a variety of agricultural activities, including wheat, sugarcane, cotton, and fodder crops, which remain the dominant land use in the vicinity of the project site. However, in certain parts of the district, soil fertility and usability are affected by salinity and waterlogging, particularly in areas with shallow groundwater tables and limited natural drainage, requiring appropriate land and water management practices.

Geotechnically, Faisalabad district has been classified into distinct zones based on subsurface soil consistency (soft, medium, and stiff), determined through standard penetration test (SPT) data, which is used to guide foundation design for construction activities in the area. The project site at Chak No. 51/JB, Meeran Wala Bangla, lies within this broader alluvial plain and is expected to exhibit soil characteristics typical of the surrounding agricultural land fertile loam suitable for both continued agricultural use and industrial construction, subject to standard geotechnical verification prior to construction.

6.2.4 Seismic Activity/Seismicity

Faisalabad lies in a region of low to moderate seismic activity and is situated within Seismic Zone 2A, as classified by the Building Code of Pakistan – Seismic Provisions (2007). This zone, which covers most of Punjab and nearly all of Sindh (excluding Karachi), including major cities such as Lahore, Faisalabad, Multan, and Hyderabad, corresponds to a peak ground acceleration range of approximately 0.08g to 0.16g, indicating a comparatively lower seismic hazard level than zones closer to

the northern mountainous regions of Pakistan. Faisalabad is not located directly on any major active fault line. However, it can be affected by distant seismic sources originating from northern and western Pakistan, including the Main Boundary Thrust (MBT) and the Salt Range Fault System, as well as more distant seismic activity from the Hindukush and Kashmir regions. Tremors from such events may occasionally be felt in Faisalabad, though they are generally not associated with significant structural damage given the region's lower seismic intensity classification. While Faisalabad is not highly prone to strong earthquakes, it remains vulnerable to secondary effects such as structural damage from moderate tremors, particularly in poorly constructed or non-code-compliant buildings, of which a significant proportion in this zone consist of brick masonry and other conventional construction types. Therefore, adherence to seismic-resistant construction provisions under the Building Code of Pakistan (2007) and sound engineering practice — including appropriate foundation design as per local geotechnical conditions — is recommended for the proposed facility to ensure structural resilience.

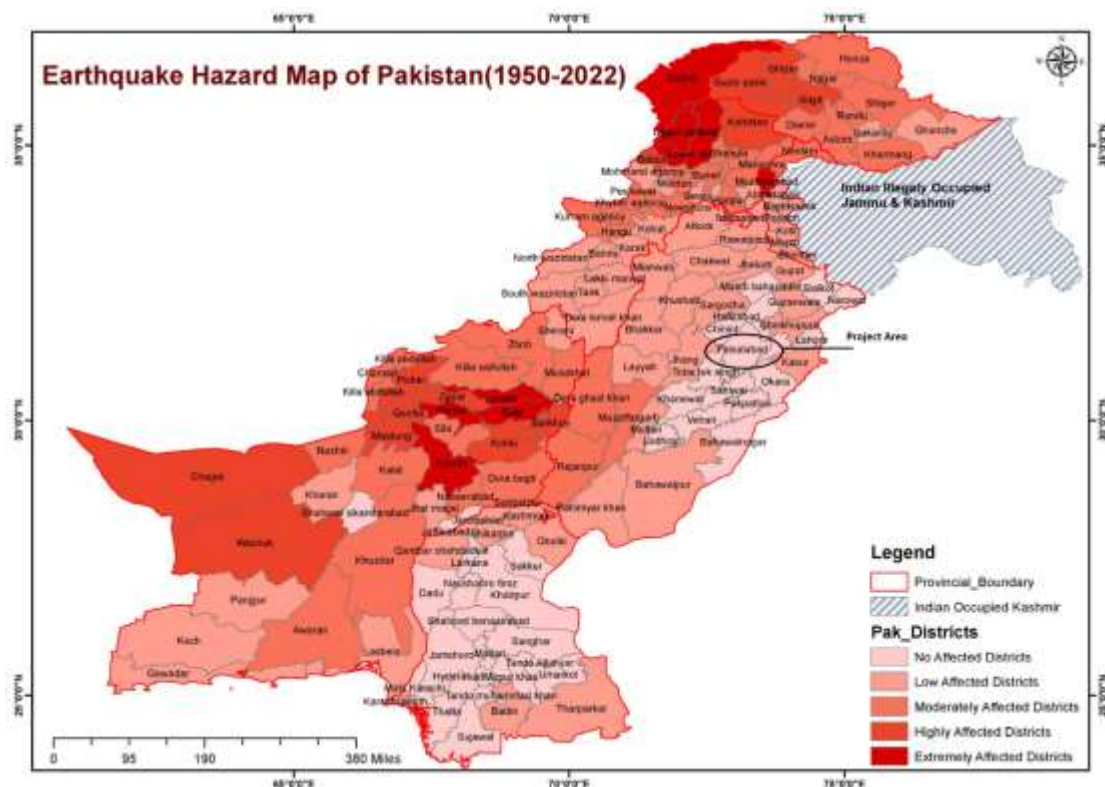


Figure 6-2: Map Showing the Earthquake Vulnerability of Project Area

6.2.5 Climate, Temperature, and Rainfall

Faisalabad experiences a semi-arid climate (Köppen classification BSh), characterized by very hot, humid summers and dry, cool winters. The summer season begins in mid-April and continues until late October, with May and June being the hottest months; June typically records average maximum temperatures of around 40–45°C and minimums of about 27°C. Dust storms and heat waves are common features of this period, and July, August, and early September can be oppressively humid, punctuated by monsoon rainfall.

Winter spans from November to early February, with January being the coldest and driest month. Average maximum and minimum temperatures in January are

approximately 19–20°C and 4–6°C, respectively, with dense fog common at night and in the early morning hours.

Faisalabad's average annual rainfall ranges between approximately 375–530 mm, and is highly seasonal roughly half of the yearly total falls during the monsoon months of July through September, with July typically being the wettest month. The remaining months, particularly October through May, are comparatively dry.

Faisalabad's climate can broadly be described through five seasonal phases:

- **Foggy winter** (mid-November – early February), with cold temperatures, dense fog, and occasional western disturbances.
- **Pleasant spring** (mid-February – late March), marked by rising temperatures and drier, sunnier conditions.
- **Hot and dusty summer** (April – June), characterized by intense heat, low humidity, and dust storms.
- **Rainy monsoon** (July – mid-September), bringing the bulk of the year's rainfall along with high humidity and occasional thunderstorms.
- **Dry autumn** (mid-September – mid-November), with declining temperatures and minimal rainfall.

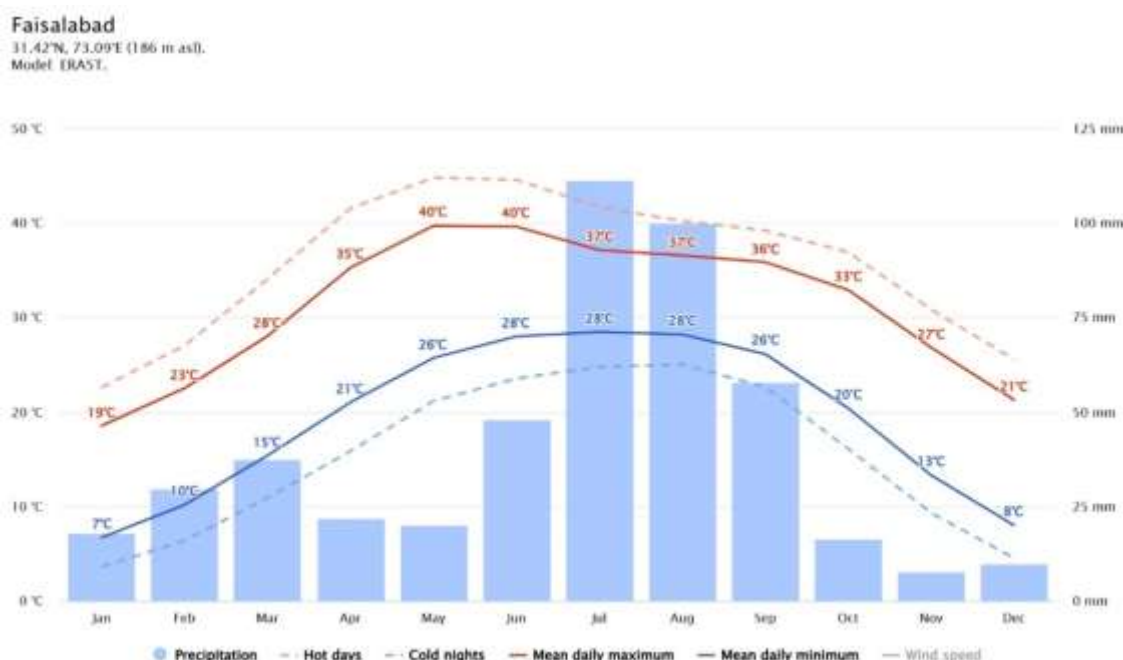


Figure 6-3: Climate and Average Weather Year-Round in Faisalabad

The average annual rainfall in Faisalabad is approximately 375–630 mm, with July generally being the wettest month, receiving the highest share of monsoon precipitation. Faisalabad has recorded extreme summer temperatures exceeding 45–48°C during peak heatwave periods, with regional heatwaves in Punjab (affecting Faisalabad along with Lahore, Multan, and surrounding districts) pushing temperatures into this range in recent years. Winter minimums in the district can occasionally approach or fall slightly below 0°C during periods of intense fog and cold spells, particularly in January.

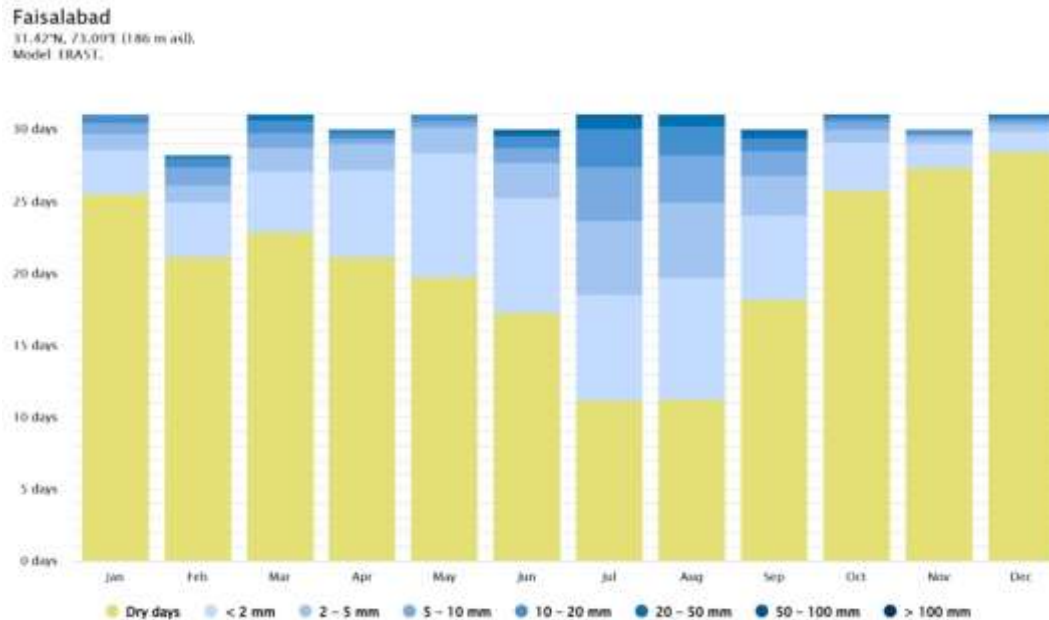


Figure 6-4: Average Monthly Rainfall in Faisalabad

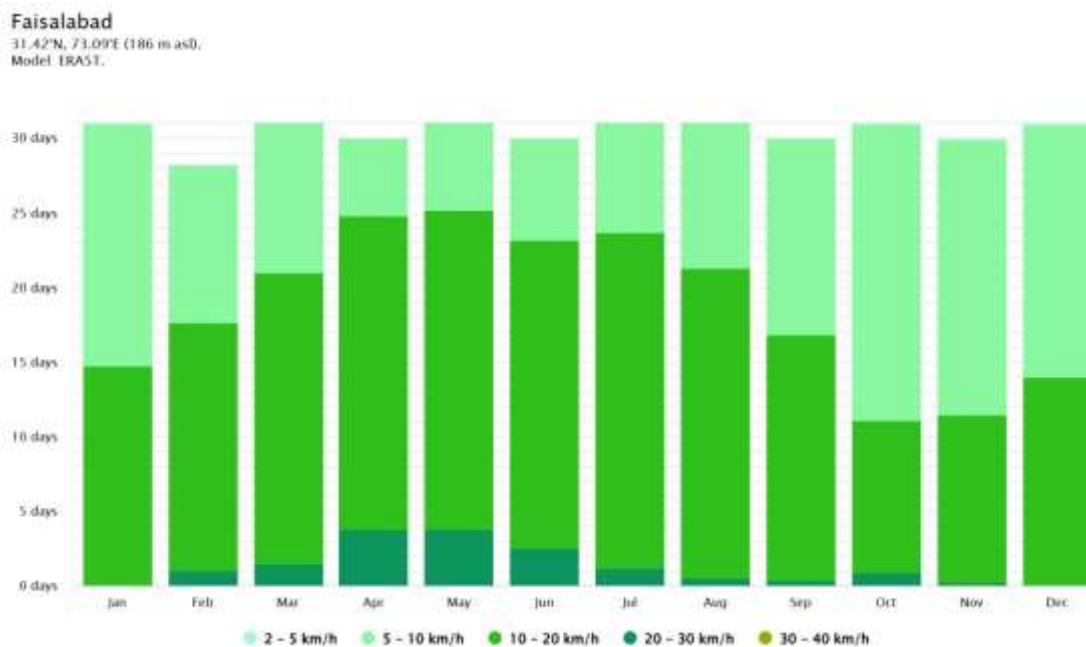


Figure 6-5: Wind Speed in Faisalabad

6.2.6 Water Resources

The water resources in Faisalabad district are primarily dependent on groundwater, supplemented by seasonal surface water inflows, as the district lacks a perennial river passing directly through it (the Chenab flows to the west and the Ravi to the east of the district). Water for industrial and domestic use in the region is primarily supplied through the underlying aquifer system via tube wells, and groundwater levels in Faisalabad are gradually declining due to over-extraction, rapid urbanization, and reduced natural recharge. The project area at Chak No. 51/JB

relies on groundwater extracted via on-site tube well(s), consistent with the prevailing water supply pattern in the surrounding rural/peri-urban belt of Faisalabad district.

6.2.7 Main Recharge Sources

- Rainfall, seasonal canal flow (via the Lower Chenab Canal system and its distributaries), and irrigation return flows provide the main natural recharge to the aquifer, contributing an estimated 41%, 24%, and 35% respectively from rainfall, main canals, and watercourses/irrigation fields.
- However, average precipitation and canal-based recharge are insufficient to offset the scale of groundwater extraction occurring across the district, particularly for agricultural and industrial use.
- Recharge contribution from river systems (Chenab/Ravi) is largely indirect and seasonal, occurring mainly through canal networks rather than direct river-aquifer interaction.

Emerging Solutions

- Recommended interventions include rainwater harvesting, controlled/regulated tube well extraction, and artificial recharge measures such as rooftop rainwater capture and recharge wells, to help offset the growing gap between groundwater abstraction and natural recharge.
- Sustainable groundwater management in the district will require improved wastewater treatment (reducing contamination of the shallow aquifer), regulated extraction, and continued adoption of water-efficient industrial processes.

Aspect	Detail
Surface water dependency	Limited — no perennial river within the district; reliant on canal-fed groundwater recharge
Groundwater extraction	Projected to rise from ~279 MCM/year (2010) to ~623 MCM/year by 2050
Water table decline	0.11–1.6 m/year, depending on locality and extraction intensity
Pollution risk	Urban sewage and industrial (including textile) effluent infiltrate the shallow aquifer, degrading groundwater quality
Recharge methods	Rainfall, canal seepage, irrigation return flow, and proposed artificial recharge initiatives

6.3 Biological Base Line

The project area, being predominantly agricultural, supports common fauna typical of Punjab's cultivated plains rather than protected or endangered species. Observed/expected wildlife includes common birds (sparrows, mynas, doves, egrets along irrigation channels), small mammals (rodents, mongoose), and reptiles (common garden lizards, occasional snakes) associated with farmland and canal-side vegetation. No critical habitats, wetlands, or protected wildlife areas are located within the immediate project site based on available site photographs. Faisalabad's dedicated wildlife reserve, Gatwala Wildlife Park, lies well outside the project's zone of influence.

6.3.1 Flora

The area surrounding the project site at Chak No. 51/JB lies within an agricultural/peri-urban setting on the outskirts of Faisalabad, where the landscape remains dominated by cultivated farmland rather than natural or industrially altered habitat. The native vegetation of the region primarily consists of seasonal agricultural crops (wheat, sugarcane, fodder, and cotton depending on the cropping season), interspersed with roadside trees, hardy shrubs, and grasses along field boundaries, irrigation channels, and the nearby drainage canal.

Faunal diversity in the area is limited and typical of rural/agricultural settings, consisting primarily of common birds (sparrows, mynas, crows, doves, and egrets), small mammals (rodents and occasionally mongoose), and common reptiles (garden lizards, occasional snakes) associated with farmland and canal-side vegetation. No ecologically sensitive habitats, wildlife sanctuaries, or protected ecological zones are present within the immediate project influence area or the 15-Kanal facility site. Overall, the biological environment reflects a typical cultivated agricultural landscape on Faisalabad's urban periphery, with limited biodiversity and no significant ecological sensitivity, consistent with land now being converted to industrial/manufacturing use in this part of the district.

Table 6-1: Flora of the project site (M/s Bin Nawab Private Limited)

Common Name	Scientific Name	Category
Neem	<i>Azadirachta indica</i>	Tree
Shisham (Indian Rosewood)	<i>Dalbergia sissoo</i>	Tree
Peepal	<i>Ficus religiosa</i>	Tree
Banyan	<i>Ficus benghalensis</i>	Tree
Eucalyptus	<i>Eucalyptus camaldulensis</i>	Tree (introduced)
Kikar (Babul)	<i>Vachellia nilotica</i> (<i>Acacia nilotica</i>)	Tree
Toot (Mulberry)	<i>Morus alba</i>	Tree
Wheat	<i>Triticum aestivum</i>	Field crop
Sugarcane	<i>Saccharum officinarum</i>	Field crop
Cotton	<i>Gossypium hirsutum</i>	Field crop
Fodder (Berseem)	<i>Trifolium alexandrinum</i>	Fodder crop
Doob Grass	<i>Cynodon dactylon</i>	Ground cover

LC – Least Concern, NT – Near Threatened, VU – Vulnerable, EN – Endangered, CR – Critically Endangered, EW – Extinct in the Wild, EX – Extinct, DD – Data Deficient, NE – Not Evaluated.



Neem (*Azadirachta indica*)



Peepal (*Ficus religiosa*)

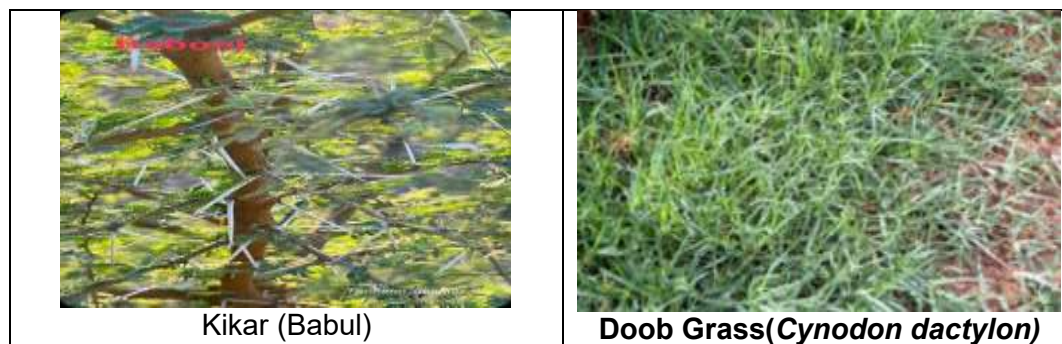


Figure 6-6: Floral species in the Project Area

6.3.2 Fauna

The faunal presence around the M/S Bin Nawab (Private) Limited project site is relatively limited and mainly consists of species adapted to the agricultural and semi-rural environment of Chak No. 51/JB, Faisalabad. Due to the area's continued agricultural land use and proximity to irrigation channels and a drainage canal, the area supports common farmland-adapted wildlife rather than forest or wetland-dependent species. Typical fauna includes small mammals such as rats, mice, and occasionally mongoose, commonly found in agricultural fields and storage areas. Reptiles such as house lizards and, occasionally, common snakes are also present, particularly around field boundaries and canal-side vegetation. Avifauna is dominated by common birds including sparrows, mynas, crows, doves, and egrets (the latter often seen along irrigation channels and the nearby drainage canal), which thrive in agricultural and human-altered landscapes. Insect populations such as ants, flies, beetles, and crop pests are also commonly observed, particularly in the surrounding cultivated fields. No endangered, protected, or ecologically sensitive fauna has been recorded within the immediate project influence area or the 15-Kanal plot. Overall, the faunal composition reflects a typical agricultural/peri-urban ecological setting on the outskirts of Faisalabad, with low biodiversity and species mainly adapted to farmland and canal-side habitats.

Table 6-2: Fauna around the project site

Common Name	Scientific name
Mammals	
Indian Palm Squirrel	Funambulus palmarum
Indian Grey Mongoose	Herpestes edwardsii
House Mouse	Mus musculus
Common Rat	Rattus rattus
Indian Hare	Lepus nigricollis
Birds	
Common Name	Scientific Name
House Sparrow	Passer domesticus
Common Myna	Acridotheres tristis
Rock Pigeon	Columba livia
Red-wattled Lapwing	Vanellus indicus
Cattle Egret	Bubulcus ibis
Black Kite	Milvus migrans
House Crow	Corvus splendens

Reptiles and Amphibians	
Common Name	Scientific Name
Garden Lizard	Calotes versicolor
House Gecko	Hemidactylus frenatus
Common Indian Krait/Snake (field-associated)	Bungarus caeruleus
Common Toad	Duttaphrynus melanostictus

LC – Least Concern, NT – Near Threatened, VU – Vulnerable, EN – Endangered, CR – Critically Endangered, EW – Extinct in the Wild, EX – Extinct, DD – Data Deficient, NE – Not Evaluated.

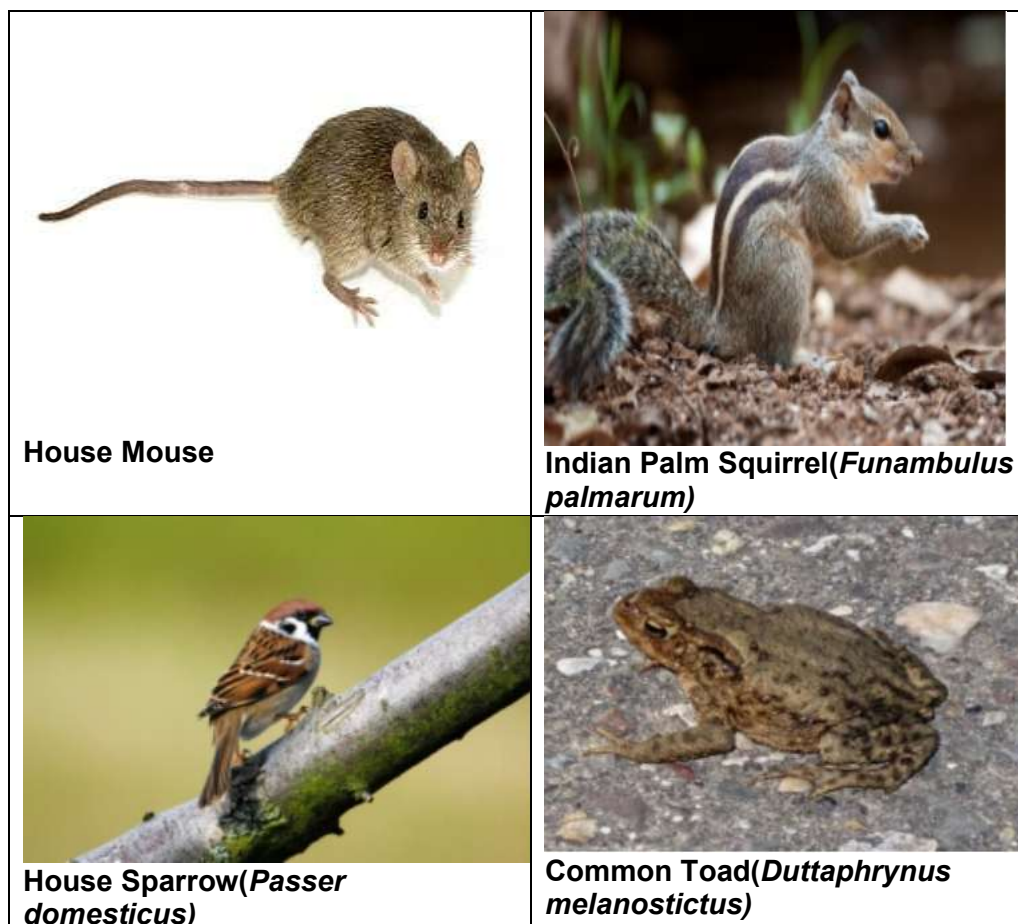


Figure 6-7: Dominant Fauna in the project area

6.3.3 Protected Areas and Endangered Fauna

No wildlife protected area is available within or 500m radius of the right of way of the subproject. No forest area is available within or 500m radius of the right of way of the subproject.

Protected Wildlife Areas and Endangered Wildlife

Faisalabad district's principal wildlife-protected area is:

- Gatwala Wildlife Park and Game Reserve a large forest plantation, botanical garden, and designated Game Reserve near Khurrianwala, Faisalabad, notified under the Punjab Wildlife Act, 1974, and administered by the Punjab Wildlife & Parks Department. It also hosts the Punjab Wildlife Research Institute.

No other formally notified wildlife sanctuary, game reserve, or national park is located within Faisalabad district. Gatwala Wildlife Park lies approximately 15–20 km from the project site at Chak No. 51/JB, Meeran Wala Bangla, and falls well outside the defined 300-meter Corridor of Influence (COI) of the proposed facility.

6.4 Socio Economic Environment

6.4.1 Socio-Economic Baseline

A Faisalabad, Pakistan's third-largest city and the second most populous district in Punjab, is a major socio-economic hub with a population exceeding 9 million (2023 census). Known as the "Manchester of Pakistan," it anchors the country's textile industry and serves as a center for industrial production, trade, and agro-based commerce. The district's overall literacy rate stands at approximately 73.4% (77.3% male, 69.1% female), supported by institutions such as the National Textile University, University of Agriculture Faisalabad, and Government College University, along with numerous technical and vocational training centers geared toward the textile sector.

Economically, Faisalabad has a diversified base but remains overwhelmingly anchored by textiles the sector accounts for a majority share of the district's economic output, employing well over half of the local workforce and contributing tens of billions of dollars to Pakistan's economy through textile manufacturing and exports. Beyond textiles, the district's economy also draws on agriculture (wheat, cotton, and sugarcane), agro-processing, engineering goods, and allied trade and retail activity. Employment ranges from formal factory-based positions in spinning, weaving, dyeing, and garment units to significant informal labor markets, particularly in smaller processing and finishing operations.

Despite its industrial strength, Faisalabad faces socio-economic challenges typical of rapidly urbanizing Pakistani cities, including housing shortages, rural-urban disparities in literacy and access to services, and strain on water, waste management, and healthcare infrastructure due to population growth and industrial expansion. Healthcare and educational facilities, while relatively more developed in the urban core, remain unevenly distributed, with rural and peri-urban tehsils such as the area surrounding Chak No. 51/JB where the project is located generally having comparatively limited access to services relative to the city center.

The proposed Bin Nawab (Private) Limited facility, situated in this predominantly agricultural and textile-industry-linked periphery, is expected to contribute to local employment generation and align with the broader socio-economic character of the district as a textile manufacturing hub.

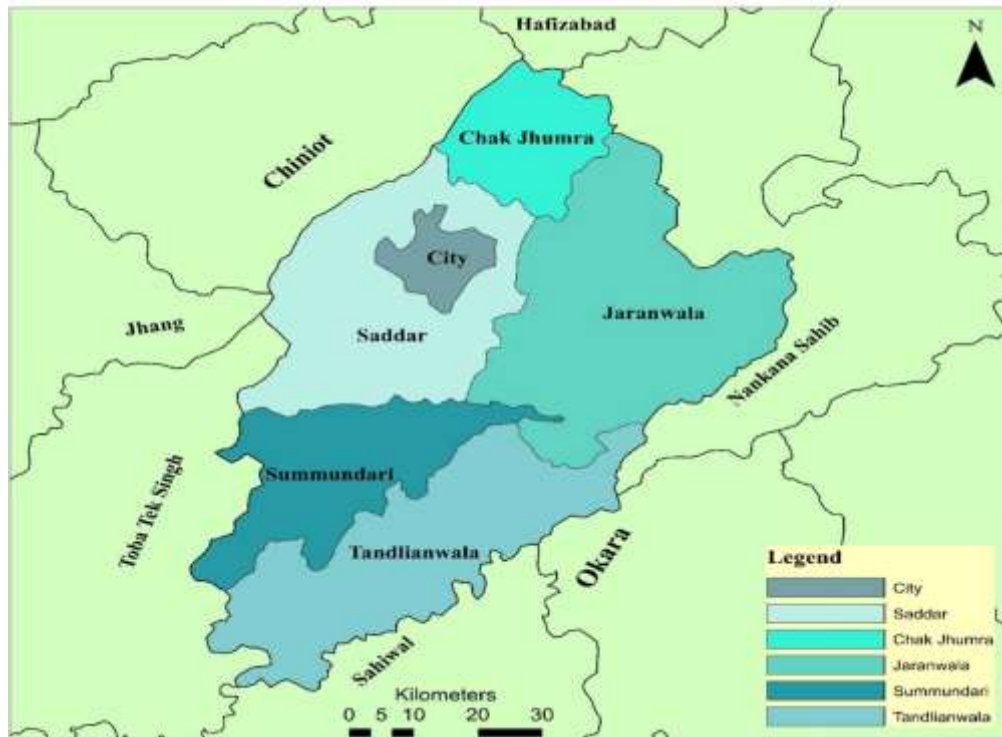


Figure 6-8: Map of Faisalabad city

6.4.2 Total Population and Area (2023) Population Profile of Faisalabad District – 2023 Census

Faisalabad, the third-largest city in Pakistan and the second most populous district in Punjab, is a major industrial and agro-economic center. According to the 2023 census, the population of Faisalabad district exceeds 9 million, making it one of the fastest-growing and most industrially significant districts in the province.

Table 6-3: Population Profile of the Project Area (Faisalabad District)

Parameter	Value
Total population	9,075,819
Annual growth rate (2017–2023)	2.38%
Gender split — Male	52.13% (4,731,224)
Gender split — Female	47.86% (4,343,633)
Gender split — Transgender	962 persons
Population density	1,550 ppl/km ²
Urban population	4,392,979 (48.4%)
Rural population	4,682,840 (51.6%)
Literacy Rate (age 10+) — Overall	73.41%
Literacy Rate — Male	77.34%
Literacy Rate — Female	69.11%

6.4.3 Education and Literacy in Lahore

Faisalabad is one of Pakistan's key educational hubs outside Lahore and Islamabad, home to a mix of specialized and general higher education institutions serving the city's industrial and agricultural base. Notable institutions include the University of Agriculture, Faisalabad (est. 1906), Government College University Faisalabad

(GCUF), the National Textile University (NTU) Pakistan's premier institute for textile engineering, processing, and garment manufacturing education, Faisalabad Medical University, and Government College Women University. This concentration of technical and vocational institutions, particularly NTU, closely aligns with the district's dominant textile manufacturing economy and provides a direct pipeline of trained personnel for facilities such as the proposed Bin Nawab (Private) Limited unit.

Table 6-4: Literacy Rate of the Project Area (Faisalabad District)

Category	Literacy Rate (%)
Overall	73.4%
Male	77.3%
Female	69.1%
Urban (District Avg)	~80%
Rural (District Avg)	<60

There are also many reputable private schools (e.g., Lahore Grammar School, Beaconhouse) producing graduates who go on to top universities such as LUMS and abroad



Figure 6-9: Educational Institutions in Lahore

6.4.4 Language Distribution

The linguistic profile of Faisalabad district, including the project area at Chak No. 51/JB, reflects an overwhelmingly Punjabi-speaking population, consistent with the cultural and regional identity of central Punjab. Punjabi is the primary spoken language across the industrial workforce, agricultural community, and local population, while Urdu is widely understood and serves as the primary medium for official, educational, and administrative communication. Owing to Faisalabad's role as a major industrial center attracting workers from across Punjab and other provinces, a small proportion of the population also communicates in other regional languages such as Pashto and Saraiki. The project area for M/S Bin Nawab (Private)

Limited shows similar linguistic characteristics, with Punjabi and Urdu being the dominant languages used for daily operations and technical coordination on-site.

Table 6-5: Age Distribution

Language	Speakers (Estimated)	Percentage
Punjabi	8,531,000	94%
Urdu	363,000	4%
Pashto	91,000	1%
Others (Saraiki, Hindko, etc.)	91,000	1%

6.4.5 Health Facilities and Services

The Faisalabad hosts a well-developed public and private healthcare network serving the district's large population. Major public tertiary care facilities include Allied Hospital (1,450 beds, teaching hospital of Faisalabad Medical University) and DHQ Hospital (570 beds), supplemented by THQ hospitals in tehsils such as Jaranwala and Samundri, and a network of Basic Health Units (BHUs) and Rural Health Centres (RHCs) serving rural/peri-urban areas, including those near the project site. Private healthcare options include hospitals and diagnostic centers across the city, along with the Sehat Sahulat Program (Sehat Card) improving access for low-income populations. While urban Faisalabad has relatively strong tertiary care coverage, rural and peri-urban areas such as the vicinity of Chak No. 51/JB rely more on BHUs, RHCs, and rural dispensaries for primary care, with referral to city hospitals for specialized treatment.

Table 6-6: Health Infrastructure Overview (Faisalabad District)

Facility Type	Number
Tertiary Care Hospitals	3
THQ Hospitals	6
RHCs	10
BHUs	40
Rural Dispensaries	20
MCH Centers	30
Total	109

6.4.6 Economic Activity

The economy of Faisalabad district has a diversified base but is overwhelmingly anchored by textile manufacturing, alongside agriculture, chemicals, engineering, food processing, and allied trade. Faisalabad is Pakistan's leading textile district, hosting several hundred textile units (spinning, weaving, processing, dyeing/finishing, and garment manufacturing) alongside chemical, engineering, and food-processing industries. Textile manufacturing alone accounts for a majority share of the district's industrial output and employs a very large proportion of the local workforce, making Faisalabad the country's principal textile hub commonly referred to as the "Manchester of Pakistan." Agriculture remains significant outside the dense urban core, supported by canal irrigation from the Lower Chenab Canal system, producing wheat, cotton, and sugarcane.

Sector	Approx. Share
Manufacturing (Textiles, Chemicals, Engineering, Food Processing)	45–50%
Agriculture, Livestock & Allied	15%
Wholesale/Retail, Trade & Commerce	15%
Community, Social & Personal Services	10%
Construction	5%
Transport, Storage & Communication	4%
Financing, Insurance, Real Estate	3%
Electricity, Gas & Water	1%
Activities Not Adequately Defined	2%

6.4.7 Religion

The religious composition of the district is as follows:

Religion	Percentage
Muslims	~96.0%
Christians	~3.4%
Ahmadis	Negligible %
Hindus	Negligible %
Scheduled Castes	Negligible %
Others	Negligible %

6.4.8 Ethnic Structure

Faisalabad district's population is largely drawn from Punjabi agrarian and landholding biradaris that settled the area during the British-era Chenab Canal Colony development (as Lyallpur), alongside communities that migrated from East Punjab after Partition in 1947. The district's major ethnic/biradari groups include **Arain, Jat, Rajput, Gujjar, and Awan**, with the Arain community historically forming one of the largest and most prominent agrarian groups settled in Faisalabad, Sahiwal, and Toba Tek Singh districts following canal colonization. Kashmiri-origin families are also present in parts of the district, particularly linked to the historical textile and weaving trades. Post-Partition migrant communities from East Punjab and Haryana added further diversity to the district's social fabric.

Ethnic/Biradari Group	Presence in District
Arain	Major landholding/agrarian group, historically dominant in canal-colony settlement
Jat	Significant agrarian presence
Rajput	Significant agrarian presence
Gujjar	Present, agrarian/pastoral background
Kashmiris	Present, notably linked to textile/weaving trades
Awan	Present
Miscellaneous/Others (incl. post-Partition migrants)	Remaining population

6.4.9 Site Suitability

Based on the environmental and socio-economic baseline of Faisalabad district, it is concluded that the selected site at Chak No. 51/JB, Meeran Wala Bangla, near Sargodha Road, is generally suitable for the establishment and operation of the M/S Bin Nawab (Private) Limited textile dyeing, finishing, and garment manufacturing facility, subject to the mitigation measures outlined in this report. The location benefits from proximity to Faisalabad's established textile industrial base, Sargodha Road connectivity for raw material and finished product transport, and access to a skilled/semi-skilled labor pool drawn from the district's dominant textile-sector workforce and technical institutions such as the National Textile University.

The site is free from ecologically sensitive areas and does not fall within any protected habitat, wildlife sanctuary, or game reserve (the nearest such area, Gatwala Wildlife Park, lies well outside the project's 300-meter Corridor of Influence). The surrounding land use is predominantly agricultural, which is compatible with the proposed industrial development subject to standard land-use conversion approvals, and the flat, alluvial topography of the site poses no significant geotechnical or flood-risk constraints, consistent with the broader Rechna Doab plain.

6.5 Screening of Potential Environmental Impacts and its Mitigation Measures

Potential impacts arising from design, construction and operation of the proposed project have been identified and assessed on the basis of primary and secondary data, expert opinion and by examining previous similar projects in Pakistan.

The impact screening matrices during development phases i.e. project design; construction and operation are presented below.

6.5.1 Methodology for Impact Screening

The methodology for assessing the risk level associated with each potential impact is presented below. Risk has been assessed as the likelihood that the activity will have an effect on the environment as well as the consequence of the effect occurring.

$$\text{Risk} = \text{Likelihood} \times \text{Consequence}$$

Likelihood Scale

Likelihood	Definition	Scale
Certain	Will certainly occur during the activity at a frequency greater than every week if preventative measures are not applied.	5
Likely	Will occur more than once or twice during the activity but less than weekly if preventive measures are not applied.	3
Unlikely	May occur once or twice during the activity if preventive measures are not applied.	2
Rare	Unlikely to occur during the project.	1

Consequence Scale

Consequence	Definition	Score
Catastrophic	The action will cause unprecedented impacts.	5
Major	The action will cause major adverse impacts.	3
Moderate	No or minimal impacts.	2
Minor	No or minimal impacts.	1

Risk Score Table

Likelihood	Consequence				
		Catastrophic	Major	Moderate	Minor
	Certain	25	15	10	5
	Likely	15	9	6	3
	Unlikely	10	6	4	2
	Rare	5	3	2	1

Risk:
Significant: 15-25
Medium: 6-10
Low: 1-5

Any 'Medium' to 'Significant' risk requires an environmental management measure to manage the potential environmental risk. Judgment will be required concerning the application of an environmental management measure to mitigate low risk situations.

6.6 Design/Pre-Construction Phase

6.6.1 Impact Screening Matrix

The screening of potential impacts during the design/pre-construction phase is provided in Table 6.1 below.

Table 6-7: Screening of Possible Impacts during Design/Pre- Construction Phase

Screening of possible Impacts during Design/Pre- Construction phase

S/No	Potential Issue	Likelihood	Consequence	Risk Level	Residual Impact
1	Inadequate site drainage and stormwater management leading to waterlogging	Unlikely	Moderate	Medium	Long Term
2	Non-compliance with zoning and land-use requirements for industrial development	Rare	Major	High	Long Term
3	Inadequate provision of fire protection and emergency evacuation systems in the facility design	Unlikely	Major	Medium	Long Term
4	Insufficient planning for wastewater collection, treatment, and disposal systems	Likely	Moderate	Medium	Long Term
5	Inefficient plant layout resulting in excessive energy consumption and poor workflow	Likely	Minor	Low	Long Term
6	Inadequate storage design for fabrics, chemicals, dyes (if applicable), and finished products	Unlikely	Moderate	Medium	Long Term

S/No	Potential Issue	Likelihood	Consequence	Risk Level	Residual Impact
7	Insufficient allocation of space for solid waste collection and recycling facilities	Possible	Moderate	Medium	Long Term
8	Failure to incorporate occupational health and safety measures in the facility design	Possible	Major	High	Long Term
9	Inadequate ventilation and lighting design affecting worker health and productivity	Possible	Moderate	Medium	Long Term
10	Lack of provision for rainwater harvesting, water conservation, and energy-efficient systems	Likely	Minor	Low	Long Term

6.6.2 Inadequate site drainage and stormwater management leading to waterlogging

Impacts:

Inadequate drainage can result in the accumulation of stagnant water during peak monsoon season (July–September), given the site's flat topography typical of the Rechna Doab plain. This can lead to structural degradation of foundations, corrosion of machinery bases (particularly dyeing and finishing equipment), disruption of raw material and finished goods logistics, and potential mixing of stormwater with chemical residues in uncontrolled areas.

Mitigation Measures:

- Design a robust surface drainage network with adequate gradient directing stormwater toward the nearby drainage canal, in coordination with the Irrigation Department.
- Install perimeter drains and catch basins to manage stormwater runoff separately from process effluent.
- Regularly clear drainage channels to prevent siltation, particularly given the site's alluvial silt-loam soil.

Residual Impact:

Low; dependent on consistent maintenance of the drainage network.

6.6.3 Non-compliance with zoning and land-use requirements for industrial development

Impacts:

Since the project site is situated on land currently in agricultural use (rather than within a designated industrial estate), failure to secure proper land-use conversion, No Objection Certificates (NOCs), and zoning clearances from relevant Punjab authorities could result in construction delays, legal disputes, or forced relocation/demolition of the facility.

Mitigation Measures:

- Secure formal land-use conversion approval from the relevant Tehsil Municipal Administration/District Government prior to construction.
- Obtain all required NOCs, including from EPA Punjab, prior to commencement of civil works.
- Engage legal/regulatory counsel to ensure full compliance with the Punjab Land Use (Classification, Reclassification, and Redevelopment) Rules and applicable industrial zoning regulations.

Residual Impact: Low; contingent on timely regulatory approval prior to construction start.

6.6.4 Inadequate provision of fire protection and emergency evacuation systems in the facility design

Impacts:

Given the presence of chemicals, dyes, coal/gas-fired boiler operations, and flammable fabric material, inadequate fire protection design could result in significant fire hazards, worker casualties, and major asset/property loss in the event of an incident.

Mitigation Measures:

- Incorporate fire detection and suppression systems (smoke detectors, fire extinguishers, hose reels, sprinklers where applicable) at the design stage, particularly near the boiler, chemical storage, and dyeing areas.
- Design clearly marked, unobstructed emergency exits and assembly points in line with fire safety codes.
- Conduct regular fire drills and train staff in emergency evacuation procedures.

Residual Impact:

Medium; dependent on rigorous implementation and periodic testing of fire systems.

6.6.5 Insufficient planning for wastewater collection, treatment, and disposal systems

Impacts:

Without proper planning for segregated collection and treatment of process effluent (from bleaching, dyeing, de-sizing) versus domestic wastewater, the facility risks discharging untreated or under-treated effluent into the nearby drainage canal, contravening PEQS standards, contaminating groundwater (an already stressed aquifer in Faisalabad district), and drawing regulatory action from EPA Punjab.

Mitigation Measures:

- Install a Packaged Wastewater Treatment Plant (Packaged WWTP) sized appropriately to the facility's estimated process wastewater volume (~30–50 m³/day), covering screening, equalization, neutralization, coagulation-flocculation, and clarification.
- Conduct regular effluent quality monitoring (BOD, COD, TSS, color, pH) to verify PEQS compliance prior to discharge.

Residual Impact:

Medium; dependent on correct sizing, operation, and maintenance of the Packaged WWTP.

6.6.6 Inefficient plant layout resulting in excessive energy consumption and poor workflow

Impacts:

Poor layout planning of the processing line (de-sizing → bleaching → dyeing → stentor → calendering → garment stitching) can result in excessive material handling, increased energy consumption (particularly for reheating fabric between stages), and reduced overall production efficiency.

Mitigation Measures:

- Design the plant layout to follow a linear, sequential process flow minimizing backtracking of material between stages.
- Position energy-intensive equipment (boiler, stentor, dryers) to minimize heat loss and duct/pipe run lengths.
- Conduct periodic energy audits post-commissioning to identify further efficiency improvements.

Residual Impact:

Low; primarily an operational efficiency concern rather than an environmental or safety risk.

6.6.7 Inadequate storage design for fabrics, chemicals, dyes, and finished products

Impacts:

Improper storage design can lead to chemical spills, cross-contamination between raw fabric and chemicals, fire risk from improperly stored flammable dyes/chemicals, and degradation of finished goods due to moisture or pest exposure.

Mitigation Measures:

- Design segregated, ventilated storage areas for chemicals/dyes (with secondary containment/spill trays) separate from fabric and finished garment storage.
- Maintain Material Safety Data Sheets (MSDS) and proper labeling for all stored chemicals.
- Ensure finished goods storage is moisture-proof and pest-controlled.

Residual Impact:

Low; dependent on adherence to designed storage protocols.

6.6.8 Insufficient allocation of space for solid waste collection and recycling facilities

Impacts:

Without designated space for segregated solid waste collection (fabric off-cuts, packaging, hazardous chemical containers, WWTP sludge), waste may accumulate haphazardly on-site, increasing fire risk, pest attraction, and non-compliance with EPA solid waste regulations.

Mitigation Measures:

- Allocate clearly marked, segregated waste collection zones (recyclable, general, hazardous) at the design stage.
- Arrange contracts with licensed recyclers and hazardous waste handlers in advance of operations.
- Include a covered, secured area for temporary hazardous waste and WWTP sludge storage prior to off-site disposal.

Residual Impact:

Low; contingent on consistent waste segregation practices.

6.6.9 Failure to incorporate occupational health and safety measures in the facility design

Impacts:

Failure to design for OHS at the outset can expose the facility's 150–160 workers to chemical exposure, machine-related injuries, heat/steam hazards, and noise-induced hearing damage, potentially resulting in serious injury, long-term health effects, and regulatory penalties under the Punjab Occupational Safety and Health Act.

Mitigation Measures:

- Incorporate machine guarding, emergency stops, and safe access/egress points into equipment layout design.
- Design adequate ventilation and local exhaust systems in the dyeing, bleaching, and boiler areas.
- Provide designated PPE stations and an on-site first-aid facility as part of the facility design.

Residual Impact:

Medium; dependent on rigorous implementation of OHS protocols during operation.

6.6.10 Inadequate ventilation and lighting design affecting worker health and productivity

Impacts:

Poor ventilation in the wet-processing and boiler areas can result in heat stress, chemical vapor accumulation, and respiratory discomfort among workers, while inadequate lighting can increase the risk of workplace accidents and reduce quality control accuracy in dyeing/finishing.

Mitigation Measures:

- Design adequate natural and mechanical ventilation, particularly in bleaching, dyeing, and boiler areas.
- Incorporate sufficient artificial lighting levels for quality inspection points (color matching, fabric inspection) as per standard industrial lighting guidelines.
- Include roof ventilators/exhaust fans in the processing hall design, consistent with the structural drawings provided.

Residual Impact:

Low; dependent on proper implementation of ventilation and lighting design specifications.

6.6.11 Lack of provision for rainwater harvesting, water conservation, and energy-efficient systems

Impacts:

Given the documented decline in Faisalabad's groundwater table due to over-extraction, failure to incorporate water conservation measures increases the facility's contribution to local aquifer depletion and long-term water insecurity for both the facility and surrounding agricultural users.

Mitigation Measures:

- Incorporate rooftop rainwater harvesting infrastructure to supplement groundwater use and support artificial recharge.
- Design water-efficient dyeing/washing processes (e.g., optimized liquor ratios) to reduce overall water consumption.
- Consider treated wastewater reuse (from the Packaged WWTP) for non-process purposes such as site sprinkling/dust suppression.

Residual Impact:

Low; primarily a sustainability enhancement rather than an immediate compliance risk.

6.7 Impacts during Construction Phase

The detailed risk Matrix of Construction phase is shown in the table.

Table 6-8: Risk Matrix of Construction phase

S/N o.	Potential Issue	Likelihood	Consequence	Risk Level	Residual Impact
1	Dust generation from excavation, site preparation, and construction activities	Likely	Moderate	Medium	Short Term
2	Noise pollution from construction machinery, equipment, and vehicle movement	Likely	Minor	Low	Short Term
3	Improper disposal of construction debris, packaging materials, and excavated waste	Unlikely	Moderate	Medium	Long Term
4	Traffic congestion and road safety issues due to transportation of construction materials and machinery	Likely	Minor	Low	Short Term
5	Soil compaction and	Unlikely	Moderate	Low	Long

S/N o.	Potential Issue	Likelihood	Consequence	Risk Level	Residual Impact
	temporary alteration of natural drainage patterns				Term
6	Occupational health and safety risks to construction workers	Likely	Moderate	Medium	Short Term
7	Accidental spillage of diesel, lubricants, paints, or other construction chemicals	Unlikely	Major	Medium	Long Term
8	Increased consumption of water and electricity during construction activities	Possible	Minor	Low	Short Term
9	Potential damage to existing underground utilities or nearby infrastructure	Rare	Major	Medium	Long Term
10	Temporary loss of vegetation and disturbance to the surrounding environment	Unlikely	Minor	Low	Long Term
11	Temporary air quality deterioration due to dust and vehicle exhaust emissions	Likely	Moderate	Medium	Short Term
12	Positive socio-economic impacts through local employment and procurement of construction materials	Likely	Minor	Low	Short Term

6.7.1 Inadequate site drainage and storm water management leading to waterlogging Impacts

Inadequate drainage can result in the accumulation of stagnant water during peak monsoon season (July–September), given the sites flat topography typical of the Rechna Doab plain. This can lead to structural degradation of foundations, corrosion of machinery bases (particularly dyeing and finishing equipment), disruption of raw material and finished goods logistics, and potential mixing of storm water with chemical residues in uncontrolled areas.

Mitigation Measures:

- Design a robust surface drainage network with adequate gradient directing stormwater toward the nearby drainage canal, in coordination with the Irrigation Department.
- Install perimeter drains and catch basins to manage stormwater runoff separately from process effluent.
- Regularly clear drainage channels to prevent siltation, particularly given the site's alluvial silt-loam soil.

Residual Impact:

Low; dependent on consistent maintenance of the drainage network.

6.7.2 Non-compliance with zoning and land-use requirements for industrial development

Impacts:

Since the project site is situated on land currently in agricultural use (rather than within a designated industrial estate), failure to secure proper land-use conversion, No Objection Certificates (NOCs), and zoning clearances from relevant Punjab authorities could result in construction delays, legal disputes, or forced relocation/demolition of the facility.

Mitigation Measures:

- Secure formal land-use conversion approval from the relevant Tehsil Municipal Administration/District Government prior to construction.
- Obtain all required NOCs, including from EPA Punjab, prior to commencement of civil works.
- Engage legal/regulatory counsel to ensure full compliance with the Punjab Land Use (Classification, Reclassification, and Redevelopment) Rules and applicable industrial zoning regulations.

Residual Impact:

Low; contingent on timely regulatory approval prior to construction start.

6.7.3 Inadequate provision of fire protection and emergency evacuation systems in the facility design

Impacts:

Given the presence of chemicals, dyes, coal/gas-fired boiler operations, and flammable fabric material, inadequate fire protection design could result in significant fire hazards, worker casualties, and major asset/property loss in the event of an incident.

Mitigation Measures:

- Incorporate fire detection and suppression systems (smoke detectors, fire extinguishers, hose reels, sprinklers where applicable) at the design stage, particularly near the boiler, chemical storage, and dyeing areas.
- Design clearly marked, unobstructed emergency exits and assembly points in line with fire safety codes.
- Conduct regular fire drills and train staff in emergency evacuation procedures.

Residual Impact:

Medium; dependent on rigorous implementation and periodic testing of fire systems.

6.7.4 Insufficient planning for wastewater collection, treatment, and disposal systems

Impacts:

Without proper planning for segregated collection and treatment of process effluent (from bleaching, dyeing, de-sizing) versus domestic wastewater, the facility risks discharging untreated or under-treated effluent into the nearby drainage canal, contravening PEQS standards, contaminating groundwater (an already stressed aquifer in Faisalabad district), and drawing regulatory action from EPA Punjab.

Mitigation Measures:

- Install a Packaged Wastewater Treatment Plant (Packaged WWTP) sized appropriately to the facility's estimated process wastewater volume (~30–50 m³/day), covering screening, equalization, neutralization, coagulation-flocculation, and clarification.
- Conduct regular effluent quality monitoring (BOD, COD, TSS, color, pH) to verify PEQS compliance prior to discharge.

Residual Impact:

Medium; dependent on correct sizing, operation, and maintenance of the Packaged WWTP.

6.7.5 Inefficient plant layout resulting in excessive energy consumption and poor workflow

Impacts:

Poor layout planning of the processing line (de-sizing → bleaching → dyeing → stentor → calendering → garment stitching) can result in excessive material handling, increased energy consumption (particularly for reheating fabric between stages), and reduced overall production efficiency.

Mitigation Measures:

- Design the plant layout to follow a linear, sequential process flow minimizing backtracking of material between stages.
- Position energy-intensive equipment (boiler, stentor, dryers) to minimize heat loss and duct/pipe run lengths.
- Conduct periodic energy audits post-commissioning to identify further efficiency improvements.

Residual Impact:

Low; primarily an operational efficiency concern rather than an environmental or safety risk.

6.7.6 Inadequate storage design for fabrics, chemicals, dyes, and finished products

Impacts:

Improper storage design can lead to chemical spills, cross-contamination between raw fabric and chemicals, fire risk from improperly stored flammable dyes/chemicals, and degradation of finished goods due to moisture or pest exposure.

Mitigation Measures:

- Design segregated, ventilated storage areas for chemicals/dyes (with secondary containment/spill trays) separate from fabric and finished garment storage.
- Maintain Material Safety Data Sheets (MSDS) and proper labeling for all stored chemicals.
- Ensure finished goods storage is moisture-proof and pest-controlled.

Residual Impact:

Low; dependent on adherence to designed storage protocols.

6.7.7 Insufficient allocation of space for solid waste collection and recycling facilities

Impacts:

Without designated space for segregated solid waste collection (fabric off-cuts, packaging, hazardous chemical containers, WWTP sludge), waste may accumulate haphazardly on-site, increasing fire risk, pest attraction, and non-compliance with EPA solid waste regulations.

Mitigation Measures:

- Allocate clearly marked, segregated waste collection zones (recyclable, general, hazardous) at the design stage.
- Arrange contracts with licensed recyclers and hazardous waste handlers in advance of operations.
- Include a covered, secured area for temporary hazardous waste and WWTP sludge storage prior to off-site disposal.

Residual Impact:

Low; contingent on consistent waste segregation practices.

6.7.8 Failure to incorporate occupational health and safety measures in the facility design

Impacts:

Failure to design for OHS at the outset can expose the facility's 150–160 workers to chemical exposure, machine-related injuries, heat/steam hazards, and noise-induced hearing damage, potentially resulting in serious injury, long-term health effects, and regulatory penalties under the Punjab Occupational Safety and Health Act.

Mitigation Measures:

- Incorporate machine guarding, emergency stops, and safe access/egress points into equipment layout design.
- Design adequate ventilation and local exhaust systems in the dyeing, bleaching, and boiler areas.
- Provide designated PPE stations and an on-site first-aid facility as part of the facility design.

Residual Impact:

Medium; dependent on rigorous implementation of OHS protocols during operation.

6.7.9 Inadequate ventilation and lighting design affecting worker health and productivity

Impacts:

Poor ventilation in the wet-processing and boiler areas can result in heat stress, chemical vapor accumulation, and respiratory discomfort among workers, while inadequate lighting can increase the risk of workplace accidents and reduce quality control accuracy in dyeing/finishing.

Mitigation Measures:

- Design adequate natural and mechanical ventilation, particularly in bleaching, dyeing, and boiler areas.
- Incorporate sufficient artificial lighting levels for quality inspection points (color matching, fabric inspection) as per standard industrial lighting guidelines.
- Include roof ventilators/exhaust fans in the processing hall design, consistent with the structural drawings provided.

Residual Impact:

Low; dependent on proper implementation of ventilation and lighting design specifications.

6.7.10 Lack of provision for rainwater harvesting, water conservation, and energy-efficient systems

Impacts:

Given the documented decline in Faisalabad's groundwater table due to over-extraction, failure to incorporate water conservation measures increases the facility's contribution to local aquifer depletion and long-term water insecurity for both the facility and surrounding agricultural users.

Mitigation Measures:

- Incorporate rooftop rainwater harvesting infrastructure to supplement groundwater use and support artificial recharge.
- Design water-efficient dyeing/washing processes (e.g., optimized liquor ratios) to reduce overall water consumption.
- Consider treated wastewater reuse (from the Packaged WWTP) for non-process purposes such as site sprinkling/dust suppression.

Residual Impact:

Low; primarily a sustainability enhancement rather than an immediate compliance risk. Impacts during Operational Phase.

Table 6-9: Risk Matrix of Operational Phase
Screening of possible Impacts during Operational Phase

S/No.	Potential Issue	Likelihood	Consequence	Risk Level	Residual Impact
1	Air emissions (particulate matter/fumes) from Heat Treatment furnaces	Likely	Moderate	Medium	Long Term
2	Soil and groundwater contamination from spent quenching oil/lubricants	Likely	Major	High	Long Term
3	Noise pollution generated from heavy-duty Power Presses and machinery	Likely	Moderate	Medium	Long Term
4	Hazardous waste generation (metal shavings, oily rags, contaminated grease)	Likely	Moderate	Medium	Long Term
5	Occupational health risks to staff from chemical/oil skin exposure or inhalation	Likely	Moderate	Medium	Short Term
6	Increased energy demand placing pressure on the industrial estate's grid	Possible	Minor	Low	Long Term
7	Wastewater effluent discharge containing suspended solids and oil traces	Possible	Moderate	Medium	Long Term
8	Fire hazards due to the storage of flammable materials (oils, grease, alloy steel)	Unlikely	Major	Medium	Short Term
9	High-temperature thermal discharge from shot blasting and heat treatment units	Possible	Minor	Low	Short Term
10	Traffic increase due to daily heavy logistics and product transport	Likely	Minor	Low	Long Term
11	Potential for accidental spills during bulk oil and chemical storage/transfer	Possible	Moderate	Medium	Long Term

6.8 Air emissions (particulate matter/fumes) from boiler, stentor, and drying units

Impacts:

Continuous operation of the coal/gas-fired boiler and stentor/drying units generates particulate matter, SO_x, NO_x, and CO emissions, which can degrade local ambient air quality over the facility's operational lifespan if not properly controlled.

Mitigation Measures:

- Install a properly designed boiler stack of regulated height with cyclone separator/bag filter for particulate control.
- Conduct routine stack emission testing to verify compliance with PEQS limits.
- Maintain regular servicing of the boiler and stentor units to ensure combustion efficiency.

Residual Impact:

Medium; manageable through consistent stack monitoring and equipment maintenance.

6.9 Soil and groundwater contamination from spent dyes, chemicals, and process effluent

Impacts:

Improper handling, storage, or disposal of spent dyes, bleaching agents, and chemical residues can infiltrate soil and the underlying aquifer, which is already under documented extraction stress across Faisalabad district, posing a long-term contamination risk to both the facility's own water source and surrounding agricultural groundwater users.

Mitigation Measures:

- Store all chemicals and dyes in a dedicated, bunded, impermeable storage area with spill containment.
- Route all process wastewater exclusively through the Packaged Wastewater Treatment Plant (WWTP) prior to discharge; prohibit direct ground discharge of untreated effluent.
- Conduct periodic groundwater quality monitoring in and around the facility.

Residual Impact:

High; requires sustained, rigorous implementation of containment and treatment measures given the aquifers already stressed condition.

6.10 Noise pollution generated from dyeing machines, stentor, and calendering equipment

Impacts:

Continuous operation of jet/jigger dyeing machines, stentor units, and calendering rollers generates elevated noise levels (estimated 65–80 dB(A) within production areas), which can affect worker hearing health over the long term and cause disturbance at the site boundary if unmitigated.

Mitigation Measures:

- Provide hearing protection (earplugs/earmuffs) to workers stationed near high-noise machinery.
- Install acoustic enclosures or noise-dampening mounts on major equipment where feasible.
- Maintain machinery regularly to prevent excess noise from worn mechanical components.

Residual Impact:

Medium; manageable through consistent PPE use and equipment maintenance.

6.11 Hazardous waste generation (chemical containers, dye drums, WWTP sludge)

Impacts:

Ongoing operations will generate hazardous waste streams including used/empty chemical and dye containers, spent bleaching agent drums, and sludge from the Packaged WWTP, which if improperly stored or disposed of can contaminate soil and pose risks to workers and the surrounding environment.

Mitigation Measures:

- Maintain a dedicated, secured, and labeled hazardous waste storage area pending disposal.
- Engage licensed hazardous waste handlers for periodic collection and disposal of containers, drums, and WWTP sludge.
- Maintain waste disposal records for regulatory compliance and audit purposes.

Residual Impact:

Medium; manageable through consistent segregation and licensed disposal practices.

6.12 Occupational health risks to staff from chemical/dye exposure or inhalation

Impacts:

Workers in the de-sizing, bleaching, and dyeing sections face risks of skin irritation, dermatitis, and respiratory irritation from prolonged exposure to chemicals, dyes, and bleaching agents, particularly in the absence of adequate PPE or ventilation.

Mitigation Measures:

- Provide appropriate PPE (gloves, aprons, goggles, masks) to all workers handling chemicals and dyes.
- Ensure adequate ventilation and local exhaust systems in wet-processing areas.
- Conduct regular OHS training and periodic health checkups for exposed workers.

Residual Impact:

Medium; dependent on consistent PPE compliance and ventilation maintenance.

6.13 Increased energy demand placing pressure on the local electricity grid

Impacts:

Continuous operation of dyeing machines, boiler auxiliaries, stentor, and lighting systems will place sustained demand on the FESCO grid connection, potentially contributing to local load strain, particularly during peak demand periods.

Mitigation Measures:

- Install energy-efficient motors and lighting systems where feasible.
- Coordinate with FESCO for appropriately sized grid connection and load management.
- Maintain the standby HSD generator to offset grid dependency during peak periods or outages.

Residual Impact:

Low; manageable through efficient equipment selection and utility coordination.

6.14 Wastewater effluent discharge containing dyes, chemicals, and suspended solids

Impacts:

Ongoing discharge of process effluent containing residual dyes, salts, and suspended solids poses a risk of surface water and groundwater contamination if treatment is inadequate or the Packaged WWTP is improperly operated or undersized relative to actual effluent volume.

Mitigation Measures:

- Ensure the Packaged WWTP is appropriately sized for the facility's estimated process wastewater volume (~30–50 m³/day) and operated continuously.
- Conduct regular effluent quality testing (BOD, COD, TSS, color, pH) prior to discharge to verify PEQS compliance.
- Maintain a trained operator dedicated to WWTP operation and maintenance.

Residual Impact:

Medium; manageable through consistent WWTP operation, monitoring, and maintenance.

6.15 Fire hazards due to storage of flammable materials (dyes, chemicals, fabric, boiler fuel)

Impacts:

The presence of flammable dyes, chemicals, coal, and stored fabric/garment stock creates a fire risk, particularly near the boiler and chemical storage areas, with potential for worker injury and significant asset loss in the event of an incident.

Mitigation Measures:

- Store flammable chemicals and fabric stock in segregated, well-ventilated areas away from ignition sources.

- Install fire detection and suppression systems (extinguishers, hose reels) throughout the facility, with particular focus on the boiler and storage areas.
- Conduct regular fire safety drills and maintain clear emergency evacuation routes.

Residual Impact:

Medium; dependent on consistent fire safety system maintenance and staff training.

6.16 High-temperature thermal discharge from stentor and drying units

Impacts:

Stentor and drying operations release heated exhaust air, which can contribute to localized thermal discomfort for nearby workers and minor thermal loading of the immediate ambient environment if not properly vented.

Mitigation Measures:

- Install properly designed exhaust ducting and roof ventilators to safely vent thermal discharge, as reflected in the facility's structural drawings.
- Position stentor/drying units to allow adequate airflow and dispersion of hot exhaust away from worker areas.
- Conduct periodic checks of ventilation system performance.

Residual Impact:

Low; manageable through proper ventilation design and maintenance.

6.17 Traffic increase due to daily logistics and product transport

Impacts:

Regular movement of trucks delivering raw grey fabric, chemicals, and coal, and transporting finished fabric/garments, will incrementally increase traffic volume on Sargodha Road and local access routes over the facility's operational lifetime.

Mitigation Measures:

- Schedule bulk deliveries and dispatches during off-peak traffic hours where feasible.
- Maintain a well-marked, safe site entrance/exit with adequate visibility for turning vehicles.
- Coordinate with local traffic authorities if congestion issues arise over time.

Residual Impact:

Low; manageable through logistics scheduling and site access design.

6.18 Potential for accidental spills during bulk chemical and dye storage/transfer

Impacts:

Handling and transfer of bulk chemicals and dyes during receiving, storage, and dosing into dyeing machines carries a risk of accidental spillage, which could contaminate soil, enter stormwater drainage, or pose direct exposure risk to workers.

Mitigation Measures:

- Provide spill containment trays/bunding at chemical storage and transfer points.
- Maintain spill response kits (absorbents, neutralizing agents) readily accessible near storage and dosing areas.
- Train relevant staff in safe handling procedures and emergency spill response protocols.

Residual Impact:

Medium; manageable through consistent containment infrastructure and staff training.

6.19 Potential Environmental Enhancement Measures

As described above, the worth-mentioning waste streams of the M/S Bin Nawab (Private) Limited project are domestic sewage, process wastewater (from de-sizing, bleaching, and dyeing operations), and solid waste in the form of fabric off-cuts, lint, packaging material, and boiler ash. In order to enhance the environmental performance of the project, the following equipment will be installed:

6.19.1 Air Pollution Control System

The M/S Bin Nawab (Private) Limited facility will install a dedicated Air Pollution Control System to treat flue gas and particulate emissions from the coal/gas-fired boiler prior to atmospheric discharge, ensuring compliance with PEQS emission limits.

Working Principle:

- Flue gas generated by the boiler (used for steam generation in de-sizing, bleaching, and dyeing operations) is drawn into the system, with an **Air Blower (Induced Draft Fan)** creating negative system pressure to pull gas through the treatment train.
- Collected flue gas first passes through **Gravity Chamber #1** and **Gravity Chamber #2**, where heavy dust particles — including coarse coal ash — settle out under gravity.
- The gas then enters a **Cyclone Filter**, which creates an air vortex to separate medium-sized dust particles (fine ash and coal residue) from the gas stream.
- The gas is routed through a **Heat Exchanger**, which cools the hot flue gas to a temperature suitable for downstream fabric filtration, while recovering waste heat that can be reused to preheat process water or combustion air, improving overall boiler efficiency.
- Cooled gas then passes into the **Bag House**, where fine and super-fine dust particles are captured on filter media, ensuring particulate matter (PM) emissions remain within PEQS limits.
- The Bag House filter media is periodically cleaned via reverse-flow compressed air, supplied by a dedicated **Air Compressor**.
- Clean, treated gas is discharged to atmosphere through the **Air Stack**, designed to a regulated height to ensure safe dispersion.

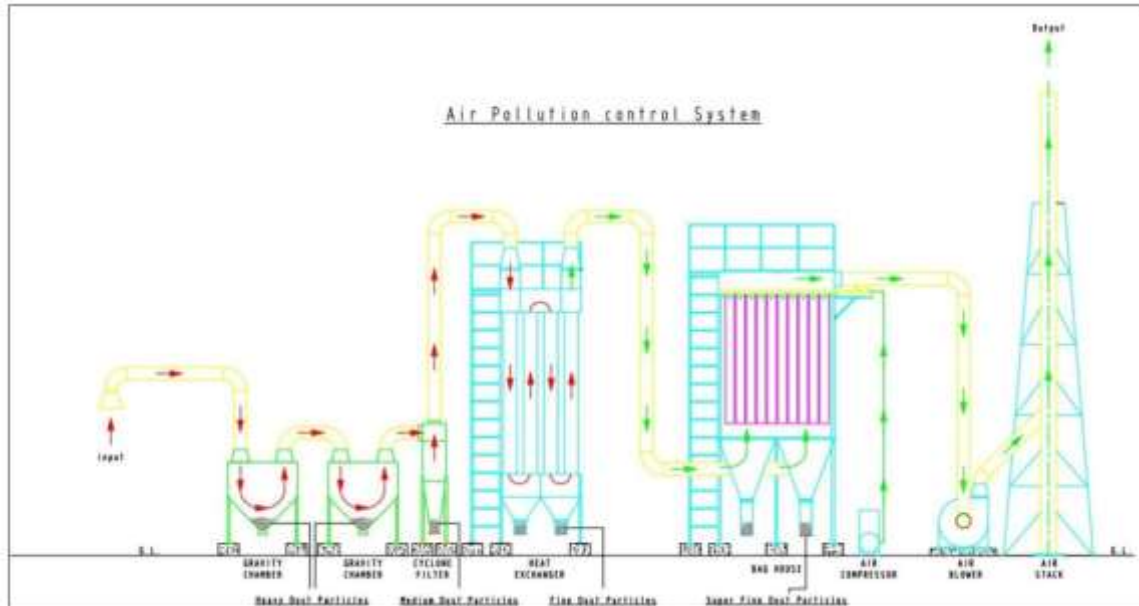


Figure 6-10: Air Pollution Control system

6.19.2 Water Management

- Rainwater disposal will be managed through an adequate stormwater drainage system provided at all levels of the facility, directing runoff toward the site's designated drainage points/canal, separate from process effluent.
- **Domestic sewage** (from washrooms and canteen facilities) will be routed into the same **Packaged Wastewater Treatment Plant (Packaged WWTP)** used for process effluent, rather than a separate septic tank, allowing combined treatment before discharge.
- **Process wastewater** (from de-sizing, bleaching, and dyeing operations) will be routed to a dedicated **Packaged Wastewater Treatment Plant (Packaged WWTP)**, covering screening, equalization, neutralization, coagulation-flocculation, and clarification, prior to discharge — as recommended in this EIA report and subject to permission from the competent authority (EPA Punjab).following

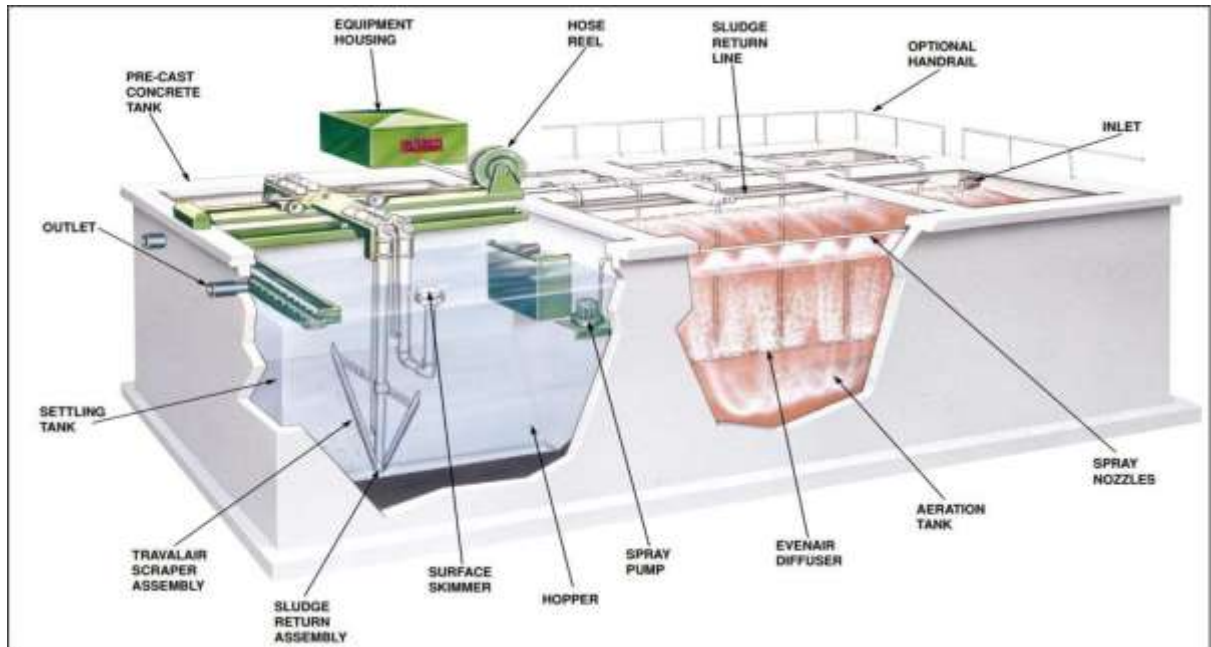


Figure 6-11: Process Flow diagram of packaged Wastewater Treatment Plant

The project will ensure a reliable power supply to maintain continuous production and safety systems:

The project will ensure a reliable power supply to maintain continuous production and safety systems:

- **Primary Power:** Electricity will be sourced from FESCO with a total connected load of approximately **600 kW** to meet the operational demands of the dyeing, finishing, and garment manufacturing production line, including dyeing machines, boiler auxiliaries, stentor, calendering, drying units, and stitching/cutting lines.
- **Backup Power:** A **500 kVA Diesel Generator** will be maintained as a standby source for use during power outages, to ensure critical equipment — including the Packaged WWTP and Air Pollution Control System — remains operational.
- **Noise Mitigation:** The standby generator will be housed in an acoustic enclosure, ensuring noise emissions remain well within the limits of the Punjab Environmental Quality Standards (PEQS).
- **Emission Control:** Due to the infrequent and short-duration usage of the standby generator, gaseous emissions and particulate matter (PM) generation will be negligible.

6.19.3 Safety, Privacy, and Aesthetics

- **Fire Safety Readiness:** An adequate fire-fighting system will be maintained at all times, with the required volume of water kept in dedicated storage to ensure immediate response, particularly given the presence of flammable dyes, chemicals, coal, and fabric/garment stock on-site.
- **Architectural Integration:** The visual design of the processing hall and ancillary buildings has been developed in line with standard industrial steel-shed architecture, ensuring the facility aligns with the agro-industrial character of the Sargodha Road corridor and surrounding Chak No. 51/JB area.

- **Land Use & Privacy:** The site layout is designed to ensure that operational activities do not infringe upon the privacy or land use of adjoining agricultural plots and neighboring landowners.

6.19.4 Baseline Environmental Monitoring

To establish the existing environmental status of the M/S Bin Nawab (Private) Limited project site, a comprehensive on-site monitoring program was conducted:

- **Ambient Air Quality:** Monitoring was performed to assess levels of gaseous emissions, specifically Sulphur Dioxide (SO₂), Nitrogen Oxides (NO_x), and Carbon Monoxide (CO), at the project site at Chak No. 51/JB, Meeran Wala Bangla, Faisalabad.
- **Particulate Matter & Noise:** Baseline concentrations of particulate matter (PM) and ambient noise levels were measured to define existing conditions prior to project commencement.
- **Water Quality:** The quality of the local groundwater supply was determined through standardized laboratory testing of samples collected from the site's tube well system, to ensure it meets health and safety requirements for both domestic use and industrial processing (bleaching, dyeing, and rinsing operations).

6.19.5 Impacts on Socio-Economic Environment

The project has no negative socio-economic impacts rather it has positive impacts on the local community.

7 ENVIRONMENTAL MANAGEMENT AND MONITORING PLAN

An Environmental Management and Monitoring Plan (EMMP) is a comprehensive and systematic approach designed to effectively control, mitigate, and assess the impacts of industrial activities on the environment. The overarching goal of this program is to safeguard, preserve, and enhance environmental quality, ensuring the sustainable use of natural resources. This holistic strategy emphasizes the importance of environmental protection while underscoring the imperative of responsible resource management for the benefit of current and future generations. The Environmental Impact Assessment (EIA) identifies the potential impacts of establishing the M/S Bin Nawab (Private) Limited textile dyeing, finishing, and garment manufacturing facility at Chak No. 51/JB, Meeran Wala Bangla, Faisalabad. It evaluates both positive and negative effects across all project stages including design, construction, and long-term operation to ensure the facility is environmentally sustainable and socially acceptable within the agro-industrial framework of the region.

Mitigation measures recommended in this EMMP are based on environmental sensitivities, applicable laws such as the Punjab Environmental Protection Act, 1997 (Amended 2012), and industry best practices for textile wet-processing and garment manufacturing operations. The EMMP serves as a definitive guideline for contractors, engineers, and stakeholders to minimize adverse impacts during the installation of production lines and daily operations. It ensures that the processing, dyeing, and stitching of textile products does not harm the surrounding agricultural land, groundwater resources, or nearby community. Furthermore, this EMMP forms an integral part of the project documentation for effective environmental management, monitoring, and total regulatory compliance.

7.1 Environmental Management Plan (EMP)

The Environmental Management Plan (EMP) designed for the M/S Bin Nawab (Private) Limited project ensures a structured approach to environmental stewardship and regulatory adherence. The EMP will ensure the following:

- **Delivery of Prescribed Outcomes:** Ensure the delivery of prescribed environmental outcomes during the design, construction, and operational phases of the textile dyeing, finishing, and garment manufacturing facility.
- **Legislative Compliance:** Formulate a systematic framework for total compliance with the Punjab Environmental Protection Act and PEQS (Punjab Environmental Quality Standards) requirements and obligations.
- **Sustainable Design:** Ensure that the project incorporates environmentally sound design and sustainability principles, such as heat recovery from the boiler flue gas (via the Heat Exchanger in the Air Pollution Control System) and water-efficient dyeing processes, to minimize potential impacts on the surrounding agricultural environment and community at Chak No. 51/JB.
- **Impact Minimization:** Ensure that construction and manufacturing work procedures are optimized to minimize potential impacts, including noise, dust, chemical/dye effluent, and solid waste, on the surrounding environment and industrial workforce.
- **Pollution Control and Resource Optimization:** Develop, implement, and monitor specific measures that minimize pollution — particularly process wastewater (via the Packaged WWTP) and air emissions from the boiler — while

optimizing the use of energy, water, and raw material resources throughout the facility's lifecycle.

7.2 Structure of EMP

The structure of the EMP for the M/S Bin Nawab (Private) Limited project will:

- Describe how it fits into the overall planning process for the project, from site development through construction and operational phases.
- Detail the activities to be carried out, including fabric processing (de-sizing, bleaching, dyeing, stentoring, calendering) and garment manufacturing (cutting, stitching, finishing, packing) operations.
- Identify the impacts these activities may have on the environment, including air emissions, wastewater generation, solid/hazardous waste, noise, and groundwater consumption.
- Propose environmental control methods to be used to prevent or minimize those environmental impacts, such as the Air Pollution Control System, the Packaged Wastewater Treatment Plant (WWTP), and solid waste segregation practices.
- Assign responsibility for each control measure to specific staff members, including a designated Environmental/Safety Officer overseeing compliance.
- Identify key monitoring parameters and the schedule for monitoring these parameters, including stack emissions, effluent quality, noise levels, and groundwater quality.
- Identify training requirements at various stages of project development, covering environmental awareness, chemical handling, and emergency response for facility staff.
- Identify the resources required to implement the EMP and outline relevant expenses, including equipment costs (WWTP, air pollution control system), monitoring costs, and staff training expenditure.

7.3 Project Implementation Institutional Requirements

The following organizations would be involved in the implementation of the proposed EMP:

- **M/S Bin Nawab (Private) Limited**, as the proponent of the project and owner of the EMP during construction and operation of the project.
- **Project Contractor**, as the executor of the EMP during the construction stage of the project.
- **Supervisory Consultant**, as monitor of the execution of the EMP during the construction stage.
- **Environmental Protection Agency (EPA), Punjab**, as the government department to review and monitor the implementation of remedial and mitigation measures as given in this EIA.

7.4 Environmental Management Team Along with Their Roles and Responsibilities

List of members that shall be part of environmental management team are mentioned in table below:

ENV. MANAGEMENT TEAM	ROLES	RESPONSIBILITIES
Project Manager	Supervisor	- To plan, disseminate, implement, and continuously develop the environmental management system according to the policy. - To monitor and assess the implementation of the committee's environmental management system.
Health and Safety Officer	Member	- Preparing health and safety strategies and developing policies; carrying out risk assessments. - Liaising with regulatory authorities (EPA Punjab, labor department) to ensure compliance with mandatory regulations. - Investigating accidents on-site and producing subsequent reports and recommendations; carrying out site inspections to check policies and procedures are being properly implemented.
Process Control Engineer	Member	Optimize dyeing, bleaching, and finishing processes and implement quality control systems in the facility. Design, test, and oversee the implementation of new processes, particularly relating to chemical dosing, dye-bath consistency, and effluent generation at the wet-processing plant.
Head of the Audit Department	Member	Developing testing methodologies to evaluate the adequacy of environmental controls (Packaged WWTP performance, air pollution control system). Documenting the results of evaluations. Developing recommendations and reports based on audits and presenting these to senior management.
Other Industry Members as the Superintendent May Designate	Member	Oversee day-to-day field activities. Supervise the activities of subcontractors and subordinate staff, including WWTP operators and boiler attendants.

7.5 Proposed EMP Reporting and Reviewing Procedures

This section defines the institutional responsibilities for M/S Bin Nawab (Private) Limited, contractors, local authorities, and the Environmental Protection Agency (EPA) regarding the management of environmental performance. It outlines the clear roles required to prepare, submit, receive, review, and approve environmental compliance reports.

7.6 Institutional Responsibilities

M/S Bin Nawab (Private) Limited (Proponent): Responsible for overall EMP implementation, ensuring that environmental mitigation measures (Packaged WWTP, Air Pollution Control System, solid waste management) are integrated into daily operations and that all monitoring reports are submitted to regulatory bodies on time.

- **Contractors:** Tasked with the execution of site-specific mitigation measures during the construction and installation phases, and responsible for reporting any non-compliance or environmental incidents to the proponent immediately.
- **EPA (Environmental Protection Agency), Punjab:** Acts as the primary regulatory authority to receive, review, and grant approval for monitoring reports, ensuring that the facility maintains compliance with the Punjab Environmental Quality Standards (PEQS).
- **Local Authorities:** Provide necessary oversight and support to ensure that project activities remain in alignment with local zoning laws and industrial facility requirements at Chak No. 51/JB, Faisalabad.

7.7 Implementation Schedule & Reporting Framework

- An implementation schedule will be established to detail the timing, frequency, and duration of all required mitigation measures and environmental monitoring activities. This schedule will demonstrate phasing and ensure full coordination with the facility's operations manual and any applicable loan agreements.
- **Reporting Recipients:** Reports will be distributed to management personnel and technical leads responsible for the timely execution of mitigation measures (WWTP operation, air pollution control system maintenance) and the initiation of any necessary remedial actions.
- **Report Structure and Content:** The content and submission timing of these reports are strictly specified to facilitate efficient supervision and technical review by the EPA.
- **Review and Approval:** All submitted documentation will undergo a formal review process to confirm that environmental safeguards are effective and to secure EPA approval, where required, for ongoing facility operations.

7.8 Review and Update

The EMP is intended to be dynamic and will be reviewed as often as necessary in accordance with changes to:

- Selected technologies or equipment
- Operational activities
- The legislative environment and/or approval conditions
- Improvements in best practice environmental management

- Corrective actions implemented as a result of complaints, incidents or non-conformance situation
- Audit Report recommendations

7.9 Training Requirements for EMP and Monitoring Implementation

To ensure the effective implementation of the Environmental Management Plan (EMP) and monitoring protocols at M/S Bin Nawab (Private) Limited, a structured training program is mandatory. All staff, plant operators, and third-party contractors will receive comprehensive induction training regarding their specific duties and responsibilities associated with the project's industrial activities and the requirements of the EMP.

7.10 Induction Training Components

At a minimum, the environmental component of the induction will address the following project-specific areas:

- **General Environmental Duty & Duty to Notify:** Training on the legal obligations under the Punjab Environmental Protection Act, emphasizing the mandatory requirement to notify authorities in the event of environmental harm, chemical spills, or effluent treatment system failure.
- **Project-Specific Environmental Risks:** Instruction on the unique hazards associated with textile dyeing and finishing operations, including handling of dyes, bleaching agents, and chemicals, boiler and steam-related hazards, lint/dust management, and machine-related risks in the dyeing, stentoring, and stitching sections.
- **EMP Requirements:** Detailed explanation of the EMP procedures, including the operation of the Air Pollution Control System, Packaged WWTP operation and monitoring, solid/hazardous waste disposal protocols, and noise mitigation measures.
- **Emergency Response & Contact Info:** Clear guidance on emergency procedures, including the use of fire suppression systems (particularly near the boiler and chemical storage areas), and the contact information for site safety officers and regulatory authorities (EPA Punjab).

7.11 Continuous Training & Awareness

To maintain a high standard of environmental compliance throughout the operational lifecycle of the project, relevant environmental issues will be reinforced through:

- **Regular Tool-Box Talks:** Brief, frequent sessions held during shift changes to reinforce the importance of following safety protocols, particularly around chemical/dye handling and machine operation.
- **Safety Drills:** Scheduled drills for fire emergencies and chemical/dye spills to ensure staff are proficient in emergency response procedures.
- **Refresher Training:** Periodic sessions to update employees on any changes to regulatory requirements or modifications to production processes, including Packaged WWTP operation and Air Pollution Control System maintenance.

Table 7-1: Key Environmental Management Actions

Phase / Aspect	Environmental Problem / Impact	Mitigation Measure
Project Location	Physical, socio-economic, and ecological setting impacts on the surrounding agricultural land at Chak No. 51/JB.	Impacts are determined to be largely manageable, subject to confirmed wastewater treatment (Packaged WWTP) and air pollution control implementation.
Project Design	Potential environmental impact and local aesthetic value relative to the surrounding agricultural/rural landscape.	Prioritize adherence to environmental standards (PEQS) and align facility design with the agro-industrial character of the Sargodha Road corridor.
Construction (Pollutants)	Soil erosion, accumulation of debris (sand, cement, steel off-cuts, packaging, plastic).	Implement waste segregation and proper disposal protocols; reuse excavated soil for site levelling where feasible.
Construction (Air Quality)	Emissions of PM ₁₀ , smoke, dust, CO, and NO _x from construction vehicles and equipment.	Mandatory vehicle tuning and maintenance of diesel equipment, covering transport trucks with tarpaulin, and water sprinkling on unpaved surfaces and exposed soil.
Construction (Noise/Vibration)	Noise and vibration from construction machinery (excavators, cranes, generators).	Use mufflers/silencers on equipment, restrict noisy operations to standard daytime working hours, and maintain equipment regularly.
Construction (Other)	Fugitive dust from vehicle movement, potential disruption to existing utilities/irrigation channels, and temporary labor influx.	Water sprinkling to suppress dust; conduct utility survey prior to excavation; enforce strict safety protocols for construction labor.
Operation (Emissions)	Gaseous emissions and noise from the boiler, standby generator, and dyeing/finishing machinery.	Limit standby generator use to power outages; use the Heat Exchanger, Bag House dust collector, and Induced Draft (ID) Fan as part of the Air Pollution Control System.
Operation (Infrastructure)	Flue gas conveyance and release from the boiler stack.	Aerodynamically designed ducts with cleaning mechanisms (reverse-flow compressed air for Bag House); release treated flue gas via a properly designed stack of regulated height.
Operation (Waste)	Generation of solid waste (fabric off-cuts, lint, packaging, boiler ash) and hazardous waste (chemical containers, WWTP sludge).	Sell/recycle fabric off-cuts and packaging to licensed vendors; dispose of hazardous waste and WWTP sludge through licensed handlers; collect boiler ash for approved disposal or reuse.
Operation (Wastewater)	Process and domestic effluent containing dyes, chemicals, and organic load.	Route all process and domestic wastewater through the Packaged WWTP (screening, equalization,

Phase / Aspect	Environmental Problem / Impact	Mitigation Measure
		neutralization, coagulation-flocculation, clarification) prior to discharge, with regular effluent quality monitoring (BOD, COD, TSS, color, pH).

7.12 Schedule for Implementation of Environmental Management Plan

The schedule for the implementation of the Environmental Management Plan (EMP) outlines a systematic timeline for executing key environmental management activities throughout the M/S Bin Nawab (Private) Limited project. The schedule is designed to ensure the effective integration of environmental safeguards at various stages from site preparation and construction through commissioning and ongoing operation of the textile dyeing, finishing, and garment manufacturing facility. The typical schedule may include:

Table 7-2: Schedule for Implementation of Environmental Management Plan (EMP)

Phase	Key Activities Specific to Textile Dyeing & Garment Manufacturing	Responsibility
Pre-Construction	- Baseline soil and groundwater testing at the project site (Chak No. 51/JB, Meeran Wala Bangla) to establish pre-operational benchmarks. - Finalize EMP addressing specific risks of chemical/dye handling, boiler operation, and process wastewater generation.	Proponent, Consultant
Construction	- Install silt fencing and sediment control during excavation for the processing hall foundation. - Implement dust control for site levelling and construction of the boiler house and chemical storage areas.	Contractor, EHS Officer
Commissioning	- Install and test the Air Pollution Control System (Gravity Chambers, Cyclone Filter, Heat Exchanger, Bag House) on the boiler stack. - Calibrate the Packaged Wastewater Treatment Plant (WWTP) prior to process startup.	Contractor, EHS Officer
Trial Run	- Conduct trial runs of dyeing, bleaching, and stentering lines to verify wastewater generation and treatment performance. - Verify boiler stack emission rates and flue gas temperature against design parameters.	Proponent, EHS Officer
Operational	- Daily monitoring of Bag House dust collection performance. - Weekly inspection of chemical/dye storage areas for leaks or containment integrity. - Continuous monitoring of Packaged WWTP	Facility Operator, EHS Team

Phase	Key Activities Specific to Textile Dyeing & Garment Manufacturing	Responsibility
	performance; systematic collection and sale of fabric off-cuts/packaging to licensed vendors.	
Monitoring & Reporting	- Quarterly stack emission testing (PM, NO_x, CO, SO₂) per Punjab-EPA standards. - Regular monitoring of effluent quality (BOD, COD, TSS, color, pH) from the Packaged WWTP before discharge.	EHS Officer, Third-party Lab
Decommissioning	- Safe decommissioning and decontamination of chemical/dye storage tanks and boiler internals - Inventory and disposal of all accumulated hazardous chemical containers, WWTP sludge, and boiler ash.	Contractor, EHS Officer
Post-Construction	- Landscaping the facility perimeter to offset construction-phase vegetation/crop loss. - Finalizing site restoration and soil quality verification.	Proponent, Consultant
External Validation	- Annual third-party audit of boiler emission systems, WWTP performance, and chemical storage protocols. - Documenting resolution of any community grievances regarding effluent discharge, noise, or traffic.	Independent Auditor, Proponent
Project Closure	- Final audit of waste disposal manifests for all hazardous chemical and WWTP sludge waste. - Compiling environmental performance data for facility and EPA Punjab records.	Proponent, EHS Officer
Continuous Improvement	- Upgrading boiler heat recovery systems to improve energy efficiency. - Exploring low-impact/eco-friendly dyes and chemicals to reduce the hazardous profile of process effluent.	Proponent, EHS Officer

This schedule for EMP implementation is adaptable and subject to adjustments based on monitoring findings, changes in project scope, or regulatory requirements. It emphasizes a proactive and adaptive approach, ensuring that environmental management measures are not only implemented effectively but also continually refined to achieve the project's environmental objectives.

7.13 Environmental Management Cost

The costs for environmental management and monitoring during the construction and operation phases will be integrated into the contracts for all appointed contractors and consultants. To ensure the effective execution of the Environmental Management Plan (EMP), the project proponent, M/S Bin Nawab (Private) Limited, has allocated a total environmental budget of **Rs. 1,800,000** for the initial period. This budget covers the implementation of environmental safeguards, including air quality, noise, and wastewater monitoring, EMP development and implementation, greenbelt development, waste management facilities, occupational health and safety, and third-

party compliance auditing. Following this period, the monitoring program will be revised in consultation with the Environmental Protection Agency (EPA), and the budget will be adjusted accordingly.

Table 7-3: Summary of EMP Cost

S. No.	Environmental Mitigation / Monitoring Item	Unit	Amount (PKR)
1	Air Quality Monitoring (Construction & Operational Phase)	Per Event	150,000
2	Noise Level Monitoring	Per Event	150,000
3	Wastewater Quality Testing	Per Event	150,000
4	Solid Waste & Environmental Monitoring	Per Event	150,000
5	Development and Updating of Environmental Management Plan (EMP)	Lump Sum	250,000
6	Implementation of EMP (Environmental Controls & Signage)	Lump Sum	200,000
7	Green Belt Development & Tree Plantation	Lump Sum	150,000
8	Waste Collection, Segregation & Disposal Facilities	Lump Sum	150,000
9	Occupational Health & Safety Training and PPE	Lump Sum	200,000
10	Fire Safety & Emergency Response Equipment	Lump Sum	150,000
11	Third-Party Environmental Monitoring & Compliance Audit	Per Audit	100,000
Total	Estimated Environmental Management Cost		PKR 1,800,000

7.14 Environmental Monitoring Program

The monitoring program is designed to ensure that the requirements of the NOC awarded by the EPA are met. The Monitoring Program (MP) provides important information that allows for more effective planning and an adaptive response based on the assessment of the effectiveness of mitigation measures. The monitoring of various parameters will help determine the extent to which project construction/operation activities will cause environmental disturbance. Following is a tentative plan for environmental monitoring:

Sr. No	Monitoring Parameter	Monitoring Location	Remarks / Regulatory Compliance	Monitoring Frequency
Construction Stage				
1.	Noise Levels	Civil works zones, processing hall fabrication area, and temporary deployment sites.	Contractor will use calibrated sound-level meters to ensure construction noise remains within baseline limits.	Quarterly Basis

Sr. No	Monitoring Parameter	Monitoring Location	Remarks / Regulatory Compliance	Monitoring Frequency
2.	Smoke Emissions	Construction vehicles, heavy machinery, and temporary backup generators.	Regular mechanical tuning and fitness certifications will be enforced to prevent heavy smoke opacity.	Quarterly Basis
Operation Stage				
1.	Gaseous & Stack Emissions	Stack of the coal/gas-fired Boiler and standby diesel generator.	Direct testing of combustion parameters (NO _x , CO, SO ₂ , and smoke opacity/PM) via an EPA-certified laboratory to ensure strict compliance with Punjab Environmental Quality Standards (PEQS).	Quarterly Basis
2.	Ambient & Workplace Noise	Main production floor near the Jet/Jigger Dyeing Machines, Stentor, Calendering Unit, and Boiler bay.	High-noise areas will be monitored daily by internal HSE staff and cross-verified quarterly by a third-party laboratory to protect workers and maintain permissible limits.	Daily (Internal) / Quarterly (Third-Party)
3.	Industrial & Hazardous Waste	Dedicated chemical/dye storage area and Packaged WWTP sludge holding area.	Monitoring of secondary containment integrity to prevent soil/groundwater contamination, along with maintaining logbooks of chemical container disposal and WWTP sludge volumes transferred to EPA-approved handlers.	Monthly Basis
4.	Solid Waste & Fabric Scrap	Central waste storage area and cutting/stitching section (fabric off-cuts, lint, packaging waste).	Tracking the daily segregation of domestic waste and confirming that fabric off-cuts and recyclable packaging are safely stored and sold/sent for recycling.	Monthly Basis
5.	Wastewater Monitoring	Final outlet/discharge point of the Packaged Wastewater Treatment	Analytical testing of treated effluent (pH, BOD ₅ , COD, TSS,	Quarterly Basis

Sr. No	Monitoring Parameter	Monitoring Location	Remarks / Regulatory Compliance	Monitoring Frequency
		Plant (WWTP).	color) prior to disposal, ensuring compliance with PEQS discharge standards for combined process and domestic wastewater.	
6.	Health & Safety (HSE) Compliance	Across all operation lines, specifically around the Dyeing/Bleaching section, Boiler area, and Stitching/Cutting lines.	Daily safety audits ensuring mandatory use of PPE (gloves and aprons near dyeing/bleaching, ear protection near dyeing/finishing machinery, dust masks in the cutting/stitching section).	Continuous / Monthly Reports

7.15 Operation and Mitigation Phase

This section of EMP provides management principles for the operation and maintenance phase of the project. Environmental actions, procedure and responsibilities are required from proponent within the operation and maintenance phase are satisfied considerations into technical designs. The EMP also covers site verification to avoid environmentally sensitive areas, planning for safe storage and handling of materials, and developing mitigation strategies for anticipated impacts. Additionally, this phase emphasizes meaningful stakeholder engagement, public disclosure of project-related information, and the establishment of grievance redress mechanisms. These actions are critical for identifying and addressing potential risks early, ensuring regulatory compliance, and setting a strong foundation for environmental management during construction and operation phases.

7.16 Environmental Plan for Construction and Operation Phase

Table 7-4: Environmental Management Plan for Construction Phase

Sr. No.	Project Component / Impact	Mitigation / Preventive Action	Responsibility	
			(Implementation)	(Monitoring)
Construction Phase				
1	Degradation of air quality (dust & emissions)	• Water sprinkling on unpaved areas; cover material stockpiles. • Ensure construction machinery complies with PEQS exhaust limits.	Construction	Proponent & Contractor
2	Soil erosion and access road damage	• Restore access roads; provide temporary drainage channels to prevent runoff during foundation works.	Construction	Proponent & Contractor
3	Traffic management on Sargodha Road/site access	• Schedule heavy machinery (boiler/dyeing equipment) mobilization during off-peak hours. • Deploy flagmen for site access.	Construction	Proponent & Contractor
4	Safety risks to neighboring agricultural landholders	• Fence the site with clear warning signage. • Establish a Grievance Redressal Mechanism (GRM) for neighbors.	Construction	Proponent & Contractor
5	Occupational Health & Safety (OHS) hazards	•Mandate PPE. • Conduct daily safety inductions for staff involved in elevated or electrical works (steel shed erection).	Construction	Proponent & Contractor
6	High noise levels from civil/foundation works	• Limit noise-intensive activities to daytime. • Use equipment with silencers; provide ear protection for site workers.	Construction	Proponent & Contractor
7	Improper waste handling (debris/packaging)	• Segregate construction debris, steel off-cuts, and packaging. • Engage certified waste contractors for disposal.	Construction	Proponent & Contractor
8	Management of temporary site office effluent	• Route temporary facility wastewater into the Packaged WWTP (or temporary holding tank if WWTP not yet operational). • Test effluent for PEQS compliance.	Construction	Proponent & Contractor
9	Soil contamination from accidental spills (fuel/lubricants)	• Refuel machinery over impervious surfaces; maintain spill kits. • Remove/dispose of contaminated soil at authorized sites.	Construction	Proponent & Contractor

Sr. No.	Project Component / Impact	Mitigation / Preventive Action	Responsibility	
			(Implementation)	(Monitoring)
10	Employment and social considerations	- Prioritize hiring qualified local labor. - Enforce strict code of conduct and prohibit child labor.	Construction	Proponent & Contractor
11	Vegetation/crop loss and site restoration	- Limit clearing to required footprint. - Undertake greenbelt plantation post-construction; remove temporary structures upon commissioning.	Construction	Proponent & Contractor
12	Archaeological chance finds	- Halt excavation immediately if artifacts are found. - Coordinate with the Punjab Department of Archaeology.	Construction	Proponent & Contractor

Table 7-5: Environmental Management Plan for Operational Phase

Sr. No.	Project Component / Impact	Mitigation / Preventive Action	Responsibility	
			Implementation	Monitoring
1	Emergencies or plant failure (boiler/dyeing machinery)	- Conduct regular thermal/pressure inspection of the boiler shell and electrical panels. - Install automated fire suppression systems and fire-rated barriers between the boiler and chemical/dye storage areas.	During Operational Phase	Proponent
2	Leakage of chemicals/dyes	- Use high-integrity piping and dosing systems with regular inspection. - Maintain secondary containment designed to hold 110% of bulk chemical/dye storage volume. - Install leak/level sensors linked to a central monitoring point.	During Operational Phase	Proponent
3	Chemical/dye exposure risks	- Maintain restricted access to bleaching, dyeing, and chemical dosing areas. - Conduct periodic air quality monitoring to detect fumes/vapors.	During Operational Phase	Proponent
4	Hazardous waste (chemical containers, WWTP sludge)	- Store used chemical containers and WWTP sludge in sealed, labeled containers within bunded areas. - Ensure disposal via EPA-approved industrial waste contractors.	During Operational Phase	Proponent
5	Noise pollution (dyeing machines & finishing)	- Periodically monitor boundary noise levels. - Service dyeing machine motors, stentor fans, and calendering	During Operational	Proponent

Construction of Garments Manufacturing, Dyeing and Finishing Unit by M/S Bin Nawab (Pvt.) Limited
Environmental Impact Assessment (EIA) Report

Sr. No.	Project Component / Impact	Mitigation / Preventive Action	Responsibility	
			Implementation	Monitoring
	equipment)	rollers to reduce friction noise. • Maintain perimeter walls/enclosures to attenuate noise.	Phase	
6	Staff & administrative solid waste	• Segregate office waste (paper/cardboard) from industrial process waste (fabric off-cuts, lint). • Coordinate regular removal with licensed municipal/waste contractors.	During Operational Phase	Proponent
7	Industrial & sanitary wastewater	• Treat all process and domestic effluent (dyes, chemicals, organic load) in the on-site Packaged Wastewater Treatment Plant (WWTP) before discharge. • Prohibit discharge of untreated effluent into stormwater drains or the nearby canal.	During Operational Phase	Proponent
8	Occupational Health & Safety (chemical burns/mechanical injury)	• Provide specialized PPE (chemical-resistant gloves, face shields, aprons). • Enforce "Permit to Work" (PTW) and Lock-Out Tag-Out (LOTO) procedures for boiler and machinery maintenance.	During Operational Phase	Proponent

8 FIRE SAFETY PLAN

A fire safety plan is a structured and comprehensive document that details procedures, protocols, and strategies aimed at preventing, preparing for, and responding to fire emergencies at the M/S Bin Nawab (Private) Limited project site. This essential plan outlines preventive measures, emergency procedures, evacuation protocols, fire detection and suppression systems, training requirements, and communication strategies, with particular attention to the fire risks associated with the boiler, chemical/dye storage, and fabric/garment stock areas of the facility. It assigns specific roles and responsibilities to individuals and provides clear instructions for evacuations, ensuring occupants or employees understand what to do in case of a fire. Regular reviews and updates to the plan maintain its relevance, ensuring compliance with fire safety regulations and fostering a safe and prepared environment for the facility's 150–160 workers in the event of a fire emergency.

8.1 Objectives of a Fire safety Plan

The following objectives aim to create a safe and prepared environment for M/S Bin Nawab (Private) Limited, ensuring the protection of lives, property, and assets:

- **Fire Prevention:** The primary goal is to prevent fires by implementing measures that reduce hazards associated with the boiler, flammable dyes and chemicals, and stored fabric/garment stock, ensuring all safety systems and protocols are up to standard.
- **Occupant Safety:** Protecting the lives and well-being of employees by ensuring quick and safe evacuation through established and practiced efficient routes and procedures.
- **Asset Protection:** Minimizing damage to high-value industrial machinery, such as dyeing machines, the stentor, and calendering units, by having effective fire detection and suppression systems in place.
- **Response Protocols:** Outlining procedures to respond effectively and efficiently in the event of a fire, including establishing clear roles and responsibilities for personnel.
- **Regulatory Compliance:** Ensuring adherence to local fire safety regulations and industrial standards.
- **Training and Drills:** Conducting regular training sessions and drills to educate employees about safety procedures, evacuation routes, and the use of fire equipment.
- **Continuous Improvement:** Regularly reviewing and updating the fire safety plan to incorporate changes in equipment or procedures, ensuring the plan remains current and effective.

8.2 Fire Safety Symbols

In the textile dyeing and finishing facility of M/S Bin Nawab (Private) Limited, hazard identification symbols play a crucial role in communicating potential dangers to employees, emergency responders, and the public. These symbols, which are standardized, convey various hazards associated with the storage and handling of materials such as dyes, bleaching agents, chemicals, and boiler fuel (coal/gas). It is crucial for all personnel to be familiar with these symbols and their meanings to ensure a safe working environment.

Some common symbols and their meanings in this facility include:

- **Flammable Symbol:** Warns about the potential for fire or explosion, particularly near chemical/dye storage, boiler fuel (coal/gas) storage, and flammable fabric/garment stock.



Figure 8-1: Symbol for Flammable Material

- **Gas Cylinder Symbol:** Highlights the presence of compressed gas cylinders used for boiler operation or maintenance welding activities, signifying the potential pressure and hazards associated with gas containment.



Figure 8-2: Symbol for Gas Cylinder

- **Toxic Symbol:** Warns about the toxicity of certain dyes, bleaching agents, or process chemicals, emphasizing the need for caution and proper handling to avoid health hazards.



Figure 8-3: Symbol for Toxic Material

- **Explosive Symbol:** Indicates the potential for an explosion due to certain conditions, such as pressurized boiler components or improperly stored chemicals



Figure 8-4: Symbol for Explosive Material

- **Electrical Hazard Symbol:** Warns about electrical hazards present in the facility, such as dyeing machine control panels and boiler electrical systems, highlighting the risk of electrical shock or short circuits.



Figure 8-5: Symbol for Electrical Hazard

- **PPE (Personal Protective Equipment) Symbol:** Emphasizes the necessity of wearing appropriate personal protective equipment such as chemical-resistant gloves, safety goggles, and protective footwear while working in the facility.



Figure 8-6: Symbols of PPEs

- **Environmental Hazard Symbol:** Signifies potential hazards to the environment, such as contamination or pollution risks arising from leaks of dyes, chemicals, or process effluent.



Figure 8-7: Environmental Hazard Symbol

These symbols are commonly used in combination with written warnings, color codes, and other safety measures to ensure a comprehensive and easily understandable identification system for the hazards present in the textile dyeing, finishing, and garment manufacturing unit.

8.3 Fire Safety Measures

Fire safety measures prevent fires and explosions, safeguard personnel, protect property and equipment, ensure compliance with regulations, maintain emergency preparedness, and mitigate environmental risks associated with potential fire incidents. The following safety measures are proposed at the project site.

8.4 Fire Extinguishers

Fire extinguishers are essential in production, boiler, and storage areas of the facility. They provide a means to quickly suppress small fires, prevent their escalation, comply with safety regulations, and protect lives and the environment. These extinguishers ensure emergency preparedness and the rapid containment of fires, offering immediate response and safety for individuals working in or around the boiler, chemical/dye storage, and material storage areas.

8.4.1 Dry Chemical Powder Fire Extinguishers

Dry Chemical Powder (DCP) Fire Extinguishers are a critical safety measure in textile dyeing and finishing facilities due to their ability to combat different classes of fires, including those involving chemicals, dyes, and electrical equipment. In processing operations where flammable substances and sensitive machinery are present, DCP extinguishers are highly effective as they interrupt the chemical reaction of the fire, quickly suppress flames, and minimize the risk of escalation. They are particularly useful for Class B fires (flammable liquids) and Class C fires (electrical equipment), which are common risks in production and storage facilities.



Figure 8-8: DCP Fire Extinguisher

8.4.2 Fire Extinguishers Foam Type

These play a critical role in ensuring the safety of the facility. Processing operations often involve the use of flammable liquids such as dyes, bleaching agents, and industrial chemicals, which pose significant fire hazards if not properly managed. Foam-type extinguishers create a blanket over the liquid surface, suppressing the release of flammable vapors and effectively preventing the spread of fire.



Figure 8-9: Fire Extinguisher Foam Type

8.4.3 Fire Hydrants

These provide immediate access to water for firefighting in emergencies, supporting fire suppression efforts, ensuring site safety by cooling structures, and complying with safety regulations.



Figure 8-10: Fire Hydrant

8.4.4 Fire Alarm

Crucial for early fire detection, timely warnings, evacuation facilitation, and prevention of fire escalation. A fire alarm system is to be installed specifically in the storage and production plant.



Figure 8-11: Fire Alarm

8.4.5 Sand Buckets

In the event of a small fire or a minor leak that may lead to a fire, sand buckets provide a crucial first line of defense. Sand is a non-combustible material, and when swiftly applied to a small flame, it can smother the fire by cutting off its oxygen supply. These are strategically placed throughout the facility to contain and control potential fire hazards effectively.



Figure 8-12: Sand Bucket

8.4.6 Fire Pump

A critical component of the facility's firefighting system, ensuring a pressurized and reliable water supply during emergencies. It ensures that water is delivered at high pressure to firefighting hoses and nozzles, enabling responders to swiftly extinguish or control a fire.



Figure 8-13: Fire Pump

8.4.7 Jockey Pump

This pump ensures that the fire suppression system's main piping remains pressurized within an optimal range. It helps prevent unnecessary cycling of the main fire pump and ensures the system is ready to respond swiftly to emergencies.



Figure 8-14: Jockey Pump

8.4.8 Standby Pump

This is a critical component for ensuring the reliability and continuous functionality of the fire protection system. In the event that the primary fire pump faces mechanical failure, the standby pump serves as a backup, providing a constant and reliable water supply.

9 OCCUPATIONAL HEALTH AND SAFETY PLAN

The Occupational Health and Safety (OHS) plan holds paramount importance within the framework of this EIA for M/S Bin Nawab (Private) Limited. This plan is a comprehensive document that outlines strategies and protocols to safeguard the well-being of workers involved in textile dyeing, finishing, and garment manufacturing. Beyond the ethical imperative of ensuring a safe working environment, the OHS plan is integral to regulatory compliance and risk management at the Chak No. 51/JB, Faisalabad facility.

It identifies potential occupational hazards associated with textile processing — such as chemical/dye exposure, boiler-related heat and steam risks, mechanical risks from dyeing and finishing machinery, and noise exposure — establishes preventive measures, and details emergency response procedures. By incorporating an OHS plan into the EIA, not only is the health and safety of the workforce prioritized, but it also contributes to the overall success and sustainability of the project. A well-executed OHS plan minimizes the likelihood of accidents, injuries, and occupational health issues, fostering a workplace culture that values the welfare of its 150–160 personnel. In essence, the OHS plan, as part of the EIA process, aligns with responsible and ethical project management, ensuring that occupational health and safety considerations are seamlessly integrated into the facility's design, implementation, and ongoing operations.

9.1 Objectives of Occupational Health and Safety

The objectives of the Health and Safety plan at M/S Bin Nawab (Private) Limited are as follows:

- **Protect Workforce and Community:** Protect the health and safety of employees, contractors, visitors, and nearby communities by preventing workplace injuries, occupational illnesses, exposure to chemicals and dyes, and fire hazards.
- **Minimize Process Risks:** Minimize risks associated with textile dyeing, finishing, and garment manufacturing, including the handling of bleaching agents, dyes, and flammable chemicals, ensuring safe storage, processing, and disposal practices.
- **Ensure Compliance:** Ensure compliance with all applicable health, safety, and environmental regulations, as well as industry standards relevant to textile wet-processing operations.
- **Promote Safety Culture:** Promote a safe working culture by providing comprehensive training, appropriate Personal Protective Equipment (PPE), and emergency preparedness measures for fires, chemical spills, or accidental releases.
- **Safeguard the Environment:** Safeguard the local environment by preventing contamination of air, water, and soil from process effluent, boiler emissions, and hazardous chemical waste.
- **Continuous Improvement:** Support continuous improvement in health and safety performance through regular monitoring, internal audits, and proactive corrective actions.

9.2 Scope of Occupational Health and Safety Plan

The Occupational Health and Safety (OHS) framework at M/S Bin Nawab (Private) Limited will cover the following areas:

- **Workplace Safety** – Implementation of safe work practices to prevent accidents, injuries, and occupational illnesses across production zones (dyeing, bleaching, stentoring, cutting/stitching), the boiler area, warehouses, and administrative blocks.
- **Chemical & Material Safety** – Safe handling, storage, labeling, and disposal of dyes, bleaching agents, chemicals, and other hazardous substances used in fabric processing.
- **Mechanical & Boiler Safety** – Control measures for the boiler, jet/jigger dyeing machines, stentor, calendering rollers, and stitching/cutting equipment to protect employees from thermal/steam burns, mechanical entanglement, or crushing hazards.
- **Fire and Explosion Safety** – Installation and maintenance of firefighting equipment, alarms, and emergency response systems to address risks from flammable dyes/chemicals, coal storage, and the boiler.
- **Personal Protective Equipment (PPE)** – Provision, use, and monitoring of specialized PPE such as chemical-resistant gloves, safety goggles, gumboots, aprons, dust masks, and ear protection to reduce occupational exposure risks.
- **Health Surveillance & Medical Services** – Regular health check-ups, occupational health screenings, and first-aid facilities for all plant employees.
- **Training and Awareness** – Continuous education and training programs for employees and contractors on safe chemical/dye handling practices, emergency response, and hazard identification.
- **Emergency Preparedness & Response** – Development of evacuation plans, spill management procedures for chemicals/dyes, and regular fire drills to ensure rapid and effective responses to emergencies.
- **Regulatory Compliance** – Strict adherence to provincial and national occupational health and safety standards applicable to the textile manufacturing sector.
- **Continuous Improvement** – Regular monitoring, auditing, and reviewing of OHS performance for the ongoing enhancement of workplace safety and operational integrity.

9.3 Personal Protective Equipment

The use of Personal Protective Equipment (PPE) at M/S Bin Nawab (Private) Limited is vital for safeguarding workers, ensuring regulatory compliance, mitigating risks, and promoting a culture of safety that is conducive to both employee well-being and operational excellence. The importance of PPE in this textile dyeing, finishing, and garment manufacturing setting cannot be overstated.

Here are the key reasons highlighting the significance of PPE in this industrial facility:

- **Primary Defense:** PPE provides a crucial line of defense against various occupational hazards prevalent in a textile wet-processing environment. It includes items such as chemical-resistant gloves, safety goggles, aprons, gumboots, and respiratory protection, which shield workers from potential injuries, chemical/dye exposures, and airborne lint and dust.
- **Regulatory Compliance:** Utilizing PPE is a legal requirement and is mandated by occupational health and safety regulations. Adhering to these regulations not

only ensures the safety of workers but also prevents regulatory penalties and legal issues for the manufacturing unit.

- **Risk Mitigation:** Textile dyeing and garment manufacturing involves heavy machinery, boiler operations, and chemical processes that pose inherent risks. PPE serves as a risk mitigation strategy by minimizing the likelihood and severity of injuries or illnesses, contributing to a safer working environment.
- **Chemical & Thermal Protection:** In the dyeing and finishing process, workers may come into contact with various dyes, bleaching agents, and chemicals used in production stages, as well as heat and steam near the boiler and stentor. PPE, such as chemical-resistant gloves, aprons, and protective clothing, safeguards workers from direct skin contact and potential harm.
- **Respiratory Health:** Lint, textile dust, and chemical vapors are common in dyeing and finishing plants during de-sizing, bleaching, and cutting/stitching operations. Respiratory protection, such as masks or respirators, is vital in preventing inhalation of harmful substances, promoting respiratory health, and minimizing the risk of respiratory-related illnesses.
- **Worker Comfort & Productivity:** PPE not only prioritizes safety but also contributes to the overall comfort of workers. Comfortable and well-fitted PPE encourages adherence to safety protocols, fostering a positive work culture and enhancing overall productivity.
- **Emergency Protection:** In the event of unexpected incidents or emergencies, PPE can be crucial for protecting workers and mitigating the impact of accidents. Items like safety helmets and protective footwear provide added protection during emergency scenarios.
- **Employer Commitment:** Providing PPE demonstrates the employer's commitment to the health and safety of its workforce, instilling confidence and trust among employees. This, in turn, contributes to a positive work environment and higher employee morale.

9.4 PPE Required for Construction Phase

During the construction of the M/S Bin Nawab (Private) Limited. facility, a comprehensive set of Personal Protective Equipment (PPE) is necessary to safeguard the health and safety of workers involved in civil works, machinery installation, and structural steel assembly (processing hall). The following PPE is required to manage the specific hazards associated with this construction phase:

- **Head Protection:** Hard hats to protect against falling objects, impact, or head injuries during structural steel work and overhead construction.
- **Eye and Face Protection:** Safety glasses or goggles to shield the eyes from concrete dust, metal shavings, and debris. Face shields for additional protection during welding or grinding tasks on the steel structure.
- **Hearing Protection:** Earplugs or earmuffs to reduce exposure to high noise levels from construction machinery, concrete mixers, and heavy equipment.
- **Respiratory Protection:** Dust masks or respirators to protect against inhalation of silica dust, cement particulates, or fumes from welding activities.
- **Hand Protection:** Safety gloves appropriate for specific tasks, such as cut-resistant gloves for handling steel materials, leather gloves for general labor, or chemical-resistant gloves for concrete admixtures.

- **Body Protection:** High-visibility vests or clothing to enhance visibility near moving construction vehicles. Protective coveralls for tasks involving exposure to dust or hazardous construction materials.
- **Foot Protection:** Steel-toed safety boots to protect against crushing injuries, falling tools, or punctures from sharp construction debris.
- **Fall Protection:** Safety harnesses, lanyards, and anchor systems for workers operating at heights during roof sheeting installation or high-elevation electrical/piping work on the processing hall.
- **Joint Protection:** Elbow and knee pads for specialized construction tasks involving prolonged kneeling or crawling during foundation and floor work.
- **Weather Protection:** Weather-appropriate gear, including rain protection, high-temperature appropriate clothing, or sunscreen, depending on Faisalabad's hot, dusty summer climate during construction.
- **First Aid Kit:** On-site access to a fully equipped, well-maintained first aid kit to provide immediate care for minor injuries or emergencies.



Figure 9-1: PPEs for Construction Phase

It is essential for the construction project management to conduct a thorough hazard assessment to identify the specific risks associated with each construction activity and determine the appropriate PPE for the workers involved. Regular training, monitoring, and enforcement of PPE usage contribute to a safer construction environment.

9.5 Safety Signs during Construction Phase

Safety signs serve as critical elements in maintaining a secure and hazard-free environment at construction sites. Their importance lies in their ability to effectively communicate potential risks and hazards to workers, visitors, and contractors at the M/S Bin Nawab (Private) Limited construction site. By providing clear information about safety procedures, required personal protective equipment, and safe work

practices, these signs play a pivotal role in preventing accidents and injuries. Moreover, safety signs contribute to regulatory compliance, ensuring adherence to local regulations and occupational health and safety standards. They also serve as essential tools for emergency response by indicating the location of emergency exits, first aid stations, fire extinguishers, and other emergency equipment. In addition to their role in risk reduction, safety signs assist in site navigation, guiding individuals to specific areas and enhancing overall organization. Beyond practical benefits, safety signs contribute to fostering a culture of safety awareness among the workforce. They communicate important safety policies, promote compliance with site-specific regulations, and reduce the project's liability by showcasing a commitment to responsible construction practices. Ultimately, safety signs are integral components in creating a safe, compliant, and organized construction site conducive to the well-being of all involved parties.



Figure 9-2: Safety signs for Constructional Phase

9.6 Personal Protective Equipment during Operational Phase

Personal Protective Equipment (PPE) is an essential component of the health and safety system at M/S Bin Nawab (Private) Limited. It is designed to safeguard employees from occupational hazards that may arise during fabric processing, dyeing/finishing, and garment manufacturing operations. PPE provides protection against:

- **Chemical Hazards** – Exposure to dyes, bleaching agents, and chemicals that may cause skin irritation or chemical burns during de-sizing, bleaching, and dyeing operations.
- **Lint and Particulate Exposure** – Protection from inhalation of textile lint, dust, and airborne fibers created during the cutting, stitching, and finishing stages.
- **Thermal and Mechanical Hazards** – Prevention of burns, cuts, or crushing injuries from the boiler, stentor, calendering rollers, and moving machinery on the production lines.

- **General Workplace Hazards** – Minimization of risks from slips, trips, falls, and accidental chemical/dye spills within the production floor and warehouse areas.

9.7 PPE Required for M/S Bin Nawab (Private) Limited.

The use of appropriate PPE is mandatory in textile processing operations to ensure a safe working environment. The following PPE is required for workers at the facility:

- **Protective Coveralls / Aprons** – To protect against chemical/dye splashes, moisture, and general contamination during bleaching, dyeing, and finishing operations.
- **Gloves (Chemical-Resistant / Heat-Resistant)** – For handling dyes, bleaching agents, chemicals, and hot fabric/machinery components.
- **Safety Goggles / Face Shields** – To protect eyes from chemical splashes and dye handling during dosing and mixing operations.
- **Respiratory Protection (Masks / Respirators)** – For safeguarding against textile lint, dust, and chemical vapors during de-sizing, bleaching, and cutting/stitching operations.
- **Safety Shoes / Gumboots** – To prevent injuries from slips, trips, and wet flooring in the dyeing and bleaching areas.
- **Hearing Protection (Ear Plugs / Muffs)** – Required in areas where noise levels from dyeing machines, stentor, and calendering units exceed occupational safety limits.
- **Head Protection (Hard Hats)** – For specific operations involving overhead materials handling or maintenance work near production lines.



Figure 9-3: PPE required for the operational phase of M/s Bin Nawab (Private) Limited

11 TREE PLANTATION PLAN

To act as a physical barrier for noise, dust, and air pollutant suppression, an extensive tree plantation program will be implemented along the boundary of the M/S Bin Nawab (Private) Limited facility.

9.8 Planning and Strategy

- **Site Selection:** Strategic areas along the boundary walls, internal access roads, and the periphery of the processing hall.
- **Site Preparation:** Removal of construction debris, soil leveling, and enrichment with organic compost to support healthy growth in the site's alluvial loam soil.
- **Greenbelt Design:** A single row of approximately **500–700 trees** will be planted along the boundary line of the 15-Kanal site, with a spacing of 5 ft (1.5 m) between each tree.
- **Selection Criteria:** Species have been chosen based on their fast-growing nature, dense foliage canopy to trap particulate matter and lint, and tolerance to Faisalabad's semi-arid, industrial environment. Preference is given to evergreen and tall-growing species for the outer perimeter to maximize the noise and dust barrier effect.

9.9 Recommended Tree Species

The following species are selected for their suitability to the local climate of Faisalabad

Common Name	Scientific Name	Characteristics
Shisham (Indian Rosewood)	Dalbergia sissoo	Fast-growing, dense canopy, well-suited to Punjab's plains
Neem	Azadirachta indica	Hardy, evergreen, effective air-purifying properties
Kikar (Babul)	Vachellia nilotica	Drought-tolerant, dense foliage, suited to industrial zones
Eucalyptus	Eucalyptus camaldulensis	Fast-growing, tall, effective visual and noise barrier
Conocarpus	Conocarpus erectus	Evergreen, dust-trapping, commonly used in Punjab's industrial greenbelts
Amaltas (Golden Shower)	Cassia fistula	Ornamental, adds aesthetic value along boundary walls
Toot (Mulberry)	Morus alba	Fast-growing, dense canopy, tolerant of local soil conditions

9.10 Lawn Planting and Landscape Protection

- **Lawn Establishment:** Lawn grass (such as Doob Grass — *Cynodon dactylon*) will be planted using industry-standard techniques. Planting will be avoided during extreme heat (above 90°F) or when the ground is muddy, consistent with Faisalabad's hot summer climate conditions.
- **Protection:** All landscaped areas will be protected from trespassing and damage via temporary fencing and signage. Any damaged plants will be promptly treated

or replaced during the maintenance period to ensure the integrity of the greenbelt along the M/S Bin Nawab (Private) Limited facility boundary.

9.11 Green Belt Design

Extensive tree plantation will be carried out to act as a barrier to control the escape of dust, odor, and airborne particulates, if any, into the surrounding agricultural areas around the M/S Bin Nawab (Private) Limited facility. As part of the tree plantation plan, plants which are moderately tolerant to pollutants but are endowed with fast-growing, dense foliage canopy will be planted. The number of plants to be grown along the boundary line of the area will be estimated after a physical survey during construction and will be approximately **500–700** in a single row, with a tree-to-tree distance of 5 ft/1.5 m. The trees planted here will have a dense, spreading canopy. Trees will also be grown along internal access roads and open stretches of the 15-Kanal site. This greenbelt will not only help reduce pollution but will also enhance the aesthetics of the area. As such, the trees grown in this area should include flowering and ornamental species alongside the primary barrier species. All along the boundary of the facility, including around the Packaged Wastewater Treatment Plant (WWTP), a strip of plantation with trees that are tall in nature and evergreen in habit will be established. This greenbelt will act as a barrier and, as far as possible, check pollutants from escaping and potentially contaminating other components of the local environment.

- **Lawn Planting**

No lawn shall be planted when temperatures are above 90°F or if the ground is in a muddy condition, or under other conditions unsuitable for planting in the area. The soil surface shall be moistened with a fine spray immediately before planting. The lawn shall be planted according to acceptable standard practice in order to ensure a completely healthy grass cover. The planting procedures shall be approved by a designated person at the site.

- **General Landscape Protection**

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

10 STAKEHOLDER CONSULTATION

Stakeholder consultation is of paramount importance in the EIA process for the M/S Bin Nawab (Private) Limited facility at Chak No. 51/JB, Meeran Wala Bangla, Faisalabad, as it facilitates inclusive decision-making, fosters transparency, and enhances the overall quality of the environmental assessment. Involving stakeholders including surrounding agricultural landowners, neighboring residents, and regulatory bodies like the Punjab EPA, the Irrigation Department, and local labor groups ensures that diverse perspectives, concerns, and local knowledge are taken into account. This inclusive approach contributes to the identification of potential environmental and social impacts, such as localized traffic concerns along Sargodha Road during machinery mobilization or specific drainage and wastewater discharge concerns related to the nearby canal, which might not be evident from a solely technical or regulatory standpoint.

Stakeholder consultation is a primary method for involving both primary and secondary stakeholders in making decisions about the facility's layout and the development of the site. Stakeholder engagement builds trust between the project proponent and the surrounding agricultural community, allows for the exchange of valuable information regarding groundwater usage and wastewater management, and empowers the local workforce by giving them a voice in the decision-making process.

Moreover, it helps to align the establishment of the textile dyeing, finishing, and garment manufacturing facility with the needs and expectations of the local community, minimizing conflicts over water resources and land use, and fostering a sense of shared responsibility for the region's environmental stewardship. In essence, stakeholder consultation transforms the EIA into a more robust and credible tool, enhancing the sustainability and social acceptance of the manufacturing facility within this agro-industrial area of Faisalabad district.

10.1 Objectives of Stakeholder Consultation

In 1992, the United Nations Conference on the Environment and Development (UNCED) supported the idea of involving the public in decision-making, and this was outlined in one of the key documents of the conference called Agenda 21.

Agenda 21 is a comprehensive plan for global actions focused on sustainable development and deals with how people interact with the environment. It highlights the importance of including the public in making decisions about the environment to achieve sustainable development.

The objectives of stakeholder consultation in the context of this EIA for M/S Bin Nawab (Private) Limited are multi-faceted, aiming to foster meaningful engagement, inclusivity, and informed decision-making. Some key objectives include:

- Ensure the inclusion of diverse stakeholder perspectives — including the surrounding agricultural community at Chak No. 51/JB — in the decision-making process, promoting a more comprehensive understanding of potential environmental and social impacts.
- Provide a platform for stakeholders to express their concerns, values, and local knowledge related to the project, contributing to a more nuanced understanding of potential impacts and benefits, particularly regarding groundwater use and wastewater discharge.

- Gather valuable insights and feedback that can be integrated into the project design, helping to address and mitigate potential adverse impacts and enhance positive contributions.
- Establish trust among stakeholders by being transparent, responsive, and open to dialogue. Building trust is essential for the successful implementation of the project and its long-term acceptance by the community.
- Fulfill regulatory requirements by actively engaging with stakeholders, demonstrating a commitment to compliance with the Punjab Environmental Protection Act and PEQS, and addressing concerns raised during the consultation process.
- Facilitate an open and inclusive dialogue to build understanding and acceptance of the project within the affected communities, minimizing potential conflicts over land use, water resources, and traffic, and fostering a sense of shared responsibility.
- Integrate local knowledge and community input to enhance the overall sustainability of the project, aligning it with the needs and aspirations of the affected stakeholders.
- Disseminate accurate and accessible information about the project, its potential impacts, and proposed mitigation measures (such as the Packaged WWTP and Air Pollution Control System) to ensure that stakeholders are well-informed and can actively participate in the decision-making process.
- Consider the needs and interests of all affected parties, including vulnerable or marginalized groups, to ensure that the benefits and burdens of the project are distributed equitably.
- Create a platform for addressing conflicts and disputes, allowing for the resolution of issues through open communication and negotiation.

Stakeholder Management



Figure 10-1: Stakeholder Management

The proponent and management, demonstrating a proactive commitment to responsible practices, assured the incorporation of all suggested mitigation measures, from installing the Air Pollution Control System for the boiler operations to implementing the Packaged Wastewater Treatment Plant and strict chemical handling and safety protocols. Their pledge to embrace these measures underscores a dedication to environmental stewardship and sustainable industrial development.

By actively engaging in this discourse, the proponent and management not only exhibit a commitment to regulatory compliance with Punjab EPA standards but also demonstrate a broader responsibility to the well-being of the surrounding agricultural

community at Chak No. 51/JB and the preservation of the local environment, particularly the groundwater resources on which both the facility and neighboring farmland depend. This collaborative approach ensures that the establishment of the textile dyeing, finishing, and garment manufacturing facility aligns with best practices, fostering a positive impact on local employment and industrial development while minimizing any potential adverse effects on the surrounding environment

10.2 Proponent Environment Management Team

The Environment Management Team of M/S Bin Nawab (Private) Limited includes the following members for smooth operation of the Packaged Wastewater Treatment Plant:

- Project Manager
- HSE Officer
- Process Plant Engineer
- Waste Management Team
- Electrical Technician

All the above members will be hired upon completion of construction activities.

10.3 The Responsible Authority

The Proponent, M/S Bin Nawab (Private) Limited, assumes the crucial role of the responsible authority, pledging to undertake all necessary measures both prior to the commencement of the project and throughout its operational phases. This commitment encompasses a comprehensive approach to project management, ensuring that all regulatory requirements, environmental standards, and best practices are diligently adhered to. Before project initiation, the Proponent commits to conducting thorough assessments and implementing necessary preparatory measures to mitigate potential impacts. This includes adopting robust environmental management strategies, obtaining required permits and NOCs from EPA Punjab, and addressing any concerns raised during stakeholder consultations with the surrounding agricultural community at Chak No. 51/JB.

Throughout the operational phase, the Proponent maintains an ongoing commitment to environmental sustainability and regulatory compliance. This involves continuous monitoring of the Packaged Wastewater Treatment Plant and Air Pollution Control System, prompt response to emerging issues, and the implementation of adaptive management practices. By assuming the mantle of responsibility, the Proponent not only safeguards the project's integrity but also prioritizes the well-being of the environment, local communities, and all stakeholders involved. This proactive stance ensures that the project operates within the parameters of environmental and ethical standards, reflecting a dedication to responsible and sustainable project execution.

Table 10-1: Stakeholders and their Roles and Responsibilities

Stakeholders	Roles
Proponent / Responsible Authority (M/S Bin Nawab (Private) Limited)	The discussion with the proponent focused on the adoption of proposed mitigation measures and technical alternatives, such as the selection of the Packaged Wastewater Treatment Plant and the design of the Air Pollution Control System, to control any environmental or social disparity during the

Stakeholders	Roles
	project lifecycle.
Environmental Expert (Consultant Team)	The consultants surveyed the project site and the surrounding agricultural landscape at Chak No. 51/JB, Faisalabad, to gather primary environmental data. They recorded the local community's stance and evaluated the socio-economic impacts specifically related to textile dyeing, finishing, and boiler operations.
Government Departments	Consulted departments include the Environmental Protection Agency (EPA) Punjab and the Irrigation Department. These departments reviewed the proposed facility for its alignment with provincial environmental standards (PEQS) and its long-term health and economic benefits for the Faisalabad region.
Local Affected Communities (Landowners & Labor)	Social surveys and consultations were conducted with neighboring agricultural landowners and the local labor force. These surveys determined the extent to which the surrounding agricultural environment might be affected by the installation of the dyeing, finishing, and garment manufacturing facility, and recorded their input to ensure the project maintains its social license to operate within the local community.

10.4 Other Departments and Agencies

A comprehensive impact assessment was carried out in consultation with the project management of **M/S Bin Nawab (Private) Limited.**, representatives of nearby industries, local community members, and relevant government departments. The consultation process aimed to obtain valuable feedback regarding the proposed Garments Manufacturing and Stitching Unit at Meeran Wala Bangla, 03 Kilometers Drainage Canal, Chak No. 51 JB, Faisalabad. The consultation included meetings, site visits, and discussions with stakeholders to identify potential environmental and social issues associated with the project. Key concerns discussed included air emissions from standby generators, noise from production machinery, wastewater management, solid waste disposal, traffic movement, occupational health and safety, and resource consumption. Stakeholders emphasized the importance of compliance with the Punjab Environmental Protection Act, 1997 (Amended 2012) and the Punjab Environmental Quality Standards (PEQS). The active participation of stakeholders and relevant agencies helped incorporate local knowledge and practical recommendations into the project planning and Environmental Management Plan (EMP). This collaborative approach enhances environmental protection, promotes transparency, and supports the sustainable implementation and operation of the proposed garment manufacturing facility.

10.5 Environmental Practitioners and Experts

The project management of **M/S Bin Nawab (Private) Limited.**, in collaboration with qualified environmental practitioners and technical experts, is committed to ensuring that the proposed Garments Manufacturing and Stitching Unit is developed and operated in an environmentally responsible and sustainable manner. Throughout the Environmental Impact Assessment (EIA) process, environmental specialists have

provided technical guidance on identifying potential impacts, evaluating environmental risks, and recommending appropriate mitigation measures in accordance with the Punjab Environmental Protection Act, 1997 (Amended 2012) and the Punjab Environmental Quality Standards (PEQS).

The project team has maintained continuous coordination with relevant stakeholders, local authorities, and neighboring industries to promote transparency and incorporate practical recommendations into project planning and implementation. This collaborative approach ensures that the facility operates in compliance with environmental regulations while minimizing potential impacts related to wastewater generation, solid waste management, air emissions, noise, and occupational health and safety. The involvement of environmental practitioners and technical experts strengthens the project's commitment to sustainable industrial development, regulatory compliance, and the protection of the surrounding environment and community.

10.6 Discussed Points

The points that have been kept in view while consulting stakeholders are as follows:

- Activities of the project and their consequences.
- Requirements of the people likely to be affected.
- Mitigation measures or compensation strategies.
- Role of the affected people in the implementation and development of the project.

10.7 Affected and Wider Community

In the vicinity of the proposed Garments Manufacturing, Dyeing and Finishing Unit by M/s Bin Nawab (Private) Limited., there is no identified community that will be directly affected by the project, as the proposed site is located at Meeran Wala Bangla, 03 Kilometers Drainage Canal, Chak No. 51 JB, Faisalabad, in an area designated for industrial activities. Nevertheless, the project proponent conducted consultations with neighboring industries, local representatives, and relevant stakeholders to understand their views regarding the proposed development. The feedback received during these consultations was generally positive, with stakeholders recognizing that the project will contribute to employment generation, economic growth, and the strengthening of the local textile and garment sector. Stakeholders also appreciated the proponent's commitment to implementing appropriate environmental protection measures, including wastewater management, solid waste handling, occupational health and safety, and compliance with the Punjab Environmental Protection Act, 1997 (Amended 2012) **and the** Punjab Environmental Quality Standards (PEQS). Although no residential settlements are expected to experience significant adverse impacts from the proposed facility, the project management remains committed to maintaining effective communication with neighboring industries, local authorities, and the wider community throughout the construction and operational phases. This participatory approach will ensure transparency, timely resolution of concerns, and the sustainable operation of the proposed garment manufacturing facility.



Figure 10-2: Pictorial Overview of Stake Holder Consultation

10.8 Details of Public Consultation and Stakeholder Feedback

Sr. #	Name of Consulted Person	Profession	Location	Date	Comments
1	Muhammad Asif	Shopkeeper	Meeran Wala Bangla, Faisalabad	14-07-2026	We hope this garment manufacturing unit will create employment opportunities for local residents and improve the area's economy.
2	Ali Raza	Laborer	Chak No. 51 JB, Faisalabad	14-07-2026	The project is a positive initiative that will provide jobs for skilled and unskilled workers.
3	Muhammad Bilal	Student	Meeran Wala Bangla, Faisalabad	14-07-2026	We appreciate the company's commitment to environmental protection and expect the project to benefit the local community.
4	Abdul Rehman	Driver	Chak No. 51 JB, Faisalabad	14-07-2026	Local transporters and drivers should be given preference during construction and operation of the project.
5	Muhammad Imran	Shopkeeper	Meeran Wala Bangla, Faisalabad	14-07-2026	The project will increase business opportunities for local suppliers and shopkeepers.
6	Hafiz Usman	Imam Masjid	Chak No. 51 JB, Faisalabad	14-07-2026	This project will provide lawful employment and contribute to the economic development of the area.
7	Ahmad Nawaz	Private Employee	Faisalabad	14-07-2026	The proposed garment unit will strengthen the local textile industry and generate additional employment opportunities.
8	Muhammad Iqbal	Teacher	Meeran Wala Bangla, Faisalabad	14-07-2026	The project should ensure environmental compliance and prioritize hiring local skilled workers.
9	Shahid Mehmood	Farmer	Chak No. 51 JB, Faisalabad	14-07-2026	We expect the company to properly manage wastewater and solid waste while creating employment for the local community.
10	Waqas Ahmad	Laborer	Meeran Wala Bangla, Faisalabad	14-07-2026	The factory will improve the standard of living by providing stable employment opportunities.
11	Muhammad Faisal	Tailor	Faisalabad	14-07-2026	This garment manufacturing project will promote the textile sector and contribute positively to the regional economy.

11 CONCLUSION AND RECOMMENDATIONS

Based on the findings of the Environmental Impact Assessment (EIA) conducted for the proposed Bin Nawab (Private) Limited. project, the following recommendations are made:

- **Environmental Compliance:** All project activities shall be carried out in accordance with the Punjab Environmental Protection Act, 1997 (Amended 2012), Punjab Environmental Quality Standards (PEQS), and other applicable environmental regulations.
- **Environmental Management Plan (EMP):** The Environmental Management Plan (EMP) shall be fully implemented during both construction and operational phases to effectively manage air emissions, wastewater, solid waste, noise, and occupational health and safety.
- **Pollution Control Measures:** Appropriate pollution control systems, including wastewater treatment facilities, air emission control devices, and proper waste management practices, shall be installed and maintained to minimize environmental impacts.
- **Green Belt Development:** Adequate plantation and landscaping shall be developed within the project premises to improve the surrounding environment and enhance aesthetic value.
- **Resource Conservation:** Efficient utilization of water, electricity, fuel, and raw materials shall be promoted through good housekeeping practices and regular maintenance of equipment.
- **Occupational Health & Safety:** Appropriate Personal Protective Equipment (PPE), fire protection systems, emergency response procedures, and regular safety training shall be provided to all employees.
- **Environmental Monitoring:** Regular environmental monitoring shall be conducted as per the approved Environmental Monitoring Plan to ensure continuous compliance with PEQS and the effectiveness of mitigation measures.

11.1 Conclusion

Based on the environmental assessment, the proposed Bin Nawab (Private) Limited. project is environmentally feasible and is not expected to cause significant adverse environmental impacts, provided that the recommended mitigation measures and Environmental Management Plan are effectively implemented. The project will contribute positively to industrial development, employment generation, and the local economy while maintaining compliance with applicable environmental regulations. Therefore, it is recommended that the Punjab Environmental Protection Agency (Punjab EPA) grant Environmental Approval for the construction and operation of the proposed project.

ANNEXURES

ANNEXURE – A: REFERENCES

1. Listed below are some of the documents, reports and other references consulted during the preparation of this report:
2. Information and data provided by project proponents;
3. Project Pre-feasibility Study Report;
4. Technical Design Data related to the project.
5. Information gathered through discussions with the project related persons of the project proponent;
6. Information collected from the Technical documents of various suppliers of machinery/equipment.
7. National Environment Quality Standards for Ambient Air November 2010; Punjab Environment Quality Standards Noise Levels November 2010;
8. Punjab Environment Quality Standards for Drinking Water November 2010;;
9. Pakistan Environmental
10. Protection Act, 1997;
11. The Punjab Environmental Protection (Amendment) Act 2011 covers aspects related to:
12. The protection, conservation, rehabilitation and improvement of the environment and the prevention, control of pollution and promotion of sustainable development;
13. Establishing complete regulatory and monitoring bodies, policies, rules, regulations and national environmental quality standards; and
14. To ensure enforcement, the act establishes regulating bodies i.e. Punjab Environmental Protection Council (PEPC) and responsible bodies i.e. Punjab Environmental Protection Agency (Punjab EPA) at Provincial level.
15. Environment related Laws in Pakistan and the Province of Punjab;
16. Government of Pakistan, Pakistan Environmental Protection Agency, Policy and Procedures for Filing, Review and Approval of Environmental Assessment, 2022;
17. Google earth, maps.
18. Guidelines for Public Consultations - These guidelines cover:
19. Consultation, involvement and participation of Stakeholders
20. Techniques for public consultation (principles, levels of involvements, tools, building trust)
21. Effective public consultation (planning, stages of EIA where consultation is appropriate)
22. Consensus building and dispute resolution.
23. Workplace safety and health act 2011
24. Land Acquisition Act (LAA) of 1894
25. The forest Act 1927
26. Pakistan Penal Code, 1860
27. Provincial Wildlife Act, 1974

ANNEXURE – B: TERM OF REFERENCES

- The Consultant is required to carry out an Environment Assessment Study of the Project as required under section 12 of Pakistan Environmental Protection Act 1997/ Punjab Environmental Protection Act 2012.
- The Study should be comprehensive and should cover all aspects which are envisaged under the relevant national and provincials laws & regulations including but not limited to
- Identification and recommendation for suitable solution/treatment/mitigation measures of emissions and effluents such as waste water and sludge etc in accordance with Punjab Environmental Quality Standards (PEQS).
- Identification and recommendation for suitable solution/treatment/mitigation measures of solvents, oils (tar), hazardous waste, organic compounds, steam, flue gases, particulate matter and chemical compounds harmful for the environment and other substances leading to air, noise, water and soil pollution in accordance with PEQS.
- The Study should be acceptable to the relevant national and/or provincial authorities (relevant authorities) in Punjab.

ANNEXURE – C: LIST OF ACRONYMS

EA	Environmental Approval
EIA	Environmental Impact Assessment
EMtP	Environment Mitigation and Monitoring Plan
EMP	Environmental Management Plan
EPA	Environmental Protection Agency
Ft	Feet
GoP	Government of Pakistan
HSE	Health Safety Equipment
IEE	Initial Environmental Examination
LMS	Light Melting Scrap
M&E	Monitoring and Evaluation
MT	Metric Tons
MSW	Municipal Solid Wastes
MW	Mega Watt
PEQS	Punjab Environment Quality Standards
NGOs	Non–Government Organizations
NOC	No Objection Certificate
OHS	Occupational Health and Safety
Pak–EPA	Pakistan Environment Protection Agency
PKR	Pak Rupees
PM	Project Manager
PPC	Pakistan Penal Code
PPE	Personal Protective Equipment
QA	Quality Assurance
SHE	Safety Health & Environment
VOC	Volatile Organic Compounds

ANNEXURE – D: PERSONS PERFORMING THE EIA STUDY (TEAM MEMBERS)

The proponent (M/S Bin Nawab (Private) Limited. has assigned the task of preparing EIA report to M/S Integrated Environment Consultants. The EIA study of the proposed project has been conducted according to Environmental Assessment Procedures-1997, Review of IEE and EIA Regulation-2022 as prescribed by the Federal Environmental Protection Agency (Pak-EPA), Government of Pakistan. Study team of M/S Integrated Environment Consultants which completed the EIA report consists of following experts.

Name	Qualification	Status in Project
Mr. Ahtasham Raza	M.Phil (Env. Science)	Project In-charge
Mr. Adnan Sharif	M.Phil (Env. Sciences), DEL (Env. Law)	Team Leader
Mr. Mehmood Amjad	BS (Env. Science)	Monitoring In-charge
Mr. Muhammad Zain	BS (Env. Sciences)	Environmentalism

*Only the main roles of the team members are given. However, their role was not restricted to these, rather it also includes many other studies in their respective fields in the context of this EIA studies.

CHECKLIST (EIA)

**PAK EPA GUIDELINES FOR PREPARATION AND REVIEW OF ENVIRONMENTAL REPORTS,
1997**

Required Content	EIA Report		
	PAGE NO.	REMARKS (If Any)	LACKING
Executive summary:	B		
1. Title and location of project			
2. Name of the proponent	D		
3. Name of the organization preparing the report	D		
4. A brief outline of the proposal (type, process, technology and land requirement)	D		
5. The major impacts	E		
6. Recommendations for mitigation measures	E		
7. Proposed monitoring	G		
Introduction:	1		
1. Purpose of report			
2. Identification of project and proponent	4		
3. Details of consultant	5		
4. Brief description of nature, size, and location of project	5		
Screening: Whether the Project requires IEE or EIA as per Regulations	9		
Scoping			
1. Spatial and Temporal Boundaries of Environmental Assessment	10		
2. Important issues and concerns raised during consultation	10		

Required Content	EIA Report		
	PAGE NO.	REMARKS (If Any)	LACKING
3. Significant impacts and factors to be determined	11		
Consideration of Alternatives			
1. Site alternatives, their selection and rejection criteria	14		
2. Design/Technology alternatives, their selection and rejection criteria	14		
3. Environmental Alternatives, their selection and rejection criteria	15		
4. Economic Alternatives, their selection and rejection criteria	16		
Description of the project:			
1. Objectives of Project	19		
2. Location and Site Layout of the project (May be annexed at the end of report)	20		
3. Land use on the site	22		
4. Road access	23		
5. Vegetation features of the site	24		
6. Cost and Magnitude of operation	24		
7. Schedule of implementation	24		
8. Description of the project (Process flow chart/steps, Technology, Raw material and products, by-products)	25		
9. Restoration and rehabilitation plans	41		
Description of Environment: Clear-cut picture of existing environmental resources:	42		

Required Content	EIA Report		
	PAGE NO.	REMARKS (If Any)	LACKING
1. Baseline Physical Environment			
2. Baseline Ecological Environment	49		
3. Baseline Socioeconomic Environment	53		
4. Lab reports of environmental analyses (along with soil tests, geoinvestigation in case of building projects and industries)	Annexure		
5. Suitability of the site (not prohibited, environmentally sensitive, incompatible to surroundings and unsuitable)	58		
Impact Assessment	59		
1. Methodologies for impact identifications (One/more)			
✓ Checklists			
✓ Matrices			
✓ Networks			
✓ Overlays			
✓ GIS and Computer expert systems			
2. Characteristics of impacts (nature, magnitude, extent and location, timing, duration, reversibility, risk)	59		
Screening of potential Environmental Impacts and mitigation measures on/during:			
1. Project location	60		
2. Design	60		
3. Construction phase	65		

Required Content	EIA Report		
	PAGE NO.	REMARKS (If Any)	LACKING
4. Operational phase	70		
5. Potential Environmental Enhancement Measures	75		
Environmental management and monitoring program	79		
i. Description of proposed mitigation actions along with:	79		
ii. Schedule for implementation and Environmental budget	79		
iii. Environmental Management Team along with their Roles and responsibilities (by name or position)	80		
iv. Proposed monitoring program to assess performance or output of EMP	87		
v. Proposed EMP reporting and reviewing procedures	82		
vi. Any training needs required to ensure implementation of EMP and Monitoring plans	83		
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i. Proponent's Environment Management Team	111		
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iii. Other departments and agencies	112		

Required Content	EIA Report		
	PAGE NO.	REMARKS (If Any)	LACKING
iv. Environmental practitioners and experts	112		
v. Affected and wider community	113		
1. Glossary	120		
2. List of abbreviations	121		
3. Lists of individuals and organizations consulted along with their written feedback	122		
4. Sources of data and a full list of all reference material used	118		
5. Terms of references of environmental reports and those given to individual specialists	119		
6. List of names, qualifications and roles of team members carrying out the IEE/EIA study	116		
7. Approvals from other concerned departments.	-		