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Executive Summary

Title & Location of the project

Subject project for which this Environmental Impact Assessment (EIA) Study has been conducted is the proposed Non-Woven Spunlace Fabric manufacturing unit under the name of M/s Tapal Tex Private Limited at Plot 47 Phase-II, FIEDMIC M-3 Industrial Estate District Faisalabad.

The proposed project falls under Clue 6 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 Plot 47 Phase-II, FIEDMIC M-3 Industrial Estate District Faisalabad.

Project land coordinates are as follows:

Front: Coca Cola

Back: Open Plot

Left: Open Plot

Right: Open Plot

Name of the proponent

Name: Muhammad Sadiq Tapal S/O Tajwar Tapal

Designation: Proponent

CNIC: 35201-2785819-5

Mailing Address: 10-C Abid Majeed Road Lahore Cantt

For further details CNIC of the proponent and other relevant documents are attached with this report.


Google Map Tapal Tex Pvt Ltd
Plot 47 Phase-II, FIEDMIC M-3 Industrial Estate District Faisalabad
Legend
Afridi Textile Mills (Pvt.) Ltd.
Project Site 31°36'56.02"N 73°10'26.05"E
Afridi Textile Mills (Pvt.) Ltd.
Google Earth
Image © 2022 Maxar Technologies
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2000 ft

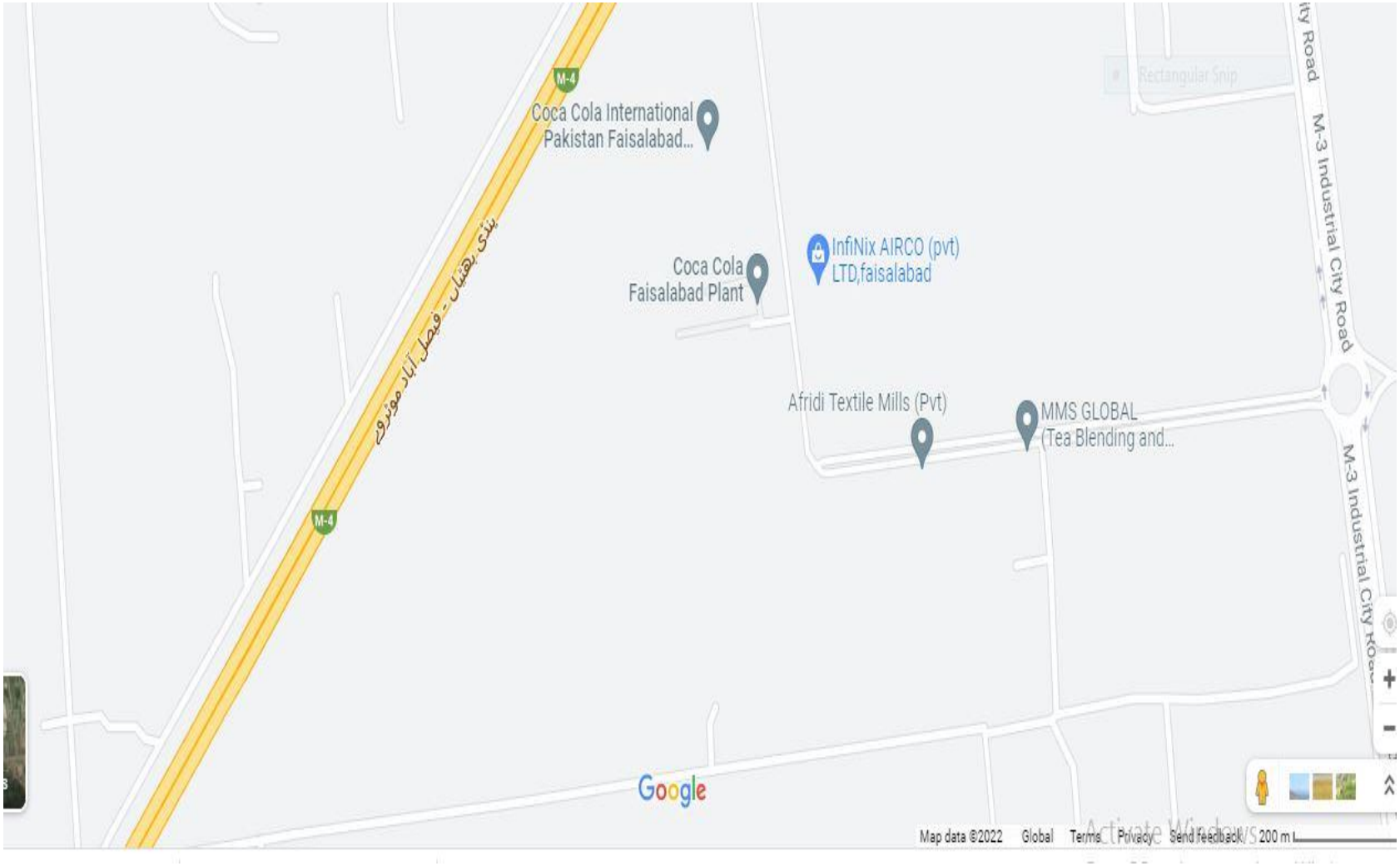


Figure 2: Aerial view of the project site

Name of organization preparing the report:

Safe Enviro-Solutions, as independent consultants, has beenappointed by the proponent to conduct Environmental Impact Assessment Study.

Company office address: *99/Burj-Al-Saeed building Room #102, Main Ferozepur Road, Ichra, Lahore.* .

Phone: *+92 36 8779107*

Email: *safe.envirosolutions@gmail.com*

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

A brief outline of the proposal

Name of the project:	**Proposed Non-Woven Spunlace Fabric manufacturing under the name of** **M/s Tapal Tex Private Limited**
Location of the project:	Plot 47 Phase-II, FIEDMIC M-3 Industrial Estate District Faisalabad
Proposed Area:	Total covered area for proposed unit is 88,340 SFT.
Nature of Project:	Subject project is proposed unit.
Cost of the project:	Total cost of the project will be approx. 1.2 Billion rupees.
Project process:	Project process will include the manufacturing of Non-Woven Spunlace Fabric through Mixing, Carding, Baleing, Blending etc.
Raw materials	Fibers (natural, synthetic) will be the raw material of the project process.
Production capacity	8500 KG/Day will be the production capacity.
Proposed machines details	Complete details of machinery have been provided in chapter 2.
Power Requirement:	The predicted total electrical load for unit is up to

	1.6MW which is fulfilled by WAPDA & Standby Gas generators of 1MW each.
Labor/ Workforce:	During construction: 100-150 (estimated) During Operation: 200-300(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 staffon 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.	OSHA Standards	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 thetransportation of materials should be properly tuned.
Gaseous emissions from site generators, boiler and transportation vehicles can	PEQS for Ambient Air	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 shouldbe 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: Muhammad Sadiq Tapal S/O Tajwar Tapal

Designation: Proponent

Mailing Address: 10-C Abid Majeed Road Lahore Cantt

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

Details of Consultant

Safe Enviro-Solutions 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.

Company office address:*99/Burj Al-Saeed building Room #110, Main Ferozepur Road, Ichra, Lahore.* .

Phone: *+92 36 8779107*

Email: *safe.envirosolutions@gmail.com*

The current study was carried out by the following professionals:

Name	Qualification	Position in the EIA/IEE Team
Muhammad Rehman Majeed	M.Phil (Environmental Science) GCU Lahore	Project Incharge And Supervisor
Muhammad Shahzad	M.Phil Environmental Science GCU Lahore	Team Leader and Coordinator (Author of the Report)
Mohsin Ali	M.Phil Environmental Science GCU Lahore	Senior Environmentalist (Field Analyst)
Abid Rasool	BS (Hons) Environmental Sciences (GCU Lahore)	Environmental Scientist
Ammara Anwar	MS (Environmental Science) (PU Lahore)	Research Associate

		(Author of the Report)

Brief description of Nature, Size and Location of Project

Subject project is the proposed Non-Woven Spunlace Fabric under the name of M/s Tapal Tex Private Limited located at Plot 47 Phase-II, FIEDMIC M-3 Industrial Estate District Faisalabad. Total area of proposed unit is 4 Acre. Open area of proposed unit is 58,265.81 SFT. Total covered area for proposed unit is 88,340 SFT, Project area is industrial in nature and many other industrial units are already in process of establishment and operation in the surroundings. Fibers (natural, synthetic) will be the raw material of the project process and product will be the Non-Woven Spunlace Fabric. 8500 KG/Day will be the production capacity of the project. Project process will include the manufacturing of Non-Woven Spunlace Fabric through Mixing, Carding, Baleing, Blending etc.

Location

Subject proposed project is located at Plot 47 Phase-II, FIEDMIC M-3 Industrial Estate District Faisalabad.

Project land coordinates are as follows:

Front: Coca Cola Industry

Back: Open Plot
Left: Open Plot
Right : Open Plot
For further details, layout map of the project is attached as **Annexure-C** with the report.


Google Map Tapal Tex Pvt Ltd
Plot 47 Phase-II, FIEDMIC M-3 Industrial Estate District Faisalabad
Legend
Afridi Textile Mills (Pvt.) Ltd.
Project Site 31°36'56.02"N 73°10'26.05"E
Afridi Textile Mills (Pvt.) Ltd.
Google Earth
Image © 2022 Maxar Technologies
2000 ft
N

CHAPTER # 2

DESCRIPTION OF THE PROJECT

Type and Category of the Project:

Subject project is the proposed Non-Woven Spunlace Fabric under the name of M/s Tapal Tex Private Limited located at Plot 47 Phase-II, FIEDMIC M-3 Industrial Estate District Faisalabad.

Project falls under **Schedule II, category B, under the clause "6"**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 Plot 47 Phase-II, FIEDMIC M-3 Industrial Estate District Faisalabad.

Project land coordinates are as follows:

Front: Coca Cola Plant

Back: Open Plot

Left: Open Plot

Right: Open Plot

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


Google Map Tapal Tex Pvt Ltd
Plot 47 Phase-II, FIEDMIC M-3 Industrial Estate District Faisalabad
Legend
Afridi Textile Mills (Pvt.) Ltd.
Project Site 31°36'56.02"N 73°10'26.05"E
Afridi Textile Mills (Pvt.) Ltd.
Google Earth
Image © 2022 Maxar Technologies
2000 ft
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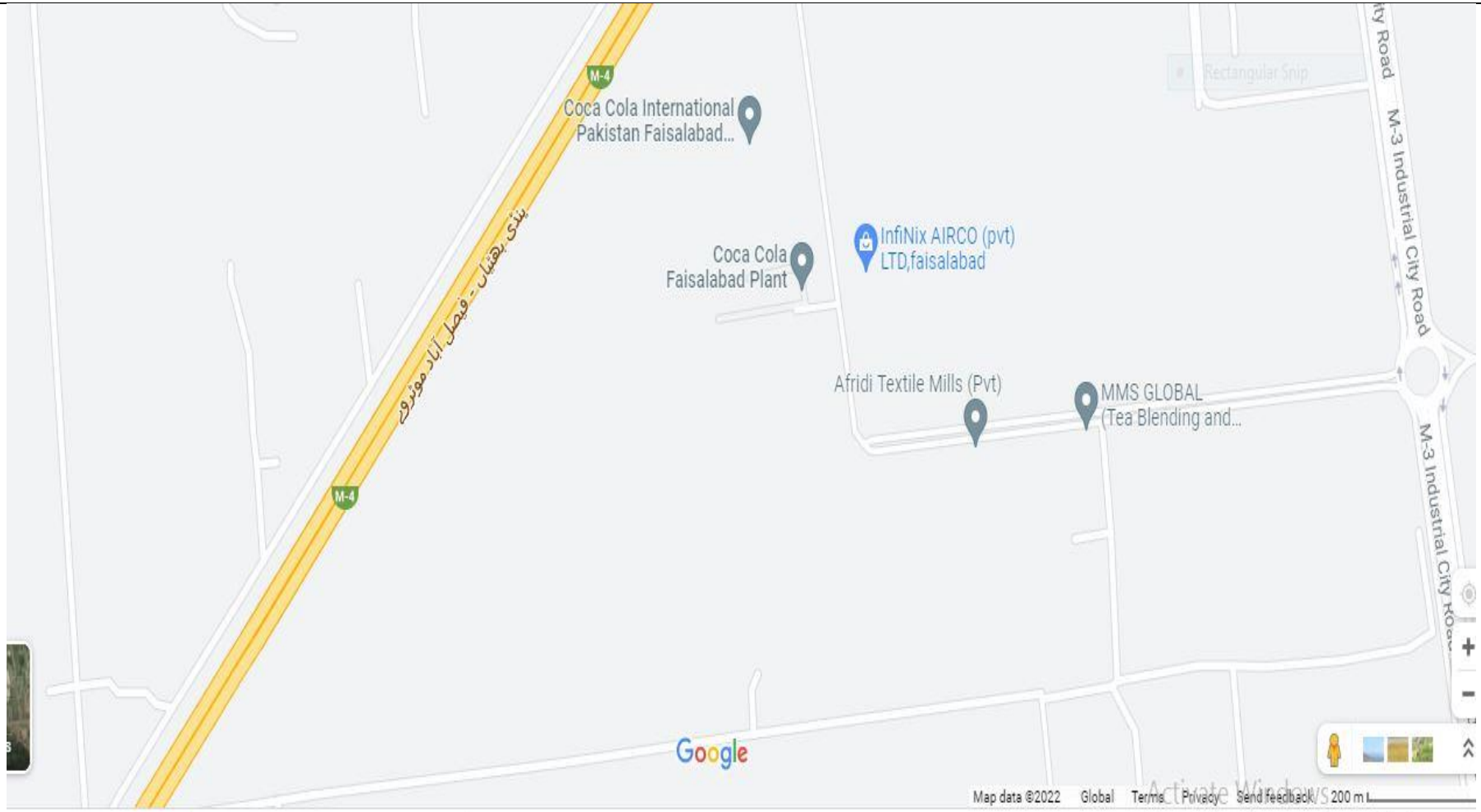


Figure 5: Aerial view of the proposed project site

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 is present at the front side of the project area is present which directly connects to M-3 Industrial City 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 the yarn manufacturing unit under the name of M/s Tapal Tex Private Limited (Pvt.) Limited. Total covered area for proposed unit is 88,340 SFT 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. Estimated Cost of the project will be 1.2 Billion Rupees

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 Non-Woven Spunlace Fabric under the name of M/s Tapal Tex Private Limited located at Plot 47 Phase-II, FIEDMIC M-3 Industrial Estate District Faisalabad. 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 proposed unit is 4 Acre. Open area of proposed unit is 58,265.81 SFT. Total covered area for proposed unit is 88,340 SFT. Raw Cotton & stretch filament will be the raw material of the project process and product will be Non-Woven Spunlace Fabric. Project process will include the manufacturing of Non-Woven Spunlace Fabric through Mixing, Carding, Baleing, Blending etc. Production capacity of the project will be 8500 KG/Day and total cost of the project will be approx. 1.2 Billion rupees.

Raw material

Fibers (Natural, Synesthetic) will be used as raw material.

Production Capacity of the Industry

Production of the unit will be 8500 KG/Day of Non-Woven Spunlace Fabric.

Project Process Detail:

The three stages are:

Web formation

Web bonding

Thermal

- Calendering
- Air through

Mechanical

- Needle punching
- Hydro-entanglement
- Stichbonding

Chemical

-
-

Finishing treatment

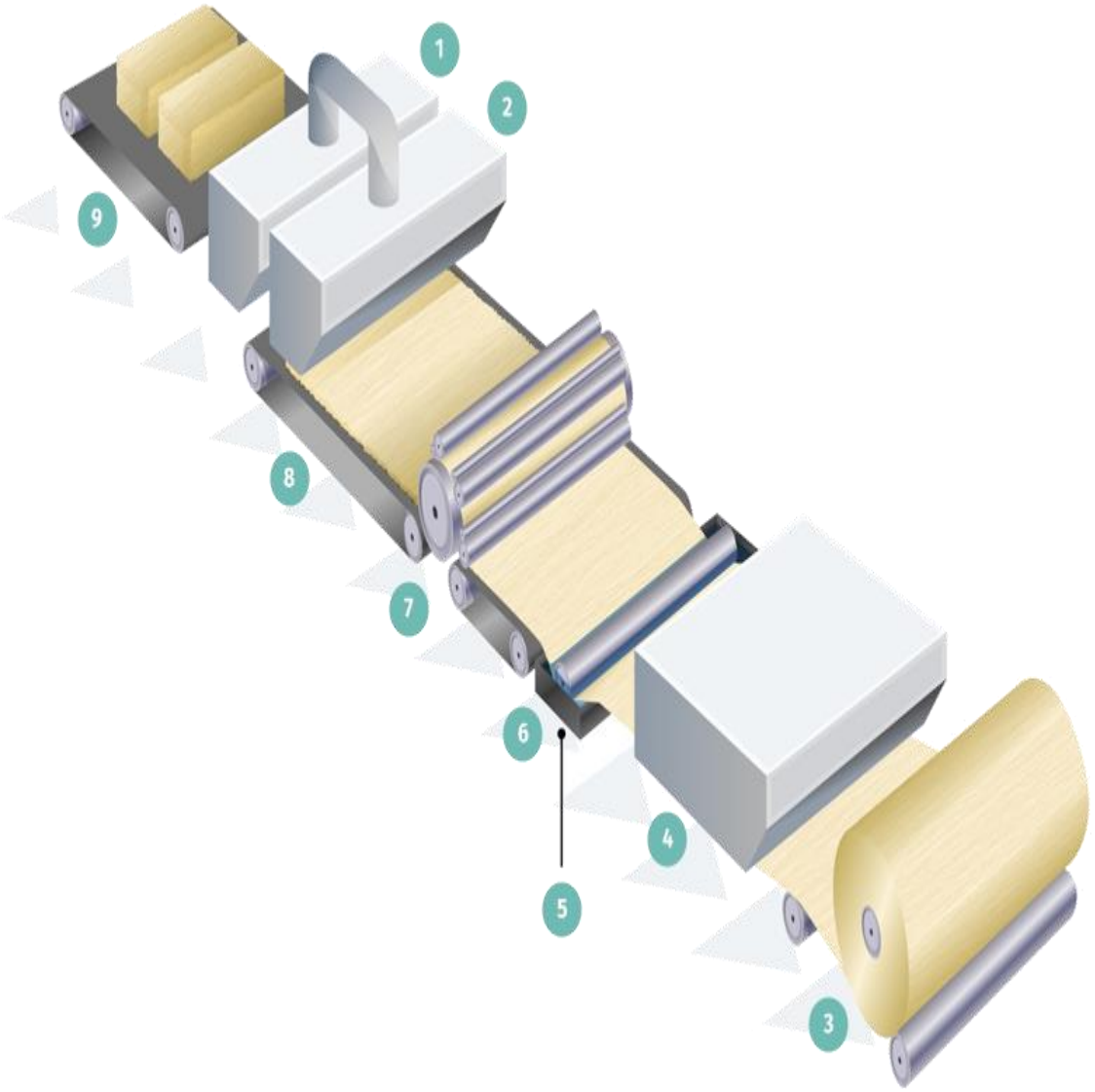
- Mechanical treatment
- Surface modification
- Coating

Web formation

Nonwovens manufacturing starts by the arrangement of fibres in a sheet or web. The fibres can be staple fibres or filaments extruded from molten polymer granules.

Illustrations of some of the methods used to form a web:

- DRYLAID-CARDED
- SHORT FIBER AIRLAID
- WETLAID
- SPUNLAID
- MELTBLOWN
- SUBMICRON SPINNING



1. Bale opener
2. Chute feed
3. Wind up
4. Drying
5. Pan with liquid binder
6. Binder impregnation
7. Card
8. Staple fibre from bale opener or blender
9. Bales of staple fibre

Carding is a mechanical process which starts from bales of fibres. These fibres are 'opened' and blended after which they are conveyed to the card by air transport. They are then combed into a web by a carding machine, which is a rotating drum or series of drums covered by card wire (thin strips with teeth). The precise configuration of cards will depend on the type of fibre and the basis weight to be produced. The web can be parallel-

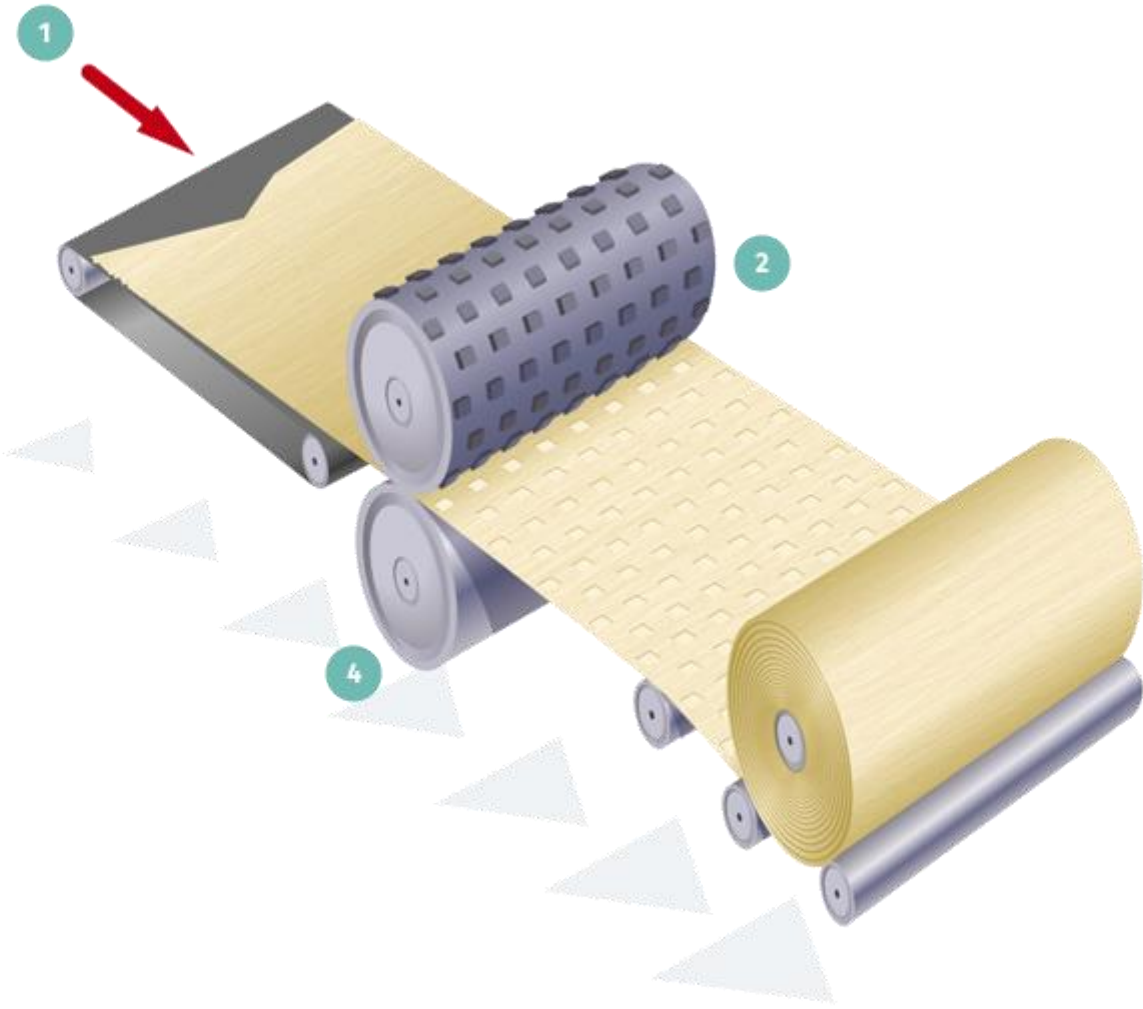
laid, where most of the fibres are laid in the machine direction, or they can be randomised. Typical parallel-laid carded webs result in good tensile strength, low elongation and low tear strength in the machine direction and the reverse in the cross direction. Machine parameters and fibre mix can be varied to produce a wide range of fabrics with different properties.

Web bonding

Webs have a limited initial strength right after the web formation (depending on various bonding mechanisms). The web needs therefore to be consolidated in one or the other way. The choice of the web consolidation method strongly depends on functional properties that are needed as well as on the type of fibres used..

There are three basic types of bonding:

- THERMAL BONDING (COHESIVE BONDING)
- MECHANICAL BONDING
- CHEMICAL BONDING (ADHESION BONDING)



1. From web forming
2. Hot embossed cylinder
3. Windup
4. Hot smooth cylinder

There are several thermal bonding systems in use:

Calendaring uses heat and high pressure applied through rollers to weld the fibre webs together at high speed.

Through-air thermal bonding makes bulkier products by the overall bonding of a web containing low melting fibres. This takes place in a carefully controlled hot air stream.

Drum and blanket systems apply pressure and heat to make products of average bulk.

Ultrasonic bonding is a technology in which molecules of the fibres are being 'excited' under a patterned roller by high frequency movement of a 'sonotrode' which produces internal heating and softening of the fibres.

Finishing treatment

The opportunity to combine different raw materials and different technologies accounts for the diversity of the industry and its products.

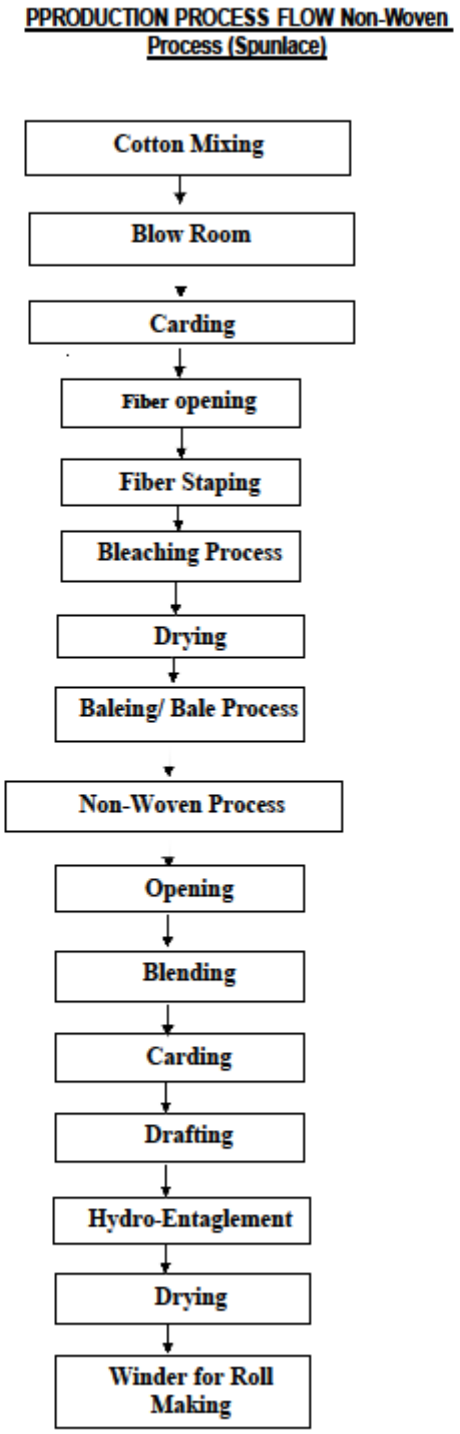
This diversity is further enhanced by a range of finishing treatments. By finishing the nonwoven can be tailored or functionalized to meet specific properties. Finishing treatments can be either mechanical (stretching, perforating, crimping etc) or chemical. With the latter one can modify the surface of the fibres and the nonwoven to change the haptics or the repellency of the nonwoven.

Nonwovens can be made conductive, flame retardant, water repellent, porous, antistatic, breathable, absorbent and much more. They can also be coated, printed, flocked, dyed or laminated to other materials.

Converting

Nonwoven manufacturing ends usually with large rolls of product. Converters convert -as the word says- this roll good into a consumer product.

Sometimes converting is done in 2 steps. Before manufacturing the finished product one might want to bring the rolled good one step closer to the final product by slitting, cutting, folding, sewing or heat sealing.



Project process flow chart:

Details of machinery

Detailed list of machinery to be installed **is** given below.

. Non- Woven Machinery:

- Bale Breaker & Opener Electric (Hygiene Standard)
- Card Wire Pre opener 1200mm (Hygiene Standard)
- Fan and Magnet
- Spark Detector
- Cabin Blender
- Fine Opener 108 (Hygiene Standard)
- Cotton Sorter
- Blow Fan and Two ways Distributor
- Reserve Box
- Air Pressure Feeder
- Carding Machine
- Secondary dust collector & Pipes
- Carding Blow Pipes on site project
- Cross Lapper five Motors
- Combine Conveyor 2500mm
- Drafter
- Spunlace Machine with 8 Water Jets.
- Squeezing Machine 2500mm
- Four Perforated Drum Dryer
- Accumulator
- GSM and Moisture detector 2500mm
- Automatic Sinder
- High Pressure Pump system
- Pre-Wet Pump, Medium Pump & Tube Valve
- Waste Water Treatment Plant
- High Pressure Pipe, Steady Flow Device, Police filter
- Water Suction system
- Unwinder
- Double Side Stain Detector 2500
- Metal Detector
- Lightning Processing Platform
- Slitting Machine
- PLC HMI (Secondary wiring & Cable Tray not Included)

2. Absorbent Fiber Cotton / Bleach Unit

- Stamping Machine
- Dyeing Vessel
- Hydro
- Dryer
- Crane
- Others

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.

TANKS DATA

N°	DESCRIPTION	DIMENSIONS	WATER VOLUME
3	LIFTING TANK	8.00 x 3.50 x 4.00 m	112.00 m^3
4	STORAGE AND HOMOGENIZATION TANK	170.60 m^2 x 7.00 m	1194.20 m^3
5	NEUTRALIZATION	2.00 x 2.00 x 7.00 m	28.00 m^3
6	DISTRIBUTOR	2.00 x 4.00 x 7.50 m	60.00 m^3
7	BIOLOGICAL OXIDATION	53.00 x 8.90 x 7.00 m	3301.90 m^3
8	CLARIFIER FEEDING TANK	2.00 x 2.65 x 7.00 m	37.10 m^3
9	CLARIFIER	4.70 x 4.70 x 7.00 m	154.63 m^3
10	RETURN SLUDGE TANK	2.00 x 1.65 x 7.00 m	23.10 m^3
11	SLUDGE THICKENER	1.50 x 7.10 x 5.00 m	53.25 m^3

Wastewater Drain:

A nearby 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:

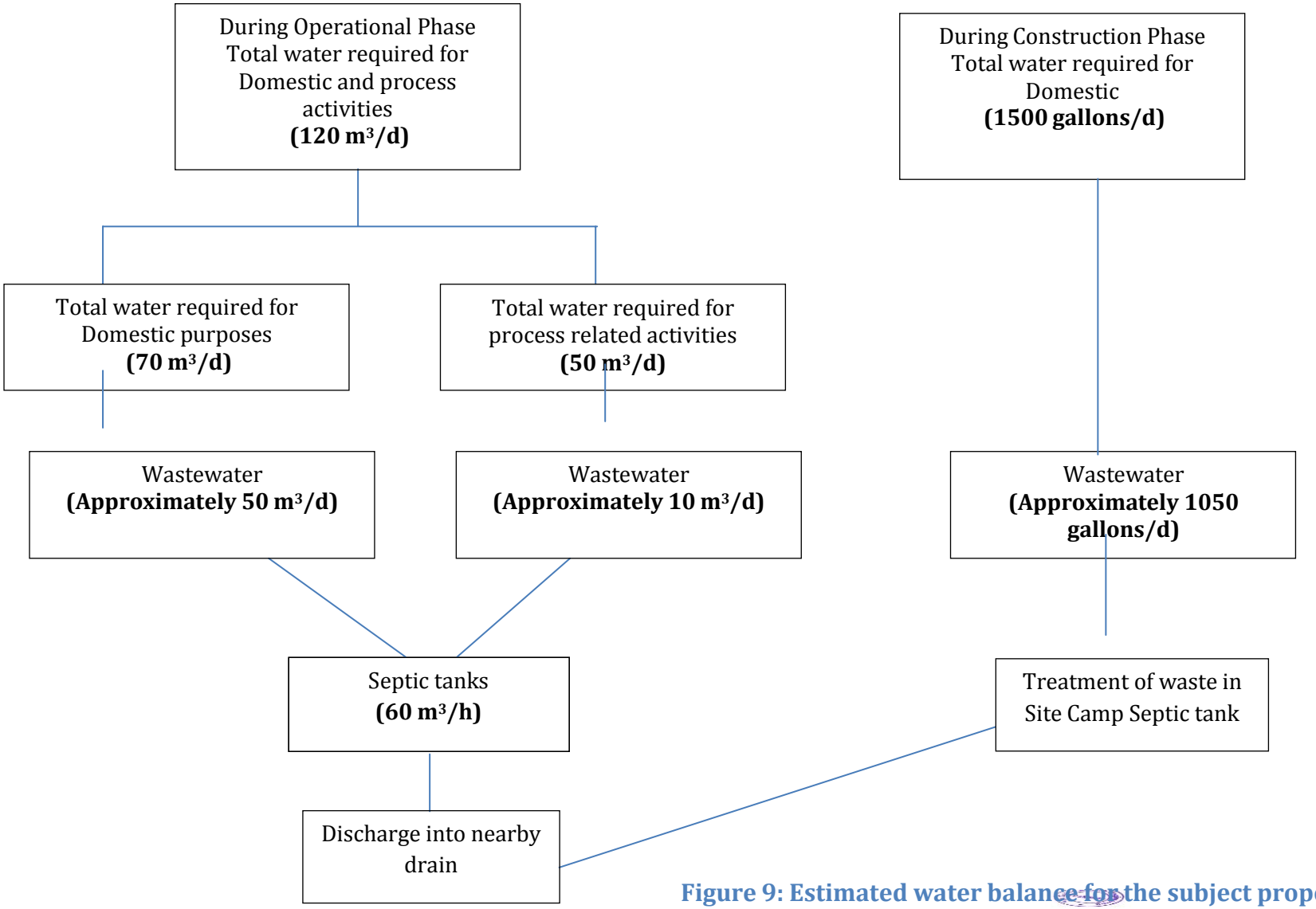


Figure 9: Estimated water balance for the subject proposed project

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. 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:

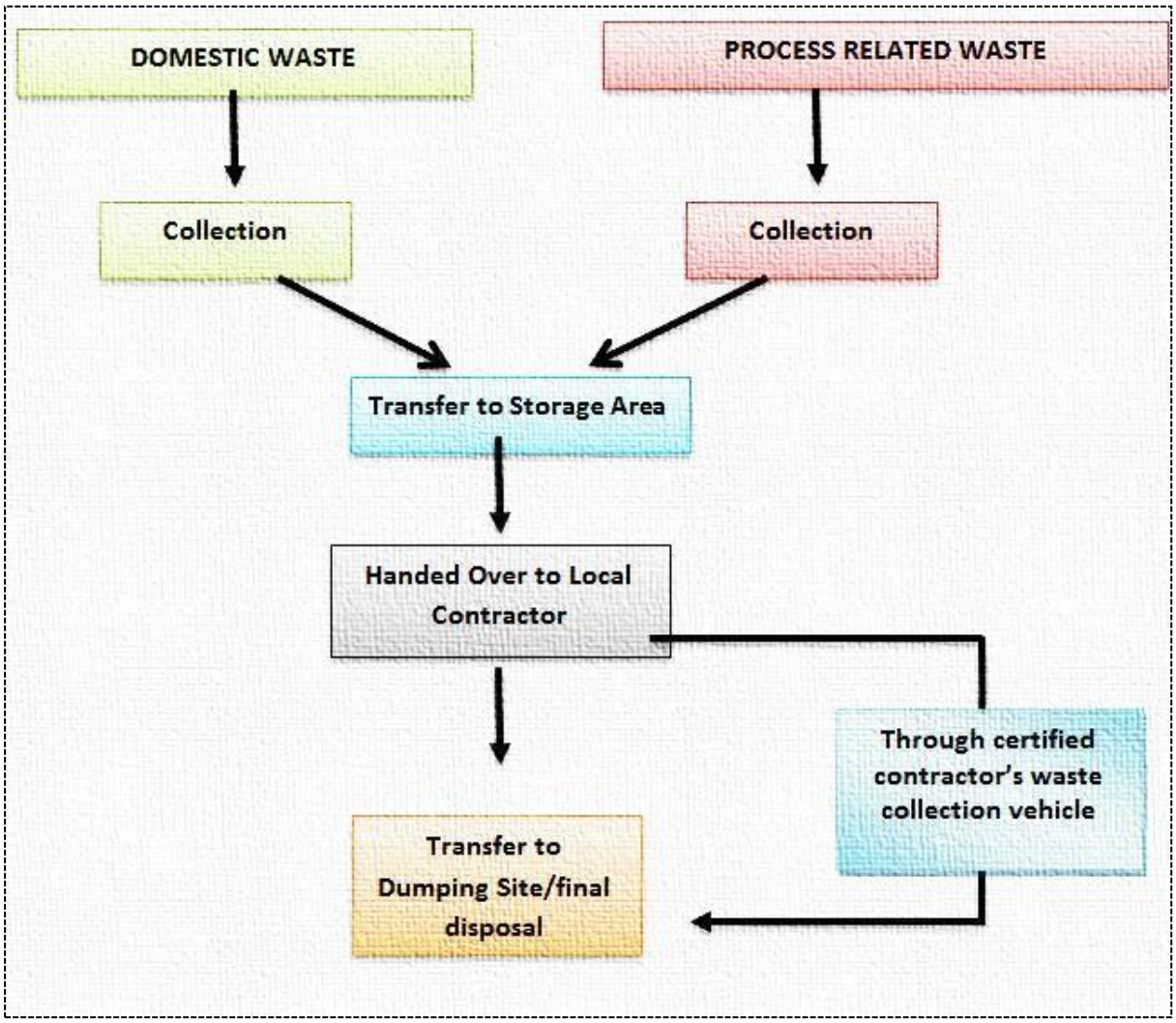


Figure 10: Solid Waste Management Plan

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

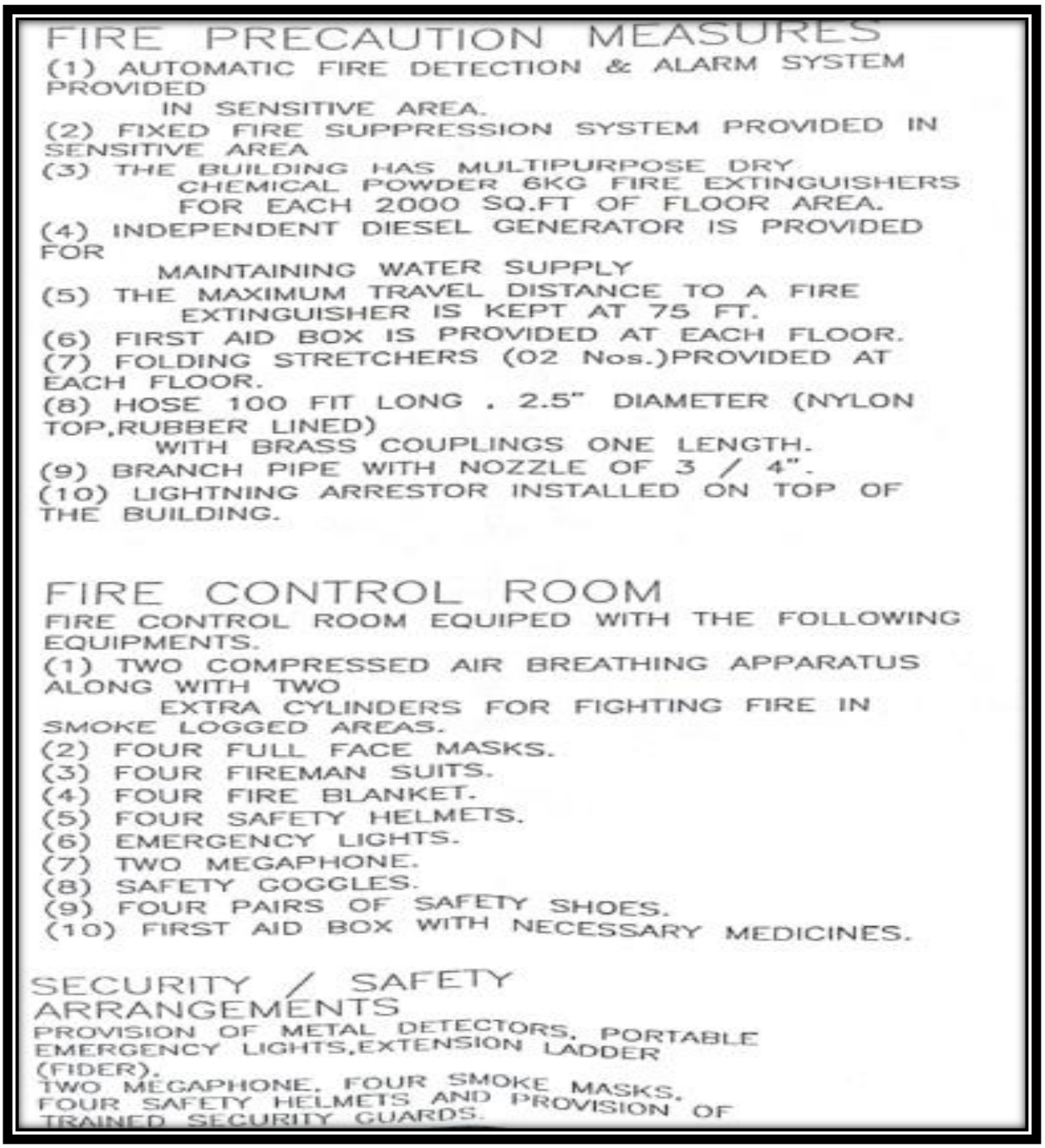
Types of PPEs used during construction and Operational activities

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.**



FIRE PRECAUTION MEASURES

(1) AUTOMATIC FIRE DETECTION & ALARM SYSTEM PROVIDED IN SENSITIVE AREA.
(2) FIXED FIRE SUPPRESSION SYSTEM PROVIDED IN SENSITIVE AREA
(3) THE BUILDING HAS MULTIPURPOSE DRY CHEMICAL POWDER 6KG FIRE EXTINGUISHERS FOR EACH 2000 SQ.FT OF FLOOR AREA.
(4) INDEPENDENT DIESEL GENERATOR IS PROVIDED FOR MAINTAINING WATER SUPPLY
(5) THE MAXIMUM TRAVEL DISTANCE TO A FIRE EXTINGUISHER IS KEPT AT 75 FT.
(6) FIRST AID BOX IS PROVIDED AT EACH FLOOR.
(7) FOLDING STRETCHERS (02 Nos.)PROVIDED AT EACH FLOOR.
(8) HOSE 100 FIT LONG , 2.5" DIAMETER (NYLON TOP,RUBBER LINED) WITH BRASS COUPLINGS ONE LENGTH.
(9) BRANCH PIPE WITH NOZZLE OF 3 / 4".
(10) LIGHTNING ARRESTOR INSTALLED ON TOP OF THE BUILDING.

FIRE CONTROL ROOM

FIRE CONTROL ROOM EQUIPED WITH THE FOLLOWING EQUIPMENTS.
(1) TWO COMPRESSED AIR BREATHING APPARATUS ALONG WITH TWO EXTRA CYLINDERS FOR FIGHTING FIRE IN SMOKE LOGGED AREAS.
(2) FOUR FULL FACE MASKS.
(3) FOUR FIREMAN SUITS.
(4) FOUR FIRE BLANKET.
(5) FOUR SAFETY HELMETS.
(6) EMERGENCY LIGHTS.
(7) TWO MEGAPHONE.
(8) SAFETY GOGGLES.
(9) FOUR PAIRS OF SAFETY SHOES.
(10) FIRST AID BOX WITH NECESSARY MEDICINES.

SECURITY / SAFETY ARRANGEMENTS

PROVISION OF METAL DETECTORS, PORTABLE EMERGENCY LIGHTS,EXTENSION LADDER (FIDER).
TWO MEGAPHONE, FOUR SMOKE MASKS, FOUR SAFETY HELMETS AND PROVISION OF TRAINED SECURITY GUARDS.

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 Tapal Tex Private 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 2.5 MW which will be fulfilled by WAPDA and Standyby Gas generators 1.6MW each.

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

CONSIDERATION 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.

From the point of view of locating an industry the features, which are considered extremely important, are:

- Availability of suitable land.
- Availability of required utilities and infrastructure
- Road access to the site for easy transportation of materials and finished goods.
- Optimum investment requirement for the development of the infrastructure.

3.4.1 Do Nothing Alternative

Do-nothing alternative is not feasible due to the following reasons

- The proponent acquire the possession of plot in Designated Industrial Estate and wants to establish this unit
- Withdraw the opportunity of employment for the locals.

However, do nothing alternative means no environmental pollution and no health and safety risks.

3.4.2 Technology Alternatives

The best available Non-Woven Spunlace manufacturing technology will be used in the project manufacturing process which possesses less environmental impacts. Internationally manufactured machinery will be used & it will be the state of the art latest machinery 1st of its kind in Pakistan. The technology being offered by TAPAL TEX PVT LTD (NON-WOVEN SPUNLACE FABRIC MANUFACTURING UNIT) is considered to be 'state of the art' in terms of being environment friendly, energy efficiency and modern plant & process design for similar capacity vehicle assembly plants.

The non-woven spunlace manufacturing project will use one of the Best Available Technologies (BAT) defined for similar industry.

3.4.3 Site Alternative

The Project is located on PLOT NO.47, PHASE-II, FIEDMIC M-3 INDUSTRIAL ESTATE, FAISALABAD. The Project will be subjected to all incentives applicable to an industrial zone.

The said unit site is located in an area which is devoid of any biodiversity including forestry, wildlife, migratory birds, game reserves (flora and fauna), or protected species of fauna & flora; fishery or aquatic biology; watershed. There is no cultural or any other heritage in the project area. Agriculture and labor is the major source of income for the people of nearby villages. Summarily, there is no environmental sensitivity in the project area. These factors are also strongly supportive of the proposed project site.

The proposed location was determined to be the most convenient location in proximity to the market and domestic supply chain. The proposed site has least environmental & social impacts.

3.4.4 Current Project Option

An economic need for NON-WOVEN SPUNLACE FABRIC MANUFACTURING facility in the country was identified to the growing market given the trend in consumption of products against the current ability of country to supply. TAPAL TEX PVT LTD has all the experience of such industry and wants to invest in the same. The commencement of the current project will not only help in meeting the growing demand of Non-Woven Spunlace Fabric Manufacturing .

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

- **Physical resources topography, soils, climate, surface water, ground water, geology;**

This chapter contains a brief description of the prevailing environmental state of the area. The main components of the environment include physical resources, ecological resources, cultural resources and socio-economic conditions of the area.

A comprehensive detail of each is given below:

1. Physical Environment

An account of different components of the physical environment of the area is given hereunder:

Topography

of Faisalabad is bound by Chiniot and Hafizabad districts on the North and by Sahiwal and Toba Tek Singh on the South, while on East it is surrounded by Nankana Sahib and to the west Jhang is located. On the Northern side Sheikhupura and Lahore are also present and Okara occupies its South-Eastern side. The aforesaid project includes the installation of non-woven spunlace manufacturing unit by M/s Tapal Tex Pvt Ltd in Faisalabad.

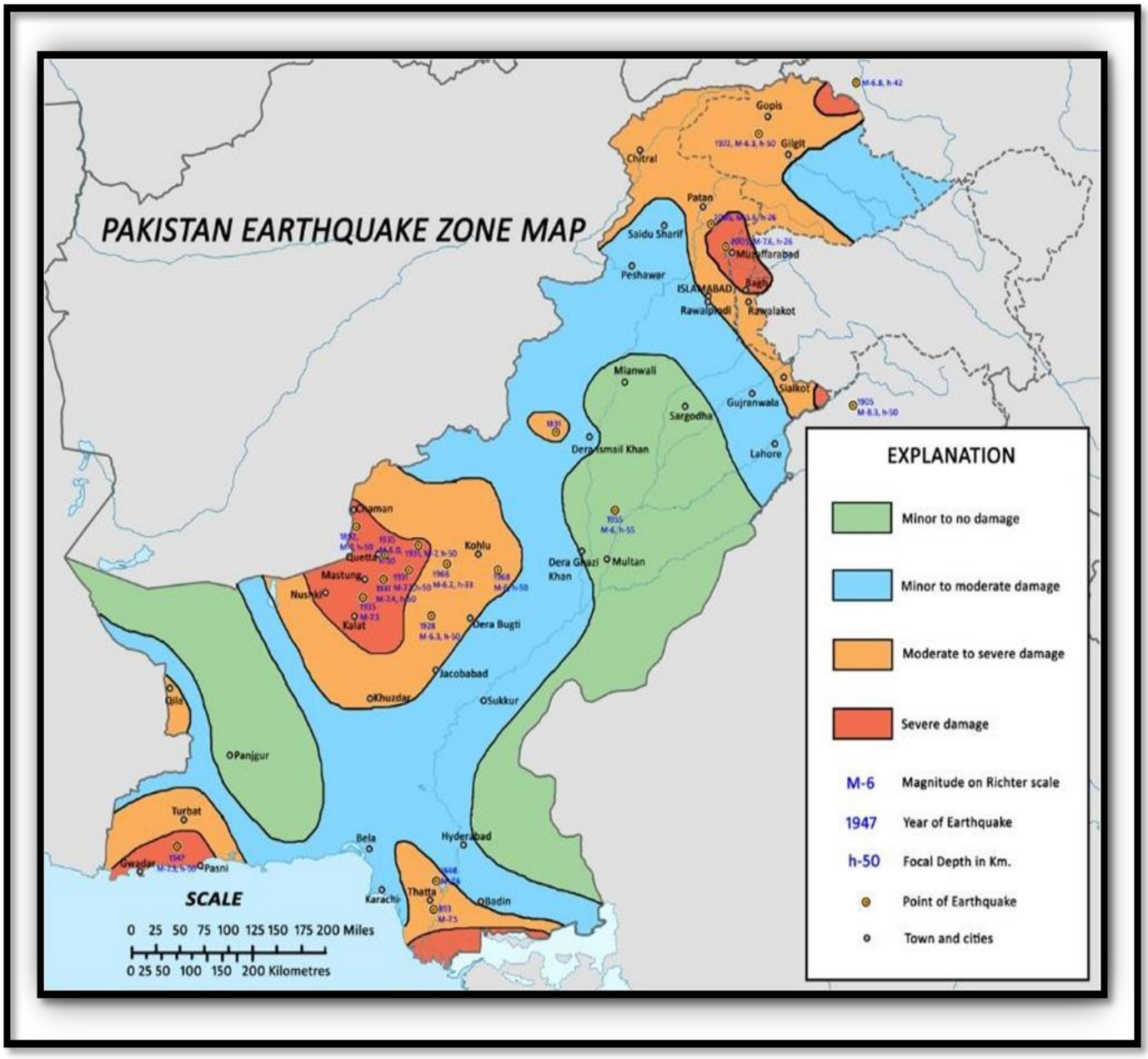
I. Topography and Geology

Faisalabad stands in the rolling flat plains of Northeast Punjab, between longitude 73.12600204 East and latitude 31.48099009 North. The City covers an area of approximately 1,230 km^2, while the district covers more than 16,000 km^2. The soil of Faisalabad comprises alluvial deposits mixed with loess having calcareous characteristics, making it very fertile. The topography of the selected project site is flat. The coordinates of the site are; **31°31'19.61436"North** and **73°14'31.22664"East.**



I. Seismicity

According to Seismic Zoning of Pakistan, the project area lies in Zone 1 of Modified Mericalli (M.M.) scale and represents minor damage in the past due to the Earthquake. Distant earthquakes may cause damage to structures with fundamental period greater than 1.0 second, corresponds to intensity V and VI of the M.M scale (National Disaster Management Authority). The seismic zoning of Pakistan is given below in Figure 10 below:



Seismic Zoning of Pakistan

II. Agriculture and Cropping Pattern

In district Faisalabad, crops that are cropped during various seasons includes; wheat, fodder, sugar-cane, rice and potatoes. Due to aforesaid project establishment agricultural crops will not be impacted as the selected site is located in industrial area. To keep the impacts within acceptable limits trees will be planted in designated green areas.

III. Meteorology

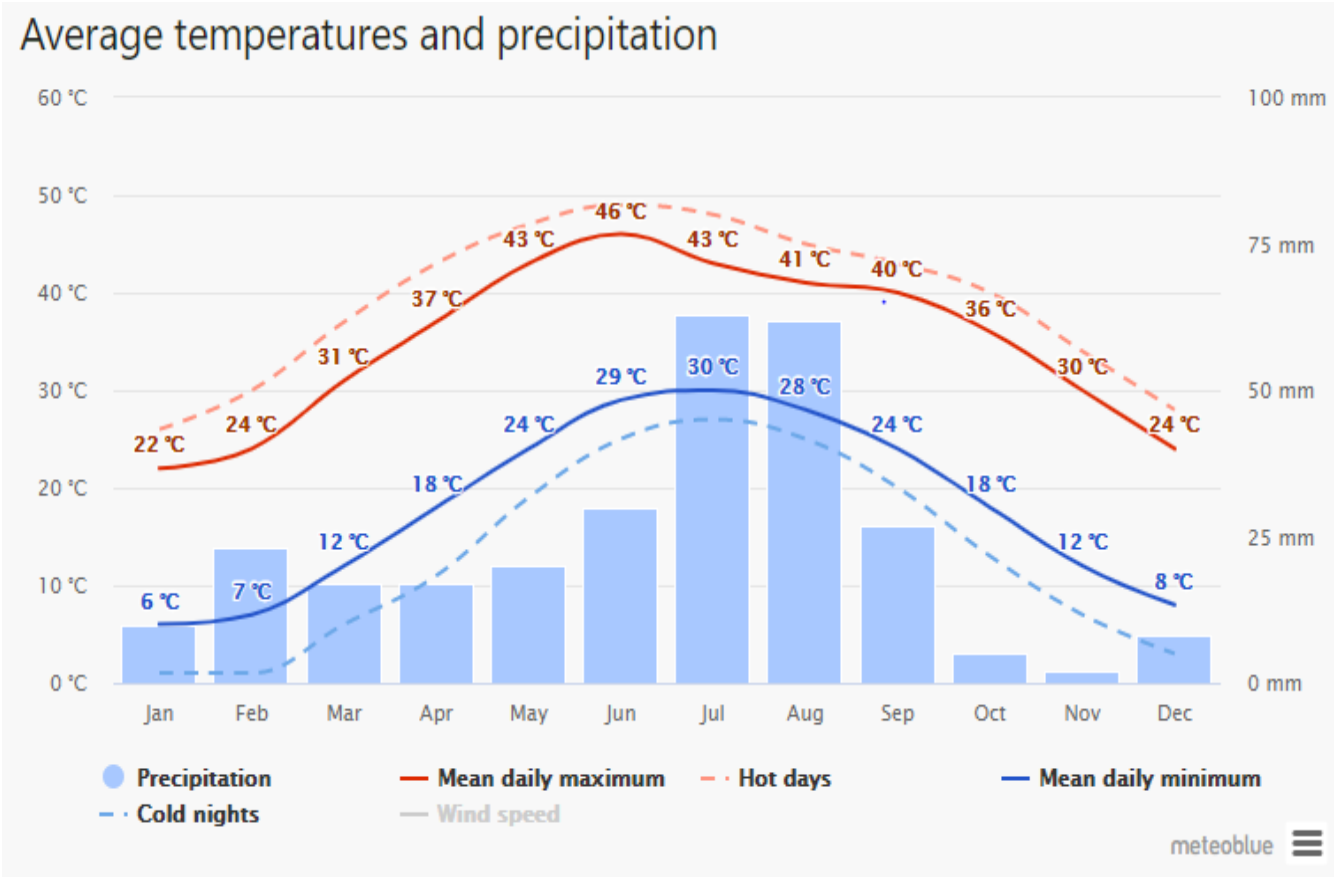
Due to its high evaporation rate, Faisalabad features hot desert-like climatic conditions according to Köppen-Geiger classification. The climate of the district can see extremes, with a summer maximum temperature **44°C** and a winter temperature of **4.0°C**. The mean maximum and minimum temperature in summer are **43.5°C** and **18.0°C** respectively. In winter it peaks at around **19.4°C** and **4.1°C** respectively. The summer season starts from April and continues till October. May, June and July are the hottest months. The winter season starts from November and continues till March. December, January and February are the coldest months. "The bulk of monsoon precipitation occurs in July and August, with monthly averages of **115.0 mm** and **89.8 mm** respectively. Minimum rainfall occurs in the month of November which is **3.0 mm**" (PMD).

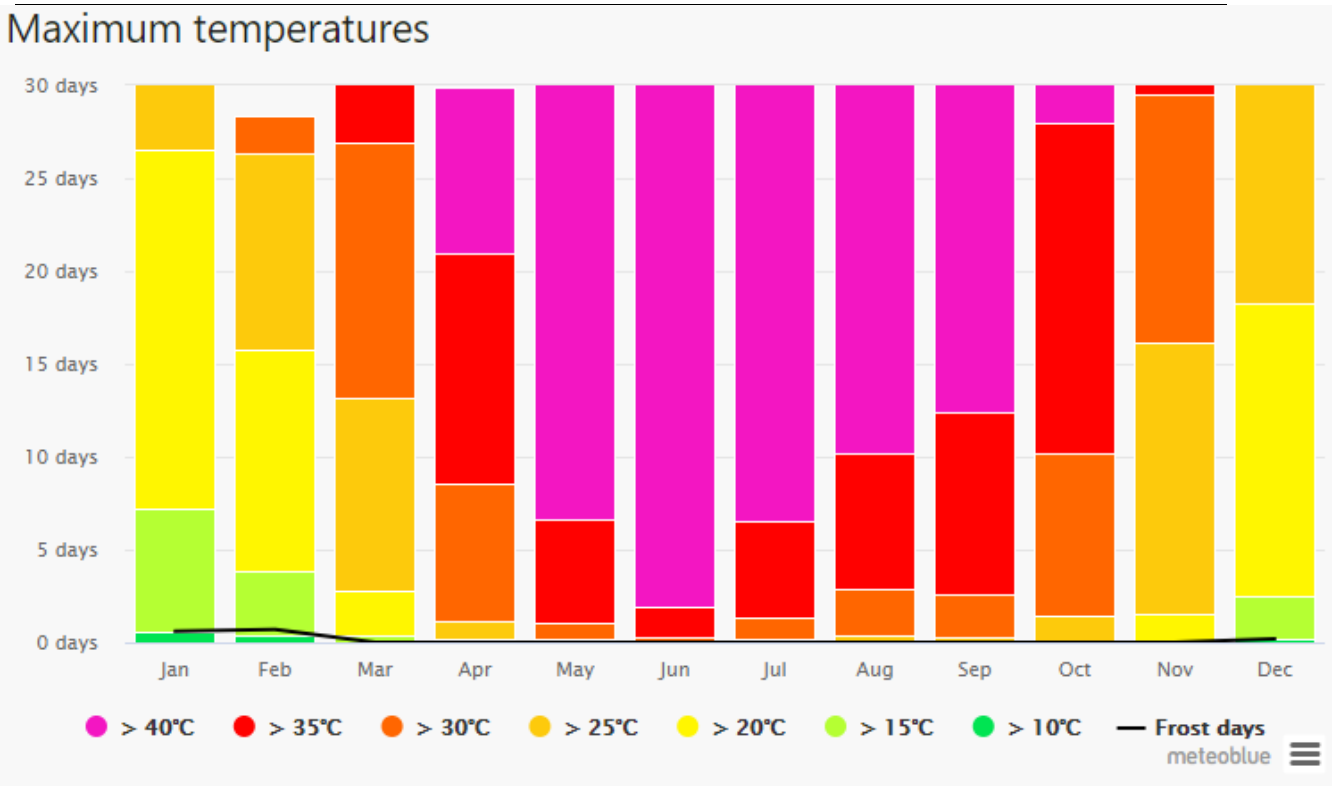
Table 6: Mean Temperature and Precipitation[1]

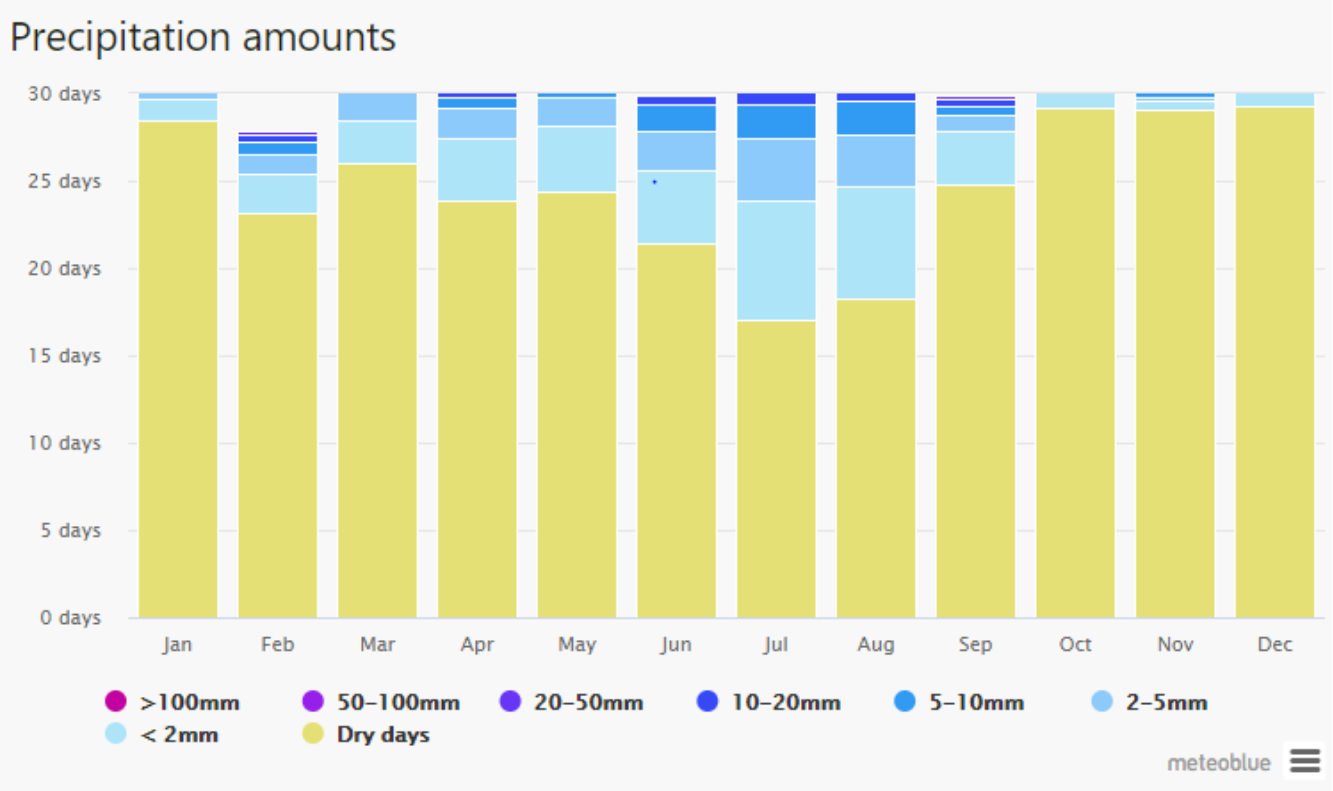
Month	Mean Temperature		Precipitation (mm)	Relative Humidity
	Maximum	Minimum		

Source: Pakistan Meteorological Department, 2018

				(%)
January	19.4	4.1	11.5	66.0
February	21.9	7.1	20.1	61.2
March	26.7	12.3	25.7	58.2
April	33.5	18.0	16.9	46.5
May	38.4	22.7	16.1	37.5
June	43.5	31.8	27.9	1.7
July	42.1	32.4	115.0	61.5
August	38.1	26.6	89.8	65.9
September	35.7	23.7	28.6	59.9
October	33.0	17.1	3.8	54.7
November	27.2	10.3	3.0	62.7
December	21.4	5.1	8.6	66.5
Annual (Average)	**31.2**	**17.6**	**372.3**	**56.6**







The precipitation diagram for Faisalabad shows on how many days per month, certain precipitation amounts are reached. In tropical and monsoon climates, the amounts may be underestimated.

Surface Water Quality

No surface water body/reservoir is located within 2 km of study area. No impact is being envisaged due to said project installation.

6.2 BASELINE BIOLOGICAL ENVIRONMENT

The biological environment consists of the flora and fauna present at the study as well as project area. The detail of each parameter is given below.

I. Flora

Currently, the remnants of the ***Tropical Throne Forest*** are present at some regions of the City. In Faisalabad the green zones are very less, native species are present but in a scares condition. The ornamental plants and tree had been planted at the boundaries of the various residential societies present in vicinity of project area. The detail of the tree species present in the study area is given in **Table 7**:

Table 7: Vegetation Features of Project Area

Sr.#	Local Name	Biological Name
1	Gold Mohar	*Deloxin regia*
2	Sukh Chain	*Pongamia globra*
3	Neem	*Azadircuhta indica*
4	Sheesham	*Dalbergia sissoo*
5	Beri	*Ziziphus mauritiana*
6	Farash	*Tamarix aphylla*

II. Fauna

The fauna consists of mammals, birds, reptiles and amphibians. Currently, the study area is having few species of the fauna such as; Jungle Cat (*Felis chaus*), Field Mouse (*Mus musculus*), and Soft Furred Rat *(Millardia mettada).* These species are considered as the pests present in the area due to the agricultural activities in the project area proximity. Reptiles mainly includes; snake and Tree Lizard *(Calotes versicolor).* Only amphibian reported in the City is Bullfrog *(Hoplobatrachus).* The Birds species includes; Common Crow *(Corvus splendens),* House Sparrow *(Passer domesticus)* and King Crow *(Passer domesticus).* Due to the installation of said dying unit at said location in District Faisalabad no adverse impact is envisaged on fauna.

III. Endangered Species

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

IV. Archaeological Sites or Wetlands

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

6.3 BASELINE SOCIO-ECONOMIC ENVIRONMENT

Faisalabad is the third-most-populous city in Pakistan and it is the second-largest in the eastern province of Punjab. Historically, one of the first planned cities within British India, it has long since developed into a cosmopolitan metropolis. The total area of Faisalabad District is 5,856 km^2 while the area controlled by the Faisalabad Development Authority (FDA) is 1,280 km^2 Faisalabad has grown to become a major industrial and distribution center because of its central location in the region and connecting roads, rails and air transportation. It has been referred to as the "Manchester of Pakistan". Faisalabad's GDP in 2013 was $43 billion (USD). The average annual GDP of Faisalabadis $20.5 billion calculated by averaging GDP projections from 2015 to 2025.

I. Population

According to census 2017 total population of District Faisalabad is 7873910. Total population

males are 4034515, female is 3838854 and Transgender are 541. An average annual growth rate is 1.97 from 1998 to 20172. Other features are shown below:

2 *http://www.pakinformation.com/population/faisalabad.html*

Table 8: Demographic Profile of Faisalabad

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

II. Religious Setup

Islam is the common heritage in the region with a **97.22%.** Muslim majority according to the 1998 Pakistan census report and 2001 population data sheet. Islamic influences are evident in the fundamental values of various inhabitants including; cultural traditions, marriage, education, ceremonies and policies with may reflect stark differences in rural villages as compared to urban area

III. Industrial Setup

Faisalabad contributes over **05%** toward Pakistan's annual GDP; therefore, it is often referred to as the "Manchester of Pakistan". Faisalabad's average annual GDP is **$20.55 billion (USD)** of which **21%** comes from agriculture. The surrounding countryside, irrigated by the lower Chenab River, produces agricultural commodities such as; cotton, rice, sugarcane, wheat, fruit and vegetables. It is a producer of industrial goods and textile manufacturing including; cotton and silk textiles, super phosphates, hosiery, bleach, industrial chemicals, clothing, pulp and paper, printing, agricultural equipment, ghee (clarified butter), and beverages.

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

Faisalabad is recognized as the center of the textile industry in Pakistan, contributing to half of Pakistan's total textile shipments. At the end of June 2012, Textiles employed **20%** of the nation's workforce and generated **1.3 trillion rupees ($13.8 billion)** in textileproducts, most of which were exported to the US and Europe. While Punjab's economy is driven primarily by agriculture, the textile industry along with leather products and lightengineering goods play an important role, with more than **48,000** industrial units spread across Punjab. In an effort to boost bilateral trade, Romania and Turkey have honorary- consulates in Faisalabad which enable trade links with the

city.

IV. Healthcare Facility

Healthcare services are provided to the citizens by both public and private sector hospitals. The government–run hospitals are; THQ Hospital (Chak Jhumra), Tehsil Headquarter Hospital, Social Security Hospital, ABWA Hospital & Research Center, Faisalabad International Hospital, Mian Muhammad Trust Hospital, Prime Care, Saahil Hospital. Moreover, there are a number of private hospitals, clinics and laboratories in the Faisalabad City.

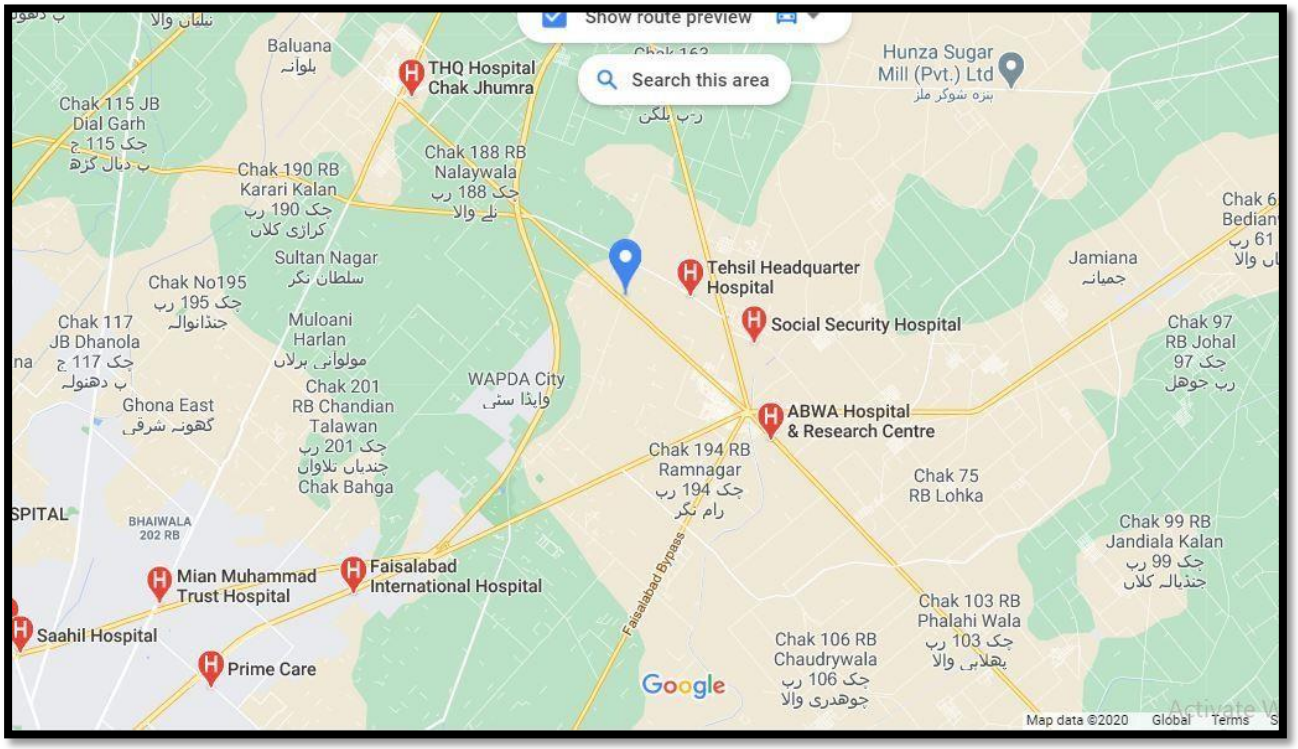


Figure 11: Nearby Healthcare Facilities

V. Educational Facilities

Faisalabad has several research and educational institutions, both public and private, such as; the University of Agriculture, Government College University Faisalabad, National Textile University, Nuclear Institute for Agriculture and Biology and Universityof Faisalabad. In 2014, the University of Agriculture ranked 1st in agriculture and 4th overall for universities in Pakistan according to the Higher Education Commission of Pakistan (HEC) and was ranked 142 in the 2013 Top 200 World Universities for agriculture and forestry by Quacquarelli Symonds (QS).

In 2013, Faisalabad's literacy rate of 46% for females was noticeably lower than the 69% for males; rural literacy was 49% compared to 74% in urban areas.

Following schools are present in project area vicinity; Govt. Primary School, Govt. Girls Elementary School, Government High School, Kidz Castle School, Concept Group of School and College, Govt. Elementary Boys School, Ali Garh School System, etc.

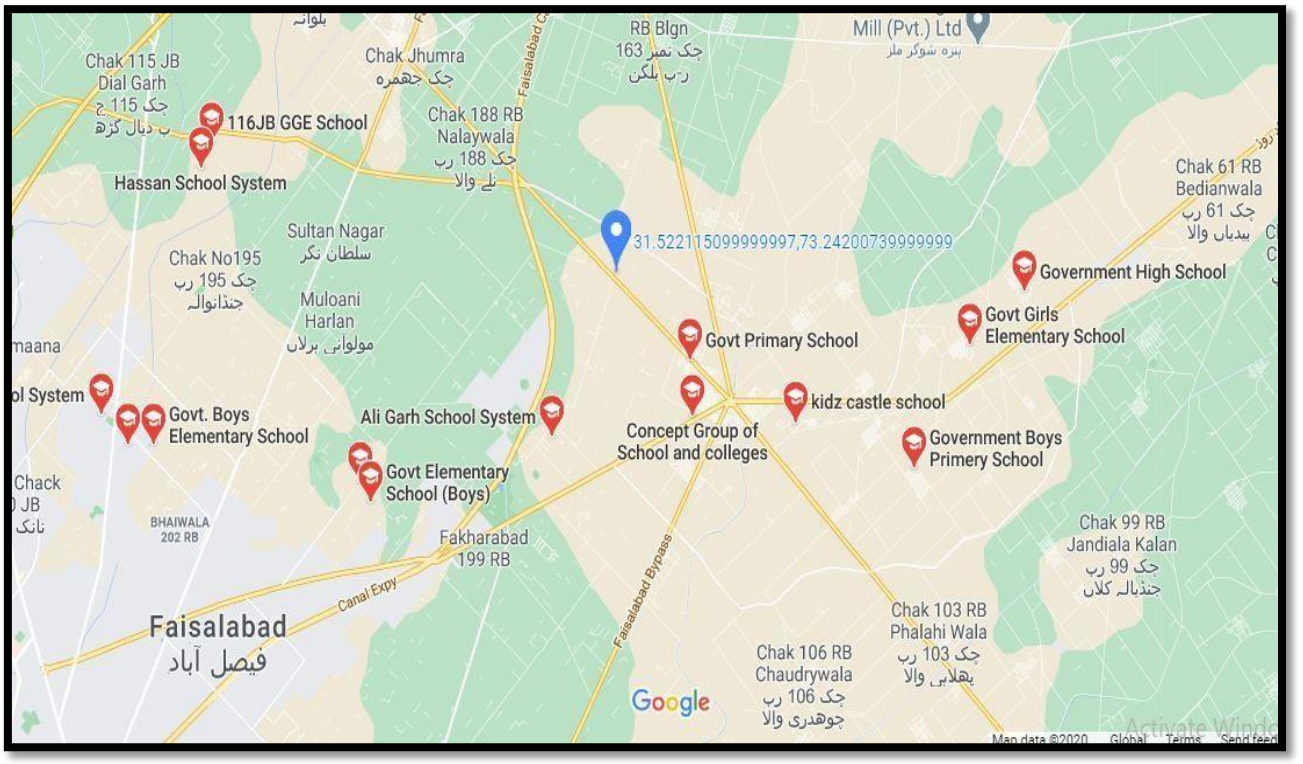


Figure 12: Nearby Schools

In project area vicinity following colleges are present:

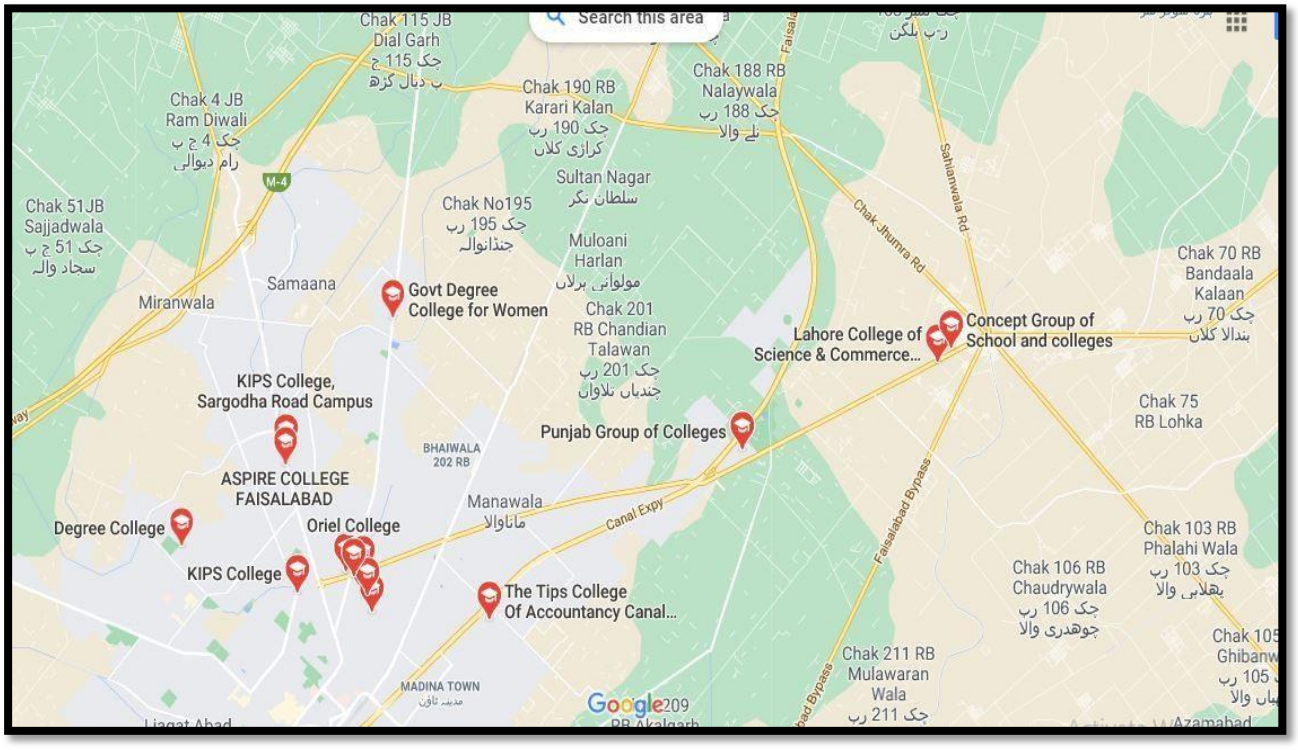


Figure 13: Nearby Colleges

6.4 LAB REPORTS OF ENVIRONMENTAL ANALYSIS

M/s Global Environmental Laboratory (GEL) was engaged to carry out environmentalmonitoring of ambient air quality, ground water quality, noise level and particulate

matter concentration in the project area. Laboratory analysis reports of ambient air quality, ambient noise and surface water analysis results are annexed at **Annex-IV** of thisEIA Report and the detail information related to the testing results is given below:

I. Sampling Sites

The sampling was carried out at the project site which is identified to collect samples of water, noise and air for testing according to the testing guidelines of Punjab-EPA. It also defines number of samples and the site from where samples were collected.

Table 9: Sampling Sites Details

Sr#	Particulars	Details
1	Number of Samples	03 (Three)
2	Parameters of Monitoring	Ambient Noise, Ambient Air and Ground Water Quality
3	Sampling Sites	01 (One)

II. Ambient Air Quality

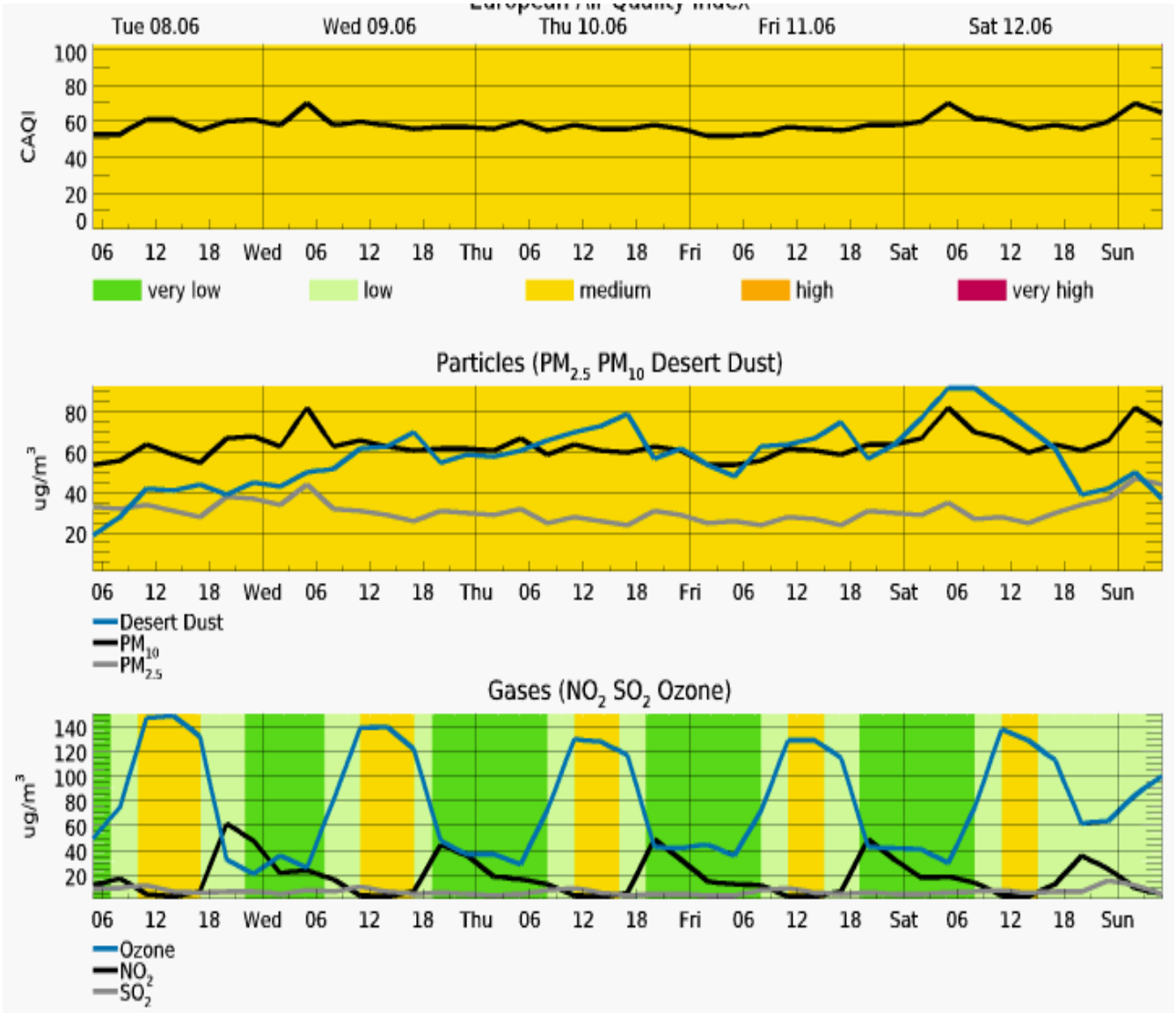
The atmosphere of Faisalabad City is considered to be un-healthy due to the large number of the industries present in the City. The cause of the visual pollution is dust and smoke being generated from industrial processing, brick-kilns and construction related activities. Another reasons for pollution is vehicular movement, existing poor road conditions and passageways huge quantity of suspended particulate matters is released into the environment. It is envisaged that the project will not cause any pollution problem in the area.

The primary source of air pollution at the project sites is the vehicular emissions, industrial processing and the key pollutants likely to be found at project locations are; Carbon Monoxide (CO), Oxides of Nitrogen (NOx), Sulphur Dioxide (SOx), and Particulate Matter (PM). In order to determine the air quality of the area, Laboratory had the requisite air sampling device and expertise for collection of samples. Sampling of the air was carried out and the reports of ambient air quality are attached at **Annex-IV** of thisEIA Report. Ambient air qualities of the project area monitored are given below:

Table 10: Ambient Air Quality

Sr#	Source	CO	SO_2	NO_2	NO	PM $_{10}$	PM $_{2.5}$	O_3
Units		*mg/m3*	*ug/m3*	*ug/m3*	*ug/m3*	*ug/m3*	*ug/m3*	*ug/m3*
PEQS		**10**	**120**	**80**	**40**	**150**	**35**	**130**
Project Area		0.98	22.9	28.37	25.07	113	33.45	14.03

The results of the ambient air quality monitoring showed that all the parameters are within the PEQS limits.



III. Noise

Noise level of the project area was monitored at project site using digital sound level meter and results of the monitoring are given below in **Table 11** and attached as **Annex- IV.**

Table 11: Noise Level Monitoring

Sr#	Source	Units	PEQS	Conc.
1	Project Area	db (A)	75	51

IV. Water Resource

Ground water is the principal source of municipal water supply in Faisalabad City. The City's drinking water is obtained from groundwater aquifer by means of tube wells located throughout the area. Ground water samples were collected from project area from the depth of 120-150ft. Water samples were tested for physio-chemical parameters (Temperature, pH, TDS, EC, Color, Odor, and Taste). The water quality of the project area is given below:

Table 12: Water Quality Results

Sr#	Parameters	Units	Concentrations	WHO Standards
1	pH value	----	7.1	6.5-8.5
2	**TDS**	**mg/l**	**4153**	**1000**
3	Taste	----	Not-Objectionable	Not Objectionable
4	Odor	TON	Not-Objectionable	Not Objectionable
5	Color	Pt/Co	Nil	<15
6	**Total Hardness**	**mg/l**	**712.0**	**500**
7	Turbidity	<5 NTU	0.32	----
N.S.=No Standard, ND= Not Detected, mg/l = milligram per liter				

The results of the groundwater analysis showed that all the parameters were within the limits prescribed in WHO guidelines except Total Dissolve Solids (TDS) and Hardness.

SUITABILITY OF THE SITE

As the site is surrounded by various other industrial activities and no relocation is required for establishment of current project. The site do no fall in environmental sensitive area and all commodities are at a suitable distance from project site as they will not impacted by the construction activities even locals will get more benefits and job opportunities. No replacement, relocation and rehabilitation is required for the development of above-said project.

Favor for the Project

Respondents were inquired about their views regarding the said project. Almost 83% respondents of were in favor of the aforesaid project commencement as establishment of the said project will provide the job opportunity to the locals and itwill help in earning the foreign exchange.

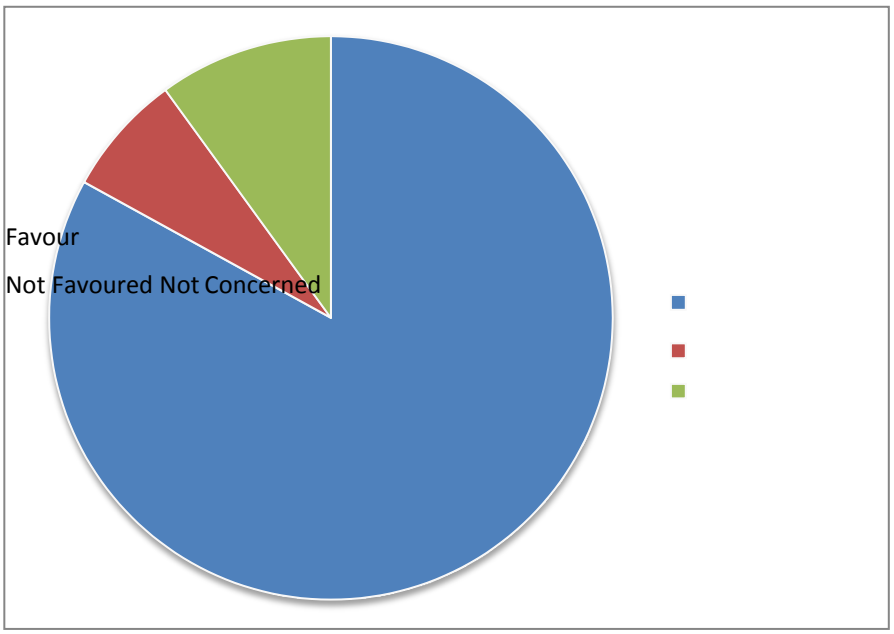


Figure 14: Project Acceptance Level

Common Diseases

Respondents were asked about the common diseases prevailing within their area. Majority of the respondents suffered from diarrhea, cough, diabetes and hypertension. Hepatitis also prevailed in the few communities.

Community Issues

Community was asked about the burning issues they are facing. Majority of the respondents complained about lack of safe drinking water and lack of the job opportunities.

4. Quality of Life Values

If we specifically talk about the project area then majority of the people has to adopt seasonal occupation to supplement their income due to low-income level and inconsistent income opportunities. Majority of the people are working as labors and many do their own common business (shopkeepers). The locals of this are provided with basic facilities like electricity, roads, transport etc. but are disorganized and mismanaged. If we talk about educational facilities then education up to matric level are available in almost all the localities and are easily approachable. The proper health care facilities are present in the area for both male and female population. Open and level fields of the localities are

used as playgrounds by the youth. Urs and Melas are playing a vital role to provide some recreational opportunities to the locals.

It was observed that being the members of a typical/traditional blend of rural and urban community, almost all the old people are very conservative in their life style. People practice their traditional, social and cultural values strictly in all walks of life. The joint/extended family system is generally prevailing among people of the whole area; however, nuclear family system is also observable in the area.

5. Lab Reports of Environmental Analysis

Testing of different parameters has been done by proponents. The copies of lab reports of different environmental parameters are given in annexure.

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.

IMPACT ASSESSMENT METHDOLOGY:

This section discusses the potential environmental impact for the establishment fabric non-woven spunlace manufacturing unitby M/s Tapal Tex Pvt Ltd. The impacts may include; soil contamination, water resources depletion, biological resources disturbance and socio-economic impacts and, where applicable, identifies mitigation measures that will reduce significantly, if not eliminate, its adverse impact. The assessment carried out in this Section is based on potential impacts on overall environmental receptors within the project area.

Objectives

The objective of screening is identification of the adverse as well as beneficial impacts and then mitigating the effect of adverse impacts up to acceptable limits or within PEQS. Following are the objectives of screening out all significant environmental and social impacts:

- To find different alternatives and ways of carrying out the project activities, this may cause adverse environmental and social impacts on the surroundings.
- To enhance the Environmental and Social benefits of project.
- To avoid, minimize and remediate adverse impacts.
- To ensure that residual adverse impacts are kept within acceptable limits.

In the sub-sections below the impacts assessment methodology for the operation ofabove stated project at PLOT NO.47, PHASE-II, FIEDMIC M-3 INDUSTRIAL ESTATE,has been defined. It includes the magnitude, the extent of the impact and the nature of the anticipated impact that is likely to be occurred from the proposed project activity.

Methodology

This Section discusses the project's potential environmental impact of establishment of Non-woven spunlace manufacturing unit. The adverse impact may occur on; the area's geomorphology, soil, water resources, air resource, biological resources and socio-economic condition and where applicable, identifies mitigation measures that will reduce significantly, if not eliminate, its adverse impact. The assessment carried out in the sub-sections below is based on potential impacts on overall environmental receptors within the project area. Impacts are evaluated on the basis of magnitude, immediacy and sustainability.

Evaluation of the Residual Impacts

Incorporation of suggested mitigation measures may reduce the magnitude of the environmental impacts of above stated project but sometimes, it may fail in bringing them within the acceptable limits. This step refers to the identification of the anticipated remaining impacts after mitigation measures have been applied.

It can be concluded in view of these reasons that the selected site is best suited for the project and the technology adopted for the production of passenger vehicles. The said project will not pose any adverse impact or threat on any component of the environment. The impact assessment criteria are given below along with their impacts:

Table 13: Impact Significance Criteria

Impact	Criteria
No Impact	When the proposed activity will have no impact
Long Term	When the impact is of high intensity with high spread and high duration or of high intensity with medium spread and medium
Moderate Term	When the impact is of moderate intensity with high spread and high duration or of high intensity with low/ moderate spread and low
Short Term	When the impact is of low intensity but with moderate spread and moderate duration or of moderate intensity
Insignificant	When the impact is of low intensity, low spread and low duration
Adverse	When the impact is of large intensity, spread easily and long-term
Beneficial	When the impacts are positive and improve the environmental

Table 14: Impact Matrix Checklist for Designing Phase

Environmental Sensitivities	Intensity of Impact						Impact Nature		Impact Significance				
	Low Intensity	Moderate Intensity	High Intensity	Local	National	Regional	Beneficial	Adverse	Insignificant	No Impact	Short Term	Moderate	Long Term
Physical Parameters													
Topography													
Land Acquisitions													
Seismicity													
Biological Parameters													
Land Environment													
Flora													
Fauna													
Social Parameters													
Local Economy													
Social Impacts													

Table 15: Impact Matrix Checklist for Construction Phase

Environmental Sensitivities	Intensity of Impact						Impact Nature		Impact Significance				
	Low Intensity	Moderate Intensity	High Intensity	Local	Moderate	Regional	Beneficial	Adverse	Insignificant	No Impact	Short Term	Moderate	Long Term
Physical Parameters													
Air Quality													
Noise													
Water Quality													
Biological Parameters													
Land Environment													
Flora													
Fauna													
Physical Parameters													
Local Economy													
Social Impacts													
Health & Safety													

Table 16: Impact Matrix Checklist for Operational Phase

Environmental Sensitivities	Intensity of Impact						Impact Nature		Impact Significance				
	Low Intensity	Moderate Intensity	High Intensity	Local	Moderate	Regional	Beneficial	Adverse	Insignificant	No Impact	Short Term	Moderate	Long Term
Physical Parameters													
Noise													
Water Quality													
Biological Parameters													
Land Environment													
Flora													
Fauna													
Physical Parameters													
Local Economy													
Social Impacts													
Health & Safety													

Identification of Monitoring Requirements

The last step in the assessment process is the identification of minimum monitoring requirements. The scope and frequency of monitoring depends on the residual impacts. The purpose of monitoring is to confirm that the impact is within the prescribed limits and to provide timely information if acceptable limits are being breached.

Methodology for Impact Evaluation

These tools have been used to identify the significance and magnitude of the impact as well as the nature, reversibility and extent:

- An Impact Screening Checklist
- Project Impact Evaluation Matrix

Following is given a brief description of assessment tools:

a. Impact Screening Checklist

The impact screening checklist is developed to screen out potentially insignificant environmental and social impacts from potentially significant adverse environmental and social impacts during planning & designing, construction and operational phases of the project. The objective of impact screening process is to assess the significance of issues related to the air, water, noise, soil, transportation, civil work, communication, the hazards and external constraints. The beneficial and adverse impacts of project during planning & designing, construction and operational phases are identified based on their duration, location, frequency, extent, significance and reversibility. The impact of each activity on various environmental parameters is given below:

Table 17: Characteristics of Impacts

Sr#	Environmental Component	Impact Characteristics												
		Duration		Location		Frequency		Extent		Significance			Reversibility	
		Long	Short	Direct	Indirect	Cont.	Intermittent	Wide	Local	Large	Moderate	Minor	Rev.	Irrev.
Beneficial Impacts														
1	Employment	◙		◙		◙			◙		◙		◙	
2	Export of finished goods	◙		◙		◙			◙		◙		◙	
3	Appreciation in Land	◙			◙	◙			◙			◙		◙
4	Tree Plantation	◙		◙		◙			◙		◙		◙	
Adverse Impacts														
1	Air Pollution		●	●			●		●			●	●	
2	Wastewater		●	●		●			●			●		●
3	Solid Waste and By-Products	●		●		●			●		●			●
4	Health and Safety		●		●		●		●			●		●
5	Chemical Hazards	●		●		●			●		●			●
6	Physical Hazards		●	●			●		●			●		●
7	Security Risks		●		●		●		●		●		●	

b. Project Impact Evaluation Matrix

The Project Impact Evaluation Matrix was developed by placing different environmental parameters that are likely to be affected by the proposed project actions, grouped into categories i.e., physical, ecological, socio-economic environment and hazards. For assessment of associated impact risk assessment methodology was used. Moreover, the risk assessment was done on the basis of project phases (planning & designing, construction and operation). A Project Impact Evaluation Matrix is attached as **Table 18** below:

Table 18: Impact Evaluation Matrix

Environmental Parameters	Impact Assessment during Different Phases	
	Construction	Operational
Planning and Designing		
i. Location	+2p	+2p
ii. Design	+1p	+1p
A: : Physical		
1. Land Resources		
i. Soil Erosion and Contamination	-2t	-2p
ii. Transportation	-1t	-1t
iii. Solid Waste and By-Products	-2t	-2p
iv. Land Use	NA	NA
2. Air Resources		
i. Noise Pollution	-1t	-1t
ii. Air Pollution	-1t	-1t
iii. Dust Emissions	-1t	NA
3. Water Resources		
i. Ground Water	-1p	-2p
ii. Surface Water	0	NA
iii. Wastewater	-1p	-2p
B : Ecological		
Flora		
i. Tree Cutting	-1p	+1p

Fauna		
ii. Terrestrial Fauna	NA	NA
C: Socio-Economic		
i. Employment Opportunities	+1t	+3p
ii. Land Value Appreciation	+1t	+2t
iii. Economic Uplift of Study Area	+1p	+3p
D: Hazards		
i. Physical Hazards	-1t	-1p
ii. Chemical Hazards	0	-1p
iii. Health and Safety	-1t	-1p
Legends: 1= Low; 2= Medium; 3= High; 4= Extremely High; NA= Not Applicable; t= Temporary; p= Permanent; app= Applicable; 0= Negligible		

8 SCREENING OF POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

General

This Chapter identifies the potential impacts (positive and adverse) on the physical, biological and socio-economic environment of project area due to the establishment of Non-woven spunlace manufacturing unit. It also identifies measures that will help to mitigate the adverse environmental and social impacts as well as it will enhance positive impacts of aforesaid project. Impacts are assessed by analyzing their magnitude and sensitivity, which is a legal requirement as discussed in **Chapter 0**7

Objectives

Objectives of screening all possible impacts and then providing their mitigation measures are:

- To find different alternatives and ways of doing the project activities.
- To enhance the environmental and social benefits of proposal.
- To avoid, minimize and remediate adverse impacts.
- To ensure that residual adverse impacts are kept in acceptable limits

Impact and Mitigation Management

Purpose of mitigation is to evade, reduce or balance the expected antagonistic effects in suitable way and to integrate these for devising environmental management strategy or plan. At every stage of project, mitigation plan for all the adverse impacts should be predicted to find out the best alternative. The objectives of mitigation are to:

- Invent of best substitution, better alternatives and ways to reduce the adverse environmental and social impacts in immediate surroundings.
- To improve the environmental and societal payback of project.
- To prevaricate, remedy/reduce and pro-vocative impacts.
- To certify that remaining negative influences are kept within permissible limits.

In this part of the EIA Report, a number of complications including; cleanliness, environmental health and safety, societal and environmental managing and inspection, industrial vulnerability, tools and apparatuses and during operational activities, influx of workers and procurement of land have been deeply elaborated.

Approaches for Mitigation Measures

Following approaches may be used to mitigate the impacts of the project:

Table 19: Approaches for Mitigation Measures

Avoid: Change of route or site details, to avoid damage important ecological or archaeological features.
Replace: Regenerate similar habitat of equivalent ecological value in different location.
Reduce: Filters, cyclones, noise barriers, dust, enclosures, visual screening, wildlife corridors and changed time of activities to reduce the impact.
Restore: Site restoration at the end of the operational activities.
Compensate: Relocation of displaced communities, facilities for the affected communities, financial compensation for the affected individuals, etc.

Expected Positive Impacts

Following are the expected outcome for installation of above stated project:

a) Increase in Employment Opportunities

Due to installation of aforesaid project, the employment opportunity will be slightly enhanced. During construction phase, 80-100 workers will be hired from local community include; skilled and un-skilled workers. During operational phase, approximately 550-600 persons will be required. It will include hiring of technical and non-technical staff. Locals will also have the opportunity to diversify their income by being employed. Hence, there will be an increased employment opportunity for the local people which will have a positive impact on the socio-economic status of the area.

b) Tree Plantation

At the end of the construction phase, 3-5 times of removed trees will be planted in the designated green areas, this will enhance the aesthetic beauty of the area.

c) Adverse Impacts and Mitigation Measures

This section identifies the potentially significant and in-significant adverseenvironmental and social impacts anticipated during the operation phase of said unit. Appropriate mitigation and management measures, where applicable, have also been suggested to reduce the severity of anticipated impact up to the extent possible.

8.1 Impacts and Mitigations due to Project Location and Design

During planning and designing phase most of the associated impacts will be associated with the selection of appropriate location and design that would have minimal impact on the environment and society. It will include:

i. Impacts of Location

The nearest residential community (Bhopal Nagar, Bilal Nagar) is located at the distance of **5 km**. There is no human settlement, heritage building, social structure, grassland or preserved area in the project vicinity that could be damaged, dislocated or dismantled due to the project activity in proposed area. a) The said project is located in INDUSTRIAL ESTATE. Project is already going to located in designated Industrial estate by government of Punjab under PIEDMIC.

b) The existing status of the environmental

Nature of Impact

The nature of proposed impact will be direct, low, short-term and hence in-significant.

Mitigation Measures

Following mitigation measures has been adopted to reduce the impact of said project location on sensitive receptors:

- The selected site located at adequate distance from the various sensitive receptors.
- The site is accessible through metaled road network; M3-Industrial City road.
- The selected site is located in industrial area and due to establishment of aforesaid project no change in the land use of area is being envisaged.
- The site is owned by the proponent and no dispute is associated.
- Air emissions generated from the said will be controlled by adopting pollution abatement technology such as; multi-tube cyclones.
- The wastewater will be treated prior to its disposal in industrial estate drain.
- The generated solid waste will be collected by Contractor and it will be disposed off through the standard practices of area.

It is envisaged that no mitigation measures will required as the said project had been constructed in industrial area and no adverse impacts on its surroundings due to significant distances from all sensitive receptors.

ii. Designing

During designing phase of aforesaid project optimized the use of best available technology in order to prevent or minimize potentially significant environmental impacts associated with the project as well as to ensure high level business and environmental performances were adopted. In pre-construction/design phase, a management system was provided at design level to control all anticipated impacts.

The aforesaid project will adhere to all standards, technical and legal requirements in order to avoid adverse impacts on the socio-environment and human health. Efficient infra-structure has been developed. Construction materials have been procured from approved dealer. The technology adopted for the manufacturing of dyed & printed fabric is the state of the art. This process is employed because of the following reasons:

- Construction material has been procured from approved dealers.
- For the protection of workers PPEs (dust masks, gloves & shoes) has been provided during construction and it will be provided during operational phase too.
- During Non-woven spunlace manufacturing. bleach are organic in nature. They are water soluble, stable and easy to use.
- The proposed emergency system is semi-automatic which is being control through computerized systems and it is connected with smoke alarms.
- In this process almost 98% of raw-material will be converted into the final good.
- Through the selected system high quality of goods will be produced.
- The generated wastewater will be treated through WWTP.
- The Proponent intends to reduce the environmental and social issues up to practically possible safe limit. The Client had adopted SOPs for Emergency Reponses Plan, Fire Fighting Plan and Disaster Management Plan which are explained in sub-sections below.
- Planning principles and design considerations have been reviewed and incorporated into the site planning process to the extent possible. The concepts considered in the design of the proposed project are:
- No additional land acquisition will be required.
- Substantial reduction of environmental degradation in project area.
- Augmentation in adequacy of sanitation conditions at the user end enhancing the efficiency of existing infrastructure.

Nature of Impact

The nature of the proposed impact will be direct, low, short-term and hence in-significant.

Mitigation

No additional mitigation measure will be required as state of art technology is being adopted for the Non-woven spunlace manufacturing of fabric such as vat, reactive and disperse bleach. For the treatment of the generated wastewater proper wastewater treatment plant will be installed. This generated wastewater will be given primary and secondary treatment before final disposal in nearby drains.

8.3 Impacts and Mitigation during Construction Phase

Project construction phase was of 01 year whose activities will surely show effects on land environment, water, air, noise level, soil quality, socio-economic trend of area, etc. These impacts had been controlled effectively by adopting best management practices.

By the implementation of said project, a positive impact on the socio-economic culture for the people has been observed. The chance for local employment, fabrication, brick masonry, painting and machinery erection works had been increased.

The construction phase of aforesaid project will include activities associated with the site leveling, construction of civil structures, architectural works and building services. The construction phase would bring in immediate but short term changes on various components of environment near the project site. This section explains how aforesaid project will affect different environmental aspects and its mitigation measures to manage the impact. The impacts during construction phase will be temporary and localized. Even though, the measures proposed to minimize such impacts.

8.4 Impacts & Mitigation during Operational Phase

This section delineates the potential impacts during operation phase of the project and the mitigation measures to counteract these impacts. The summary of the impacts and possible mitigation measures are as follows:

i. Impact on Ecology

Currently, the site is being use for industrial & commercial activities. After the completion of said project different native and ornamental plants species has been planted in designated green spaces and along boundary of project site. The overall

aesthetic beauty of the area has been enhanced and it will have a significant impact on the overall ecology, aesthetic and landscape of the area.

Nature of Impact

The nature of proposed impact will be direct, low, short-term and hence in-significant.

Mitigation Measures

This impact is considered to be positive, long-term and significant. Hence, it doesn't require any mitigation measure.

ii. Impact on Air Environment

Air emissions will be generated from production of steam from coal based boiler will be used. This would be the source of air emissions that would deteriorate the project area air quality. Moreover, dust will be generated due to the frequent movement of vehicles carrying the raw-material and finished goods. During operational phase, suspended particulate matter and gaseous emissions will be the main pollutant. Gaseous emissions from generators will be controlled as waste heat recovery boiler will be installed to capture waste heat generated from the generators.

Due to increased vehicular movement increase in NOx, SOx, VOC and CO concentrations will be observed at the project site. As most of the construction equipment will be mobile, the emissions are likely to be fugitive and not concentrated on a single source or place. As the impacts will be localized in nature, the areas outside the said project boundary are not likely to face any significant adverse impacts with respect to ambient air quality.

Nature of Impact

The nature of proposed impact will be direct, low, short-term and hence in-significant.

Mitigation Measures

Following mitigation measures will be adopted:

- Wet-scrubbers and multi-tube cyclones have been installed on coal based stream generators/boilers to control air emissions.
- For dust suppression regular sprinkling of water will be carried out.
- Vehicles used for transportation of raw material as well as finished product and the utility vehicles will be regularly serviced and maintained in order to keep the

environmental impact on account of their exhaust emissions to its minimumlevel.

- Native tree would be planted along the boundary of project area to keep environment healthy. For removal one tree, 3-5 trees will be planted.

iii. Noise Environment

Noise, an unwanted sound, affects human being. Excessive exposure to noise produces varying degree of damage to hearing system. It leads to headache, fatigue, etc. Continuous exposure of increased level of noise will have an adverse impact on the health of workers as well as the people residing in surrounding area.

Nature of Impact

The nature of proposed impact will be direct, low, short-term and hence in-significant.

Mitigation Measures

In general the following methods will be adopted to control the noise pollution from the proposed units;

- Residential area is located at safe distance from project site.
- Proper encasement of noise generating sources will be done to control the noise levels within prescribe PEQS limits.
- A thick greenbelt will be developed all around the plant which will be acting as noise barrier.
- The use of concrete and masonry walls & barriers keeping in view the benefits of stiffness weight & cavity construction & the need to provide well sealed sound attenuating doors & windows.
- The use of complete or partial enclosures, as and if required.
- Attenuation by use of sound absorbents on walls and fixed or suspended ceilings.
- The use of mufflers, sound attenuation and acoustic louvers in air flow paths, taking particular care to direct inlet and discharge an opening away from critical areas wherever possible, so as to take advantage of direct effects.
- All the workers will be provided with ear plugs/ear muffs, masks, gloves and safety shoes.
- All the transporters will be vised to carry out regular maintenance of their vehicles

iv. Solid Waste Management

The key solid wastes and by-products; non-biodegradable and recyclable matter (such as; containers, waste papers, used materials, waste packaging materials, scrap of clothes) will be sold to local contractors for recycling or reuse purpose. Moreover, the ash generated from the burning of coal in boilers. The domestic solid waste will be handled as per practices of area.

Nature of Impact

The nature of impact will be direct, low, long-term and significant.

Mitigation

Following mitigations should be adopted to manage generated solid waste:

- The recyclable and reusable waste will be sold to the contractor which will include; paper, plastic and non-ferrous material.
- Waste bins will be placed in the facility at the strategic position for the collection of solid waste.
- The installed bins will be covered in order to reduce the chances of the disease vector production.
- Record of generated waste during the project activity should be maintained on the regular basis. Quantity of the waste disposed, recycled or reuse will be logged on a waste tracking register.
- Regular training will be given to the workers dealing with the waste management it will include; identification, segregation and management of waste.
- The ash generated from the boiler will be disposed off through EPA Certified contractor on regular basis. It can be used for the filling of low lying areas.
- The sludge removed from WWTP will be sold to the certified contractor for the management of the generated solid waste.

v. Water Environment

Wastewater will be generated at rate of approximately at the rate of 5,400 m^3/day. This generated wastewater may impact the surface & ground water quality of area, if not treated. Moreover, the use of chemicals during process may pose threat and cause water pollution. In addition to the use of chemicals, its spillage may deteriorate water quality.

Nature of Impact

The nature of impact will be direct, low, long-term and significant.

Mitigation

Following mitigations should be adopted to manage generated wastewater:

- The domestic wastewater will be treated through septic tank prior to disposing off in industrial estate drain.
- For the treatment of wastewater; WWTP of adequate capacity and technology will be installed. It will consist of;
    - Screening
    - Grid Removal
    - Primary Sedimentation
    - Aeration
    - Secondary Sedimentation
    - Aeration
    - Sludge drying bed
- Water conservation activities will be adopted for the preservation of water.
- RO reject will be reused after primary treatment for on-site horticultural activities.
- Water conserving methods will be applied by placing taps and toilets.
- All faults will be monitored and fixed.
- Freshwater conservation techniques should be adopted to ensure sustainable development such as; wastewater recycling plant.
- Monitoring of effluents shall be carried out as per requirement of Self-Monitoring and Reporting Tools (SMART) to ensure compliance with the PEQS.
- It will be ensured that no solid waste will be entered in the wastewater.

vi. Health & Safety of Workers

Improper handling of chemicals, bleach and raw-material may cause various health issues such as; inhaling, injection, work place incident, physical hazards, chemical hazards, etc. It can cause allergy reaction and many other issues. To ensure the safety of workers these impacts need to be managed effectively.

Nature of Impact

The nature of impact will be direct, low, long-term and significant.

Mitigation

Following mitigations should be adopted to improve the health and safety:

- Regular inspection and maintenance of the plant will be carried out to eliminate the risk and associated hazards of any unfortunate incident.
- Workers will be trained on the regular basis regarding personal safety, disaster management physical and chemical hazards.
- Operators operating the plant should be fully trained and equipped.
- Training regarding HSE should be given on the regular basis.
- Workers will be given PPEs such as; helmets, mask, ear-plugs/muffs, safety boots, etc.
- It should be strictly enforced to wear PPEs while working.
- Incidents should be reported directly to the concerned authority.
- Spillage prevention plan should be adopted and it should be implemented effectively.
- Floor surfaces shall be maintained and cleaned on regular basis.
- Floor should be kept clean and free of oil spills, other slippery fluids or materials and obstructions.
- The effective use of hearing-protection devices shall be ensured.
- Protective measures and emergency rescue procedures should be followed strictly.
- Only authorized persons shall be allowed in the processing and chemical storage areas.
- Unloading of the raw-material and loads of the final products should be controlled, supervised, slow and smooth.

vii. Chemical Hazards

Direct exposure to bleach may occur during the handling of chemicals related to Non-woven spunlace manufacturing of the fabric. Avoid unnecessary chemical exposure to the workers who are working in the process area or related to the process. A long term and direct chemical exposure may impact the health of the workers and the risk of the spillage may increase.

Nature of Impact

The nature of impact will be direct, low, long-term and significant.

Mitigations

Following mitigation measures will be adopted:

- Personal Protective Equipment (PPEs) should be given to workers including; protection and impermeable clothing for use during processing and handling chemicals, gloves, mask, safety boots, goggles, etc.
- Proper plan for the movement of the raw-materials should be planned.
- Only authorized persons should be allowed for the handling of the chemicals.
- Wearing of the PPEs should be regulated strictly by the concerned authority.
- Chemical spillage will be avoided by developing proper SOPs for the handling of the chemicals.
- Chemicals and final products will be stored properly and all precautionary measures will be adopted to eliminate all the hazards and risks associated with the handling and storage of material.

viii. Security Risks

A large number of workers will be hired including; skilled and un-skilled laborers. The increase in the number of the individuals residing in the area, may lead to an increase in crime and violence in surrounding areas. The nature of the impact is considered to be low as the locals will be preferred for hiring.

Nature of Impact

The nature of impact will be direct, low, long-term and significant.

Mitigation Measures

Following mitigation measures will be adopted:

- Proper security will be provided to the workers working in the premises of proposed project.
- Before hiring any worker and his criminal record may be checked.
- CNIC of all the workers will be kept by the proponent.
- Strict law will be enforced to control the crime at site.
- Security to the workers should be provided.

ix. Emergency Response

Emergency response preparedness committee will be formulated consisted of heads of all the departments. Emergency Response Leader will be the head of the team assisted by safety team and safety supervisors. Emergency Response Leader along with his team

will ensure that in the case of emergency, team is prepared for fire-fighting and the first aid kits will be provided which may include; blankets, hot water bottles, stretchers, benches, sterilized dressing, snake bite kit, cotton and iodine (2% alcohol).
Incidents and accidents may take place unexpectedly during project operations nomatter how effective, strong and efficient the mitigation measures for all adverse impacts; especially the safety issues may be adopted. These may include; accident and natural disasters.

Nature of Impact

The nature of impact will be direct, low, long-term and significant.

Mitigation

Following mitigation measure will be adopted:

- Site in-charge should be responsible to ensure that fire-fighting plan has been implemented with true spirit.
- Safety team will be responsible to monitor the activities and to act on the approved firefighting plan in the case of fire.
- Designated area fire marshals will be responsible to monitor their respective areas and act on firefighting plan in case of fire.
- Workers should be given adequate training of handling machinery.
- Emergency call service must be made available.
- The drills to check the response of the workers against any emergency situation will be carried out on the regular basis.
- Safety and hazards signs will be displayed with the facility to avoid any unfortunate incident.
- Only authorized persons will be allowed for the handling of the chemicals.

Socioeconomic Impact

It is envisaged that the adverse impacts associated with the operation of said project includes; local community will be disturbed due to increase in the traffic load (i.e., vehicles carrying raw material and final products), wastewater management, solid waste management & disposal, soil pollution, etc. The intensity of the aforesaid project will be quite low. The commencement of the aforesaid project will have a beneficial impact on the surrounding community such as; increase in employment opportunity, increase in the wages of the local area employees, increase in revenue generation, provision of social welfare funds of the employees and appreciation of land value.

The aforesaid impact is considered to be positive and will have a direct, medium, long-term and significant impact.

Mitigation Measure

No mitigation measures will be required.

5.7 Environmental Enhancement Measures

The said project will be result in following benefits:

- Direct and indirect employment opportunities,
- Gains in the local and national economy,
- Industrial development in region
- Business spin-offs in the factory area,

Tree plantation along boundary of project will act as environmental enhancement measure. Trees including; Shatoot, Jaman, Moor Pankh, Fish Paam, Trysenia, etc. will begrown on all open spaces and along boundary of project.

The environmental budget allocated for tree plantation, installation of wastewater treatment plant and management and disposal of solid waste is approximately **PKR 100 Million** approx.

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 Non-Woven Spunlace Fabric under the name of M/s Tapal Tex Private Limited 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 1,000,000/- 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

Public consultation refers to the process by which the concerns of various stakeholders and local community who have a plausible stake in the environmental management & associated impacts of the project or activity are ascertained with a view to taking into account all the material concerns in the project or activity design as appropriate. According to the Review of IEE and EIA Review Regulations, 2000 public consultationis mandatory for any socio-environmental study for the commencement of any project.

General

Impact assessment survey and public consultation sessions held with different stakeholder groups that may be impacted by the proposed project commencement werecarried out. The consultation process was carried out in accordance with the guidelines laid by EPA, Punjab. The objectives of this process were to:

- Share information with stakeholders on proposed project establishment.
- Access the impacts on the physical, biological and socio-economic environment.
- Understand stakeholder concerns regarding various aspects of the project commencement.
- Note valuable suggestions of local stakeholders to improve the proposed project design.
- Understand the perceptions, assessment of social impacts and concerns of the affected people/communities of the project area.
- Find out the awareness level and situation of acceptability to identify any issues for the implementation of the proposed project.
- Invite people to express their views about the positive/negative impacts on their lifestyles and environment.
- Disclose information about contact offices/officers for any complaints/queries.

Objectives of Consultation

Public consultation plays a vital role in studying the impacts of the proposed project on stakeholders in successful implementation and execution of project. It provides an opportunity to exchange knowledge with the beneficiaries and affected parties. Referring particularly to a project related to environmental assessment, involvement of the public is all the more essential, as it leads to better and more acceptable decision- making. The overall objective of consultation with stakeholders is to help verify the environmental and social issues, besides technical ones, that have been presumed to arise and to identify those which are not known or are specific to project. In fact, discourse with many who have thoroughly observed the site conditions in the pre- development phase, goes a long way in updating the knowledge and understanding.

Consultation Process

Information disclosure, public consultation and discussion regarding the various aspects of project with the people of area are necessary. This process is intensified during the EIA Studies and separate rounds of public consultations were held with local community and various government departments as listed below. Surveys were carried out in order to investigate physical, biological and socio-economic resources falling within the immediate AOI of the project. Primary data collection included:

- Data collection regarding the socio-economic condition of study area.
- Pre-testing of socioeconomic survey tools in the field.
- To consult the locals for collection of information on biological environment.

Various meetings with the stakeholders were held the following objectives:

- Share information with stakeholders regarding said project and expected impacts on community in project vicinity.
- Understand stakeholders' concerns regarding various aspects of the project, including the existing condition of the upgrading requirements, and the likely impact of construction and operation activities.
- Provide an opportunity to the public to influence the project design in a positive manner.
- Obtain local and traditional knowledge, before decision making.
- Increase public confidence about the proponent, reviewers and decision makers.

- Reduce conflict through the early identification of controversial issues and work through them to find acceptable solutions.
- Dissemination of information through discussions, education and liaison.
- Documentation of information narrated by the stakeholders and mitigation measures proposed by the stakeholders.
- Incorporation of public concerns and their address in the EIA and eliciting their comments and feedback.
- Create a sense of ownership of the proposal in the mind of the stakeholders.

10.1 Proponent's Environmental Management Team

Consultation regarding Establishment of NON-WOVEN SPUNLACE FABRIC MANUFACTURING UNIT BY TEX PVT LTD unit by was done with Proponent's Environmental management Team and anticipated impacts were discussed. Concerns of locals, Environmental Practitioners & experts and Government departments were discussed and asked to consider themwhile construction of above-said project. Locals will be preferred for employment after providing proper training. Mitigations measures mentioned in EMP will be truly implemented.

10.2 The responsible authority

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

10.3 Other department and agencies

Following officers of government departments were consulted by the socio- environmental team of the consultants and concerned details about the project were noted down through personal interviews, group meetings, etc., in their offices, for instance, see **Table 23** below.

Table 23: Views of Participants of Public Sector Stakeholders

Sr#	Participant	CNIC/Designation	Concerns/Remarks
Environmental Protection Department			

1	**Mr. Farhat Abbas Kamoka**	**Deputy Director (Field), EPA**	Following comments area summarized to control the pollution: • Solid waste should be managed in environmentally friendly manner. • Wastewater should be treated effectively & approval should be acquired from concerned agency before disposing off in nearby drain. • HSE* at the site should be managed effectively. • No impact is being foreseen due to the selected location. • Locals should be given job opportunity.
2	**Rana Saddique**	**Environmental Inspector**	
Social Welfare Department			
3	**Zill-e-Huma**	**Deputy Director Officer**	Following comments are suggested by the Deputy Director on the behalf of Social Welfare Department: • Final goods should be affordable for the locals. • The proposed product should facilitate locals and they should be economical. • Job opportunities should be given to the locals. • Wages should be given according to the work assign to them. • Life insurance of the workers should be given as well as all the facilities should be given as per labor laws.
Irrigation Department			
4	**Shahid Saleem**	**Chief Irrigation**	Following comments were suggested:

			• Untreated wastewater should not be disposed off in the nearby drains without proper treatment. • Beneficial as job opportunities will be available to the local residents.
Forest Department			
5	**Syed Fatehullah Shah**	**District Wildlife Officer**	Following recommendation were suggested by the forest department: • Planation and landscape activities should be carried out on broader scale. • Indigenous species such as; Arjarn, Barna, Neem, Suharjna, Amaltas and Jaman should be planted. • Proper drainage system must be available at site.
** HSE= Health, Safety and Environment*			

PICTORIAL VIEW OF THE CONSULTATION:









Consultation with locals of nearby areas



Consultation with Irrigation department officer

10.4 Environmental Practitioners and experts

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

Sr. No	Name	Designation	Comments/Suggestions
1.	**Muhammad Rehman Majeed**	Environmental Scientist	Following comments are summarized to control the air pollution generation during operational phase • It should be ensured that the pollution abatement technique i.e. bag house filters must be installed on coal fired boiler • Non-woven spunlace manufacturing should be carried out under controlled Conditions
2.	**Ms. Ammara Anwar**	Environmentalist	• She said that Installation of textile industry will have positive impact on economy but its construction should be done in Environmental Friendly way • During construction and operation emissions must be controlled properly • Basic facilities should be provided to local community
3.	**M. Shehzad**	Ph.D. Scholar Environmental Sciences	Following mitigation measures should be adopted: • Tree plantation in designated green zones should be carried out • Proper disposal of the solid waste • HSE management measures should be adopted and implemented effectively.
4.	**Sheikh Mohsin Ali**	Environmentalist	• He said that locals should be preferred for employment. • Value addition of area • In case of outsiders residence must be provided • Proper mitigation measures must be adopted while construction and operation of this project
5.	**Ahmad Iqbal**	Environmentalist	• She said that in case of removal of vegetation trees must be planted after construction at designated green areas • Water conservation strategies must be adopted • Solid waste must be collected and dispose off properly

			• Wastewater should not mix with surface water channels it must be properly dispose off after meeting PEQS. • Avoid groundwater contamination
6.	**Umar Fiaz**	Environmental Engineer	According to her following mitigation measures should be adopted during construction • Site re-vegetation must be done • Latest technology must be installed • Residence must be provided to contractors and workers • Locals must be preferred for employment

10.5 Consultation with Affected and wider community

In addition, to the use of direct methods to evince the response of the various stakeholders in targeted population residing in study area was ascertained by conducting a sample survey, through specially formatted questionnaires (attached inthe **Annex-VI** of this EIA Report). Questions posed to the public were related to creation of possible impacts, adverse impacts and beneficial impacts, including; employment opportunities, income generation activities, change in living standards andprovision of the basic amenity.

Personal views of the respondents on the establishment of NON-WOVEN Spunlace manufacturing Unit by M/s Tapal Tex Pvt Ltd, possible disturbance to the residents near the AOI and infringement of their privacy were also recorded. The various rounds of public meetings and consultations were arranged in project and study area. The objectives of consultation with the affected persons are given in the table below:

- Disclose the proponent plan for the construction/operation of said facility.
- To share information on the design and specifications of project works.
- To analyze the expected impact on the socio-economic environment.
- To understand their concerns regarding various aspects of project commencement.

4.8 Views, Concerns and Suggestions of Various Stakeholders

The major socio-economic concerns and problems of the affected persons of various communities have been given in tabulated form below (**Table 24**) along with their main

concerns and remarks. Community showed a lot of concerns; a few are beingmentioned here:

- Removal of shrubs and trees should be avoided to the extent possible in the case of clearance green zones should be established within the facility.
- Indigenous tress around the facility should be planted to control air pollution and as the compensation of removed trees.
- The project will become the source of income for local to earn their livelihood easily and honorably, so locals should be preferred.
- The area will inhabit and will be used for the beneficial purposes.
- For the solid waste management and waste disposal, proper disposal techniques should be adopted.
- Water spraying/sprinkling should be done on the regular basis for dust suppression.
- Employment opportunities will be generated and locals should be hired on the priority basis.
- The air pollution is one of the major impact from which Punjab is being affected at the large scale. So, ambient air quality should be monitored regularly and air pollution expected to generate from the operation should be mitigated beforehand.
- 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-job training.
- Noise generated activities should be carried out during day hours.

The views and the concerns of the local communities, direct and indirect stakeholdershas been complied and are presented in the tabular form below:

Table 24: Views and Concerns of Stakeholders

Sr#	Respondents	Concerns
1	Farhan	During the survey in the study area following concerns of the local community were noted: • Air pollution should be controlled effectively such as emissions generated from power generating activities. • Bleach should be stored and handled properly only authorized persons should be allowed near the chemical storage area. • Locals should be preferred for the job opportunities. • Wastewater should be treated prior to final disposal in nearby drain. • Solid waste should be managed effectively by adopting the standard practices of the area. • Cleanliness of the area should be ensured. • An effective EMMP should be designed and enforced with true spirit. • Health of the workers should be ensured. • Planation should be carried out at extensive scale. • Construction activity should be carried out during day hours. • Noisy activities should be confined.
2	Kamran Nazir	
3	Farhat	
4	Farhad	
5	Gul Sher Khan	
6	Muhammad Umer	
7	Waqif Ali	
8	Ajaz Ahmed	
9	Hasseb-ur-Rehman	
10	Hafiz M. Naseem	
11	M. Hassan	
12	Hajhat Ali	
13	Iftikhar Ashraf	
14	Jalal Raiz	
15	M. Tayyab	
16	M. Qasim	
17	M. Imran Ali	
18	M. Asif	
19	M. Bilal	
20	M. Jameel	
21	Mehran Ali	
22	Mehmood Ahmed	
23	M. Hussain	

24	Tahir Mahmood	• Workers should be hired from local community. • Proper disposal of solid waste should be practiced. • Indigenous tress around the facility should be planted to control air pollution. • Safeeda can be planted in the project area as the area in known to be affected by the logging and salinity. • Removal of shrubs and bushes should be avoided to the extent possible.
25	Naseer Masshi	
26	Shahbaz	
27	Saif-ur-Rehman	
28	Sakhawat Ali	
29	Usman Haider	
30	Uzair Hassan	
31	Waqar Ahmed	
32	Zunair Hassan	
33	Zeeshan Liaqat	

10.5.1 Addressing Public Concerns

The best mechanism of effective communication between the community and the proponent is the by the nomination of the Company Representative and all the issues/concerns of the community must be recorded for future reference. This representative may be the member of the Grievances Redressed Committee (GRC).

10.5.2 Grievances Redressed Committee

Grievances Redressed Committee (GRC) will be formulated by the proponent to address the concerns of the locals during the construction as well as during operational phase. The main role of the GRC will be to resolve the issues of the community associated with the proposed project, if any.

10.5.3 Results of Survey

Following are the results of the survey with the local stakeholders:

Occupation of Respondents

Majority of the respondents (**33%**) belongs to the labor class, **20%** associated with their own business, **13%** were daily wagers, **13%** of respondents were associated with agriculture, **7%** were shopkeepers and remaining **7%** were the private employees. During survey, efforts were made to interact with local stakeholders representing all walks of life. The detailed graphic representation of occupational status is given below:

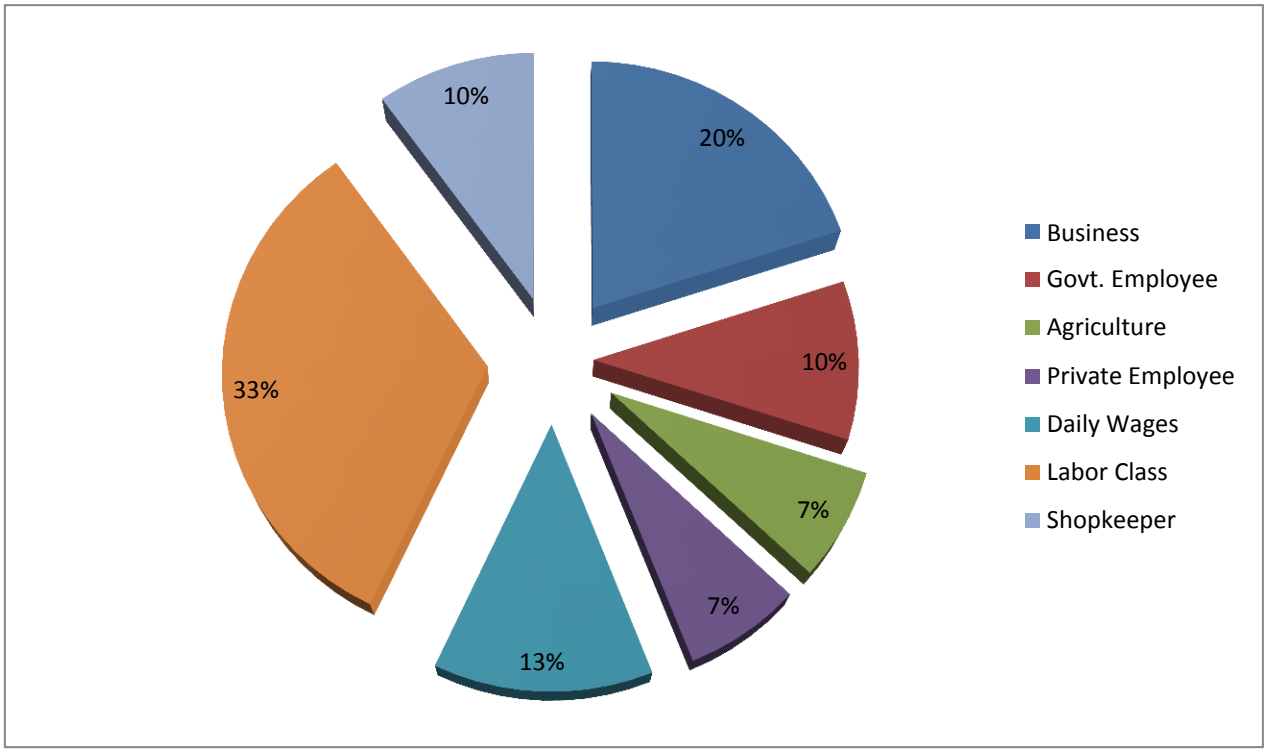


Figure 19: Occupation of Respondents

Personal Income

Based on the sample survey results, as the figure shows that 5% of the respondents were earning less than 20,000 rupees, 24% of respondents fall within the income range of 20,000–25,000, 41% respondents earn 30,001–40,000 while only 16% of the respondents earn within the range of 40,001–45,000 and 14% of respondents were earning more than 45,000 rupees.

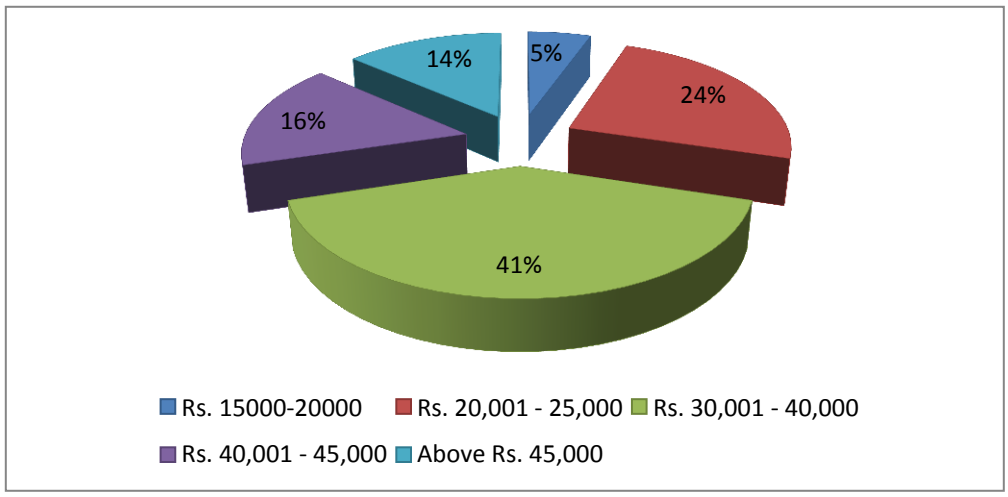


Figure 20: Personal Income

Facilities Available

Basic facilities available in the study area are depicted here. It shows that electricity, telecommunication, gas supply water supply, sewerage system and every other routine facility is available in study area.

Literacy Rate

From survey results, it was found that **23%** of the studied population was illiterate, **29%** was up to primary level and **48%** of the respondents had studied up to higher education level.

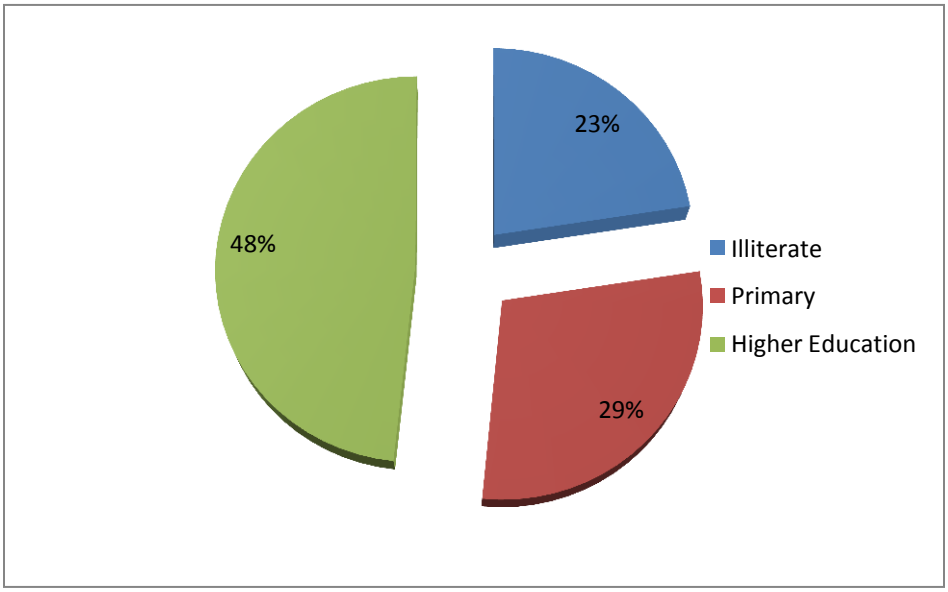


Figure 21: Literacy Rate of the Study Area

Common Diseases

According to the survey of local community, the common diseases recorded were; Diabetes, Fever, Hepatitis, Hypertension, stomach problems, Malaria, Typhoid, Nephritis and Diarrhea[3].

Acceptance Level of the Project

The opinions of the respondents were noted during the public consultation. The majority of respondents (**87%**) of were in favor of aforesaid project. They expect that establishment of aforesaid project will also increase the economic value of local assets. According to them the proposed project will boost the employment opportunities, mobility access to resources and social amenities.

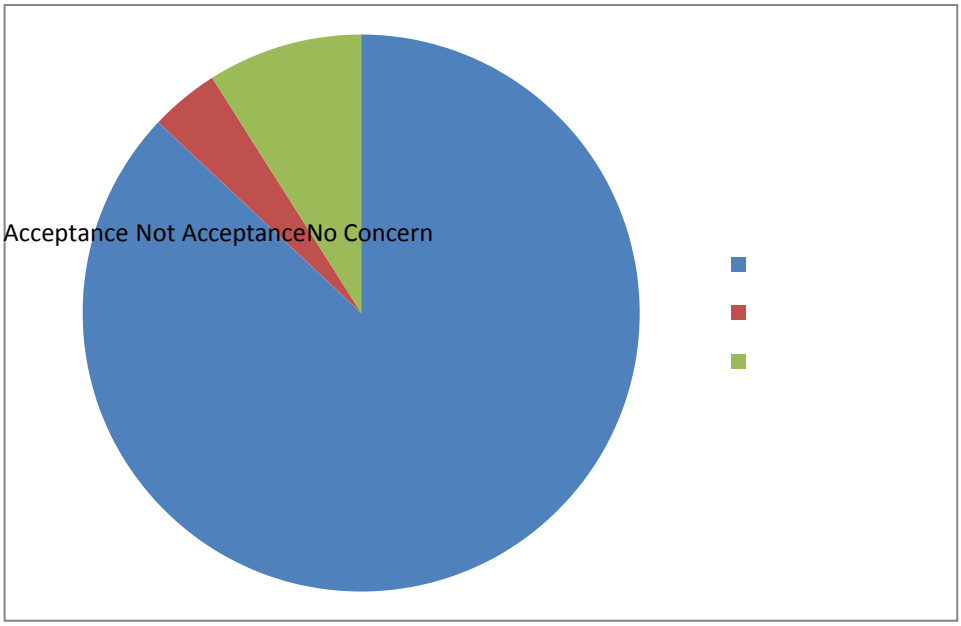


Figure 22: Project Acceptance Level

[3]Source: Climate Change Working Papers No. 9, 2015.

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 Tapal Tex Private Limited 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 Tapal Tex Private Limited 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 Tapal Tex Private Limited 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 Tapal Tex Private Limited

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 Tapal Tex Private Limitedwill 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 M/s Tapal Tex Private Limitedis located away from humansettlements. **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 Tapal Tex Private Limited) 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 proposedunit. 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 byutilizing 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 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 cateringthe 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 Tapal Tex Private Limited intends to register the project with local Government.
- M/s Tapal Tex Private Limited has prepared and implemented very comprehensive Emergency Preparedness's and Response Standard Operating Procedures.
- M/s Tapal Tex Private Limited 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 Tapal Tex Private Limited will continue to assist thelocal 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.

Annexure

SCHEDULE-IV

Application Form

1	Name & address of proponent	Muhammad Sadiq Tapal S/O Tajwar Tapal R/O H.NO. 6-A, gazri lane defene lane Karachi Central Pakistan. Contact: 0300-8469830		
2.	Description of Project	The said project involves the Non-Woven Spunlace Fabric Manufacturing Unit. The capacity of the project will be 85,000 kg/day. The total area of the project site is 144,000 SFT. Capital cost of the project including Land, construction and Machinery Installation is 1.2 Billion PKR.		
3.	Location of Project	Plot 47 Phase-II, FIEDMIC M-3 Industrial Estate District Faisalabad		
4.	Objectives of the project	➢ To manufacture Non-Woven Spunlace Fabric. ➢ To establish the business of proponent ➢ To create job opportunities for the locals ➢ To raise the socioeconomic status of the area		
5.	IEE/EIA attached?	Yes		
6.	Have alternative sites been considered and reported in IEE/EIA?	No		
7.	Existing land use and land Requirement	Proposed (Open Plot)		
8.	Is basic site data available or has it been measured?	 Metrology (Rainfall) Ambient Air Quality Ambient Water Quality Ground Water Quality	<u>Available</u> **Yes**/No Yes/No Yes/No Yes/No	<u>Measured</u> Yes/**No** **Yes**/No **Yes**/No **Yes**/No
9.	Have estimates of following been reported?	 Water Balance Solid Waste Disposal Liquid Waste Treatment	<u>Estimate</u> Yes/No (Demand= 30,000 L/day) Yes/No(250kg/day) Yes/No (25,000L/day)	<u>Reported</u> **Yes**/No **Yes**/No **Yes**/No
10	Source of Power?	FIEDMIC		
11.	Labour Force? (Number)	Construction 100-150	Operation: 200-300	

VERIFICATION: I do solemnly affirm and declare that the information given above and contained in the attached Schedules is true and correct to the best of my knowledge and belief.

Proponent

Muhammad Sadiq Tapal S/O Tajwar Tapal

Postal Address

10-C Abid Majeed Road Lahore Cantt

Signature

TERMS OF REFERNCES (TORs)

These terms of references are being submitted for the subject Environmental Impact Assessment study under 5 (f) of policy and procedures for the filing, review and approval of environmental assessment. These TORs of IEE has been prepared by the environmental consultant, in consultation with project proponent.

Project Brief:

Subject project for which this EIA report has been conducted is Tapal Tex Pvt Ltd falls in the category of projects mentioned in Schedule II, category B, under the clause "6"

Cost of Project:

The total cost of the project is approx. 1.2 Billion

Name & Address of proponent:

Name: Muhammad Sadiq Tapal

Designation: Proponent

Postal address: 10-C Abid Majeed Road Lahore Cantt

Environmental Consultant & Client:

M/S Tapal Tex Pvt Ltd has appointed the Safe Enviro-Solutions as the consultant for the subject project to conduct EIA. M/S Safe Enviro-Solutions will be called as 'Consultant' and M/S Tapal Tex Pvt Ltd as the 'Client'

Objectives of the EIA study:

The objective of the study includes compliance of section 12 of PEPA 1997 (amended 2012) & NEQS.

Client Responsibility

- Proponent will be responsible to nominate a senior officer as Coordinator who will be responsible for all the coordination activities as required by the consultants and to whom the consultants will refer for information and assistance. All correspondence between the consultant and the client will be routed through the coordinator.
- Consultant will require free access to all the relevant information available with the client.
- The report developed for the client shall be property of the client and the consultants shall adhere to confidentially morally as well as legally.
- Client will provide relevant documents
    - Pay Order for Rs. 30,000/- as EIA review fee in the favor of D.G EPA Punjab.
    - Undertaking on stamp paper as per EPA Format

- Affidavit on Stamp paper as per EPA Format
- Copy of CNIC of proponent
- Dully Filled and Signed Schedule IV
- Project description & relevant Information
- Details of Firefighting arrangement's
- Layout Map of Project
- Other NOCs/Certificates from other concerned departments (if any)
- Any other relevant documents/detail

Signatures by:_____ Signatures by:_____

Environment Consultant Client:

SAFE ENVIRO-SOLUTIONS ***TAPAL TEX PVT LTD***

REFERENCES

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- Labor Laws
- Meteorology Department Data (from website)
- National Environmental Policy 2005
- National Environmental Quality Standards (Self-Monitoring and Reporting by Industries) Rules, 2001
- Pakistan Biosafety Rules 2005
- Pakistan Environmental Protection Act, 1997
- Pakistan Environmental Protection Agency (Review of IEE/EIA) Regulations, 2000.
- The Land Acquisition Act, 1894
- The Punjab Local Government Ordinance, 2001
- Punjab Environmental Protection (Amendment) Act, 2012

LIST OF ABBRIVIATIONS

CO	Carbon monoxide
CO_2	Carbon dioxide
NFPA	National Fire Protection Association
SO_2	Sulphur Dioxide
°C	Degree Celsius
PM10	Particulate Matter >10
EIA	Environmental Impact Assessment
EMMP	Environment Management & Monitoring Plan
EMP	Environmental Management Plan
EPA	Environmental Protection Agency
EPD	Environment Protection Department
PEQS	Punjab Environmental Quality Standards
SPM	Suspended Particulate Matter
HSE	Health Safety and Environment
UDT	Urban Development and Tourism
SEP	Standard Engineering Practices
ERP	Emergency Response Plan
SWM	Solid Waste Management
IEE	Initial Environmental Examination
Km	Kilometer
CUM	Cubic Unit per Meter
GWT	Ground Water Table
Ltd.	Limited

HC	Hydrocarbon
Mm	Millimeter
NEQS	National Environmental Quality Standards
No.	Number
NOC	No Objection Certificate
NO_x	Oxides of Nitrogen
PA	Protected Area
PEPA, 1997	Pakistan Environmental Protection Act, 1997
PEPA, 2012	Punjab Environmental Protection (Amendment) Act, 2012
PEPO	Pakistan Environmental Protection Ordinance
PKR	Pakistani Rupees
PM	Particulate Matter
PPEs	Personal Protective Equipments
Pvt.	Private
SFT	Square Foot
SOPs	Standard Operation Procedures
SO_x	Oxides of Sulphur
TMA	Town Municipal Authority
WAPDA	Water and Power Development Authority
WASA	Water and Sanitation Agency
WHO	World Health Organization

DETAIL OF TEAM CONDUCTING IEE STUDY WITH QUALIFICATION AND POSITION IN TEAM.

Name	**Qualification**	**Position in the EIA/IEE Team**
Muhammad Rehman Majeed	M.Phil (Environmental Science) GCU Lahore	Project Incharge And Supervisor
Muhammad Shahzad	M.Phil Environmental Science GCU Lahore	Team Leader and Coordinator (Author of the Report)
Mohsin Ali	M.Phil Environmental Science GCU Lahore	Senior Environmentalist (Field Analyst)
Ammara Anwar	MS Environmental Science (Punjab University Lahore)	(Author of the Report)
Anum Waheed	BS (Hons) Environmental Science (GCU Lahore)	Research Associate (Author of the Report)

SOCIAL SURVEY FORM

Questionnaire for the project of

M/s Tapal Tex Pvt Ltd"

STAKE HOLDER'S INFORMATION:

1	Name		
2	Father's Name		
3	CNIC Number (Optional)		
4	Age		Years
5	Gender		Male Female
6	Qualification		Under matric Matriculation Graduate Post graduate
7	Marital status		Married Single
8	Employment status		Employed Unemployed
9	Income group		Below Rs: 5000 / month Between 5000- 10000 Above Rs: 10000 / month
10	Do you know about Said Proposed Non-Woven Unit		Yes No
11	Should it be done?		Yes No
12	What social change it will result?		Improvement No change Deterioration
13	What economical change it will result?		Improvement No change Deterioration
14	What environmental change it will result?	Without precautionary measures	Improvement No change Deterioration
		If adequate precautionary measures are adopted	Improvement No change Deterioration
15	Your suggestions to care for Environment		
16	Any other suggestion for benefit of the community?		

Signature:_____