2026

EIA REPORT

Environmental Impact Assessment Report of

M/s SPRY Sports Corporation

Mouza Sumbal Pur Tehsil Daska District Sialkot

Submitted By:

Mr. Nadeem Ghulam

Prepared By:

Enviro Stewards Co. (Pvt) Ltd

0301-1199600 akmal@envirostewardspk.com www.envirostewardspk.com

4-C Sultan Town, Raiwind Road Road

TABLE OF CONTENT

DISCLAIMER

The information presented herein is derived from the unique attributes of the project site as disclosed by the project proponents, stakeholders, and promoters, through provided maps, verbal communications, and all associated documentation. The veracity of the detail's rests solely with the project proponents, stakeholders, and promoters, and not with the environmental consultant. The Environmental Impact Assessment (EIA) or Initial Environmental Examination (IEE) report is not subject to dispute in any court of law.

Representative: EIA & IEE Team

EXECUTIVE SUMMARY

This Environmental Examination (EIA) report presents a comprehensive overview of the key environmental and social considerations related to the proposed dyeing unit of knitted fabric by M/s SPRY Sports Corporation, located at Mouza Sumbal Pur Tehsil Daska District Sialkot, spanning a total area of 169125 SFT.

Enviro Stewards Company (Pvt.) Limited has been engaged as the environmental consulting firm responsible for preparing this assessment.

In accordance with the Punjab Environmental Protection Act and the Review of IEE & EIA Regulations, 2022, the project falls under Schedule II (list of projects requiring EIA), Category B (Manufacturing & Processing) & Sub-Sector 6 (Textile unit comprising of dyeing & printing). As such, the preparation and submission of an EIA is mandatory to obtain the required Environmental Approval from the relevant authorities.

This report evaluates the potential environmental and social impacts of the project across its entire lifecycle. Key areas of focus include land use, water and air quality, solid waste management, traffic patterns, noise levels, and the socio-economic well-being of nearby communities. The findings are supported by field data, stakeholder consultations, and technical analysis.

To address potential adverse impacts, a range of mitigation and management measures have been proposed, aimed at minimizing harm to the environment and surrounding population. These include best practices in construction management, pollution control, and community engagement.

Further technical details and a full description of the project, including planning and construction methodology, are provided in Chapter 05: Project Detail.

Title and Location of the Project with GPS

The project, spearheaded by the proponent, aims to construct dyeing unit of knitted fabric, under the name **"M/s SPRY Sports Corporation."**

This facility will be located at Mouza Sumbal Pur Tehsil Daska District Sialkot, covering a total area of 169125 SFT. The GPS Co-ordinates of the project area 32.358430N, 74.468264E.

Name of the Proponent wit contact detail

The detail of the proponent is given below:

Table 1 Proponent detail

Details of the Proponent	
Name	Mr. Nadeem Ghulam S/o Ghulam Nabi
Address	City Housing Society, House No. 6, Block F, Daska District Sialkot
Contact	0300-7624600
Email	drmaa@outlook.com

Name of the Consultant preparing the report

The details of the consultant preparing the report are given below:

Table 2 Consultants Detail

Details of the Consultant	
Company name	Enviro Stewards Company (Private) Limited
Address	4-C, Sultan Town, Raiwind Road, Lahore.
Contact	0301-1199600
Email	akmal@envirostewardspk.com

A Brief outline of the proposed project

Table 3 Brief of Project

1.	Title of Project	M/s SPRY Sports Corporation
2.	Location of Project	Mouza Sumbal Pur Tehsil Daska District Sialkot
3.	Total Area of Project	169125 SFT

4.	Total Covered Area	200295 SFT
5.	GPS Coordinates	32.358430N, 74.468264E
6.	Current Status of Project	Proposed
7.	Cost of Project	95 million PKR
8.	Proponent of Project	Nadeem Ghulam
9.	Purpose of Project	Dyeing Unit of Knitted Fabric
10.	Description of Project	The proposed project is the establishment of dyeing unit of knitted fabric by M/s SPRY Sports Corporation, located at Mouza Sumbal Pur Tehsil Daska District Sialkot over an area of 169125 SFT.
11.	Raw Material	Grey Knitted Fabric
12.	Final Product	Dyed Fabric
13.	Capacity of production	4000 kg/day
14.	Dyeing Technique	Jet Dyeing
15.	Cutting of Trees	There will be no cutting of trees. After construction trees will be planted
16.	Manpower	10-15 person during construction and 20-30 during Operation
17.	Period of construction	06-07 months
18.	Assessed environmental issues	Dust emissions, noise, solid waste, wastewater, traffic congestion, land use change will be the environmental issues
19.	Protected Areas	As per field visits and consultations with wildlife and forest departments, the proposed project area **does not fall** in any protected area i.e. National Parks, Wildlife Sanctuaries, or Forest areas, etc.
20.	Consultant Company	Enviro Stewards Company (Pvt) Limited

21.	Compliance	In accordance with Punjab Environmental Protection Act & IEE/EIA Regulations 2022

Legal and Administrative Framework

The proposed project will operate in compliance with all applicable national and provincial environmental legislation. The governing framework includes the National Conservation Strategy (1992), National Environmental Policy (2005), Pakistan Labour Policy (2010), and the Punjab Environmental Protection Act (PEPA), 1997, along with its amendment in 2012.

The project will strictly adhere to the Punjab Environmental Quality Standards (PEQS) for air emissions, effluent discharge, and noise levels. Compliance will also be ensured with other relevant regulations including the Factories Act (1934), Punjab Occupational Safety and Health provisions, the Hazardous Substances Rules, and applicable municipal and zoning regulations.

As per Section 12(1) of the amended PEPA (2012), any project involving construction or modification of the physical environment requires submission of an Environmental Impact Assessment (EIA) or Initial Environmental Examination (IEE) and approval (NOC) from the Punjab Environmental Protection Agency (Punjab-EPA). Accordingly, this environmental assessment report has been prepared for submission to Punjab-EPA prior to commencement of construction activities.

The project proponent is committed to full compliance with all environmental and labor-related legal requirements applicable in Punjab.

Assessment of Major Impacts

During Construction Phase

The construction phase of the proposed dyeing unit will involve site preparation, civil works, installation of jet dyeing machines, boiler installation, and construction of the Effluent Treatment Plant (ETP). Likely environmental impacts include:

- Dust emissions from excavation, movement of construction materials, and transportation.
- Noise pollution from construction machinery and equipment.
- Soil disturbance due to site grading and foundation works.
- Construction waste generation including scrap metal, packaging waste, and debris.
- Minor risk of surface runoff contamination during rainfall events.

These impacts are temporary and localized in nature.

During Operational Phase

Once operational, the said project will generate a different set of environmental impacts primarily related to waste management, water consumption, energy use, and increased traffic. The operational phase of the dyeing unit will primarily involve jet dyeing of knitted fabric, steam generation through a natural gas-fired boiler, chemical handling, and wastewater treatment. Key environmental aspects include:

1. Wastewater Generation

Jet dyeing is water-intensive and will generate process wastewater containing dyes, salts, and auxiliary chemicals. Approximately 80–90% of consumed water will become effluent requiring treatment.

2. Air Emissions

- Emissions from the natural gas-fired boiler (mainly CO_2 and NOx).
- Minor exhaust emissions from drying operations (if applicable).

3. Solid and Hazardous Waste

- ETP sludge
- Chemical containers
- Packaging waste
- Fabric lint and scraps

4. Energy Consumption

Steam generation and machine operation will require significant energy input, contributing to indirect greenhouse gas emissions.

5. Noise

Operational noise from jet dyeing machines, pumps, and compressors. Overall, operational impacts are manageable with proper mitigation and environmental management practices.

Proposed Mitigation Measures

Mitigation Measures During Construction Phase

- **Dust Control:** Regular water sprinkling on unpaved areas and covering of construction materials.
- **Noise Management:** Restrict construction activities to daytime hours and ensure machinery maintenance.
- **Waste Management:** Construction waste will be segregated and disposed of through EPA-approved vendors.
- **Soil Protection:** Proper drainage arrangements to prevent erosion and runoff.
- **Health & Safety:** Provision of PPE and safety training for workers.

Mitigation Measures During Operational Phase

Wastewater Management

- Installation of a fully functional Effluent Treatment Plant (ETP) including equalization, neutralization, biological treatment, clarification, and sludge handling units.
- Treated effluent will comply with Punjab Environmental Quality Standards (PEQS) prior to discharge.
- Regular monitoring of pH, BOD, COD, and TSS.

Air Pollution Control

- Use of natural gas as clean fuel for the boiler.
- Installation of low-NOx burners.
- Provision of an adequately designed boiler stack as per PEQS requirements.
- Installation of stack sampling ports for emission monitoring.
- Proper ventilation and exhaust systems in dyeing and drying sections.
- Since natural gas combustion generates negligible particulate matter, installation of a baghouse filter is not required.

Solid & Hazardous Waste Management

- ETP sludge will be dewatered and disposed of through authorized hazardous waste handlers.
- Chemical containers will be properly stored and returned to suppliers or disposed of safely.
- Fabric waste will be reused or sold to recyclers.

Water Conservation Measures

- Use of low liquor ratio jet dyeing machines.
- Counter-current washing to reduce water consumption.
- Installation of flow meters and water monitoring systems.

Energy Efficiency

- Insulated steam pipelines.
- Preventive maintenance of boiler.
- Installation of energy-efficient motors and pumps.

Occupational Health & Safety

- Enclosed chemical storage area.
- Local exhaust ventilation in chemical handling zones.
- PPE for workers handling dyes and chemicals.
- Emergency response and spill management plan.

Proposed Monitoring Framework

An Environmental Management and Monitoring Plan (EMMP) will be implemented to ensure compliance with PEQS and other regulatory requirements.

Monitoring will include:

- Stack emissions testing (NOx, CO)
- Wastewater quality testing (pH, BOD, COD, TSS)
- Noise level monitoring
- Workplace air quality checks
- Sludge disposal records

Monitoring will be conducted at regular intervals and documented for submission to Punjab-EPA as required.

The project proponent is committed to implementing all mitigation and monitoring measures throughout construction and operational phases.

Conclusions and Recommendations

The proposed knitted fabric dyeing unit (4,000 kg/day capacity) in Sialkot is expected to generate positive socioeconomic impacts, including employment generation, industrial growth, and value addition within the textile supply chain.

Although minor environmental impacts may occur, particularly related to wastewater generation and energy consumption, these impacts are considered manageable through the installation of a properly designed Effluent Treatment Plant (ETP), use of clean fuel (natural gas), and implementation of appropriate environmental management practices.

It is strongly recommended that the project proponent obtain the required Environmental Approval / NOC from Punjab-EPA prior to commencement of construction. Continued compliance with PEQS and adherence to the Environmental Management Plan will ensure sustainable and environmentally responsible operation of the proposed dyeing facility.

1 INTRODUCTION

1.1 General

The proposed project is a Knitted Fabric Dyeing Unit to be established in Sialkot, Punjab, with a total project area of approximately 169,125 square feet. The facility will utilize jet dyeing machines with a designed production capacity of 4,000 kg of fabric per day. The project aims to provide in-house dyeing services for knitted fabrics used in apparel manufacturing, thereby enhancing value addition within the textile supply chain.

The unit is designed to operate with modern, resource-efficient technology, including low liquor ratio jet dyeing machines, a natural gas–fired boiler, and a fully functional Effluent Treatment Plant (ETP) to ensure compliance with Punjab Environmental Quality Standards (PEQS). The project emphasizes environmental sustainability through wastewater treatment, controlled air emissions, responsible chemical handling, and energy-efficient operations.

The establishment of the dyeing unit is expected to generate direct and indirect employment opportunities, strengthen the local textile industry, and reduce dependency on external dyeing facilities. By promoting cleaner production practices and regulatory compliance, the project supports national industrial development goals and contributes to Sustainable Development Goals (SDGs), particularly those related to clean water and sanitation, responsible consumption and production, decent work and economic growth, and sustainable industrialization. Given its scale and potential impact, an Environmental Impact Assessment (EIA) is being undertaken to assess and address any environmental and social concerns, in compliance with the Punjab Environmental Protection Act and IEE/EIA Regulations 2022.

1.2 Purpose of the Report

This report has been prepared to conform to the requirements of the Punjab Environmental Protection (Amendment) Act 2012 (PEPA), which states that:

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

The EIA report is comprehensive, covering socio-economic, physical, and environmental aspects, including land use, forestry, crops, water bodies, biodiversity (flora and fauna), heritage, and other factors relevant to the project and its surrounding area. It meticulously details mitigation strategies intended to address and neutralize potential environmental impacts on human and environmental health in the vicinity of the project site. These strategies are applicable during both the construction phase and the regular operation of the project.

Moreover, the report serves as a crucial document for decision-makers, particularly the EPA of Punjab, providing all necessary information in the officially approved format. This facilitates an informed decision-making process regarding the issuance of the required environmental approval. Through this EIA report, the proponent demonstrates a commitment to adhering to the Punjab Environment Quality Standards (PEQS) and maintaining a robust environmental management order throughout the lifecycle of the project.

1.3 Identification of the project and proponent

The detail of the project and proponent is given below:

Name of project	M/s SPRY Sports Corporation
Location of project	Mouza Sumbal Pur Tehsil Daska District Sialkot
Proponent name	Mr. Nadeem Ghulam
Address of proponent	City Housing Society, House No. 6, Block F, Daska District Sialkot

1.4 Consultant Information

The initiator has contracted with M/s Enviro Stewards Company (Private) Limited for the execution of an Environmental Impact Assessment (EIA) for the aforementioned project, in alignment with the standards and guidelines set forth by the Environmental Protection Agency (EPA) of Punjab. To fulfill this objective, M/s Enviro Stewards Company (Private) Limited has assembled a team of experts. Further information on the consultancy team is provided below:

Detail of the Consultant	
Company name	Enviro Stewards Company (Private) Limited
Address	4-C Sultan Town Raiwind Road Lahore.
Contact No.	0301-1199600
Detail of the Team Leader	
Name	Miss Sara Fatima
Designation	Senior Environmentalist

1.5 Nature, Size and Location of Project

SPRY Sports Corporation is a proposed dyeing unit of knitted fabric. The project spans a total area of 169125 SFT and is situated at Mouza Sumbal Pur Tehsil Daska District Sialkot, Area distribution is as follow:

Schedule of Area	
Total Area of Land	**169125 SFT**
Open Area	66561 SFT
Covered Area G-Floor	102564 SFT
Covered Area 1st Floor	42275 SFT
Covered Area 2nd Floor	44761 SFT
Covered Area 3dr Floor	10695 SFT
Total Covered Area	**200295 SFT**

Figure 1 Site Location

1.6 Scope of the EIA Study, Area of Influence, and Magnitude of Efforts

The Environmental Impact Assessment (EIA) study has been undertaken to evaluate the potential environmental and social impacts associated with the proposed development of SPRY Sports Corporation. The primary objective is to ensure that the project complies with environmental regulations and integrates mitigation measures from the planning stage.

The scope of this study includes assessment of baseline environmental conditions, identification of potential impacts during construction and operational phases, and formulation of practical mitigation and monitoring strategies. It also addresses compliance with the Punjab Environmental Protection Act, 1997 and the Review of IEE & EIA Regulations, 2022.

The area of influence covers the project site and its immediate surroundings, extending up to a 1-2 km radius, encompassing local settlements, natural features, and infrastructure likely to be affected by project activities, such as air quality, water resources, noise levels, traffic flow, and waste disposal

The magnitude of efforts involved includes baseline surveys, consultations with stakeholders, site reconnaissance, and technical assessments of environmental components. The study aims to support informed decision-making for environmental approval and ensure long-term sustainability of the project.

2 POLICY, LEGISLATION, LEGAL & ADMINISTRATIVE FRAMEWORK

2.1 General Overview

Environmental compliance is a cornerstone of responsible development in Pakistan. As urbanization accelerates, adhering to the established environmental regulations ensures that the project does not cause undue harm to local ecosystems or communities. Projects are required to undergo environmental review under Section 12 of the Punjab Environmental Protection Act, 1997 (Amended 2012). This law mandates the preparation of an Environmental Impact Assessment (EIA) for projects listed under Schedule II of the Review of IEE and EIA Regulations, 2022.

By adhering to these requirements, the project ensures a sustainable approach to any development that aligns with both provincial and national environmental policies, contributing positively to the broader goals of sustainable development.

2.2 Screening

In accordance with the Punjab Environmental Protection Act and the Review of IEE & EIA Regulations, 2022, the project falls under Schedule II (list of projects requiring EIA), Category B (Manufacturing & Processing) & Sub-Sector 6 (Textile unit comprising of dyeing & printing). As such, the preparation and submission of an EIA is mandatory to obtain the required Environmental Approval from the relevant authorities.

In line with the Review of IEE & EIA Regulations, 2022, this classification mandates that the project must conduct an EIA for obtaining environmental approval from the Punjab Environmental Protection Agency (Punjab EPA). Since the project's size is below the threshold for requiring a full Environmental Impact Assessment (EIA), the EIA is sufficient unless significant impacts are identified during the initial environmental analysis. This ensures that the project is subject to appropriate regulatory oversight while not unduly burdening developers with excessive requirements.

2.3 Regulatory and Framework Compliance

The EIA study is guided by a range of legal, regulatory, and policy instruments that ensure environmental and planning compliance. These instruments collectively form a comprehensive framework that governs the environmental aspects of developments in Punjab.

2.4 Relevant Legal and Institutional Framework

2.4.1 Punjab Environmental Protection Act, 1997 (Amended 2012)

This Act is the cornerstone of environmental law in Punjab and mandates the preparation of an IEE/EIA for any project that could significantly impact the environment. It establishes the powers of the Punjab EPA to review, approve, and monitor environmental assessments, ensuring that development activities comply with environmental protection standards.

2.4.2 Review of IEE & EIA Regulations, 2022

These regulations under the Punjab Environmental Protection Act detail the procedures for the preparation, review, and approval of environmental reports. The regulations specify timelines, content requirements, and the classification of projects according to their potential environmental impact.

2.4.3 National Environmental Policy, 2005

The National Environmental Policy sets the overarching vision for environmental governance in Pakistan, promoting sustainable development across all sectors. It emphasizes the importance of integrating environmental considerations into the planning process and provides a framework for policy alignment at both federal and provincial levels.

2.4.4 Punjab Land Use (Classification, Reclassification, and Redevelopment) Rules, 2009

These rules regulate land use in Punjab and ensure that zoning and land classifications are in accordance with environmental and urban planning standards. The rules govern the conversion of agricultural land to residential or commercial purposes, a process

crucial to. Environmental assessments must evaluate the impact of such land-use changes on local ecosystems and resources.

2.4.5 Punjab Local Government Act, 2022

This act defines the responsibilities of local governments in land development, waste management, municipal services, and infrastructure within urban settings. Local development must coordinate with local government authorities to ensure proper planning, waste management, and service delivery.

2.4.6 Building Code of Pakistan (Seismic Provisions), 2007

This code applies to the structural integrity of buildings, particularly in areas prone to seismic activity. The code ensures that buildings are designed to withstand earthquakes, thereby safeguarding residents and reducing potential damage.

2.4.7 Punjab Municipal Solid Waste Management Rules, 2022

These rules regulate the collection, storage, transportation, and disposal of solid waste in Punjab. Local development are required to establish waste management systems that comply with these rules, ensuring that the project does not contribute to environmental degradation through improper waste handling.

2.4.8 Punjab Water Act, 2019

The Punjab Water Act governs water resources, including the extraction of groundwater and the management of water systems. For Local development, it is crucial to ensure that water use is sustainable, that stormwater is managed effectively, and that any new water extraction activities do not deplete local aquifers.

2.4.9 Punjab Wildlife (Protection, Preservation, Conservation and Management) Act, 1974

This law is applicable if the development cheme is located near any protected or sensitive wildlife habitats. It governs the protection and management of biodiversity, including native plant and animal species. If the project area affects such habitats, appropriate mitigation measures will need to be implemented.

2.4.10 Forest Act, 1927

If the project site is located in or near forested areas, this Act requires that the developer obtain permission before clearing any forested land. It regulates deforestation activities and mandates the preservation of forest cover wherever possible.

2.4.11 Labor, Safety and Health Laws

These laws ensure the safety, health, and welfare of workers during construction activities. They set guidelines for workplace safety, worker health conditions, and risk management.

2.4.12 Public Consultation Guidelines, 1997

This guideline emphasizes the importance of early and inclusive public consultation with stakeholders, especially with communities living near the project site. It mandates that affected populations and municipal bodies are consulted before finalizing project plans, ensuring that the community's concerns are addressed.

2.4.13 Guidelines for Sensitive and Critical Areas

If the project site is located near sensitive or critical areas such as schools, hospitals, water bodies, wetlands, or areas of cultural heritage, these guidelines must be followed. They ensure that the project minimizes any adverse impacts on these sensitive environments.

2.4.14 Sustainable Development Goals (SDGs) Integration

Pakistan's commitment to the Sustainable Development Goals (SDGs), particularly SDG 6 (Clean Water and Sanitation), SDG 11 (Sustainable Cities), and SDG 13 (Climate Action), influences the design and implementation of the development. These goals encourage projects that are environmentally sustainable, socially inclusive, and economically viable.

2.5 Institutional Framework

The following institutions play key roles in regulating and overseeing environmental compliance for the local development in Punjab:

- Punjab Environmental Protection Agency (Punjab EPA): Responsible for enforcing environmental laws and ensuring compliance with IEE/EIA regulations
- District Administration and Municipal Committees: Manage local governance and ensure that projects align with community needs and local laws.
- Punjab Local Government Board: Supervises local urban development and service delivery.
- Irrigation Department, Forest Department, and Wildlife Department: Responsible for issuing NOCs related to water management, forest conservation, and wildlife protection.

3 SCOPING

Scoping is a critical phase in the Environmental Impact Assessment (EIA) process, aimed at delineating the breadth and depth of examination required for a proposed project or activity. This phase involves a meticulous evaluation of potential impacts associated with the project, encompassing direct and indirect effects, cumulative impacts, and possible long-term consequences on the environment. A multidisciplinary team of environmental and social experts undertakes this evaluation, conducting an in-depth analysis of the project or activity to identify potential environmental risks and impacts. These impacts may affect various environmental domains, including air quality, water quality, biodiversity, and cultural heritage.

A distinctive feature of this EIA process is the inclusion of public consultation. This participatory approach allows members of the public and other interested stakeholders to offer their insights, express concerns, and contribute to the discussion regarding the proposed project or activity. Through this mechanism, the EIA process ensures that a broad spectrum of perspectives is considered, thereby enhancing the assessment's comprehensiveness and accuracy. Public consultation plays a vital role in fostering transparency, accountability, and community engagement in the decision-making process, ultimately contributing to more informed and sustainable environmental outcomes.

3.1 SPATIAL & TEMPORAL BOUNDARIES OF ENVIRONMENTAL ASSESSMENT

The initiation of the said project will transition the land from agriculture land to industrial land. No residents can be found within in 500-600m radius of the project, as depicted in the accompanying figure, the project's implementation strategy includes the adoption of comprehensive mitigation measures. These measures are designed to minimize any potential disturbances to the nearby areas and the local community. A notable aspect of this project is its minimal environmental footprint concerning air emissions. The operation primarily involves storage activities, which are not expected

to result in significant emissions. This aspect ensures a negligible impact on air quality in the surrounding environment, aligning with sustainable operational practices.

Moreover, the project places a strong emphasis on water quality management. Wastewater generated from the facility will undergo rigorous testing to comply with the Punjab Environmental Quality Standards (PEQS), ensuring that the water quality remains within safe and acceptable limits. This commitment to monitoring and maintaining water quality underscores the project's dedication to environmental stewardship. An additional reassurance is the absence of environmentally sensitive areas within a defined safe distance from the project site. This factor significantly reduces the risk of adverse impacts on critical habitats, biodiversity, or ecologically sensitive zones due to the project's operations. Overall, the project's approach to land use change, coupled with its proactive measures to mitigate environmental impacts, demonstrates a responsible and sustainable commitment to minimizing its ecological footprint while ensuring compliance with relevant environmental regulations and standards.


M/s SPRY Sports Corporation
Mouza Sumbal Pur Tehsil Daska District Sialkot
32.358430N, 74.468264E
Legend
Abdullah Palace & Marriage Hall
Feature 1
SPRY Sports
SPRY Sports
Abdullah Palace & Marriage Hall
Emanabad Rd
Tariq marble factory
SPRY Sports
Emanabad Rd
Jutt marble factary
Al Fazal Rice Mills (Pvt)Ltd
Google Earth
Image © 2026 Airbus
N
1000 ft

3.2 KEY ISSUES AND CONCERNS IDENTIFIED

During the consultation phase, a broad spectrum of stakeholders including local community members, government departments, environmental practitioners, experts, and nearby industries, expressed their views on the project. While there was a consensus in favor of the project, several important concerns were highlighted:

- **Employment Opportunities:**

Local hiring is preferred to ensure community benefit and fair wages.

- **Worker Training and Development:**

Adequate training is needed to enhance skills and ensure safety.

- **Noise Pollution:**

Noise reduction measures like scheduling noisy activities and using quieter equipment are recommended.

- **Air Pollution Control:**

Dust suppression and cleaner fuels are suggested to reduce air pollution.

- **Wastewater Management:**

Wastewater should be treated before disposal to protect local water sources.

- **Solid Waste Management:**

A proper waste management system, including recycling, is necessary.

- **Environmental Mitigation and Management:**

An Environmental Management and Monitoring Plan and tree plantations are essential for sustainability.

- **Resource Conservation:**

Responsible use of water and resources is crucial for long-term availability.

- **Transportation and Community Impact:**

Measures to reduce air pollution and improve local infrastructure are needed.

- **Public Health and Safety:**

Emergency plans, medical facilities, and public health awareness are vital.

- **Community Engagement and Social Welfare:**

Ongoing engagement and community development programs should be prioritized.

- **Cultural and Heritage Preservation:**

Protection of cultural heritage sites through impact assessments is required.

- **Biodiversity Protection:**

Environmental assessments and habitat protection are necessary to preserve local wildlife.

- **Climate Change Adaptation:**

The project should include resilient infrastructure to adapt to climate change.

- **Sustainable Development and Green Technology:**

Use of green technologies and sustainable practices is important for reducing environmental impact.

3.3 SIGNIFICANT ENVIRONMENTAL IMPACTS AND MANAGEMENT FACTORS

The consultation process also helped in identifying critical environmental impacts and management factors necessary for sustainable project execution. These include:

- **Dust and Air Quality Management:**

Strategies to minimize dust and particulate emissions.

- **Wastewater Treatment:**

Ensuring all wastewater is treated according to standards before disposal.

- **Solid Waste Management:**

Establishing a solid waste collection and disposal mechanism.

- **Occupational Health and Safety:**

Implementing measures to protect workers' health and safety.

- **Site Security and Traffic Management:**

Ensuring secure and efficient site operations and traffic flow.

- **Hygiene and Community Impact:**

Maintaining hygiene standards and assessing the project's impact on the community.

- **Resource Conservation:**

Focusing on water conservation, energy efficiency, and other sustainable practices.

- **Environmental Restoration and Green Initiatives:**

Commitment to site restoration post-construction and promoting green spaces through tree plantation.

These insights from the consultation phase are crucial for refining project strategies, ensuring environmental compliance, and fostering positive community relations. Implementing these considerations will not only address stakeholder concerns but also contribute to the project's sustainability and acceptance within the local context.

4 ALTERNATIVE CONSIDERATIONS

The Environmental Impact Assessment for Said project involves a comprehensive analysis of various alternatives to ensure that the project achieves its objectives with minimal environmental impacts. Alternatives are recommended and examined to determine the best method of achieving project objectives, while minimizing environmental impacts. The discussion and analysis of alternatives in an EIA study should consider other practicable strategies that will promote the elimination of negative environmental impacts identified. This section covers the project alternatives which were examined for the proposed project in the said location. This analysis encompasses site selection, design and technology choices, environmental considerations, and economic strategies, aiming to identify the most suitable options based on environmental, economic, and health and safety criteria.

4.1 Site Alternatives

The proposed site for the knitted fabric dyeing unit was selected based on a combination of regulatory compliance, industrial suitability, and infrastructure availability. The land area of approximately 169,125 SFT is suitable for industrial development and provides adequate space for production facilities, utility areas, storage sections, and installation of an Effluent Treatment Plant (ETP).

Alternative sites were not pursued for the following reasons:

- The selected plot is located within an industrially compatible zone and conforms to local land use and municipal planning regulations.
- Proximity to major road networks and utility services (electricity, natural gas, and water supply) supports efficient industrial operations and logistics.
- The land is free from protected ecosystems, water bodies, forest areas, and heritage or archaeological sites, thereby minimizing environmental and social sensitivity.

Considering these locational advantages and regulatory compatibility, no alternate site was found to provide comparable operational feasibility and environmental suitability.

4.2 Design and Layout Alternatives

Various layout alternatives were evaluated during the planning stage with emphasis on operational efficiency, environmental compliance, safety, and cost-effectiveness. The selected design includes:

- Separate zones for jet dyeing machines, boiler area, chemical storage, finished goods storage, and administrative block.
- A dedicated area for installation of a fully functional Effluent Treatment Plant (ETP) with safe sludge handling provisions.
- Internal road circulation and material handling pathways designed for smooth movement of raw materials and finished products.

Modern industrial planning principles, including ventilation design, utility corridors, drainage slope planning, and fire safety access, have been incorporated to ensure operational safety and regulatory compliance. This layout was selected over compact or unsegregated industrial designs due to its improved environmental management, safety control, and efficient space utilization.

4.3 Environmental Alternatives

Environmental sustainability was a key consideration during project planning. Various environmental management options were reviewed, and the selected approach emphasizes:

- Wastewater Treatment: Installation of a comprehensive Effluent Treatment Plant to ensure treated discharge complies with Punjab Environmental Quality Standards (PEQS).
- Air Emission Control: Use of a natural gas-fired boiler equipped with low-NOx burners and an adequately designed stack for emission dispersion.
- Water Conservation: Adoption of low liquor ratio jet dyeing machines and controlled rinsing systems to reduce water consumption.
- Solid Waste Management: Safe storage and disposal of ETP sludge and chemical containers through authorized vendors.

These measures collectively minimize environmental impacts and ensure compliance with provincial environmental regulations while reducing the ecological footprint of the dyeing operations.

4.4 Economic Alternatives

To enhance economic viability and operational sustainability, several resource-efficient strategies were selected over conventional industrial practices:

Energy Efficiency: Use of natural gas as a cleaner fuel and installation of energy-efficient motors and insulated steam pipelines to reduce operational costs.

Water Efficiency: Implementation of water-saving dyeing technology to reduce utility expenses and wastewater treatment load.

Local Employment: The project will generate employment for technical staff, machine operators, engineers, and laborers, contributing to local economic growth.

Value Addition: Establishment of in-house dyeing operations reduces outsourcing costs and strengthens the textile supply chain in Sialkot.

These economic considerations reduce long-term operational costs while improving industrial competitiveness and supporting sustainable economic development in the region.

5 PROJECT DESCRIPTION

This Chapter presents the detailed project description along with project cost, land acquisition, implementation schedule, workforce and water requirements, etc.

5.1 Objective of Project

The main objectives of the project are:

- ✓ To establish a modern knitted fabric jet dyeing facility to support the local apparel and textile industry.
- ✓ To provide in-house dyeing services for knitted fabrics, reducing reliance on external dyeing units and strengthening value addition within the textile supply chain.
- ✓ To adopt environmentally responsible production practices through installation of a fully functional Effluent Treatment Plant (ETP) ensuring compliance with Punjab Environmental Quality Standards (PEQS).
- ✓ To minimize air emissions by utilizing a natural gas-fired boiler equipped with low-NOx burners and proper stack design.
- ✓ To promote water and energy conservation by installing low liquor ratio jet dyeing machines and energy-efficient equipment.
- ✓ To generate direct and indirect employment opportunities for skilled and unskilled workers in the region.
- ✓ To ensure occupational health and safety standards through proper chemical handling systems, ventilation, and provision of personal protective equipment (PPE).
- ✓ To comply with all applicable environmental and industrial regulations and obtain necessary approvals from Punjab Environmental Protection Agency (Punjab-EPA) prior to project implementation.

5.2 Type and Category of the Project

Capital Cost:

The project entails an investment of 95 million PKR, highlighting its significant economic scale.

Area Coverage:

The project will be developed over an area of 169125 SFT, indicating substantial physical infrastructure.

Employment Generation:

It is anticipated to create 10-15 jobs during the construction phase and 20-30 jobs during the operational phase, contributing significantly to local employment.

Environmental Assessment Category:

According to the environmental assessment categorization, this project is classified under Schedule II (list of projects requiring EIA), Category B (Manufacturing & Processing) & Sub-Sector 6 (Textile unit comprising of dyeing & printing) as per the EIA/IEE Regulations 2022. This classification necessitates conducting an Environmental Impact Assessment (EIA) for environmental approval, underlining the project's adherence to environmental governance.

5.3 Location & Site Layout

5.3.1 Site Location

The proposed dyeing unit of knitted fabric, SPRY Sports Corporation, is located in the suburban periphery within the administrative jurisdiction of District Punjab. The project area spans approximately 169125 SFT.

The site is strategically positioned to benefit from proximity to major transportation routes, public services, and urban infrastructure. It is:

- Accessible via main Road.
- Away from residential areas, educational institutions, and commercial zones.

- Free from ecologically sensitive areas, flood plains, and heritage zones.
- The land is non-forested, non-agricultural, and zoned for the current use. This ensures compliance with local zoning regulations and land use policies.

5.3.2 Site Coordinates

The GPS coordinates of the project site are 32.358430N, 74.468264E site location map is attached in next.

North: Road

South: Open Land

East: Open Land

West: Eimanabad Road

Google earth map showing the site of the project is provided hereafter

5.4 Alternative Consideration

The assessment for the proposed project includes an evaluation of project alternatives to ensure environmentally responsible and sustainable industrial development. The alternatives were examined to minimize environmental impacts while fulfilling the dyed knitted fabric demand locally.

Alternative assessment supports informed decision-making by identifying environmental, social, and operational implications at an early planning stage. The evaluation considered site suitability, technological options, environmental integration, and economic feasibility, ensuring compliance with applicable regulatory requirements and long-term sustainability.

5.4.1 Site Alternatives

The proposed site for the knitted fabric dyeing unit was selected based on a combination of regulatory compliance, industrial suitability, and infrastructure availability. The land area of approximately 169,125 SFT is suitable for industrial development and provides adequate space for production facilities, utility areas, storage sections, and installation of an Effluent Treatment Plant (ETP).

Alternative sites were not pursued for the following reasons:

- The selected plot is located within an industrially compatible zone and conforms to local land use and municipal planning regulations.
- Proximity to major road networks and utility services (electricity, natural gas, and water supply) supports efficient industrial operations and logistics.
- The land is free from protected ecosystems, water bodies, forest areas, and heritage or archaeological sites, thereby minimizing environmental and social sensitivity.

Considering these locational advantages and regulatory compatibility, no alternate site was found to provide comparable operational feasibility and environmental suitability.

5.4.2 Design and Layout Alternatives

Various layout alternatives were evaluated during the planning stage with emphasis on operational efficiency, environmental compliance, safety, and cost-effectiveness. The selected design includes:

- Separate zones for jet dyeing machines, boiler area, chemical storage, finished goods storage, and administrative block.
- A dedicated area for installation of a fully functional Effluent Treatment Plant (ETP) with safe sludge handling provisions.
- Internal road circulation and material handling pathways designed for smooth movement of raw materials and finished products.

Modern industrial planning principles, including ventilation design, utility corridors, drainage slope planning, and fire safety access, have been incorporated to ensure operational safety and regulatory compliance. This layout was selected over compact or unsegregated industrial designs due to its improved environmental management, safety control, and efficient space utilization.

5.4.3 Process, Raw material and product alternatives

During the planning phase of the proposed knitted fabric jet dyeing unit in Sialkot, various technological, material, and product alternatives were carefully evaluated to ensure environmental sustainability, operational efficiency, and economic feasibility.

Process Alternatives:

With respect to process alternatives, conventional dyeing methods such as **winch dyeing** and **beam dyeing** were reviewed. However, **jet dyeing** technology was selected due to its:

Superior suitability for knitted fabrics, improved color uniformity, reduced mechanical stress on fabric, and lower water consumption when operated with low liquor ratio systems.

Additionally, automation and controlled chemical dosing in jet dyeing enhance process efficiency and minimize chemical wastage. For steam generation, a natural gas-fired boiler was selected over coal or biomass-fired options to reduce particulate emissions and ensure compliance with Punjab Environmental Quality Standards (PEQS).

Raw material Alternatives:

Regarding raw material alternatives, the primary input will be:

Grey knitted fabric (cotton, polyester, and blended fabrics).

Environmentally compliant dyes and chemicals have been selected in place of conventional hazardous formulations.

These include low-salt reactive dyes, heavy-metal-free disperse dyes, APEO-free auxiliaries, and biodegradable chemical agents. The adoption of eco-friendly raw materials reduces pollutant load in wastewater and improves the efficiency of the Effluent Treatment Plant (ETP).

Product Alternatives:

In terms of product alternatives, the facility will produce dyed knitted fabric for use in sportswear and apparel manufacturing. Alternative options such as fabric printing or woven fabric processing were evaluated but not selected due to higher chemical usage, increased wastewater complexity, and additional capital investment requirements. Specializing in knitted fabric dyeing ensures operational focus, environmental manageability, and improved product consistency.

Overall, the selected process, raw materials, and product configuration represent the most technically viable, environmentally responsible, and economically sustainable alternative for the proposed project.

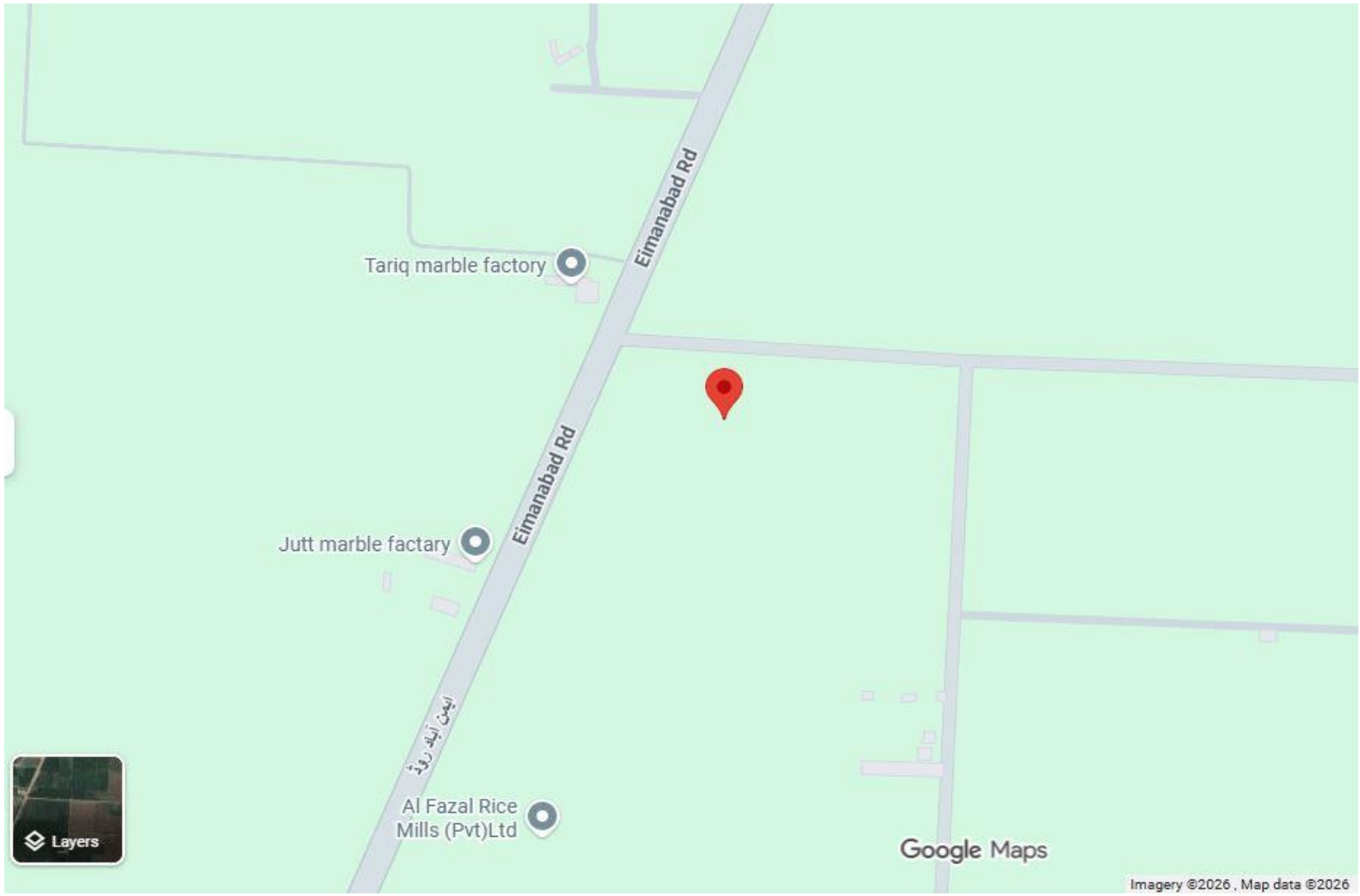
5.5 Land use of the site

The land use of the project site is agricultural in nature and currently open land.

5.6 Road Access

The proposed project site is well-connected through paved roads providing direct and reliable access to the area. This road infrastructure is vital for facilitating the transportation of construction materials, machinery, and workforce during the development phase, and will also support smooth vehicular access for residents and service providers during the operational phase. The road access enhances the project's feasibility and aligns with sustainable planning objectives. A detailed road access map is included to illustrate the site's connectivity with the surrounding transport network.

Figure 2 Rod Access Map


Eimanabad Rd
Tariq marble factory
Eimanabad Rd
Jutt marble factary
Al Fazal Rice
Mills (Pvt)Ltd
Layers
Google Maps
Imagery ©2026 , Map data ©2026

5.7 Vegetative Features of the Site

The area surrounding the proposed project site is industrial, agricultural in nature and has several green patches. Recognizing the importance of sustainable development, the project plans to introduce green belts around the site during its operational phase. These green belts are not only intended to augment the site's aesthetic appeal but also serve a critical environmental function. They will act as natural buffers to mitigate pollution emanating from various sources, particularly vehicular emissions, and will play a role in dampening noise pollution from within the premises. The development of a green belt is a strategic recommendation aimed at enhancing atmospheric quality and providing a serene environment around the project area.

5.8 Plantation Plan

In a concerted effort to beautify the landscape and improve ambient air quality, the project envisages the plantation of approximately 2000 to 3,000 plants within and around its vicinity. The selection of plants will include ornamental varieties such as coreopsis and daylilies, with a focus on planting predominantly shade-providing trees. This plantation initiative is aligned with environmental sustainability goals, aiming to create a greener, more pleasant environment that benefits both the ecosystem and the local community.

5.9 Magnitude & Cost of the Project

The project is poised to be a significant industrial venture with an estimated initial capital investment of around 95 million PKR. The land is on rent. This investment will cover the costs associated with the procurement of raw materials, processing, manufacturing, and maintenance activities essential for the operation phase of the project. Emphasis will be placed on ensuring the safety of equipment and operations through diligent management practices. It is noted that no separate fund allocation is required for these operational assurances, indicating a comprehensive budget plan that encompasses all necessary safety and environmental measures. This strategic

financial planning underscores the project's commitment to both economic viability and environmental responsibility.

Table 4 Cost of the project

Amenities	Cost in PKR
Infrastructure Development, Machinery	58 million
Raw material	18 million
Plantation	02 million
Wastewater Management	05 million
Air Emission	02 million
Solid waste, firefighting, health & safety training/equipment	10 million
Total Cost	**95 million**

5.10 Proposed schedule for implementation (Tentative)

Stage I: The clearing of land, and preparation of land for construction activity.

Stage II: During this phase, machinery will be brought to the site and installed.

Stage III: In this phase all the outstanding activities will be completed, and construction activities will be initiated.

Stage IV: After completing construction, employees will be hired, and staff will be assigned their respective work. The operation activities will be initiated.

Table 5 Schedule of implementation

ACTIVITY	TIME FRAME				
	Four Week	Four Week	Four Week	Four Week	Four Week
Pre-liminary phase					
Design Phase					
Pre-Construction					
Construction phase					
Purchasing phase					
Machinery installation					
Commisioning Phase					
Recruiting staff					
Operation phase					

5.11 Description of Project

5.11.1 Project Overview

The proposed project involves the establishment of a knitted fabric dyeing unit utilizing jet dyeing technology with a production capacity of 4,000 kg per day. The facility will process grey knitted fabric (cotton, polyester, and blended fabrics) into dyed fabric for apparel manufacturing. The project includes installation of a natural gas-fired boiler and a fully functional Effluent Treatment Plant (ETP) to ensure environmental compliance.

5.11.2 Process Description with flow chart:

The process of the dyeing unit is given below:

1. Receipt and Inspection of Grey Fabric

Purpose: Ensure fabric quality and detect defects before processing.

Activities:

- Grey knitted fabric rolls are received from suppliers.

- Rolls are checked for contamination, weight, and defects.
- Fabric is labeled and stored in a dry, ventilated area to prevent moisture absorption.

2. Loading into Jet Dyeing Machine

Purpose: Prepare fabric for uniform dyeing.

Activities:

- Fabric is wound into appropriate package form (beam or rope) depending on machine type.
- Loaded into low-liquor-ratio jet dyeing machine**.**
- Machine is filled with pre-measured quantity of water and chemicals for initial wetting.

3. Pre-treatment / Scouring (if required)

Purpose: Remove natural oils, waxes, and dirt from fabric to improve dye absorption.

Activities:

- Fabric is treated with mild alkali or enzymatic scouring agents.
- Temperature and pH are controlled to avoid fabric damage.
- Rinsing follows to remove impurities.

4. Dyeing Process

Purpose: Impart desired color to the fabric.

Activities:

- Eco-friendly dyes and auxiliary chemicals are added using automatic dosing systems.
- Steam from the natural gas-fired boiler heats the dye bath.
- Jet circulation ensures fabric moves continuously through dye liquor for uniform penetration.
- Dye fixation occurs under controlled temperature and time.

5. Rinsing / Washing

Purpose: Remove unfixed dyes and chemical residues.

Activities:

- Multiple rinsing cycles using fresh water.
- Counter-current rinsing reduces water consumption.
- pH is adjusted to neutralize the fabric.

6. Neutralization

Purpose: Restore fabric to neutral pH for finishing.

Activities:

- Mild acid treatment is applied if necessary.
- Ensures fabric softness and prevents future color bleeding.

7. Hydro Extraction

Purpose: Remove excess water from fabric to reduce drying time.

Activities:

- Fabric passes through hydro-extractors (centrifugal machines).
- Water content is reduced from ~80% to ~30% depending on fabric type.

8. Drying / Finishing

Purpose: Dry fabric completely and impart required hand feel or mechanical properties.

Activities:

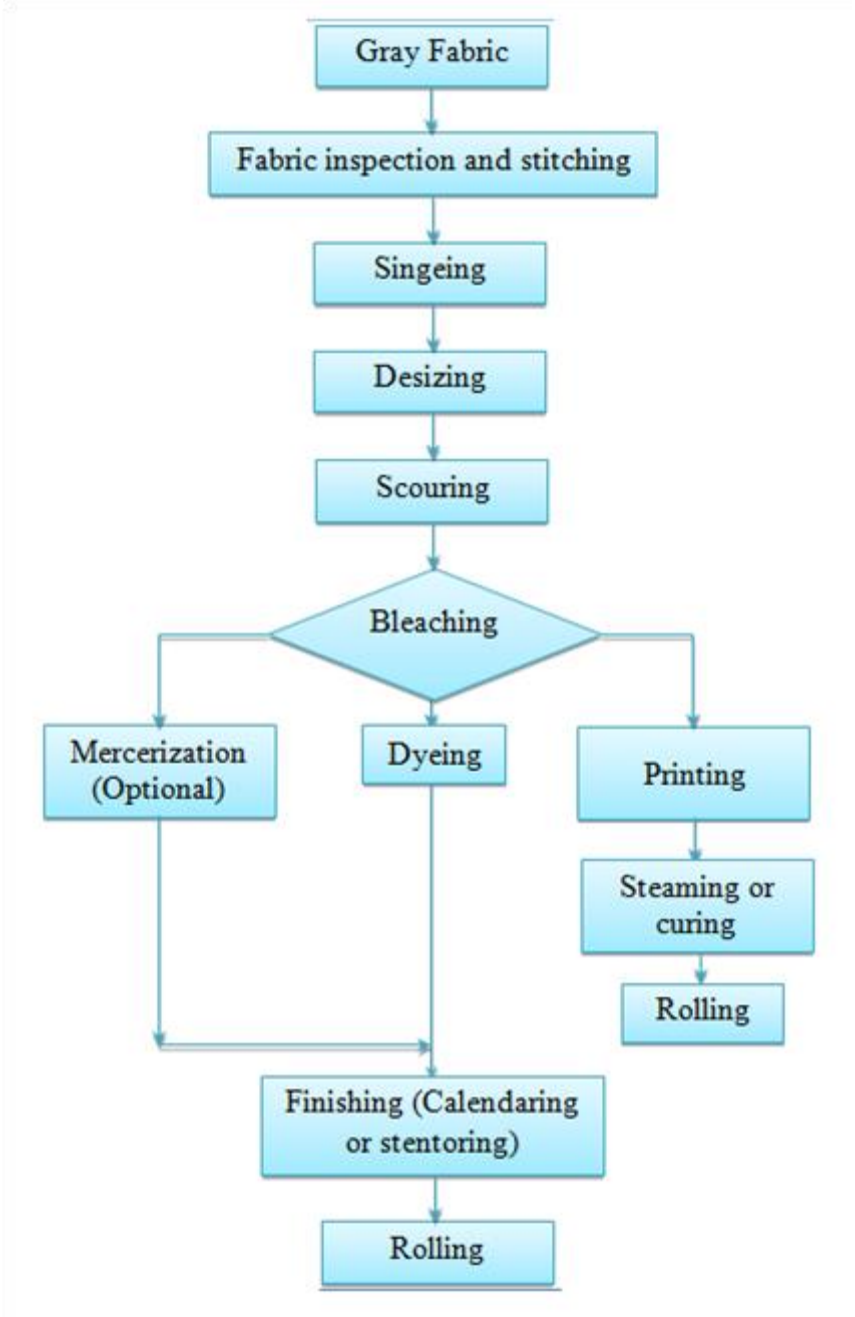
- Fabric passes through dryers or stenter machines (if required).
- Heat is supplied via steam lines from the natural gas boiler.
- Optional finishing chemicals or softeners can be applied for smoothness and sheen.

9. Quality Inspection and Packing

Purpose: Ensure final product meets quality standards.

Activities:

- Fabric is visually inspected for color consistency, defects, and shrinkage.
- Rolls are packed in protective sheets for storage and dispatch.



5.11.3 Source and Quantity of Raw Materials:

Raw Material	Source	Estimated Quantity (Per Day)
Grey Knitted Fabric	Local textile suppliers	4,000 kg/day
Reactive/Disperse Dyes	Approved chemical suppliers	80–200 kg/day (depending on shade depth)
Auxiliary Chemicals	Certified vendors	300–500 kg/day
Water	Local water supply / tube well	200,000–300,000 liters/day
Natural Gas	SNGPL connection	As per boiler requirement

(Dye and chemical consumption may slightly varies depending on color depth and fabric type.)

5.11.4 Collection, Storage and Transport of Raw Materials

- Grey fabric will be transported in covered vehicles.
- Stored in designated dry storage areas.
- Dyes and chemicals will be stored in:
    - Ventilated chemical storage room
    - On spill-proof flooring
    - With proper labeling and MSDS availability
- Hazardous chemicals will be stored with secondary containment.
- Material handling will use trolleys and forklifts.
- FIFO (First-In-First-Out) inventory system will be adopted.

5.11.5 Operational Equipment and Machinery

The proposed machinery includes:

- Jet Dyeing Machines (Low Liquor Ratio)
- Dryers / Stenter Machine
- Natural Gas–Fired Steam Boiler
- Water Storage Tanks

- Effluent Treatment Plant (ETP)
- Chemical Dosing System
- Air Compressor
- Water Pumps
- Fabric Inspection Machine
- Weighing and Packing Equipment

All machinery will be modern and energy-efficient to reduce environmental impact. Machinery layout is provided as Annexure with report.

5.11.6 Production Capacity of the Unit

Product	Production Capacity
Dyed Knitted Fabric	4,000 kg/day

5.12 Available Facilities

5.12.1 Water Usage Source & Quantity

The proposed knitted fabric dyeing unit will have significant water requirements due to fabric washing, dyeing, rinsing, and ETP operations, in addition to domestic use. The estimated water consumption is approximately 200–300 m^3/day, sourced from the municipal water supply or approved groundwater source. Water will be efficiently managed through low-liquor-ratio jet dyeing machines and recycling within the ETP to reduce overall consumption.

5.12.2 Wastewater Generation (Quantity and Quality) and Disposal Method

The unit will generate wastewater primarily from dyeing, washing, and rinsing operations. Estimated wastewater volume is approximately 180–270 m^3/day. The effluent will contain residual dyes, salts, and auxiliary chemicals.

Disposal / Treatment:

- Wastewater will be collected and treated in a dedicated Effluent Treatment Plant (ETP), including neutralization, biological treatment, clarification, and sludge dewatering.
- Treated water will comply with Punjab Environmental Quality Standards (PEQS) before discharge or potential reuse in non-critical processes.
- Sludge generated from ETP will be properly dewatered and disposed of through authorized hazardous waste handlers.

5.12.3 Air Emissions and Control Measures

Air emissions from the dyeing unit will primarily include:

- Flue gases from the natural gas-fired boiler (CO_2 and NOx)
- Minor fugitive emissions from fabric handling and chemical dosing areas

Control Measures:

- Use of natural gas as clean fuel with low-NOx burners
- Proper stack height for dispersion of boiler emissions
- Local exhaust ventilation (LEV) in chemical handling and dosing zones
- Covered storage for chemicals and raw fabrics to minimize dust
- Workers will use appropriate PPE (masks, gloves)

These measures will ensure compliance with PEQS and minimize occupational exposure.

5.12.4 Solid Waste Generation and Disposal Method

Solid waste will include Fabric lint and scrap, ETP sludge, Empty chemical containers and packaging material

Management Approach:

- Lint and scrap will be collected and recycled or sold to authorized recyclers

- Chemical containers will be washed, labeled, and either returned to suppliers or disposed safely
- Remaining solid waste will be disposed of through municipal approved solid waste facilities

5.12.5 Operational Hours of the Facility

The facility will operate for approximately 8–10 hours per day, for 300 working days per year, depending on market demand. Operations will be carried out during daytime to minimize environmental and social impacts.

5.12.6 Energy Requirements and Sources

Energy requirements for the facility include:

- Electricity for jet dyeing machines, hydro-extractors, dryers, pumps, and lighting
- Steam generated via a natural gas-fired boiler
- Backup power through a diesel generator for emergencies
- Use of energy-efficient machinery, motors, and insulated pipelines to reduce electricity and fuel consumption.

5.12.7 Emergency Response and Safety Features

The unit will be equipped with appropriate occupational health and safety systems, including:

- Fire extinguishers and fire alarms at strategic locations
- Clearly marked emergency exits and evacuation routes
- First-aid kits and trained personnel
- Proper electrical grounding, wiring, and safety interlocks on machines
- Regular safety drills and preventive maintenance of all equipment
- Spill containment and chemical handling procedures

These measures ensure worker safety, fire prevention, and rapid response to emergencies, maintaining a safe operational environment.

5.12.8 Expected Project Life Span

The proposed project is expected to have a project life of 25-30 years, subject to proper operation, maintenance, and compliance with environmental regulations.

5.12.9 Restoration and Rehabilitation Plans

In case of project closure, all machinery will be dismantled, and the site will be cleaned. Any remaining waste will be disposed of through approved channels. The site will be restored to a condition suitable for future industrial use, ensuring no adverse environmental impacts remain.

5.12.10 Any Green or Sustainable Features Planned

The project will incorporate the following environmental sustainability measures:

- Rainwater harvesting system for non-potable use
- Use of energy-efficient motors and equipment
- Dust suppression and waste minimization practices
- Proper housekeeping and environmental management plan (EMP) implementation.

5.13 Restoration and Rehabilitation Plan

The project is located within an agricultural/industrial area, but given the nature of the development, there are no significant concerns related to displacement or disruption to local residents. The project is designed to avoid the need for relocation or demolition of any existing structures, ensuring minimal impact on the surrounding community. Therefore, there is no immediate need for restoration, rehabilitation, or relocation. The development will proceed in alignment with sustainable practices within the designated area. Over its estimated 25-year operational lifespan, all civil structures and infrastructure will undergo periodic renovations to maintain operational efficiency and safety standards, without requiring extensive rehabilitation or affecting the residential community.

5.14Safety Signs/Safety Boards

Safety signage plays a crucial role in accident prevention and risk communication at the workplace. These signs and symbols, designed to be easily understood by all employees, are essential for conveying important safety information and instructions. The project will ensure that safety signs, symbols, and boards are prominently displayed across all departments, facilitating a culture of safety and awareness among workers and staff. This approach not only helps in mitigating hazards but also reinforces the project's commitment to maintaining a secure and health-conscious work.

3 Safety Signs & Symbols

5.15Government Approvals and Leases

Compliance with environmental regulations is paramount, necessitating approval from the Environmental Protection Agency (EPA) of Punjab, as per Section 12 of the Punjab Environmental Protection (Amendment) Act 2012. The preparation of this report for submission to EPA Punjab is a critical step towards securing the necessary governmental endorsements to commence construction, underscoring the project's adherence to legal and environmental mandates.

6 DESCRIPTION OF ENVIRONMENT

The Environmental Baseline Study serves as a foundational element of the Environmental Impact Assessment (EIA) for the proposed project. Its primary purpose is to create a comprehensive database that facilitates the prediction and management of potential environmental impacts resulting from the project's construction and operation phases. This study encompasses a detailed examination of the project area, highlighting regional resources likely to be influenced by the project alongside those anticipated to remain unaffected.

6.1 Data Collection

The data collection phase involved several key activities aimed at understanding the existing environmental conditions and gathering community and stakeholder insights:

Site Visits:

A thorough survey of the field area was undertaken to collect pertinent data directly from the project site, ensuring a grounded understanding of the physical, ecological, and socioeconomic settings.

Interviews with the Public and Stakeholders:

Engaging with the public and project stakeholders provided valuable perspectives on the proposed project. These interactions offered insights into public opinion and expectations regarding the project's implementation.

Consultations with Organizations:

Meetings with various Governmental and Non-Governmental Organizations (NGOs) were conducted to gather additional relevant data. The views and feedback obtained from these organizations were documented to enrich the EIA report with diverse perspectives on the project's potential environmental impact.

The environmental baseline study focuses on three primary components:

- Physical Environment

- Ecological/Biological Environment
- Socioeconomic Environment

The comprehensive approach to data collection and analysis within the environmental baseline study ensures that all potential impacts of the proposed project are anticipated and addressed. This process not only aids in the responsible planning and implementation of the project but also aligns with regulatory requirements and community expectations, paving the way for sustainable development.

6.2 Physical Environment

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

6.2.1 Geological Formation

Sialkot district is located between 31° 55' to 32° 51' north latitudes, and 74° 13' to 74° 57' east longitudes. The district is bounded on the northwest by Gujrat district, on the north and northeast by occupied Jammu and Kashmir State, on the east and southeast by Narowal district, and on the west and southwest by Gujranwala district, while on the south it just touches the boundaries of Sheikhupura district.

6.2.2 Seismicity

Pakistan lies on an active seismic belt of earth. Seismic observations indicate that hundreds of shocks originate every year. Mostly, these seismic waves are of low intensity and do not have significant effect. According to seismic zones of UN- Habitat the project area falls under Zone 2A. The seismic zoning is shown in the figure.

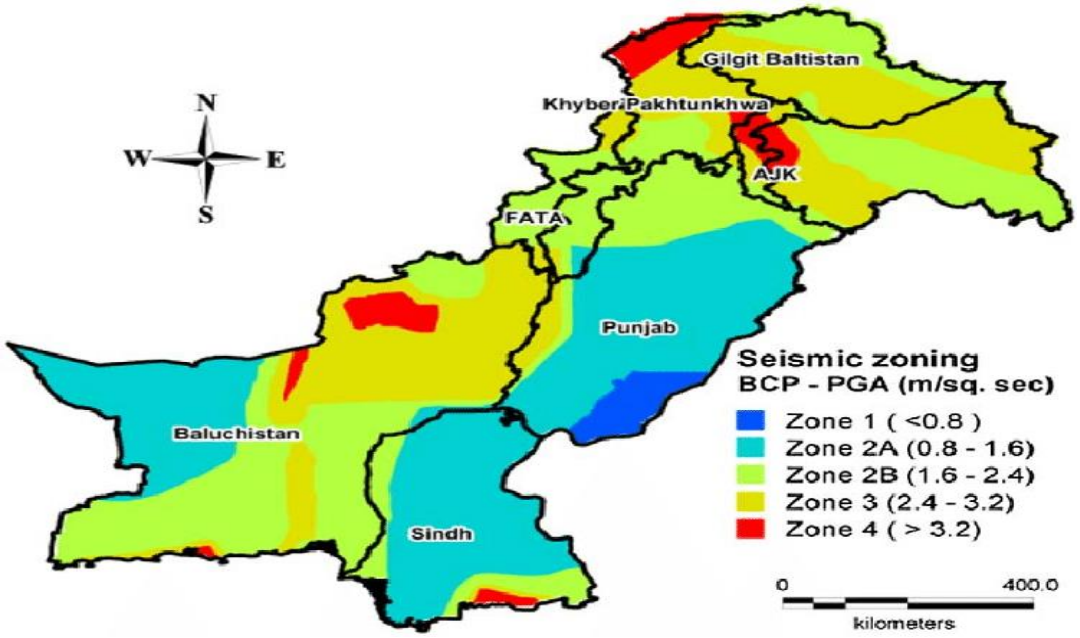


Figure 4 Seismic Zone of Pakistan

6.2.3 Climate

Sialkot district has a humid, sub-tropical climate. Sialkot is chilly during the winters, and hot and humid during the summers. The summer season starts in April and continues till October. June is the hottest month. The mean maximum and minimum temperatures during the month of June are 40 °C and 25 °C. January is the coldest month. The mean maximum and minimum temperatures of Sialkot during this month are 19 °C and 5 °C respectively. The temperature during winter may sometimes drop to 0 °C. The land is, generally, plain and fertile. Most of the rain falls during the Monsoon season in summer which often results in flooding when combined with melt water from Himalayan glaciers entering local rivers. The mean average annual rainfall in the district is 960 mm. The metrology data of the site is briefly described below:

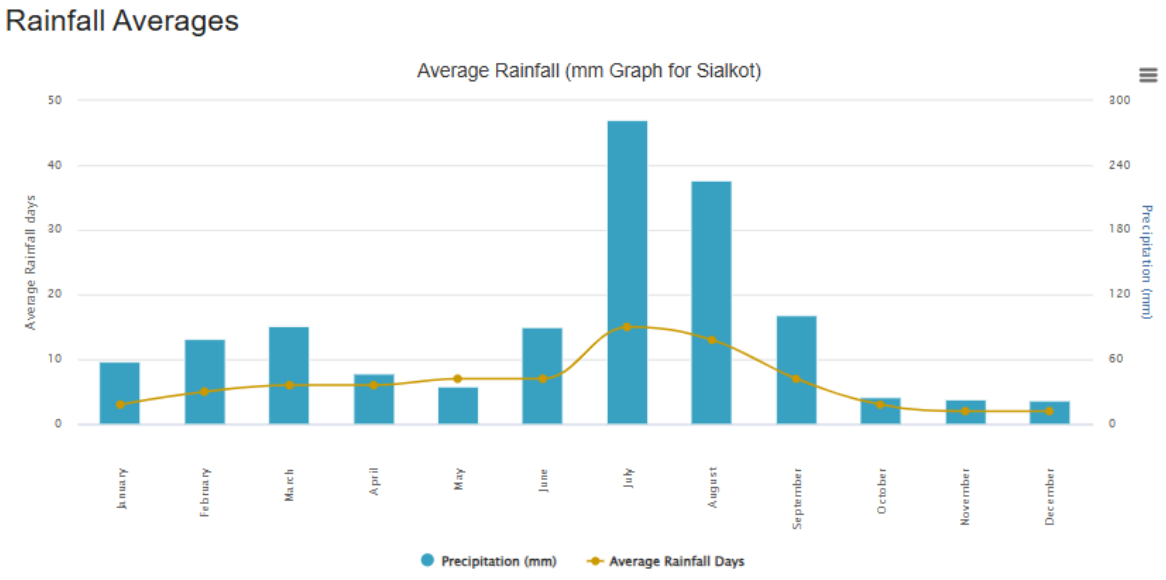
Table 6Mean Temperature, Precipitation, Humidity

Month	Mean Temperature Max (Celsius)	Mean Temperature Min (Celsius)	Precipitation (mm)	Relative Humidity (>10mm)
January	20	8	18	5
February	22	11	36	4
March	26	15	24	5
April	32	19	13	4

May	38	25	17	3
June	39	27	48	3
July	37	26	82	7
August	36	26	87	7
September	32	25	43	4
October	26	20	9	1
November	22	14	11	1
December	22	9	12	1
Annual mean	30.6	18.8	400	45

6.2.4 Seasons and Rainfall

The graph illustrates the monthly rainfall pattern for Sialkot, showing both the average precipitation in millimeters and the number of rainy days. Rainfall remains moderate from January to March, then decreases during April and May. With the onset of the monsoon, rainfall begins to rise in June and reaches its peak in July, which records the highest precipitation and the greatest number of rainy days. August also experiences heavy rainfall, though slightly less than July. From September onward, rainfall gradually decreases, and the period from October to December remains the driest, with very low precipitation and fewer rainy days. Overall, the graph clearly highlights a strong monsoon influence, with July and August being the wettest months, while late autumn and winter remain comparatively dry.



6.2.5 Soils

The textural class of soil in Sialkot was found to be clay loam which was in line with whereby it was reported that soil texture in most of the examined sites of Sialkot district was described as loam.

6.2.6 Temperature

The ambient temperature of the proposed project region varies from summer to winter. The change in temperature has a direct influence on the environment of the project area. Hot and dry conditions during summer season change the air quality by increasing in particulate matters due to drying of road pavements and open soil.

6.2.7 Water Resources

Water resources of the area are discussed under two broad headings, surface water resources and groundwater resources.

Surface Water

Surface waters resources are usually exposed to the surface of earth in the form of mobile and immobile situations which includes snow-clad mountains, rivers, non-river streams, rain, sleet, wetlands, and oceans. Surface resourced waters are highly susceptible to natural and anthropogenic derived contamination in terms of Chemical and Biological contamination and thus are not used for sensitive applications such as drinking directly unless it is pre-treated. Among surface waters, district & near the project extremities there is a distributor canal of Rakh Branch, which is used for the irrigation purpose etc.

Ground Water

Ground water resources are found hidden and camouflaged into the surface of earth in the form of mobile and immobile state and exist as shallow and deep wells, confined and unconfined aquifers, springs and watersheds. Ground resourced waters are not easily susceptible to natural and anthropogenic derived contamination caused by Chemical/Biological pollution and thus are directly used for sensitive applications such as drinking even it is un-treated. Main visible pollutants such as turbidity, color and

odor usually remain absent in ground extracted waters. Invisible biological contaminants such as Bacteria, Protozoa and Viruses are also not expected in sub-surface water regimes unless it is contaminated by un-expected upheaval. Water constitutes an important section of Physical Environment of an IEE Study to define its magnitude, quality, and occurrence throughout the entire project corridor. On geo-sphereic earth water is amounting to 3% as freshwater resource of the total water reserve. Of this groundwater comprises 95%, surface water 3.5% and soil moisture 1.5%. Out of all the fresh water on the earth, only 0.36% is readily available for diverse uses and applications. The project area lies in the district of Faisalabad; the groundwater table normally exists 25 to 30 meters below the ground level and contains a high level of salinity.

6.3 Environmental Baseline Monitoring

6.3.1 Noise Levels

Noise is described as an unwanted sound emitted from un-avoidable sources of anthropogenic activities. Daily based natural induced sources of noise are rare to none but human induced noise sources are plentiful and un-avoidable. Physically, there is no distinction between sound and noise. Sound is sensory.

The perception and the complex pattern of sound waves is labeled noise, music, speech, low altitude aero plane flying etc. The noise pollution in the project area is a source of pollution and nuisance. Among eight noise measurement locations in the cities, the study says, on average, the noise level ranged from 57-60 dB (A) in and around the project site.

6.3.2 Ambient Air Quality

Atmospheric pollution means the imbalance in the normal air chemistry. It can occur due to the addition of a new chemical into the atmosphere or by the change in concentration of the chemicals already existing in the atmosphere. Atmospheric pollution particularly in urban areas has a strong impact upon daily life. The reasons for such changes can both be natural as well as anthropogenic. Ambient air quality is a key to measure the concentration of the various chemicals in atmosphere; especially

of the chemicals which pose detrimental effects on health, safety, and environment, to have a comparison with their safe concentrations, as established in WHO Standards and PEQS. Lab reports has been attached showing the ambient air quality data.

6.3.3 Surface Water and Ground Water

There are no surface water resources like canals or ponds, near the project area. The area surrounding the project site is poorly drained.

Groundwater is the major source for drinking and household use in the study area. Water quality deterioration has been reported as one of the most serious problems in Sialkot City, Punjab, Pakistan. The city is under severe water stress because of the rapid decline in water quantity and quality.

6.4 Biological Environment

In this section, the baseline environmental conditions pertaining to biological environment are described. These conditions have subsequently been used to identify the potential impacts on the biological environment that are likely to arise from the project activities.

6.4.1 Fauna

The main fauna of the project comprises of mammals, birds, and reptiles.

Mammals Although most of the study area comprises agricultural lands, due to presence of shrubs of grass, shrubs, and several agricultural crops like wheat in the surroundings, 10 mammalian species have been recorded. Dense vegetation provides living shelter to the mammals like Asiatic Jackal, Five Stripped Palm Squirrel, Indian Crested Porcupine, Indian Desert Jird, Indian Gerbil, Cape Hare, Small Indian Mongoose, House Mouse, House Rat, and Jungli Cat. All the 10 species are commonly found in the project areas as well as in the country and no significant threat can be expected from any activity.

Reptiles During the study several types of burros and droppings were found which indicate the presence of respected reptiles. None of the reptiles and mammalian

species found here are listed under any category of the IUCN Red List. Ten species of reptiles were also recorded including snakes, lizards, and agamas.

English Name	Scientific Name
Mammals	
Asiatic Jackal	*Canis aurius*
Five Stripped Palm Squirrel	*Funambulus pennanti*
Indian Crested Porcupine	*Hystrix indica*
Indian Desert Jird	*Merioneshurrionae*
Reptiles	
Brilliant Agama	*Trapelus (Agama) agilisisolepis*
Indian Cobra	*Najanajanaja*
Pakistan Ribbon Snake	*Psammophisleithii*
Saw scaled Viper	*Echiscarinatus*

6.4.2 Endangered Species

There are no floral or faunal species inhabiting the project area that are included in the Red Data Book of IUCN. The populations of birds are reported to be reduced over time due to excessive pesticide sprays in agricultural crops and loss of habitat.

6.4.3 Flora

Based upon observations during the field visit many species of plants were directly observed in the project area. List of the floral species in the project area are given in the following.

Tree Species	Species name
Kikar.	*Acacia nilotica*
Talhi.	*Alhaji maurorum*
Neem.	*Dalbergia sissoo Roxb*
Gaah	*Albizzia lebbek*
Jawar.	*Calotropis procera*

Gandum.	*Azadirachta indica (L.) Adelb.*
Makae.	*Triticum aestivum*
Kahi.	*Veazea nays*
Lawo.	*Tamarix indica*
Jhangoori Ber.	*Tamarixaphylla*

6.4.4 Archaeological Sites or Wetlands

It is envisaged that no building of archaeological, cultural, or historical importance is expected to be damaged due to the installation of said project at the selected site. Moreover, there is no wetland or surface water body reported to be affected due to the installation of the aforesaid project.

6.5 Socio Economic Assessment

Most of the Sialkot's economy is based on agriculture. Sialkot is considered the best citrus-producing area of Pakistan and therefore is also known as the California of Pakistan. Sialkot is largest Kinnow-producing district of the world. It produces oranges that are considered high-quality and supplies them to different parts of the country. These oranges are also exported to other countries. Sialkot produces a large amount of wheat, cotton, rice, and vegetables that are transported to other parts of the country and exported to other countries.

There are also Textile mills, Rice processing plants and Nestle and Shezan juice factories.

The Sialkot Chamber of Commerce and Industry monitors industrial activity in the city and reports their findings to the Federation of Pakistan Chambers of Commerce & Industry and provincial government. A dry port is also under construction in Sialkot.

6.5.1 Demographic Profile

The total population of the city was 458,440. According to the 1998 census. The majority of the people in the city speak Punjabi with Shahpuri dialect. According to the 2017 Census of Pakistan, the population of city was recorded as 872,557 with a rise

of 43.94% from 1998. The population of the metropolitan area (City District) reached 3,903,588, in which around 1 million forms the urban population. The population of Sialkot Division was recorded as 8,181,499 by the 2017 Census of Pakistan.

Table 7 Demographic Profile

Sr#	Parameters	Rural	Urban	Total
1	Population	4113582	3760328	7873910
2	Male	2102745	1931770	4034515
3	Female	2010623	1828231	3838854
4	Transgender	214	327	541
5	Household	631434	593832	1225266

6.5.2 Languages and Major Casts

There is no specific tradition on specific occasions and are same as other cities of Punjab. There are no clashes found in the area, people live peacefully however there is a combination of different cast and creeds and religions because district Sialkot is agriculture in nature and people from different cities live for the jobs and different business. Major casts dwelling there, are Sheikh, Araeen and Rajput

6.5.3 Religion

The population of Sialkot is over 99% Muslim. Islamic influences are evident in the fundamental values of various inhabitants including cultural traditions, marriage, education, ceremonies, and policies with may reflect stark differences in rural villages as compared to urban areas.

6.5.4 Dress

Most of the people wear Qameez and Shalwar. English dress, shirt and Trousers are also common in Bahawalpur as well like other big cities of Pakistan.

6.6 Quality of Life Values

6.6.1 Health Facilities

Hospitals exist in the project area. There is a government hospital DHQ, Civil Hospital and Government Mian Mola Bakhash Hospital available in Sialkot. People also have access to private hospitals in city and sometimes to nearby private dispensaries. Fever, malaria and chest congestion, Hepatitis-C were reported as the common diseases of the project area. In the project area, health conditions are much developed.

6.6.2 Customs

The people are very much concerned about castes and beliefs, visiting shrines is very common among them.

6.6.3 Electric Supply

Power supply line goes all along the project area, and approximately 90% of the community can acquire electricity. Gas supply has been provided to the area, but few of the houses cannot afford to avail the service, so these houses depend upon fuel wood. But majority of the people belong to business communities, government sectors and having small jobs in district Sialkot.

PTCL telephone facility is available in all parts of the project area. Similarly, a mobile service is also available and is being used efficiently as a mode of communication in the project area.

6.6.4 Educational Facilities

In the 1998 census Literacy was defined as the "ability of a person to read a newspaper or write a simple letter in any language". Literacy is also measured in terms of literacy ratio and computed as percentage of literate persons among the population aged 10 years and above. The literacy ratio of the district Faisalabad is 60%, with a split of 60% for males and 56% for females. There are sharp differences in the literacy ratios by sex and areas. There are different government and private sector schools near the vicinity of the project area. People go to Sialkot and other cities of Pakistan for university education.

6.6.5 Agriculture

Major crops of the town are wheat, grain, peas, barley are the important crops of Rabi season, while Kharif crops are cotton, sugarcane, potato, bajra, oil seeds which are shipped by rail and road to other parts of the country.

6.6.6 Site of Physical, Cultural Heritage

There are no documented or protected sites of archaeological, cultural, historical & religious significance in the project area. No visible signs were observed of such sites while conducting the field work.

6.7 Site Suitability

As the site is far away from housing schemes and residential areas and no relocation is required for the establishment of the current project. The site is not fall in environmental sensitive area and all commodities are at a suitable distance from project site as they will not impact by the construction activities even locals will get more benefits and job opportunities. No replacement, relocation or rehabilitation is required for the development of the above-said project.

6.7.1 Project Response

90% of the respondents believed this project should be implemented. In their opinion, construction of the project will create labor opportunities for locals, and it will help to improve the economic conditions of the area. Construction of the project will also provide better living facilities for the people. The respondents also provided mitigation measures like certified contractors must be hired, proper plantation should be done, proper procedures should be followed etc. They said, if mitigation measures are implemented, they would have no objection.

Lab Reports of ambient air quality, water quality and noise level of the site are provided with the report.

7 IMPACTS AND MITIGATION MEASURES

This chapter provides a review of the potential impacts of the said project located at Mouza Sumbal Pur Tehsil Daska District Sialkot over an area of 169125 SFT. The estimated cost for the subject project will be about 95 million PKR. These impacts could be both positive and negative and have been classified accordingly by a thorough review of the construction and operational phases of the project. This assessment numerates the magnitude of these impacts with the aid of environmental checklist and presents effective mitigation measures to counter their adverse nature.

7.1 Purpose of Environmental Mitigation Measures

Environmental mitigation measures are essential for ensuring the sustainable operation of the asphalt manufacturing unit, aligning with environmental compliance, and safeguarding ecological integrity. The rationale behind these measures is dissected through a series of critical inquiries:

1. **Identification of the Problem**

The core issue arises when environmental resources are exploited unsustainably, leading to significant degradation. Such exploitation diminishes the environment's resilience and carrying capacity, severely impeding its natural recovery processes. In the context of the proposed project, this could manifest as pollution, habitat disruption, or resource depletion, directly impacting the local ecosystem's health and functionality.

2. **Timing for Addressing the Problem**

The environmental impacts of the project will become apparent from the onset of construction activities and continue throughout the operational phase. These effects are not confined to the project site but may extend to surrounding areas influenced by project activities. Early identification and timely intervention are crucial for preventing long-lasting or irreversible damage. Mitigation efforts should be initiated at the planning stage and integrated into all phases of the project lifecycle.

3. Location for Mitigation Efforts

Mitigation strategies should be applied at the source of the environmental impact. This means implementing measures directly within the project site and, as necessary, in adjacent areas that might be affected by project-related activities. Focusing on the origin of potential problems ensures targeted and effective mitigation, reducing the overall environmental footprint of the project.

4. Approach to Addressing the Problem

Addressing environmental issues necessitates adopting eco-friendly practices and technologies throughout the project's development and operation. Mitigation plans should include:

- Resource Efficiency: Minimizing the use of natural resources and promoting recycling and reuse to reduce waste.
- Pollution Control: Implementing advanced pollution control technologies and practices to minimize emissions, effluents, and waste generation.
- Habitat Protection: Avoiding or minimizing impacts on natural habitats and biodiversity, including the development of green belts and conservation areas.
- Community Engagement: Involving local communities and stakeholders in decision-making processes to ensure that mitigation measures address their concerns and benefit the local environment and population.
- Monitoring and Compliance: Establishing rigorous monitoring systems to assess the effectiveness of mitigation measures and ensure compliance with environmental regulations.

7.2 Impact Identification Methodology

The methodology for identifying potential environmental impacts associated with the proposed facility involves a comprehensive approach. It includes:

Review of Project Activities: Detailed examination of all phases of the project to understand the range of activities and their potential environmental interactions.

Environmental Study: Assessment of the surrounding environment to identify sensitive areas, ecological value, and any existing vulnerabilities.

Literature Review: Analysis of existing studies, reports, and publications related to similar projects to draw parallels and learn from past experiences.

Expert Judgment: Utilization of insights from environmental experts to predict potential impacts based on their expertise and knowledge of similar projects.

7.3 Approaches for Mitigation Measures

Mitigation of environmental impacts involves several strategies:

* **Avoid:** Altering project plans such as route or site adjustments to protect ecological or archaeological features.
* **Replace:** Creating equivalent ecological habitats elsewhere if the original habitat is disturbed.
* **Reduce:** Implementing measures like filters, cyclones, noise barriers, and visual screening to lessen impacts.
* **Restore:** Rehabilitating the site post-operations to their original state or better.
* **Compensate:** Providing support to displaced communities or individuals through relocation, facilities, or financial means.

7.4 Impacts and Mitigation Measures due to Location

Development will permanently alter the existing land use from agricultural/open land to industrial land, impacting the rural character of the area. Construction activities will generate dust and noise, potentially affecting nearby communities and air quality temporarily. Movement of construction materials and, later, residential traffic could increase congestion on local access roads.

Mitigation Measures

Allocate green areas, parks, and open spaces within the project to maintain environmental balance. Sprinkle water on unpaved areas during construction to control dust emissions. Use noise barriers or schedule high-noise activities during

daytime hours to minimize disturbance. Ensure that construction machinery is fitted with appropriate noise suppression equipment. Implement landscaping plans that use native tree and shrub species.

7.5 Impacts and Mitigation Measures in Construction Phase

i. Air Pollution

Impacts:

During the construction phase, significant dust emissions are expected from activities such as land clearing, excavation, movement of vehicles, and material handling. Construction machinery powered by diesel engines will also release particulate matter (PM), carbon monoxide (CO), and nitrogen oxides (NOx) into the atmosphere, potentially deteriorating local air quality. Dust may cause respiratory problems among workers and nearby residents if left uncontrolled.

Mitigation Measure:

Dust emissions, one of the major concerns, will be controlled through regular water sprinkling on all unpaved roads, open construction sites, and storage areas, particularly during dry and windy conditions. Additionally, construction material transport vehicles will be covered with tarpaulin sheets to prevent dust dispersion. Machinery and equipment will be regularly maintained to ensure that emissions remain within permissible limits, reducing air pollution.

ii. Noise Pollution

Impacts:

Construction activities, including excavation, operation of heavy machinery, and material transport, will generate high noise levels, potentially affecting the quality of life of nearby residents and creating stressful working conditions for laborers. Prolonged exposure to elevated noise levels can cause hearing loss and increase stress.

Mitigation Measure

Noise pollution will be mitigated by limiting noisy construction activities to daytime hours, especially in proximity to residential areas. Construction machinery will be fitted with silencers and sound-dampening equipment to minimize noise levels. Workers will be provided with ear protection gear such as earmuffs and earplugs, and a noise monitoring program will be initiated to ensure compliance with National Environmental Quality Standards (NEQS).

iii. Soil Erosion and Degradation

Excavation, land leveling, and uncontrolled surface runoff during construction can cause soil erosion, leading to sediment deposition in local water bodies and loss of fertile topsoil. The disturbed soil surface becomes highly vulnerable to erosion by wind and water.

Mitigation Measures

To prevent this, temporary stormwater drainage channels and sediment control pits will be constructed around the site. Excavated soil will be stored properly with protective coverings to minimize erosion. Re-vegetation and re-compaction of exposed areas will be done promptly after construction activities to stabilize the soil.

iv. Water Pollution

Impacts:

During the construction phase, accidental spills of fuels, lubricants, and other hazardous substances could pollute nearby surface water resources or groundwater. In addition, improper disposal of wastewater from construction camps and equipment washing areas could contaminate water bodies.

Mitigation Measures

To mitigate this, all chemicals and fuels will be stored in designated areas with secondary containment. Mobile toilets and septic tanks will be provided for workers, and wastewater will be managed through proper drainage and treatment systems.

Construction sites will be designed to minimize runoff carrying pollutants into natural drainage courses.

v. Solid Waste Generation

Impacts:

Solid waste will be generated from packaging materials, construction debris, leftover concrete, discarded steel, wood, and plastic materials. Improper disposal of such waste can create land pollution, visual nuisance, and health hazards.

Mitigation Measure:

A proper waste management plan will be implemented where waste materials will be segregated into reusable, recyclable, and non-recyclable categories. Authorized vendors will be hired for the collection, recycling, and disposal of waste. Efforts will also be made to reuse construction material, such as wood and scrap metal, to minimize waste generation.

vi. Occupational Health & Safety

Impacts:

The construction phase will expose workers to numerous health and safety risks, including falling from heights, injuries from machinery, exposure to hazardous chemicals, and accidents due to inadequate site safety. Without proper precautions, these risks could result in serious injuries or fatalities.

Mitigation Measure:

A comprehensive Health and Safety Management Plan (HSMP) will be developed and enforced. Workers will be provided with personal protective equipment (PPE) such as helmets, safety boots, gloves, high-visibility jackets, and safety harnesses. Regular safety training sessions will be conducted, and first-aid kits and emergency medical services will be readily available onsite.

vii. Flora and Fauna Disruption

Impact:

Site preparation activities may require the removal of trees, shrubs, and other vegetation, leading to habitat loss for small wildlife species. The clearing of vegetation could also contribute to soil erosion.

Mitigation Measures:

To mitigate these impacts, vegetation clearance will be minimized as much as possible. Trees of significant ecological or aesthetic value will be preserved. After construction, compensatory plantation with native species will be undertaken to restore green cover and re-establish ecological balance in the area.

7.6 Impacts and Mitigation Measure During Operational Phase

i. Air Pollution

During the operational phase, air pollution from the facility is expected primarily due to emissions from the natural gas-fired boiler, minor fugitive dust from fabric handling, chemical dosing, and vehicular movement within the plant.

Mitigation:

To mitigate these impacts, local exhaust ventilation, covered storage areas, and green buffer plantations around operational zones will be implemented. Use of clean fuel (natural gas) and low-NOx burners will minimize gaseous emissions, while workers will be provided with personal protective equipment (PPE) to reduce occupational exposure.

ii. Solid Waste Generation

Solid waste will include fabric lint, ETP sludge, and empty chemical containers. Waste will be collected, segregated, and stored in designated areas, with recyclable material reused or sold to authorized recyclers. Residual solid waste and sludge will be disposed of through EPA-approved channels, ensuring compliance with environmental standards.

iii. Water Resource Depletion

Water demand during operations is high due to dyeing, rinsing, and effluent treatment processes. To mitigate water resource depletion, low-liquor-ratio dyeing machines, counter-current rinsing, water recycling, and rainwater harvesting systems will be implemented. Awareness campaigns will also promote responsible water usage among staff.

iv. Wastewater Generation

Wastewater generated from dyeing, rinsing, and cleaning processes could potentially contaminate soil and surface water if untreated. All wastewater will be collected and treated in a modern Effluent Treatment Plant (ETP). Treated water will comply with Punjab Environmental Quality Standards (PEQS) before discharge or reuse for non-critical operations such as landscaping or equipment washing.

v. Noise Pollution

Noise may arise from dyeing machines, hydro-extractors, pumps, and material handling operations. Mitigation measures include routine maintenance of machinery, insulation, limiting high-noise operations to daytime, and plantation of green buffers around noisy areas. Workers will use ear protection equipment where necessary.

vi. Traffic Congestion and Safety Issues

Traffic congestion and safety risks may result from movement of material transport vehicles and employee commuting. The internal road network is designed with adequate width, turning radii, parking spaces, and pedestrian walkways. Speed limits, signage, speed breakers, and a regularly updated traffic management plan will help control congestion and ensure road safety.

vii. Visual and Aesthetic Impacts

Visual and aesthetic impacts may result from unorganized storage, equipment, and wastewater infrastructure. These will be mitigated through organized storage of chemicals and fabrics, maintenance of green belts and landscaped areas, and use of

native and low-maintenance plant species. Strict enforcement of layout and design guidelines will ensure the facility remains orderly and visually acceptable.

7.7 Environmental Enhancement Measures

Here are the environmental and safety measures:

- ✓ Workers will be trained in first aid and provided with medical facilities.
- ✓ Drugs and narcotics are prohibited during working hours.
- ✓ Machinery operators will wear proper protective gear.
- ✓ Water will be sprinkled on dusty roads and tracks.
- ✓ Personal Protective Equipment (PPE) will be provided during construction activities.
- ✓ Construction and domestic waste will be properly disposed of or utilized.
- ✓ Local communities will be informed in advance about construction work.
- ✓ Machinery will never be left unattended.
- ✓ Traffic management will be implemented to avoid disruptions, and overloading will be prohibited.
- ✓ Safety signs and boards will be displayed during construction.
- ✓ Standard Operating Procedures (SOPs) will be followed, along with Health, Safety, and Environmental (HSE) conditions.
- ✓ Native plants will be used to restore the area, and a tree plantation plan will be created.
- ✓ Solid waste will be handed over to contractors with an agreement.
- ✓ Noise levels will be controlled using appropriate measures.
- ✓ First aid facilities will be available at the site.
- ✓ All possible measures will be adopted to ensure the project is safe and environmentally friendly.
- ✓ Employees will be trained in Environmental, Health, and Safety (EHS) policies and practices.
- ✓ Environmental management and compliance monitoring will be strictly followed.

8 ENVIRONMENTAL MANAGEMENT & MONITORING PLAN

The Environmental Management and Monitoring Plan (EMMP) is a crucial component of the project's overarching strategy to ensure environmental sustainability and compliance throughout the construction and operational phases of said project. The primary aim of the EMMP is to effectively manage and mitigate adverse environmental impacts identified in the Environmental Assessment report, promoting environmental stewardship and sustainable development practices.

8.1 Objectives of the Environmental Management Program

The objectives of the EMMP are multi-faceted, focusing on the comprehensive management of environmental aspects associated with the project:

- Defining Roles and Responsibilities
- Mitigation Measures
- Monitoring Mechanism
- Communication and Documentation
- Training and Capacity Building
- Management and Implementation

By addressing these objectives, the EMMP serves as a comprehensive guide for the project team to not only comply with regulatory requirements but also to adopt best practices in environmental management. This initiative-taking approach to environmental protection will help to minimize the project's ecological footprint, promote sustainability, and contribute positively to the local community and environment.

Table 8 Environmental Management Plan

Sr. #	Impacts	Mitigation Measure	Responsibility	
			Implementation	Monitoring
Construction Phase				
1.	**Soil Erosion & Contamination** Due to the proposed construction activities, soil erosion and contamination may occur. Soil erosion may occur on roadside and excavation of earth/cutting operations whereas contamination of soil may be caused by oil and chemical spills at asphalt plant sites, equipment washing yards, camp sites and temporary construction site office. This impact is, however,	• Excess spoil should be reused where possible and residual spoil can be disposed of at designated site to prevent erosion • Loss of topsoil can be avoided by stripping and storing topsoil prior to construction, then re-using it to cover the completed cell • Confining excavations to the specified spots as per the approved engineering drawings. Unnecessary excavations need to be avoided;	Construction Contractor	Proponent

	temporary and low adverse in nature			
2.	**Air Quality and Dust** Air quality will be affected by fugitive dust emissions from construction machinery; dust from the unpaved surface and construction vehicles. Emissions may be carried over longer distances depending upon the wind speed, direction, temperature of surrounding air and atmospheric stability. Besides, multifarious construction activities and increased vehicular traffic (construction vehicles) would also contribute to the	• All vehicles, machinery, equipment and generators used during construction activities should be kept in good working condition and be properly tuned and maintained in order to minimize the exhaust emissions • Preventive measures against dust should be adopted for on-site mixing and unloading operations; • Construction materials (sand, gravel, and rocks) and spoil materials will be transported through trucks covered with tarpaulins and all vehicles (e.g., trucks, equipment, and other vehicles that support construction works) will comply with	Construction Contractor	Proponent

	localized airborne dust. The Suspended Particulate Matter (SPM) of the size smaller than 10 micrometre (PM_{10}) tends to remain suspended in the environment for much longer and persistent time and is an environmental hazard. The objectionable impacts of settling of the suspended dust would be its dry deposition on vegetation, motor vehicles, structures, and other exposed surfaces. Similarly, exhausts from generators can also have impacts on air quality in the vicinity. The deteriorated ambient air quality may cause health hazards to the residents of nearby	the PEQS for carbon emissions and noise; • Regular water sprinkling of the site should be carried out to suppress excessive dust emission(s); • Emissions from power generators and construction machinery are important point sources at the construction sites. Proper maintenance and repair is needed to minimize the hazardous emissions		

	residential colonies. The overall impact on the quality of air during the construction phase will be high adverse, however, it will be temporary and limited to the project's implementation phase only.			
3.	**Visual Aesthetics & Landscape Changes** Visual intrusion from large piles of excavated and construction material is one of the possible adverse impacts during the construction phase of the project. This impact is considered to be temporary and low adverse in nature.	• Material stockpiles should be removed as soon as work is completed and the area re-landscaped. During work, these stockpiles should be covered with tarpaulin and watered regularly.	Construction Contractor	Proponent
4.	**Noise and Vibration**	• The most common way to reduce the noise levels of common	Construction Contractors	Proponent

	The noise and vibration will be produced due to the operation of construction machinery equipment. Sources of noise and vibration during construction are heavy machinery. Noise and vibration are perceived as one of the most undesirable consequences of construction activity. The above machinery is expected to generate noise levels that would be severe in the Project Area. The noise and vibration may cause health hazards to the residents of nearby residential areas and sensitive receptors e.g. hospitals, educational institutes and mosques etc.	construction equipment is through worksite modifications. • All workers who need to work within the zone must wear hearing protection		

5.	**Solid Waste Generation** Different type of waste is likely to be generated during the construction phase of the proposed Project. The municipal waste will be in the form of food, cans, paper and wastewater from construction camps toilets and washing yards. Construction waste will include excavated soil, sand, gravel, rocks, asphalt, pieces of concrete, bricks, wood, metal pieces and electrical wires. Whereas, hazardous waste can be comprised of paints and construction chemicals. All these, if left unattended, can become a	• Waste disposal plan must be reviewed during the entire construction phase • Solid Waste generated during construction will be safely disposed in demarcated waste disposal sites and the contractor will provide a proper waste management plan; • Construction waste such as waste wood can be recovered and recycled into wood for new building projects, and cement, bricks, and plaster can be crushed and reused in other construction and building projects	Construction Contractor	Proponent

	source of nuisance and environmental pollution in the Project Area.			
6.	**Wastewater Generation** Wastewater will be generated at the construction site by the workers. If the generated wastewater is not properly treated or disposed of, this may contaminate the surface water sources	• Proper monitoring to check the compliance of PEQS will be carried out	Construction Contractors	Proponent
7.	**Flora & Fauna** No negative impact on the ecological environment will take place on account of cutting of any trees in the project area and clearing of vegetation from the site.	• Trees and ornamental plants shall be planted along the project boundary which will increase the aesthetic value of the site and will combat pollution. • Landscaping seemed to be a powerful mitigation activity with a positive impact.	Construction Contractors	Proponent

Operational Phase EMMP

OPERATIONAL PHASE	Impact	Mitigation Measures	Monitoring	Responsible
1. Air Quality	Air quality in the project area may be affected due to emissions from the natural gas-fired boiler, fugitive dust from fabric handling, chemical dosing, and vehicular movement within the facility. Deteriorated air quality may cause public health risks, nuisance, and potential adverse impacts on the bio-physical environment.	• Regular inspection and maintenance of boiler and exhaust stacks to ensure compliance with PEQS. • Covered storage of chemicals and fabrics to minimize dust and emissions. • Plantation of green buffers around operational zones to absorb pollutants.	Regular Monitoring	Proponent
2. Noise	Noise levels are anticipated to increase mainly due to machinery operation (jet dyeing machines, hydro-extractors, pumps) and material handling vehicles. Excessive noise may affect worker health and nearby communities.	• Regular maintenance of machinery and insulation of noisy equipment. • Limiting high-noise operations to daytime. • Workers to use ear protection (PPE).	Regular Monitoring	Proponent

3. Wastewater	Improper operation and maintenance of the Effluent Treatment Plant (ETP) may lead to discharge of untreated wastewater containing dyes and chemicals, causing soil and water contamination, foul smell, and health hazards.	• Proper operation and regular maintenance of ETP. • Collection of wastewater in covered channels to prevent spillage. • Staff training to avoid accidental chemical discharge.	Regular Monitoring	Proponent
4. Solid Waste	Solid waste including fabric lint, ETP sludge, and empty chemical containers, if not managed properly, may degrade soil, block drains, produce odor, and pose health risks.	• Efficient solid waste collection, segregation, storage, and disposal system. • Reuse/recycling of lint and chemical containers where feasible. • Prohibit disposal of waste in open areas; fines for non-compliance.	Regular Monitoring	Proponent
5. Fauna	There is no protected area or wildlife sanctuary in the project area; therefore, normal operations are expected to have an insignificant impact on wildlife.	• Maintenance of green belts and landscaped areas. • Use of environmentally safe fertilizers and monitoring of chemical runoff to protect local flora and fauna.	Regular Monitoring	Proponent

Table 9 Environmental Monitoring Plan

ENVIRONMENTAL MONITORING PLAN			
Receptors	**Monitoring Parameters**	**Monitoring & Reporting Frequency**	**Responsibility**
Water Resources/ Water Quality	Monitoring of Physical, Chemical and Biological parameters and its compliance with PEQS, 2016 for surface water and drinking water.	Once before the start of construction activities; On quarterly basis during the construction phase; Bi-annually for at least one year during O&M phase; and Visual inspection daily.	Proponent/ Management
Soil Contamination	Soil contamination due to effluent / surface runoff and uncontrolled solid waste disposal activities at sites.	• Once before the start of construction activities; • On quarterly basis during the construction phase; • Bi-annually for at least one year during O&M phase	Proponent
Dust Emissions	Monitoring of PM_{10} and $PM_{2.5}$ and its compliance with PEQS, 2016 for Ambient Air.	• Once before the start of construction activities;	Proponent

		• On quarterly basis during the construction phase; • Bi-annually for at least one year during O&M phase	
Noise Pollution	Monitoring of Noise Level and its compliance with PEQS 2016 for Noise.	• Once before the start of construction activities; • On quarterly basis during the construction phase; • Bi-annually for at least one year during O&M phase	Proponent
Ecological Resources	Disturbance to natural habitat and uncontrolled floral cutting which can be avoidable.	• Start of construction activities; • Visual inspection daily / weekly during construction phase • Annually for at least one year during O&M	Proponent
Safety of workers	Medical record of workers	• On quarterly basis during the construction phase.	• Contractor
Restoration of work sites	Site cleared and no solid and construction waste along the alignment	• After completion of construction work	• Contractor

8.2 Training of Workers

Prior to the commencement of project activities, an environmental and social training and technical support program will be implemented for Said project. This program is essential to strengthen institutional capabilities and ensure effective management of environmental and social aspects throughout the project lifecycle.

Building environmental awareness and providing relevant technical knowledge to the Contractor's workforce is crucial for the successful execution of the Environmental Management Plan (EMP). Without adequate training, the workforce may lack the understanding and skills necessary to implement the required environmental protection measures effectively.

SPRY Sports Corporation Management will be responsible for engaging a Technical Assistance (TA) consultant to design and deliver comprehensive environmental and social training sessions.

The key objectives of the TA program will be:

- To assist in the development and establishment of effective environmental and social management systems;
- To deliver targeted training to SPRY Sports Corporation senior management, contractors, subcontractors, and supervision consultants involved in environmental and social planning and management during both construction and operational phases; and
- To conduct specialized training modules covering monitoring techniques for air quality, water quality, and noise pollution.

Table 10 Training Schedule

Participants	Date, Time & Location	Training Topics	Schedule	Responsible Authority
Staff of project and the contractor	As specified	• Introduction to project IEE and EMMP • EMMP communication, documentation, monitoring, and reporting requirements	Every month	Project Manager
All site personnel	As specified	• Site induction training on HSE system and requirements at Incinerating Site • Environmental sensitivities of the project area • Communication of environmental problems to corresponding officials	After every week	Project Manager
Drivers	As specified	• Road safety • Road restrictions • Vehicle restrictions • Waste disposal. • Defensive driving	After every 3 months	Project Manager
Camp Staff	As specified	• Camp operations. • Waste disposal. • Good housekeeping	Monthly	Project Manager

8.3 Environmental Management Team

The successful implementation of the Environmental Management and Monitoring Plan (EMMP) for the project hinges on the coordinated efforts of a dedicated environmental management team. This team comprises various functionaries, each with distinct roles and responsibilities throughout the construction and operational phases of the project.

8.3.1 Key Members of the Environmental Management Team:

Proponent:

Serves as the project proponent and owner of the Environmental Management Plan, overseeing its execution during both construction and operational stages.

Project Contractor(s):

Act as executors of the EMMP during the construction phase, responsible for integrating environmental mitigation measures into project activities.

Operational & Maintenance & Health, Safety, and Environment Team:

Execute the EMMP during the operational phase, ensuring ongoing compliance with environmental standards.

Environmental Protection Agency (EPA), Punjab:

Functions as the regulatory body for reviewing and monitoring the project's compliance with environmental remediation and mitigation measures outlined in the IEE.

8.3.2 Responsibilities of Functionaries:

a) **Project Management:**

Charged with overall environmental supervision, monitoring progress, overseeing mitigation measure implementation, documentation, training program development, and reporting on EMMP status.

b) **Project Contractor**

Responsible for adhering to all EMMP provisions, and environmental codes of conduct, and ensuring workers are equipped with and trained in the use of Personal Protective Equipment (PPE).

c) Environmental Protection Agency (EPA):

Reviews and monitors the project's adherence to the EIA's remedial and mitigation strategies.

8.4 Equipment Maintenance Details

A well-organized maintenance program is critical for ensuring the safety and efficiency of all tools, equipment, and vehicles used in the project. Regular inspections and adherence to safety regulations are mandatory to prevent accidents and injuries.

8.5 Proposed Environmental Monitoring

Environmental monitoring is vital for assessing the project's compliance with environmental regulations and its effects on the environment. It is divided into: Compliance Monitoring: Ensures the project's adherence to EIA and EMMP requirements through routine inspections and site monitoring.

8.5.1 Monitoring Components:

Comprehensive baseline monitoring will be conducted across several key environmental parameters, including:

- Noise Levels
- Ambient Particulate Matter
- Ambient Air Gases
- Ground Water Quality
- Wastewater Quality
- Soil Contamination
- Solid Waste Management
- Vehicular Traffic and Emissions
- Flora & Fauna
- Health & Safety Practices

- Machinery and Equipment Maintenance .

8.6 Environmental Budget

Table 11 Environmental Budget

Environmental Component	Quantity	Amount Pak Rs.	Details/Basis
Landscaping/Plantation	1000-2000 approx.	02 million	Cost includes plantation and maintenance up to three years
Solid waste management	L.S	02 million	Lump Sum
Health & Safety Measures	L.S.	1.5 million	Lump sum
Wastewater management	L.S.	2.5 million	Lump sum
Miscellaneous Cost	L.S.	01 million	Lump sum
Air Quality Monitoring	2	12,000	2 samples @ 6000/sample
Water Quality Monitoring	2	12,000	2 samples @ 6000/sample
Noise Level Monitoring	2	10,000	2 samples @ 5000/sample
Soil Tests	2	10,000	2 samples @ 5000/sample
Training		15,000	Lump sum
External Monitoring		100,000	
Total Environmental and Social Management Cost		**11 million PKR**	

9 STAKEHOLDER CONSULTATION

Stakeholder consultation is a critical component in the environmental assessment process for the proposed project. It fosters communication among diverse groups, facilitating information exchange, feedback collection, and collaborative decision-making.

9.1 Benefits and Objectives of Stakeholder Consultation

Engaging with stakeholders offers several advantages, including improved project understanding, identification of environmental concerns, and incorporation of local insights into project planning. Key objectives include:

- **Enhancing Understanding:** Clarifying the project's aims and potential impacts to ensure stakeholders are well-informed.
- **Addressing Concerns**: Identifying and resolving stakeholder issues to prevent opposition and build consensus.
- **Building Trust:** Establishing a foundation of trust and cooperation between the project Proponent and stakeholders.
- **Informed Decision-Making:** Leveraging stakeholder input to make informed decisions regarding project design and implementation.

9.2 Identification and Classification of Stakeholders

A comprehensive stakeholder identification process was undertaken to recognize all parties with a personal stake in the project, classified as:

- **Industries:** Businesses and institutions directly affected or influential to the project outcome.
- **Local Communities:** Residents and groups in proximity to the project site are likely to experience its direct impact.

9.3 Views, Concerns, and Suggestions of Various Stakeholders

Stakeholder feedback highlighted several areas of concern and interest:

- **Environmental Preservation:** Emphasis on minimizing tree removal and establishing green zones.
- **Local Employment:** Dedicated support for prioritizing local residents in hiring processes.
- **Dust and Air Pollution Control:** Recommendations for regular dust suppression measures and continuous air quality monitoring.
- **Noise Management:** Suggestion to limit noise-generating activities to daytime hours.
- **Solid Waste Management:** Advocacy for proper waste disposal techniques to mitigate environmental impacts.

9.4 Methodology for Consultation

The consultation process involved a dynamic exchange of ideas through discussions, meetings, and field visits, aimed at:

- **Scoping Sessions:** Initial meetings to define project scope and identify key stakeholder concerns.
- **Focus Group Discussions:** In-depth conversations with local communities and government representatives to gather detailed feedback.
- **Location-Based Meetings:** Engagements held at various sites to ensure broad stakeholder participation and input.

This stakeholder consultation process underscores the project's commitment to environmental stewardship, community engagement, and sustainable development. By incorporating stakeholder feedback into the EIA process, the project aims to achieve a balance between development objectives and environmental conservation, fostering positive relationships with all affected parties.

9.5 Environmental Management Team and Experts

Sr. #	Managers	Responsibilities
1.	**Contract Manager**	• Implementation of EMP • Environmental issues identification during pre-construction phase. • Communication EMP to all employees.
2.	**Contractor**	• Ensure that the control measures identified during environmental surveys are implemented as they are relevant to their work/visit. • Ensure that the project management team is notified of any non-conformance of control measures or environmental incidents where the environment has been put at risk.
3.	**Site Manager**	• Ensure site material and safe handling of hazardous waste. • Controlled access arrangement to avoid hazards. • Emergency egress arrangements to avoid any unfortunate incident. • First aid facilities/services should be readily available on-site.
4.	**Site HSE Advisor**	• Ensure good standards of workmanship. • Engaged health and safety to devise site waste management plan to be followed and implemented. • Daily checks & weekly checks. • Regular consultation with workers.
5.	**Site Environment Advisor**	• According to legislation and consent develop EMP. • Ensure application of EMP. • Conduct regular site inspection.
6.	**Public Contact Officer**	• First point of contact for members of the public. • Arrange and manage public forums. • Maintain relation with stakeholder

9.6 The Responsible Authority for EMP Implementation

The successful implementation of the Environmental Management Plan (EMP) is a pivotal aspect of ensuring the environmental integrity and sustainability of the proposed unit. The ultimate responsibility for overseeing and ensuring the effective execution of the EMP lies with the project Proponent.

Appointment of an HSE/Project Manager

To facilitate this, the project Proponent will appoint a Health, Safety, and Environment (HSE)/Project Manager possessing the necessary qualifications and expertise. This individual will assume the role of Environmental Manager, tasked with the comprehensive management of all health, safety, and environmental conditions as per the Punjab Environmental Quality Standards (PEQS).

Responsibilities of the HSE/Project Manager

As Environmental Manager, the HSE/Project Manager's responsibilities will encompass a broad spectrum of duties, designed to ensure that the project not only complies with all relevant environmental regulations but also adopts best practices in environmental stewardship.

9.7 Environmental Practitioners and Experts

Consultation with Environmental Practitioners and experts was done, and the following comments and suggestions were noticed.

Table 12 Environmental Consultant Team

Sr. No.	Name	Designation	Comment/ Suggestions
1.	Sara Fatima	Senior Environmentalist	• She said that the project will have a positive impact on the economy, but its construction should be done in an environmentally friendly way. • Basic facilities should be provided to local community

2.	Zia Ur Rehman Farooqi	Ph.D. Scholar Environmental Sciences	• Tree plantation in designated green zones should be conducted. • Proper disposal of the solid waste • HSE management measures should be adopted and implemented effectively
3.	Dr. Hina Ahmed Malik	Ph. D Environmental Sciences	• He said that locals should be preferred for employment. • Value addition of area. Proper mitigation measures must be adopted while construction and operation of this project
4.	Engr. Kanza Fatima	Environmental Engineer	• Waste must be collected and disposed of properly. • Ensure the use of PPE's during the operational activities. • Wastewater should be treated. • Ensure the tree plantation
5.	Engr. Aleeza Kanwal	Environmental Specialist	• Health and safety department and trained people should be there in case of any emergency. • Periodic monitoring of every fire extinguisher (expiry date, type)
6.	Engr. M. Bilal	Environmental Engineer	• It should be ensured that the pollution abatement technique

9.8 Other Departments and Agencies

Following officers of government departments were consulted by the socio-environmental team of the consultants and concerned details about the project were noted down through personal interviews, group meetings, etc, in their offices, for instance.

Sr. No.	Designation	Concerns
1.	**Environment Protection Department (EPD)**	
	General Manager	• Solid waste should be managed in Environmentally friendly manner. • Wastewater should be treated effectively & approval should be acquired from concerned agency before disposing off in nearby drain. • HSE* at the site should be managed effectively. • No impact is being foreseen due to the selected location. • Locals should be given job opportunity.
	Environmental Inspector	
2.	**Social Welfare Department (SWD)**	
	Deputy Director Officer	• Final goods should be affordable for the locals. • The proposed product should facilitate locals and they should be economical. • Job opportunities should be given to the locals. • Wages should be given according to the work assigned to them. • Life insurance of the workers should be given as well as all the facilities should be given as per labor laws.
3.	**Irrigation Department**	
	Subdivision	Following comments were suggested: • Untreated wastewater should not be disposed of in the nearby drains without proper treatment.
	Executive Engineer	

		• Beneficial as job opportunities will be available to the residents.
4.	**Forest Department**	
	District Forest Officer	Following recommendation were suggested by the forest department: • Plantation and landscape activities should be conducted on a broader scale. • Proper drainage system must be available at site

9.9 Consultation with Affected and Wider Community

In addition, the use of direct methods to evince the response of the various stakeholders in targeted population residing in study area was ascertained by conducting a sample survey, through specially formatted questionnaires. Questions posed to the public were related to the creation of impacts, adverse impacts, and beneficial impacts, including employment opportunities, income generation activities, change in living standards and provision of the basic amenity.

Personal views of the respondents on the establishment of proposed project disturbance to the residents near the AOI and infringement of their privacy were also recorded. Various rounds of public meetings and consultations were arranged in the project and study area. The stakeholder category involves nearby residents, different industries, shopkeepers. The issues discussed with them are mostly related to the following:

- Activities of project.
- Impacts caused due to certain activities during construction and operational phase.
- The proposed mitigation measures.

10 CONCLUSION

The project aims at the development of dyeing unit of knitted fabric. The project falls under the category of projects requiring Environmental Impact Assessment (EIA).

At the end of this study, it has been found that:

- There are no sensitive elements/segments of environment around the project site.
- It has also developed ways and means for environmentally sustainable disposal of solid wastes to be generated from the project operations.
- The noise levels will be kept well within the required limiting values of the PEQS Punjab.
- This project will create job opportunities during construction and operation stages leading towards reduction of poverty.
- Sewage will be passed through ETP before final treatment and disposal.
- It will help in the improvement of the community in the local area. It will also provide such facilities for people from other places.
- Project site means the development criteria like electricity supply, gas supply, water supply and sewage system.
- EMP, as recommended in this EIA Report, is to be put in place during all operational stages of the project.
- Environmental monitoring by the project proponent and a third party also ensures that the project will run in accordance with legal requirements.

Based on these findings of the EIA Report the project merits the issuing of Environmental Approval by the Environmental Protection Agency, Government of Punjab, and Lahore.

GLOSSARY

Accommodate	(of a building or other area) provide lodging or sufficient space for. "The cottages accommodate up to six people
Assessment	The action of assessing someone or something. "The assessment of educational needs"
Aspects	A distinct feature or element in a problem
Adverse	- Preventing success or development; harmful; unfavorable. "Taxes are having an adverse effect on production"
Authorized	- having official permission or approval. "An authorized dealer"
Amendment	a minor change or addition designed to improve a text, piece of legislation, etc. "an amendment to existing bail laws
Ambient Air	Ambient air quality refers to the quality of outdoor air in our surrounding environment. It is typically measured near ground level, away from direct sources of pollution
Archaeological	the scientific study of material remains (as fossil relics, artifacts, and monuments) of past human life and activities
Annunciation	A formal public statement
Baseline	The existing conditions against which impacts of the proposed action and its alternatives can be compared.
Crushing	Deform, pulverize, or force inwards by compressing forcefully. "You can crush a pill between two spoons"
Containers	An object for holding or transporting something. "The cakes will keep for up to two weeks if kept in an airtight container"
Compliance	Acting according to certain accepted standards
Discrepancies	A difference between conflicting fact, claims or opinions
Disposal	the action or process of getting rid of something
Dumped	Deposit or dispose of (rubbish, waste, or unwanted material), typically in a careless or hurried way

Effluent	Any material in solid, liquid or gaseous form or combination thereof being discharged from industrial activity or any other source and includes a slurry, suspension or vapor
Environmental impact statement (EIS)	A document prepared to analyze the impacts on the environment of a proposed action and released to the public for review and comment. An EIS must meet the requirements of NEPA, CEQ, and the directives of the agency responsible for the proposed action.
Emission	The production and discharge of something, especially gas, or radiation." The effects of lead emission on health"
Evaluated	Estimate the nature, value, quality, ability, extent or significance
Graded	Arranged in a sequence of grades or ranks; "stratified areas of the distribution"
Generation	The production or creation of something
Incinerator	A furnace or a container for burning waste materials
Inadequate	Not capable or competent; lacking
Implementation	The process of putting a decision or plan into effect; execution
Intends	To have in mind as something to be done or brought about, plan to design or mean for a particular purpose, use, recipient, etc.
Landfill site	for the disposal of solid waste in which refuse is buried between layers of dirt to fill in or reclaim low-lying ground
Legislation	Law enacted by a legislative body
Mobilization	To release or make available, as cells or chemical substances
Mitigation	The action of lessening in severity or intensity
Noise	Loud, unpleasant, unexpected, or undesired sound that disrupts or interferes with normal human activities
Potential	Having or showing the capacity to develop into something in the future

Pedestrian	A person who goes or travels on foot; walker
Proponent	The person who proposes or intends to undertake a project
Sanitary	Relating to the conditions that affect hygiene and health, especially the supply of sewage facilities and clean drinking water
Segregate	Set apart from the rest or from each other; isolate or divide. "Disabled people should not be segregated from the rest of society
Settlement	An official agreement intended to resolve a dispute or conflict. "Unions succeeded in reaching a pay settlement
Ton	A short or net ton is equal to 2,000 pounds; a long or British ton is 2,240 pounds; a metric ton is approximately 2 to 205 pounds
Transportation	The action of transporting someone or something or the process of being transported. "The era of global mass transportation"
Ultimate	Being or happening at the end of a process; final. "Their ultimate aim was to force his resignation"
Violations	the action of violating someone or something
Working place	From the out by side of the last open crosscut to the face
Flora	All the plant life in a particular region or period
Fauna	All the animal life in a particular region or period
Demarcated	Separately clearly, as if by boundaries
Screening	The display of a motion picture
Substitutions	An event in which one thing is substituted
Smelting	extract from its ore by a process involving heating and melting
Regulations	An authorized rule
Recycling	process of converting waste materials into new materials and objects
Stakeholders	A person or organization with an interest or concern in something
Rehabilitation	The conversion of waste land into land suitable for use of habitation or cultivation

LIST OF ABBREVIATIONS

AA	Ambient Air
APHA	American Public Health Association
AOI	Area Of Influence
BOD_5	Biological Oxygen Demand
CMS	Convention On Migratory Species
COD	Chemical Oxygen Demand
dB(A)	Decibel
EA	Environmental Assessment
EHS	Environmental Health Safety
EIA	Environmental Impact Assessment
EPD	Environmental Protection Department
PEPA	Pakistan Environmental Protection Act
EPA	Environmental Protection Agency
ESIA	Environmental And Social Impact Assessment
ESA	Environmental And Social Assessment
ESMP	Environmental/Social Management Plan
EMP	Environmental Management Plan
EC	Electrical Conductivity
GIS	Geographical Information System
GOP	Government Of Pakistan
GPS	Global Positioning System

GRC	Grievance Redress Committee
GRM	Grievance Redress Mechanism
HSE	Health Safety & Environment
HWMS	Hazardous Waste Management System
EIA	Environmental Impact Assessment
I & D	Irrigation And Drainage
IAIA	International Association for Impact Assessment
IWM	Industrial Waste Management
IUCN	International Union for Conservation of Nature
KM	Kilometers
LGO	Local Government Ordinance
MW	Mega Watt
MEAS	Multilateral Environmental Agreements
MSDS	Material Safety Data Sheets
NEQS	National Environmental Quality Standards
PMD	Pakistan Meteorological Department
PPE	Personal Protective Equipment
PEQS	Punjab Environmental Quality Standards
NEAP	National Environmental Assessment Plan
NWFP	Northwest Frontier Province
Q&EHS	Quality, Environment, Health & Safety
O & M	Operation And Maintenance
PKR	Pak Rupees

PAP	Project Affected People
PEPC	Pakistan Environmental Protection Council/Punjab
PSC	Project Steering Committee
QA/C	Quality Assurance/Quality Control
RAP	Resettlement Action Plan
ROG	Reactive Organic Gas
SWM	Solid Waste Management
TDS	Total Dissolved Solids
UNFC	United Nation Framework Convention on Climate Change
UNCC	United Nation Convention to Combat Desertification
UNEP	United Nations Environmental Programs
GOP	Government Of Pakistan
WHO	World Health Organization
R&R	Rehabilitation And Resettlement
WWTP	Waste Water Treatment Plant

LIST OF INDIVIDUALS AND THEIR FEEDBACK

Sr.#	Name	Concerns
1	Kamran Ali Khan	During the survey in the study area following concerns of the local community were noted: • Air pollution should be controlled effectively, such as emissions generated from power-generating activities. • Solid waste should be collected timely and avoid the spreading of waste. • Locals should be preferred for the job opportunities. • Wastewater should be treated prior to final disposal in a nearby drain. • Solid waste should be managed effectively by adopting the standard practices of the area. • The cleanliness of the area should be ensured. • An effective EMMP should be designed and enforced with true spirit. • The health of the workers should be ensured. • Planation should be carried out on an extensive scale. • Construction activity should be carried out during day hours. • Noisy activities should be confined.
2	Muhammad Waqas	
3	Qaiser Farooq	
4	Ghulam Mujtaba	
5	Mehboob Alam Shahid	
6	Muhammad Latif	
7	Mazhar Hussain	
8	Shahbaz Khan	
9	Waseem Ahmed	
10	Rab Nawaz	
11	Allah Yar	
12	Ahmed Saeed	
13	Muhammad Jabbar	
14	Muhammad Ramzan	
15	Kamran	

SOURCE OF DATA

- Punjab Environmental Protection (Amendment) Act 2012 (PEPA)
- Guidelines for the preparation and review of Environmental Reports, October 1997
- Review of IEE/ EIA Regulation, 2022
- The 2004 Baseline Survey on Millennium Development Goals in AACs, Pakistan
- World Weather Online.com
- Water and Sanitation Agency (WASA), Lahore.
- RED Data Book of IUCN
- www.wsask.ca/Global/Water%20Programs/Water%20Conservation/SWA
- Water_Efficiency_on_the_Farm_Booklet_WEB.pdf
- https://attock.punjab.gov.pk/district_profile
- https://pakistanalmanac.com/punjab-attock/
- http://www.madehow.com/Volume-2/Lead.html
- http://www.ijirset.com/upload/2013/november/18_Disposal.pdf

List Of Names, Qualifications and Roles of Team Members Carrying Out the IEE/EIA Study

Sr. #	Name	Qualification
Team Leader		
1.	Miss. Sara Fatima	M.Phil. Environmental Sciences
Environmental Scientist		
2	Dr. Hina Ahmed Malik	Ph.D. Environmental Sciences
3	Mr. Zia Ur Rehman Farooqi	Ph.D. Environmental Sciences (Scholar)
4	Hafiz Zeeshan Safdar	M.Sc. Analytical Chemistry
5	Mr. Saffi Ahmed	M.Phil. Environmental Sciences
Environmental Engineers & Scientist		
6	Engr. Kanza Fatima	B.Sc. Environmental Engineering
7	Engr. Aleeza Kanwal	B.Sc. Environmental Engineering
8	Miss Hasham Fatima	BS Environmental Sciences
Sociologist		
9	Ahmed Raza	M. Phil Sociology

TERMS OF REFERENCES

Terms of References (TOR) for the Environmental Impact Assessment (EIA) process are designed to ensure compliance with the regulatory framework and facilitate a thorough review of the project's environmental implications. These terms are outlined as follows:

1. Review Fee Payment:

As stipulated in Regulation 7 of the Review of IEE and EIA Regulations, 2022, the proponent is required to submit a nonrefundable review fee to the Environmental Protection Agency (EPA) at the time of submitting the IEE/EIA report. The specific amount of this fee is determined by the rates specified in Schedule III of the regulations.

2. Submission of Required Documents:

The proponent must provide all necessary documents and details essential for the completion of the EIA/IEE report. This includes, but is not limited to, technical studies, environmental impact analyses, mitigation strategies, and any other information pertinent to assessing the project's environmental footprint.

3. Financial Responsibility for Fines and Penalties:

The proponent shall bear full responsibility for any fines or penalties levied by the EPA Punjab or the Environment Tribunal. This includes violations of environmental standards, non-compliance with regulatory requirements, or any other infractions identified during the review or implementation phases of the project.

4. Accuracy and Validity of Information:

The proponent is responsible for ensuring the correctness and validity of all information and documents provided to the consultant for onward submission to EPA Punjab. The consultant facilitating the EIA process will not bear any responsibility for inaccuracies or omissions in the information supplied by the proponent. It is imperative that the proponent conducts thorough due diligence to guarantee that all submitted materials accurately reflect the project's potential environmental impacts and proposed mitigation measures.

These Terms of References are critical to ensuring that the EIA process is conducted in a transparent, accurate, and regulatory-compliant manner. Adherence to these terms will facilitate a comprehensive environmental review of the project, enabling informed decision-making by the EPA Punjab and contributing to the sustainable development and environmental stewardship goals of the region.

In **M/s SPRY Sports Corporation**

Proponent

Mr. Nadeem Ghulam

For Enviro Stewards Co. Pvt. Ltd.

Consultant