2025

ENVIRNMENTAL IMPACT ASSESMENT REPORT

Establishment of Textile Unit Comprising of Dyeing, Printing & Stitching Plant BY:

M/s Diamond Clothing Industries (Pvt.) Limited

Located at Chak No.75/R.B, Tehsil Jaranwala, District Faisalabad

Prepared by:
M/s EHS Services (Pvt.) Limited
Head Office: H#01/C, Haq Bahoo Street, Lalazar Colony, Thokar Niaz Baig, Lahore
Contact:0304-4404111
Email:asif.ehscompany@gmail.com

EHS Services

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List of Abbreviations

EIA	Environmental Impact assessment
PEPA	Pakistan Environmental Protection Act
PEPA	Punjab Environmental Protection Act
NEQS	National Environmental Quality Standards
TORS	Term of References
WAPDA	Water And Power Development Authority
WASA	Water and sanitation authority
EMP	Environmental Management plan
EMC	Environmental Monitoring Cell
NOC	No Objection Certificate
NCS	National Conservation Strategy
P & D Department	Planning and Development Department
Pak-EPA	Pakistan Environmental Protection Agency
SWM	Solid Waste Management
CSR	Corporate Social Responsibility
TMA	Town Municipal Authority
dB (A)	Decibel
PPM	Part per million
$\mu g/m^3$	Microgram per cubic meter
MTM	Metric Tons Per Month

KVA	Kilo Volt Ampere
PPEs	Personal protective equipment's
TDS	Total dissolve solid
TSS	Total suspended solid
SS	Suspended solid
COD	Chemical oxygen demand
BOD	Biological oxygen demand
HC	Hydrocarbons
PM	Particulate matter
PEQs	Punjab Environmental quality standards

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Executive Summary

Title and location of project:

The subject project is Construction Textile Unit Comprising of Dyeing Printing & Stitching by M/S Diamond Clothing Industries (Pvt.) Limited, located at Chak No.75/R.B, Tehsil Jaranwala, District Faisalabad. Total area of said Project is 585872.00 SFT. The total cost of the project will be approximately 100 million rupees.

Project proponent:

Table 1: Credentials of proponent

Name	Muhammad Bilal Sharif S/o Chauhdary Muhammad Sharif
CNIC	33100-4098560-3
Mailing Address	M/s Diamond Clothing Industries (Pvt.) Limited Chak No.75/R.B, Tehsil Jaranwala, District Faisalabad

Consultant:

M/s EHS Services (Pvt.) Limited 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.

Address: 1st Floor, House 12, V-Lane,

Street 6, Cavalry Ground Lahore.

Contact: +92345-3122696, +92304-4404111

Details of consultant are given in chapter 1 (Introduction)

Brief outline of project:

Table 2: Outline of proposed project

Name of Company	M/s Diamond Clothing Industries (Pvt.) Ltd, Faisalabad
Purpose of the Project	Construction Textile Unit Comprising of Dyeing Printing & Stitching By M/S Diamond Clothing Industries (Pvt.) Limited

Land Requirement	
Total Area allocated for Construction of Textile Unit Comprising of Dyeing Printing & Stitching	585872.00 SFT
Status and location	
Construction of Textile Unit Comprising of Dyeing Printing & Stitching	Proposed
Raw Material	Raw Fabric (cotton, polyester, wool,)
Final product	Home Textile Products
Final Product is checked in quality Lab	Yes
Final Disposal	Sludge will be handed over to contractor, Treated waste water will be discharged into nearby drain

Water Requirement	
Water consumption for the project	11000 Liters
Ways of extraction	Motor pump, (Turbine)
Boring Depth	Approx. ,350ft
Source of Water consumption	Underground.
Amount of waste water	10000 liters
Source of waste water	Process and Domestic Wastewater
Mode of treatment	Septic tanks and ETP
Mode of Disposal	connects to nearby Drain.
Distance of drain from subject project	200m from the boundary wall of Unit

Solid Waste	
Source of solid waste generation	Construction, process and Domestic
Mode of disposal	Handed over to EPA certified contractor, waste bins will be provided.
Manpower	
Labor Force	About 20-25 person
Power requirements	
Source of power	WAPDA-Sanction load Stand by-Generator
Fuel For Generator	Natural Gas

The major impacts and mitigation measures:

Table 3: Major Impacts and mitigation measures

Impacts	Mitigation Measures
Project Location	
• Observance of administrative and legal formalities • Acquisition of land • Loss of environmentally sensitive areas • Changes in traffic pattern • Potential conflicts with stakeholders • Resettlement issues	✓ The said unit of M/S Diamond Clothing Industries (Pvt.) Limited observes all administrative and legal formalities. ✓ It is recommended for obtaining of approval from other relevant departments. ✓ The proposed land is the property of the M/s Diamond Clothing Industries (Pvt.) Ltd. ✓ There is not any sensitive area near the project site. ✓ Many other industries are also working near the project site. ✓ The project proponent will achieve the NEQS/ PEQS at the boundary walls of the subject project to avoid the environmental impacts on the nearby industrial unit. ✓ There is no need to change the traffic pattern due the development of the subject project because no. of industries has been developed at the same road. ✓ Only few vehicles will visit the project on daily basis. ✓ 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. ✓ No resettlement issues
Project Design	
• Structure stability • Soil structure and soil bearing capacity • Road infrastructure design • Emergency exits • Firefighting system • Wastewater disposal system design • Electricity hazards • Ventilation	✓ Structure stability of the project site should be ensured ✓ Geotechnical investigation of the project site should be conducted. ✓ Safe road infrastructure design should be provided at the project site. ✓ Emergency exist points should be marked within the project building. ✓ Firefighting equipment must be maintained at the site in good working condition. ✓ Efficient wastewater disposal system should be designed for proper treatment of wastewater ✓ Electricity system should be designed safe and sound.
Construction and operation phase	
Land & Soil	
• Land or Soil Erosion during the construction phase • Habitat destruction • Scarring of the landscape and aesthetic beauty. • Clearing of native plants will disturb the complexity of the ecosystem of the proposed area. • Leakage of oil from storage area may contaminate soil	✓ Sprinkling of water is recommended ✓ After construction phase, the project proponent will restore the land by plantation. ✓ All spoils will be disposed of as desired and the site will be restored back to its original conditions ✓ Aesthetic of the area will be maintained. ✓ Oils, lubricants, chemicals, and other listed hazardous materials should be stored safely at their designated spots, enclosures or store rooms, which should

	be safe from rainfall and away from any potential source of fire
Air pollution and Dust emission	
• The transportation of the project machineries and material also may cause dust. • Un-metaled roads may cause dust. • Dust raised on dirt tracks by project-related vehicles. • Dust from drilling of deep holes. • Combustion products from vehicles used for project-related activities	✓ Air emissions controlled devices must be installed to control the air pollution ✓ Water the construction site periodically to minimize fugitive dust generation while laying foundation ✓ Store all construction materials in a manner to minimize generation of dust and spillage on roads. ✓ During excavation works drop heights will be minimized to control the fall of materials reducing dust escape. ✓ Sprinkling of water must be done to control the dust or PM ✓ Vehicle emissions inspection should be done on regular basis ✓ Sprinkling should be done on the unpaved area to avoid dust pollution/ particulate matter. ✓ Vehicles/ trucks should be serviced regularly ✓ All project vehicles will be checked regularly to ensure that engines are in sound working condition and are not emitting smoke.
Noise	
• The major sources of the noise at proposed project site are project related machinery. • High noise level cause hearing loss, deafness, high blood pressure, headache, depression and mentally disturbance. • Noise level will not exceed 75 dB(A) at the distance of 2 km radius, activity site	✓ Personal Protective Equipment PPEs including Ear muffs, Ear plugs and other noise abating equipment will be provided to the workers and other staff of the subject project. ✓ Proper maintenance and tuning of the vehicles should be done. ✓ Sound proof room should be built for generator (if any) to control the noise.

is located at a safe distance from the nearest human settlement . • Noise from construction activities from site preparation, earth works, foundation and plant equipment Installation	✓ A speed restriction of 40 km/h will be imposed on all construction vehicles.
Waste Water	
• Domestic waste water from the camp • Minor generation of waste water from construction activity. • Water Contamination due to improper storage of construction material, • Water contamination due to improper debris disposal, • Spread of diseases, underground water Contamination	✓ Domestic waste water will be drained out in nearby local drain after treated in septic tanks ✓ Oils, lubricants, chemicals, and other listed hazardous materials should be stored safely at their designated spots, enclosures or store rooms, which should be safe from rainfall
Solid waste	
• Solid waste may generate from construction activity, domestic and packing material of project related machineries. • Solid waste may generate from operation of project.	✓ A solid waste management divisionshould be formulated to deal with the proper disposal of solid waste, supervised by HSE Manager, SW Manager, and other related personnel. ✓ Solid waste generated from the construction activity as sand, stones residues etc. that should be utilized in restoration of the quarry area whereas solid waste from the domestic sources should be disposed off properly ✓ Proper solid waste management system is recommended. ✓ Sludge will be remove and dispose off in scientific way. ✓ Solid waste related to the operation will also manage in scientific way.
Health and Safety	

• Health and safety issues will be arose during construction activity, handling of material, machinery and improper practices of work • Health safety issue may arise during regular operations	✓ Use of PPEs should be implemented at workplace. ✓ First aid measures/medical facility should be provided to project related employees. ✓ Safe drinking water must be provided to workers, staff, and poor people of the area. ✓ Water consumption records should be maintained ✓ Safety signs & boards should be placed at during construction activity. ✓ Construction site should be fenced properly to avoid any damage to nearby settlements ✓ smoking or any drugs should be prohibited during working hours or performing work ✓ At the time of earthwork, fencing will be ensured for the area under theexploration

Proposed Monitoring:

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

- **Ambient Air**

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

- **Noise**

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

- **Water quality**

Regular monitoring of water quality should be conducted on monthly basis during construction phase 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 (EIA).

Purpose of the report:

Environmental Impact Assessment (EIA) report of the proposed project "Construction Textile Unit Comprising of Dyeing Printing & Stitching by M/S Diamond Clothing Industries (Pvt.) Limited 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 sectorial guidelines

The EHS Services Pvt. Ltd. conducted Environmental Impact Assessment (EIA) as per advised by the Environment Protection Agency of Punjab for M/S Diamond Clothing Industries (Pvt.) Ltd. 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 project:

The proposed project is Construction Textile Unit Comprising of Dyeing Printing & Stitching By M/s Diamond Clothing Industries (Pvt.) Ltd. As per Review of Initial Environmental

Examination (IEE) and Environmental Impact Assessment (EIA) Regulations, 2022 the Said project falls under "B" Category of projects **"Manufacturing and Processing**" stating "**Textile units comprising of dyeing and printing**" mentioned in Schedule II requiring EIA. The proposed project is the Construction Textile Unit Comprising of Dyeing Printing & Stitching By M/S Diamond Clothing Industries (Pvt.) Limited Further, the client is required to fulfill the legal requirements of the Section-12 of the Punjab Environment Protection Act 1997(Amended 2017).

Details of Proponent:

Table 4: Credentials of proponent

Name	Muhammad Bilal Sharif S/o Chauhdary Muhammad Sharif
CNIC	33100-4098560-3
Mailing Address	M/s Diamond Clothing Industries (Pvt.) Ltd, Chak No.75/R.B, Tehsil Jaranwala, District Faisalabad

Details of Consultant:

For the preparation of the EIA Report of the said project, the proponent has hired the services of the environmental consultants; M/S **EHS Services**. Team comprising of environmental engineers, chemical engineers, environmental experts and environmentalists has worked on this report. EHS Services is one of the pioneers Environmental Consultancy Companies in Pakistan with an unrivalled reputation for providing expert, tailored services and solutions. EHS Services provides the environmental services, litigation and consultancy to clients both industry and government.

EHS Services is providing quality services in various environmental sectors i.e.

- Environmental Assessment Reports i.e. IEE/EIA
- Environment Management Plans (EMP)
- Designing of Emission Control Equipment
- Waste Water Treatment Plant (WWTP) Designing
- WWTP Construction Supervision, Commissioning and Operations

- Establishing Bottled Water Plant based on RO or UF
- Lab testing (Drinking Water & Waste Water Analysis , Soil Analysis, Sludge Testing, Petroleum/ Lube Oil Testing, Fertilizer Analysis, Pesticides in Water, Soil, Fertilizer, Coal, Coke Analysis)
- Monitoring and inspection
- Environmental modeling

Contact Details:

Focal Person	Engr. Muhammad Asif
Address	House No.#12, Street No.#06, V-Lane Cavalry Ground Extension, Lahore Cantt
Contact No.	0304-4404111, 0345-3122696

The current study was carried out by the following professionals:

Table 5: Team of consultant conducted EIA

Sr. #	Name	Qualification	Role
Proponent Environment Management Lead			
i	Engr. Muhammad Usman (HOD)	M.Sc. Environmental Engineering	Site Compliance
Engineers			
i.	Engr. M. Asif	M.Sc. Chemical Engineering	Monitoring and Testing
ii.	Engr. Muzna Manzoor	M.Sc. Environmental Engineering	Designing and report review

iii.	Engr. Fazeel Ahmad	M.Sc. Chemical Engineering	Socioeconomic Survey
iv.	Engr. Rida Azhar	B.Sc. Environmental Engineering	Report preparation
v.	Mahtab Alam	M.Sc. Chemical Engineering	Collection of baseline data
vi.	Saad Khattak	B.Sc. Chemical Engineering	Site survey and analysis of impacts on surroundings

Brief description of nature, size, and location of project:

The subject proposed project is Construction Textile Unit Comprising of Dyeing Printing & Stitching by M/S Diamond Clothing Industries (Pvt.) Limited located at Chak No.75/R.B, Tehsil Jaranwala, District Faisalabad. The total area of the proposed Project is 585872.00 SFT. Total estimated cost of the project is approx. 100 millions.

Methodology for EIA Report:

For the purpose of this report, environmental and social baseline data and conditions at/around the project site has been undertaken. The methodology adopted to conduct the EIA Study includes Review of Layout Plan, detail meetings with the representative of proponent, orientation session, development of data acquisition plan, Analysis of Data, review of existing data, primary & secondary data collection survey, Screening of Potential Environmental Impacts and Mitigation Measures and also interviews with people near the project area has been conducted to collect their opinion regarding the construction of the said project and after findings it has been concluded that the project has mostly positive impacts on the socio-economic environment of the existing community

PURPOSE OF REPORT

The development of any Project leads to positive and adverse changes in environmental and change in social settings of the Project Area. The intensity and level of change, however, depends upon the nature of the Project and the baseline environmental conditions of the area. The development and commencement of said project will cause minor to moderate adverse environmental and social impacts on the surrounding area. Thus, an environmental and social study is mandatory to establish the baseline conditions, evaluate the possible adverse impacts if any, and devise the mitigation measures.

Section 12 of Pakistan Environmental Protection Act, 1997 (PEPA, 1997) states "No proponent of a project shall commence construction or operation unless he has filed with the Provincial Agency an Initial Environmental Examination (IEE) and, where the project is likely to cause an adverse environmental effect, an Environmental Impact Assessment (EIA), and has obtained approval from the Provincial Agency in respect thereof." Later on, Punjab Environmental Protection Agency (Review of IEE and EIA) Regulations, 2022 provided the guidelines for categorizing the Projects. The main objectives of this EIA study were:

- To determine and document the state of the environment of the project area to establish a baseline in order to assess the suitability of the Said Project in that area.
- To identify pre-construction, construction and operation activities and to assess their impacts on environment.
- Provide assistance to the proponent for planning, designing and implementing the project in a way that would strengthen environment, improve ecological resilience, eliminate or minimize the negative impact on the biophysical and socio-economic environment and maximizing the benefits to all parties in cost effective manner.
- To present Mitigation and Monitoring Plan to smoothly implement the suggested mitigation measures and supervise their efficiency and effectiveness.
- To provide opportunity to the public for understanding the project and its impacts on the community and their environment in the context of sustainable development.

- Prepare an EIA Report for submittal to the Environmental Protection Agency, Punjab for according Environmental Approval.

Structure of Report

This EIA reviews information on existing environmental attributes of the Study Area. Geological, hydrological and ecological features, air quality, noise, water quality, soils, social and economic aspects and cultural resources are included. The report predicts the probable impacts on the environment due to the said project. This EIA also proposes various environmental management measures. Details of all background environmental quality, environmental impact/pollutant generating activities, pollution sources, predicted environmental quality and related aspects have been provided in this report. The structure of the assessment report will be as follow;

- Description of the Project
- Description of Environmental and Social Conditions
- Assessment of Environmental Impacts and Mitigation Measures
- Mitigation Measures for Identified Impacts
- Public Consultation
- Environmental Management and Monitoring Plan (EMMP)
- Recommendations and Conclusions

SCREENING & SCOPING

Screening:

As per Review of Initial Environmental Examination (IEE) and Environmental Impact Assessment (EIA) Regulations, 2022 the Said project falls under "B" Category of projects **"Manufacturing and Processing"** stating "**Textile units comprising of dyeing and printing**" mentioned in Schedule II requiring EIA

Scoping:

Temporal and Spatial Boundaries:

Temporal Boundaries:

Construction period of said project is approx. 6 months. Operation Lifespan will be more than 25 years.

Spatial Boundaries:

Said project will have positive and negative impacts at local and national level. The establishment of the said project will help to reduce pollution load on environment. Positive changes in lifestyles will occur due to availability of income when the natives take up Company jobs.

Important issues and concerns raised during consultation

- Environmental enhancement measures such as; Tree plantation, monitoring and safety should be ensured
- HSE plan should be enforced strictly
- Preventive measures should be adopted to avoid any unfortunate incident
- Tree plantation must be ensured
- Local employment should be ensured
- Proponent shall work for betterment of community
- Wastewater should be discharged after meeting PEQs

Significant Impacts identified in scoping:

Construction Phase	Operation Phase
Dust emissions	Odor emissions
Wastewater	Degradation of surface water quality due to discharge after improper or no treatment
Impacts of accidental spillages	Work injury/hazards/incidents/accidents
Safety	Disturbance of communities
Solid waste management	Sludge management

Consideration of Alternatives

Location alternative:

Subject project site is located within agricultural zone and it is the property of the proponent. The aim of proposed project is to establishment of fabric dyeing and printing unit. The subject location is most suitable for the proposed project and other locations cannot be considered to obtain the objectives of construction of the subject project.

Reason of selecting site:

- No land disputes, Project site is property of proponent
- Located within the premises of said unit.
- Easy access of road, power supply and other basic facilities.
- Availability of constructed infrastructure.
- Economically Feasible
- No vegetation clearance
- Land is plain
- Availability of water is plenty

Site Alternative:

The proponent has already established home textile unit. So the proponent has decided to enhance and improve the already established business instead of considering any other option for the business.

Location and site layout of the project:

Project site is located at Chak No.75/R.B, Tehsil Jaranwala, District Faisalabad. Project land coordinates are as follows:

North: Agricultural fields and Open plots are present at the North of the project site.

South: Agricultural fields.

East: HAR Textile Jaranwala Road.

West: Agricultural fields and Open plots.

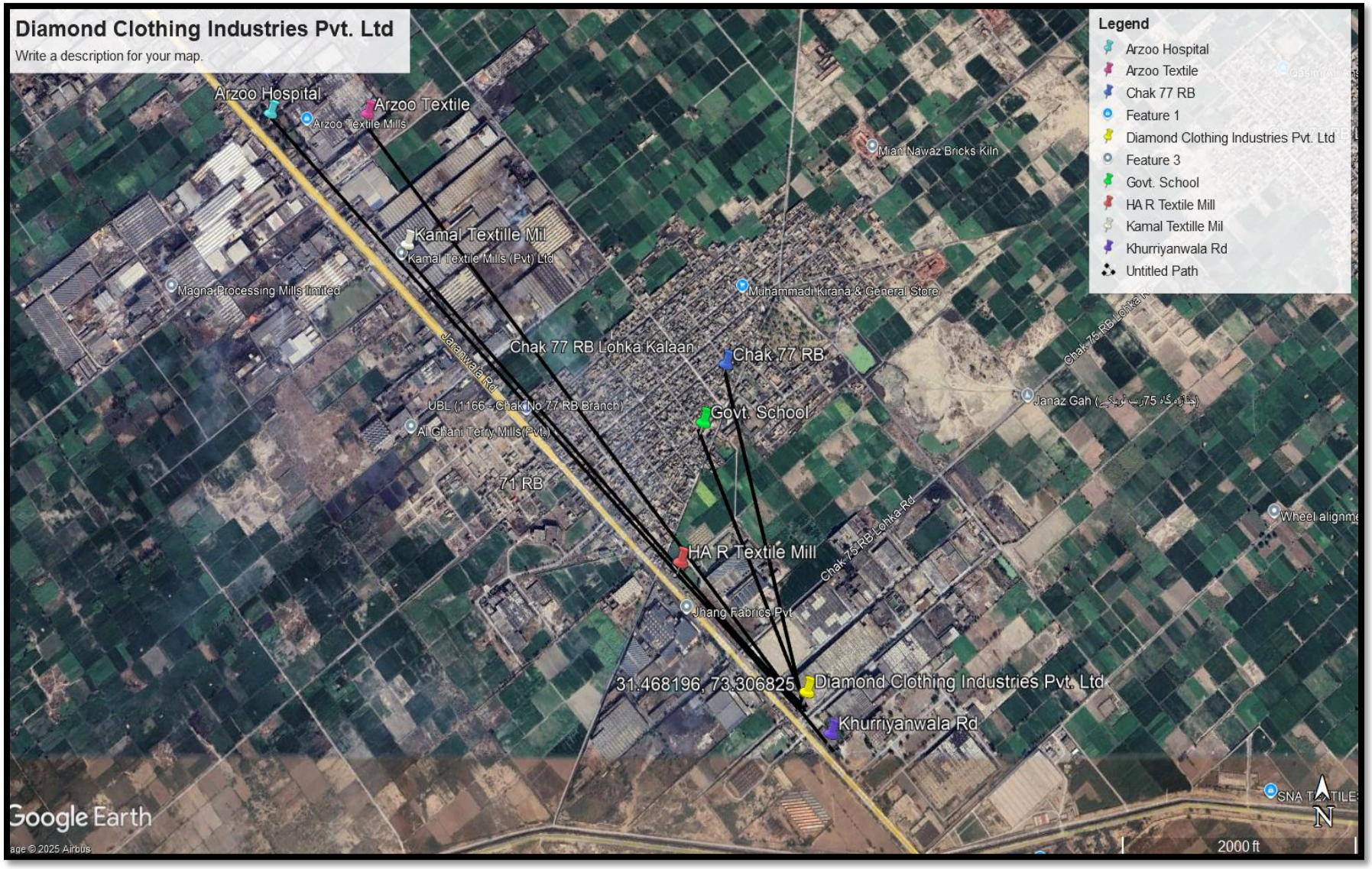


Figure 1: Aerial View of Project sites (Google earth Map)

Process/Technology Alternative

Keeping in view all the environmental consideration the project site is located in an industrial area using the best suitable technology for air emission and for the treatment of wastewater. Best suited technology has been proposed for the said project including no air emission. Water mitigation techniques also considered at their best including Activated Sludge Process for wastewater treatment.

Environmental Alternative

The 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. Summarily, there is no environmental sensitivity in the project area. These factors are also strongly supportive of the said Project site.

Economic Alternative

Selected land is under ownership of proponent and no cost is required to purchase other land so it is viable and economic option for proponent to enhance the business of said unit. The cumulative effect of this types project would result in noticeable economic growth. The project will also make a positive consideration to the industrial growth.

CHAPTER#2
DESCRIPTION OF PROJECT

General

This section of the study concentrates on details of the project and its salient features; such as location, site layout, objectives, selection of alternatives, cost and magnitude of operation and various phases. Inputs and discharges relevant to different phases of the project, such as electricity & materials, etc. have also been examined as a response to possible environmental concerns.

Type and category of project:

As per Review of Initial Environmental Examination (IEE) and Environmental Impact Assessment (EIA) Regulations, 2022 the Said project falls under "B" Category of projects **"Manufacturing and Processing"** stating "**Textile units comprising of dyeing and printing**" mentioned in Schedule II requiring EIA.

Total area of project Building will be 585872.00 SFT. The total cost of the project will be approximately 100 million rupees.

Objectives of project:

Present Project has following objectives;

- Establishment of fabric dyeing and printing unit to fulfill market demand.
- Subject Project has benefit towards local population of Abbas pur.
- To provide more job opportunities to local public and to improve their living standards
- To improve the economic activities
- To provide better infrastructure
- Private investment would be beneficial for the national economy and GDP as well

Project is functioning in a sustainable way for the manufacturing of subject items

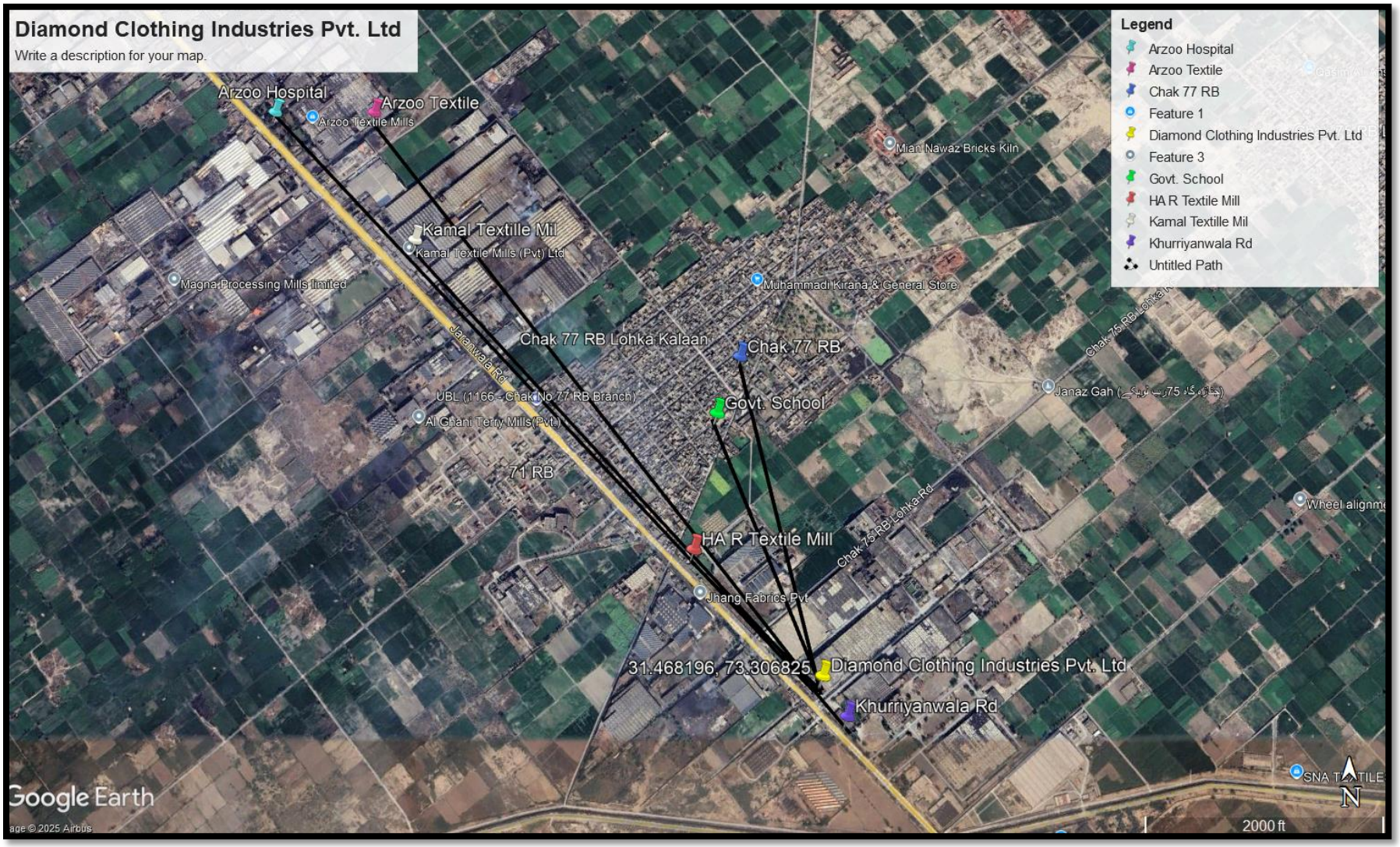


Figure 2: Google Map showing access road to approach the site

Land use on the site:

The proposed sites for the construction of the subject projects are empty plot of the said unit and it is property of the proponent.

Road access:

The access road for the unit is Khurriyanwala road (paved road).

Figure 3: Access road of the project

Vegetation features of the site:

Land allocated for the proposed project is clear and free of dense vegetation, only shrubs like Parthenium and grasses are present over there in scattered quantity. Few and scattered amount of vegetation will help to avoid land clearing at the project site

Cost and magnitude of operation:

Project is the Construction Textile Unit Comprising of Dyeing Printing & Stitching by M/S Diamond Clothing Industries (Pvt.) Ltd. Total area proposed for the construction of the subject project is 585872.00 SFT. Total cost of construction will be approx. 100 million.

Schedule of implementation:

The project is expected to be completed within 6 months from the date of environmental approval. EPA will be informed about further delay in construction of project.

The project intends to take 6 months from start to completion.

Sr. #	Activities	6 Months			6 Months			6 Months			6 Months		
		2M	2M	2M	2M	2M	2M	2M	2M	2M	2M	2M	2M
1	Detailed Designing												
2	Mobilization of Contractors												
3	Lean Construction Period												
4	Peak Construction Period												
6	Installation of machinery												
7	Installation of firefighting equipments & emergency exits												
M=Month													

Description of the project:

Description of dyeing and printing Unit:

M/S Diamond Clothing Industries (Pvt.) Limited intended to establish a home textile comprising on dyeing and printing unit. The layout map of fabric dyeing and printing unit is annexed as ANNEXURE.

Raw Material:

Grieg Fabric

Product:

Home textile products

Capacity of Project:

Dyed Fabric: 80,000Meter/Day

Description process

The manufacturing of home textile bed sheets involves a continuous sequence of pre-treatment, dyeing, printing, finishing, stitching, and packaging operations. Each stage prepares the fabric, improves its physical and visual properties, and converts it into a finished product suitable for consumer use

Pre-Treatment of Greige Fabric

Greige fabric contains natural impurities such as wax, oils, dirt, and pigments, so it undergoes pre-treatment to improve absorbency and prepare it for wet processing.

2.1 Singeing

The fabric passes over controlled gas flames or heated metal plates that burn off protruding fibers. This creates a clean and smooth surface required for uniform dyeing and printing. The fabric cools immediately to prevent thermal damage.

2.2 Desizing

Sizing materials applied during weaving break down when the fabric is treated with enzymes, acids, or oxidizing agents. The fabric then washes in hot water, and squeezing rollers remove excess moisture, ensuring proper preparation for subsequent processes.

2.3 Bleaching

Bleaching removes natural pigments to create a bright, uniform white base. Oxidizing chemicals break down the color bodies, and neutralization with mild acid removes residues. The fabric then washes thoroughly to achieve optimal whiteness..

Mercerization

The fabric receives treatment with 20–30% sodium hydroxide while it remains under tension. The fibers swell, increasing luster, strength, and dye affinity. Neutralization follows to restore chemical balance.

Heat Setting

For polyester or blended fabrics, heat setting stabilizes the fibers. The fabric stretches and heats to a specific temperature, allowing the fibers to realign. Cooling sets the structure permanently and prevents distortion during later processes.

Dyeing

If the bed sheet design requires a solid-colored background, the fabric undergoes dyeing before printing. Continuous dyeing, jet dyeing, or pad-dry-cure methods apply color uniformly across long lengths of fabric used in home textiles.

Fabric Printing

Screen Printing

Rotary screen printing handles large production volumes and multicolor designs. The fabric moves under rotating screens that apply color in sequence. Flatbed screen printing supports shorter runs and intricate patterns.

Digital Printing

Digital inkjet printing applies complex, high-resolution designs directly onto the fabric. This method suits small batches, multi-color artwork, and customized bed sheet styles

Fixation and Drying

After printing, the fabric passes through steaming or thermal fixation to bond dyes permanently to the fibers. Controlled drying removes remaining moisture, preventing color migration or smudging.

Post-Treatment and Fabric Finishing

The printed fabric washes and soaps to remove unfixed dyes and printing paste. Softening agents improve hand-feel, making the fabric suitable for home textile applications. Additional finishing treatments—such as shrinkage control, wrinkle resistance, anti-pilling, or water repellency—apply according to product requirements.

Cutting and Stitching Operations

Cutting

The processed fabric spreads in layers, and cutting machines cut panels according to standard bed sheet dimensions, including matching pillowcase panels and fitted sheet components.

Stitching

Hemming machines secure the edges to prevent fraying. Overlock stitching reinforces seams, and elastic attaches to the edges if producing fitted sheets. Pillowcases stitch with envelope flaps or piping. Operators trim loose threads and correct any stitching defects.

Pressing and Folding

The stitched products undergo pressing to achieve a smooth appearance. Folding machines or manual folding create uniform shapes suitable for packaging.

Final Quality Inspection

Quality inspectors evaluate print clarity, color fastness, dimensional accuracy, seam strength, and finishing smoothness. Any defective items return for correction or are rejected based on quality standards.

Packing and Dispatch

Approved bed sheets pack into polybags, zipper bags, or cardboard boxes according to customer specifications. Labeling, barcoding, and carton packing follow before the finished goods move to the dispatch area

Water requirements:

During the construction phase of the project, approx. 200-300 gallon/day water will be required for constructional and domestic purposes while during the operational phase of the project, according to an estimate, maximum 400 gallon/day water will be required for domestic purposes. Ground water will be used as a source of water to fulfill the water requirements during the construction and operation phases of the project.

Waste water treatment:

Waste water will be treated in septic tanks and drained out into nearby drainage after treatment in Effluent Treatment Plant.

Solid waste management system/practices

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

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

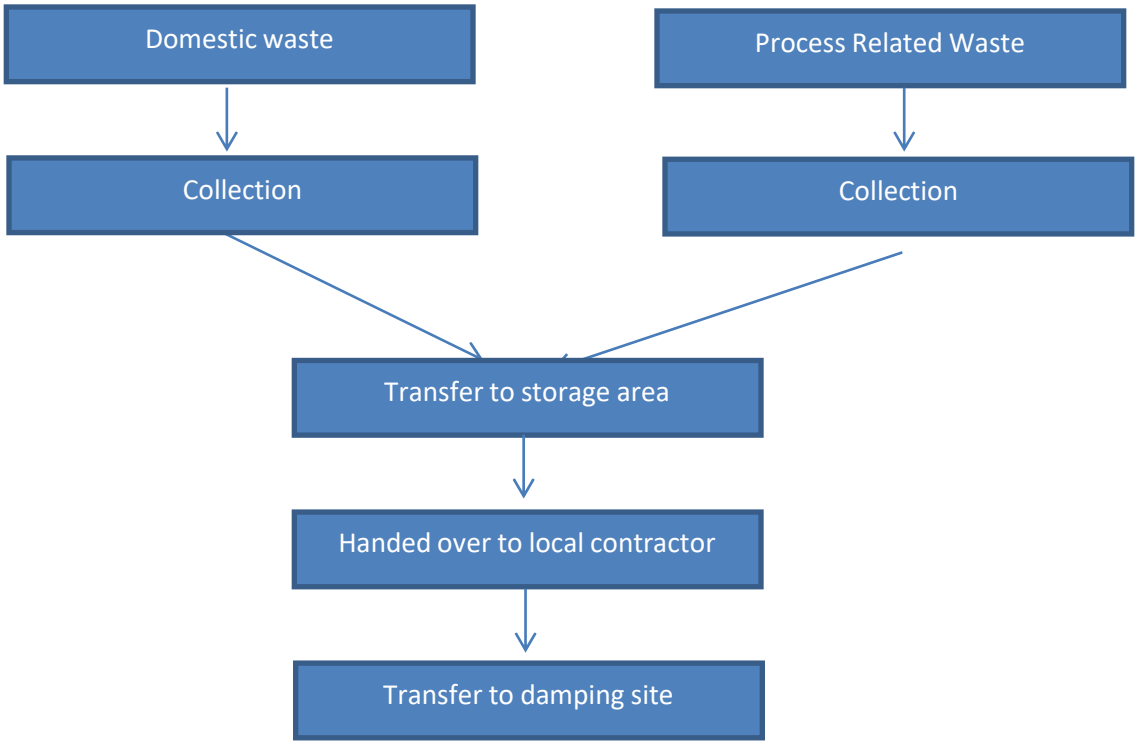


Figure 4: Solid waste management plan

Plantation:

Sufficient plantation will be done in the said unit of M/s Diamond Clothing Industries (Pvt.) Ltd. Furtherplantation has been done at various places out of the unit.

Parking Area:

Ample parking area will be provided in said unit.

Fire protection System:

An addressable fire protection system with detection and alarm annunciation and other installations etc. will be provided to protect against any fire hazards in the said unit and. Fire buckets and fire extinguisherswill be installed at all sensitive places within the working area of proposed project

Emergency evacuation plan:

Emergency exit points will be made available in the proposed unit for easy evacuation in case of any emergency, as are already provided in the said unit. Proper emergency evacuation plan has been formulated to cope with emergency situations

Security:

The site have secured by means of boundary walls along with the presence of security guards round the clock to maintain the security. The proposed project sites will be also secured by boundary walls.

Personal protective equipment:

Implementation of PPEs (Personal protective equipment) will be ensured in said unit.The worker in the proposed project will also be provided with Gloves, Masks & other personal protective equipment during the working hours to ensure personnel health & safety. The Safety and Environmental Lay out plant is annexed as ANNEXURE- M

Table 6: Types of PPEs will be used during the construction

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
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

First Aid facility:

Proper medical facilities and proper training about first aid will be provided to workersand staff in the said unit to cope with any accidents. Said unit has first aid Box at various places. The same practice will be adopted at the proposed unit

Safety signs/Safety boards:

At any workplace Safety signs and symbols are very important to avoid many accidents. They must be in easy and understandable language to all the workers. Workers should have the knowledge of sign wordings and they must be trained and aware about them. Safety signs, symbols and boards must be provided by the every department to protect the workers and employees from the risks of hazards that has not been controlled by other means. Safety signs and boards give safety message and they must be of different colors that workers could understand their meanings easily. At the subject project, safety signs and boards will be placed to avoid the workers and staff from any risk. Safety measures and signs have been ensured in said unit

Nearby Institutions Industries:

Value addition city are located adjacent to the proposed project site. Many other industrial units such as Imtiaz printing mill are also present in the project area. Many commercial units are also present around and nearby the project site e.g. The Heaven high School, Different Banks and Restaurants also exist in the project area.

Figure 4: Nearby Residence Faisalabad

Figure 5: Nearby School of project site

Power sources and transmission:

Power requirement of said unit is fulfilled by WAPDA and running generators. A standby generator of has also been installed for emergency situations. Thesepower sources will be enough to meet the power requirements of the proposed unit.

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 and rehabilitation plans:

All possible precautions will be taken to prevent an untoward incident in terms of life and property losses. On completion of the project, solid waste will be removed from the site in order to maintain aesthetics of the area. All measures will be undertaken for ensuring occupational safety, security and clean environment during the working hours. Vegetation and landscaping will be done by the proponent after the completion of project.

Details of restoration and rehabilitation at the end of the project life:

There will be no matter of rehabilitation as the operational site is already owned by the project proponent. At the end of the life of the building, it will be duly dismantled with special precautions to avoid/ minimize pollution and at the same time taking all safety precautions to protect human life and property around the building.

Debris or any other wastes resulting from demolishing of the building will be disposed off in environmentally sustainable fashion. The materials capable of recycling/reuse will be either sold in the market or to be reused for other suitable purposes. While dismantling the building all Government rules and regulations are applicable to such activities will be strictly adhered to.

Government approvals:

Previous environmental approvals obtained by the proponent are attached as **Annexure-G** with the report. Other approvals will be obtained by the project proponent after getting the environmental approval and will be submitted to EPA at the time of operation.

CHAPTER#3
DESCRIPTION OF ENVIRONMENT

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

Physical Environment:

The pertaining physical and environmental conditions of the project area are described in this section. Data/Information for this section was collected from a variety of sources, including published literature (secondary data), surveys conducted for other studies in the area, and those that were conducted specifically for this study (Primary data). Much of the information on geology, climate came from published literature and previously conducted studies. Fresh samples were taken for water and wastewater quality and soil quality. Noise levels and ambient air quality for different locations were also measured. The information given in the sections on vegetation and wildlife is the result of detailed field surveys conducted specifically for this Environmental Impact Assessment (EIA) study. Information on water resources came from both secondary sources as well as data that was collected specifically for this study. Checklist methodology was adopted and used to establish the environmental profile of the project site. The project site is accessible from Abbaspur Road.

The project area lies in the District of Faisalabad. Project facility of Textile unit a is going to be installed in Abbaspur. The major local communities surrounding project area of Diamond Clothing Industries (Pvt.) Ltd (Faisalabad) are Abbaspur, Chak 77 JB, Chak No. 245 RB,246 RB, 189 RB and Chak No. 155 RB. Faisalabad is an important industrial belt of Punjab.

Topography:

The area is plain and highly fertile, with lush grounds on the site and in surrounding areas. Also, it is richly populated by various types of vegetation including some old and graceful trees in and around the site and rich green parks in the vicinity. Topography Survey of Site was carried out. This survey reveals that site is almost leveled. As compare to surrounding area the Site is low laying area. Heavy rains or flood may affect the area and water could be accumulated in the area for longer period of time.

Soil:

The soil between the Ravi and the Chenab rivers is light loam and fairly productive. The river silt is valued as good as organic fertilizer. The soil in part is stiff clay and inherently proves to be "Kallarathi" (salinity and sodicity affected with high contents of sodium and potassium mostly in the form of chlorides. The degree of Kallarathi is dependent upon the quantity of salt present on the surface of the soil. A part of the soil along the eastern wall due to vicinity to canal has heavy loam and is called "Missie" which is highly water absorbent. In the part of the area (around 16%) available as open and greens, the soil would require various degrees of modifications for successful afforestation and horticulture.

The soil underlying the plant is generally mixture of clay and sand. The soil is present up to the depth of about 0 - 525 feet in different layers and varies texturally from sand of low plasticity to clay high plasticity. Clay soil is present in 6 layers from 0 - 525 feet of depth. An Upper most layer is clay with 24 feet depth. There are five more clay bands up to 525 feet of depth ranging from 10 feet to maximum of 110 feet. Coarse sand with gravel & stones is also present in different bands at different depth.

Stratigraphy:

The locations of different sites of Faisalabad were tentatively marked on the Map of Faisalabad published by Scientific Society of Pakistan (1985). The borehole data available suggests to different soil classes, cohesive and non-cohesive. Thecohesive soils, which are generally present at the top level, include clays and silts. The thickness of upper cohesive layer varies from about 10 feet to 22 feet.

From the available data of few boreholes drilled beyond 40 ft. depth, it is indicated that another layers of cohesive soils are also present below 40 ft. depth.

Water Resources:

The area overall can be classified as irrigated land. The area has sufficient but uncertain rainfall. Water resources are sufficient and regular agricultural activity is possible through reliable sources of irrigation water.

Drainage Feature:

The main drainage of the region is in the south west direction that is prominently shown by the river Ravi and Nallah. Notably, the trend of surface water flow during the rainy season

is in the same direction. During monsoon season the excessive rainfall undertake the regional trend of drainage, converging on to the region.

Climatology:

Diamond Clothing Industries (Pvt.) Ltd is situated in a geographical tract, which has extreme climate withvery hot summer (April to October) and very cold winter (November to March). The annual temperature ranges between 2°C to 49°C. During peak summer the temperature remains between 39°C to 49°C and during extreme winter, in January, the mercury often drops to 2°C. The range of temperature however is not likely to influence the flora or fauna except some frosty spells during winter.

Most of the rain falls in July, August and September during monsoon season and January, February and March during the winter season. The average annual rainfall in the area ranges from 50 to 100 mm. The summer season starts from the month of April and continues till October. May & June are the hottest month with day temperatures usually ranges from 39 to 49 °C. The winter season begins from the month of November and continues till March. January is the coldest month with the mean minimum temperature of 2°C.

The climate is dry subtropical with temperature reaching to mean maximum 41°C and extreme maximum 49°C and down to mean minimum 5°C and extreme minimum 2°C. January is considered to be the coldest month, while June is the hottest month. In June monsoon sets in with intermittent torrential rains. The area is not located within any prominent seismic zone, but occasional tremors are experienced. Various meteorologists have developed classification schemes to describe the local climatic features of Pakistan. Classification based on these schemes is described below. The air quality in the project area has been duly monitored and reported.

Description of Seasons:

- Winter (October to February) are moderate to extreme and dry;
- Spring (March to April) is pleasant with moderately cold;
- Summer (May to September) is very hot to humid;

Monsoons (June to August) are wet. Although the temperatures are milder but due to appreciable humidity the heat is oppressive; and

- Post-Monsoon summer (September to October) is moderate and slightly humid.

Temperature:

The temperature data is given in bellow table.

Table 7: Climate data of Faisalabad

Climate data for Faisalabad													
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Record high °C (°F)	26.6 (79.9)	30.8 (87.4)	37 (99)	44 (111)	47.5 (117.5)	48 (118)	46.1 (115)	42 (108)	41.1 (106)	40 (104)	36.1 (97)	29.2 (84.6)	48 (118)
Average high °C (°F)	19.4 (66.9)	22.2 (72)	27.4 (81.3)	34.2 (93.6)	39.7 (103.5)	41.0 (105.8)	37.7 (99.9)	36.5 (97.7)	36.6 (97.9)	33.9 (93)	28.2 (82.8)	22.1 (71.8)	31.6 (88.9)
Average low °C (°F)	4.8 (40.6)	7.6 (45.7)	12.6 (54.7)	18.3 (64.9)	24.1 (75.4)	27.6 (81.7)	27.9 (82.2)	27.2 (81)	24.5 (76.1)	17.7 (63.9)	10.4 (50.7)	6.1 (43)	17.4 (63.3)
Record low °C (°F)	−4 (25)	−2 (28)	1 (34)	7 (45)	13 (55)	17 (63)	19 (66)	18.6 (65.5)	15.6 (60.1)	9 (48)	2 (36)	−1.3 (29.7)	−4 (25)
Average precipitation mm (inches)	16 (0.63)	18 (0.71)	23 (0.91)	14 (0.55)	9 (0.35)	29 (1.14)	96 (3.78)	97 (3.82)	20 (0.79)	5 (0.2)	2 (0.08)	8 (0.31)	346 (13.62)

Rainfall and Hydrology:

Precipitation is in the form of rainfall. Towards the end of June, monsoon conditions appear and during July- August and part of September, rainy season alternates with intervals of Sultry weather. Most of the rainfall falls during July-September. Some winter cyclonic rains

are received during February and March. This pattern of rainfall will support xerophytic vegetation and all introduced flora shall largely depends upon year round irrigation.

Groundwater is the subsurface water that resides in the zone of saturation. In the zone of saturation, the voids (pores) between the soil particles are filled with water. The water table is the upper boundary of this zone of saturation. The water table is also defined as the surface at which the fluid pressure in the pores is equal to the atmosphere pressure. Above the water table is the zone of the aeration, or unsaturated zone. The water table surface in a humid climate tends to follow the topography of the land surface, provided that the aquifer is unconfined. A sloping water table implies that ground water is flowing from a point of higher elevation to one of the lower elevation. The water table intersects the land surface where there is surface water.

Table 8: Meteorological Data of Faisalabad

Meteorological Data	
Elevation from sea level	249 meters
Seismic Zone	2B
Air Temperature	
Maximum	50 °C
Minimum	2°C
Yearly Average	26.3°C
Humidity	
Maximum relative humidity	89%
Minimum relative humidity	22%
Yearly average relative humidity	59.5%

Precipitation	
Average precipitation	641.4 mm/year (Avg. of 2001 to 2011)
Maximum precipitation	1106.1 mm/year in 2006 957.5 mm/year in 1997 143.7 mm/day on July 13, 2006
Maximum snow days	Zero days
Design rainfall intensity for 1 hour	50 mm
Maximum frost days	Zero days
Maximum snow fall weight	Zero kg/m2
Maximum velocity	
Maximum wind velocity	160 km/hr
Strong wind speed	45 knots over 15 days/annum
Maximum gust speed	70 knots
Prevailing wind direction	South East

Sampling Plan:

This section describes the methodology that was adopted to meet the study objectives. Broadly, the tasks undertaken included:

- Development of a sampling and spot testing plan for waste water / drinking water quality, ambient air monitoring, soil sample and assessment of noise level.
- Team organization for field sampling, spot testing and laboratory testing.
- Discussion and meetings with representatives of concerned agencies to finalize the

implementation plan.

- Identification of sampling sites in the areas for water, waste water and air quality monitoring.
- Implementation of quality control and assurance protocols during sampling, spot testing, sample handling, transportation, and laboratory testing.

Methodology adopted for the environmental monitoring:

Ambient Air Quality Monitoring

Ambient air quality monitoring was conducted at advised locations to assess the concentration of priority pollutants (Carbon monoxide, Nitrogen dioxide, Sulphur dioxide and PM_{10}) in the air. Reference method used for the measurements are included as Table No.1 while the description is provided in subsequent sections.

Table 9: Methodology of Ambient Air Quality Monitoring

Air Pollutant	Monitoring Technique	Instrument Used	Reference Method	Measurement Range	Lowest Detection Limit	Sampling Duration
Carbon monoxide (CO)	*Non Dispersive Infrared Absorption (NDIR)*	*HORIBA APNA 360 CO Analyzer*	*40 CFR Part 50, App. C (US-EPA)*	*0 – 100 ppm*	*0.02 ppm*	*24 & 1 Hour*
Nitrogen Dioxide (NO_x)	*Reduced Pressure Chemiluminescence (CLD)*	*HORIBA APNA 360 NO_xAnalyzer*	*40 CFR Part 50, App F (US-EPA)*	*0-0.5 ppm*	*0.5 ppb*	*24& 1 Hour*
Sulfur Dioxide (SO_2)	*UV fluorescence (UVF)*	*HORIBA APNA 360 SO_2 Analyzer*	*EQSA-0197-114 (US-EPA)*	*0-0.5 ppm*	*0.5 ppb*	*24& 1 Hour*
Hydrogen Sulphide (H_2S)	*UV fluorescence (UVF)*	*APNA-SO_2 & H_2S Monitor (Combined Use)*	*EQSA-0197-114 (US-EPA*	*0-1 ppm*	*0 ppm*	*24 & 1 Hour*
Particulate Matter (PM_{10})	*Integrated Sampling Technique*	*mini Volume Air Sampler*	*USEPA- EQPM-0798-122 USEPA-CFR-40 Appen J*	*0 – 1000µg/m^3*	*2 µg/m^3*	*24 & 1 Hour*
Noise level	*Digital processing*	*TENMARS TM-102*	*IEC 61672-1:*	*25 dB-138 dB*	*25 dB*	*spot*

	method		***2002 Class 1***			

Carbon monoxide (CO)

Carbon monoxide (CO) was monitored using HORIBA APNA 360 CO Analyzer. The APNA-360 CO analyzer measures CO concentration using a non-dispersive infrared absorption method that is based on the nature of CO in that it absorbs special infrared light. Measurement range of the analyzer is 0-100 ppm. Continuous data was recorded for duration of 1 hours at AA category point.

Oxides of Nitrogen (NOx)

Oxides of Nitrogen (NOx) was monitored using HORIBA APNA 360 NOx Analyzer. The APNA-360 NOx analyzer measures NO, NO2 and NOx using chemiluminescence (CLD) method with the help of chemical reaction between NO2 and O3. Measurement range of the analyzer is 0-0.5 ppm. Continuous data was recorded for duration of 1 hour at AA category point.

Sulphur dioxide (SO_2)

Sulphur Di-oxide (SO_2) was monitored using HORIBA APNA 360 SO_2 Analyzer. The APNA-360 SO_2 analyzer measures SO_2 using UV fluorescence method that operates on the principle that when the SO_2 molecules contained in the sample gas are excited by ultraviolet radiation they emit a characteristic fluorescence in the range of 220- 240 nm. This fluorescence is measured and the SO_2 concentration is obtained from changes in the intensity of the fluorescence. Measurement range of the analyzer is 0-0.5 ppm. Continuous data was recorded for duration of 1 hour at AA category point.

Hydrogen Sulphide (H_2S)

Hydrogen Sulphide (H_2S) was monitored using HORIBA APNA 360 SO_2 & H_2S Monitor (Combined Use) Analyzer. The APNA-360 H_2S analyzer measures H_2S using UV fluorescence method that operates on the principle of combined use of the H_2S converter unit and the APNA-SO_2, Monitor makes H_2S measurement possible. The H_2S converter unit contains two types of catalyst: SOx scrubber and H_2S converter. SOx is removed by the SOx scrubber, and then the

H_2S that has passed through is converted into SO_2 by the H_2S converter. This SO_2 is then measured by the APNA- SO_2 Monitor for display as H_2S concentration. Measurement range of the analyzer is 0-1 ppm. Continuous data was recorded for duration of 24 hours at AA-1 category point while the Monitoring duration at AA-2 point was 12 Hours.

Particulate Matter (PM_{10})

For PM_{10} PM Analyzer sampler was used. Results are annexed as **Annexure-F**

Noise level

A sound level meter or sound meter is an instrument that measures sound pressure level, commonly used in noise pollution studies for the quantification of different kinds of noise, especially for industrial, environmental and aircraft noise. Noise level was monitored by EPA certified method using standard noise level meter TENMARS TM-102. The current international standard that specifies sound level meter functionality and performance is the IEC 61672-1:2013.

Weather Station

A weather station was installed at Environmental monitoring site to measure some environmental parameters like Ambient Temperature, Relative Humidity, Wind Speed and direction and other weather conditions.

Water sampling

Following methodology was adopted for water sampling and analysis:

Sample Collection:

The water samples were collected from identified sampling points. The sampling was carried out in accordance to the SOP based on the recognized methods of United State Environmental Protection Agency (USEPA), World Health Organization (WHO) and American Public Health Administration (APHA) for water sampling and analysis.

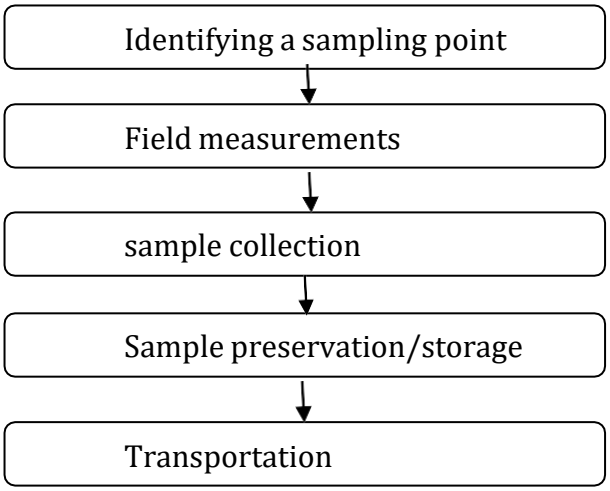


Figure 27: Steps Involved in water sampling

Measurement of Field Parameters:

Parameters that quickly degrade after they were sampled must be tested in the field. Following parameters were measured in field that can significantly change during storage and transportation.

- pH
- Odor
- Color
- Clarity
- TDS
- Temperature

Preservation:

Preservation is important in order to minimize the changes in the sample. The collected water samples were preserved in appropriate containers as per APHA Guidelines.

Sample Identification and Chain of Custody:

The collected samples were labeled and assigned a unique sample identification number, sampling date and time of collection to collected samples. All the relevant information (sample location, time of collection, sample identification, temperature, pH, collected by, preservation

techniques etc.) was recorded immediately on the Chain of Custody form signed by EHS Services field Analyst.

Transportation:

A shipping container (Ice box with eutectic cold packs instead of ice) with maintained temperature of 4° C ± 3 °C was used for transporting the sample from the collection site to the environmental laboratory.

Table 10: **Water Testing Methods**

Sr. No.	*Parameter*	*Method / Technique*	*Reference*
1.	***TDS***	Conductivity Method, TDS meter	APHA 2510 B
2.	***pH***	***By pH meter***	***APHA-4500 H^+ B***
3.	***TSS***	***Photometric***	***HACH Method 8165***
4.	***Temperature***	***Celsius thermometer***	***APHA-2550 B***
5.	***BOD5***	***Respirometric Method***	***HACH Method 10099***
6.	***COD***	***Dichromate Reactor Digestion***	***HACH Method 8000***
7.	***DO***	***Membrane Electrode Method***	***4500-O G***
8.	***Taste and Odour***	***By Sensory***	***-***
9.	***Oil and Grease***	***Hexane Extractable Gravimetric Method***	***HACH Method 10056***
10.	***Phenolic Compounds as Phenols***	***4-Aminoantipyrine Method***	***HACH Method 8047***
11.	***Chloride Cl^-***	***Argentrometriy Titration***	***APHA 4500 Cl^- B***
12.	***Fluoride Fl^-***	***SPANDS Method***	***HACH Method 8209***
13.	***Arsenic Ar***	***Silver Diethyldithiocarbamate Method***	***HACH Method 8103***
14.	***Sulphate SO_4^{-2}***	***Sulpha Ver 4 Method***	***HACH Method 8051***
15.	***Sulfide S^-***	***Methylene Blue Method***	***HACH Method 8131***
16.	***Ammonia NH_3***	***Salicylate Method***	***HACH Method 8155***
17.	***Pesticides***	***Micro Extraction and Gas Chromatography***	***ASTM-D5175***
18.	***Total Hardness***	***EDTA Titration***	***APHA-2340 C***
19.	***Nitrate No_3^-***	***Cadmium Reduction Method***	***APHA-4500-NO_3 B***
20.	***Turbidity***	***Nephlometric Method***	***HACH Method 8219***
21.	***Iron as Fe^{+3}***	***Ferrozine Method***	***HACH Method 8147***
22.	***Sodium Na^+***	***Flame Emission Photometric***	***APHA-3500-Na-B***
23.	***Zinc as Zn^{+2}***	***Zincon Method***	***HACH Method 8009***
24.	***Cyanide as CN^-***	***Pyridine-Pyrazalone Method***	***HACH Method 8027***
25.	***An Ionic detergent as MBAs***	***Methylene Blue Active Substance (MBAS) method***	***APHA 5540 C***
26.	***Total Coli forms***	***Microbiology***	***APHA - 9222 B***
27.	***Faecal Coli forms (E.Coli)***	***Microbiology***	***APHA - 9222 D***

28.	***Cadmium Cd***	***Dithizone Method***	***HACH Method 8107***
29.	***Chromium Trivalent and Hexavalent***	***1,5 Diphenyl carbohydrazide Method***	***HACH Method 8023***
30.	***Copper Cu^{+2}***	***Porphyrin Method***	***HACH Method 8143***
31.	***Lead Pb^{+2}***	***Dithizone Method***	***HACH Method 8033***
32.	***Mercury Hg***	***Mercury Extraction Method***	***HACH Method 10066***
33.	***Selenium Se***	***Diaminobenzidine Method***	***HACH Method 8194***
34.	***Nickle Ni***	***1-(2 Pyridilazo)-2-Nephthol PAN Method***	***HACH Method 8150***
35.	***Silver Ag***	***Colorimetric Method***	***HACH Method 8120***
36.	***Boron B***	***Carmine Method***	***HACH Method 8015***
37.	***Manganese Mn***	***PAN Method***	***HACH Method 8149***
38.	***Barium Ba***	***Turbidimetric Method***	***HACH Method 8014***

Note: *APHA=American Public Health Association, ASTM = American Society for Testing and Materials*

Ecological Environment:

Fisheries:

The project area is almost free from any commercial fishing activity. There are no lakes, even natural water ponds in the vicinity. Therefore, Fishery or any worth mentioning aquatic biology in this area is out of question.

Biodiversity:

Natural capital of a country mainly includes all of the country's wilderness areas and scenic landscapes, including also with their associated flora and fauna. Pakistan has a total of nine major ecological zones. The contribution of the "Natural Capital" is recognized at three distinct levels: species, genera, and communities (habitat and ecosystem) both collectively and within each level, the range or variety of the resources are referred to as the "Biological Diversity". The term has relevance for each of Pakistan's administrative units district, province, and particularly country. The more the number of species, genera, and habitats and ecosystems present within these units, the greater is said to be the Biodiversity. The biodiversity of the area, with this background, is discussed as under.

Flora:

Project site is free from any protected species. Following plants and trees were observed during the survey:

Table 11: Ecological survey of area within radius of 10 Km

Sr. No	Common Name	Scientific name	Picture
1	Sufeda	*Eucalyptus obliqua*	
2	Jaman	*Syzygium cumini*	
3	Ficu Tree	*Ficus Benjamina*	

4	Mango, Aam	*Megnifera indica*	
5	Paper Mulberry	***Broussonetia papyrifera***	
6	Kikar	***Vachellia karroo***	
7	Beri	***Ziziphus mauritiana***	

			
8	**Mesquite**	***Prosopis juliflora***	
9	Amrood	*Psidium guajava*	

10	orange	*Citrus sinensis*	
11	monkey puzzle	*Araucaria araucana*	

12	Aak	***Calotropis gigantea***	
13	Couch grass, Indian doab.	***Cynodon dactylon***	
14	Nut grass	***Cyperus rotundus***	

15	Tandla	***Digera muricata***	

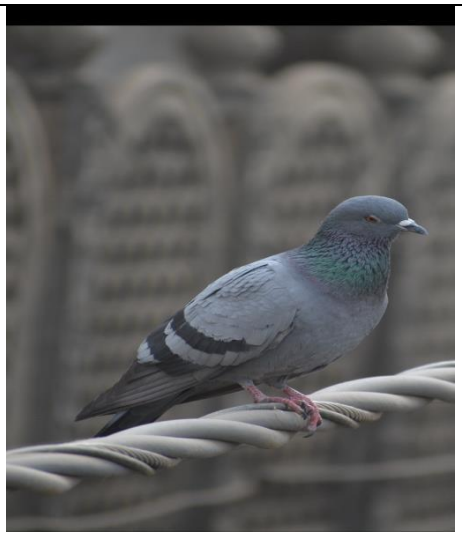
Fauna:

Project site is free from any protected species. Following plants and trees were observed during the survey:

Table 12: **Survey of fauna present in the 10 radius of project site**

Sr. No	Common Name	Scientific Name	Picture
1	Buffalos	*Bubalus bubalis*	

2	Cows	*Bos taurus*	
3	Dog	*Canis lupus*	
4	House Sparrow	***Passer domesticus***	

5	Crow	***Corvus***	
6	Pigeon	***Columbidae***	
7	Snake	***Thamnophis sirtalis***	

8	Beetle ant	***Thanasimus formicarius***	
9	Dragon fly	***Sympetrum flaveolum***	

Rare or endangered species:

There are no game reserves or protected lands/areas or endangered or rare species either in the area in the range of 5km from the project site.

Socioeconomic Environment:

Demographics

The major local communities surrounding project area of Diamond Clothing Industries (Pvt.) Ltd, Abbas pur (Faisalabad) are Abbas Pur, Chak 73JB, Chak No. 163 RB, 246 RB, 189 RB and Chak No. 245 RB. Faisalabad is an important industrial belt of Punjab. This leads to Faisalabad where different kinds of industries are located.

The city of Faisalabad carried out a census in March 1981 which showed the population of Faisalabad city as 1,092,000, which indicates that growth rate of Faisalabad city is only 3.37 percent per annum. In April 1981 the survey was carried out again which recorded the population to 1,232,000 which made the growth rate approximately 4.6%. Given this growth rate, the population at the end of 1981 was estimated to be 1,240,000.

The emergence of Faisalabad as a major agriculture and industrial center created a great increase in the city's population. From a population of 69,930 in 1941, it rose to 179,000 in 1951, an increase of 152.2% this was mainly due to the settlement of Muslim refugees from East Punjab and Haryana who came from India and settled in Faisalabad. The population rose to a future figure of 425,248 in 1961, an increase of 137.4%. Faisalabad became a record in the demographic history for Pakistan by registering an overall population increase of 508.1% between 1941 and 1961. This record has never been matched by the largest city of Pakistan. In the 1998 census the city population was recorded as 2,009,000, growing at a rate of 21.3% per annum. According to the World Gazetteer, the estimate of the city is expected to have reached 5,000,000 in 2010.

The religion of a majority of Faisalabad is Islam with small minorities of Sikhs, Christians and Ahmadis. Majority of Muslims belong to Sunni Hanafi school of thought with a significant minority of Shiites.

Nearby Communities of project area:

All the areas near project area have degree colleges, higher secondary schools for girls & boys, mosque, health care center, park veterinary clinic and small markets. The Inhabitants in these areas are in few hundreds. People use water for drinking from hand pumps and motor operated pumps. Health and sanitation situation was not satisfactory. Some part of the area was also covered with cultivated land and small farms having goats, sheep and other domestic animals. Along the main road many industries are also present i.e., textile, vehicles spare parts, food, flours and metal spare parts etc. as this is an important industrial belt of Punjab. Mostly old inhabitants of this area are poor farmers and labor working for different industries. Their housing and health situation was not very good too.

There was no proper sewage system. Hand pumps and motor drawn water is used for drinking purpose. Vegetables, wheat and grains are the common crops in this area.

Administrative Set-up

The project site is well connected to the rest of the country through Abbaspur road, whichis connected to G.T Road. Private cars, Public transport including vans and buses are the principal means of transportation to, Faisalabad and other cities. The vehicular movement is significant and fluent. The study area has a DistrictCoordinating Office (DCO), assisted by a Deputy District Officer (DDO) and Executive District Officers (EDO). The people of the area have elected Nazims and Naib Nazims, whereas the government has appointed the DCOs, DDOs and EDOs.

The entire set up of the local administration in the country has undergone substantial changes under the 'devolution plan'. Under the new system, 'Nazim' and 'Naib Nazim' Head the administrative units, such as districts. Each district has a District Coordinating Office (DCO), assisted by a Deputy District Officer (DDO) and several Executive District Officers (EDO). The people of the area have elected Nazims and Naib Nazims, whereas the government has appointed the DCOs, DDOs and EDOs.

Religion:

Abbas Pur, Chak 245 JB are mainly a Muslim populated area. Few Hindu and Christian are also there. Study revealed that 98% population is Muslim and 2% belongs to other religion. Majority of the inhabitant believe in peers, different inhabitants have different peers and there were few who have developed a firm trust towards these peers.

Customs:

Mostly Pardah (chader) is observed among women in the area as in other rural and suburban parts of Pakistan. The face is generally open during normal household activities but is instantly covered on encounter with a stranger. The People are very much concerned about castes and beliefs, visiting shrines is very common among them.

Languages:

The mother tongue of the area is Punjabi. Urdu is rarely spoken in the villages.

Dress:

Majority of the people wears Qamiz and Shalwar. English dress; shirt and trousers are rarely seen. Workers normally wear shalwar qamiz in other small factories but there are factories where uniform are the necessary requirement..

Occupations:

Major economic activity in the area is working for different industries, small industries, trade, agriculture and cultivation. A few numbers of people also work in the nearby city such as Faisalabad.

Educational Institutes:

Name of main institutions are as following;

First category institutes of Faisalabad

- GC University
- University of Engineering and Technology Lahore, Faisalabad Campus
- University of Agriculture, one of the oldest universities of Pakistan
- Punjab Medical College, Faisalabad Campus
- University of Agriculture, Faisalabad
- Divisional Public School & College Faisalabad
- Divisional Model College
- Beacon house School System (Pakistan)
- Punjab Medical College
- Institute of Engineering & Fertilizer Research

Higher education

- CCAPS (City College of Accountancy & Professional Studies)
- University of Agriculture, Faisalabad
- University of Agriculture, Faisalabad
- IRA University

- Government College University, Faisalabad
- Government College University, Faisalabad
- University of Engineering and Technology
- National Textile University
- University of Faisalabad
- Punjab Medical College
- University Medical College Faisalabad
- Independent Medical College, Faisalabad
- NFC Institute of Engineering and Fertilizer's Research Faisalabad
- College of Commerce Professionals
- Skans School of Accountancy
- Professionals College of Accountancy
- Punjab Law College
- Allama Iqbal Open University
- Hamdard University, Faisalabad
- Hamdard University, Faisalabad
- Preston University
- University of Education
- Virtual University
- Institute of Cost and Management Accountants of Pakistan (ICMAP)
- Institute of Chartered Accountants of Pakistan (ICAP)
- Pakistan Institute of Public Finance Accountants (PIPFA)
- College of Physicians and Surgeons of Pakistan (CPSP)
- School Of Management & Economics (SME)
- Government Postgraduate College Sammanabad
- Government Municipal Degree College Faisalabad
- Government College of Technology
- Government College for Women Madina town
- College of Physical Education Faisalabad
- Government College for women D-Type

- Government Islamia College for women Eidgah Road
- Government College for women Karkhana Bazar
- Sandal College
- Sandal College Faisalabad
- Punjab Colleges

Recreational Resources and Development:

The project area has not any private recreational facilities

Environmental Awareness:

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

Archaeological and Historical Treasures:

Archaeological or historical treasures within the project area are not available

Quality of life values:

People lead simple life and activities of women are mostly restricted to home. Beside this people have access of all basic life necessities like clean drinking water, electricity, health facilities and educational institutes.

Lab reports of environmental analyses:

Drinking water, waste water, ambient air and noise level, have been tested and lab reports are annexed as **ANNEXURE-E**

CHAPTER#4
SCREENING OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

The following chapter describes the overall possible impacts of project on the physical, biological and socioeconomic environment because of operation phases and mitigation measures to minimize the significance of the possible impacts up to an acceptable level. The anticipated impacts related to location, design, construction and operation of the proposed project have been assessed and mitigation measures have been suggested in this report.

Methodology for impact evaluation:

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

Project Impact Evaluation Matrix

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

Checklist has been used to identify the impacts during construction and operation phase while the evaluation of impacts has been carried out on the basis of developing matrix, in which impacts have been rated on the basis of their significance. For rating impacts significance following criterion has been developed;

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

Table 13: Impact matrix of construction and operation phase of proposed project

Construction Phase																	
	Physical Environment							Biological Environment		Socio-Economic Environment							
Environmental Component / Project Activities	Topography & Drainage	Soil Quality	Landscape	Surface water quality	Ground water quality	Air quality	Noise	Flora	Fauna Agricultural	Land	Health & Safety	Disruption of Public Utilities	Employment	Population Disturbance	Social Disorder	Cultural Values	Traffic Management
Transportation of raw material/ products	LA	LA	MA	MA	O	MA	MA	LA	LA	O	MA	LA	B	MA	LA	O	LA
Construction Activities	LA	O	LA	LA	LA	MA	MA	O	O	O	HA	HA	H B	O	O	LA	O
Operation of generators	O	O	O	O	LA	HA	MA	O	O	O	HA	LA	H B	O	O	O	O
Water consumption	LA	O	LA	HA	HA	O	O	LA	LA	LA	LA	HA	B	LA	O	O	O
Wastewater generation	HA	M A	MA	MA	MA	LA	O	MA	MA	MA	LA	LA	B	LA	LA	O	O
Storage of raw	O	O	O	O	O	O	O	O	O	O	HA	O	B	O	O	O	O

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

Operation Phase

	Physical Environment							Biological Environment		Socio-Economic Environment							
Environmental Component / Project Activities	**Topography & Drainage**	**Soil Quality**	**Landscape**	**Surface water quality**	**Ground water quality**	**Air quality**	**Noise**	**Flora**	**Fauna**	**Agricultural Land**	**Health & Safety**	**Disruption of Public Utilities**	**Employment**	**Population Disturbance**	**Social Disorder**	**Cultural Values**	**Traffic Management**

Transportation Activities	O	O	O	O	O	LA	LA	LA	LA	O	LA	O	O	LA	LA	LA	HA
Operation of ETP	B	L	L	L	O	L	L	O	O	O	L	O	B	O	O	O	O
Operation of generator	L	O	O	O	O	MA	LA	O	O	O	L	O	B	O	O	O	O
Waste water generation	HA	LA	L	L	L	L	O	O	O	L	L	O	O	L	O	O	O
Social activities	O	O	O	O	L	O	O	O	O	O	L	LA	O	LA	O	MA	LA
Public welfare	O	O	O	O	O	O	O	O	O	O	O	O	B	O	O	O	O
Economic Activities	O	O	O	O	O	O	O	O	O	O	O	L	B	L	L	O	O
Employment	O	O	O	O	O	O	O	O	O	O	O	L	B	L	L	L	L
Infrastructure improvement	O	O	O	O	O	O	O	L	O	O	O	O	B	L	L	L	O

Legend:

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

Impact Analysis and Prediction:

In order to give correct categorization to the present project Rapid Environmental Assessment Procedure was followed. It revealed that there some major impacts of the project have identified which will be controlled by adopting proper mitigation measures. These impacts are mainly attributed to the release of dust and harmful gases to the atmosphere during the mining activity but most of the impacts are projected as moderate/minor impacts although project has many positive impacts on local public and economy. M/S Diamond Clothing Industries (Pvt.) Limited will adopt proper procedures to carry out the operation in environmental friendly way.

Meetings:

For the impact analysis and predictions detailed meetings were held with the proponent, management of M/S Diamond Clothing Industries (Pvt.) Limited and with other stakeholders. Issues were discussed thatmay affect the environment and also the implementation of proposed project. All possible mitigation measures were considered and incorporated in the Environmental Management Plan.

Consultations:

Scoping sessions, focused group discussion and way side consultations were held with the relevant stakeholders, inhabitants of the villages, shopkeepers and workers in the area. These included local government departments, educational institutes, NGOs, health departments, public representatives and local residents. The purpose of such consultations is to obtain the feedback from the relevant persons.

The environmental issues have been identified during literature review, consultation with stakeholders, relevant reports and visits to project site. Various types of environmental issues likely to crop up during the life cycle of project are grouped in the following stages:

- Project location
- Project design
- Construction stage
- Operation stage

Environmental Parameters:

Environmental Impacts due to project location:

Project is present in the agriculture cum industrial area of the District Faisalabad. Many other industrial units are also present at the project area. The project is proposed Construction Textile Unit Comprising of Dyeing Printing & Stitching By M/S Diamond Clothing Industries (Pvt.) Limited for the said unit; site does not fall in the category of sensitive area and no environmentally sensitive localities exist within radius of study area. Access road network and ample parking facility is available at the project site. If the project proponent maintain HSE conditions and complywith the PEQS limits than, there will not be any significant impacts of the project on the environment.

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

Impact significance: Low or may be positive
Nature of impact: Direct
Duration: Long-term
Timing: Construction & Operation phase
Reversibility: NA
Likelihood: Low (unlikely)
Consequences: Mild or may be positive

Mitigation Measures

- Project site will have good and efficient road infrastructure that already exists there at the project site.
- Location can be considered as the positive impacts due to increased infrastructure.
- The project will also have positive socioeconomic impacts because of provision of jobs to the local residents of the area.
- No human settlement within the radius of the study area
- There would be no issue of congestion of traffic after constructing the road

Environmental Impacts due to the project design

Subject project is Construction Textile Unit Comprising of Dyeing Printing & Stitching within the said unit. Area for parking and solid waste management will be reserved within the subject project.

Firefighting plan, health & safety plan, tree plantation plan, emergency response plan will be incorporated during the design phase of the project.

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

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

Impact significance: moderate to high or may be negative
Nature of impact: direct
Duration: Long-term
Timing: Constructional phase & Operation phase
Reversibility: NA
Likelihood: moderate to high
Consequences: moderate to high or may be negative

Mitigation measures and recommendations

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

- Structure stability of the building should be ensured.
- Emergency exist points should be marked within the project building.
- Firefighting system should be designed for the emergency situations.
- Electricity system should be design safe and sound.
- Electricity wires should be covered by thick plastic/electricity resistant covers.

Impacts during construction:

Impact:

Change in topography and soil erosion.

Mitigation:

- Cuttings of trees will be avoided,
- Use of existing paved tracks.
- Project is located at leveled land

Impact:

Air quality deterioration, particulate matter/dust emissions due to construction activities; stand by generator, equipments and vehicle.

Mitigation:

- Sprinkling of water on track will reduce dust pollution
- Provision of dust masks for workers.
- Air quality monitoring is recommended on regular base

Impact:

Noise pollution can be generated due to construction equipments, machinery and vehicles.

Mitigation:

- Project manager will ensured less use of horns by project vehicles.
- Use of proper silencers, mufflers and other noise abating devices.
- Noise level monitoring will be conducted if required
- Visiting vehicles schedule will be maintained to avoid noise during night time.
- Route selection is also important to avoid noise pollution during night time.
- Noise level monitoring is recommended

Impact:

Water Resources can be depleted due to water requirement during construction.

Mitigation:

- Water wells will be designed to abstract water preferably from deep aquifer not being used by local communities.
- Maintenance and repair of water supply lines will be done properly.

- Water will be conserved at maximum level.

Impact:

Soil can be contamination due to vehicles and equipments use and fuel storage at the site.

Mitigation:

- Fuels, lubricants, and chemicals will be stored at paved area.
- Availability of shovels, plastic bags and absorbent materials will be ensured near fuel and oil storage areas.

Impact:

Wastewater generation due to construction activities

Mitigation:

- Wastewater generated during construction and domestic activities will be stored temporarily in septic systems comprising of septic tanks from where it will be routed to nearby drain/ nallah present near the project.
- Waste segregation measures will be employed to minimize entry of solid waste into the wastewater stream.
- An appropriately designed septic tank will be used to treat sewage/waste water to achieve NEQs.
- Periodic cleaning of the septic tank is recommended.

Impact:

Solid Waste Generation due to construction activities and project.

Mitigation:

- Construction waste will be reused or utilized for road filling or landscaping purposes
- Separate bins will be placed for different type of construction & domestic wastes
- Sale out to contractors
- Proper housekeeping will be ensured at workplace

Impact:

Socio-economic environmental impact like health safety and security

Mitigation:

- Employees and workers will be informed prior to start the construction
- Employment opportunities for local residents will be ensured.
- Basic health facilities will be provided to the workers.
- Security will be provided to workers.
- Local people will be preferred for hiring during project establishment

Impact:

Safety & Health impacts during establishment

Mitigation:

- Use of PPEs at workplace to avoid the health impacts
- Machinery used for establishment/construction activities will not be left in working condition

Impacts during Operational phase:

The subject project deals with the operational phase so, operational phase positive and negative impacts are discussed below:

Potential Positive Impacts:

The project is envisaged to have following major positive impacts;

Employment opportunities:

Subject project will be helped in generating new jobs for the local population. The requirement of Managers, Engineers, Workers, technicians, skilled and unskilled labor etc. generated employment opportunities. About 100+ persons employed during operations phase. Hence, there is large number of employment opportunities especially for the locals of District Faisalabad.

Improved Infrastructure:

Operational phase of the proposed project of M/S Diamond Clothing Industries (Pvt.) Limited will improve the infrastructure of the said unit as proponent has incorporated aesthetic values andregeneration of site in its present stage.

Economic benefits:

M/S Diamond Clothing Industries (Pvt.) Limited is leading textile unit in the country; they are expanding their business in Punjab. It is a great investment if the economy of our country. In the long run it will positively impact not only the local population but also the economy of Pakistan.

Potential Negative Impacts:

Types of Negative Impacts

Minor Impacts

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

Moderate Impacts

These impacts need specific and additional mitigation measures.

Major Impacts

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

Impacts on Physical Environments

Topography:

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

Residual Impact:

The residual impact of project activities on the topography of the area will be insignificant.

The residual effects are summarized below:

Nature of impact: direct

Timing: construction Phase

Duration: during construction activities

Likelihood: Nil

Consequences: no change

Impact significance: Not significant

Mitigation measures:

The project site will be maintained by proper landscaping that will match the pre project natural green features, through extensive plantation. Project activities will be executed in a way that it cannot harm naturally available resources.

Land Acquisition Resettlement:

One of the major impacts may include acquisition of land from the land owners and the resulting displacement of their families and disturbances in the livelihood of the affected persons (AP) in the project area. But present project land is ownership of M/S Diamond Clothing Industries (Pvt.) Limited and will not involve any type of land acquisition and resettlement activity.

Nature of impact: direct

Timing: Planning stage

Duration: not applicable

Likelihood: Nil

Consequences: no change

Impact significance: Not significant

Mitigation measures:

No resettlement will be involved. Land is property of proponent.

Solid waste/ sludge management:

In the facility proper solid waste management system is present for the prompt,timely and efficient disposal of solid waste & sludge for the reduction of its impacts. Same

procedure will be used in proposed project. Impacts due to solid waste & sludge may be temporary and minor in nature.

Nature of impact: Direct

Duration: Short term

Timing: operation

Reversibility: Not applicable

Likelihood: Low (unlikely) as mitigation measures ensures that Solid waste management in efficient way.

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

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

Mitigation measures:

- Devise plan & develop guidelines for the safe handling, storage & disposal
- Sludge is placed at the site after cleaning of wastewater treatment facility
- PPEs are strongly recommended for workers for the handling of sludge

Air Quality Potential Impact:

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

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

Assessment of Impact

Dust Emissions:

Dust emissions can cause by vehicular traffic on dirt track will be an important concern, primarily when such traffic will pass near community settlements. Dust emissions will cause the amount of particulate matter in the air to increase, and can become a health concern. Dust clouds can also reduce road visibility.

Gaseous Emissions:

Emissions will be produced by generators and vehicles and equipment will similar to those produced by generators in terms of the resulting pollutants (SO2, NOX, PM, etc.).

However, the extent to which they can produce would keep considerably lower, since much smaller engines will use in vehicles and construction machinery.

Nature of impact: Direct

Duration: long term

Timing: operation

Reversibility: irreversible

Likelihood: moderate if mitigation measures will be ensured.

Consequences: moderate, if pollutant levels in the ambient air will be control within acceptable limits by adopting proper mitigations.

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

Mitigation Measures

None of the potential effects discussed above will be exceeded to acceptable limits.

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

- All equipment and vehicles during the operation of project will be properly tuned and maintained in good working condition in order to minimize exhaust emissions.
- Vehicle speed will be reduced on track passing through or close to shops
- Speed limits will be imposed and encourage more efficient journey management worked to reduce the dust emissions produce by vehicular traffic. Water sprinkling will be done where necessary.
- Management make sure process will be environment friendly

Noise level:

Noise is the major concern during the operation phase. It can be generated from the traffic on the road and from the machinery used for operations.

Nature of impact: Direct

Duration: long term

Timing: operation

Reversibility: Not applicable

Likelihood: low

Consequences: slightly significant

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

Mitigation measures:

- Machinery and vehicles will be tuned and maintained
- Limits will impose on unnecessary use of horns
- Safety signs will be displayed. public & drivers will be aware of them

Impact on Biological Environment

Natural Vegetation

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

Assessment of Impact:

A significant impact can be caused due to the unnecessary or excessive removal and burning of plants for fuel wood.

Nature of impact: Direct

Duration: long term

Timing: construction phase

Reversibility: irreversible

Likelihood: moderate

Consequences: Mild, as no rare plant species were present in the areas.

Impact significance: significant

Mitigation Measures:

The following mitigation measures will reduce the impact on vegetation:

- Prohibition to park vehicles on green belts/ grass
- Unnecessary damage to vegetation is strictly avoided.
- Proponent planted trees and other species after construction phase

Fauna

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

Nature of impact: Direct

Duration: short term

Timing: construction phase

Reversibility: not applicable

Likelihood: low

Consequences: Nil, as no rare animal species are present in the areas.

Impact significance: not significant

Potential Impact on Social and Cultural Environment

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

Inconvenience due to raw material and product transporting Vehicles:

During the operational period a minor impact can be the movement of vehicles from the main road to the subject project boundary; it can affect the traffic on other roads and can cause minor annoyances to the residents and other industrialists of the area. The transportation of heavy materials and equipment likely to damage the roads use for the transportation of heavy machinery.

Mitigation measures: Efforts will make to discuss traffic conditions so that regular traffic might not disturb. Transporters engage for the project will be forced to adhere to the load specifications of the access road. No overloading will be allowed in any case.

Nature of impact: Direct

Duration: Short term

Timing: construction phase

Reversibility: reversible

Likelihood: low

Consequences: low, as it links the main Sheikhupura Road and vehicles rarely used the sub roads

Impact significance: slightly significant

Cultural Issues:

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

Mitigation Measures:

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

Nature of impact: Direct
Duration: Short term
Timing: construction phase
Reversibility: reversible
Likelihood: low
Consequences: low, project proponent implemented mitigation measure,
Impact significance: slightly significant

Accident risks:

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

Mitigation measures:

Contractor must have first aid kits along with the medical officer in the field in case of minor injury, but for unfortunate accident services of nearby hospitals availed. Routine medical check-ups of the entire field staff including unskilled labor conducted by a qualified doctor are recommended.

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

Nature of impact: Direct

Duration: Short term

Timing: construction phase

Reversibility: not applicable

Likelihood: moderate

Consequences: moderate, if complete trainings and mitigation measure will implement.

Impact significance: significant

Privacy Issues:

Disturbance can be happen at the time of construction, to the privacy of women residing in the work area when workers worked at height.

Mitigation Measures:

Contractor will take care of the privacy of residents, especially women near the working area.

Nature of impact: Direct

Duration: Short term

Timing: construction phase

Reversibility: reversible

Likelihood: low

Consequences: low, as contractor took care of the matter

Impact significance: slightly significant

Sharing of resources:

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

Mitigation measures:

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

Nature of impact: Direct

Duration: Short term

Timing: construction phase

Reversibility: reversible

Likelihood: low

Consequences: low, if conditions will be followed and mitigation measures employed

Impact significance: significant

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

Potential Environmental Enhancement Measures:

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

- Sprinkling of water will be done on dusty roads and tracks.
- PPEs will be provided during construction activity.
- Constructional waste and domestic solid waste will be disposed-off or utilized properly.
- Local people will be informed in advance when work is about to start in an area.
- Machinery will never be left unattended.
- Efforts should also be made to discuss traffic conditions so that regular traffic is not disturbed. Transporters engaged for the project would be forced to adhere to the load specifications of the access road. No overloading would be allowed in any case.
- Safety signs and boards will be placed during construction.
- Machinery will be kept maintained.
- Waste water will be treated through waste treatment system that will be installed within the premises of the subject project.
- Proper SOPs will be followed with proper schedule along with the HSE conditions.

- Area will be restored with native plants. A proper tree plantation plan will be formulated to save the environment.
- Solid waste will be handed over to contractors and agreement will be made.
- Noise will be controlled by adopting proper measures.
- PPEs will be provided to workers during working.
- Firefighting equipment's and system will be installed.
- Safety signs will be placed at all locations where required.
- Hygienic conditions will be ensured and proper quality will be maintained by quality control testing.
- First aid facilities will be made available.

Purpose of Mitigation measures

Purpose of mitigation measures should include:

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

The major impacts may arise by the subject project are, dust, noise, solid waste, and waste water. 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 through proper channel and on site. Trainings will be conducted regarding HSE, firefighting, best work practices etc. while other precautionary measures are also adopted to make the project safe and environmental friendly.

- **Where and how the problem should be addressed?**

Project proponent will be responsible for the implementation of EMP and if required he will appoint a HSE manager/environmental manager along with site manager to assess any

impact that could be arisen during construction and operation of the project. He is responsible to address the problem and to mitigate it.

Ways of achieving mitigation measures

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

- **Changing in planning and design:**

Project proponent of M/S Diamond Clothing Industries (Pvt.) Limited will take appropriate measures to provide pollution free and safe environment during the project activity by implementing improved management practices and monitoring techniques suggested in EMP. Management willfurther take necessary actions to mitigate any residual impacts.

- **Improved monitoring and management practices:**

Project proponent of M/S Diamond Clothing Industries (Pvt.) Limited will adopt such plan that will assure the minimum impact on the environment and health by implementing proper mitigation measures. Design of the building will assure the structure stability in a long run.

- **Compensation in money terms:**

Project site is the property of M/S Diamond Clothing Industries (Pvt.) Limited and there are not any land ownership disputes. If in future any issue would arise regarding environmental degradation, the project proponent will compensate in money terms as he has assured to achieve NEQS/ PEQS and compliance to other regulations made under PEPA 1997 (Amended).

- **Replacement, relocation and rehabilitation:**

Plantation will be done within the unit and for this area will be reserved. Project proponent will further develop Restoration/ reclamation or tree plantation plan to restore the project area. Plantation will be enhanced with native species within the unit, along the boundary wall and along the road side as per direction by EPA Punjab.

CHAPTER#5
ENVRIONMENTAL 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 conducted periodically. The proponent already conducting

training of all workers and staff regarding health safety and environment and the training record is annexed.

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 the all HSE condition at the PEQS.

Environmental Technical Assistance and Training Plan:

In order to raise the level of professional and managerial staff, there is a need to upgrade their knowledge in the related areas. HSE/Project Manager should play a key role in this respect and arrange the training programs.

HSE/Project Manager will provide training to staff and workers about the best environmental management practices at the construction site and affective implementation of the EMP

The training modules will include air, noise and water pollution monitoring, social awareness, Environmental Laws, National Environmental Quality Standards (NEQS), Usage of personal protection equipments, and health and safety related issues on the construction site.

The HSE/Project Manager will train all workers & staff in basic sanitation and health care issues (e.g., how to avoid malaria and transmission of Sexually Transmitted Infections (STI) HIV/AIDS and in general health and safety matters, and on the specific hazards of their work. Training should also consist of basic hazard awareness, site specific hazards, safe work practices, and emergency procedures for fire, evacuation.

HSE/Project Manager is being conducted Training on monthly or quarterly basis regarding health & safety, hygiene, firefighting and first aid.

Summary of Impacts and their mitigation measures:

Table 14: Summary of impacts and mitigation measures

Impacts	Mitigation Measures
Project Location	
• Observance of administrative and legal formalities • Acquisition of land • Loss of environmentally sensitive areas • Changes in traffic pattern • Potential conflicts with stakeholders • Resettlement issues	✓ The said unit of M/S Diamond Clothing Industries (Pvt.) Limited observes all administrative and legal formalities. ✓ It is recommended for obtaining of approval from other relevant departments. ✓ The proposed land is the property of the

	M/s Diamond Clothing Industries (Pvt.) Ltd. ✓ There is not any sensitive area near the project site. ✓ Many other industries are also working near the project site. ✓ The project proponent will achieve the NEQS/ PEQS at the boundary walls of the subject project to avoid the environmental impacts on the nearby industrial unit. ✓ There is no need to change the traffic pattern due the development of the subject project because no. of industries has been developed at the same road. ✓ Only few vehicles will visit the project on daily basis. ✓ 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. ✓ No resettlement issues
Project Design	
• Structure stability • Soil structure and soil bearing capacity • Road infrastructure design • Emergency exits • Firefighting system • Wastewater disposal system design • Electricity hazards • Ventilation	✓ Structure stability of the project building should be ensured ✓ Geotechnical investigation of the project site should be conducted. ✓ Safe road infrastructure design should be provided at the project site. ✓ Emergency exist points should be marked within the project building. ✓ Firefighting equipment must be maintained at the site in good working condition. ✓ Efficient wastewater disposal system

	should be designed for proper treatment of wastewater ✓ Electricity system should be designed safe and sound. ✓ Proper ventilation should be ensured in the project building.
Construction and operation phase	
Land & Soil	
• Land or Soil Erosion during the construction phase • Habitat destruction • Scarring of the landscape and aesthetic beauty. • Clearing of native plants will disturb the complexity of the ecosystem of the proposed area. • Leakage of oil from storage area may contaminate soil	✓ Sprinkling of water is recommended ✓ After construction phase, the project proponent will restore the land by plantation. ✓ All spoils will be disposed of as desired and the site will be restored back to its original conditions ✓ Aesthetic of the area will be maintained. ✓ Oils, lubricants, chemicals, and other listed hazardous materials should be stored safely at their designated spots, enclosures or store rooms, which should be safe from rainfall and away from any potential source of fire
Air pollution and Dust emission	
• The transportation of the project machineries and material also may cause dust. • Un-metaled roads may cause dust. • Dust raised on dirt tracks by project-related vehicles. • Dust from drilling of deep holes. • Combustion products from vehicles used for project-related activities	✓ Air emissions controlled devices must be installed to control the air pollution ✓ Water the construction site periodically to minimize fugitive dust generation while laying foundation ✓ Store all construction materials in a manner to minimize generation of dust and spillage on roads. ✓ During excavation works drop heights will be minimized to control the fall of materials reducing dust escape. ✓ Sprinkling of water must be done to control the dust or PM

	✓ Vehicle emissions inspection should be done on regular basis ✓ Sprinkling should be done on the unpaved area to avoid dust pollution/ particulate matter. ✓ Vehicles/ trucks should be serviced regularly ✓ All project vehicles will be checked regularly to ensure that engines are in sound working condition and are not emitting smoke.
Noise	
• The major sources of the noise at proposed project site are project related machinery. • High noise level cause hearing loss, deafness, high blood pressure, headache, depression and mentally disturbance. • Noise level will not exceed 75 dB(A) at the distance of 2 km radius, activity site is located at a safe distance from the nearest human settlement . • Noise from construction activities from site preparation, earth works, foundation and plant equipment installation	✓ Personal Protective Equipment PPEs including Ear muffs, Ear plugs and other noise abating equipment will be provided to the workers and other staff of the subject project. ✓ Proper maintenance and tuning of the vehicles should be done. ✓ Sound proof room should be built for generator (if any) to control the noise. ✓ A speed restriction of 40 km/h will be imposed on all construction vehicles.
Waste Water	
• Domestic waste water from the camp • Minor generation of waste water from construction activity. • Water Contamination due to improper storage of construction material, • Water contamination due to improper debris disposal, • Spread of diseases, underground water contamination	✓ Domestic waste water will be drained out in nearby local drain after treated in septic tanks ✓ Oils, lubricants, chemicals, and other listed hazardous materials should be stored safely at their designated spots, enclosures or store rooms, which should be safe from rainfall

Solid waste	
• Solid waste may generate from construction activity, domestic and packing material of project related machineries. • Solid waste may generate from operation of project.	✓ A solid waste management divisionshould be formulated to deal with the proper disposal of solid waste, supervised by HSE Manager, SW Manager, and other related personnel. ✓ Solid waste generated from the construction activity as sand, stones residues etc. that should be utilized in restoration of the quarry area whereas solid waste from the domestic sources should be disposed off properly ✓ Proper solid waste management system is recommended. ✓ Sludge will be remove and dispose off in scientific way. ✓ Solid waste related to the operation will also manage in scientific way.
Health and Safety	
• Health and safety issues will be arose during construction activity, handling of material, machinery and improper practices of work • Health safety issue may arise during regular operations	✓ Use of PPEs should be implemented at workplace. ✓ First aid measures/medical facility should be provided to project related employees. ✓ Safe drinking water must be provided to workers, staff, and poor people of the area. ✓ Water consumption records should be maintained ✓ Safety signs & boards should be placed at during construction activity. ✓ Construction site should be fenced properly to avoid any damage to nearby settlements ✓ smoking or any drugs should be prohibited during working hours or performing work ✓ At the time of earthwork, fencing will be ensured for the area under the

	exploration

Equipment maintenance details:

The subject project is the extension of Construction Textile Unit Comprising of Dyeing Printing & Stitching By M/s Diamond Clothing Industries (Pvt.) Ltd. The company will maintain the records for Health Safety & Environment and will hire HSE manager to check and deal with the HSE issues. The company shall maintain PPEs, medical facilities, firefighting Equipment's as fire buckets, fire hydrants and fire extinguishers and records for their periodic fillings or replacement.

Environmental Budget

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

Company has allocated the Environmental Budget of 500,000/- quarterly 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.

Environmental Management Plan

Table 15: Environmental Management Plan of M/S Diamond Clothing Industries (Pvt.) Limited for proposed project

Serial. No	Aspects	Impact & Mitigations to be taken			
		Impacts	Mitigation measures Construction/Operation	Responsibility	Monitoring
Land acquisition for the proposed project					
1	Land acquired for the lease for the proposed subject project	Resettlement issues may arise	• The site for proposed project is property of proponent	Proponent	Environmental Consultant/ EPA Punjab
Land use & soil erosion					
2	Land Use &Soil	Particulate Matters (PM) pollution, Clearing of the vegetation Undulated patches. Scarring of the landscape and aesthetic beauty. Clearing of native plants will disturb the complexity of the	• Measures have been taken to avoid soil erosion and dust pollution. • Restoration and reclamation plan will be developed to restore the natural landscape of the area. • Plant nursery, garden will be developed to rehabilitate the native plants of the area. • Project proponent will make any possible efforts to limit the impact on flora and fauna.	HSE Department of proponent	Environmental Consultant/ EPA Punjab

		ecosystem of the proposed area. Dust emissions will generate during the construction Flue gases will be generated due to the involvement of generators and other machinery.	The management of proponent has serious concern to preserve the environment and natural elevation beauty of the site		
Ambient Air Quality					
3	Air Quality	**Particulate Matter and fugitive dust Emissions** • Dust emission dueto vehicles on un- metaled roads. • Dust due to Construction • Dust raised on dirt tracks by project-related vehicles. • Dust emission during earthwork • Gases emissions from the vehicles Air pollution due to site	• Air emissions controlled devices must be installed to control the air pollution • Water the construction site periodically to minimize fugitive dust generation while laying foundation • Store all earthwork and construction materials in a manner to minimize generation of dust and spillage on roads. • During excavation works drop heights will be minimized to control the fall of materials reducing dust escape: Temporary cover may be provide for earthwork if necessary • Sprinkling of water must be done to control the dust or PM • Vehicle emissions inspection should be done on regular basis	HSE Department of proponent	Environmental Consultant/EPA Punjab

		visiting vehicles/ transported trucks, hauled trucks , machinery & generator (if any)	• Sprinkling should be done on the unpaved area to avoid dust pollution/ particulate matter. • Vehicles/ trucks should be serviced regularly • All project vehicles will be checked regularly to ensure that engines are in sound working condition and are not emitting smoke. • Wet scrubbers will be installed at stacks of generator (if any) to avoid gaseous emission. • Quarterly or monthly monitoring is recommended by EPA certified labs to check the compliance with NEQS as per EPA NEQS Rules 2001 Air quality was conducted by EPA certified lab and results are incorporated within this report		
Noise & Vibration					
4	Noise	The major sources of the noise at site are project related machinery. High noise level cause hearing loss, deafness, high blood pressure, headache, depression and mentally disturbance.	• Personal Protective Equipment PPEs including Ear muffs, Ear plugs and other noise abating equipment will be provided to the workers and other staff of the subject project. • Proper maintenance and tuning of the vehicles should be done. • Sound proof room should be built for generator (if any) to control the noise.	HSE department of Proponent	Environmental Consultant/ EPA Punjab

		noise level will not exceed 75 dB(A) at the distance of 2 km radius, activity site is located at a safe distance from the nearest human settlement . Noise from construction activities from site preparation, earth works, foundation and plant equipment installation.	• A speed restriction of 40 km/h will be imposed on all construction vehicles. • Quarterly or monthly monitoring is recommended by EPA certified labs to check the compliance with NEQS as per EPA NEQS Rules 2001. • Noise level monitoring was conducted at different location and results are incorporated within the *report.*		
Soil Contamination					
5	Soil contamination	Contamination of soil due to oil and other chemicals storage, transportation Soil contamination due to waste water generated from the project activities	• SOPs will be developed for the storage of oil and other chemicals handling and transportations • Soil contamination must be controlled by adopting mitigation measures such as storage of oil, fuels etc. under paved area, by maintaining leakage record of construction vehicles, and by regular inspection (admitted by proponent). • Waste water treatment plant should be	HSE Department of proponent	Environmental Consultant/ EPA Punjab

			installed during construction and operational phase • Water from the treatment plant must not be injected into the sub soil. • Tarpaulin sheets should be placed under generators and other leaching substances • Treated water will be used for plantation Proper storage of oil, fuel etc. is recommended under paved area		
Health and safety					
6	Health and safety	Health & safety issues of workers and nearby community	• Trainings of the workers is recommended for health & safety, first aid and firefighting. • Proponent must provide First aid facilities to workers in case of any injury or accident. • Safe drinking water must be provided to workers, staff, and poor people of the area. • Water consumption records should be maintained • Provision of Proper PPEs must be ensured	HSE Department of Proponent	Environmental Consultant/ EPA

			at workplace • Assembly point and exit points must be available at workplace • Electric wires, D.Bs must be kept covered & closed to avoid any electric hazards • smoking or any drugs should be prohibited during working hours or performing work • Safety signs & boards will be placed at the time of construction activity • Security guards will be appointed at the construction site • At the time of construction and earthwork, fencing will be ensured for the area under the exploration Further proper housekeeping and safety arrangements must be ensured at the subject project		
Waste Water					
7	Waste water	Minor generation of waste water from construction activity. Water Contamination due to improper storage of construction material, Water contamination due to improper debris	• Waste water generated from the constructional activity will be used as sprinkling on the dusty tracks or for restoration of the land. • Waste water monitoring is recommended on monthly or quarterly basis by EPA certified lab to check the compliance with NEQS and as per EPA NEQS Rules	HSE department of proponent	Environmental Consultant

		disposal, Waste water pollution, Spread of diseases, underground water contamination	2001		
Solid waste generation					
8	Solid Waste Generation	Land & soil contamination, aesthetic degradation, foul smell etc. Solid waste generation from the construction activity, domestic and project process sources	• A solid waste management division will be formulated to deal with the proper disposal of solid waste, supervised by HSE Manager, SW Manager, and other related personnel. • Constructional waste must be utilized for road filling or maintenance purposes • Recycling of material should also be implemented up to possible extent. • Project related solid waste should be handed over to contractors • Sludge from the septic tank must be replaced on regular basis • It is recommended to ensure Proper housekeeping. • It is recommended to adopt proper waste management system	HSE Department of proponent	Environmental Consultant/ EPA Punjab

Odor					
9	Odor	There will be no source of odor from the both construction and operation of the project	Nil	NA	
Energy requirement					
10	Energy requirement	Resource depletion	• Do not waste the energy/electricity when there is no need of it. • Use energy efficient machinery and equipment • Use energy saving products • Conduct and maintain records for energy audits • Do not leave the machinery in running form when there is no working being done • Machinery must never be left unattended • It is recommended to save and conserve the energy and adopt energy efficient technologies during the construction phase	HSE Department of proponent	Environmental Consultant/ EPA Punjab
Socio economic impacts					
11a	Resettlement	Resettlement issues	• The proposed area under the	NA	NA

			investigation is devoid-off any human settlement		
11b	Language	Change in cultural language	• Maximum employment of Local people is recommended to preserve the local cultural language. • It will help in communication with the local people to resolve any emerging issue near the project area	Proponent	NA
11c	Education	Change in social behavior and economic gains	• School and colleges exist in the area. The project proponent will initiate an educational awareness program with the coordinator of the local people.	Proponent	NGO survey
11d	Health	Social performance of the individuals in the area	• The project proponent will assist the local impacted community for the improvement of health services • Health clinic must be established for the project workers.	Proponent	proponent
11e	Culture and norms of the area	Change in culture by the influx of nomadic people	• Maximum local employment should be ensured to preserve the culture of the area	Proponent	NGO survey/Environmental Consultant
11f	Women empowerment	Gender inequality	• Women involvement in decision making process should be ensured • Equal employment opportunity in suitable department of the proposed project should be ensured	Proponent	NGO survey/ Environmental Consultant
11g	Sewage and	Diseases caused by	• Subject project will uplift the economic	Proponent/	NGO survey/

	waste disposal	improper sanitation	status of the nearest human settlements. • Awareness program will be initiated regarding the disposal of waste	local NGO	Environmental Consultant

Need for Disaster Management and Emergency Response System

In order to cope up with the possible hazards it is imperative to prepare the Disaster Management Plan and rehearse it frequently. To evaluate effectiveness of the system preparedness exercises and drills will be undertaken frequently. Small courses will be run to train the relevant persons about their actions during emergency. The administration staff need be familiar with the firefighting procedures and equipment.

Communication System for Declaring Disaster and Emergency Situation

On immediately on occurrence of emergency situation all employees will be informed through disaster Alarm System. The emergency siren means that all employees will assemble at the previously designated assembly areas. At this place the Head of HSE department will instruct the workers regarding their respective duties.

Identification of Risks/Possible Threats

The project and other occupants may come across untoward incidents on account of human interventions and natural catastrophes. Human induced risks may include the placing of an explosive device for causing damage to building and burning of essential office/documentary records. Improper use of electrical, heating and cooking gadgets may lead to outbreak of fires. Similarly the

smokers may create large-scale burnings. The natural hazards consist of the possible damage to of the building due to an earthquake or windstorm. Thus there is need of carrying out risk assessment for such eventualities.

According to public Consultation natural disaster are very rare in the area. After the operation of the project proper SOPs will be developed to cope with emergency situation.

Risk Management

Definition of Risk

Risk may be minor, serious or fatal. It may be rare, often or frequent.

Risk = Damage X Rate of Occurrence.

Risks are broadly acceptable, tolerable, unacceptable and residual.

Elements of Occupational Health and Safety Management System (OHMS)

For an effective OHMS, the management of the project will implement the following elements:

- Formulation of OHS Policy
- Identification of risks, hazards and countermeasures
- Adoption of OHS targets based on OHS policy
- Formulation of OHS plans.
- Incorporation of opinions of stakeholders in OHS measures
- Implementation and operation of OHS plans
- Establishing an organization
- Documentation
- Emergency situation
- Routine inspections and improvements
- System audits
- Revision of OSHMS
- OHS education

Post Disaster Rehabilitation

On close of the disaster the management will immediately undertake activities for restoring the normalcy at the site. Efforts will be made to carry on with the operations.

Aim of Monitoring

The aim of monitoring is to oversee the environmental performance of the project through its lifecycle enforcing the NEQS. Timely implementation of mitigation measures leads to sustainable environmental management of the project.

Objectives of Monitoring

Salient objectives of the environmental monitoring program are as under:

- To ensure effective surveillance of the environmental parameters at various stages of the project development
- To enable the management undertake the required mitigation measures when needed
- To ensure compliance with the NEQS and legal obligations

Environmental Monitoring Cell (EMC)

EMC of the project undertake monitoring of the Safety, Health and Environmental Aspects. It ensures implementation of EMP and apprise the General management of the unit on fortnightly basis.

Training of Monitoring Staff

Training of the monitoring staff arranged at site and off site Special cadres ran about functioning of the project and apparatus including the firefighting and first medical aid.

Monitoring of Quality

The EMC will arrange monitoring of the quality of air, water, noise and waste water on quarterly or monthly basis from any EPA Certified/approved laboratory if required.

Monitoring Plan

- The monitoring is carried out in accordance with NEQS.
- Monitoring program is undertaken for compliance of mitigation measures.
- Monitoring for various parameters is done before the construction phase as per

direction from EPA.

Following aspects need to be monitored regarding the subject project.

- ✓ Air quality
- ✓ Water quality
- ✓ Noise level
- ✓ Management of utility services including firefigting, water supply, sewerage disposal, electric supply and solid wastes.

EPA certified Laboratories has conducted the monitoring for ambient air quality, water quality and noise at the Diamond Clothing Industries (Pvt.) Ltd for the Environmental Impact Assessment of proposed Construction Textile Unit Comprising of Dyeing Printing & Stitching By M/S Diamond Clothing Industries (Pvt.) Limited of the said unit.

CHAPTER#6
PUBLIC CONSULTAION AND STAKEHOLDER PARTICAPATION

This section deals with the social acceptability of the project and the area. Consultation with the stakeholders is a tool for managing two-way communication between the project proponent and the affected public. Its goal is to improve decision making and build understanding by actively involving individuals, groups and organizations, which have stake in the project. This involvement increases project's long term viability and enhances its benefits to locally affected people and other stakeholders. It gives the feeling of an ownership to the local population and public indolent is also helpful in smooth implementation and success of the project.

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

Objectives of Consultation

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

The important general objectives of the consultation process are:

- Information dissemination, education and liaison;
- Informing the stakeholders about the subject project

- Providing an opportunity to local public to raise their views and helping in more sensitive considerations for the formation of mitigation measures for the subject project
- Providing those involved in the planning stage with an opportunity to ensure that the benefits of the proposal are maximized and that no major impacts have been overlooked
- It provides an opportunity to local public to influence the design of project in a positive manner
- Increasing public confidence in front of proponent, reviewers and decision makers
- Identification of problems and needs of the stakeholders and public
- Providing better transparency and accountability in decision making stage;
- Reducing conflicts through early identification of contentious issues and working on them to find acceptable solutions
- Reaction, comment and feedback of stakeholders on project;
- Developing proposal which are truly sustainable;

Methodology of consultation:

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

- Selection of the stakeholders for consultation, reconnaissance of the project site and initial discussions with the neighboring factory workers, residents, shopkeepers, drivers etc.

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

Stakeholder identification:

Stakeholders considered at all levels according to the importance of the project. They are at provincial, district and village level. The process of consultation is an ongoing process which continues during the project life cycle and even after the submission of this environmental assessment report and so on. Therefore, three-tier approach was adopted. Stakeholders were identified, categorized and consulted at provincial (EPD Punjab, Irrigation department, Agriculture department, Wildlife department etc.), district level (EPD, Irrigation department, Agriculture department, Wildlife department etc.) & village level (Direct & indirect affectees and Locals)

Consultations with government, provincial and district level departments were carried out through meetings and visits while consultations with locals, villagers, neighbors and directly affected peoples were under taken during baseline study of the area.

Consultations were held with the followings;

Provincial Level:

1. Environmental protection department, Punjab
2. Agriculture department, Punjab
3. Forest Department, Punjab
4. Wildlife department, Punjab
5. Irrigation Department, Punjab

District Level:

1. Environmental protection department, Faisalabad
2. Agriculture department, Faisalabad
3. Forest Department, Faisalabad
4. Wildlife department, Faisalabad
5. Irrigation Department, Faisalabad

Village Level:

1. Project Affected Peoples (PAPs) & local community
2. Neighboring workers
3. Shopkeepers

4. Traders
5. Drivers

Consultations:

A series of public consultations were required to get the feedback/ concerns of the different departments, Industries, local public, PAPs, and general public residing near the subject area.

Proponent

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

Responsible Authority

Management of M/S Diamond Clothing Industries (Pvt.) Limited is the responsible authority to take all measures throughout the life cycle of the project.

Other departments and agencies

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

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

Environmental Practitioners and Experts

Team of M/s EHS Services visited the project site, had discussions with stakeholders and consulted with the local people of nearby and other villages to evaluate the project socio-economic impacts. People of the area belong to different professions like mostly belong to employment, own businesses, doctors, some in abroad, in Army, teaching, in agriculture, etc. Women were also consulted for their point of view regarding the betterment of the

area by this project, some of them communicated but according to social value of the area they mostly hesitate to communicate comfortably and get pictured. People provide the massive information about the project and have positive remarks regarding the project development.

S#	Participant	Designation	Concerns/Remarks
Responsible Authority			
1	Muhammad Aslam	Inspector Environment Department	• EHS plan should be enforced strictly • Proponent should install and operate wastewater treatment plant properly • Should work for local people benefit • Preventive measures should be adopted to avoid any unfortunate incident • Environmental enhancement measures such as; Tree plantation, monitoring and safety should be ensured
Departments and Agencies			
Livestock Department			
1	Dr. Muhammad Afzal Khan	Assistant Director Livestock	• There are no endangered species present at site • He also expressed that local people should be first preference for jobs and CSR works.
Proponent Environment Management Team			
1	Proponent Environment Management Team	Proponent Environment Management Team	• Local employment will be ensured • Tree plantation will be done to make project environment friendly • Effective technology treatment plant will be installed • No waste will be dumped improperly
Environmental Practitioners and Experts			
1	Dr. Muhammad Faqir Irfan	PhD. Environment Lawyer	• Wastewater treatment should be operated properly to minimize pollution load

Affected and Wider Community			
1	Mr. Khurram	NGO (Parho Barho Punjab)	• Local employment should be ensured • Proponent shall work for betterment of community

Affected & Wider Community

There is no affected community present in the radius of our study area. PGEE team has consulted with the inhabitants of the Faisalabad area. They provided positive remarks regarding the proposed project. Stakeholders participation Performa's and socioeconomic questionnaire were get filled by the inhabitants to evaluate the project socio-economic impacts. List of the respondents/participants can be seen in bellow table.

Table 16: List of respondents

Sr. No.	Name	Status/ Education	Age	Residency
1	Javaid Ahmad	Student (B.A)	23	Chak 245 Jb
2	Amin Ahmad	Nil	44	
3	Muhammad Shahzad Meo	Nil	30	
4	M. Ishafaq	Middle	18	
5	M. Mansha	Nil (shopkeeper)	42	
6	Muhammad Habib	M.A	45	
7	Nadeem Akhtar	Primary	32	
8	Ilyas Ahmad	Middle	24	
9	Zahid Ali	Matric (Jod)	40	
10	Muhammad Yousaf	Primary	35	
11	Sian Nazir Ahmad	Nil (Care taker)	61	
12	Mirza Ahmad Sial	primary	35	

12	Ahmad Riaz	Nil	36	
14	Rana Imtiaz Hyyat	Graduation	42	
15	Amjid Ali	Student (M.Phill)	25	Abbas pur
16	Rehan aslam	Student	23	
17	Usama hameed	Student	23	
18	Rehma malik	Matric	25	
19	Qasim bilal	Nill	30	
20	Sinan ahamad	Intermediate	24	
21	Sajeel malik	Driver	31	
22	Abdullah	Employee	32	
23	Haseeb ranjha	Farmer	35	
24	Hassan ch	Employee	32	
25	Shahzad anjum	Farmer	31	Chak 75JB
26	Imran ali	Employee	30	
27	Zameer ahmad	Driver	25	
28	Toqeer rana	Student	23	
29	Gafoor sultan	Resident	33	
30	Nouman anwar	Employee	31	
31	Aman haider	Shopkeeper	29	
32	Shaheem	Shopkeeper	27	
33	Zawar haider	Student	24	
34	Zainab abbas	Nil	36	
35	Waqas khan	Employee	34	
36	Talha mushtaq	Matric	31	

37	Sameen khookar	Driver	39	
38	Usman sarwar	Resident	41	
39	Hussain ali	Employee	35	Tibi
40	Kamran Raza	Matric	42	
41	Adeel ali	Student	22	
42	Sadaf riaz	Nil	34	
43	Rahaj shahbaz	Employee	33	
44	Mohad Afzal	Employee	43	
45	Arham shahzad	Driver	42	
46	Ali murtaza	Shopkeeper	46	
47	Yasir akram	Matric	32	
48	Muddasar Bhatti	Employee	37	
49	Zafar ullah khan	Employee	31	
50	Waqas chohan	Employee	30	

*Questionnaire filled during the public consultation/interview are attached. (**Annexure**-I)*

Figure 7: **Public participation**

Figure 6: Public consultation

Figure 7: Public consultation

Sample size

50-55 sample size was selected by the Team of consultants for conducting the socioeconomic survey. Women were also consulted for the said survey; some of their names are mentioned in the above list of respondents while most of them were not willing to give personal information.

Statistical Analysis

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

Result and discussion

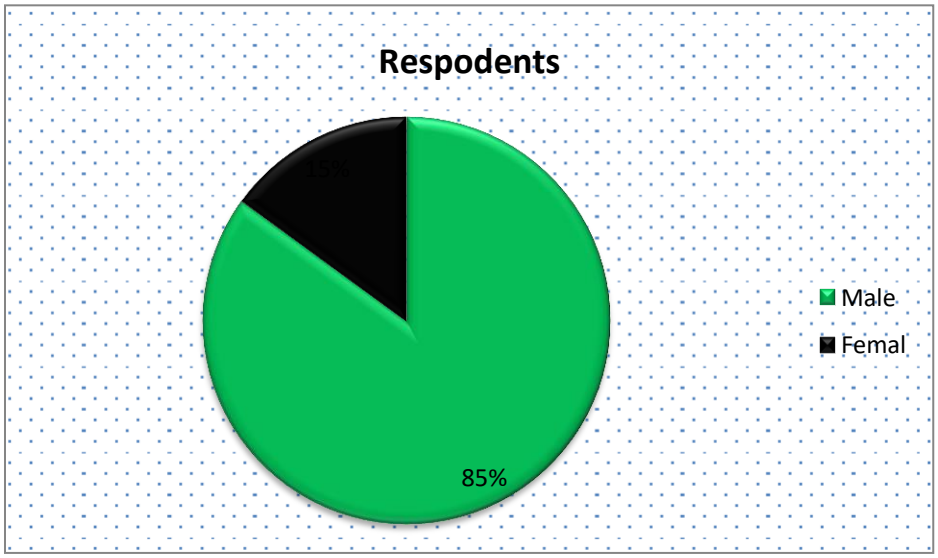


Figure 8: Gender ratio of respondent

Discussion

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

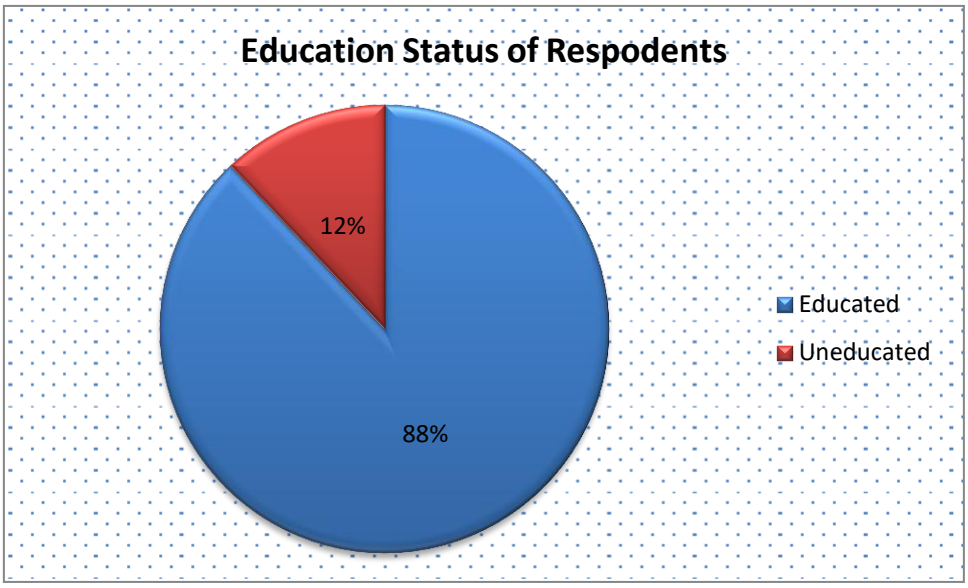


Figure 9: Education status of respondents

Discussion:

According to above graphical representation, 88 % respondents were educated while 12% were uneducated. So, according to the survey overall education status of the area is good.

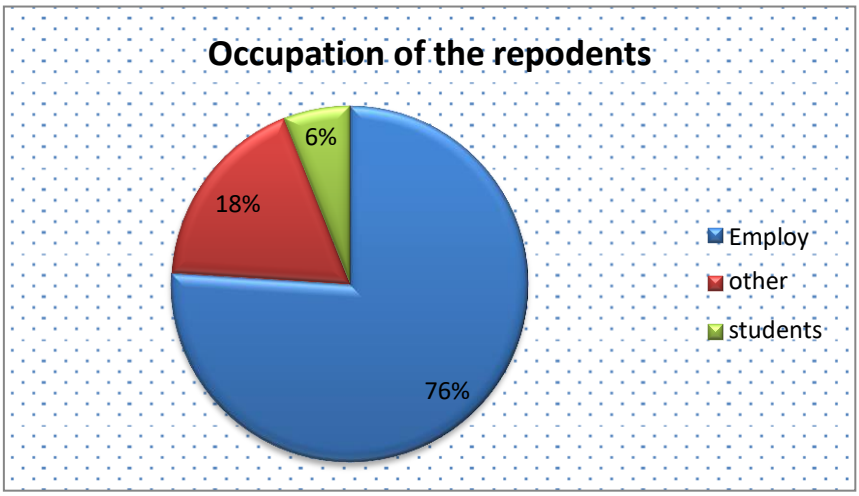


Figure 10: Occupation of respondents

Discussion

According to above graphical representation, source of income of majority of the respondents in the area was mainly employee in the private and government sectors.

According to the survey 6% were students while all other respondents' source of income was business man, farmers, doctors and teachers.

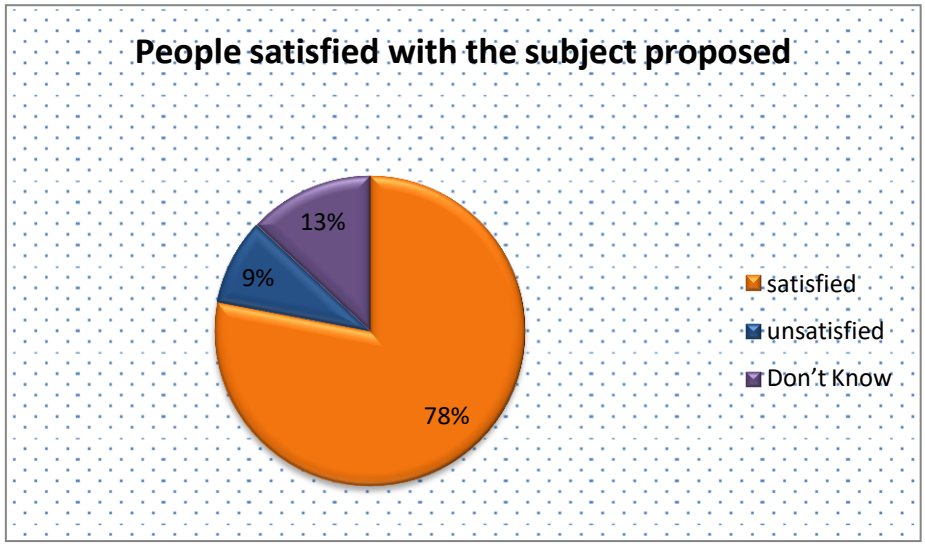


Figure 11: Ratio of people satisfied with the proposed project

Discussion:

As per survey, 78% people were satisfied with the proposed project of M/S Diamond Clothing Industries (Pvt.) Limited and they gave positive remarks regarding the said unit and proposed project as they got job over there, their living standard raise over working there. While 13% respondents were have no opinion regarding the project and 9% respondents were not satisfied withthe production unit due to their concern regarding the aesthetic degradation and no preference to local people for jobs.

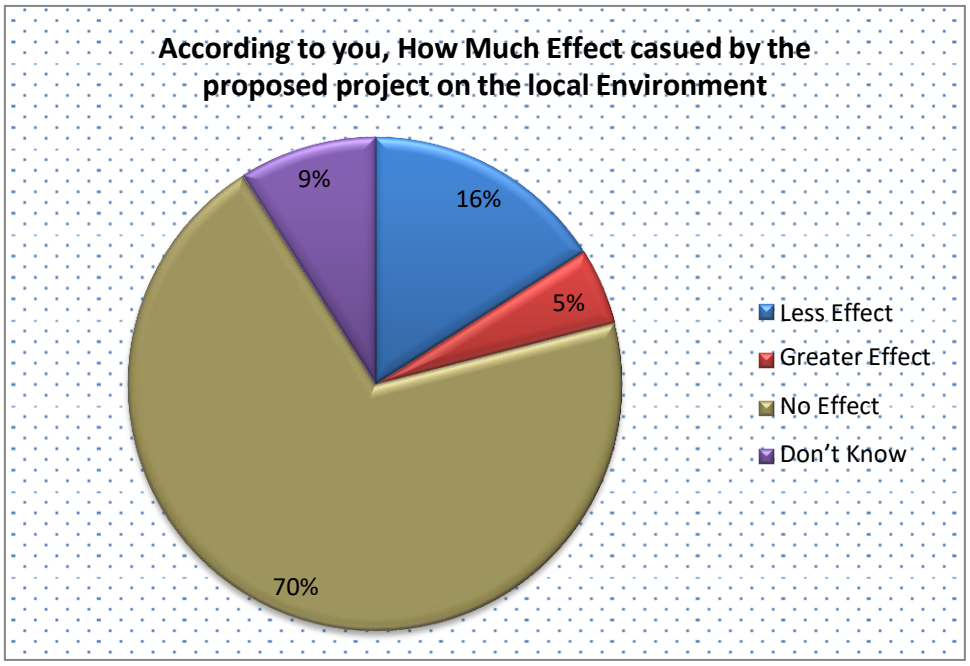


Figure 12: Ratio of respondent having different views regarding impact on environment

Discussion:

As per survey, 70 % respondents remarked that there is no effect caused by the proposed project on the area environment while 9% respondents had no point of view regarding the project activity, 16% respondents remarked that subject activity has less effect on the environment of area and only 5% remarked that mining activity has greater effect on the environment of the area.

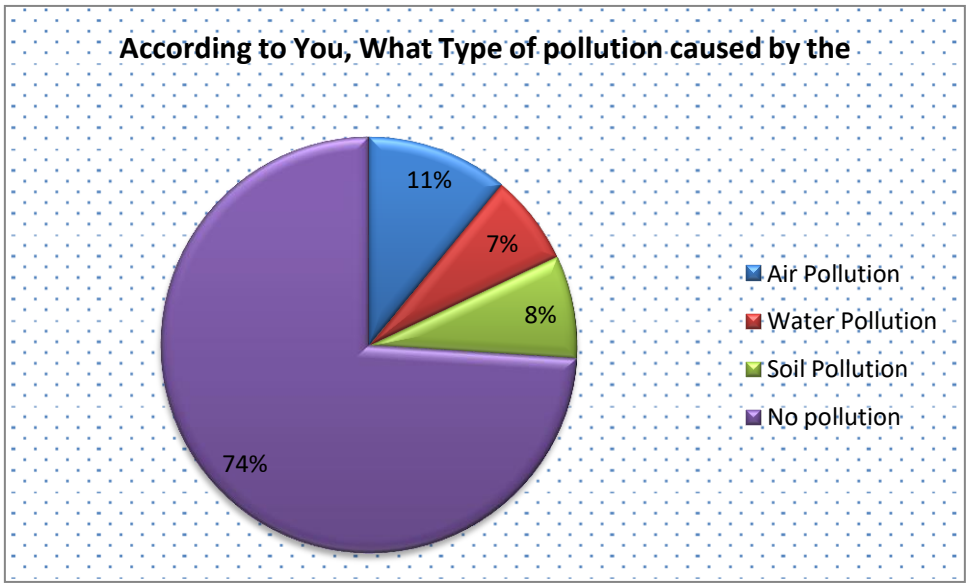


Figure 13: Type of pollution cause by the proposed project

Discussion:

As per survey of the area and graph indicates, some people gave remarks that there are higher air pollution (i.e. 11%) by the subject project, some people said that there is soil pollution caused by the proposed project (i.e. 8%) by the subject activity. Maximum/ number of people said that there is no pollution caused by the subject project while some people said that water pollution (i.e.7%) caused by the subject activity.

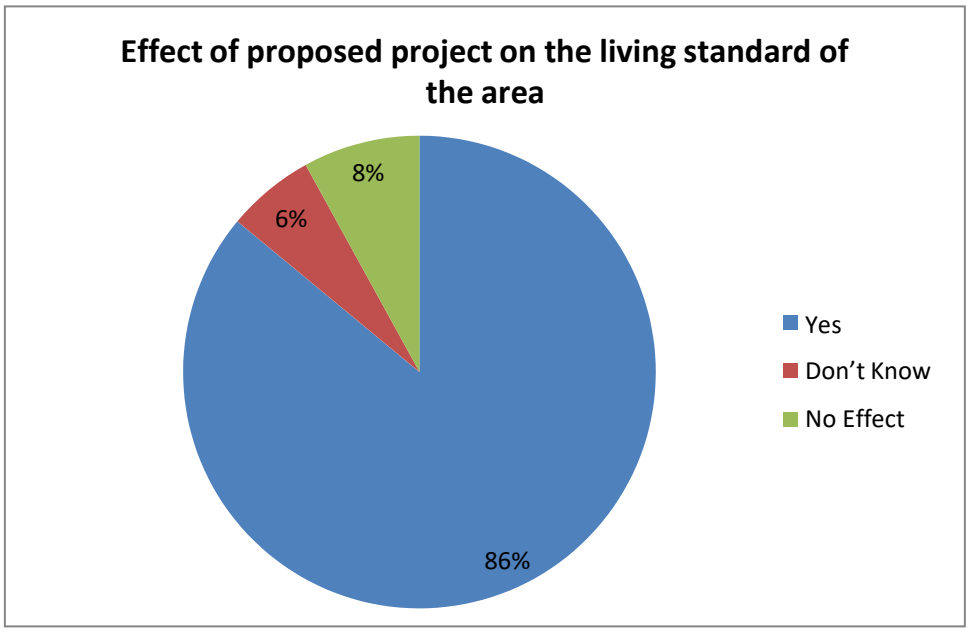


Figure 14: Effect of project on the living standard of people

Discussion:

As per survey, 86% respondents said that subject project has enhanced the living standard and income level of the area, 8% said that there is no effect on the living standard and income level while only 6% respondents had no remarks regarding the subject project.

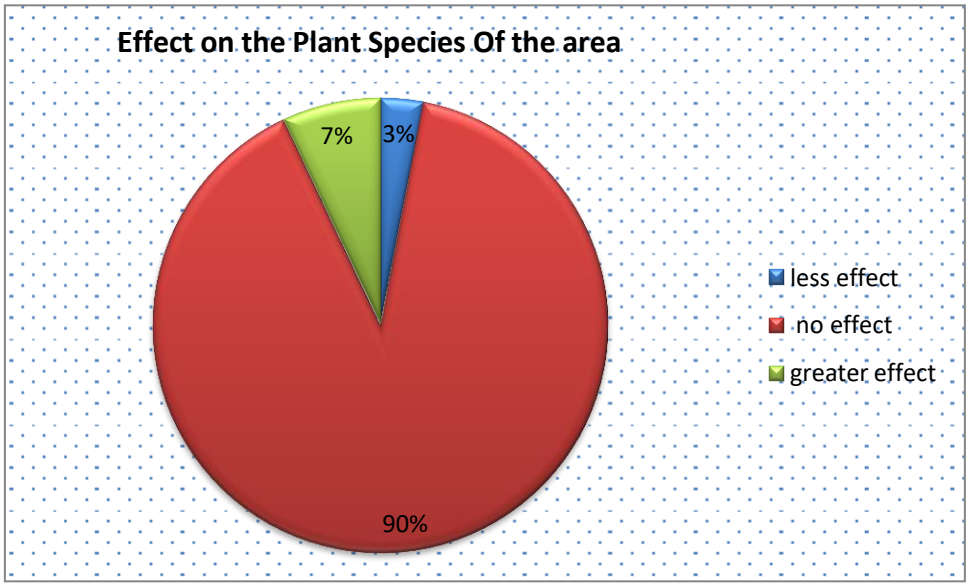


Figure 15: Effect of proposed project on flora

Discussion:

As above graph indicates, 90% of the respondents remarked that there is no effect caused on the plants species by the construction and operation of the proposed project, 7% said that there is greater effect can cause on the plants species by the subject activity by clearing the plants at the time of construction and 3% said that less impact will be cause by the subject project on the plants species.

CHAPTER#7
CONCLUSIONS AND RECOMMENDATIONS

Based on the study conducted for Environmental 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.
- Project is environmental friendly and will produce less pollution
- The proponent will implement the project in the environment friendly manner.
- Project proponent will adopt the proper solid waste management system.
- Proponent will adopt all the necessary measures to control any impact if resulting from the project.
- Project proponent will provide the safe drinking water to all workers and staff.
- 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 Diamond Clothing Industries (Pvt.) Ltd. intends to register the project with local Government.
- M/s Diamond Clothing Industries (Pvt.) Ltd. has prepared and implemented very comprehensive EmergencyPreparedness and Response Standard Operating Procedures for the proposed unit.
- M/s Diamond Clothing Industries (Pvt.) Ltd. has prepared and implemented very comprehensive Security and FireFighting 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 and near the unit is recommended.

- V 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 Diamond Clothing Industries (Pvt.) Ltd. will continue to assist the local communities as acorporate/social responsibility.
- Any seepage and leakage will be control through proper mitigation measures
- Sound proof room should be constructed for generator to control the sound of it.
- Use of narcotics and smoking must be prohibited during working, filling or handling of fuel.
- PPEs must be provided to workers such as gloves, masks, etc.
- Proper solid waste management system must be adopted
- Safety signs, safety board's etc. must be placed on site during various developmental stages.
- Machinery will be never is left in running condition.
- First Aid measures, health & safety Equipment (PPEs) will be provided to workers.
- Fire Fighting equipment & system will be installed in case of fire hazards.
- The management of subject project will assist the local communities as a corporate/social responsibility.
- Jobs and employment will be produced to the local area

The present EIA report is enough to meet the administrative and legal framework.
Therefore, the environmental approval may be accorded for the present project.