EXECUTIVE SUMMARY

Title & Location of the project

Subject project for which this Environmental Impact assessment study has been conducted is proposed capacity enhancement and technology advancement of knitting, textile processing including dyeing, printing, apparel manufacturing and ETP by M/S Shahkaam Industries (Pvt.) Limited, located at 100-M Defence Road, off 23-km Multan Road, Lahore. The proposed capacity will be enhaced from 4 lac pcs/month to 1.2 million pieces per month by replacing old technology with latest and advance technology. Along with this the ETP will be equipped with the advance technologies like RO plant with multimedia filter, 35% clean return water, Sludge filter press. The waste water treatment plant capacity will be enhanced from 80m3/hr to 100m3/hr. The list of new and old technology are mentioned in the chapters below and also attached here with this report as **Annexure-I.** The total area of the unit is 285.14 Kanals. Overall cost of the project will be approx. 20 billion Rupees.

The proposed project falls under Schedule II (EIA), Category B (Manufacturing and Processing), clause 6 (Textie units comprising of Dyeing and Printing) and Category-F (Water supply, Sewege system and treatment) of Punjab Environmental Protection (Review of IEE and EIA Regulations), 2022. TORs of the study under clause 5 (f) of policy and procedure for the filing, review and approval of environmental assessment are annexed as **Annexure – A.**

Background of the Project:

The site for this proposed project is owned by the Shahkam Industries Pvt. Ltd. The land ownership documents and approved layout map are attached here with as **Annexure-H and Annexure-B** respectively with this report. It is to be notified that the subject project unit is an already established unit since 1995, before the promulgation of PEP Act, 1997. The evidence of prior establishment is attached herewith the EIA report as **Annexure-C** for your ready reference (electricity bill having connection date 06-06-1995). For now, the project proponent intends to do proposed capacity enhancement and technology advancement of the above-mentioned subject textile processing unit.

Location

Subject proposed project site is located at 100-M Defence Road, off 23-km Multan Road, Lahore having coordinates:

- **31°23'47.65"N**
- **74°10'7.09"E**

East…….. Access Road/ Shahkam Flyover

West……... Open Area

North…….. Covered Area

South…… Covered Area

Google map of site proposed for the establishment of the subject project

Google map of site: For further details, layout map of the project is attached as **Annexure-B and Google Earth Map as Annexure-G** with the report

Name of the proponent:

Name	Mr. Muhammad Ejaz
CNIC	35202-2959694-3
Mailing Address	100-M Defence Road, off 23-km Multan Road, Lahore

Detail of Proponent:

For further details CNIC of the proponent and other relevant documents are attached as **Annexure-C** with this report.

Name of organization preparing the report:

Pak Green Enviro-Engineering (Pvt.) Ltd, as independent consultants, has been appointed by the proponent to conduct Environmental Impact Assesment (EIA) report.

Company office address: 46-M, Gulberg III, Lahore

Contact: 042-35441444, 0303-4442335.

For detail company profile see the Chapter # 1 “Introduction”

Authority letter in the favor of the consultant is attached with the initial documents.

A brief outline of the proposal

Name of the project:	Subject project is the proposed capacity enhancement and technology advancement of knitting, textile processing including dyeing, printing, apparel manufacturing and ETP by M/S Shahkaam Industries (Pvt.) Limited
Location of the project:	100-M Defence Road, off 23-km Multan Road, Lahore
Proposed Area:	The total area of the unit is 285.14 Kanals.
Nature of Project:	Nature of the project is proposed technology advancement and production enhancement that will be commenced after getting the environmental approval.
Cost of the project:	Overall cost of the project will be approx. 20 billion rupees.
Project process:	Process will include capacity enhancement and technology advancement of knitting, textile processing including dyeing, printing, apparel manufacturing and ETP.
Raw materials	Cotton, Fabric, Dyes, cutting accessories, machinery and packaging materials.
Production capacity	The proposed production capacity will be enhaced from 4 lac

	pcs/month to 1.2 million pieces per month by replacing old technology with latest and advance technology. Along with this the ETP will be equipped with the advance technologies like RO plant with multimedia filter, 35% clean return water, Sludge filter press. The waste water treatment plant capacity will be enhanced from 80m^3/hr to 100m^3/hr.
Power Requirement:	2 MW through solar system and other through WAPDA.
Labor/ Workforce:	During installation: 100-200 During Operation: 2500-3300
Water Requirement:	During installation: As the subject project is the proposed capacity enhancement and technology advancement, hence no construction will be done and no water will be required for this purpose. Besides this, water will be required only for domestic purposes at the time of technology advancement and installation. During Operations: As the subject project is in operations before the promulgation of 1997 PEP Act, and for now they are intended to do proposed technology advancement and production enhacement into their operations. The management of M/s Shahkam Industries Pvt. Limited have maintained a proper record of water consumption and requirement. The balance sheet is attached herewith as **Annexure-M.**
Solid waste:	During the installation phase of the project, only domestic waste will be produced that will be around 0.45kg/capita/day. According to an estimate, about 2tons/day of domestic and project related solid waste will be produced during the operation phase of the project Project related waste will include fabric, threads etc., which will be handed over to the certified contractors.

Project Details	
Names of facilities	Yarn store, Yarn dyeing, Soft winding, Knitting (1,2,3,Knit Quality), Ecru store, Fabric dyeing(1,2,3,Autodosing,dyeing Lab),Fabric Finishing(Raising, Stentor#1,2,3,Tumble hall, Singeing),Lot making, FID, Dyed Fabric store, Cutting, Induction store, Printing, Embroidery, Stitching(1,2,3,4),Garment dyeing & Washing, Garment Quality, Packing, Carton factory, Warehouse, Waste Store, Accessory store, Chemical store, Boiler(1,2,3,4),Standby Generators(7), WAPDA Transformers(6), Compressors(6), ETP, Workshops(Electrical St#1,2,3 & mechanical St#1,2,3,4),Sewing workshop, Sampling Points, Executive block, Office block#1(HR, Admin, Audit, ERP, Accounts, Imp/Exp, Meeting room, Testing Lab), Office block#2(Procurement, PPC, Marketing, Industrial Engineering, PD), Canteen(1,2,3),First aid treatment room, Staff Mess1&2, Production offices, RFID, Security office(1,2,3),CCTV,IT office, Recruitment office 1&2, Mosque(1,2,3,4), Audit rooms(7),Kitchen(1&2),Record room(2),Smoking room, Pump room(4),Turbine room(6),LPG area, RO Plant, Washrooms(225)
Production Capacity	1.2 million Pcs/month
Old production capacity	4 lac pcs/month
Project Cost	20 billion Rupees
Total area	285.14 Kanals.
Fuel use for boiler	Rice husk, Natural gas, Furnace oil
Fuel use for generators	Diesel
Proposed Technology advancement of ETP	RO plant with multimedia filter,35% clean return water, Sludge filter press
Air Pollution control devices	Scrubber system, Cyclones, Venturi Scrubbers **(Attached as Annexure-N)**

The major impacts

In order to identify all the activities associated with the project during Installation and operation phase with potential to cause adverse environmental impacts and harm a thorough review has been conducted. Project will not have any significant adverse impacts on the nearby community and on environment. Overall the project will have positive impacts on the local population and country as a whole.

Table: Summary of Environmental and social impacts of the project during the installation and operational phase along with mitigation measures suggested:

Phase	Environmental Aspect	Potential Impact	Mitigation Measures	Responsibility	Monitoring
Installation	**Air Quality**	Dust and emissions from installation activities	- Use air pollution control devices - Implement dust suppression methods (e.g., water spraying) - Utilize low-emission equipment	Project Manager, Environmental Officer	Regular Air quality monitoring
	Noise	Increased noise levels from machinery installation	- Limit installation activities to daytime hours - Use noise barriers and sound-dampening equipment	Site Manager	Regular Noise level assessment
	Waste Generation	Solid and hazardous waste production	- Implement a waste management plan - Recycle materials where feasible - Ensure proper disposal of hazardous waste	Waste Management Coordinator	Regular Waste audits
	Water Usage	Excessive water consumption	- Install water-efficient fixtures - Reuse water for Installation processes	Project Manager	Regular water usage reports
	Land Disturbance	Soil erosion and habitat disruption	- Minimize land disturbance areas - Implement erosion control measures	Site Manager	Regular Environmental inspections

	Health and Safety	Risks to worker safety	- Provide safety training and PPE - Conduct regular safety audits and drills	Safety Officer	Regular Safety audits
	Regulatory Compliance	Non-compliance with environmental laws	- Ensure all necessary government approvals are obtained - Maintain compliance with local and national regulations	Compliance Officer	Regular Compliance audits
Operational	**Water Pollution**	Contamination of local water bodies	- Operate an efficient Effluent Treatment Plant (ETP) - Regularly monitor and maintain ETP systems	ETP Manager	Regular Effluent quality monitoring
	Chemical Use	Risks from hazardous materials	- Utilize eco-friendly dyes and chemicals - Maintain up-to-date Material Safety Data Sheets (MSDS)	Safety Officer	Regular Chemical inventory audits
	Energy Consumption	Increased greenhouse gas emissions	- Implement energy-efficient technologies - Schedule regular maintenance for machinery	Operations Manager	Regular Energy consumption audits
	Waste Management	Pollution and health risks	- Establish comprehensive recycling programs - Train staff on waste minimization practices	Waste Management Coordinator	Regular waste generation reports

	Social Impact	Community disruption and employment issues	- Engage with local communities regularly - Address community concerns and feedback promptly	Community Liaison Officer	Regular Community feedback sessions
	Biodiversity	Loss of local flora and fauna	- Conduct biodiversity assessments - Implement habitat restoration and plantation initiatives	Environmental Officer	Biodiversity assessments
	Air Emissions	Deterioration of local air quality	- Install and maintain air pollution control devices - Implement an emissions monitoring program	Environmental Officer	Regular Emissions monitoring
	Resource Consumption	Unsustainable use of materials	- Implement sustainable sourcing practices - Promote the use of recycled materials	Operations Manager	Regular Material usage audits
	Environmental Parameter Monitoring	Non-compliance with environmental standards	- Regular monitoring of air, water, and noise parameters - Report findings to regulatory authorities	Environmental Officer	Regular Monitoring reports

ADDITIONAL CONSIDERATIONS

- **Emergency Response Plan:** Develop and implement protocols for spills, chemical leaks, and other emergencies, ensuring staff are trained on these procedures.
- **Community Engagement:** Maintain open lines of communication with stakeholders to foster trust and transparency.

- **Documentation:** Keep detailed records of monitoring results, training sessions, community engagements, and compliance with regulations.
- **Continuous Improvement:** Regularly review and update the EMP to incorporate new technologies and practices, ensuring ongoing compliance and environmental stewardship.

Proposed Environmental Monitoring

To oversee the environmental performance of the project through its lifecycle enforcing the PEQS an Environmental Monitoring Program should be formulated which ensures effective surveillance of the environmental parameters at various stages of the project development and compliances with PEQS and legal obligations. Monitoring for following Environmental Parameters is recommended:

- **Ambient Air**

  Monitoring for ambient air should be conducted on regular basis during Installation and operation phases of the project and report should be submitted to EPA Punjab.

- **Noise**

  Regular monitoring for noise level should be maintained periodically during Installation and operation phases of the project and report should be submitted to EPA Punjab.

- **Water quality**

  Regular monitoring of water quality should be conducted on regular basis during Installation and operation phases of the project and report should be submitted to EPA Punjab.

Recommendation: Environmental Monitoring data log book should be maintained by the project proponent.

Proposed Environmental Monitoring Program:

Sr. No.	Parameters	Monitoring Schedules During Installation	Monitoring Schedules During Operation	Monitoring Duration
1	Stack Emission Analysis	Quarterly	Quarterly	As per PEQ's
1	Ambient Air Monitoring (NO_x, CO_2, SO_2, PM_{10})	Quarterly	Quarterly	As per PEQ's
2	Noise Level	Quarterly	Quarterly	As per PEQ's
4	Drinking water quality	Quarterly	Quarterly	Some parameters on site Others in lab
5	Waste Water	Quarterly	Quarterly	Some Parameters on Site

				Others in Lab

CHAPTER # 1

1. INTRODUCTION

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

1.1. Purpose of the report

Environmental Impact Assesment (EIA) report is being submitted to the Environmental Protection Agency (EPA), Government of the Punjab, Lahore for the compliance of Section 12 of Punjab Environment Protection Act-1997 (Amended 2012) for obtaining No Objection Certificate (NOC) before starting the Installation activity at the project site. The other relevant regulations and guidelines considered while preparing this EIA report include:

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

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

1.2. Identification of the project and proponent

Schedule II, Category B, clause 6 and Category F of Punjab Environmental Protection (Review of IEE and EIA Regulations), 2022.

1.2.1. Proponent:

Name	Mr. Muhammad Ejaz
CNIC	35202-2959694-3
Mailing Address	100-M Defence Road, off 23-km Multan Road, Lahore

For further details CNIC of the proponent and other relevant documents are attached as **Annexure-C** with this report.

1.3. Details of Consultant

Pak Green Enviro-Engineering (Pvt.) Ltd is an independent company, who conducts IEE, EIA, EMP and other environmental investigations through its panel of environmental consultants, public participation practitioners and experienced environmental managers. The company has its own recommended instruments to check the baseline environmental data/PEQS and lab analysis facility for water, waste water priority parameters.

Contact: Pak Green Enviro-Engineering (Pvt.) Ltd.
Office No. 46 M, Gullberg III, Lahore
Tel: 042-35441444, 03034442335
Email: info@pakgreen.pk; pak.green@hotmail.com

The current study was carried out by the following professionals:

Abdul Hafeez Nasir	**PhD Scholar Environmental Management**
Iftikhar Ahmed	Environmental Specialist
Hassan Afzal	Environmental Specialist
Umair Rasheed	Environmentalist
Muhammad Imran	Environmental Engineer
Nageen Quyyum	Environmentalist/ Author of the report
Sabeera Tauheed	Environmentalist

1.4. Brief description of Nature, Size and Location of Project

Subject project for which this Environmental Impact assessment study has been conducted is proposed capacity enhancement and technology advancement of knitting, textile processing including dyeing, printing, apparel manufacturing and ETP by M/S Shahkaam Industries (Pvt.) Limited, located at 100-M Defence Road, off 23-km Multan Road, Lahore. The proposed capacity will be enhaced from 4 lac pcs/month to 1.2 million pieces per month by replacing old technology with latest and advance technology. Along with this the ETP will be equipped with the advance technologies like RO plant with multimedia filter, 35% clean return water, Sludge filter press. The waste water treatment plant capacity will be enhanced from 80m3/hr to 100m3/hr. The list of new and old technology are mentioned in the chapters below and also

attached here with this report as Annexure-. The total area of the unit is 285.14 Kanals. Overall cost of the project will be approx. 20 billion Rupees.

Project Details	
Names of facilities	Yarn store, Yarn dyeing, Soft winding, Knitting (1,2,3,Knit Quality), Ecru store, Fabric dyeing(1,2,3,Autodosing,dyeing Lab),Fabric Finishing(Raising, Stentor#1,2,3,Tumble hall, Singeing),Lot making, FID, Dyed Fabric store, Cutting, Induction store, Printing, Embroidery, Stitching(1,2,3,4),Garment dyeing & Washing, Garment Quality, Packing, Carton factory, Warehouse, Waste Store, Accessory store, Chemical store, Boiler(1,2,3,4),Standby Generators(7), WAPDA Transformers(6), Compressors(6), ETP, Workshops(Electrical St#1,2,3 & mechanical St#1,2,3,4),Sewing workshop, Sampling Points, Executive block, Office block#1(HR, Admin, Audit, ERP, Accounts, Imp/Exp, Meeting room, Testing Lab), Office block#2(Procurement, PPC, Marketing, Industrial Engineering, PD), Canteen(1,2,3),First aid treatment room, Staff Mess1&2, Production offices, RFID, Security office(1,2,3),CCTV,IT office, Recruitment office 1&2, Mosque(1,2,3,4), Audit rooms(7),Kitchen(1&2),Record room(2),Smoking room, Pump room(4),Turbine room(6),LPG area, RO Plant, Washrooms(225)
Production Capacity	1.2 million Pcs/month
Old production capacity	4 lac pcs/month
Project Cost	20 billion Rupees
Total area	285.14 Kanals.
Fuel use for boiler	Rice husk, Natural gas, Furnace oil
Fuel use for generators	Diesel
Proposed Technology advancement of ETP	RO plant with multimedia filter,35% clean return water, Sludge filter press
Air Pollution control devices	Scrubber system, Cyclones, Venturi Scrubbers **(Attached as Annexure-N)**

BRIEF DETAILS OF THE PROJECT:

Name of the project:	Subject project is the proposed capacity enhancement and technology advancement of knitting, textile processing including dyeing, printing, apparel manufacturing and ETP by M/S Shahkaam Industries (Pvt.) Limited
Location of the project:	100-M Defence Road, off 23-km Multan Road, Lahore
Proposed Area:	The total area of the unit is 285.14 Kanals.
Nature of Project:	Nature of the project is proposed technology advancement and production enhancement that will be commenced after getting the environmental approval.
Cost of the project:	Overall cost of the project will be approx. 20 billion rupees.

Project process:	Process will include capacity enhancement and technology advancement of knitting, textile processing including dyeing, printing, apparel manufacturing and ETP.
Raw materials	Cotton, Fabric, Dyes, cutting accessories, machinery and packaging materials.
Production capacity	The proposed production capacity will be enhaced from 4 lac pcs/month to 1.2 million pieces per month by replacing old technology with latest and advance technology. Along with this the ETP will be equipped with the advance technologies like RO plant with multimedia filter, 35% clean return water, Sludge filter press. The waste water treatment plant capacity will be enhanced from 80m^3/hr to 100m^3/hr.
Power Requirement:	2 MW through solar system and other through WAPDA.
Labor/ Workforce:	During installation: 100-200 During Operation: 2500-3300
Water Requirement:	During installation: As the subject project is the proposed capacity enhancement and technology advancement, hence no construction will be done and no water will be required for this purpose. Besides this, water will be required only for domestic purposes at the time of technology advancement and installation. During Operations: As the subject project is in operations before the promulgation of 1997 PEP Act, and for now they are intended to do proposed technology advancement and production enhacement into their operations. The management of M/s Shahkam Industries Pvt. Limited have maintained a proper record of water consumption and requirement. The balance sheet is attached herewith as **Annexure-M.**
Solid waste:	During the installation phase of the project, only domestic waste will be produced that will be around 0.45kg/capita/day. According to an estimate, about 2tons/day of domestic and project related solid waste will be produced during the operation phase of the project Project related waste will include fabric, threads etc., which will be handed over to the certified contractors.

1.4.1. Location

Subject proposed project site is located at 100-M Defence Road, off 23-km Multan Road, Lahore having coordinates:

- **31°23'47.65"N**
- **74°10'7.09"E**

East…….. Access Road/ Shahkam Flyover

West……... Open Area

North…….. Covered Area

South…… Covered Area

Google map of site for the proposed subject project

For further details, layout map of the project is attached as **Annexure-B** and Google Earth Map as **Annexure-G** with the report.

1.5. Screening

The proposed project falls under Schedule II (EIA), Category B (Manufacturing and Processing), clause 6 (Textie units comprising of Dyeing and Printing) and Category-F (Water supply, Sewege system and treatment) of Punjab Environmental Protection (Review of IEE and EIA Regulations), 2022.

CHAPTER # 2

2. DESCRIPTION OF THE PROJECT

2.1. Type and Category of the Project:

Subject project for which this Environmental Impact assessment study has been conducted is proposed capacity enhancement and technology advancement of knitting, textile processing including dyeing, printing, apparel manufacturing and ETP by M/S Shahkaam Industries (Pvt.) Limited, located at 100-M Defence Road, off 23-km Multan Road, Lahore. The proposed capacity will be enhaced from 4 lac pcs/month to 1.2 million pieces per month by replacing old technology with latest and advance technology. Along with this the ETP will be equipped with the advance technologies like RO plant with multimedia filter, 35% clean return water, Sludge filter press. The waste water treatment plant capacity will be enhanced from 80m3/hr to 100m3/hr. The list of new and old technology are mentioned in the chapters below and also attached here with this report as **Annexure-.** The total area of the unit is 285.14 Kanals. Overall cost of the project will be approx. 20 billion Rupees.

The proposed project falls under Schedule II (EIA), Category B (Manufacturing and Processing), clause 6 (Textie units comprising of Dyeing and Printing) and Category-F (Water supply, Sewege system and treatment) of Punjab Environmental Protection (Review of IEE and EIA Regulations), 2022.

2.2. Objectives of the Project

Objectives of the establishment of the subject project are:

- To meet the increasing market demands of apparel.
- To enhance the business of the proponent.
- Contribution to the national economy.
- Compensate to help poverty by providing employment.

2.3. Alternative Considerations and Reasons for their Rejection:

2.3.1. Location alternatives:

To fulfill the commercial aspects of the project under reference of this EIA Report, it is to be sited at a place where commercial processing activity is either already going on or there are bright prospects of the same. The current project is proposed capacity enhancement and technology advancement of knitting, textile processing including dyeing, printing, apparel manufacturing and ETP, it must also meet the legal requirements of the Punjab Environmental Protection Act, 1997 (Amended 2012). Availability of land at the best convenient place is

equally important among other considerations for the site selection. Availability of access roads, communication facilities, electricity, basic infrastructure, sewerage etc. is yet the other necessary requirements.

Obviously, environmentally sound, neat and clean environment are the other considerations for site selection. The project will also facilitate the people of the area with increasing the opportunity of employment, and other related facilities.

Keeping these requirements and their feasibility and other basic infrastructural requirements, the selected site is ideally suited for proposed capacity enhancement and technology advancement of knitting, textile processing including dyeing, printing, apparel manufacturing and ETP

2.4. Location and site layout of the project:

Subject proposed project site is located at 100-M Defence Road, off 23-km Multan Road, Lahore having coordinates:

- **31°23'47.65"N**
- **74°10'7.09"E**

East…….. Access Road/ Shahkam Flyover

West……... Open Area

North…….. Covered Area

South…… Covered Area

For further details, layout map of the project is attached as **Annexure-B** and Google Earth Map as **Annexure-G** with the report.

Fig: Google map of site proposed for the installation/establishment of subject project

2.5. Land Use on site

Site proposed for the establishment/ installation of the subject project is an empty plot and it is the property of the proponent, reserved by the proponent for the establishment/ installation of the subject project.

2.6. Road Access

Paved road at the front side of the project site connects it directly with the Shahkam Flyover and Defence Road.

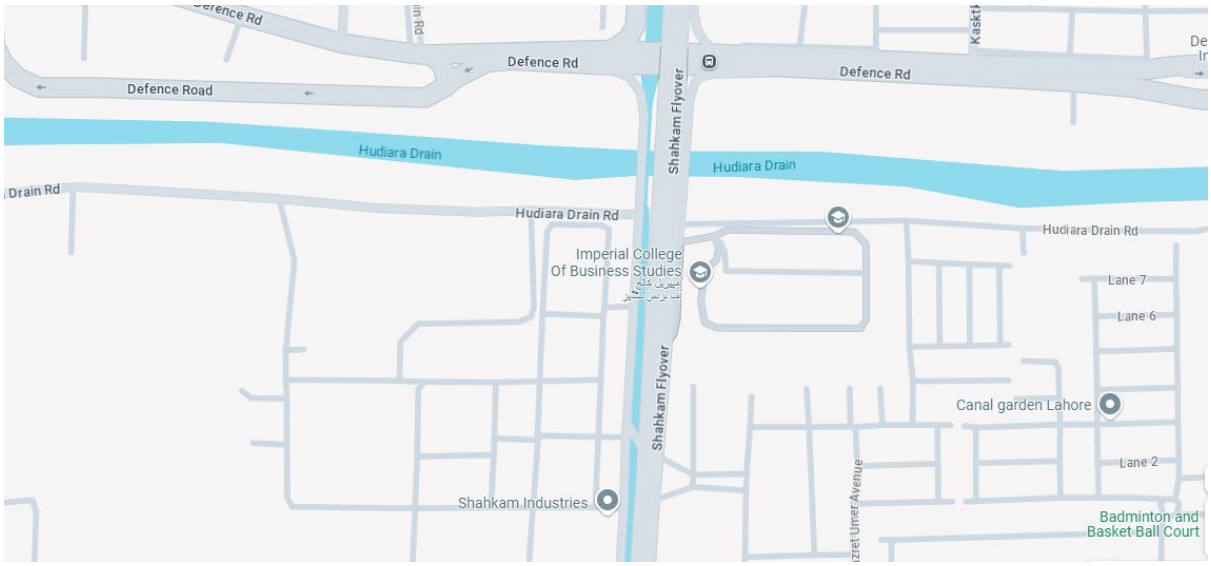


Fig: Access Road at the front side of the project site

2.7. Vegetation features of the project

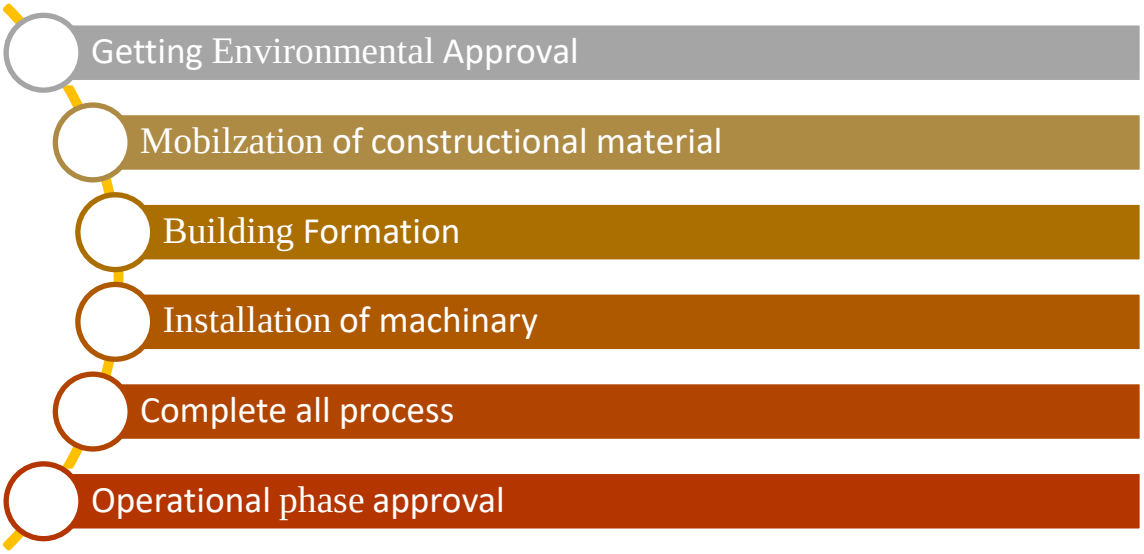
Land proposed for the subject project is clear and free of dense vegetation, only shrubs like Few and scattered amount of vegetation will help to avoid land clearing at the project site.

2.8. Cost and magnitude of the operation

The proposed capacity will be enhaced from 4 lac pcs/month to 1.2 million pieces per month by replacing old technology with latest and advance technology. Along with this the ETP will be equipped with the advance technologies like RO plant with multimedia filter, 35% clean return water, Sludge filter press. The waste water treatment plant capacity will be enhanced from 80m3/hr to 100m3/hr. The list of new and old technology are mentioned in the chapters below and also attached here with this report as Annexure-. The total area of the unit is 285.14 Kanals. Overall cost of the project will be approx. 20 billion Rupees.

2.9. Schedule of Implementation

Detailed feasibility studies and designing of the project have been completed. Necessary legal, administrative and financial formalities are being finalized. The project is expected to be completed within 10-12 months from the date of environmental approval. Subsequently the operational and maintenance aspects of the project will be undertaken by the proponent.



2.10. Description of the project:

Subject project for which this Environmental Impact assessment study has been conducted is proposed capacity enhancement and technology advancement of knitting, textile processing including dyeing, printing, apparel manufacturing and ETP by M/S Shahkaam Industries (Pvt.) Limited, located at 100-M Defence Road, off 23-km Multan Road, Lahore. The proposed capacity will be enhaced from 4 lac pcs/month to 1.2 million pieces per month by replacing old technology with latest and advance technology. Along with this the ETP will be equipped with the advance technologies like RO plant with multimedia filter, 35% clean return water, Sludge filter press. The waste water treatment plant capacity will be enhanced from 80m3/hr to 100m3/hr. The list of new and old technology are mentioned in the chapters below and also attached here with this report as Annexure-. The total area of the unit is 285.14 Kanals. Overall cost of the project will be approx. 20 billion Rupees.

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Power Requirement:	2 MW through solar system and other through WAPDA.
Labor/ Workforce:	During installation: 100-200 During Operation: 2500-3300
Water Requirement:	During installation: As the subject project is the proposed capacity enhancement and technology advancement, hence no construction will be done and no water will be required for this purpose. Besides this, water will be required only for domestic purposes at the time of technology advancement and installation. During Operations: As the subject project is in operations before the promulgation of 1997 PEP Act, and for now they are intended to do proposed technology advancement and production

	enhacement into their operations. The management of M/s Shahkam Industries Pvt. Limited have maintained a proper record of water consumption and requirement. The balance sheet is attached herewith as **Annexure-M.**
Solid waste:	During the installation phase of the project, only domestic waste will be produced that will be around 0.45kg/capita/day. According to an estimate, about 2tons/day of domestic and project related solid waste will be produced during the operation phase of the project Project related waste will include fabric, threads etc., which will be handed over to the certified contractors.

2.11. ACTIVITIES OF THE PROJECT

Introduction

This Environmental Impact Assessment (EIA) study has been conducted for M/S Shahkam Industries (Pvt.) Limited, located at 100-M Defence Road, off 23-km Multan Road, Lahore. The project focuses on enhancing production capacity and advancing technology in knitting, textile processing (including dyeing and printing), apparel manufacturing, and effluent treatment.

2.11.1. CAPACITY ENHANCEMENT

- **Current Production Capacity**

The existing production capacity of M/S Shahkam Industries is 400,000 pieces per month. This capacity reflects the company's commitment to meeting market demands; however, it is insufficient for future growth and expansion.

- **Proposed Production Capacity**

To address this limitation, the project proposes to increase the capacity to 1.2 million pieces per month. This significant enhancement will be achieved by replacing outdated machinery with the latest, advanced technology, allowing for more efficient production processes and higher output.

2.11.2. TECHNOLOGY ADVANCEMENT IN TEXTILE PROCESSING

- **Knitting and Textile Processing**

The project will implement state-of-the-art knitting and textile processing equipment. This technological upgrade aims to streamline operations, reduce waste, and enhance product quality, thereby improving overall operational efficiency.

- **Dyeing and Printing Technology**

In addition to knitting, the project will focus on modernizing dyeing and printing processes. By utilizing advanced techniques, M/S Shahkam Industries aims to reduce environmental impacts, such as water and chemical usage, while ensuring superior color quality and consistency in their products. MSDS of chemicals is attached here with as **Annexure-I.**

2.11.3. APPAREL MANUFACTURING IMPROVEMENTS

To support the proposed increase in production capacity, M/S Shahkam Industries will enhance its apparel manufacturing processes. This includes adopting innovative manufacturing methods that prioritize efficiency and product quality. The goal is to meet rising consumer demand while adhering to sustainable practices.

2.11.4. UPGRADING EFFLUENT TREATMENT PLANT (ETP)

- **Current ETP Capacity**

The existing effluent treatment plant has a capacity of 80 m^3/hr. While functional, this capacity limits the company's ability to manage wastewater effectively, especially with the anticipated increase in production.

- **Proposed ETP Capacity**

To support the enhanced production capacity, the ETP will be upgraded to a capacity of 100 m^3/hr. This increase will ensure that wastewater generated from the expanded operations is treated adequately, minimizing environmental impact.

- **Advanced Treatment Technologies**

The upgraded ETP will incorporate advanced technologies, including:

- **Reverse Osmosis (RO) Plant**: This will enhance water purification, allowing for more efficient recycling of wastewater.
- **Multimedia Filter**: Implementation of this system will improve the filtration process, ensuring that treated water meets environmental standards.
- **Sludge Filter Press**: This technology will facilitate better management of sludge, leading to reduced disposal issues and more sustainable practices.

2.11.5. WATER RECOVERY AND REUSE

A key component of the project is the focus on sustainability through water recovery and reuse. The goal is to achieve a 35% recovery of clean return water from the treatment process. This initiative will not only conserve water resources but also reduce operational costs, aligning with environmental sustainability goals.

Note: The process flow diagram is attached herewith as Annexure-I

2.12. Water requirements:

During installation: As the subject project is the proposed capacity enhancement and technology advancement, hence no construction will be done and no water will be required for this purpose. Besides this, water will be required only for domestic purposes at the time of technology advancement and installation. During Operations: As the subject project is in operations before the promulgation of 1997 PEP Act, and for now they are intended to do proposed technology advancement and production enhacement into their operations.

The management of M/s Shahkam Industries Pvt. Limited have maintained a proper record of water consumption and requirement. The balance sheet is attached herewith as **Annexure-M.**

2.13. Waste water treatment:

60-70% of the used water for domestic purposes will be the waste water which will be produced during the operation phase of the project. The generated wastewater will be treated in treatment facility (Septic Tank) of unit. Water after treatment will be disposed of in the nearby drain, For industrial wastewater, effluent treatment plant is already present in the purchased facility. The layout map of the effluent treatment plant is attached herewith as **Annexure-J**

2.14. Solid waste:

During the installation phase of the project, only domestic waste will be produced that will be around 0.45kg/capita/day.

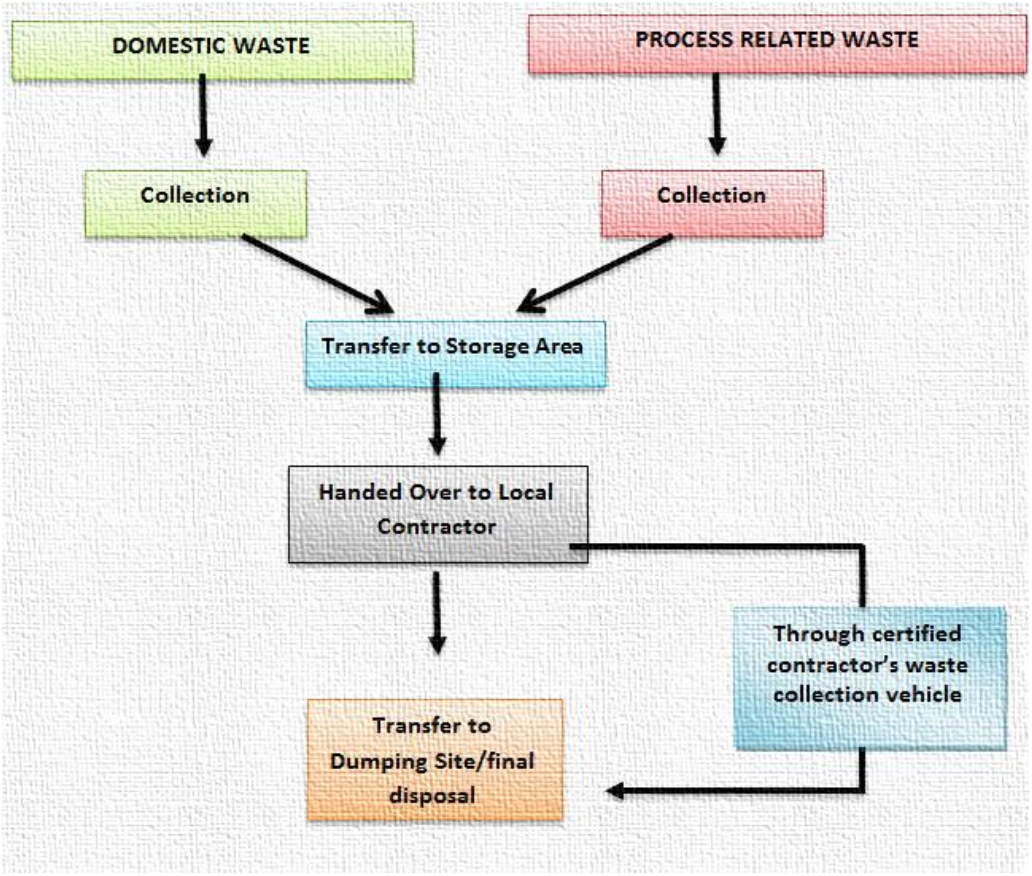
According to an estimate, about 2tons/day of domestic and project related solid waste will be produced during the operation phase of the project Project related waste will include fabric, threads etc., which will be handed over to the certified contractors.

2.14.1. Solid waste management system/practices

The Solid waste will be managed in proper way by following operations:

1. Placement of separate waste bins for domestic and project related waste in all working halls and designated points.
2. Collection of waste from all the working halls at one designated point by the sanitary workers on daily basis.
3. Collected waste will be handed over to the solid waste contractors for its final disposal, from this point.

2.14.2. Flow chart of solid waste management plan:



2.15. Plantation

Intensive plantation has been done by by management of M/s Shahkam Industries. They are also intended to do more plantation in the near future for the conservation of environmet. Plantation evidence is attached herewith as **Annexure-K.**

2.16. Parking Area

Parking area has been made available within the unit for cars, motorcycles, trucks etc.

2.17. Fire Protection System

An addressable fire protection system with detection and alarm annunciation and other installations etc. are provided to protect against any fire hazards. Fire buckets and fire extinguishers are installed at all sensitive places within the unit. Fire fighting arrangements and Emergency respone plan are attached as Annexure-E

2.18. Emergency Exits:

Emergency exit points will be made available for easy evacuation in case of any emergency.

2.19. Personal protective equipment:

Workers will be provided with Gloves, Masks & other personal protective equipment during the working hours to ensure personnel health & safety. Implementation of PPEs will be ensured by the proponent for the proposed project also.

2.20. Power sources and transmission:

The power requirements will be fulfilled by WAPDA. However, a diesel fired stand by generator (if needed) will also be used for emergency situations only.

2.21. Available Facilities

Available facilities at the proposed project site include:

- Electric supply from WAPDA
- Solid Management (SWM), Water supply, sewerage disposal and drainage systems
- Line and cellular telephone facilities

2.22. Restoration / Rehabilitation Plan

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

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

2.23. Government approvals required by the project:

All the approvals will be obtained by the project proponent and will be submitted to EPA at the time of operation.

CHAPTER # 3

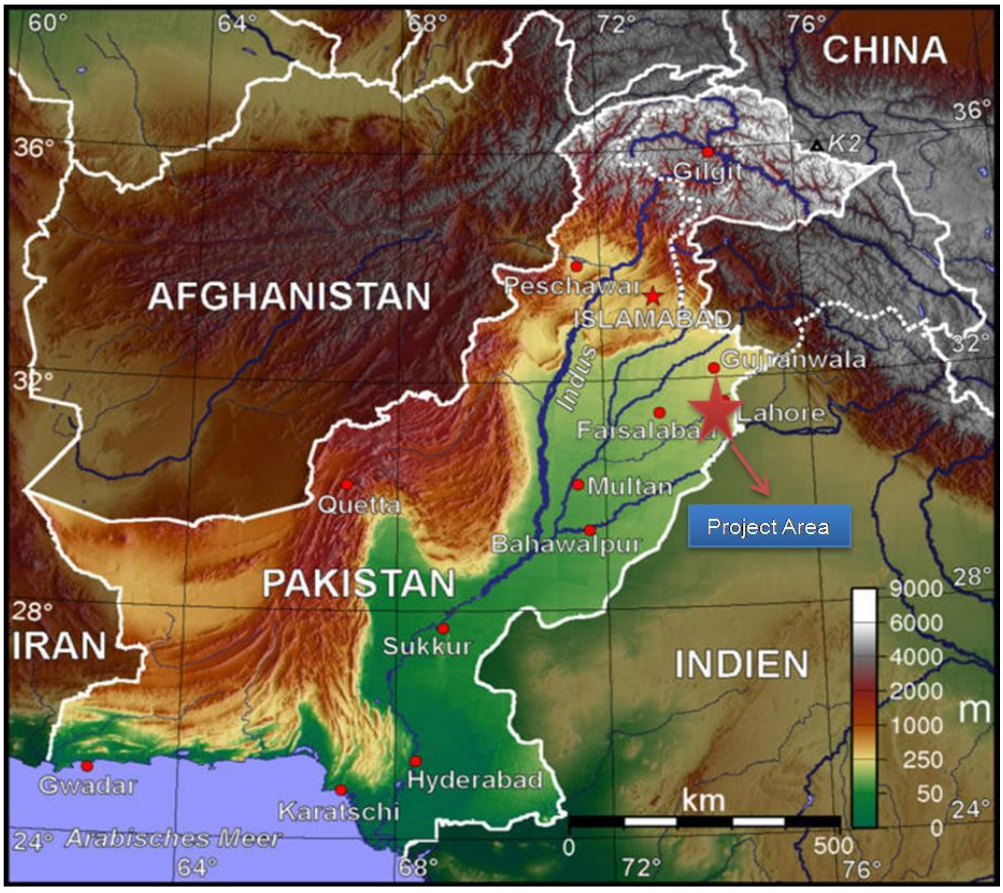
3. DESCRIPTION OF ENVIRONMENT

This section describes the baseline conditions, which cover the existing Physical, ecological and socio-economic environment of the project as well as study area. Data was collected by reviewing secondary data and field survey.

3.1. Physical Environment/ Resources

3.1.1. Topography:

The topography of the project area is flat. The General height of the area is approximately 220 meters above the Mean Sea Level (MSL). The district Lahore is divided into two parts. The low lying alluvial soil is along the Ravi River, and the upland in the east. Upland is a plain slope from north-east to south-west. The lowlands are generally inundated during the monsoon season by Ravi River, flowing in the west of district along its boundary with district Sheikhupura. Below figure is showing the topography of the area.



3.1.2. Soil:

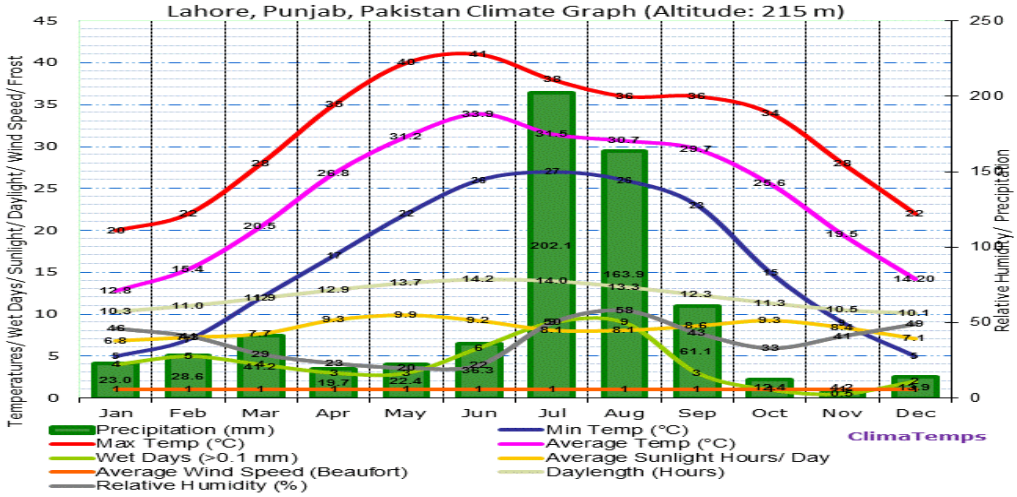
The soil in the Project Area is cohesion less and is of alluvial type. Various soil layers below the ground level includes: silt, silty clay, silty sand, poorly graded sand with silt, lean clay etc. The soil is different in character and generally inclined to be dry. However, it is rich in potential plant nutrients.

3.2. Climate and metrology:

Seasonal climatic conditions must be considered for the design and execution of Project. The climate including air, temperature, precipitation, humidity and evaporation is an influencing factor, affecting the Installation of project and other engineering structures. However, to determine the overall effect of the climatic stresses, daily and seasonal temperature changes, site altitude, direct solar radiation, and precipitation must be considered. The Project Area has extreme climate: it has hot summer and cold winters. The summer starts from April and lasts till September. May, June, and July are the hottest months. The mean maximum and minimum temperature ranges from 40.4 ºC and 27.3 ºC respectively for these months.

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

The project area receives rains in all the seasons but monsoon rain is pronounced and constitutes a definite rainy season between the month of July and September. The average rainfall is about 629 millimeters per year. Below figures showing the temperature, precipitation, and relative humidity trends in the study area.



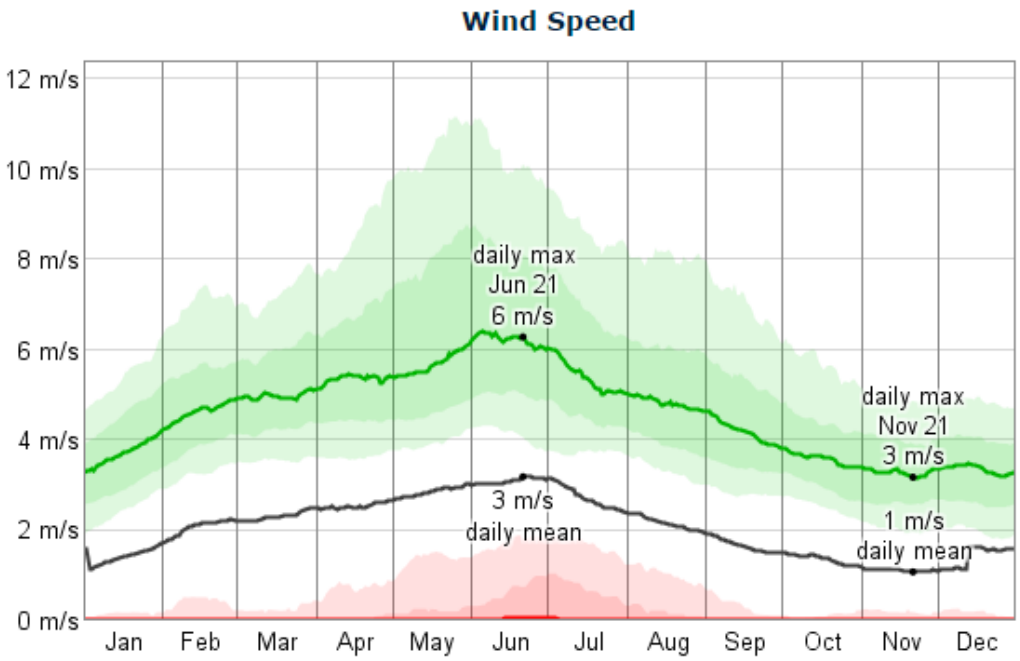
3.3. Wind:

3.3.1. Wind speed in the project area:

Over the course of the year typical wind speeds vary from 0 m/s to 6 m/s (calm to moderate breeze), rarely exceeding 11 m/s (strong breeze).

The highest average wind speed of 3 m/s (light breeze) occurs around June 21, at which time the average daily maximum wind speed is 6 m/s (moderate breeze).

The lowest average wind speed of 1 m/s (light air) occurs around November 21, at which time the average daily maximum wind speed is 3 m/s (light breeze).

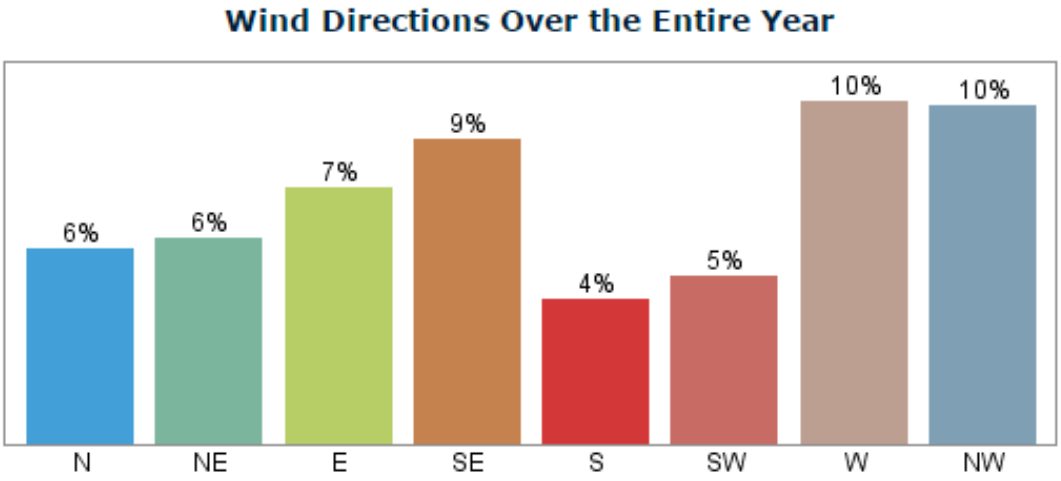


The average daily minimum (red), maximum (green), and average (black) wind speed with percentile bands (inner band from 25th to 75th percentile, outer band from 10th to 90th percentile).

Reference: https://weatherspark.com/averages/32865/Lahore-Punjab-Pakistan

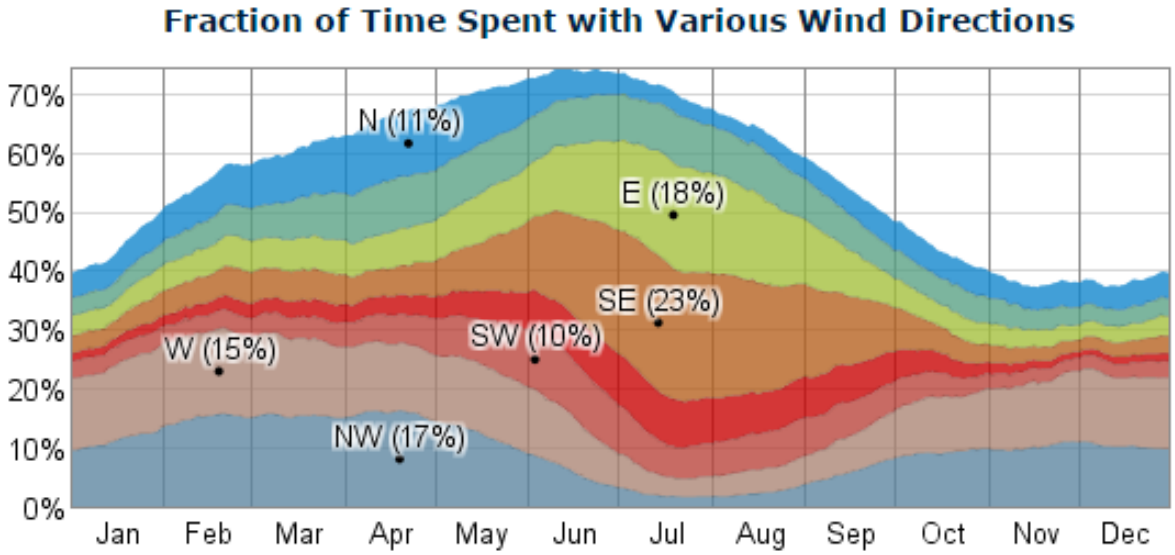
3.3.2. Wind direction in the project area:

The wind direction is highly variable and is not predominantly from any single direction. The wind is least often out of the south (4% of the time) and south west (5% of the time).



The fraction of time spent with the wind blowing from the various directions over the entire year. Values do not sum to 100% because the wind direction is undefined when the wind speed is zero.

Reference: https://weatherspark.com/averages/32865/Lahore-Punjab-Pakistan



The fraction of time spent with the wind blowing from the various directions on a daily basis. Stacked values do not always sum to 100% because the wind direction is undefined when the wind speed is zero.

3.4. Ambient Air Quality:

Atmospheric pollution, particularly in urban areas like Lahore, has a strong impact on daily life. Project site is located at Manga Raiwind Road, Lahore. Motor vehicles are a major source of air pollution in the project area. Monitoring was conducted at the project site by using Fine Dust Sampler IPM-FDS 2.5/10µ and Ambient Air Analyzer.

To record the baseline ambient air quality of the project area, monitoring was conducted at advised locations to assess the concentration of priority pollutants (Carbon monoxide, Nitrogen

dioxide, Sulphur dioxide and PM_{10}) in the air. Lab reports of Ambient Air Monitoring are attached as **Annexure-D** with the EIA report.

3.5. Noise Level Monitoring:

3.5.1. Basic Environmental conditions:

During the measurement following conditions were prevailed on workplace:

3.5.2. Metrological Conditions:

During the noise level monitoring weather was dry and sky was clear. Air was blowing at normal speed

3.5.3. Monitoring Instrument:

The description of the instrument used for the noise level monitoring is given below:

Name: Digital sound level meter

Model: AR824

Company: Intel Instruments plus

3.5.4. Methodology adopted:

Noise level was monitored at four points; lab results are attached as **Annexure-D.**

3.6. Ground water:

The underground water will be used as a source of water at the project site. Sample was taken from the tube well near the project area to test its parameters. Lab results are attached as **Annexure-D.**

3.7. Ecological Resources

As climate of Lahore is semi-arid and subtropical, the vegetation of the district falls under scrub, dry, tropical thorn forest type as per phyto-geographical classification of the area but this vegetation is confined to the graveyards in the Lahore city and the project site is free from such type of vegetation.

3.7.1. Flora:

There are small grasses and shrubs present at the project site. Some native trees were observed in the surrounding areas. Native trees and plants of 6 feet height will be planted within the premises of the project by the project proponent with the consultation of concerbed authority

3.7.2. Fauna:

Different birds were observed at the project site during the site visit including sparrow, crow, pigeon and dove etc. Other than that no fauna was observed at the site during the site visit.

3.8. Socioeconomic Environment:

Socioeconomic environment of district Lahore has been studied through secondary sources and a brief introduction has been given below:

3.9. Demographic Characteristics of the Project Area

The total population of Lahore District has crossed 13 million.

3.9.1. Religion

The population of the district is predominantly Muslims i.e. approx. 95 percent, other minorities like Christians, Sikhs and Hindus etc. are approx. 5 percent.

3.9.2. Education

Lahore is known as Pakistan's education capital, with more colleges and universities than any other city in the country. Lahore is Pakistan’s largest producer of professionals in the fields of science, technology, IT, engineering, medicine, nuclear sciences, pharmacology, telecommunication, biotechnology and microelectronics. Most of the reputable universities are public, but in recent years there has also been an upsurge in the number of private universities. The current literacy rate of Lahore is 74%. Lahore hosts some of Pakistan's oldest educational institutes: Government College Lahore (now Government College University), established in 1864; Forman Christian College, a chartered university established in 1864; University of the Punjab, established in 1882; Kinnaird College, established in 1913; and University of Engineering and Technology, Lahore (UET Lahore), established in 1921. UET is also Pakistan's oldest technical degree-awarding institute and its first university in the field of engineering and technology.

Lahore's institutes in the fields of computer science, IT, and engineering include the National University of Computer and Emerging Sciences (NUCES or FAST-NU) and Punjab University College of Information Technology. Notable architecture schools include Beaconhouse National University, COMSATS Institute of Information Technology, University of South Asia, National College of Arts and University of Engineering and Technology, Lahore. Notable business schools include the Lahore University of Management Sciences (LUMS), Lahore School of Economics, Forman Christian College, and University of Management and

Technology. University of Education, established in 2002, is Pakistan's first specialized university in the field of education.

Lahore also provides education in many fields of health sciences. Notable medical colleges offering MBBS degrees include Allama Iqbal Medical College, Fatima Jinnah Medical College, King Edward Medical University, Lahore Medical and Dental College, Services Institute of Medical Sciences, Shaikh Khalifa Bin Zayed Al-Nahyan Medical and Dental College and Shalamar Medical and Dental College. Important postgraduate institutes are Punjab Institute of Cardiology and University of Health Sciences, Lahore. University of Veterinary and Animal Sciences is the only college in Lahore providing education in the field of veterinary medicine. De'Montmorency College of Dentistry is an important college of dentistry. There are many institutes offering education in fields of nursing and pharmacy as well.

Notable schools include Aitchison College, St. Anthony's College, Lahore College of Arts and Sciences, Lahore Grammar School and Salamat School System. AghazScool System is present near the subject project.

3.9.3. Health Facilities

Ample medical and health facilities are available in the Lahore Metropolitan Corporation area and its suburbs. ShaukatKhanam Hospital is the latest addition in the medical care facilities in Lahore for the most dangerous disease in the country. i.e. Cancer. There are also other hospitals of voluntary organizations which provide health cover to the general public. King Zaid Bin Sultan Hospital is also a very advanced addition in the medical care for Lahore. Among the prominent hospitals are General Hospital, Lady Willington Hospital, Mayo Hospital, Fatima Jinnah Hospital, The Children Hospital, Services Hospital, and Ganga Ram Hospital etc. Besides, a number of private medical practitioners, Hakims and homeopathic doctors are also practicing in the city. Some famous Health facilities located in the Project vicinity are Hameed Latif Hospital, Wapda Hospital and Lady Willington.

3.10. Quality of Life Values

All classes of people are present in Lahore City; People lead lives according to their income.

3.11. Civic Amenities

Civic amenities like potable drinking water, dispensary and rest area are available near the project site.

3.12. Games:

Cricket, Football, badminton, Hockey, Volleyball, Kabbadi and Kushti are major sports of Lahore District.

3.13. Welfare of Employees

Management of project is mindful of the fact that the satisfied employees will deliver better output.

3.14. Historical buildings near the project site:

Pakistan Radio, Agriculture department, Punjab Public Service Commission are the historical buildings near the project site.

3.15. Aesthetic Values:

Like the general trend among the citizens of area, most of the people have low awareness about environment. Even then, some people take cleanliness and neatness of the environment lightly. Some people throw municipal solid wastes (MSWs) on the streets. Sense of personal responsibility to keep the environment clean as good citizens is even now lacking among a few people.

CHAPTER # 4

4. CONSIDERATION OF ALTERNATIVES

4.1. Site alternatives:

To fulfill the commercial aspects of the project under reference of this EIA Report, it is to be sited at a place where commercial processing activity is either already going on or there are bright prospects of the same. Concurrently, it must also meet the legal requirements of the Punjab Environmental Protection Act, 1997 (Amended 2012). Availability of land at the best convenient place is equally important among other considerations for the site selection. Availability of access roads, communication facilities, electricity, basic infrastructure, sewerage etc. is yet the other necessary requirements.

Obviously, environmentally sound, neat and clean environment are the other considerations for site selection. The project will also facilitate the people of the area with increasing the opportunity of employment, and other related facilities.

Keeping these requirements and their feasibility and other basic infrastructural requirements, the selected site is ideally suited and no ther alternative site is considered by the project proponent as the subject project is of the proposed capacity enhancement and technology advancement at an already establish unit owned by M/S Shahkam Industries Pvt. Ltd.

4.2. Technology Alternatives:

The proposed development will be done using modern, locally and internationally accepted technology and materials to achieve public health, safety, security and environmental aesthetic requirements. Equipment that saves energy will be given first priority without compromising on cost or availability factors.

M/S Shahkaam Industries (Pvt.) Limited is an Environmental conscious company which intends to use modern and state of art machinery with minimum impacts on Environment. List of previous and advance technology is attached herewith as **Annexure-I.**

4.3. Environmental alternative

The project site is located in Lahore District. The site is located in an Industrial Area. Various industries have already been constructed on the industrial estate that are complying with the PEQS standards by installing various pollution controls devices. Establishment/ installation of this project in this area will have minimal impact on the daily life people living in Lahore. The

project proponent is recommended to make sure the regular maintenance of ETP during the project operations to keep the effluent within the PEQS limits. The Proponent has ensured that regular maintenance will be done to control water pollution impact. Also, the proponent ensured that project vehicles related to dyeing unit operation will be maintained so they don't cause any vehicular emissions.

4.4. Economic Alternatives

The project proponent intends todo proposed capacity enhancement and technology advancement of knitting, textile processing including dyeing, printing, apparel manufacturing and ETP. The installation of this project will lead to the project towards sustainability as the project will not release any untreated wastewater into the drains. This will improve the project brand in the international market and attract international investment. This project will provide employment during installation phase and managerial staff at operation phase as laborer's workers and managerial staff. This project will accelerate the economic development of the district Lahore and in turn Pakistan.

CHAPTER # 5

5. SCREENING OF POTENTIAL ENVIRONMENTAL IMPACTS & THEIR MITIGATIONMEASURES

5.1. Environmental Impacts during the Installation phase

Impacts related to the Installation phase of the subject project are discussed below:

- **Grubbing and stripping**

Grubbing and stripping may be a minor and short term impact on the physical environment during the Installation phase. It may also be a health and safety hazard for the people at or near the project site.

- **Leveling and compaction of the land**

Leveling and compaction of the land is also a short term and minor impact on the physical environment and it may also be a health and safety hazard for the workers.

- **Demarcation of project building and other facilities**

It may also be a minor impact on the physical environment due to the subject project.

- **Generation of dust during loading and unloading of Installation materials**

It is also a minor and short term impact on the physical environment and also for health and safety, which may arise during the Installation phase.

- **Generation of noise on account of vehicular use and Installation activities**

It is also a minor and short term impact on the physical environment and also for health and safety, which may arise during the Installation phase.

- **Gaseous emission due to the vehicles and stand by generator (if any)**

It may also be a minor impact on the physical environment during the Installation phase, if vehicles and generators are not properly tuned.

- **Local flooding due to over-use of water and leakage of pipes**

It may be a minor and short-term impact on the physical environment if precautionary measures have not been taken.

- **Safety of Installation workers, people in the surroundings and passersby**

Health and safety issues may arise during the Installation phase if proper precautionary measures will not be taken.

- **Any outbreak of fire due to electrical and other failures**

This issue may arise due to carelessness or improper management, and it may be a serious hazard which may affect the environment or may also cause the loss of property or life.

- **Solid waste generation due to domestic and Installation activities**

Solid waste generation due to domestic and Installation activities may be a negative impact on environment if not managed properly.

- **Wastewater generation from the domestic and Installational activities**

Wastewater generation due to domestic and Installation activities may be a negative impact on environment if proper wastewater treatment and management system will not be implemented.

- **Ground water quality**

Ground water quality may be affected by the development if proper mitigation measures will not be implemented.

- **Impacts on Fauna and Flora**

Installation will impact the flora/ vegetative cover and fauna present at the project site.

- **Security threat**

Security issue is a major socioeconomic impact which may arose during the Installation phase.

- **Impact on land value**

Installation of the subject project may cause positive or negative impact on the land value.

- **Dislocation of the people**

Installation of the subject project may cause the dislocation of the local people if any, which is a negative impact on the socioeconomic environment.

- **Loss of public and private infrastructure**

Installation of the subject project may cause loss of public and private infrastructure if any, which is also a negative impact on the socioeconomic environment.

Impact significance: moderate to high or may be negative

Nature of impact: direct

Duration: Short Term

Timing: Installation phase

Reversibility: NA

Likelihood: moderate

Consequences: moderate

5.2. Mitigation Measures and Recommendations

- Precautionary measures should be adopted to save the environment from the impacts of grubbing, stripping, leveling and compaction and health and safety of workers should be ensured during the Installation phase.
- Demarcation of the project building and other facilities should be according to the laws and regulations.

- Sprinkling of water on dusty tracks is recommended to avoid the generation of dust on dusty tracks.
- Vehicles should be properly tuned to reduce the impacts of dust and noise.
- Mitigation measures should be taken to meet the PEQS at the stack of generators.
- Proper mitigation measures should be taken to reduce the noise generation during the Installation activities.
- PPEs i.e. ear muffs, helmets and masks etc. should be provided to workers to ensure their health and safety during the Installation activities.
- Precautionary measures should be taken to reduce the local flooding due to over-use or leakage of pipes.
- Health and safety of Installation workers, people in the surroundings and passersby must be ensured.
- Precautionary measures should be taken to avoid any outbreak of fire due to electrical and other failures.
- Installational waste should be used for landfilling purposes.
- Domestic solid waste should be kept in dust bins and should be handed over to local contractors.
- Add more vegetation to restore the land by more plantations.
- Essential services like water supply, sewerage disposal and solid waste management must be in working condition.
- Installation timings should be scheduled to cause minimum disturbance to neighbors.
- Because of presence of security guards round the clock the security at the project site will be improved as well as in its vicinity. Impact will be moderate positive.
- Land value in the surrounding area will increase due to completion of the present project. Impact will be moderate positive.
- The project does not involve dislocation of the people. There is no requirement of resettling a single person. Impact is nil.
- No movable or immovable property and infrastructure of public and private sectors will be lost or damaged during Installation and operation stages. Impact will be nil.

5.3. Environmental Impacts during Operation Stage

Main environmental issues associated with Project operation are as follows.

- Health and safety issues for workers may arise during the project process e.g. Particulate matter may be generated during the cutting of the fabric, which may cause

the health issues for the workers and noise of machinery can also be a negative impact on the health of workers.

- Waste water due to domestic and process activities.
- Fire due to short circuits and other activities.
- Solid waste generation due to domestic and project related activities.
- Noise pollution from generator and other machinery.
- Health hazards including the electricity hazards.
- Vehicle access is required especially for transportation. The site is well served with the road network. Heavy traffic will be allowed only during night time during operational phase. The traffic issues at any stage of project life cycle will not arise.

Impact significance: moderate to high or may be negative

Nature of impact: direct

Duration: Long-term

Timing: operational phase

Reversibility: NA

Likelihood: moderate to high

Consequences: moderate to high or may be negative

5.4. Recommendations

- Safety of workers should be ensured through proper training and PPEs must be ensured during the working hours.
- A well design firefighting system will be constructed to cope with fire situations in the subject project.
- Solid waste bins should be installed at designated processes and Installed Solid waste bins should regularly cleaned and solid waste must be handed over to the EPA Approved contractor.
- Noise levels should not exceed the PEQS.
- Project proponent should submit all the monitoring report in the EPA Punjab Office for the compliance of the PEQS.

5.5. Potential Environmental Enhancement Measures

The proposed project will be installed with all precautionary measures to enhance and safe the environment. Following necessary measures will be adopted during Installation and operation:

- Sprinkling of water will be done on dusty roads and tracks.

- PPEs will be provided during Installation activity.
- Installational waste and domestic solid waste will be disposed-off or utilized properly.
- Local people will be informed in advance when work is about to start in an area.
- Machinery will never be left unattended.
- Efforts should also be made to discuss traffic conditions so that regular traffic is not disturbed. Transporters engaged for the project would be forced to adhere to the load specifications of the access road. No overloading would be allowed in any case.
- Safety signs and boards will be placed during Installation.
- Air pollution controlling devices must be installed within the project during operation.
- Machinery will be kept maintained.
- Waste water will be treated through waste treatment facility (septic Tank) that will be installed within the premises of the subject project.
- Proper SOPs will be followed with proper schedule along with the HSE conditions.
- Area will be restored with native plants. A proper tree plantation plan will be formulated to save the environment.
- Solid waste will be handed over to contractors and agreement will be made.
- Noise will be controlled by adopting proper measures.
- PPEs will be provided to workers during working.
- Firefighting equipment's and system will be installed.
- Safety signs will be placed at all locations where required.
- Hygienic conditions will be ensured and proper quality will be maintained by quality control testing.
- First aid facilities will be made available.

5.6. Purpose of Mitigation measures

Purpose of mitigation measures should include:

- What is the problem i.e. in terms of "major environmental impacts" which may arise by the subject project activity?
- When the problem will occur and when it should be addressed?
- Where the problem should be addressed?
- And how the problem should be addressed?

The major impacts may arise by the subject project, particulate matter, dust, noise, odor and solid waste. Other impacts are of minor importance. These impacts will arise during Installation

and operation but precautionary measures will be adopted prior to start the activity, during the activity and post activity.

Any impact that would arise due to the subject project activity will be addressed on site. Trainings will be conducted onsite prior to start work while other precautionary measures will also be adopted to make the project safe and environmental friendly.

HSE manager/environmental manager along with site manager will be appointed to assess any impact that could be arisen during both phases. He would be responsible to address the problem and to mitigate it.

5.7. Ways of achieving mitigation measures

By adopting proper mitigation measures, any anticipated major or minor environmental impacts could be controlled or mitigated. The details of impacts and mitigation measures have been discussed in previous chapters.

Management of M/S Shahkam Industries Pvt. Ltd shall take appropriate measures to provide pollution free and safe environment during the proposed project activity by implementing improved management practices and monitoring techniques suggested in EMP.

M/S Shahkam Industries Pvt. Ltd adopt such plan that will assure the minimum impact on the environment and health by implementing proper mitigation measures. Design of the project will assure the structure stability and project life in a long run.

M/S Shahkam Industries Pvt. Ltd will develop Restoration/ reclamation or tree plantation plan to restore the project area. Maximum Plantation will be done with native species within the unit, along the boundary wall and along the roadside if directed by EPA. Also, in-front of main area, horticulture plan will be formulated and area for this will be kept reserved.

CHAPTER # 6

6. ENVIRONMENTAL MANAGEMENT AND MONITORING PROGRAM

6.1. Purpose and Objectives of the EMP:

The primary objectives of the EMP are to:

- Facilitate the implementation of the mitigation measures identified in the EIA.
- Define the responsibilities of the project proponent.
- Define a monitoring mechanism and identify monitoring parameters in order to:

1. Ensure the complete implementation of all mitigation measures.
2. Ensure the effectiveness of the mitigation measures.
3. Provide a mechanism for taking timely action in the face of unanticipated environmental situations
4. Identify training requirements at various levels.

6.2. Management Approach:

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

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

6.3. Institutional Capacity

Following functionaries will be involved in the implementation of EMP:

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

6.4. Training Schedules

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

6.5. Training of building contractor

Training of building contractor & workers will be the part of the TORs regarding the Installation of the scheme. The provisions given in EIA Report Chapter 5 Screening of Potential Environmental Impacts & Their Mitigation Measures will be followed.

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

1. Handling of Machineries in a safe way
2. Use of PPEs
3. Maintenance of vehicles and submission of Environmental Monitoring Reports
4. Maintenance of Water Consumption records
5. Testing of water and waste water and submission of Environmental Monitoring Reports.
6. Placement of safety signs/boards during Installation
7. Sprinkling of water on the roads and dusty tracks
8. Monitoring of generator emissions

Training regarding all other aspects of HSE will be ensured by the contractor during the Installation phase.

6.6. Responsibility of EMP

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

6.7. Equipment Maintenance Detail

The subject project is the proposed capacity enhancement and technology advancement of knitting, textile processing including dyeing, printing, apparel manufacturing and ETP under the name of M/S Shahkam Industries Pvt. Ltd. The company will maintain the records for Health Safety & Environment and will hire HSE manager to check and deal with the HSE issues. The company shall maintain PPEs, medical facilities, firefighting Equipment's as fire buckets, fire hydrants and fire extinguishers and records for their periodic fillings or

replacement. HSE policy and safety layout map, fire fighting arrangements and Emergency Reaponse Plan are attached in **Annexure-E,**

6.8. Environmental Budget

The cost which is required to effectively implement the mitigation measures is important for the sustainability of the Project in operation stage of the Project.

Company has allocated the Environmental Budget is 3-5 million Rs. out of total capital cost for the Training, maintenance and management of Environment that will include filling and maintenance of equipment's, restoration, plantation, and availability of PPEs, strategic planning to cope with any emergency situation and formulate the disaster management plan to cope with natural disaster. Any equipment or devices failure or replacement will not be included in this budget.

6.9. ENVIRONMENTAL MANAGEMENT PLAN OF M/S SHAKAM INDUSTRIES PVT. LTD.

Phase	Environmental Aspect	Potential Impact	Mitigation Measures	Responsibility	Monitoring
Installation	**Air Quality**	Dust and emissions from installation activities	- Use air pollution control devices - Implement dust suppression methods (e.g., water spraying) - Utilize low-emission equipment	Project Manager, Environmental Officer	Regular Air quality monitoring
	Noise	Increased noise levels from machinery installation	- Limit installation activities to daytime hours - Use noise barriers and sound-dampening equipment	Site Manager	Regular Noise level assessment
	Waste Generation	Solid and hazardous waste production	- Implement a waste management plan - Recycle materials where feasible - Ensure proper disposal of hazardous waste	Waste Management Coordinator	Regular Waste audits
	Water Usage	Excessive water consumption	- Install water-efficient fixtures - Reuse water for Installation processes	Project Manager	Regular water usage reports
	Land Disturbance	Soil erosion and habitat disruption	- Minimize land disturbance areas - Implement erosion control measures	Site Manager	Regular Environmental inspections

	Health and Safety	Risks to worker safety	- Provide safety training and PPE - Conduct regular safety audits and drills	Safety Officer	Regular Safety audits
	Regulatory Compliance	Non-compliance with environmental laws	- Ensure all necessary government approvals are obtained - Maintain compliance with local and national regulations	Compliance Officer	Regular Compliance audits
Operational	**Water Pollution**	Contamination of local water bodies	- Operate an efficient Effluent Treatment Plant (ETP) - Regularly monitor and maintain ETP systems	ETP Manager	Regular Effluent quality monitoring
	Chemical Use	Risks from hazardous materials	- Utilize eco-friendly dyes and chemicals - Maintain up-to-date Material Safety Data Sheets (MSDS)	Safety Officer	Regular Chemical inventory audits
	Energy Consumption	Increased greenhouse gas emissions	- Implement energy-efficient technologies - Schedule regular maintenance for machinery	Operations Manager	Regular Energy consumption audits

	Waste Management	Pollution and health risks	- Establish comprehensive recycling programs - Train staff on waste minimization practices	Waste Management Coordinator	Regular waste generation reports
	Social Impact	Community disruption and employment issues	- Engage with local communities regularly - Address community concerns and feedback promptly	Community Liaison Officer	Regular Community feedback sessions
	Biodiversity	Loss of local flora and fauna	- Conduct biodiversity assessments - Implement habitat restoration and plantation initiatives	Environmental Officer	Biodiversity assessments
	Air Emissions	Deterioration of local air quality	- Install and maintain air pollution control devices - Implement an emissions monitoring program	Environmental Officer	Regular Emissions monitoring
	Resource Consumption	Unsustainable use of materials	- Implement sustainable sourcing practices - Promote the use of recycled materials	Operations Manager	Regular Material usage audits

	Environmental Parameter Monitoring	Non-compliance with environmental standards	- Regular monitoring of air, water, and noise parameters - Report findings to regulatory authorities	Environmental Officer	Regular Monitoring reports

CHAPTER # 7

7. STAKEHOLDERS PARTICIPATION

Social acceptability of the project and the area is a key to success. Consultation with the stakeholders is a tool for managing two-way communication between the project proponent and the affected public. Its goal is to improve decision making and built understanding by actively involving individuals, groups and organizations, which have stake in the project. This involvement increases project's long term viability and enhances its benefits to locally affected people and other stakeholders.

In order to evaluate the socioeconomic and environmental impacts, filed surveys are extremely essential. In addition to the surveys at the preliminary stage, consultation with the community and their active participation plays a vital role in successful implementation of the project. To identity the different types of stakeholders and ascertain their perceptions about the project, an Environmental Impact Assessment was conducted. Informal group discussions were also held as an additional tool for obtaining feedback from the stakeholders that are being discussed in the following pages.

7.1. Objectives of Consultation

Public consultation plays a vital role in studying the effects of the project on the stakeholders and in the successful implementation and execution of the proposed project. Public involvement is a compulsory feature of environmental assessment, which leads to better and more acceptable decision making. The objective of the consultation with stakeholders is to help verify the environmental and social issues that have been presumed to arise and to identify those which are not known or are unique to the establishment/ installation of the proposed unit.

The important general objectives of the consultation process are:

- Information dissemination, education and liaison;
- Identification of problems and needs;
- Collaborative problem solving;
- Reaction, comment and feedback on proposed project;
- Documenting mitigation measures proposed by the stakeholders;

7.2. Methodology of consultation:

The EIA team carried out public consultations at various locations around the Project Site. The stakeholder's consultation during this phase of the work targeted the project area, administrative and private offices, Govt. offices, shops, etc. near the Project area:

- Selection of the stakeholders for consultation, reconnaissance of the proposed project site and initial discussions with the neighboring factory workers, villagers, shopkeepers, drivers etc.
- Environmental consultants and social specialists and documenting the opinions of the stakeholders expressed during the meetings etc.

7.3. Proponent

Possible impacts and mitigation measures related to the subject project were discussed with the project proponent and management. They assured to take all suggested mitigation measures to control any discrepancy arose by the project and to make the project environmental friendly.

7.4. Responsible Authority

Management of M/S Shahkam Industries Pvt. Ltd., is the responsible authority to take all measures prior to start the activity.

7.5. Other departments and agencies

For the impact analysis detailed meetings were held with the management of M/S Shahkam Industries Pvt. Ltd., local community, education institutes, health institutes, hospital and NGOs. Issues were discussed that may affect the environment and also the implementation of proposed project. All possible mitigation measures were considered and incorporated in the Environmental Management Plan.

Scoping sessions, focused group discussion and way side consultations were held with the relevant stakeholders in the area. The purpose of such consultations is to obtain the feedback from the relevant persons.

7.6. Affected & Wider Community

There is no affected community present in the radius of our study area. PGEE team has consulted with the inhabitants of the different villages. They provided positive remarks regarding the subject project and in the favor of the subject activity for the proposed plant. Stakeholders participation Performa's and socioeconomic questionnaire were get filled by the

inhabitants to evaluate the project socio-economic impacts. List of respondents and socioeconomic questionnaires are attached as **Annexure-F** with the report.

7.7. Categories of stakeholders interviewed in the project area:

Sr. No.	Stakeholder Category
1.	Neighboring factory workers.
2.	Nearby residents
3.	Shopkeepers.
4.	Drivers.

7.8. Issues Discussed:

Following issues were discussed during the stakeholder consultation:

- Overall activities of the project;
- Possible impacts on natural vegetation, air, land and properties;
- Possible mitigation measures;
- Benefits of the project specifically for the local people.

7.9. Findings of the Overall Discussion:

- After the completion of the proposed project the site will be used for industrial activities.
- It will enhance the socio-economic conditions/values of the area.
- Project will increase revenue generation for the Government.
- It will create employment opportunities.
- Local people will be given preference for employment in the proposed project.
- Establishment/ installation of the proposed project will be completed in the designated timeframe to limit adverse impacts of Installation.
- There will be no significant additional load on the existing infrastructure i.e. utilities of water, telephone, electricity etc. due to the development of the proposed project.

Majority of people favored the proposed project in a sense that the Installation of the said project will generate employment opportunities for local people and revenue for the government, will enhance the socioeconomic conditions of the area and automatically will contribute to the national economy of the country.

CHAPTER # 8

8. CONCLUSION AND RECOMMENDATIONS

Based on the study conducted for Environmental Impact Assesment (EIA) for the subject project, the following conclusions are made:

8.1. CONCLUSIONS

- The EIA study reveals that the project is economically viable, socially acceptable and environment friendly.
- It will generate additional jobs during Installation and operation phases.
- The proponent has committed to implement the project in the environment friendly manner.
- M/S Shahkam Industries Pvt. Ltd has obtained all relevant government approvals which are attached here with as **Annexure-C.**
- M/S Shahkam Industries Pvt. Ltd has prepared and implemented very comprehensive Emergency Preparedness and Response Standard Operating Procedures which are attached as **Annexure-E**
- M/S Shahkam Industries Pvt. Ltd has prepared and implemented very comprehensive Security and Fire Fighting Standards Operating Procedures which are attached as **Annexure-E**

8.2. RECOMMENDATIONS

- In view of the comprehensive screening process and findings of the present study there is no need of conducting further investigations.
- Tree plantation inside the unit and near the unit is recommended.
- The untreated wastewater will not be reused for irrigating the vegetation and lawns.
- High standards of bio-security and safety will be enforced during operation stage. Safety of the workers will be top priority for the management.
- The management of M/S Shahkam Industries Pvt. Ltd will continue to assist the local communities as a corporate/social responsibility. The present EIA report is enough to meet the administrative and legal framework. Therefore, the environmental approval may be accorded for the present project.