2020

ENVIRONMENTAL IMPACT ASSESSMENT

UMAR SPINNING MILLS (PVT.) LTD

5 km Daras Road, Pajjian Chowk, Raiwind Road, Lahore.

Report Prepared By:
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Report Submitted By:
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DISCLAIMER

The data was based on the originality of project site shown by the project proponent/ stakeholders/ promoters, provided maps, verbal communications and all other related documents. The authenticity of supra-mentioned relies with the proponent/ stakeholders/ promoters, not with the environmental consultant. The IEE report can't be negotiated in any court of law.

Author: _____

IEE & EIA Team

List of Figures

Executive Summary

Title & Location of the project

Subject project for which this Environmental Impact Assessment (EIA) Study has been conducted is the proposed extension of a spinning unit under the name of M/s Umar Spinning Mills (Pvt.) Limited at 5-Km Dars Road, Pajjian Chowk, Raiwind Road, Lahore.

The proposed project falls under Clue 9 of category B of Schedule II of Review of IEE and EIA Regulations, 2000. 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.***

Location

Subject proposed project is located at 5 Km Dars Road, Pajjian Chowk, Raiwind Road, Lahore.

Project land coordinates are as follows:

Front: Rohi Nala Bypass Road + Rohi nala drain

Back: Open plot + Industry

Left: Open area

Right: Existing industrial unit

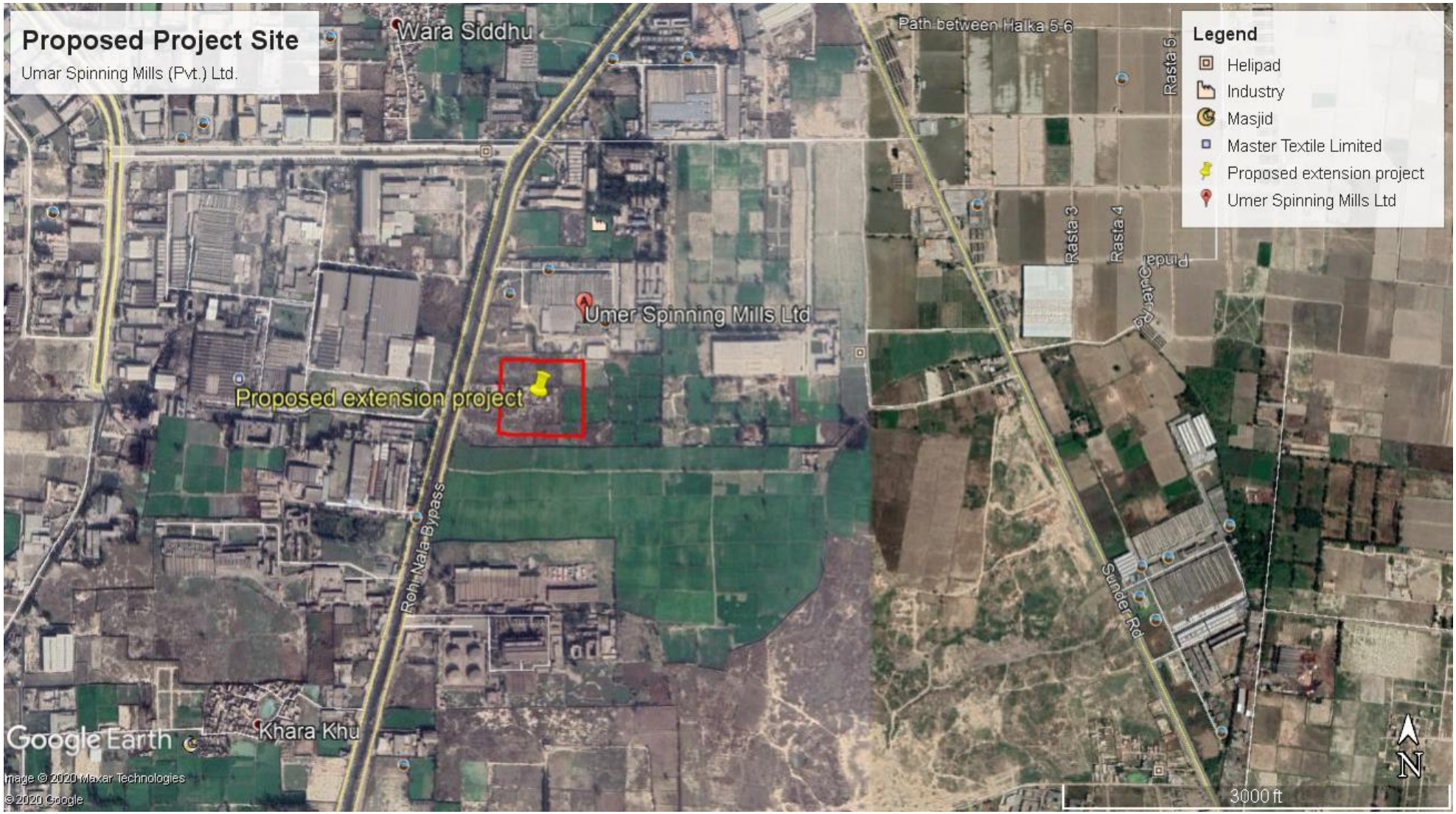


Figure 1: Aerial view of the proposed project site

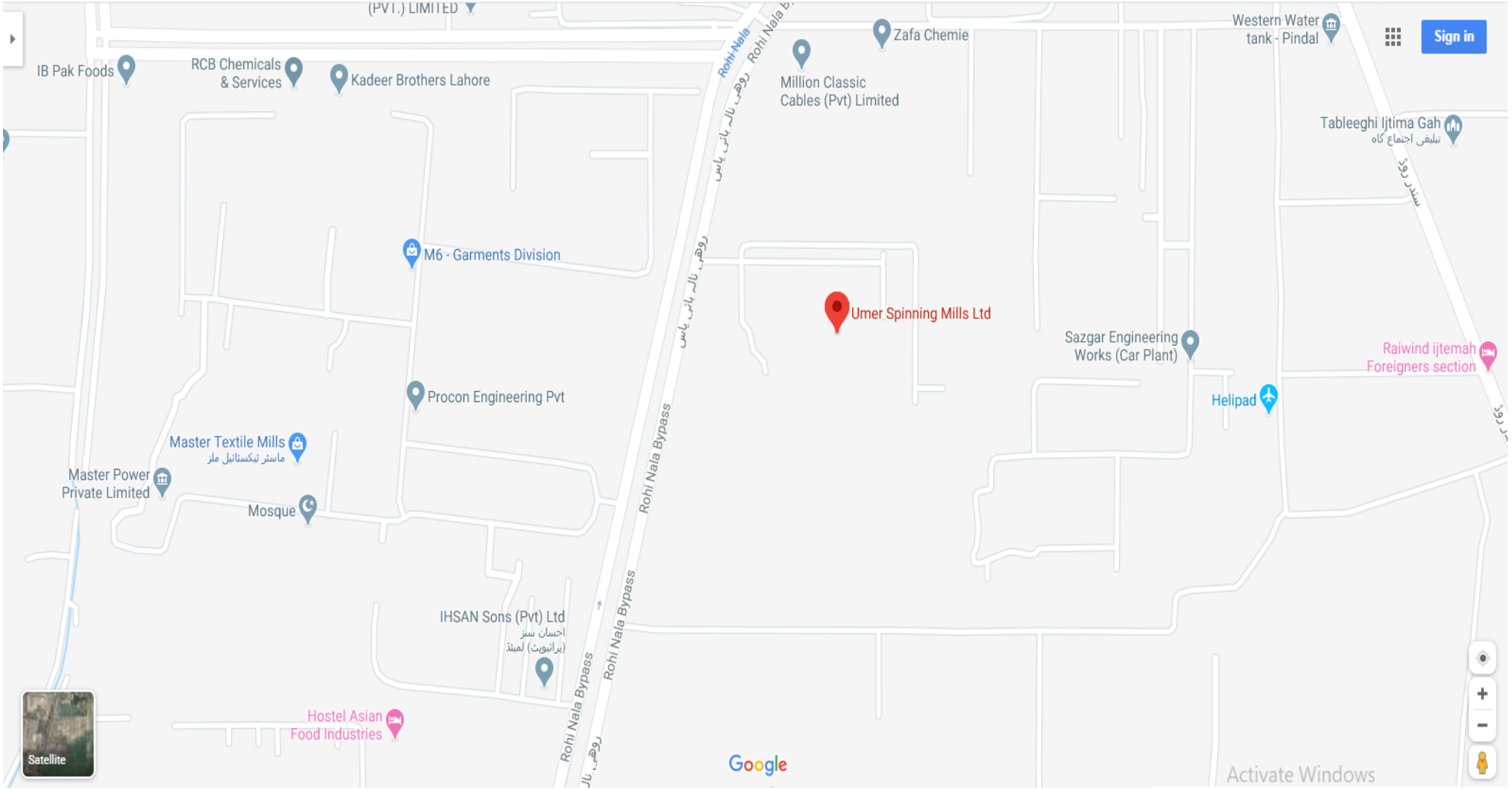


Figure 2: Google map of the project site

Name of the proponent

Name: Rao Javed Wahab

S/o Rao Abdul Wahab Khan

Designation: Proponent

CNIC: 38403-8370746-1

Mailing Address: 5 Km Dars Road, Pajjian Chowk, Raiwind Road, Lahore

For further details CNIC of the proponent and other relevant documents are attached 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 Assessment Study.

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

Contact: 042-35441444, 0303-4442335.

For detail company profile see the *Chapter # 1 "Introduction"*

A brief outline of the proposal

Name of the project:	**Proposed extension of spinning unit under the name of M/s Umar Spinning Mills (Pvt.) Ltd.**
Location of the project:	5-Km Dars Road, Pajjian Chowk, Raiwind Road, Lahore
Proposed Area:	Total area of the industry is 327 kanal 15 marla while covered area is 319000 SFT. Area proposed for the extension project is 80, 895 SFT.
Nature of Project:	Subject project is proposed extension of a spinning unit.
Cost of the project:	Total cost of the project will be approx. 1.442 billion rupees.
Project process:	Project process will include the manufacturing of yarn from raw cotton through spinning process.
Raw materials	Raw cotton will be the raw material of the project process.
Production capacity	650 bags /month (29,500 kgs) will be the production capacity of the project.
Proposed machines details	Complete details of machinery have been provided in chapter 2.
Power Requirement:	The predicted total electrical load for spinning unit is up to

	4900 KW which is fulfilled by WAPDA.
Labor/ Workforce:	During construction: 18-20 (estimated) During Operation: 480 (estimated)
Water Requirement:	During the constructional phase of the project approximately 1500 gallon water will be required per day for constructional and domestic uses. During the operational phase of the project approx. 120 m^3/day of water will be required for project process and domestic purposes.
Solid waste:	Approx. 400-500 kg/day constructional and domestic waste will be produced during the constructional phase of the project. During operation: 200-300 kg/day domestic waste

The major impacts

In order to identify all the activities associated with the project during construction 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. Moreover, area for plantation is also reserved for air purification within the project vicinity.

Table: Summary of Environmental and social impacts of the project during the construction phase and mitigation measures suggested:

Potential Impact	Criteria for determining Significance	Key Mitigation Measures
Dust Emissions—Particulate matter emitted during construction activities and gaseous emissions from site generators and transportation vehicles can result in deterioration of ambient air quality in the vicinity of the project site, and be a nuisance to the surrounding workers.	PEQS for Ambient Air	Sprinkling of water on dusty tracts and surfaces is recommended; Use of wind shield around stockpiles is recommended; Vehicle speed restrictions should be applied in the project area; Raw materials should be transported in covered trucks; Ensuring that no stockpile is within 250 m of the community.
Construction Noise- Disturbance to surrounding communities due to operation of construction machinery at the project site.	PEQS for Noise OSHA standards	Activities generating high levels of noise should be minimized at the project site. If the noise level will exceed the permissible limits with reference to national and OSHA standards, following recommendations are suggested to take action against the high noise levels: • Proper tuning of construction machinery and vehicles is recommended. • Training of the person and professionals involved in the installation of the plant is recommended. Ear muffs and ear plugs are recommended in case of high noise levels.
Solid waste Management— Improper waste management may generate health and aesthetic issues	Generation of excessive waste; Recyclable waste and reusable waste is discarded; Littering; Improper disposal.	Proper solid waste management plan should be devised and implemented; Constructional waste should be utilized for road filling and maintenance. Domestic waste should be disposed of properly, handed over to contractors, placed in bins.
Vegetation Loss/ Soil erosion— Loss of vegetation as a result of land	Unnecessary or excessive removal of trees and shrubs	Preparation of a Reinstatement Plan; Minimization of the felling of trees and clearing of vegetation; and avoidance of

clearance for the construction purposes		the use of fuel wood
Water Resources— The extraction of water for the project construction activities can affect the groundwater availability for the project area communities	Water extracted for the project has directly affected the ability of the community to meet their water needs	No impact on the community groundwater needs is envisaged as a result of the project.
Soil Contamination—Oil and chemical spills can contaminate the soil	Presence of visible amount of hydrocarbon in soil	Provision of spill prevention and control kits; Use of impermeable surfaces in workshops, and storage areas; Contaminated soil will be collected and incinerated.
Socioeconomic Issues **Workers Safety—** Safety hazards associated with the construction activity, particularly with the increase in traffic at the project site.	No specific guidelines exist. A significant impact will be interpreted if there are complaints from the community or the occurrence of any injury or loss	Speed limit of 10 km/h will be maintained on the access road; Traffic controller will be stationed on the access road; night driving will be kept to a minimum
Project and Community Interface—Inter-cultural differences between the project staff from other areas and the local community	No community complaints	Training of the non-local project staff on local culture and norms; Avoidance of unnecessary interaction of local population with the non-local project staff

Table: Summary of Environmental impacts of the project during the operation phase and their mitigation measures:

Potential Impact	Criteria for determining Significance	Key Mitigation Measures
Dust Emissions- Particulate matter emissions during project process can deteriorate the air quality in the working area and be a nuisance for the workers' health. Gaseous emissions from site generators, boiler and transportation vehicles can	OSHA Standards PEQS for Ambient Air	PPEs i.e. masks will be provided to workers during the working hours. Proper ventilation should be ensured in the working area. Vehicles to use for the transportation of materials should be properly tuned. Generators should be tuned regularly and their PEQS

result in deterioration of ambient air quality of the outdoor environment.		compliance should be ensured. Venturi and wet scrubber will be installed at the stack of boiler to control the air emissions from the boiler. Monitoring should be conducted on Monthly basis as per EPA PEQS Rules.
Machinery Noise- Working of machinery can be a nuisance for the workers in the working area.	OSHA Standards	PPEs i.e. ear muffs should be provided to workers in case of high noise.
Health & Safety Issues- Health and Safety issues e.g. Cuts and Injuries may be caused during the machinery handling.	OSHA Standards	Proper training of the staff should be conducted to avoid the accidents. First aid measures should be provided at the workplace.
Discharge of wastewater- The discharge of untreated wastewater can be a negative impact.	PEQS for Municipal and Liquid Industrial Effluents (mg/l, unless otherwise defined)	Compliance of PEQS for Municipal and Liquid Industrial Effluents will be ensured. Monitoring will be conducted as per PEQS and reports will be submitted to EPA.
Solid waste management- Improper solid waste management may cause health problems and aesthetic issues	Exposure to potentially hazardous waste; Generation of excessive waste; Recyclable waste and reusable waste is discarded; Littering; Improper disposal.	Waste bins should be placed at suitable places. Domestic and process related waste should be handed over to contractors.
Groundwater—The increased withdrawal of groundwater for the project will affect the groundwater resources of the project area	Water extracted for the project has directly affected the ability of the community to meet their water needs	No impact on the community groundwater needs is envisaged as a result of the project.

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 quarterly basis during constructional phase of the project and report should be submitted to EPA Punjab.

- **Noise**

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

- **Water quality**

  Regular monitoring of water quality should be conducted during construction and operation phases of the project and report should be submitted to EPA Punjab. Record should be maintained regarding the underground water pump and consumption.

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

CHAPTER # 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 Assessment Study.

Purpose of the report

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

Identification of the project and proponent

The proposed project falls under Clause 9 of category B of Schedule II of Review of IEE and EIA Regulations, 2000. 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.***

Proponent:

Name: Rao Javed Wahab S/o Rao Abdul Wahab Khan

Designation: Proponent

CNIC: 38403-8370746-1

Mailing Address: 5 Km Dars Road, Pajjian Chowk, Raiwind Road, Lahore

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

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:

Sr. No.	Designation	Name/Qualification	Experience
1	Chief Environmentalist/ Lead Environmental Professional	**Abdul Hafeez Nasir** PhD Scholar Environmental Management	Expert Advisor
2	Senior Environmentalist/ Environmental Professional	**Iftikhar Ahmed** M.Phil Environmental Sciences	Project Coordinator
3	Senior Environmentalist	**Kiran Irshad** M.Phil. GCU, Lahore	Baseline Study
4	Associate Environmental	**Hira Roohani** M.Phil, PU, Lahore	Public Consultation

	professional		
5	Associate Environmental professional	**Narmeen Sana** M.Phil. PU, Lahore	Author of the report

Brief description of Nature, Size and Location of Project

Subject project is the proposed extension of spinning unit under the name of M/s Umar Spinning Mills (Pvt.) Limited located at 5-KM Dars Road, Pajjian Chowk, Raiwind Road, Lahore. Project area is industrial in nature and many other industrial units are already in process of establishment and operation in the surroundings. Total area of the industry is 327 kanal 15 marla while covered area is 319000 SFT. Area proposed for the extension project is 80, 895 SFT. Raw Cotton will be the raw material of the project process and product will be the cotton yarn. Project process will include the manufacturing of yarn from raw cotton through spinning process. Production capacity of the project will be 29000 kgs/Month of yarn and total cost of the project will be approx. 1.442 billion rupees.

Location

Subject proposed project is located at 5 Km Dars Road, Pajjian Chowk, Raiwind Road, Lahore.

Project land coordinates are as follows:

Front: Rohi Nala Bypass Road + Rohi nala drain

Back: Open plot + Industry

Left: Open area

Right: Existing industrial unit.

For further details, layout map of the project is attached as **Annexure-C** with the report.

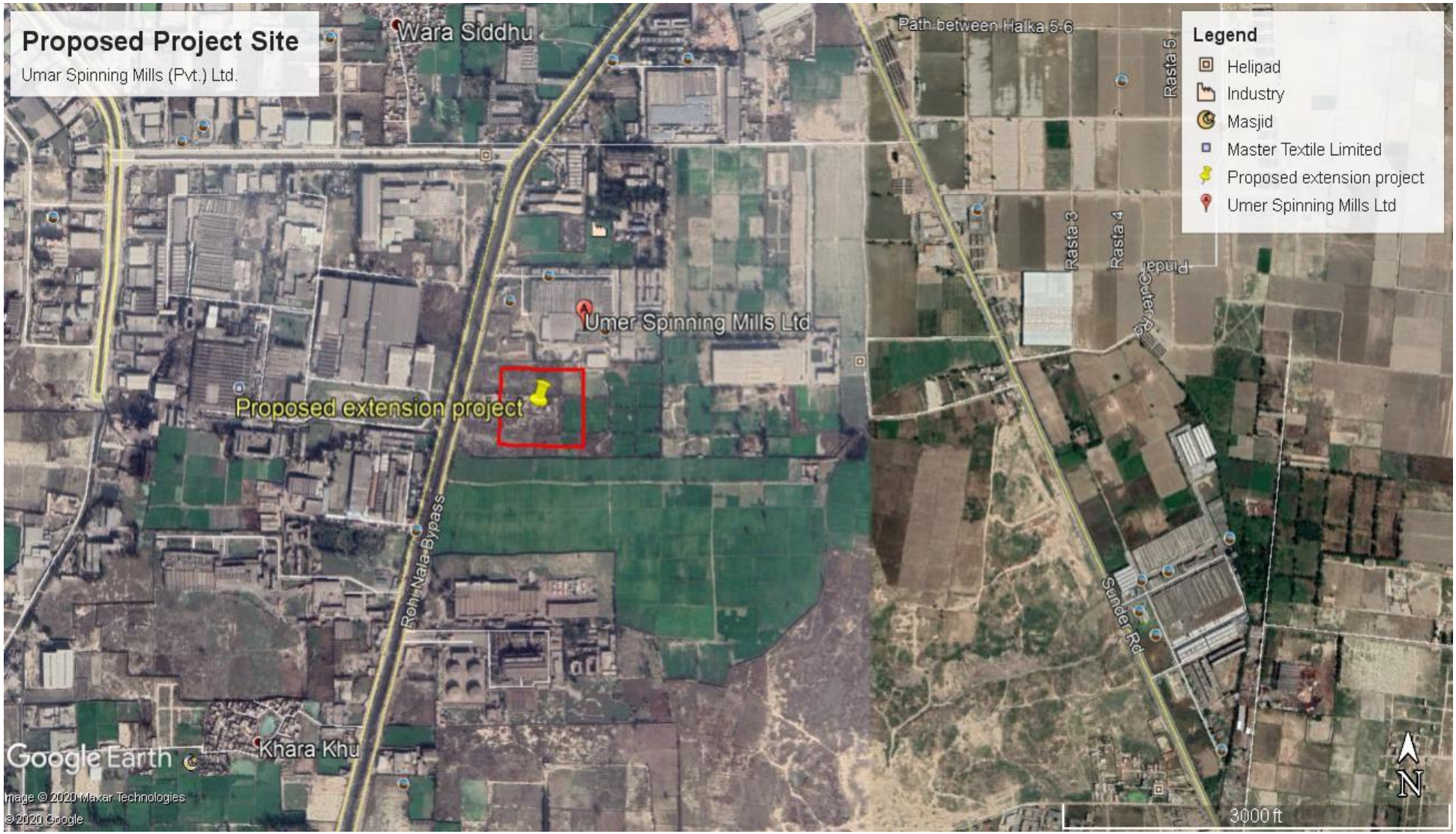


Figure 3: Aerial view of the proposed project site

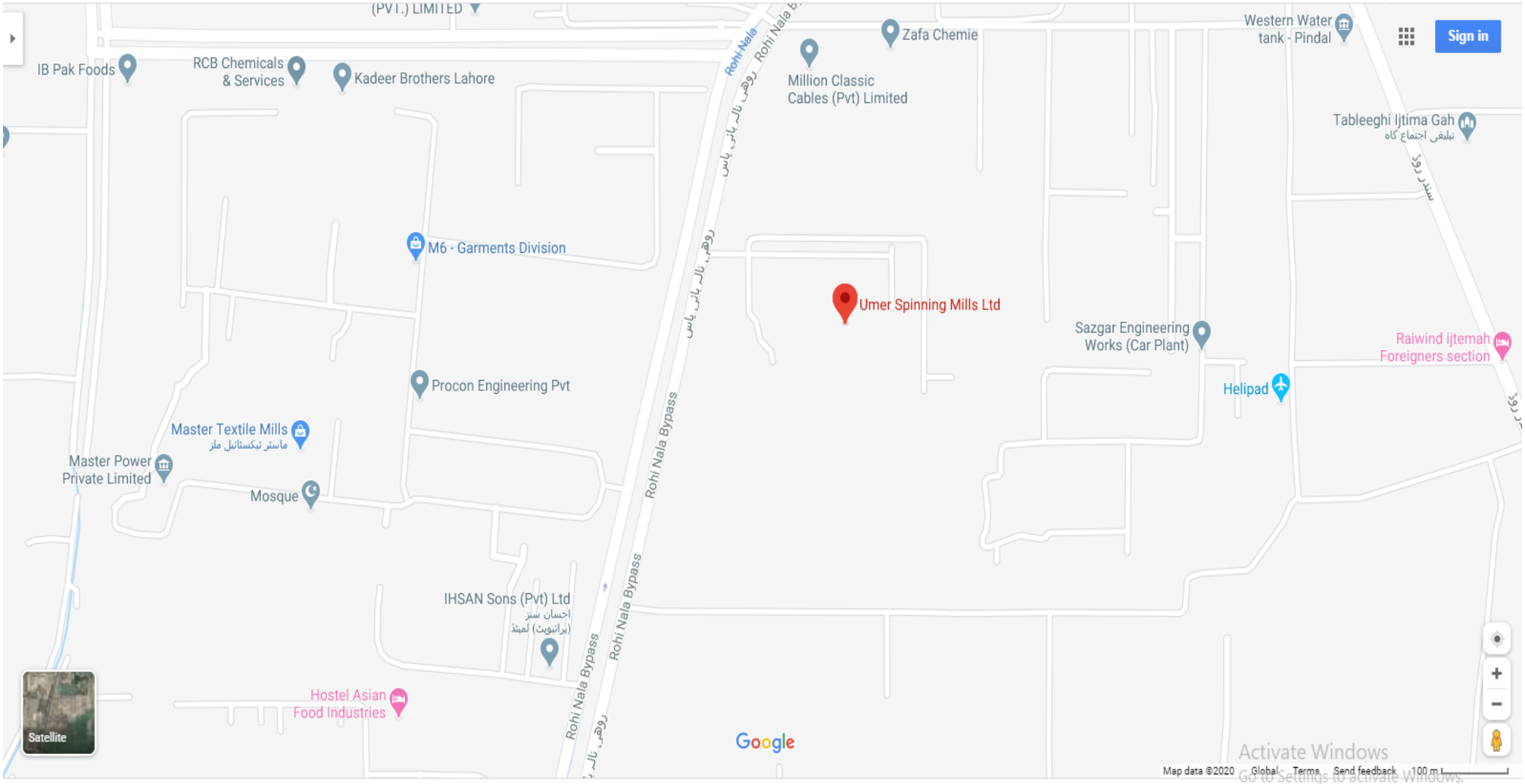


Figure 4: Google map of the proposed project site

CHAPTER # 2

DESCRIPTION OF THE PROJECT

Type and Category of the Project:

Subject project is the proposed extension of a spinning unit under the name of M/s Umar Spinning Mills (Pvt.) Ltd. located at %-KM Dars Road, Pajjian Chowk, Raiwind Road, Lahore.

Project falls under Clue 9 of category B of Schedule II of Review of IEE and EIA Regulations, 2000. 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.***

Objectives of the Project

Objectives of the construction of the subject project are:

- To establish and increase the business for the proponent.
- To contribute to the national economy of the country.
- Compensate to help poverty by providing more employment.
- To meet the increasing demand of the textile industry.

Location

Subject proposed project is located at 5 Km Dars Road, Pajjian Chowk, Raiwind Road, Lahore.

Project land coordinates are as follows:

Front: Rohi Nala Bypass Road + Rohi nala drain

Back: Open plot + Industry

Left: Open area

Right: Existing industrial unit.

For further details, master plan layout of the project is attached as **Annexure-C** with the report.

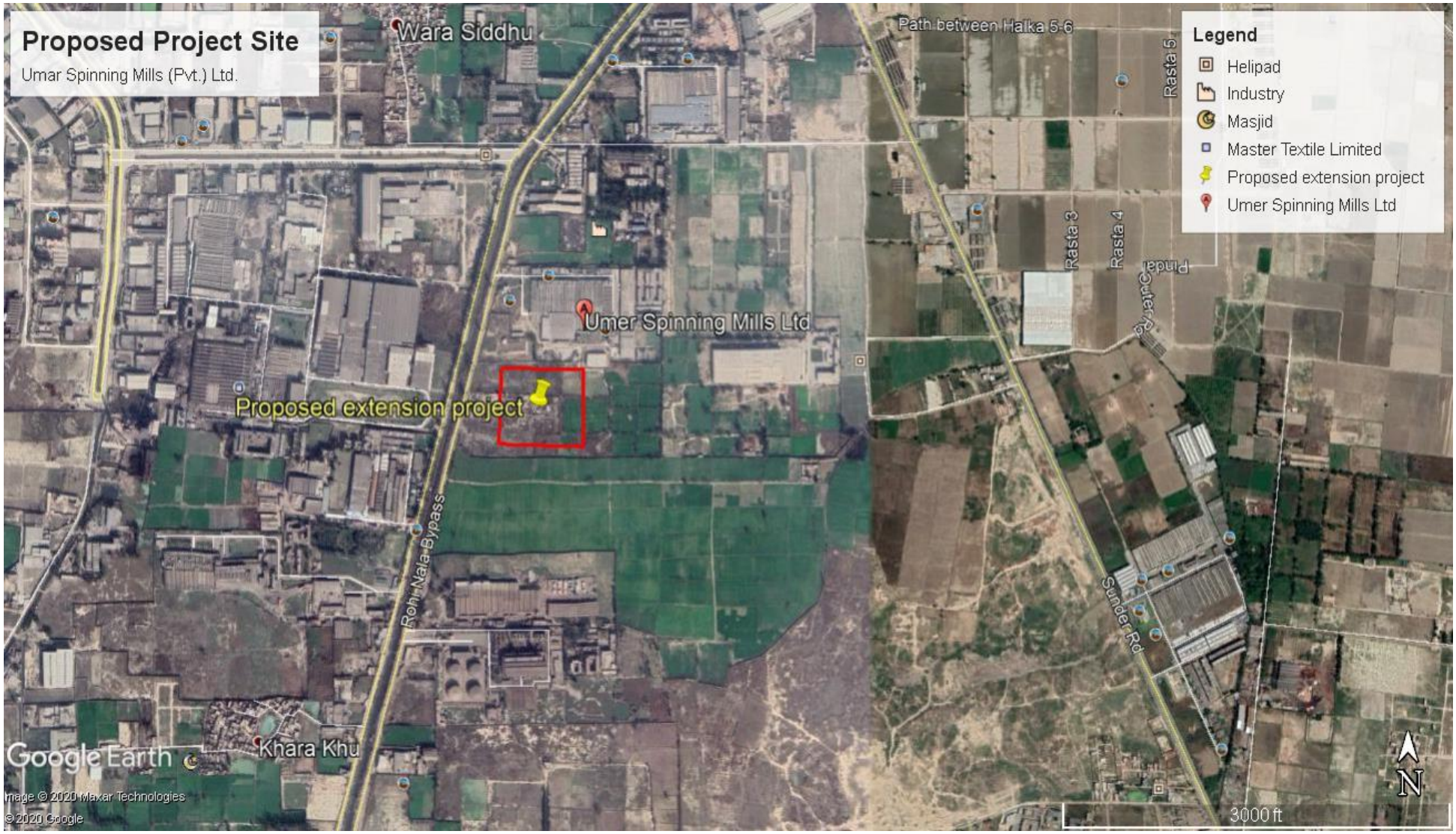


Figure 5: Aerial view of the proposed project site

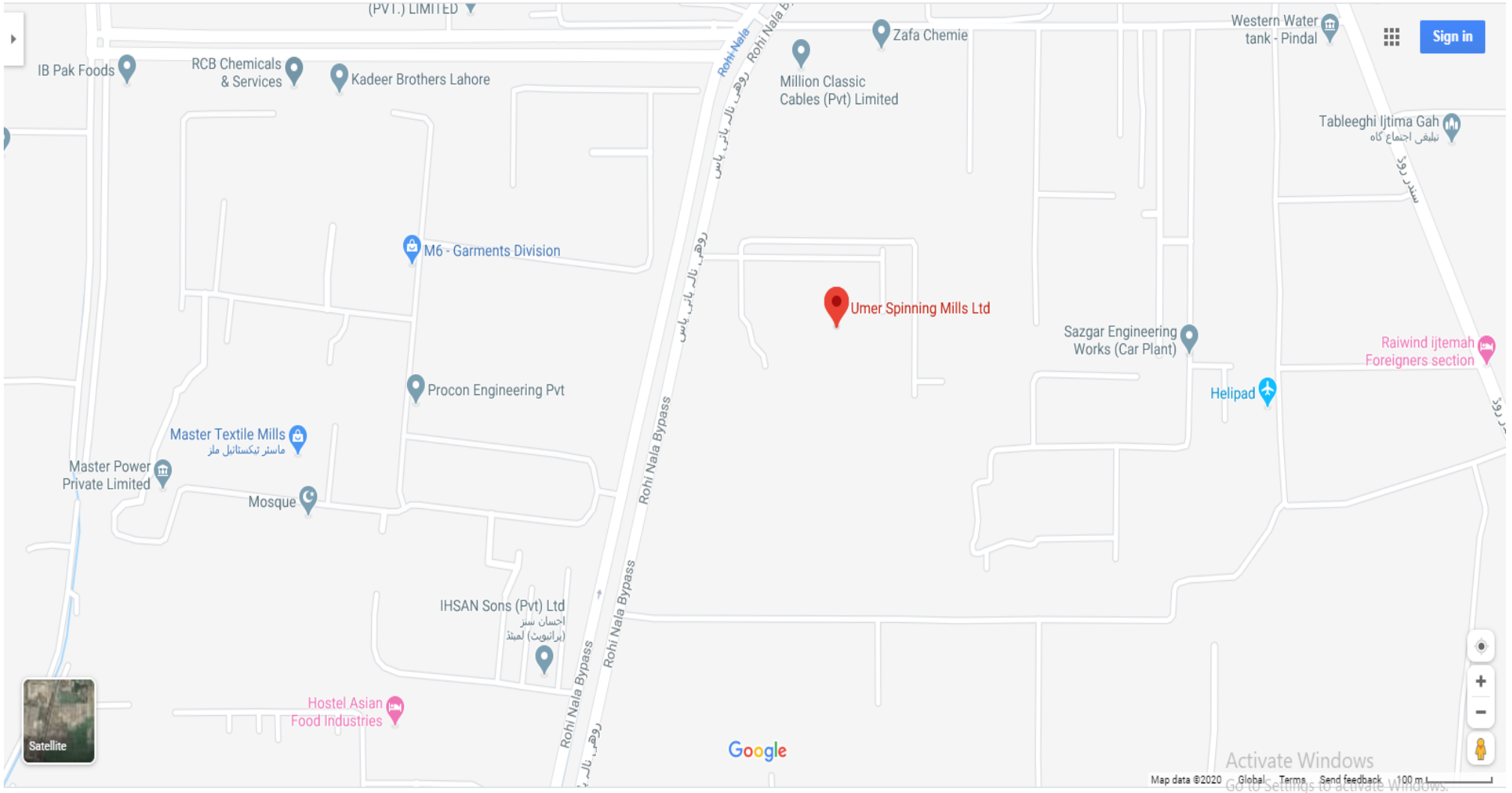


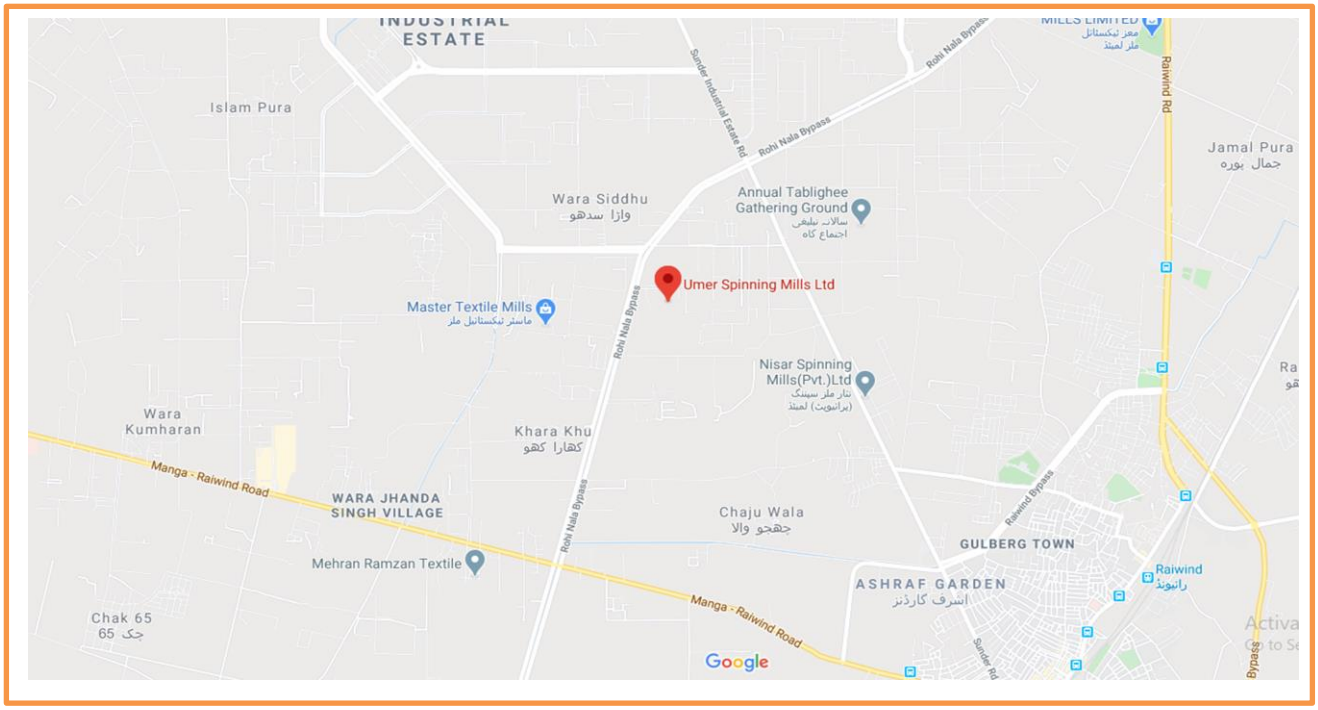
Figure 6: Google map of the proposed project site

Land Use on site

Site proposed for the construction of the subject project is an empty plot free of any activity and it is the property of the proponent.

Road Access

Paved road i.e. Rohi Nala Bypass Road at the front side of the project area is present which directly connects to Sundar Raiwind Road.



Vegetation features of the project

There is no dense vegetation or any protected or endangered species present at the project site.

Cost and magnitude of the operation

Project is proposed extension of spinning unit under the name of M/s Umar Spinning Mills (Pvt.) Limited. Total area of the industry is 327 kanal 15 marla while covered area is 319000 SFT. Area proposed for the extension project is 80, 895 SFT Total cost of the project will be approx. 1.442 billion rupees. Inside colony for residence of employees and workers will also be part of the proposed project. There are no other associated activities with regard to the subject project.

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 11-12 months from the date of environmental approval. Subsequently the operational and maintenance aspects of the project will be undertaken by the proponent.

Description of the project:

Subject project is the proposed extension of yarn manufacturing spinning unit under the name of M/s Umar Spinning Mills (Pvt.) Limited located at 5-KM Dars Road, Pajjian Chowk, Raiwind Road, Lahore. Project area is industrial in nature and many other industrial units are already in process of establishment and operation in the surroundings. Total area of the industry is 327 kanal 15 marla while covered area is 319000 SFT. Area proposed for the extension project is 80, 895 SFT. Raw Cotton & stretch filament will be the raw material of the project process and product will be cotton yarn. Project process will include the manufacturing of yarn from raw cotton through spinning process. Production capacity of the project will be 29500 kgs/Month of yarn and total cost of the project will be approx. 1.442 billion rupees.

Raw material

Cotton & Stretch filament will be used as raw material.

Quantity of Raw Materials

Maximum 36,000 kg per Day of cotton will be required as raw material for the project process.

Production Capacity of the Industry per Day

Production of the unit will be 650 Bags per day (29500 kgs) of cotton and stretch yarn.

Project process flow chart:

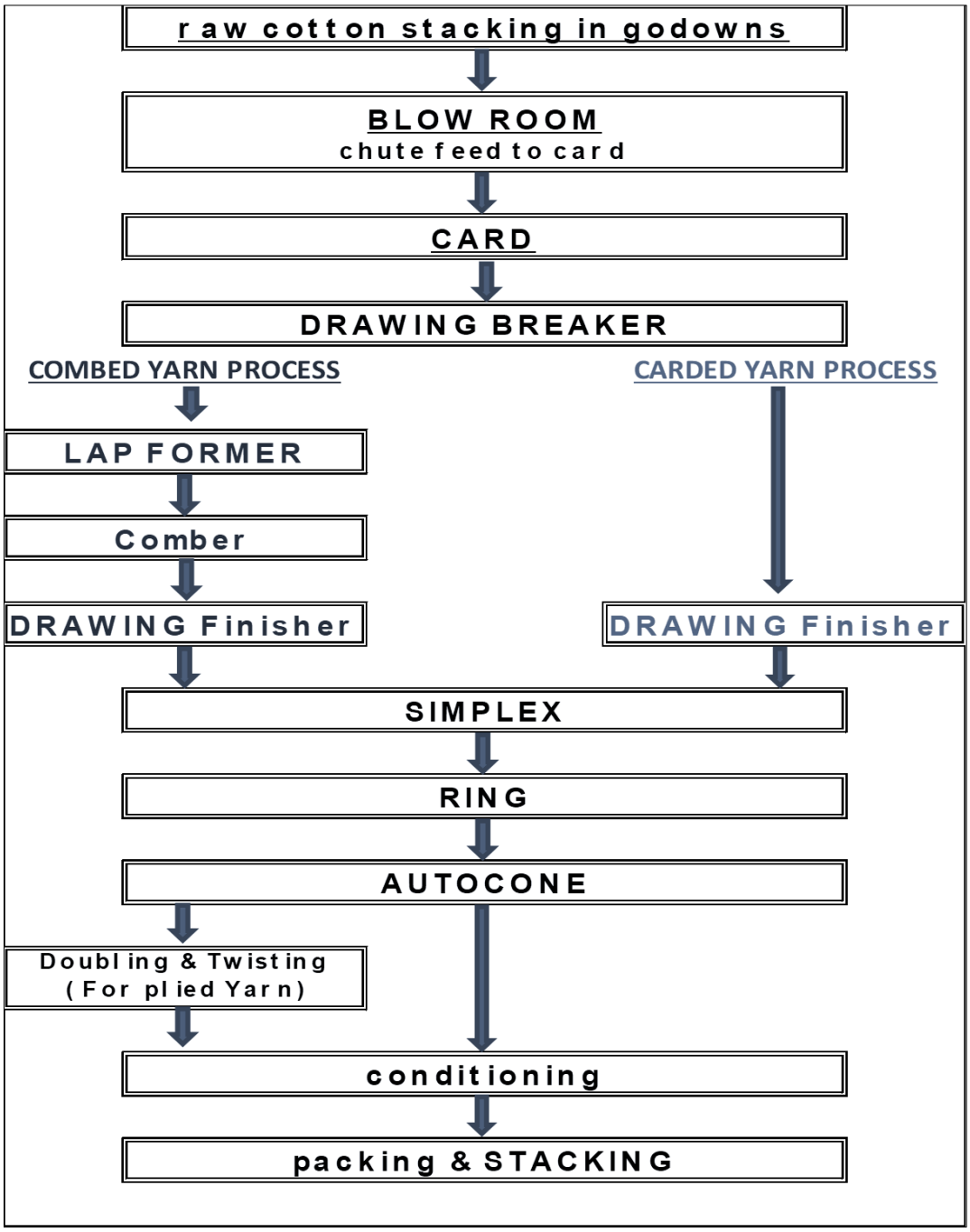


Figure 8: Project process Flow Chart

Blow Room

Opening:

Here, the compressed bales of fibers are opened for making the cotton tuft in a small size (as much as possible).

Cleaning:

This operation is used to remove dust, dirt, broken leafs, broken seeds, stalks and other foreign materials from the fibers.

Mixing or blending:

Mixing or blending process has performed for producing higher quality yarn by reducing production costing which is only possible by mixing different grade of fibers.

Lap forming:

It is done to transfer the opened and cleaned fibers into a sheet form of specific width and uniform unit length which is termed as lap.

- Blow room extract the impurities like broken seeds, husks, leaves
- Blow room open the compressor layer
- After extracting wastes and blending the material it is converted into a uniform thick sheet.

Carding

- Carding is a mechanical process that breaks up locks and unorganized clumps of fiber and then aligns the individual fibers so that they are more or less parallel with each other. Carding can also be used to create blends of different fibers or different color.
- Laps from Blow Room are placed on card creel for rewinding and opening.
- This process helps to opens the cotton fibers even to the separation of one fibers to the other.

Warping

- Cones are placed
- Threads collected on a big sized beam

Sizing

- Yarn arranged on beam by warping is coated with sizing materials for smooth running of yarn on looms.

- During Warping waste of yarn will be due to the breakage of threads by machine vibration running at high speed

Details of machinery

Detailed list of machinery to be installed is attached as **Annexure-D** with this report.

Water requirements:

During the constructional phase of the project approximately 1500 gallon water will be required per day for constructional and domestic uses.

During the operational phase of the project approx. 120m^3 /day water will be required for project process and domestic purposes.

Waste water treatment:

60-70% of the used water will be the waste water which will be treated in the septic tanks because no chemicals containing hazardous process wastewater will be discharged. Most of the wastewater from the industry will be from domestic sources.

Wastewater Drain:

A nearby Rohinala drain is present at the front side of the project site, in which wastewater will be disposed of after treatment in the septic tanks. Proponent has the approval of Irrigation dept. for discharge of wastewater into drain. Copy of effluent charges bill paid to Irrigation Department of Government is also attached ad **Annexure-E** of this report.

Estimated water Balance for the subject proposed project:

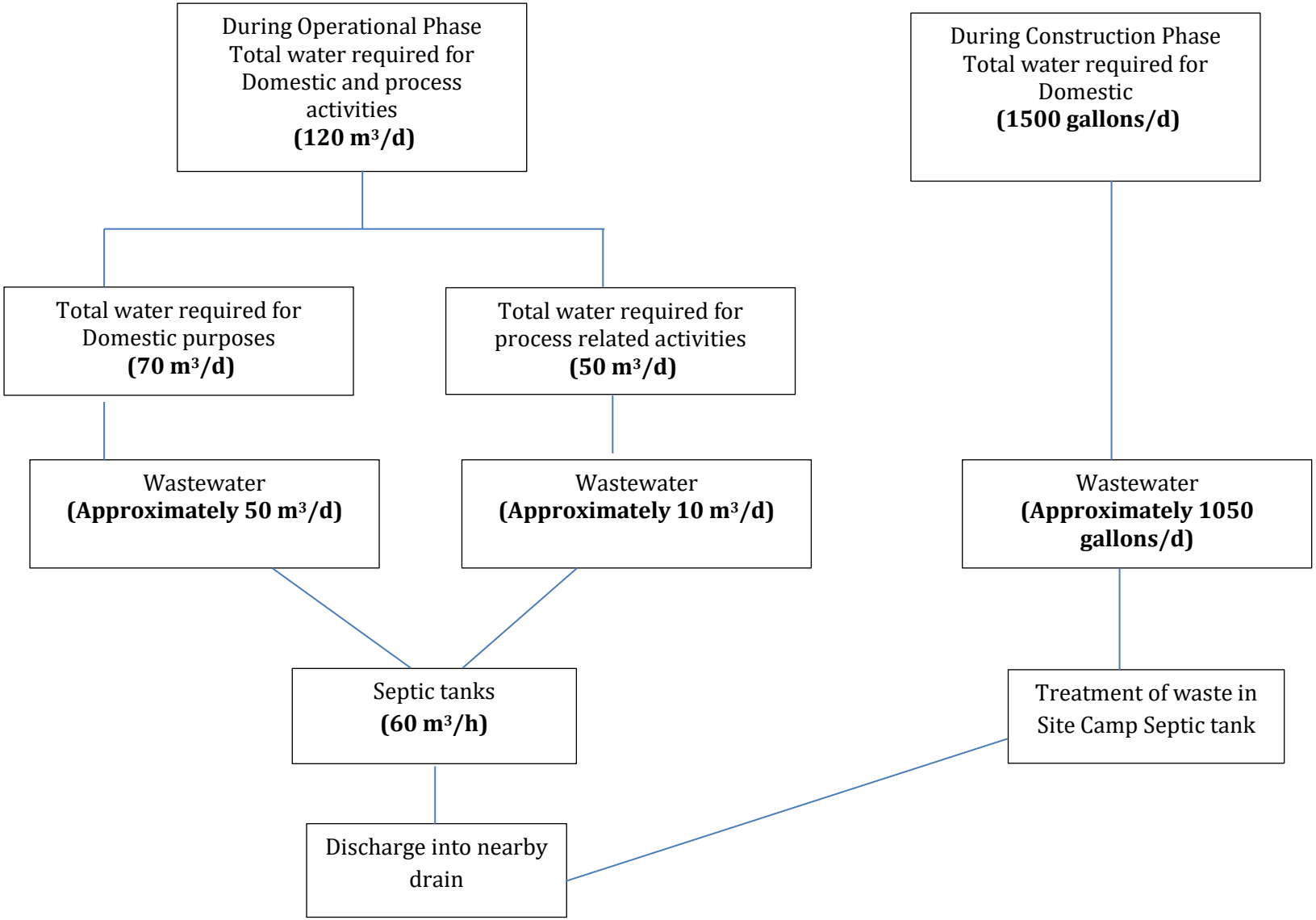


Figure 9: Estimated water balance for the subject proposed project

Solid waste:

Approx. 400-500 kg/day constructional and domestic waste will be produced during the constructional phase of the project. Constructional waste will be reused for road filling and maintenance purposes.

According to an estimate, approx. 200-300 kg/day domestic and project related solid waste will be produced during the operation phase of the project (based on solid waste generation rates of 0.45 kg/capita/day urban waste generation). Project related waste will include yarn, threads etc. and ETP and boiler waste will include ash and sludge etc. which will be handed over to the certified contractors.

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. Careful collection of ash and sludge on regular basis and temporary storage at designated point.
4. Collection of waste from designated area and handling to the solid waste contractors for its final disposal.

Flow chart of solid waste management plan:

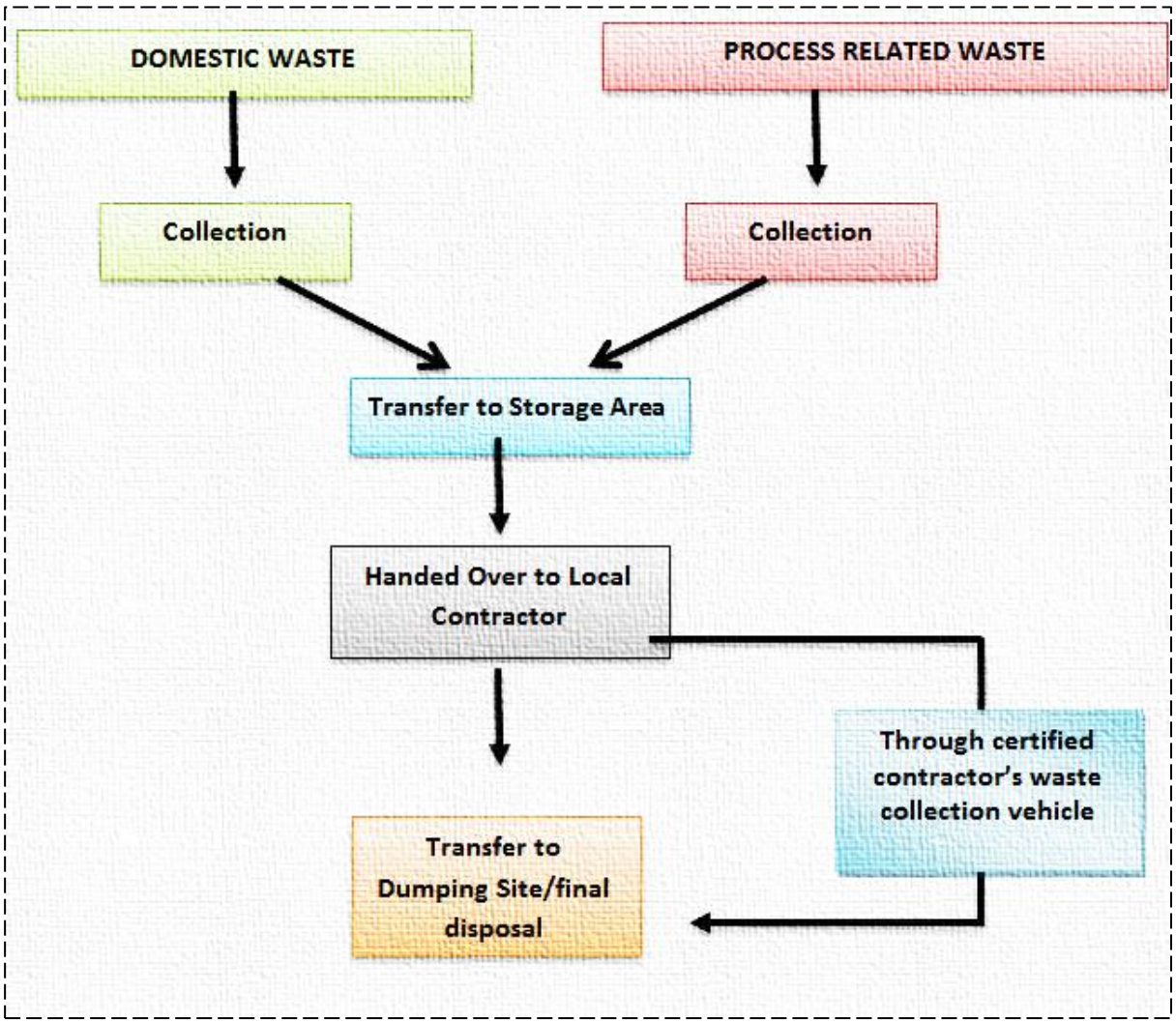


Figure 10: Solid Waste Management Plan

Ventilation system for maintenance of indoor air quality:

Roof overhangs, window size and placement, and overall building shape will be designed in a way to ensure good ventilation. Further the direction of prevailing winds will be considered and maximum solar gain will be ensured. The placement of porches, garages, trees will also be ensured.

Mitigation measures to control the emissions of generators:

i) Firstly, the generator made up of latest and environmental friendly technology will be used.

ii) Standard fuel will be used in the generator.

iii) Proper and regular tuning of the generator will be done.

iv) Double glazed glass and thick walls canopy of the generators will be installed which will limit the emissions of the noise.

All these measures will ensure the PEQS compliance of generators and emissions will not exceed the limits.

Plantation

Area for plantation will be reserved within the premises of the project and planation will be done within, outside and at the boundary wall of the unit. Tree plantation plan proposed for the subject project is attached as **Annexure-F** with the report.

Parking Area

Parking area will be made available within the unit for cars, motorcycles, trucks etc.

Occupational Health and Safety:

All the methods and procedures for machinery and chemical handling and storage will be displayed and implemented at the project site. Health and safety rules for chemical handling and storage will be maintained.

Personal Protective Equipment:

Following PPEs will be available for the workers in the proposed unit:

- Dust Mask
- Ear Plugs
- Ear muffs
- Safety Boots
- Safety Gloves
- Safety Belt
- Helmet
- Goggles

Types of PPEs used during construction and Operational activities

Protection	Occupational Hazards	PPEs
Head Protection	Falling objects, inadequate height clearance, and overhead power cords	Helmets with or without electrical protection
Hand protection	Hazardous material, cuts or lacerations, vibrations, extreme temperatures	Synthetic or Rubber gloves, leather, insulating material etc
Eye and face protection	Flying particles, molten metal, liquid chemicals, gases or vapors, light radiation	Glasses, shield protective, etc
Hearing protection	Noise, ultra sound	Hearing protectors like ear plugs, ear muffs
Respiratory protection	Dust, fogs, fumes, gases, smokes, vapors, oxygen deficiency	Facemasks or air supply

Body protection	Extreme temperatures, hazardous materials, biological agents, cutting and laceration	Aprons, insulating clothing etc of appropriate materials

Fire Protection System

An addressable argus type fire protection system with detection and alarm annunciation and other installations etc. would be provided to protect against any fire hazards. Fire buckets and fire extinguishers will be installed at all sensitive places within the unit. Details and numbers of fire extinguishers to be installed is attached as **Annexure-G.**

Emergency Exits:

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

Security:

The present site will be secured by means of boundary walls along with the presence of security guards round the clock which will improve the security of the project site and also in its vicinity.

Personal protective equipment:

Workers will be provided with dust mask, ear plug, ear muffs, safety boots, safety gloves, safety belt, helmet and goggles etc. during the working hours to ensure personnel health & safety. Implementation of PPEs will be ensured by the proponent for the proposed project also.

Industries:

Project is located in the industrial area of district and many industries are present around the project site. Various other industries like Master Textile Limited , Asian Food Industries, Suraj Cotton Mills, Koh e Noor Power Plant etc. are present in the surroundings of the project site.

Power sources and transmission:

Estimated power requirements of the unit will be 4900 KW which will be fulfilled by WAPDA. A gas connection of 1.44 MM CFD for power generation will also be available at the project site.

Available Facilities

Available facilities at the proposed project site include:

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

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.

On 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.

Government approvals required by the project:

Necessary approvals from other Government Departments are under process and will be obtained by the project proponent and will be submitted to EPA at the time of operation.

CHAPTER # 3

ANALYSIS OF ALTERNATIVES

This Chapter deals with the analytical overview of different alternatives that have been considered. The analysis has been carried out critically so as to justify the need of the Project and to select the most feasible alternative. Besides the economic viability; environmental sustainability and social soundness of the proposed Project has also been considered while analyzing different alternatives.

The No Project Alternative

A zero-alternative entail maintaining existing use to which the proposed project site has previously been put to. This alternative would eventually evade any short-term potential negative impacts from project execution. To this end, any potential positive impacts envisaged during midterm and long-term project implementation will be missed.

Adopting zero alternative would mean abandoning all the potential that the site offers to investor(s), contribution to government revenue and even local community livelihoods improvement.

Alternative Considerations and Reasons for their Rejection:

Location/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 for Construction of the subject proposed project. No alternative site/location for the proposed project was considered because the subject project is proposed extension of the spinning unit under the name of M/s Umar Spinning Mills (Pvt.) Limited and the site of the project is property of Umar Spinning Mills (Pvt.) Ltd. Also the land is already located at designated Industrial Area as per Lahore Master Plan

Process/Technology Alternatives:

The best available yarn manufacturing technology will be used in the project manufacturing process which possesses less environmental impacts. Internationally manufactured machinery will be used list of the machinery has been provided in the chapter above.

Modified Construction Technology Alternatives

The proposed development will be constructed using modern, locally and internationally accepted technology and materials to achieve public health, safety, security and environmental aesthetic requirements. Equipment that saves energy and water will be given first priority without compromising on cost or availability factors. The concrete pillars and walls will be made using locally sourced stones, cement, sand (washed and clean), metal bars and fittings that meet the quality standards requirements

CHAPTER # 4

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.

Physical Environment

Topography & Geography

The proposed site is situated at 5-KM Dars Road, Pajjian Chowk, Raiwind road, Lahore. Site area is generally flat and slopes towards south and south-west at an average gradient of 1:3000. The project area is surrounded by industrial units and within the radius of 5 Km.

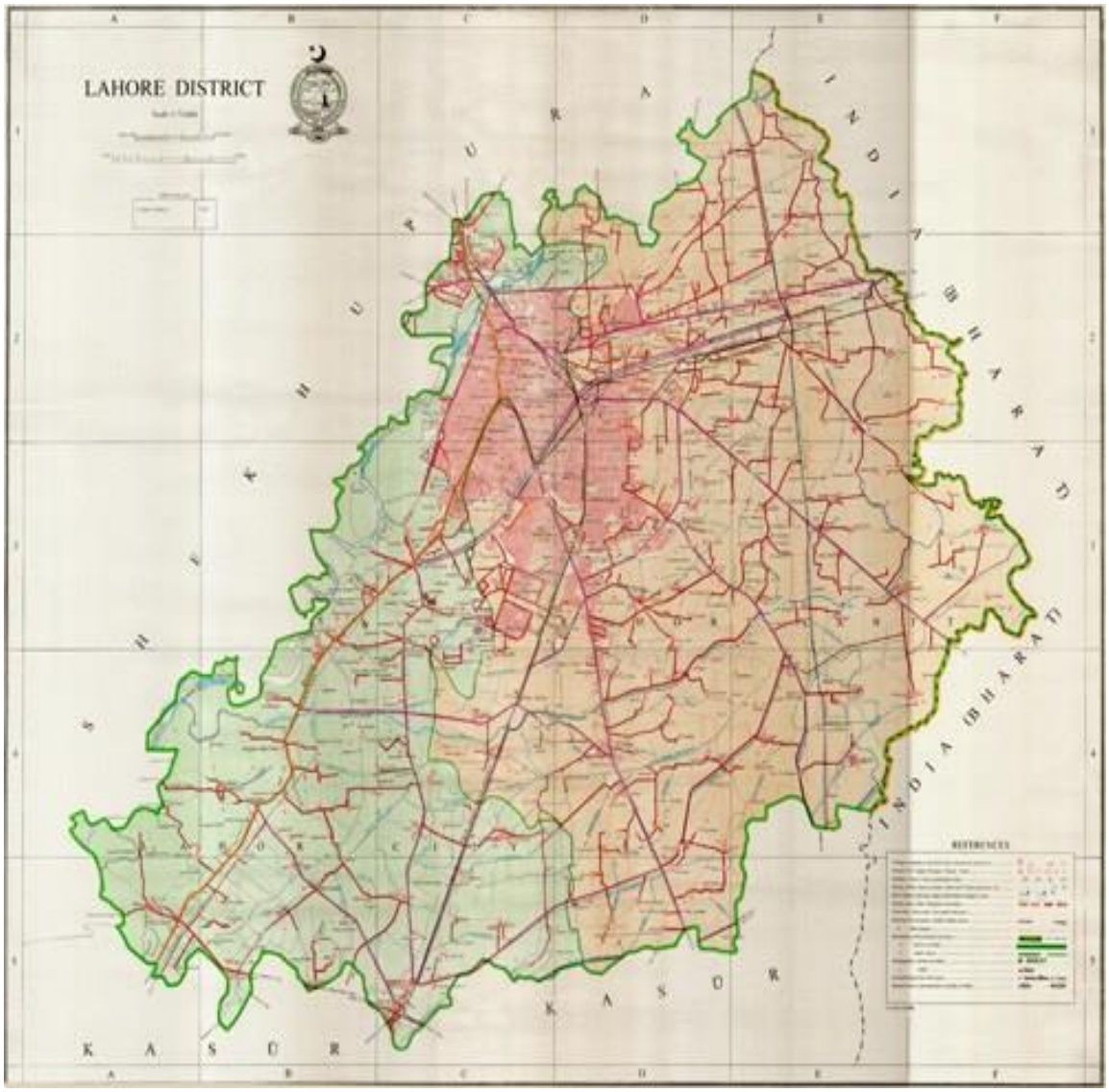


Figure 11: Map of Lahore District

Soil

The selected project land is w.r.t fertility is poor fertile land. In the vicinity, the fertile agricultural land can be seen. The soil of surrounded area is loamy in nature. Site selected for the construction of sack paper bag manufacturing is dominated in sand (sandy loam).

Climate

Temperature & Precipitation

Temperature & precipitation pattern can be estimated from the below figure simulated on the base of 30 year of hourly weather data collected from Pakistan Metrological Department (PMD). The simulated weather data have a spatial resolution of approximately 30 km and may not reproduce all local weather effects, such as thunderstorms, local winds, or tornadoes. Climatic changes are being significant factor to change the expected temperature & precipitation pattern in the proposed project area of Dist. Lahore.

The given below Figure shows the precipitation diagram for Dist. Lahore on how many days per month, certain precipitation amount is reached. The proposed project area has maximum rainfall in July & August and dry season from October to December. In tropical and monsoon climate, the amounts may be underestimated.

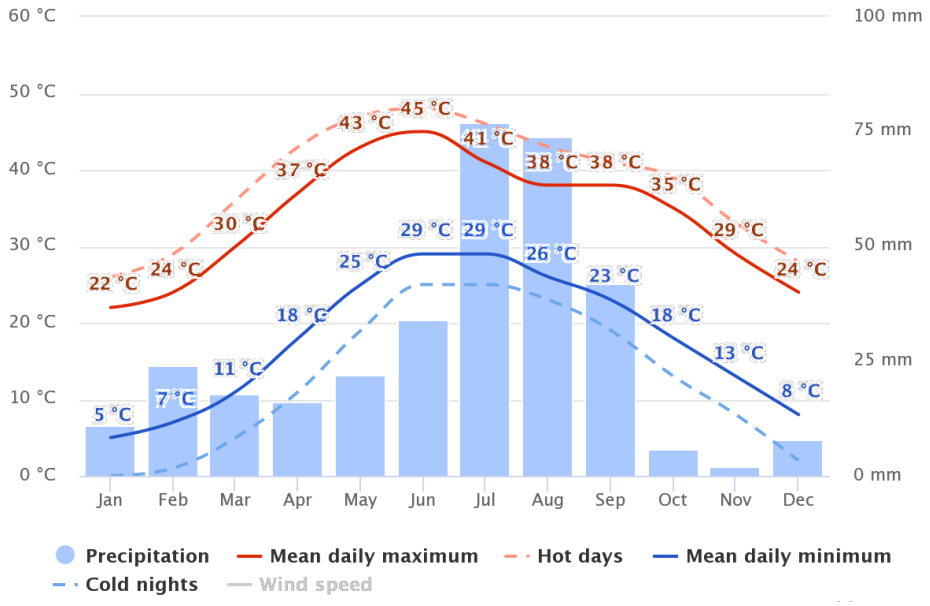


Figure 12: Average Temperature & Precipitation Data of Proposed Project Site

Wind Speed & Direction

Wind speed and its direction can be estimated from the figure given below. The data is simulated on base of 30 years' hourly weather condition data collected by Pakistan Metrological Department (PMD). Mostly, greater than 5 Km/h winds below in area of proposed project site and its direction toward East – North East side. Greater than 12 Km/h wind below mostly towards East – South East direction.

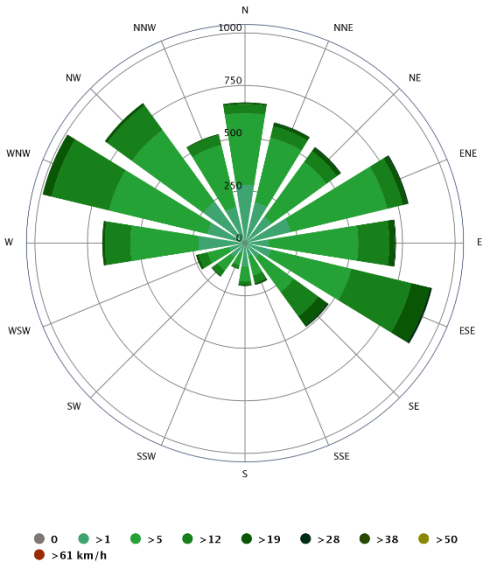


Figure 13: Wind Rose of Proposed Project Site

Hydrology

Surface Water

No surface water body present near the project site.

Underground Water

Underground water resource is used by nearby project buildings and houses. The underground water is clear, healthy and can be used as drinking purpose also. Pumps, tube wells and hand pumps are used to extract the water from ground. Water table is present at the depth of 70 feet but is not fit for drinking purpose due to contamination. Drinking water can be extracted from the depth of 600- 800 ft from ground. Water Quality test report are given in **Annexure-H**.

Ambient Air

The proposed project site is surrounded by industrial estate and number of small industries within 15-Km radius. The major sources of air pollution in the area are surrounding industries and transportation or vehicular traffic.

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 PM10) in the air. Ambient Air Quality test report is given in **Annexure-H.**

Noise Level Monitoring:

Basic Environmental conditions:

During the measurement following conditions were prevailed on workplace:

Metrological Conditions:

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

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

Frequency Range: 31.5 Hz to 8 kHz

Methodology adopted:

Noise level was monitored at four points and the lab results are attached as **Annexure-H.**

Ecological Environment:

Fisheries

The area where site is proposed for project, don't have any lake, river or pound. Therefore, this aspect of environment is out of question for this project.

Flora

The proposed project site has very few vegetation which includes natives herbs, shrubs or grasses. There is not any protected or endangered flora present at the project site.

Fauna:

There are number of locally available birds, reptiles and mammals are present in the project area but there is no protected species.

Table 1: Brief list of Fauna

Sr. No.	Name of Specie	Local Name
1.	*Bubalus bubalis*	Buffalos
2.	*Bos taurus*	Cows
3.	*Canis lupus*	Dog
4.	*Passer domesticus*	House Sparrow
5.	*Corvus*	Crow
6.	*Columbidae*	Pigeon
7.	*Thanasimus formicarius*	Beetle ant
8.	*Sympetrum flaveolum*	Dragon fly

Socioeconomic Environment:

The socioeconomic environment is one the component of the regional ecosystem." The development projects can impact either negatively or positively to the regional socio economic environment.

Demography

Population

The results of the 2017 Census determined the population to be at 11,126,285 with an annual growth rate of 4.07% since 1998.Gender-wise, 52.35% of the population is male, while 47.64% is female and trans genders make only 0.01% of the population.

Religion

The city has a Muslim majority and Christian minority population There is also a small but longstanding Zoroastrian community. Additionally, Lahore contains some of Sikhism's holiest sites, and is a major Sikh pilgrimage site. According to the 1998 census, 94% of Lahore's population is Muslim, up from 60% in 1941. Other religions include Christians (5.80% of the total population, though they form around 9.0% of the rural population) and small numbers of Bahá'ís, Hindus, Ahmediya, Parsis and Sikhs.

Education

Lahore is known as Pakistan's educational capital with more colleges and universities than any other city in Pakistan. Lahore is Pakistan's largest producer of professionals in the fields of science, technology, IT, engineering, medicine, nuclear sciences,

pharmacology, telecommunication, biotechnology and microelectronics, nanotechnology and the only future hyper high-tech centre of Pakistan. 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:

- St. Francis High School, established in 1842
- King Edward Medical University, established in 1860
- Forman Christian College, established in 1864
- Government College University, Lahore, established in 1864
- Convent of Jesus and Mary, established in 1867
- University Law College, established in 1868
- National College of Arts, established in 1875
- University of the Punjab, established in 1882[123]
- University of Veterinary and Animal Sciences, established in 1882
- Central Model School, established in 1883
- Aitchison College, established in 1886
- Islamia College, established in 1892
- St. Anthony's High School, established in 1892
- Sacred Heart High School, established in 1906
- Queen Mary College, established in 1908
- Dayal Singh College, established 1910
- Kinnaird College for Women University, established in 1913
- University of Engineering and Technology, Lahore, established in 1921
- Lahore College for Women University, established in 1922
- Hailey College of Commerce, established in 1927
- De'Montmorency College of Dentistry, established in 1929
- Lady Willingdon Nursing School, established in 1933
- University College of Pharmacy, established in 1944
- Fatima Jinnah Medical University, established in 1948

Culture & Festival

The people of Lahore celebrate many festivals and events throughout the year, blending Mughal, Western, and other traditions. Eid ul-Fitr and Eid ul-Adha are celebrated. Many people decorate their houses and light candles to illuminate the streets and houses

during public holidays; roads and businesses may be lit for days. The mausoleum of Ali Hujwiri, also known as Data Ganj Bakhsh or Data Sahib, is located in Lahore, and an annual *urs* is held every year as a big festival. Basant is a Punjabi festival marking the coming of spring.

Basant celebrations in Pakistan are centred in Lahore, and people from all over the country and from abroad come to the city for the annual festivities. Kite-flying competitions traditionally take place on city rooftops during Basant. Courts have banned the kite-flying because of casualties and power installation losses. The ban was lifted for two days in 2007, then immediately reimposed when 11 people were killed by celebratory gunfire, sharp kite-strings, electrocution, and falls related to the competition.

Recreational Resources and Development:

The project area has not any private recreational facilities.

Quality of life values

As of 2008, the city's gross domestic product (GDP) by purchasing power parity (PPP) was estimated at $40 billion with a projected average growth rate of 5.6 percent. This is at par with Pakistan's economic hub, Karachi, with Lahore (having half the population) fostering an economy that is 51% of the size of Karachi's ($78 billion in 2008). The contribution of Lahore to the national economy is estimated to be 13.2%. Lahore is one of the Pakistan's modern city.

Archaeological and Historical Treasures

Proposed Project is free from any type of historical and archaeological site/building

CHAPTER # 5

SCREENING OF POTENTIAL ENVIRONMENTAL IMPACTS & THEIR MITIGATION MEASURES

The following chapter describes the overall possible impacts of project on the physical, biological and socioeconomic environment because of construction and operation phases and mitigation measures to minimize the significance of the possible impacts up to an acceptable level. The anticipated impacts related to project location, design, constructional and operational phases have been assessed and mitigation measures are provided accordingly.

Environmental Impacts due to project location

Project is present in the industrial area of the District. No nearby human settlement exists within the radius of 500 meter. Unit is proposed extension of a spinning mill; site does not fall in the category of sensitive area and no environmentally sensitive localities exist within radius of study area. The only issue which can arise due to the location of the subject project could be the issue of traffic congestion due to transportation of the construction material at the project site. If the project proponent maintain HSE conditions and comply with the PEQS limits than, there will not be any significant impacts of the project on the environment.

If the mitigation measures are effectively implemented, the residual impact of the Subject project activities on the area's geophysical environment is expected to be insignificant.

Impact significance: Low or may be positive

Nature of impact: Direct

Duration: Long-term

Timing: Operation phase

Reversibility: NA

Likelihood: Low (unlikely),

Consequences: Mild or may be positive

Mitigation Measures for location phase impacts

- Project site should have good road infrastructure and efficient road infrastructure already exists there that is used currently to access the site and there is no issue of the road congestion due to the wide, good and paved road.

- Location can be considered as the positive impact due to utilization of the product in the same District.
- The project will provide the jobs to the local residents as well as to those from the suburban areas.

Environmental Impacts due to the project design

Subject project is the proposed extension of Umar Spinning Mills (Pvt.) Ltd. Area for parking, solid waste management and waste water treatment facility will be made availalbe within the subject project.

Firefighting plan, health & safety plan, tree plantation plan, emergency response plan will be incorporated during the designing phase of the project. The subject project will consist of;

- Cotton Godowns
- Cotton Yards
- Blow room
- Production floors
- Finishing hall
- Storage area
- Boiler
- Underground tank
- Store
- Residential colony for workers and employees
- Cafeteria etc.

Following are the major Environmental impacts due to the development related to the design:

- Structural stability of the proposed project.
- Soil structure and soil bearing capacity
- Road infrastructure design
- Emergency exit in the proposed project
- Firefighting system
- Wastewater disposal system design
- Rain water harvesting capacity of the drainage system
- Electricity hazards

Impact significance: moderate to high or may be negative

Nature of impact: direct

Duration: Long-term

Timing: Constructional phase & Operation phase

Reversibility: NA

Likelihood: moderate to high

Consequences: moderate to high or may be negative

Mitigation measures and recommendations

Following are the mitigation measures and recommendations to minimize the anticipated impacts:

- Emergency exist points should be marked within the project building.
- Firefighting system should be designed for the emergency situations.
- Geo-technical investigation of the project site should be conducted.
- Electricity system should be designed safe and sound.
- Electricity wires should be covered by thick plastic/electricity resistant covers.

Environmental Impacts during the construction phase

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

Impacts on the Physical Environment

Soil Erosion and Pollution

There is a possibility of soil erosion and pollution to occur during construction phase of the project. The clearing of vegetation could lead into soil erosion when the cleared land is exposed to natural agents such as wind and surface run-off. Removal of top soil after site clearance by agents such as wind, rain water, and surface run off is a likely action to occur. Similarly, accidental oil spills from construction equipment and discharge of wastewater from equipment washing to the environment might accelerate soil pollution to some extent. Oil spills may infiltrate into soil causing soil pollution and later water pollution during rainy season.

However, this impact is localized around machinery, maintenance areas or garage and areas of concentrated activities. Severity of impact is localized with low intensity due to the nature of project, which shall require minimum number of people during construction and shall not require heavy construction equipment. It is expected that the impacts will be low, local, and they will occur mostly during the construction stage (short term).

Air Pollution

Air pollution is quite likely to occur during construction phase. This is due traffic and other equipment using fossil fuels that release hydrocarbons and other gases including carbon dioxide, nitrous oxides, sulphur oxides, and particulate matters which may pollute the air. Likewise, activities like land clearing, vehicle movement, excavations for buildings foundations, construction drive ways and landscaping may generate dust especially during the dry season.

Other sources of air pollution will occur due to decomposition and/or burning of the cleared vegetation and dust from gravel drive ways. The level of air pollution originating from the above mentioned sources are expected to be low, localized and short term. No serious impacts are expected on people and the environment as whole.

Surface Water Pollution

No surface water entity i.e. stream, canal, river is present in the vicinity of the subject project so there no impact of subject project on the surface water.

Impacts on Biological Environment

Impacts on Flora

The clearance of most vegetation during construction to leave space for construction of proposed unit and other building facilities and access roads will bring negative impacts to flora population. Moreover, direct exposure to nitrous oxides (NOx) may cause growth inhibitions in plants to some extent. No special plant species of international conservation importance was recorded at proposed site. The impacts are therefore considered of low significance.

Impacts on Fauna

The nature of the site has not attracted several organisms to find refuge in the area although some including different types of birds, reptiles, amphibians and invertebrates are found. The clearance of vegetation and presence of noisy machinery, trucks and workforce will create unfavorable environment for most of these organisms while crawling organisms will eventually vanish following construction of paved surface.

However, the temporary nature of the construction activities will result in impacts of short-term duration and therefore the impact is considered of low significance.

Impacts on Socioeconomic Environment

Workers Accidents and Hazards during Construction

Construction workers are prone to accidents resulting from construction activities. These accidents may have acute or chronic impacts depending on nature, severity and intensity. In this regard, construction and mobilization activities of the proposed unit

could result into accidental injuries and hazards, etc. which could negatively impact the workforce.

Because of the intensive engineering and construction activities including erection and fastening of roofing materials, metal grinding and cutting, concrete work, steel erection and welding among others, construction workers will be exposed to risks of accidents and injuries. At times, such injuries may be from accidental falls from high elevations, injuries from hand tools and construction equipment cuts from sharp edges of metal sheets and collapse of building sections among others.

Vibration and Noise

The level of noise and vibration are likely to increase during the construction phase. The noise will be mainly come from vehicles and equipment operation during construction activities as well as people working on the project construction. This is a short-term impact and it will be felt mostly around construction sites and its peripherals.

There will be no drilling activities or involvement of heavy or high noise machinery. For residential areas located within 20km from the Project site boundary, it is predicted that the construction phase and operation of the proposed project will not pose any significant and the annoyance level is within the "no to little" impact category.

Considering technological advancement in construction industry, it is anticipated that machinery and equipment to be used during construction will be modern, versatile, and quieter than the old ones. It is also likely that they will require fewer numbers of operators reducing noise from workers. Therefore, the levels of noise and vibrations are anticipated to be within the tolerable limits, short term and localized. In view of the above and the fact that construction will concentrate on non-residential area, no significant impact is anticipated and the impact can be highly mitigated.

Employment Opportunities

On the other hand, the proposed project will have, during construction phase, potential positive impact to the local community through provision of employment. It is expected that maximum people will be employed during construction phase. Employment will be in form of managers, skilled labors as well as unskilled laborers. Therefore, apart from employment benefits accruing to local people other national and international experts are likely to be employed by the project especially at senior positions.

Income Generation among Suppliers

During construction phase, the proposed project plan to source most construction materials from local and/or national sources including cement, iron sheets, steel bars,

pipes, etc, from local shops. This demand therefore, will create market for local people and/or elsewhere in the country engaged in supplying construction materials leading to significant positive economic benefits to suppliers on short term basis.

Impacts on Security

The presence of laborers and expensive construction equipment, machinery and materials in the sites could potentially pose a security risk at the project site. Furthermore, offenders may capitalize on increased movement during construction and anonymity created by the construction activities to carry out criminal activities in the site and surrounding areas. This impact is likely probable due to low security measures from the fact the site is slightly far from police station(s) that could otherwise prevent criminal activities around the project site.

Accordingly, the impacts on the area's security are considered to be of medium significance. Therefore, appropriate security measures should be provided at the site through fencing, security checks/screening of workers and their guests and 24 hours security watch by expert security men (normally privately contracted) to prevent such criminal activities from happening at the site.

Mitigation Measures

Protection of Flora

In order to protect plant species from potential negative impacts, the proponent shall ensure that:

- The contractor is responsible for informing all employees about the need to prevent any harmful effects on natural vegetation on or around the construction site as a result of their activities;
- Clearing of natural vegetation is kept to a minimum;
- Unnecessary removal, damage and disturbance of natural vegetation are prohibited;
- Re-vegetation of the proposed project site is undertaken;
- Indigenous trees are planted around project area to enhance natural habitat

Land Degradation and Soil Erosion Control

Potential negative impacts on land and soils shall be mitigated by ensuring that:

- The contractor implements erosion control measures as an on-going exercise;
- During construction, the contractor protects all areas susceptible to erosion by installing necessary temporary and permanent drainage works as soon as possible and by taking any other measures necessary to prevent storm water from concentrating in streams and scouring slopes, banks, etc.;

- Any tunnels or erosion channels developed during the construction or maintenance period shall is backfilled and compacted and the areas restored to a proper condition;
- Areas where construction activities have been completed and where no further disturbance would take place are rehabilitated through re-vegetation;
- Ground clearance is minimized and if possible concentrated only to the specific building foundation areas, and only when it is necessary;
- Prompt reclamation of exposed soils is done;
- Construction during long rains period should be done with caution to avoid soil from being washed away;
- Topsoil excavated from buildings foundations is stored for re use on other areas like rehabilitations of quarries

Soil and Water Pollution Measures

Measures to mitigate soil and water pollution impacts during construction phase shall ensure that:

- Concrete mixing directly on the ground is prohibited and only be undertaken on impermeable surfaces;
- Concrete batching activities are located in an area of low environmental sensitivity;
- All runoff from batching areas is strictly controlled, cement-contaminated water is collected, stored and disposed of at an approved site;
- Contaminated water storage facilities are not left to overflow and appropriate protection from rain and flooding are implemented;
- Unused cement bags are stored out of the rain where runoff won't affect it;
- Used (empty) cement bags are; collected, stored in weatherproof containers to prevent windblown cement dust and water contamination, not to be used for any other purpose and shall be disposed of on a regular basis via the solid waste management system;
- All excess concrete is removed from site upon completion of concrete works and disposed of whilst preventing washing of the excess concrete into the ground;
- Entrance or accidental spillage, of solid matters, contaminants, debris and other pollutants and wastes into surface and ground water is prevented;
- Awareness of employees to prevent unnecessary oil spills and protection of environment in their daily duties is promoted; and

- All excess aggregate is removed from site and properly disposed.

Waste Management

To ensure that solid waste is properly managed and potential negative impacts are mitigated, the contractor shall ensure that:

- All facilities are maintained in a neat and tidy condition. Measures to reduce the negligent behavior with regard to the disposal of all refuse are taken, bins, containers and refuse collection facilities for later disposal are provided at all places of work;
- Solid waste may be temporarily stored on site in a designated area prior to collection and disposal;
- Waste storage containers are covered, tip-proof, weatherproof and scavenger proof;
- No burning, on-site burying or dumping of waste shall occur;
- Inert construction rubble and waste materials are disposed of by burying in the borrow pits or a designated site;
- All excavated materials, debris from construction works are not to be stockpiled or deposited near or on stream banks or other watercourse perimeter where they can be washed away by high water or storm runoff or can any way enters to water sources itself;
- Metal refuse bins or equivalent plastic refuse bins, all with lids, are provided to all buildings;
- Domestic refuse is collected and removed from all facilities at least twice per week and transported to the approved refuse disposal site in covered containers or trucks;
- Used oil, lubricants, cleaning materials, etc. from the maintenance of vehicles and machinery are collected in holding tanks and sent back to the supplier;
- Runoff from fuel depots / workshops / machinery washing areas and concrete batching areas is collected into a conservancy tank and disposed of designated site

Air Quality Control

The contractor shall ensure air quality by undertaking the following measures:

- Ensure that the generation of dust is minimized and implement a dust control programme to maintain a safe working environment, minimize nuisance for

surrounding residential areas/dwellings and protect damage to natural vegetation, crops, etc.;

- Exposed soil and material stockpiles shall be protected against wind erosion and the location of stockpiles shall take into consideration the prevailing wind directions and locations of sensitive receptors;
- To minimize the pollution caused by dust generation during the construction stage, water will be sprinkled on the construction site and on drive ways as frequently as possible;
- To minimize exhaust fumes, machinery and equipment shall not be running when not in use while ensuring that they regularly serviced; and
- Construction vehicles and machinery shall be equipped with pollution-control devices to minimize emissions

Vibration and Noise Control

Vibration and noise produced by construction work will be manages as follows:

- The contractor shall strive to keep noise generating activities to a minimum;
- The contractor shall restrict all operations that result in undue noise disturbance to local communities and/or dwellings (e.g. drilling etc.) to daylight hours on weekdays;
- The contractor shall inform in advance any local communities and/or residents that could be disturbed by noise generating activities such as drilling or compacting and shall try to keep such activities to a minimum;
- The contractor shall be responsible for compliance with the relevant legislation with respect to noise;
- Provision of earplugs and earmuffs to the workers working in high peak noises during the construction stage;
- Use of modern low noise machinery and vehicles is recommended;
- Activities that may involve noises and vibration should be withheld at night especially close to human dwellings.

Landscape and Topography

As construction activities are very likely to lead to negative impact on landscape and topography at project site, such impacts will be brought to a minimum by executing the following measures:

- Planting of appropriate indigenous trees, grass cover and other vegetation types on project area should be encouraged so as to enhance scenic beauty of the area; and
- Removal and proper disposal of construction debris need to be effected after completion of construction works and shall not be stockpiled or deposited near or on water sources or other watercourse perimeter where they can be easily be washed away by high water or storm runoff or can any way enter these sources.

Occupation Health and Safety Measures

The following safety measure should be observed during the construction stage:

- Provision of health and safety induction course to all workers;
- Instilling proper code of conduct and work ethics among construction workers and ensure that they are observed;
- Provision of Personal Protective Equipment (PPE) to all workers and enforce their use;
- Installing first aid kit and hire trained personnel to provide first aid;
- Reporting to OSHA within 24 hours of occurrence of any accident or near miss which can cause fatal or permanent disability; and
- Workers should be educated on their own safety and safety of others;
- For covid-19 prevention it is recommended:
- Workers are well-trained to practice and implement social distancing.
- No one is allowed to enter the premises of the project site without wearing proper mask.
- Personal hygiene practices are ensured and labor is trained for it by the contractor and the management of the unit.
- The proponent/contract provides masks to all the construction workers on daily basis and sanitizers are available at specific points of the project site

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 project process, 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.
- Emissions will be generated from working of boiler.
- Ash from the boiler.
- Sludge from wastewater treatment facility will be generated.
- Vehicle access is required especially for transportation. The site is well served with the road network. Heavy traffic will be allowed only during tight 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

Recommendations

- Safety of workers should be ensured through proper training and PPEs must be ensured during the working hours.
- Wastewater treatment facility should be constructed within the premises of the unit.
- 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 be regularly cleaned and solid waste must be handed over to the EPA Approved contractor.
- Cyclones will be installed at the stack of boiler.
- Ash will be handled carefully.
- Sludge from the wastewater treatment facility will be handed over to the certified contractors.
- Electricity monitoring/Thermography should be conducted by the proponent quarterly for the safe supply.

- Noise levels should not exceed the PEQS.
- Project proponent should submit all the monitoring reports in the EPA Punjab for the compliance of the PEQS.

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 construction and operation:

- Sprinkling of water will be done on dusty roads and tracks.
- PPEs will be provided during construction activity.
- Constructional 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 construction.
- Air pollution controlling devices will be installed within the project during operation.
- Scrubbing system will be installed at stack of generators.
- Machinery will be kept maintained.
- Waste water will be treated through waste treatment system 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.

Covid-19 measures:

- SOP regarding covid-19 prevention and sanitization of all the buildings/facilities will be made.
- Staff will be trained to practice and implement social distancing.
- No one would be allowed to enter the premises of the subject project without wearing proper mask.
- Proper sanitization of all the facilities will be done.
- Guards will check the temperature of everyone walking/coming at the entrance gate.
- Standardized and DRAP approved sanitizers should be made available.
- Awareness campaigns regarding spread of Corona virus and personal hygiene must be carried out by the management of M/s Umar Spinning Mills (Pvt.) Ltd.
- Soaps/Hand-wash must be made available in all restrooms/toilets/washrooms and kitchen.
- The proponent and management must strictly follow and adopt all the Covid-19 laws, policies and guidelines provided by Federal/Provincial government and International bodies

CHAPTER # 5

ENVIRONMENTAL MANAGEMENT AND MONITORING PROGRAM

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.

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.

Institutional Capacity

Following functionaries will be involved in the implementation of EMP:

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

Training Schedules

Training for the management/contractors/engineers and workers on environmental aspects of the project will be arranged on biannually basis during the constructional phase of the project and on quarterly basis during the operational phase of the project. It will be imparted by a team of experienced trainers.

Training of building contractor

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

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

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

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

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 all HSE condition at the PEQS.

Summary of impacts and their mitigation measures

Serial	Environmental Issues/ Impacts	Mitigation Measures
PLANNING, SITE SELECTION AND DESIGN STAGE		
1	Observance of administrative and legal formalities	It is recommended for obtaining of approval from other relevant departments.
2	Acquisition of land	The proposed land is the property of the project proponent.
3	Loss of environmentally sensitive areas	There is not any sensitive area near the project site however the project proponent will achieve the PEQS at the boundary wall of the subject project to avoid the environmental impacts on the nearby industrial unit.
4	Changes in traffic pattern	There is no need to change the traffic pattern due the development of the subject project because no. of industries have been developed at the same link road only few vehicles will visit the project on daily basis.
5	Potential conflicts with stakeholders	There is not any conflict at the current stage of the project. Neighboring industries were visited regarding their concerns. They have no objection regarding development of the subject project as per proposed design. It is recommended to Settle the issues through scoping and specific group discussions.

6	Resettlement issues	No resettlement issues
7	Project Design	Provision of Emergency Exits, Assembly Points, firefighting arrangements, water storage for firefighting should be incorporated in the design. Installation of Dust/flue gases/odor controlling devices should be incorporated in the design. Project proponent is committed to provide all these provision in the design of the project.
SITE DEVELOPMENT STAGE		
1	Erosion due to stripping and site clearance	Sprinkling of water on road sides or dusty tracks
2	Generation of dust	Careful loading and unloading of construction materials is recommended. Sprinkling of water on construction site and surrounding areas is recommended.
3	Generation of noise	• Avoid suing forbidden horns at the site. • Do not throw heavy equipment and construction materials in haphazard manner.
4	Local flooding/ponding	Immediate repair and maintenance of water supply pipes and sewers in case of any defect will be undertaken.
5	Outbreak of fire	Firefighting equipment must be maintained at the site in good working condition.
6	Safety	Safety of the workers and others must be

		ensured. Privacy of the neighbors must not be disturbed.
7	Labor issues	Employ the local labor as far as possible Wages of the labor should be as per Government policy
CONSTRUCTION STAGE		
1	Minor erosion of land	There are two types of erosions: 1. Wind Erosion 2. Water erosion • It is recommended to construct the boundary wall first that will reduce the soil erosion due to wind and chances of water erosion due to water flow from the adjacent will be reduced also. • Clearing of land should be step wise; vegetation should be removed only from the area where main building will be developed. • Add more vegetation, restore the land by more plantation • Sprinkle water on dusty tracks is recommended
2	Contamination of land and water	Hazardous substances like oil, fuel, etc. should be kept on concreted surface. Essential services like water supply, sewerage disposal and solid waste management must be in working condition.

3	Impacts of dust, noise and flue gases on neighbors	Sprinkling of water on dusty tracks is recommended. Avoid suing forbidden horns at the site. Do not throw heavy equipment and construction materials in haphazard manner. Proper tunings of vehicles and machinery must be ensured. Schedule construction timings should be implemented for minimum disturbance to neighbors. Continuous Environmental monitoring must be ensured as per proposed monitoring plan.
OPERATION STAGE		
1	Contamination of land and water sources	Continuous vigilance on maintenance of services. Tarpaulin sheets must be placed to avoid leaching of oil into ground.
2	Fire breakouts	Training of workers regarding flammable substances will be ensured. SOPs of fire prevention will be adopted like forbidden of smoking, regular testing of electricity infrastructures and regular testing of gas supply system to the industry. Firefighting equipment must be kept in working condition at site.
3	Safety/security concerns	Safety of the workers and others will be ensured. Privacy of the neighbors will not be

		disturbed.
4	Malfunction of utilities	It is proposed to appoint maintenance engineer with technicians like plumber and electrician for smooth operation of utility services.
5	Occupational Health, Safety and Environment	• Regular medical check-ups must be ensured to improve the working condition and efficiency of workers. • Safety of management, workers and visitors must be ensured. • Observance construction and safety codes must be ensured. • Provision of emergency exits must be ensured.
6	Production of Solid Waste	Area for solid waste must be reserved within the subject project. The solid waste must be managed on regular basis. The domestic waste will be disposed-off in environment friendly way.

Equipment Maintenance Detail

The subject project is proposed extension of spinning unit under the name of M/s Umar Spinning Mills (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.

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 will allocate the Environmental Budget of 8,000,000/- annually 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.

CHAPTER # 6

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 initial environmental examination 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.

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 construction 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;

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 industry workers, villagers, shopkeepers, drivers etc.

- Environmental consultants and social specialists and documenting the opinions of the stakeholders expressed during the meetings etc.

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.

Responsible Authority

Management of M/s Umar Spinning Mills (Pvt.) Ltd is the responsible authority to take all measures prior to start the activity.

Environmental Practitioners and experts

Team of M/s Pak Green Enviro-Engineering Pvt. Ltd visited the project site, had discussions with stakeholders and consulted with the local people of nearby and other villages to evaluate the project socio-economic impacts. People provide the massive information about the project and have positive remarks regarding the project development.

Other departments and agencies

For the impact analysis detailed meetings were held with the management of M/s Umar Spinning Mills (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.

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-I** with the report.

Categories of stakeholders interviewed in the project area:

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

In addition to the above categories, authorities of administrative and educational institutions, commerce and Investment Department (C&I), Environmental Protection Department (EPD) etc. were also consulted for more effective participation and appraisal of the proposed project.

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.

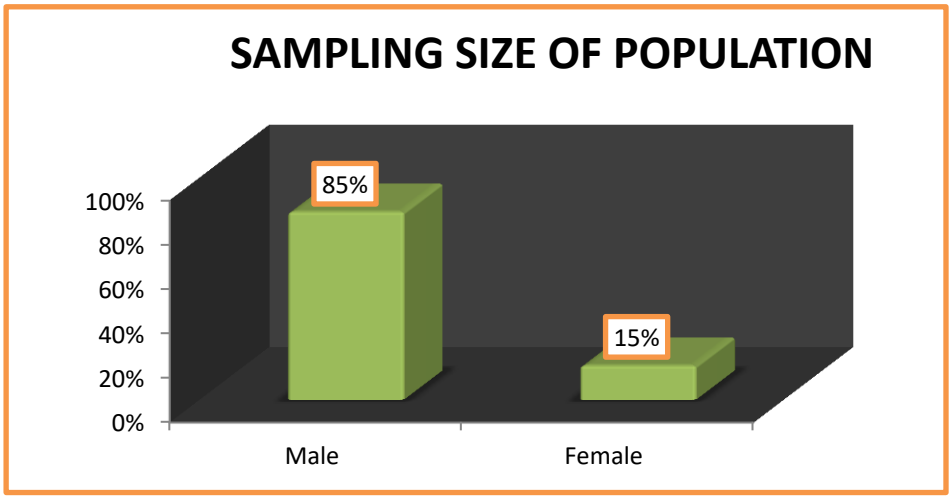
Sample size

Sample size of 30 respondents was selected by the Team of consultants for conducting the socioeconomic survey. Women were also consulted for the said survey; some of their names are mentioned in the above list of respondents while most of them were not willing to give personal information. List of respondents is attached at the end of this chapter.

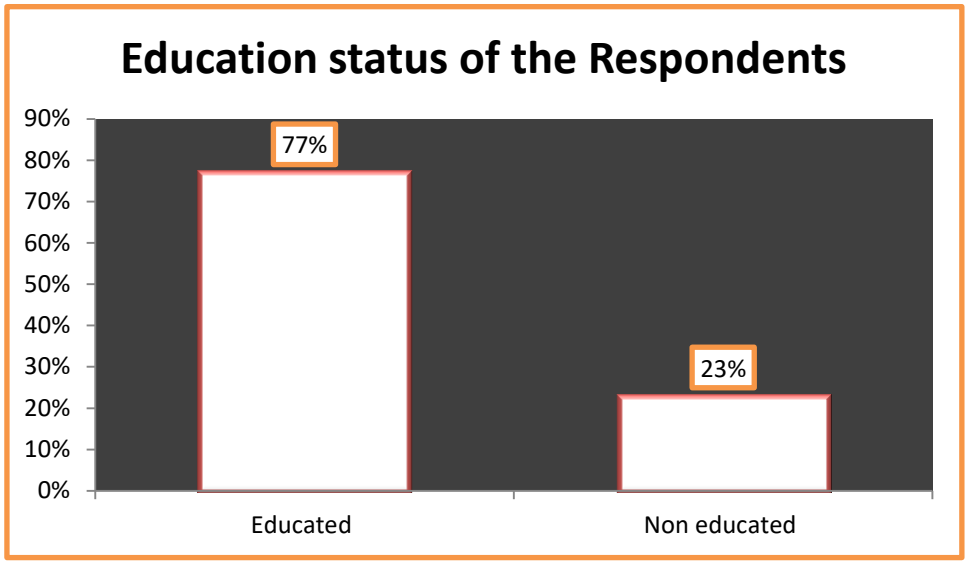
Statistical Analysis

SPSS 19.0 has been used for the statistical analysis of the data collected during the visit of study site area through questionnaires.

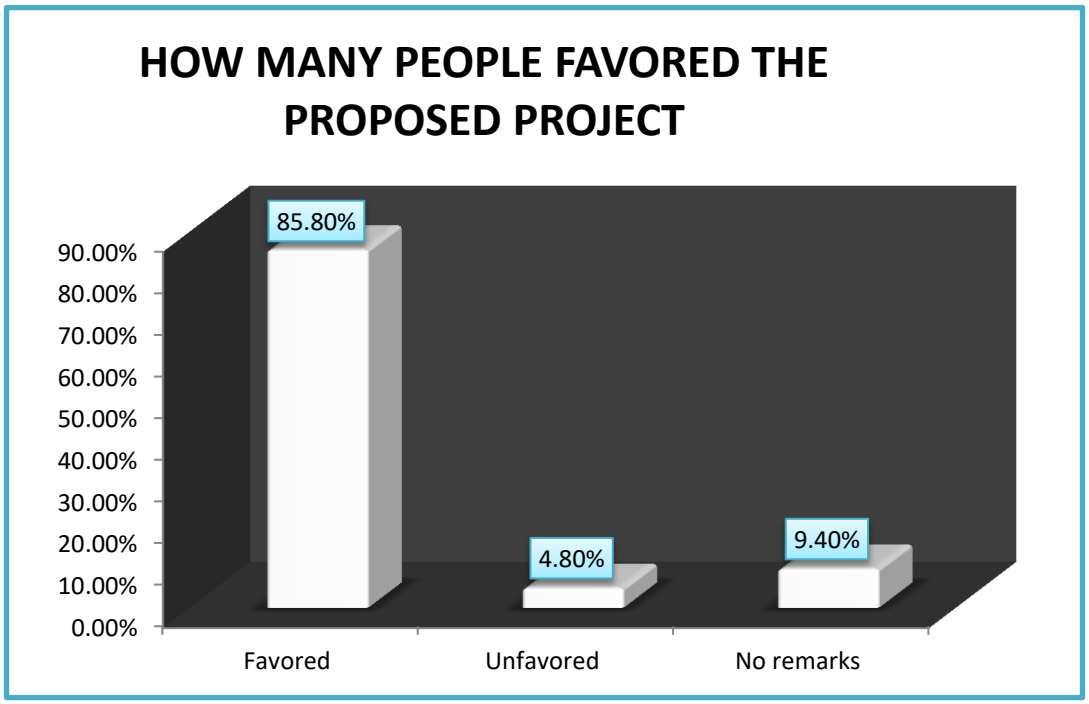
Graphical representation of analysis is given below:



In the sampled population, 85% respondents were male while 15% respondents were female. The number of female respondents is less as compared to male respondents because according to the social binding female hesitates to respond or communicate comfortably.

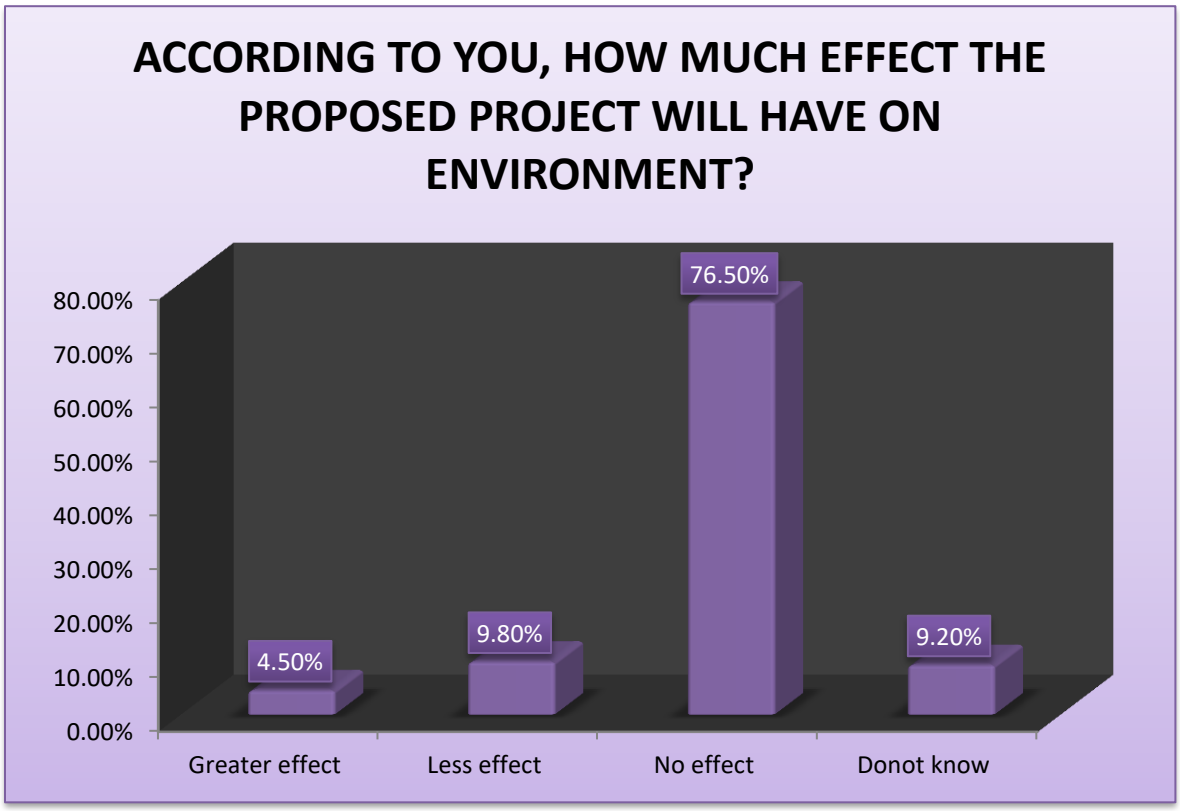


In the sampled population, 77% respondents were educated while 23% were uneducated. Overall education status of the area is good.

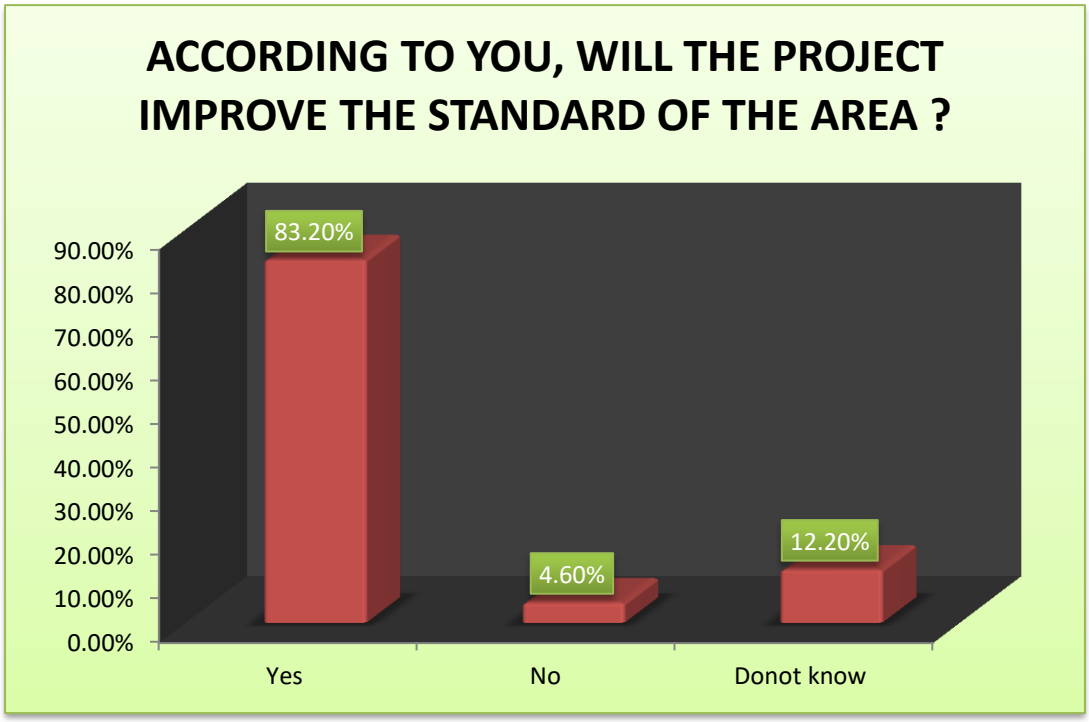


As per survey, 85.80 % people favored the proposed project and they gave positive remarks regarding the subject project. While 9.40% respondents had no opinion regarding

the project and 4.80% respondents were not satisfied with the proposed project because they think that development will affect the natural aesthetics of the area.



As per survey, 4.50% respondents said that subject project will affect the environment of the area, 9.8% said that there will be less effect on the environment, 76.50% respondents said that the project will not affect the environment and 9.20% said that they have no idea regarding the subject project. Most of the population was not aware about the environmental importance; they were giving their remarks according to their own knowledge.



As per survey, 83.2 % people said that the project will improve the standard of the area, 4.60% said that it will have no impact on the area while 12.20 % respondents gave no remarks.

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.
- Construction of the proposed project will be completed in the designated timeframe to limit adverse impacts of construction.
- 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 construction 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.

List of Respondents

Sr. No.	Name of Respondent	Education Status	Age	Occupation
1	Shakirullah	Middle	33	Worker
2	Iqbal Khan	Matric	29	Guard
3	Fazl e Mola	Primary	42	Driver
4	Laik Shah	Intermediate	38	Shopkeeper
5	Suleman Khan	Graduation	26	Employee
6	Farhad	Nil	21	Labour
7	Muhammad Arshad	Nil	18	Labour
8	Muhammad Tayyab	Graduation	22	Student
9	Fariha Altaf	Undergraduate	20	Intern
10	Ghulam Ishaq	B.sc	40	Employee
11	Irfanullah	Primary	38	Driver
12	Saeed Rasool	Nil	35	Labor
13	Iqra Batool	Intermediate	28	Employee
14	Syed Nasir Khan	B.A	30	Employee
15	Waqif Shah	Middle	32	Shopkeeper
16	Hikmat Shah	Matric	37	Guard

17	Rohina Aziz	Matric	34	Worker
18	Gul Sher	Intermediate	28	Shopkeeper
19	Astam Khan	Intermediate	26	Salesman
20	Muhammad Umer	Graduation	25	Medical Wrap
21	Salma Bashir	Nil	40	Nil
22	Zainab Bashir	Intermediate	18	Student
23	Jahanzeb	Matric	24	Guard
24	Rasheed Khan	Middle	40	Driver
25	Shaheen Idrees	Matric	27	Worker
26	Sabir Khan	Nil	33	Labour
27	Alam Noor	B.Com	24	Employee
28	Ali Rehman	Intermediate	21	Salesman
29	Abdul Waheed	Masters	30	Self Employed
30	Gul Rasool	Nil	36	Labour

Chapter # 07

Impact Assessment

Identification of all impacts:

All the impacts related to the subject project due to the project location, design, during the construction phase and operational phase have been identified and their mitigation measures have been suggested in *Chapter # 4, Screening of potential environmental impacts and mitigation measures.*

Methodologies for impact identification:

The methodology adopted for impact evaluation includes the Project Impact Evaluation Matrix.

Project Impact Evaluation Matrix

The impact Evaluation matrix was developed by placing project activities on x-axis and different environmental parameters likely to be affected by the proposed project actions grouped into categories i.e. Physical, Biological and Socio Economic Environment. For the impact assessment, project impact assessment matrix is used by dividing the project action into different phases (Construction phase and operation phase). A project impact evaluation matrix is attached in next section of this chapter.

The evaluation of impacts has been carried out on the basis of developing matrix, in which impacts have been rated on the basis of their significance. For rating impacts significance following criterion has been developed;

NA – Not Available
O – Insignificant (No or minimal impact)
LA – Low Adverse (Short term, reversible or less damage to environment)
MA- Medium Adverse (Long term reversible damage to environment)
HA – High Adverse (severe irreversible adverse damage to the environment)
LB – Low Beneficial (Short term benefits or less beneficial to the environment)
MB – Medium Beneficial (Long term benefits to environment)
HB – High Beneficial (Continuous benefits to environment)

CONSTRUCTION PHASE																
	Physical Environment							Biological Environment		Socio-Economic Environment						
Environmental Component / Project Activities	Topography & Drainage	Soil Quality	Landscape	Surface water quality	Ground water quality	Air quality	Noise	Flora	Fauna	Agricultural Land	Health & Safety	Disruption of Public Utilities	Employment	Population Disturbance	Social Disorder	Cultural Values	Traffic Management
Placement of construction machinery on site	LA	LA	MA	LA	O	O	O	MA	LA	MA	LA	O	O	MA	LA	LA	HA
Parking of heavy vehicles	LA	O	LA	O	LA	O	O	LA	O	LA	LA	O	O	MA	MA	MA	HA
Transportation of raw construction material	LA	MA	MA	LA	O	HA	HA	MA	HA	LA	HA	O	MB	HA	HA	LA	HA
Temporary storage of raw material	LA	LA	LA	MA	LA	MA	O	LA	O	LA	LA	O	LB	LA	O	O	HA
Loading and unloading of raw material	LA	LA	MA	MA	O	HA	MA	LA	LA	LA	MA	LA	MB	HA	LA	O	MA
Labour camping on site	O	O	LA	LA	O	O	LA	LA	O	LA	LA	HA	O	HA	MA	MA	O
Storage of oil and fuel	LA	MA	LA	LA	O	LA	O	LA	LA	LA	MA	O	LB	O	O	O	O
Extraction of ground	O	O	O	O	MA	O	O	MA	O	MA	LA	HA	O	O	LA	O	O

water																
Construction material mixing/ preparation	LA	MA	LA	LA	LA	LA	HA	O	O	O	HA	HA	HB	MA	LA	MA	O
Welding/ cutting and steel fix ring process	O	O	O	O	O	MA	HA	O	O	O	HA	O	HB	MA	LA	LA	O
Shuttering/ beams	O	O	O	O	O	MA	HA	O	O	O	HA	LA	HB	MA	MA	MA	O
Building roofing	O	O	O	O	LA	MA	MA	O	O	O	HA	LA	HB	MA	LA	LA	O
Operation of generators	O	O	O	O	O	HA	HA	O	O	O	HA	LA	HB	LA	LA	O	O
Excavation	HA	MA	MA	LA	LA	HA	HA	MA	LA	O	HA	O	HB	LA	O	O	O
Water tank/ pond on site for temporary storage	O	O	O	LA	LA	O	O	O	B	O	LA	LA	B	LA	O	O	O

Legend:

O=Negligible/No impacts B=Beneficial LA=Low Adverse MA=Medium Adverse HA=High Adverse

OPERATIONAL PHASE																	
	Physical Environment							Biological Environment		Socio-Economic Environment							
Environmental Component / **Project Activities**	Topography & Drainage	Soil Quality	Landscape	Surface water quality	Ground water quality	Air quality	Noise	Flora	Fauna	Agricultural Land	Health & Safety	Disruption of Public Utilities	Employment	Population Disturbance	Social Disorder	Cultural Values	Traffic Management
Transportation of raw material/ products	MA	MA	MA	MA	O	MA	HA	LA	MA	O	HA	LA	B	MA	LA	O	HA
Production process	O	O	O	HA	MA	MA	MA	O	O	O	HA	HA	HB	O	O	LA	O
Washing process	O	O	O	LA	HA	O	O	LA	LA	LA	LA	HA	B	O	O	O	O
Operation of boilers	O	O	O	LA	HA	MA	MA	O	O	O	HA	HA	HB	O	O	O	O
Operation of generators	O	O	O	O	LA	HA	MA	O	O	O	HA	LA	HB	O	O	O	O
Water consumption	LA	O	LA	HA	HA	O	O	LA	LA	LA	LA	HA	B	LA	O	O	O
Wastewater generation	HA	MA	MA	MA	MA	LA	O	MA	MA	MA	HA	LA	B	LA	LA	O	O
Storage of raw materials/ dyes	O	O	O	O	O	O	O	O	O	O	LA	O	B	O	O	O	O

Social activities	O	O	LB	B	B	B	B	B	B	HB	HB	B	HB	HB	HB	O
Public welfare	O	O	B	B	B	B	B	B	B	HB	HB	HB	HB	HB	HB	LB
Economic activities	LB	O	B	B	B	B	B	B	B	B	HB	B	B	B	B	LB
Employment	O	O	O	O	O	O	O	O	O	O	B	B	B	B	B	LB
Infrastructure improvement	LB	MB	HB	B	B	B	B	HB	LB	HB	HB	B	HB	B	B	B

Legend:

O=Negligible/No impacts B=Beneficial LA=Low Adverse MA=Medium Adverse HA=High Adverse

Impact analysis and prediction:

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. For the impact analysis and predictions following methods were adopted:

Consultations/ case studies:

To study the impacts of the project on physical and biological environment, site visits were conducted by the environmental practitioners and experts and possible physical and biological impacts which may arise due to the subject project were identified through consultations and case studies and their mitigation measures were suggested accordingly.

Meetings:

For the identification of the social impacts of the project, meetings and group discussions were held with the local people, stakeholders, nearby residents and passerby because 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.

To identity the different types of stakeholders and ascertain their perceptions about the project, an initial environmental examination 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.

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.

Characteristics of impacts:

Impact assessment criteria:

The impacts were assessed in the light of criteria given as under:-

- Magnitude or degree of impact
- Time and duration of impact
- Likelihood of impact occurrence
- Sensitivity of impact
- Risk related to impact

Potential Positive Impacts:

The project is envisaged to have following major positive impacts;

Employment opportunities:

Extension of M/s Umar Spinning Mills (Pvt.) Ltd will help in generating new jobs for the local population. The requirement of Managers, Engineers, Workers, technicians, skilled and unskilled labor etc. will generate employment opportunities. It is estimated about 500 persons will be employed during operational phase and about 18-20 persons will work during construction phase. Hence, there is large number of employment opportunities especially for the locals of the district.

Increase in Business:

With the influx of laborers for the proposed project, there will be more opportunities for small scale business such as small food cafes etc.

Improved Infrastructure:

Construction of M/s Umar Spinning Mills (Pvt.) Ltd will improve the infrastructure of the area as proponent has incorporated aesthetic values and regeneration of site in its planning stage.

Economic benefits:

Construction of M/s Umar Spinning Mills (Pvt.) Ltd is a majors spinning unit in the country; it is a great investment for the economy of our country. In the long run it will positively impact not only the local population but also the economy of Pakistan.

Potential Negative Impacts:

Types of Negative Impacts

Minor Impacts

These are of minor intensity. For mitigation of the minor impacts routine and limited actions are required.

Moderate Impacts

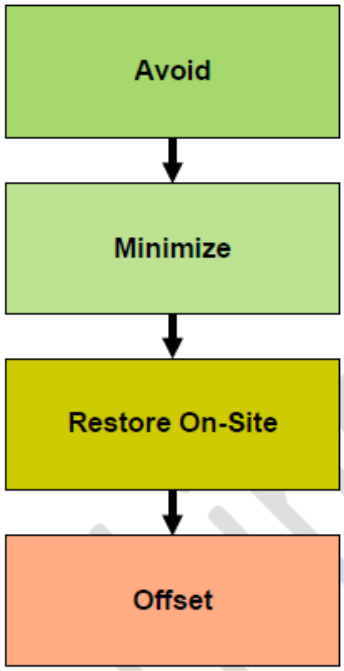
These impacts need specific and additional mitigation measures.

Major Impacts

These impacts have severe adverse impact. These are intolerable. All possible preventive and multiple control measures are adopted to minimize their intensity and duration.

Mitigation assessment criteria:

The Mitigation Hierarchy establishes a structure to guide development and application of measures to mitigate impacts on environmental values and associated components. The term “mitigation” applies to four steps, or levels, in the mitigation hierarchy:



General principles

1. Maintaining the integrity and natural functions and processes of ecosystems, and the resilience of ecosystems, is prerequisite to sustainable use of natural resources, and essential to maintaining ecosystem goods and services over time.
2. The mitigation hierarchy is applied in order of priority as follows:
    a. Avoid
    b. Minimize
    c. Restore On-Site
    d. Offset (Off-Site or On-Site)
3. Generally, the "higher" the priority of the environmental value and associated component, the more protective the mitigation measures.
4. For an action or measure to be considered "mitigation", a party must accept responsibility for implementation of appropriate mitigation measures, and there must be certainty that the mitigation measures will be carried out.
5. Implementing mitigation measures can help resolve issues that may delay or prevent a proposed project or activity.

General considerations

1. Which environmental values and associated components will be impacted by the proposed project or activity? (This will be determined from the output of the

environmental impact assessment, i.e., the Environmental Impact Assessment and Mitigation Plan)

2. Have the criteria being used to determine relative priorities among environmental values and associated components?
3. Have mitigation measures for impacts on environmental values and associated components, at all scales, been considered?
4. What is the current condition of each environmental value and associated component actually present within the footprint and area of influence of the proposed project or activity?
5. Can impacts on one or more environmental values or associated components be more fully mitigated than impacts on other environmental values and associated components?
6. Are there multiple environmental values and associated components with conflicting management needs and potential conflicts that need to be considered?
7. Is sound guidance available and being used, e.g., are best management practices (BMPs) and guidelines available for affected environmental values and associated components?
8. Is there opportunity to collaborate with other proponents that may have interest in overlapping mitigation measures?

Impact significance of:

- ***Ecological importance***

Natural Vegetation

Project activities do not impose any potential impact on the area's natural vegetation and plantation.

Assessment of Impact:

A significant impact will be interpreted if unnecessary or excessive removal and burning of plants for fuel wood is observed. In case of subject project no tree cutting will be required for the construction of the subject project.

Nature of impact: Direct

Duration: long term

Timing: construction phase

Reversibility: irreversible

Likelihood: moderate

Consequences: Mild, as no rare plant species are not present in the project area.

Impact significance: significant

Mitigation Measures:

The following mitigation measures will reduce any impact on vegetation:

- Do not park vehicles on green belts/ grass
- Unnecessary damage to vegetation will strictly be avoided.
- Proponent will plant trees and other species after construction phase

Residual Impact:

Given the current state of the vegetation, and proper implementation of the proposed mitigation measures, slightly significant residual impact on the natural vegetation of the area is anticipated.

Fauna

The fauna including wildlife species do not exist at the project site**.**

Nature of impact: Direct

Duration: short term

Timing: construction phase

Reversibility: not applicable

Likelihood: low

Consequences: Nil, as no rare plant species are not present in the areas.

Impact significance: not significant

Residual Impact:

Given the current state of the fauna there is no significant residual impact on the wild life of the area.

- ***Social importance***

Following parameters were adapted for the assessment of the well-being of the poor people near the project site that are used to assess the social, economic, and cultural impacts of the project.

Inconvenience due to construction Vehicles:

During the construction period a minor impact may be the movement of vehicles from the main road to the proposed plant boundary; it may affect the traffic on other roads and may cause minor annoyances to the residents and other industrialists of the area. The transportation of heavy materials and equipment is likely to damage the existing roads if they were used for the transportation of heavy machinery.

Mitigation measures: 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.

Nature of impact: Direct

Duration: Short term

Timing: construction phase

Reversibility: reversible

Likelihood: low

Consequences: low, as it links the main Multan road and vehicles will rarely use the sub roads

Impact significance: slightly significant

Cultural Issues:

Induction of outside workers in the Contractor's labor may cause cultural issues with the local community as the local community is very sensitive about their cultural values. Also theft problems to the local community may arise by the labor force and vice versa.

Mitigation Measures: Good relations with the local communities will be promoted by encouraging contractor to provide opportunities for skilled and unskilled employment to the locals, as well as on-the-job training in construction for young people. Project manager will restrict his staff to mix with the locals to avoid any social problem.

Contractor will keep the copies of Computerized National Identity Cards (CNIC) of his workers and will warn them not to involve in any theft activities. And if anyone would involve, he will have to pay heavy penalty. Similarly, at the time of employment contractor has to take care that the workers should be of good repute. The contractor

camp will be properly fenced and main gate will be locked at night with a security guard to check the theft issues.

Contractor will also be the responsible for the sensitivity towards the local customs and traditions.

Nature of impact: Direct

Duration: Short term

Timing: construction phase

Reversibility: reversible

Likelihood: low

Consequences: low, if project proponent implements mitigation measure, its impact will be low

Impact significance: slightly significant

Accident risks:

Unmonitored construction activities may create an accident risk for the local residents particularly children and labor force.

Mitigation measures: Contractor must have first aid kits along with the medical officer in the field if a minor injury takes place, but for an unfortunate accident services of nearby hospitals will be availed. Routine medical check-ups of all the field staff including unskilled labor need to be conducted by a qualified doctor.

Training of the workers should be arranged regarding safety procedures, environmental awareness, equipping all construction workers with PPEs, safety boots, safety helmets, ear plugs, gloves and protective masks. Monitoring must be carried out to check for the sustainable use of PPEs.

Nature of impact: Direct

Duration: Short term

Timing: construction phase

Reversibility: not applicable

Likelihood: moderate

Consequences: moderate, as complete trainings and mitigation measure have been planned.

Impact significance: significant

Privacy Issues:

Disturbance may happen to the privacy of women residing in the work area when workers will work at height.

Mitigation Measures: Contractor must take care for the privacy of residents, especially women near the working area.

Nature of impact: Direct

Duration: Short term

Timing: construction phase

Reversibility: reversible

Likelihood: low

Consequences: low, as contractor will take care of the matter

Impact significance: slightly significant

Sharing of resources:

During the construction and operational phase of the project, workers will share the common resources like potable water, fuel, wood. It may create conflicts between work force and local population.

Mitigation measures: The contractor will be required to maintain a close friendly relationship with the local communities to ensure that there may not be any conflict related to common resources utilization. He must get permission of the local population before using their common sources of water and other resources.

Nature of impact: Direct

Duration: Short term

Timing: construction phase

Reversibility: reversible

Likelihood: low

Consequences: low, it the terms & conditions will be followed and mitigation measures have been employed

Impact significance: significant

Noise Problems:

Residents of the area and neighbors may face the problems of noise during the construction and operations phase.

Mitigation measures: Large noise generating activities should be carried out in fixed hours. The timing will be known to all the people in 500 m radius of the site.

Nature of impact: Direct

Duration: Short term

Timing: construction phase

Reversibility: reversible

Likelihood: Moderate

Consequences: Moderate, project contractor will follow the safety guidelines & NEQS

Impact significance: significant

Mobilization issues:

During the construction phase, the general mobility of the local residents and their livestock in and around the study area is likely to be hindered.

Mitigation measures: It will be the responsibility of project contractor and drivers to follow the speed limits in the area.

Nature of impact: Direct

Duration: Short term

Timing: construction phase

Reversibility: reversible

Likelihood: low

Consequences: low, as it links the main Multan road and vehicles will rarely use the sub roads

Impact significance: slightly significant

Health:

People from the project area regularly travel to other cities, and thus cannot be considered isolated from the rest of the country. They are regularly exposed to illnesses common to urban populations, and have similar levels of immunity. The project is therefore very unlikely to lead to an epidemic of any sort among local communities.

Mitigation measures: Regular medical check-ups of all the workers need to be conducted to ensure the health of workers and local population.

Nature of impact: Indirect

Duration: Long term

Timing: construction / operation phase

Reversibility: reversible

Likelihood: moderate

Consequences: low to moderate, it may cause disturbance or spread of disease in the area if mitigation measure will not followed

Impact significance: significant

Safety:

Project activities could become a hazard as it is located in populated area local people, especially children, are likely to gather around to watch the activity. The other safety issue is that of traffic, especially along access roads close to settlements. To reduce the hazards, the following mitigation measures will be implemented:

- Local people will be informed in advance when work is about to start in an area.
- This may result in people keeping young children away from work areas.
- Machinery will never be left unattended.
- Safe driving practices will be adopted, particularly while passing through settlements.

Nature of impact: Direct

Duration: long term

Timing: construction / operation phase

Reversibility: irreversible

Likelihood: moderate to high

Consequences: moderate if all safety measure will be taken care

Impact significance: Significant

- ***Environmental standards***

Topography:

The project will not change the topography of the area as proponent committed to sustainable development of the proposed project. The infrastructure of the area will be maintained after the construction activities.

Residual Impact:

The residual impact of project activities on the topography of the area is expected to be insignificant.

The residual effects are summarized below:

Nature of impact: direct

Timing: construction Phase

Duration: during construction activities

Likelihood: Nil

Consequences: no change

Impact significance: Not significant

Mitigation measures:

The project design should include measures to maintain the project landscape that matched the pre project natural green features achievable through extensive plantation. Project activities must be executed in a way it will not harm naturally available resources.

Land Acquisition Resettlement:

One of the major impacts includes acquisition of land from the land owners and the resulting displacement of their families and disturbances in the livelihood of the affected persons (AP) in the project area. But present project land is ownership of M/s Umar Spinning Mills (Pvt.) Ltd and do not involve any type of land acquisition and resettlement activity.

Residual Impact:

The residual impact of project activities for the land acquisition & resettlement of the area is expected to be insignificant.

The residual effects are summarized below:

Nature of impact: direct

Timing: Planning stage

Duration: not applicable

Likelihood: Nil

Consequences: no change

Impact significance: Not significant

Mitigation measures:

If any resettlement involve, proponent must consult the affected persons and incorporate their interests and demands.

Changes in Land Use:

The current land use of the area is mainly industrial. Project is expected to increase land use value particularly near the main road creating easy economic and employment opportunities for locals.

Residual Impact:

The residual impact of project activities on land use of the area is expected to be insignificant.

The residual effects are summarized below:

Nature of impact: direct

Timing: construction phase

Duration: not applicable

Likelihood: Nil as it is not involving any constructional activity that may cause change in land use

Consequences: no change

Impact significance: Not significant

Mitigation measures:

The impact of change in land use must incorporate in planning stage so that it may not cause any hindrance during the constructional phase.

Solid waste/ sludge management:

Proper solid waste management system is necessary for the prompt, timely and efficient disposal of solid waste & sludge for the reduction of its impacts. Impacts due to solid waste & sludge are expected to be temporary and minor in nature.

Nature of impact: Direct

Duration: Short term

Timing: operation/ construction

Reversibility: Not applicable

Likelihood: Low (unlikely) as mitigation measures will ensure that Solid waste management will be efficient

Consequences: Mild, as it will be removed from site within few hours

Impact significance: Low, based upon low likelihood and mild to moderate consequence.

Mitigation measures:

- Planning of solid waste disposal sites with reasonable distance from the human settlements
- A minimum distance of 1 km should be maintained between the solid waste disposal site and nearest human settlement
- Devise plan & develop guidelines for the safe handling, storage & disposal
- Sludge must not be placed at the site after cleaning of wastewater treatment tank
- PPEs are strongly recommended for workers for the handling of sludge

Residual Impact:

After implementing the mitigation measures listed above, the residual impact of the solid waste/ sludge is expected to be insignificant.

Air Quality Potential Impact:

Air emissions from project-related activities are likely to include:

- Dust raised on dirt tracks by project-related vehicles.
- Combustion products (nitrogen oxides, sulfur dioxide, particulate matter, carbon monoxide, and volatile organic compounds) from vehicles used for project-related activities

Assessment of Impact

1) Dust Emissions:

Dust emissions caused by vehicular traffic on dirt track are an important concern, primarily when such traffic passes near community settlements. Dust emissions cause the amount of particulate matter in the air to increase, and thus become a health concern. Dust clouds also reduce road visibility, creating a traffic hazard.

2) Gaseous Emissions:

Emissions produced by vehicles and equipment will be similar to those produced by generators in terms of the resulting pollutants (SO_2, NO_X, PM, etc.). However, the extent to which they are produced will be kept considerably lower, since much smaller engines are used in vehicles and construction machinery.

Nature of impact: Direct

Duration: long term

Timing: operation/ construction

Reversibility: irreversible

Likelihood: moderate as mitigation measures will ensure that air pollution remains within acceptable limits.

Consequences: moderate, as pollutant levels in the ambient air will be well within acceptable limits.

Impact significance: moderate, based upon low likelihood and mild to moderate consequence.

Mitigation Measures

None of the potential effects discussed above are expected to exceed acceptable limits.

The mitigation measures given below will further reduce their impact, and ensure that they remain within acceptable limits.

- All equipment and vehicles used during the project will be properly tuned and maintained in good working condition in order to minimize exhaust emissions.
- Vehicle speed will be reduced on track passing through or close to shops
- Imposing speed limits and encouraging more efficient journey management will reduce the dust emissions produced by vehicular traffic. Water will be sprinkled where necessary to contain dust emissions.
- Management will make sure process is environmental friendly

Residual Impact:

After implementing the mitigation measures listed above, the residual impact of the proposed activities on ambient air quality is expected to be low.

Noise level:

Noise may be a major concern during the construction/ operation phase. It can be generated from the machinery used for construction and operations. Generators and boilers are another source of noise pollution.

Nature of impact: Direct

Duration: long term

Timing: operation/ construction

Reversibility: Not applicable

Likelihood: moderate

Consequences: slightly significant, if above mentioned mitigation measure will be strictly followed

Impact significance: moderate, based upon low likelihood and mild to moderate consequence.

Mitigation measures:

- Keep the traffic load aligned and minimum during working hours of project
- Machinery and vehicles must be well tuned and maintained
- Impose the limits on unnecessary use of horns
- Safety signs must be displayed and public & drivers must be well aware of them
- Do not work in night time

Residual Impact:

After implementing the mitigation measures listed above, the residual impact of the noise level will be slightly significant.

Conclusion

Management of M/s Umar Spinning Mills (Pvt.) Ltd. has to achieve the following goals.

- Identification of regulatory requirements that apply to the project activities in the context of environmental protection.
- Identification of the environmental features of the project area and the likely impact of the project on the environment,
- Recommendation of appropriate mitigation measures that management will incorporate into the project implementation to minimize all adverse environmental impacts.
- Baseline environmental and socioeconomic information collection from a variety of sources, including field surveys.

The impacts of project in area will be insignificant, provided the generic mitigation measures proposed in this report are implemented.

After assessing the project activities and investigating the project area, it is concluded that, if the activities are undertaken in this report, and the recommended mitigation and environmental management measures are adopted, the project will not result in any long-term or significant impacts on the local community or the environment.

Chapter # 08

Mitigation and Impact Assessment

Purpose of Mitigation measures

What is the problem i.e. in terms of "major environmental impacts" which may arise by the subject project activity?

The major impacts may arise by the subject project include particulate matter & dust, noise, solid waste and wastewater. Other impacts are of minor importance. These impacts will arise during construction and operation but precautionary measures will be adopted prior to start the activity, during the activity and post activity.

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

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

Where and how the problem should be addressed?

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.

Whys of achieving mitigation measures

Changing in planning and design:

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.

Improved monitoring and management practices:

Management of M/s Umar Spinning Mills (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.

Compensation in money terms:

M/s Umar Spinning Mills (Pvt.) Ltd will 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.

Replacement, relocation and rehabilitation:

M/s Umar Spinning Mills (Pvt.) Ltd will develop Restoration/ reclamation or tree planation plan to restore the project area. Maximum Plantation will be done with native species within the building, along the boundary wall and along the road side if directed by EPA. Also, in-front of main area, horticulture plan will be formulated and area for this will be kept reserved.

ENVIRONMENTAL MANAGEMENT PLAN OF M/s Umar Spinning Mills (Pvt.) Ltd

Serial No.	Environmental Parameter/ Element	Mitigation measure/Enhancement Measures to be taken during:		
		Construction	Regular operations	Responsibilities
1.	Gaseous/ Dust emissions	**1-** Control speed of construction vehicles **2-** To minimize dust generation water should be sprinkled on the construction site and on drive ways as frequently as possible. **3-** Regular maintenance of equipment. **4-** People who are working and exposed to severe dust and exhaust fumes should be provided with PPEs. **5-** The use of low sulphur fuels in construction equipment and ensuring proper vehicle and equipment maintenance. **6-** Construction vehicles and machinery shall be equipped with standard	1- Air emissions from boiler stack will be controlled by installing dry scrubbers. 2- Management of M/s Umar Spinning Mills (Pvt.) Ltd will ensure that PPEs i.e. masks will be provided to workers during the working hours. 3- Vehicles to be used for the transportation of raw materials at the project site should be properly tuned. 4- Generator shall cater for emergency situation only. Their exhaust will be emitted through	**HSE/Environment Manager**

		pollution-control devices to minimize emissions. **7-** Civil debris, if generated during construction phase, shall be disposed in low-lying areas for land filling. **8-** Construction materials i.e. sand, clay should be transported to the project site in covered trucks. **9-** All project vehicles should be checked regularly to ensure that engines are in sound working condition and are not emitting smoke. **10-** Construction materials i.e. sand, clay and like shall be transported to the project site during night time and will be stored away from the road or foot path. They will be kept under cover to avoid any fugitive dust.	an adequately fabricated stack. It will also be ensured that the generators will only function during emergency condition for limited period. 5- Monitoring should be conducted on Monthly basis as per EPA PEQS Rules.	

		11- The site proposed for the extension of M/s Umar Spinning Mills (Pvt.) Ltd is located away from human settlements. **12-** All equipment, generators, and vehicles used during the project construction will be properly tuned and maintained in good working condition in order to minimize exhaust emissions.		
2.	Noise	1. Ensure Noise level compliance according to Rules and Regulation 2. Ensure all construction machinery are maintained and serviced in accordance with the contractor's specifications 3. Ensure exhaust mufflers and engine enclosures are in place and in good working order for all construction equipment and industrial trucks.	1- All activities will be under PEQS level of noise during operation phase. 2- PPEs i.e. ear muffs should be provided to workers in case of high noise. 3- Ensure all production machinery are maintained and serviced in accordance with its specifications.	**HSE/Environment Manager**

		4. Ensure Noise generation activities to be relegated during daytime. 5. Ensure that vehicles undergo routine maintenance 6. Notifying the neighbor in case there would be some noisy events. 7. Ear plugs will be provided & implemented in case of heavy noise.		
3.	Health & safety	1- Workers/people will be informed in advance when work is about to start at the project site. 2- Machinery will never be left unattended. 3- Safe driving practices will be adopted, particularly while passing through human settlements. 4- Basic health facilities will be provided to workers.	1. The EMP guidelines will be followed strictly (committed by the management of Umar Spinning Mills) 2. Training of workers will be conducted regarding health and safety. 3. PPEs will be provided and implemented. 4. First aid measures will be provided to workers. 5. Shift Rotation, proper	**HSE/Environment Manager**

		5- Construction worker safety shall be in accordance with site specific health and safety plan that identifies site specific risks, safety equipment, action plans, and hospital locations. 6- Daily site inspections should be done to ensure safe work practices. 7- All workmen should be provided with personal protective equipment.	ventilation will be provided to workers in case of thermal stress. 6. Safety signs, safety boards, exit arrows etc. will be placed on site. 7. An Assembling point will be kept to gather in case of emergency situation such as fire hazards. 8. Floors will be kept clean without slippery to avoid any hazard. 9. Firefighting system will be installed to avoid any health hazards. 10. Electrical wires, D.Bs will be kept covered to avoid electrical hazards. 11. Machinery will never be left in running condition.	

4.	Soil and water pollution	5. Prevention of accidental oil or chemical spillage, solid matters, contaminants, debris and other pollutants and wastes from entering into surface and ground water. 6. Awareness on environmental protection. 7. Avoid deposition of stockpiling materials near or on stream banks or other watercourse perimeter. 8. No grey water runoff or uncontrolled discharges from the site/working areas (including wash down areas) without treatment shall be permitted. 9. Water containing pollutants such as cement, concrete, lime, chemicals and fuels shall be discharged into a conservancy tanks for removal from site. 10. Spills during construction or	1- Water pollution will not be created by this proposed unit. 2- Process water generated from production units will be treated in septic tanks because it will not contain any hazardous material. After treatment it will dispose of into nearby Rohinala drain. Copy of Effluent Charges Bill paid to Irrigation dept is attached as **Annexure-E** of this report.	**HSE/Environment Manager**

		operations shall be absorbed with absorbent blankets, socks, or absorbent material and disposed of in accordance with applicable laws and regulations. 11. Contractor must dispose solid wastes away from the site to an approved disposal site. 12. Potential pollutants (If any) of any kind and in any form shall be kept Stored and used in such a manner that any escape can be contained and the water table not endangered. 13. Equipment Storage or wash areas shall be placed and constructed in such a manner so as to ensure that the surrounding areas (including groundwater) are not polluted. 14. During construction, standard engineering practices such as silt fencing, erosion control material, and		

		construction tracking pads should be implemented to control runoff, erosion, and sedimentation that could affect watersheds. 15. Proper handling and storage procedures for hazardous wastes e.g. fuel oil should be stored in areas with hard standing and containment to handle spills. 16. Minimize waste production by utilizing best available techniques for site preparation.		
5.	Generation of domestic & project process related solid waste	1. Waste management on site shall be strictly controlled and monitored. Only approved waste disposal methods shall be allowed. 2. Ensure that all site personnel are instructed in the proper disposal of all waste.	1. Domestic, process related solid waste and sludge will be stored in solid waste bins and will be handed over to contractors.	**HSE/Environment Manager**

		3. Ensure that all facilities are maintained in a neat and tidy condition. Measures shall be taken to reduce the potential for waste and negligent behavior with regard to the disposal of all refuse. 4. At all places of work provide bins, containers and refuse collection facilities for later disposal. 5. Solid waste may be temporarily stored on site in a designated area prior to collection and disposal. Waste storage containers shall be covered, tip-proof, weatherproof and scavenger proof. 6. No burning, on-site burying or dumping of waste shall occur. 7. All solid waste shall be disposed of offsite at an approved landfill site. 8. The HSE Officer shall provide metal refuse bins or equivalent plastic		

		refuse bins, all with lids, for domestic waste. Refuse shall be collected and removed from all facilities at least twice per week. 9. Construction waste will be utilized for landscaping, road repairing and maintenance purposes.		
6.	Waste effluents	1- The waste water to be generated from domestic/constructional sources should be treated in site camp septic tank and then it should be disposed off.	1. The sewage to be generated shall be treated in septic tanks and then will be drained out in the nearby drain or used for irrigation purposes.	**HSE/Environment Manager**
7.	Water supply	1- It shall be ensured that no activity tempers with the water supply system and water availability	1. It shall be ensured that no activity tempers with the water supply system and water availability	**HSE/Environment Manager**
8.	Soil erosion/Land Degradation	1. The project site has few and scattered amount of vegetation which will not be removed. 2. The land is almost clear and free of	1. Plants will be planted during operation phase of the subject spinning unit.	**HSE/Environment Manager**

		dense vegetation. 3. Every care shall be taken to check soil erosion 4. Landscaping 5. Ensure management of excavation activities 6. Provide soil erosion control and conservation structures where necessary 7. In areas where construction activities have been completed and where no further disturbance would take place, rehabilitation and re-vegetation should commence as soon as possible. 8. Ground clearance should be minimized and if possible concentrated only to the specific building foundation areas, and only when it is necessary. 9. Prompt reclamation of exposed soils should be done.		

		10. Construction during long rains period should be done with caution to avoid soil from being washed away. 11. Topsoil excavated from buildings foundations should be stored for re use on other areas for rehabilitation		
9.	Enhancement of aesthetic beauty of the building and the area.	------	1- Flower pots containing flowers and plants will be provided in front of the building to add to the improvement of the environment around. 2- All other necessary measures will be taken to maintain standards of cleanliness so that the building may add to the scenic/aesthetic beauty of the area around.	**HSE/Environment Manager**
10.	Staff for catering the Environmental Management Plan	**---**	1- Special staff will be recruited to implement this Environmental Management Plan on regular basis.	**HSE/Environment Manager**

CHAPTER # 9

CONCLUSION AND RECOMMENDATIONS

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

Conclusions

- The EIA study reveals that the project is economically viable, socially acceptable and environment friendly.
- It will generate additional jobs during construction and operation phases.
- The proponent has committed to implement the project in the environment friendly manner.
- M/s Umar Spinning Mills (Pvt.) Ltd intends to register the project with local Government.
- M/s Umar Spinning Mills (Pvt.) Ltd has prepared and implemented very comprehensive Emergency Preparednssess and Response Standard Operating Procedures.
- M/s Umar Spinning Mills (Pvt.) Ltd has prepared and implemented very comprehensive Security and Fire Fighting Standards Operating Procedures.

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 Umar Spinning Mills (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.