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LIST OF ABBREVIATIONS

Approx.	Approximately
°C	Degree Celsius
dB (A)	A weighted Decibel Scale
EIA	Environmental Impact Assessment
ETP	Effluent Treatment Plant
EMMP	Environmental Management and Monitoring Plan
EMP	Environmental Management Program
Engr.	Engineer
EPA	Environmental Protection Agency
EPD	Environmental Protection Department
Hons.	Honors
Km	Kilometer
Ltd.	Limited
m^3/h	Cubic Meter per Hour

NEQS	National Environmental Quality Standards
No.	Number
NOC	No Objection Certificate
PEPA, 1997	Pakistan Environmental Protection Act, 1997
PEPA, 2012	Pakistan Environmental Protection (Amendment) Act, 2012
PKR	Pakistani Rupees
PM	Particulate Matter
PPEs	Personal Protective Equipments
Pvt.	Private
SOPs	Standard Operating Procedures
WAPDA	Water and Power Development Authority
WASA	Water and Sanitation Agency
FESCO	Faisalabad Electric Supply Company

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EXECUTIVE SUMMARY

1. Title and location of Project with GPS coordinates

This executive summary presents an overview of the main findings of Environmental Impact Assessment (EIA) Report for Establishment of M/s Victory Pipe Industries (Pvt) Ltd at Plot#18, zone 1A, M-3 Industrial city FIEDMC, Faisalabad. The purpose of said project is produce best quality steel pipes and tubes to meet market demand. For this instance, EIA Study of aforesaid project has been conducted to accord Environmental Approval/NOC from Environmental Protection Agency (EPA) under Punjab Environmental Protection (Amendment) Act, 2012 and IEE/EIA Regulations 2022. The process for conducting environmental assessment and the results of EIA Study is described in detail in this document.

2. Name of the Proponent along with contact num and email

Project Proponent
Proponent: Choudhary Waheed Ud Din (*CEO*) **Address:** House#190, Street no 70, Sector I-8-3 Islamabad **Contact num:** 03008544414

3. Name and details of organization preparing report

Project Consultant
SMART Solutions **Engineers, Lawyers and Consultants** Office#8 (G), Ground floor, Chaudhary Arcade Plaza, New Civil Lines, Faisalabad Contact No. 0332-6533606,0308-6533041 Email: smartsolutions6533@gmail.com madnan.naeem@gmail.com

4. A brief outline of Proposal(Type, Production capacity, Process, technology and land requirement)

Project Name	Establishment of M/s Victory Pipe Industries (Pvt) Ltd
Location	Plot#18, zone 1A, M-3 Industrial city FIEDMC, Faisalabad
Proponent Name	Choudhary Waheed Ud Din (*CEO*)
Project Cost	**150 crore**
Total Area	04 Acres
Consultant Name	SMART Solutions
Product	• MS pipes & Tubes • Round pipes • CR Coils • Casing pipe • Cut to Length sheet • Corrugated sheets • Steel filter pipes • Steel Rolls
Raw material	Hot Rolled Steel Coils, Cold Rolled Steel Coils
Product Capacity	Electric pole (15ton/day), HDPE Pipes (14 ton/day),MS pipes (50ton/day)
Nature of the Area	Industrial
Waste Management	Managed as per standard practices of area
Source of Power	WAPDA supply and standby power generator
Period of Construction	Approx. 01 Year
Site Coordinates	31°38'48.4"N 73°12'02.5"E

5. Major Impacts and Recommended Mitigation Measures

Following impacts are likely to occur during constructional and operational phase of aforesaid project:

5.1 Construction Phase

Anticipated impacts associated with the construction phase included noise (machine noise and vehicular noise), air emissions from earthwork and construction machinery and vehicles, and soil contamination due to leakage from or accidents of the construction or transportation vehicles or during on-site refueling, solid waste from construction activities, municipal water and safety of the workers and employment conflicts as the major adverse environmental impacts. Since the project is to be commenced in a confined area owned by proponent and no human settlement exists within safe radius of selected site, construction related impacts haven't extended to the community.

Mitigation measures recommended adopted during construction phase includes; running the machines/vehicles on good quality fuels, good working order ensuring regular maintenance, tuning and servicing, moreover providing them with emission control devices, such as mufflers and silencers, etc. Water suppression and covered transportation and storage of the construction materials and slow driving on unpaved roads were adopted to control dust emission. Regular testing for leakage detection will also be ensured. Solid waste of construction activities was used for flooring, while the remaining solid waste will be managed as per practices in the area.

For community safety, irrelevant persons weren't allowed inside the facility. Safety of the workers will be ensured by adopting SOPs for all jobs, training the workers to follow SOPs, discouraging any careless attitude of workers and providing the workers with and encouraging them to use PPEs.

5.2 Operational Phase

Domestic wastewater will be generated as water will be used for cooling purpose, domestic activities. RO of 01 ton will also be installed and RO reject can be used for dust suppression and horticultural purpose. Wastewater will be treated through septic tank prior to final disposal. Proper ventilation of building will be ensured and use of dust masks by workers will be adopted as a mitigation measures for safety of the worker will be adopted. Domestic solid waste will be handled by the municipality practices of the area, so this is an insignificant issue while process solid waste includes slag, dust & sludge and refractory waste. Machinery will be regularly serviced and tuned to mitigate noise at source, noise barriers will block noise propagation and receptors will be protected by the use of PPEs. An Emergency Response Plan (ERP) will also be in place and the workers will be trained and guided about it.

7. Proposed Monitoring

During construction, ambient air quality for dust level in particular, vehicle and equipment exhaust, noise level, solid waste management and soil contamination, and community and workers' safety (visual) need to be monitored on regular basis.

During operation, ambient air quality for dust level in particular, noise level, solid waste management and soil contamination, wastewater and community & workers safety need to be monitored on quarterly basis.

1 SCREENING

For the prediction and mitigation of impacts associated with project implementation at an early stage of project development, it is pre-requisite under the environmental laws to undertake Environmental Impact Assessment (EIA) Study as the case may be. Based on its nature, size and related impacts, the project under consideration has been categorized for EIA Study as stated in ***Regulation 03 of Statutory Notification (S.R.O 339(1)/2001).*** As per the statutory notification of Review of IEE and EIA Regulations, 2022 made under Section 12 of Punjab Environmental Protection Act, 1997 (Amended 2012), states;

"No proponent of a project shall commence construction or operation unless he has filed with the Government Agency designated by Federal Environmental Protection Agency or Provincial Environmental Protection Agencies, as the case may be or where the project is likely to cause an adverse environmental effects an Environmental Impact Assessment (EIA) and has obtained from the Government Agency approval in respect thereof."

The aforesaid project falls under **Category B (18);** Manufacturing and Processing (*Steel Furnaces)* mentioned under Schedule II.

Thus, an EIA Study has been conducted and report has been prepared for duly submission in EPA to accord Environmental Approval/NOC.

2 SCOPING

2.1 Spatial and temporal boundaries of Environmental Assessment

Due to installation of current project land use will change from open land to M/s Victory pipe Industries (Pvt) Ltd with environmental friendly operation. The aforesaid project is located within designated and approved industrial estate. Current project will be installed by adopting proper mitigation measures to avoid disturbance to local community. In current project no significant emissions will be observed because operation will be done in controlled environment and wastewater will be treated before disposal to ensure PEQS. No environmental sensitive area is present within safe distance that could be impacted due to current project installation. The said project is located within designated area.

Figure 1: 2-Km radius of Project site

2.2 Important issues and concerns raised during consultation

During consultation it was observed that maximum of people was in favor of project and following issues and concerns were raised. In chapter 10 Stakeholder Consultation it is mentioned in detail

During survey following concerns of the local community, Government Departments and Environmental Practitioners and experts were noted:

- Air pollution should be controlled effectively.
- Locals should be preferred for the job opportunities.

- Wastewater should be treated prior to final disposal.
- Solid waste should be managed effectively by adopting the standard practices of the area.
- Cleanliness of the area should be ensured.
- An effective EMMP should be designed and enforced with true spirit.
- Health of the workers should be ensured.
- Plantation should be carried out at extensive scale.
- Noisy activities should be confined.
- Indigenous tress around the facility should be planted to control air pollution.
- Tree cutting should be avoided to the extent possible.

2.3 Significant impacts and factors to be determined

Main impacts and factors to be determined are

- Occupational Health and safety
- Site Security
- Traffic Management
- Hygiene management
- Community impacts
- Control Air emissions
- Job opportunities for locals
- Confined noisy activities
- Resource conservation
- Avoid excessive water consumption
- Energy efficient techniques must be adopted
- Proper site restoration after construction
- Tree plantation at designated green areas
- Emergency preparedness

3 CONSIDERATION OF ALTERNATIVES

3.1 Site Alternative their selection and rejection criteria

The selected site for said project is located in designated and approved industrial area. The area is developed as an industrial and many industries are in operation in project proximity. The selected project site is ideal from the point of view of compatibility with other land use of the area. The site is also spacious enough to accommodate the proposed facility and its infrastructure. Due to existing infrastructure and its strategic location, it is our considered view that the selected site is ideal and suitable for the proposed development. Additionally, the piece of land is owned by Proponent.

3.2 Design/technology alternatives, their selection and rejection criteria

For Installation of current project state of art technology will be selected to avoid emissions. Proponent is doing heavy investment for this project so latest/state of art technology will be preferred to ensure good quality products. Good quality raw material will be used to ensure best product.

3.3 Environmental Alternatives, their selection and rejection criteria

After completion of construction, proper landscaping will be done. Moreover, the proponent is very concerned and conscious about the quality and equally about the environmental protection and resource conservation. The design of building will be done in environmental friendly manner. State of art machinery will be selected with minimum power consumptions and less emissions.

3.4 Economic Alternatives, their selection and rejection criteria

- Currently selected technology and design is economically efficient.
- Tree plantation will be done that will reduce temperature of the area and also act as noise barrier.
- Cost effective technology will be adopted for operation of aforementioned unit.
- Building design will be such that maximum use of day light and LED lights will be installed to minimize electricity consumption.

4 DESCRIPTION OF THE PROJECT

4.1 Type and Category of Project

The aforesaid project Establishment of M/s Victory Pipe Industries (Pvt) Ltd falls under **Category B (18);** Manufacturing and Processing (*Steel Furnaces)* mentioned under Schedule II. Thus, an EIA Study has been conducted and report has been prepared for duly submission in EPA to accord Environmental Approval/NOC.

4.2 Project Objective

The objective of aforesaid project is to enhance the production of steel and iron pipes for the consumption at the local level for the development purposes. M/s Victory pipe industries (Pvt) Ltd is to forward integration and manufacture high quality product with good market potential. The project will encompass modern state-of-the-art facility with the objective of producing superior quality products. The project will have following advantages:

- The project will provide additional income and gainful employment to local people.
- It will help to produce superior quality products for end consumers.
- The said project is itself value addition project.
- Socio-economic up-lift of the proponent
- Creation of new job opportunities and promoting income prospects for those engaged in the allied activities associated with operation of project is considered as indirect objectives of the project.

4.3 Project Location and Layout

The site under consideration for the Establishment of M/s Victory Pipe Industries (Pvt) Ltd is located at Plot#16,17,18, phase 1A, M3-Industrial city, FIEDMC, Faisalabad. The coordinates of site are 31°38'48.4"N 73°12'02.5"E.
The location of aforesaid project is given below and the layout of aforesaid project is attached as **Annex-XI**

Figure 2: Google Map showing distance of various Receptors from Proposed Site

4.4 Site alternatives, their selection and rejection criteria

The selected site for said project is located in industrial area. The area is developed as an industrial and many industries are in operation in project proximity. The selected project site is ideal from the point of view of compatibility with other land use of the area. The site is also spacious enough to accommodate the proposed facility and its infrastructure. Due to existing infrastructure and its strategic location, it is our considered view that the selected site is ideal and suitable for the proposed development. Additionally, the piece of land is owned by Proponent.

4.5 Design/Technology Alternatives, their selection and rejection criteria

For Installation of current project state of art technology will be selected to avoid emissions. Proponent is doing heavy investment for this project so latest/state of art technology will be preferred to ensure good quality products. Good quality dyes will be used to ensure best product.

4.6 Process, raw material and product Alternatives

All details has mentioned in description of project.

4.7 Pictures of Project surroundings (East, West, North, South)

4.8 Google earth map with coordinates

4.9 Land-use on the site

For above-said project Land use will change from open land to industry. Land is open no construction has started yet.

4.10 Road Access

The site is accessible through M-3 Industrial city road and M4 motorway. The road access map of project is attached below:

Figure 3: Road Access Map of Proposed Site

4.11 Vegetation Features

Agricultural crops, bushes and wild grasses are present in the nearby surroundings of project area. During operation phase, green belts will be developed and it will serve as a useful buffer to contain the menace of pollution from different sources. As a control measure of atmospheric pollution, as a barriers noise generated within the premises it is recommended to develop green belt.

4.12 Cost and Magnitude of Operation

The estimated initial capital cost of aforesaid project is **approximately 150 crore**. Purchase of raw material, operation and maintenance of production machinery are the costly activities involved in the operation phase of said project. Equipment safety will be assured if these operations are carefully managed. No separate fund allocation is required.

Figure 4: Cost Breakup

Sr#	Components	Cost (PKR)
1	Land Cost	15 crore Approx.
2	Development cost	80 crore Approx.
3	Machinery cost	50 crore Approx.
4	Environmental Budget	5 crore Approx.
Total		**150 crore Approx.**

However, budget will be allocated for purchase and maintenance of standardized PPEs for workers and for waste management and environmental enhancement. Despite these costs, this project was found to be financially feasible in the feasibility report. Magnitude of operations includes:

- Applying for and getting all necessary approvals and contracts
- Installation of machinery
- Installation of firefighting equipment
- Marking of emergency exits and assembly points

- Tree plantation and landscaping

The allocated environmental budget is **PKR 05 crore approx.** as mentioned in project cost breakup. The allocated environmental budget will be spent on landscape/green zone management and solid waste management. The proponent will plant indigenous and ornamental plants to increase the aesthetic value of the area. Thus, the project is also a source of employment for locals and would help in economic development activities of the area.

4.13 Schedule of Implementation

The proponent intended to complete the construction in a period of a year.

Table 1: Schedule of Implementation

Sr. #	Activities	6 Months			6 Months		
		2M	2M	2M	2M	2M	2M
1	Detailed Designing						
2	Mobilization of Contractors						
3	Preparation of site						
4	Civil Works						
6	Installation of facilities						

4.14 Project Description (Process flow chart/steps, technology, raw material and products, by-products)

Product description and Application

Welded steel pipes will be longitudinally welded hollow structures with circular or rectangular/square cross sections. Steel pipes are essential items in building construction and manufacturing industries for the transport of water and streams as well as making for furniture and similar light structure elements. The galvanized versions could be used for water pipes and used in different industries as in cement industry, Offshore industry, Sewage treatment, Petroleum refineries, Electric power plants, Food processing plants, Chemical industry, Textile industry and Paper mills. The steel tubes and pipes are manufactured by using the process called electric Resistance Welding (E.R.W) This technique is adopted universally. The world's most sophisticated and efficient method of tube welding. The steel coil is cut to specified with very close tolerance and with edges that are in the ideal condition for perfect welding. These strips are made to pass through various forming roles. The result will be a strong welded pipe/tube but without change in its chemical composition. Soon after welding the special cutting tool completely removes the weld flash on the outer surface of the welded tubes. The weld flash in the bore of the tube is also trimmed when specified. Once this is done the tube automatically cut into specific pre-determined lengths.

Threading and protection of pipe ends

All galvanized pipes are then moved to threading section where threads of required pitch are cut on both ends of each pipe. We use best threading technology of the age to ensure maximum efficiency and reliable performance under the most severe conditions of service with minimum maintenance. The threaded portion is then covered with plastic caps called thread protectors, so that it remains in good condition.

Quality control

All the process will be carried out under strict supervision of quality inspectors thereby negating the possibility of occurrence of any flaws. All the finished pipes are put through a series of stringent tests such as tensile test, Flatteing test, Hydro static test (Pressure test) etc. to determine their strength, durability and performance. Only those pipes which fulfill all the criteria are dispatched for sale in the market.

Handling, storage and dispatch

The manufactured pipes are with the help of overhead cranes carefully shifted to warehouse. The pipes are stacked in hexagonal and square bundles. Each bundle is identified by its tags mentioning thereon size, quantity and thickness. These bundles are then placed in their respective sections.

Products

- MS pipes & Tubes
- Round pipes
- CR Coils
- Casing pipe
- Cut to Length sheet
- Corrugated sheets
- Steel filter pipes
- Steel Rolls

Supplies

Following supplies will be required/utilized for the project;

4.15 Water usage also mention quantity and source

The source of water for the proposed site is ground water at the depth of 150-200 ft. The water consumption will be for domestic and process both. In process water will be used for cooling purpose.

4.16 Wastewater generation (Quantity and quality) disposal method

Process wastewater will be generated from cooling purpose that can be reused for domestic purpose. Domestic wastewater will be treated through septic tank prior to final disposal in sewerage of FIEDMC.

4.17 Air Emissions and control measures

There’s no significant source of air emissions. Generator will be kept in proper enclosure to control noise and chimney of proper height to discharge of hot gases/smoke.

4.18 Solid Waste generation and disposal method

Waste generated during construction included mostly construction material (mainly steel and wood), empty cement bags, excavated earth and general packaging waste. Waste will be stored within the facility until transfer to the ultimate waste disposal site. Estimated solid waste generated during operational phase comprise of slag, dust & sludge and refractory waste that can be reused.

4.19 Operational hours of the facility

Operational hours of the facility will be 16 hours.

4.20 Energy requirement and sources

WAPDA will be the main source of the power. However, Standby power generator will be used as backup source.

4.21 Fuel storage and handling

Fuel for machinery and generator will be stored with proper mitigation measures.

4.22 Emergency response and safety measures

- **Emergency Response Procedure**

Step 1: Fire Detection

- Raise alarm immediately
- Activate Manual Call Point

Step 2: Inform

- Inform control room
- Call local fire brigade
- Inform plant head

Step 3: Isolate Utilities

- Shut main power
- Close gas valves

Step 4: Firefighting (If Small Fire)

- Use correct extinguisher
- Stand upwind
- Maintain safe exit behind

Step 5: Evacuation

- Follow marked escape routes
- No running

- Assemble at Assembly Point

Step 6: Head Count

- Supervisor counts employees
- Report missing persons
- **Emergency Evacuation Plan**
- Clearly marked exit routes
- Emergency lighting
- Assembly point away from building
- Evacuation map displayed in all sections

Electrical Panel Fire

- DO NOT use water
- Use CO_2 extinguisher

Personnel Protective Equipment

Following Personnel Protective equipments will be provided to the workers for their safety:

- Protective Gaggles
- Protective leather/rubber shoes
- Gloves-leather, canvas, rubber and plastic
- Gas masks
- Protective shields
- Helmets
- Overcoats

4.23 Relocation and Rehabilitation Plans

There exists no human settlement within a safe radius of the selected project site to be displaced owing to the commencement of the Project. No structure of any significance stands at the site to be relocated or dismantled. Land is already under proponent's ownership, and no fresh land is to be occupied; hence, no relocation and rehabilitation is required.

4.24 Any green or sustainable features planned

The proponent has installed rainwater harvesting system, rain water will be reuse for domestic activities and horticultural activities later on. Solar system will be installed after starting operation. Extensive vegetation/tree plantation of indeginous species will be done during construction and operation within unit and surroundings.

5 DESCRIPTION OF THE ENVIRONMENT

This chapter provides baseline data (physical, biological and socio-economic parameters) related to the project and study area. The information has been compiled by using primary and secondary data resources. This chapter also refers to the theoretical analysis of the methodology adopted for collection of primary and secondary baseline data. The underlying principles and practices adopted in this regard are also discussed.

Methodology

The methodology employed to collect the baseline data and information regarding the social structure and various related parameters as discussed in sub-sections below:

Data Collection

The primary data was collected by visiting the project area and its nearby communities. The secondary data regarding physical parameters (topography, geology, seismology, and climate) was obtained by visiting relevant various government departments and their official websites. The biological parameters such as flora and fauna were studied by preparing a floristic list based on visual observation and fauna was studied by using opportunities approach. The species were recorded with reference to their existence in the project area. Information on wildlife fauna specie mammals, amphibians, reptiles, birds, etc.) in the assessment area was compiled based on opportunistic observation, gathering the existing information and consultation with local experts, community members and government and Non-Government Organizations (NGOs). The socio-economic aspects were studied and analyzed by conducting socio-economic surveys.

5.1 BASELINE PHYSICAL ENVIRONMENT

Baseline conditions refer to the existing physical, environmental and socio-economic status of the project and study area. On the basis of baseline information, the project interventions are assessed and mitigation measures are proposed accordingly. The baseline information also helps to indicate the specific issues to be monitored during construction and operational phases of project development. The baseline data (physical, biological and socio-economic parameters) related to the project and study area is described in sub-sections below. Information provided is based on primary and secondary data collected by site visits, desk studies and consultation with locals respectively. This section gives the overview of the topology, geology, seismology and meteorological conditions whereas, it gives detailed information about the surface water, ground water (if present in the project area vicinity) and air quality of project area. The detail of each parameter is discussed in sub-sections below:

The physical environment consists of existing land form and land use at the project site including geology, pedology, hydrology, meteorology and climatology. The pre-project condition (i.e. baseline) of these components of the physical environment is described in detail. To identify the potential impacts on the physical, biological and socio-economic environment that is likely to arise from the project activities.

5.1.1 Physiography

Faisalabad is the 3rd largest city of Pakistan and is situated along the banks of River Chenab. The city of Faisalabad is bound by Chiniot and Hafizabad districts on the North and by Sahiwal and Toba Tek Singh on the South, while on East it is surrounded by Nankana Sahib and to the west

Jhang is located. On the Northern side Sheikhupura and Lahore are also present and Okara occupies its South-Eastern side.

5.1.2 Topography and Geology

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

5.1.3 Seismicity

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

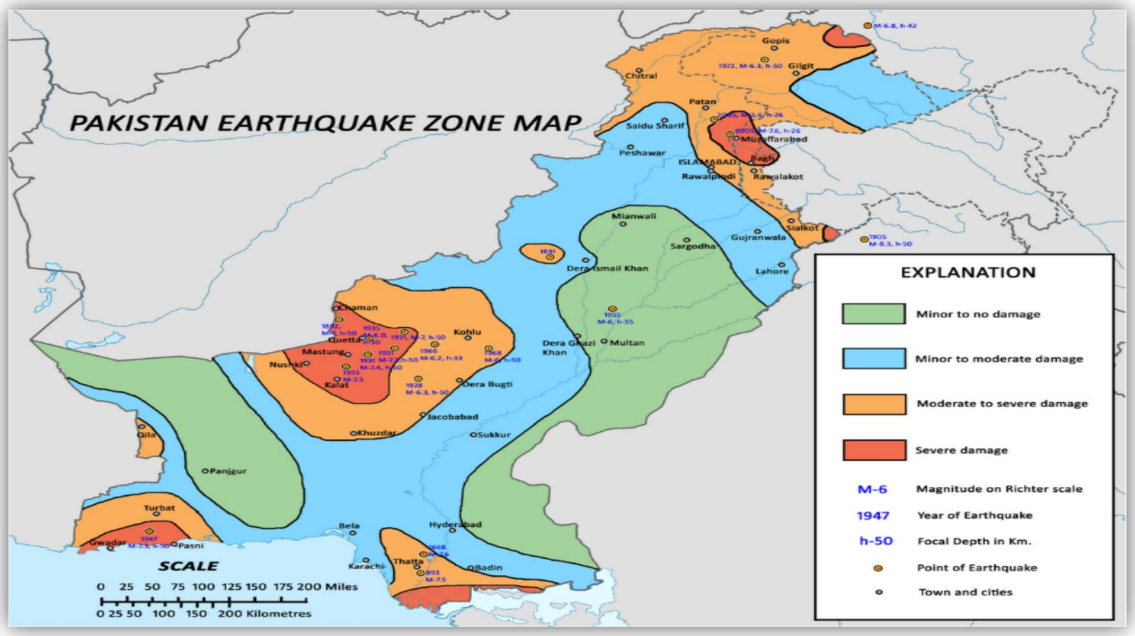


Figure 6: Seismic Zoning of Pakistan

5.1.4 Agriculture and Cropping Pattern

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

5.1.5 Meteorology

Due to its high evaporation rate, Faisalabad features hot desert-like climatic conditions according to Köppen-Geiger classification. The climate of the district can see extremes, with a summer maximum temperature **44°C** and a winter temperature of **4.0°C**. The mean maximum and minimum temperature in summer are **43.5°C** and **18.0°C** respectively. In winter it peaks at around **19.4°C** and **4.1°C** respectively. The summer season starts from April and continues till October. May, June and July are the hottest months. The winter season starts from November and continues

till March. December, January and February are the coldest months. "The bulk of monsoon precipitation occurs in July and August, with monthly averages of **115.0 mm** and **89.8 mm** respectively. Minimum rainfall occurs in the month of November which is **3.0 mm**" (PMD).

Table 2: Mean Temperature and Precipitation[1]

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

5.1.6 Surface Water Quality

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

5.2 BASELINE BIOLOGICAL ENVIRONMENT

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

5.2.1 Flora

Currently, the remnants of the ***Tropical Throne Forest*** are present at some regions of the City. In Faisalabad the green zones are very less, native species are present but in a scares condition. The ornamental plants and tree had been planted at the boundaries of the various residential societies present in vicinity of project area. The detail of the tree species present in the study area is given in **Table 4**:

Table 3: Vegetation Features of Project Area

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

[1] *Source: Pakistan Meteorological Department, 2018*

5.2.2 Fauna

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

5.2.3 Endangered Species

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

5.2.4 Archaeological Sites or Wetlands

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

5.3 BASELINE SOCIO-ECONOMIC ENVIRONMENT

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

5.3.1 Population

According to census 2017 total population of District Faisalabad is 7873910. Total population males are 4034515, female is 3838854 and Transgender are 541. An average annual growth rate is 1.97 from 1998 to 20172. Other features are shown below:

Table 4: Demographic Profile of Faisalabad

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

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

5.3.2 Religious Setup

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

5.3.3 Industrial Setup

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

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

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

5.3.4 Healthcare Facility

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

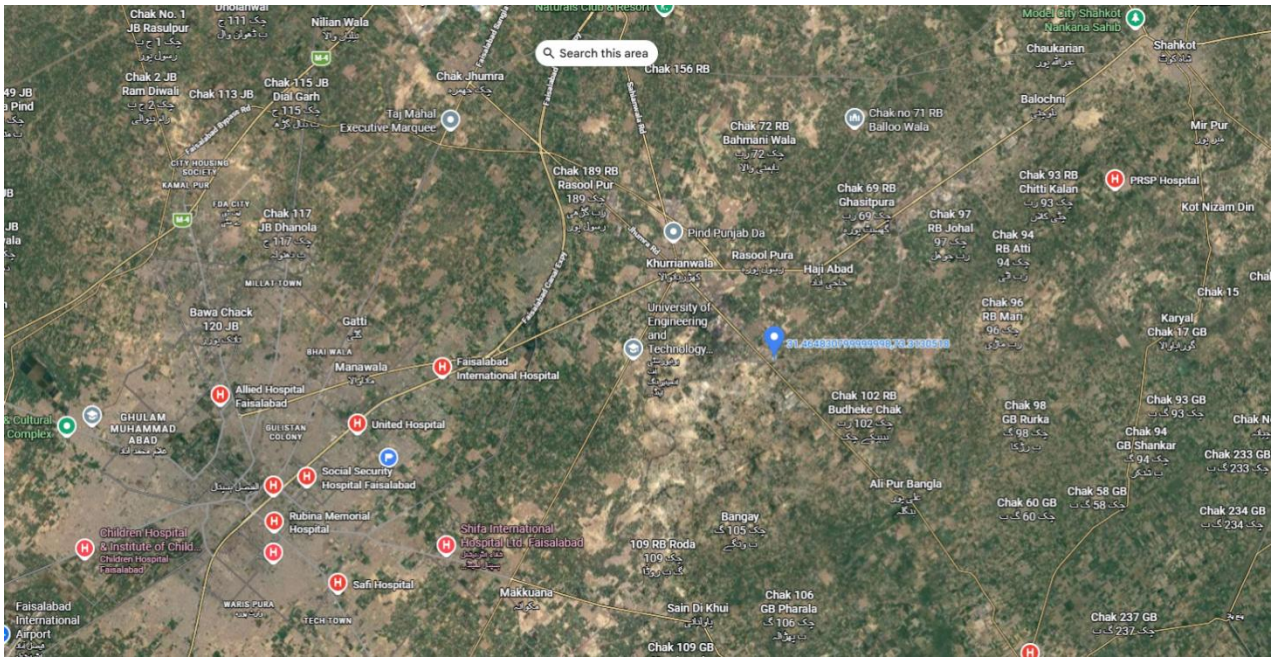


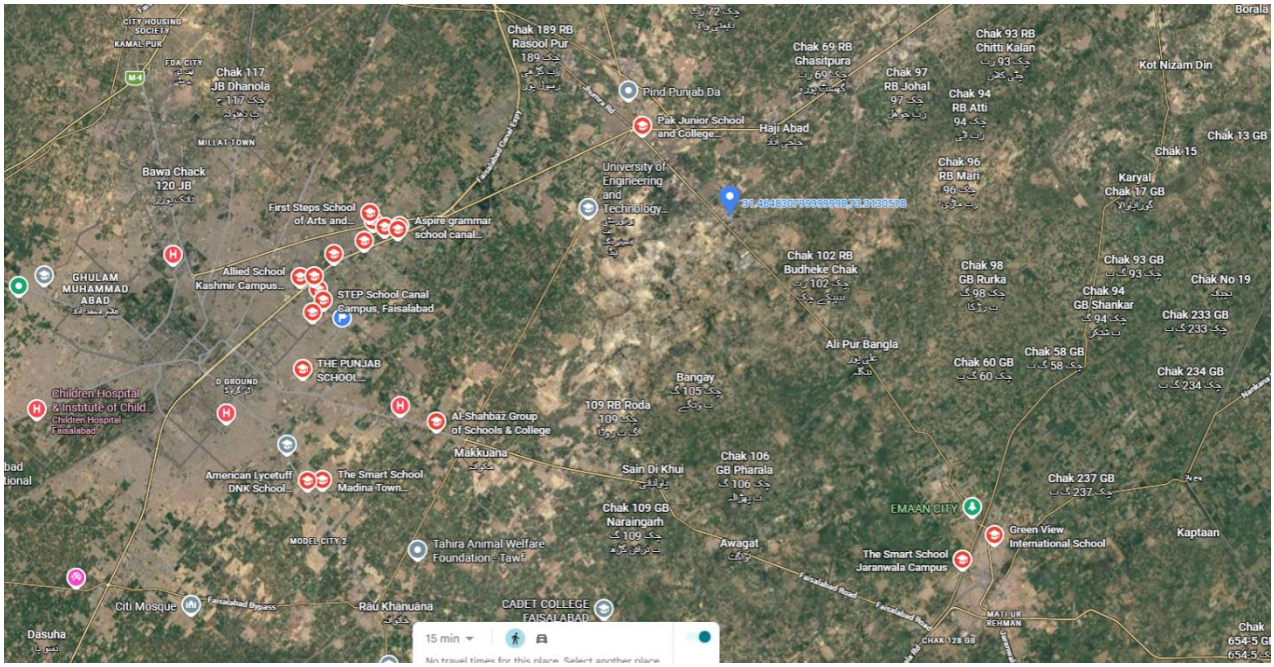
Figure 7: Nearby Healthcare Facilities

5.3.5 Educational Facilities

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

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

Following schools are present in project area vicinity;



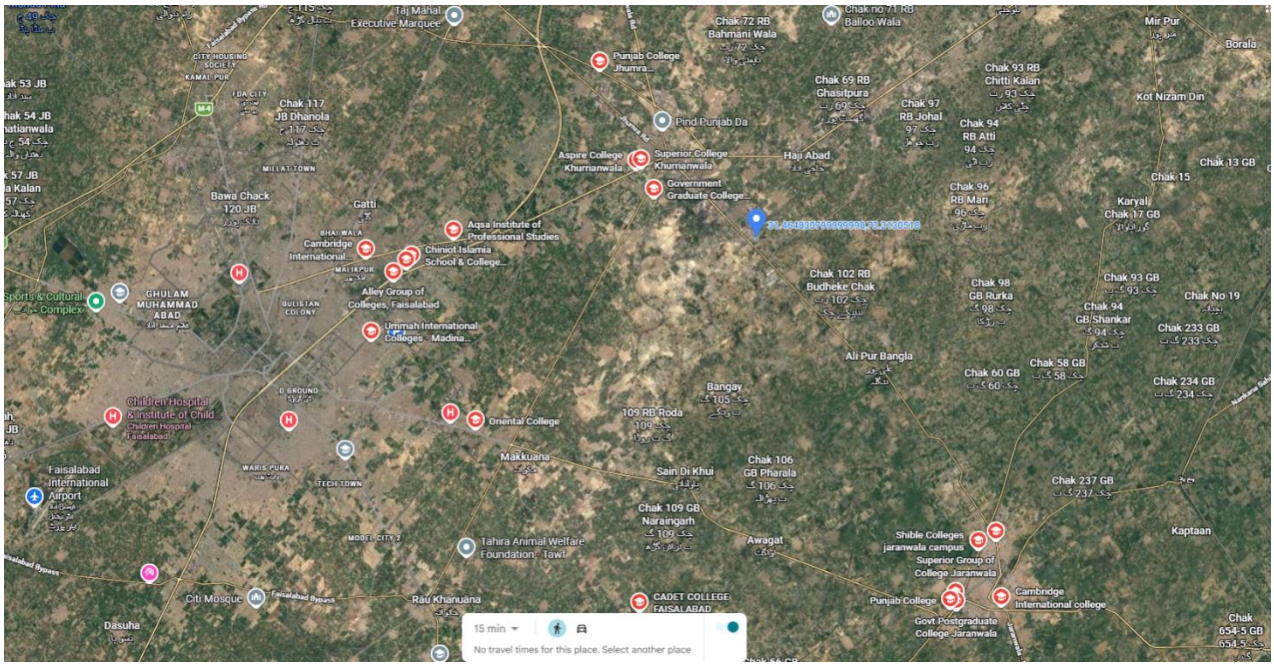


Figure 8: Nearby educational facilities

6.4 LAB REPORTS OF ENVIRONMENTAL ANALYSIS

M/s SEAL **(Solution Environmental & Analytical Laboratory)** was engaged to carry out environmental monitoring of ambient air quality, ground water quality, noise level and particulate matter concentration in the project area. Laboratory analysis reports of ambient air quality, ambient noise and surface water analysis results are annexed at **Annex-IV** of this EIA Report and the detail information related to the testing results is given below:

5.4.1 Sampling Sites

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

Table 5: Sampling Sites Details

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

5.4.2 Ambient Air Quality

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

The primary source of air pollution at the project sites is the vehicular emissions, industrial processing and the key pollutants likely to be found at project locations are; Carbon Monoxide

(CO), Oxides of Nitrogen (NOx), Sulphur Dioxide (SOx), and Particulate Matter (PM). In order to determine the air quality of the area, Laboratory had the requisite air sampling device and expertise for collection of samples. Sampling of the air was carried out and the reports of ambient air quality are attached at **Annex-IV** of this EIA Report.

5.4.3 Noise

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

5.4.4 Water Resource

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

The results of the groundwater analysis showed that all the parameters were within the limits.

5.5 SUITABILITY OF THE SITE

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

Favor for the Project

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

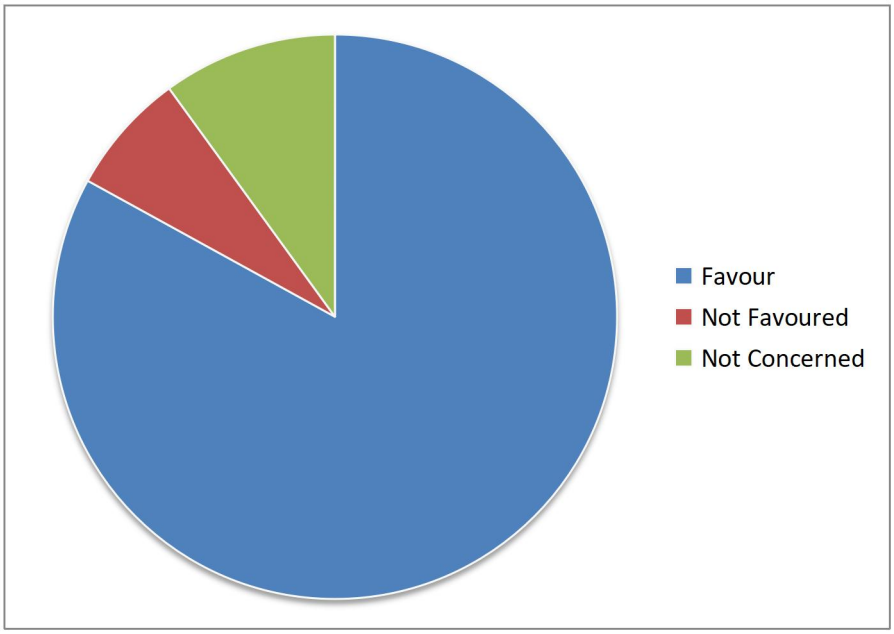


Figure 9: Project Acceptance Level

Common Diseases

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

Community Issues

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

Quality of Life Values

Respondents were inquired about the quality of life values available in their respective areas during socio-economic survey of the study area. Most of the respondents had the basic amenities to sustain life such as; electricity, water supply services, sewerage collection system, gas and transport facilities. Adequate educational facilities such as Government College University Faisalabad, Agricultural University Faisalabad, National Textile University, Nuclear Institute for Agriculture and Biology, University of Faisalabad, and the University of Engineering & Technology of Lahore. The healthcare facilities include; Allied Hospital, Institute of Child Care, PINUM Cancer Hospital, Faisalabad Institute of Cardiology (FIC) and General Hospitals in Ghulam Muhammadabad and Samanabad. There are a number of private hospitals, clinics and laboratories in the city.

6 IMPACT ASSESSMENT METHODOLOGY

This section discusses the potential environmental impact for the dyeing and processing unit by M/s Victory Pipe Industries (Pvt) Ltd. The impacts may include; soil contamination, water resources depletion, biological resources disturbance and socio-economic impacts and, where applicable, identifies mitigation measures that will reduce significantly, if not eliminate, its adverse impact. The assessment carried out in this Section is based on potential impacts on overall environmental receptors within the project area.

Objectives

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

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

In the sub-sections below the impacts assessment methodology for the operation of above stated project has been defined. It includes the magnitude, the extent of the impact and the nature of the anticipated impact that is likely to be occurred from the proposed project activity.

Methodology

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

Evaluation of the Residual Impacts

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

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

Table 6: Impact Significance Criteria

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

Table 7: Impact Matrix Checklist for Designing Phase

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

Table 8: Impact Matrix Checklist for Construction Phase

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

Table 9: Impact Matrix Checklist for Operational Phase

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

Identification of Monitoring Requirements

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

Methodology for Impact Evaluation

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

- An Impact Screening Checklist
- Project Impact Evaluation Matrix

Following is given a brief description of assessment tools:

a. Impact Screening Checklist

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

Table 10: Characteristics of Impacts

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

b. Project Impact Evaluation Matrix

The Project Impact Evaluation Matrix was developed by placing different environmental parameters that are likely to be affected by the proposed project actions, grouped into categories i.e., physical, ecological, socio-economic environment and hazards. For assessment of associated impact risk assessment methodology was used. Moreover, the risk assessment was done on the basis of project phases (planning & designing, construction and operation). A Project Impact Evaluation Matrix is attached as **Table 11** below:

Table 11: Impact Evaluation Matrix

Environmental Parameters	**Impact Assessment during Different Phases**	
	Construction	**Operational**
Planning and Designing		
i. Location	+2p	+2p
ii. Design	+1p	+1p
A: : Physical		
1. Land Resources		
i. Soil Erosion and Contamination	-2t	-2p
ii. Transportation	-1t	-1t
iii. Solid Waste and By-Products	-2t	-2p
iv. Land Use	NA	NA
2. Air Resources		
i. Noise Pollution	-1t	-1t
ii. Air Pollution	-1t	-1t
iii. Dust Emissions	-1t	NA
3. Water Resources		
i. Ground Water	-1p	-2p
ii. Surface Water	0	NA
iii. Wastewater	-1p	-1p
B : Ecological		
Flora		
i. Tree Cutting	-1p	+1p
Fauna		
ii. Terrestrial Fauna	NA	NA
C: Socio-Economic		
i. Employment Opportunities	+1t	+3p
ii. Land Value Appreciation	+1t	+2t
iii. Economic Uplift of Study Area	+1p	+3p
D: Hazards		
i. Physical Hazards	-1t	-1p

ii. Health and Safety	-1t	-1p
Legends: 1= Low; 2= Medium; 3= High; 4= Extremely High; NA= Not Applicable; t= Temporary; p= Permanent; app= Applicable; 0= Negligible		

7 SCREENING OF POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

General

This Chapter identifies the potential impacts (positive and adverse) on the physical, biological and socio-economic environment of project area due to the establishment of aforementioned unit. It also identifies measures that will help to mitigate the adverse environmental and social impacts as well as it will enhance positive impacts of aforesaid project. Impacts are assessed by analyzing their magnitude and sensitivity, which is a legal requirement as discussed in **Chapter 0**6

Objectives

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

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

Impact and Mitigation Management

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

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

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

Approaches for Mitigation Measures

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

Table 12: Approaches for Mitigation Measures

Avoid: Change of route or site details, to avoid damage important ecological or archaeological features.
Replace: Regenerate similar habitat of equivalent ecological value in different location.

Reduce: Filters, cyclones, noise barriers, dust, enclosures, visual screening, wildlife corridors and changed time of activities to reduce the impact.
Restore: Site restoration at the end of the operational activities.
Compensate: Relocation of displaced communities, facilities for the affected communities, financial compensation for the affected individuals, etc.

Expected Positive Impacts

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

a) Increase in Employment Opportunities

Due to installation of aforesaid project, the employment opportunity will be slightly enhanced. During construction phase, 25-30 workers will be hired from local community include; skilled and un-skilled workers. During operational phase, approximately 80-100 persons will be required. It will include hiring of technical and non-technical staff. Locals will also have the opportunity to diversify their income by being employed. Hence, there will be an increased employment opportunity for the local people which will have a positive impact on the socio-economic status of the area.

b) Tree Plantation

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

c) Adverse Impacts and Mitigation Measures

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

7.1 Impacts and Mitigations due to Project Location and Design

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

i. Impacts of Location

The project site is located within designated and approved industrial area. There is no human settlement, heritage building, social structure, grassland or preserved area in the project vicinity that could be damaged, dislocated or dismantled due to the project activity in proposed area. Hence, the impact of location is considered to be in-significant as the project site is away from the surface water body (within 2.0 km of project area), residential area (at safe distance) and no protected area (is reported in 5.0 km vicinity of the project area).

Nature of Impact

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

Mitigation Measures

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

- The selected site located at adequate distance from the various sensitive receptors.
- The site is accessible through metaled road network.
- The selected site is located in industrial area and due to establishment of aforesaid project no change in the land use of area is being envisaged.
- The site is owned by the proponent and no dispute is associated.
- No significant air emissions from proposed project.
- The generated solid waste will be disposed off through the standard practices of area.

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

ii. Designing

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

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

- Construction material has been procured from approved dealers.
- For the protection of workers PPEs (dust masks, gloves & shoes) has been provided during construction and it will be provided during operational phase too.
- The proposed emergency system is semi-automatic which is being control through computerized systems and it is connected with smoke alarms.
- In this process almost 98% of raw-material will be converted into the final good.
- Through the selected system high quality of goods will be produced.
- The generated wastewater will be treated prior to final disposal.

- The Proponent intends to reduce the environmental and social issues up to practically possible safe limit. The Client will adopt SOPs for Emergency Reponses Plan, Fire Fighting Plan and Disaster Management Plan
- Planning principles and design considerations have been reviewed and incorporated into the site planning process to the extent possible. The concepts considered in the design of the proposed project are:
- No additional land acquisition will be required.
- Substantial reduction of environmental degradation in project area.
- Augmentation in adequacy of sanitation conditions at the user end enhancing the efficiency of existing infrastructure.

Nature of Impact

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

Mitigation

No additional mitigation measure will be required as state of art technology is being adopted for the aforesaid unit.

7.3 Impacts and Mitigation during Construction Phase

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

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

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

7.4 Impacts & Mitigation during Operational Phase

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

i. Impact on Ecology

Currently, the site is open plot and located in designated area. After the completion of said project different native and ornamental plants species will be planted in designated green spaces and along boundary of project site. The overall aesthetic beauty of the area will be enhanced and it will have a significant impact on the overall ecology, aesthetic and landscape of the area.

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

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

ii. Impact on Air Environment
No significant air emission source, Electric furnace will be used in current project. Moreover, dust will be generated due to the frequent movement of vehicles carrying the raw-material and finished goods. During operational phase, suspended particulate matter and gaseous emissions will be the main pollutant.
Due to increased vehicular movement increase in NOx, SO_X, VOC and CO concentrations will be observed at the project site. As most of the construction equipment will be mobile, the emissions are likely to be fugitive and not concentrated on a single source or place. As the impacts will be localized in nature, the areas outside the said project boundary are not likely to face any significant adverse impacts with respect to ambient air quality.

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

Mitigation Measures
Following mitigation measures will be adopted:

- For dust suppression regular sprinkling of water will be carried out.
- Vehicles used for transportation of raw material as well as finished product and the utility vehicles will be regularly serviced and maintained in order to keep the environmental impact on account of their exhaust emissions to its minimum level.
- Native tree would be planted along the boundary of project area to keep environment healthy. For removal one tree, 3-5 trees will be planted.

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

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

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

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

iv. Solid Waste Management
The key solid wastes and by-products that is recyclable matter (such as; containers, waste papers, used materials, waste packaging materials, slag, dust & sludge and refractory waste will be recycled or reuse. The domestic solid waste will be handled as per practices of area.

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

Mitigation
Following mitigations should be adopted to manage generated solid waste:

- Waste bins will be placed in the facility at the strategic position for the collection of solid waste.
- The installed bins will be covered in order to reduce the chances of the disease vector production.
- Record of generated waste during the project activity should be maintained on the regular basis. Quantity of the waste disposed, recycled or reuse will be logged on a waste tracking register.

- Regular training will be given to the workers dealing with the waste management it will include; identification, segregation and management of waste.

v. Water Environment

Wastewater will be generated from cooling purpose and domestic activities that will be treated through septic tank and then dispose off in sewerage system of FIEDMC. This generated wastewater has no impact on surface & ground water quality.

Nature of Impact

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

Mitigation

Following mitigations should be adopted to manage generated wastewater:

- The domestic wastewater will be treated prior to disposing off
- Water conservation activities will be adopted for the preservation of water.
- Wastewater will be reuse for horticultural activities.
- Water conserving methods will be applied by placing taps and toilets.
- All faults will be monitored and fixed.
- Freshwater conservation techniques should be adopted to ensure sustainable development
- Monitoring of effluents shall be carried out as per requirement of Self-Monitoring and Reporting Tools (SMART) to ensure compliance with the PEQS.
- It will be ensured that no solid waste will be entered in the wastewater.

vi. Health & Safety of Workers

Improper handling of machinery may cause various health issues. It can cause of severe accidents. To ensure the safety of workers these impacts need to be managed effectively.

Nature of Impact

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

Mitigation

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

- Regular inspection and maintenance of the plant will be carried out to eliminate the risk and associated hazards of any unfortunate incident.
- Workers will be trained on the regular basis regarding personal safety, disaster management and physical hazards.
- Operators operating the plant should be fully trained and equipped.
- Training regarding HSE should be given on the regular basis.
- Workers will be given PPEs such as; helmets, mask, ear-plugs/muffs, safety boots, etc.
- It should be strictly enforced to wear PPEs while working.

- Incidents should be reported directly to the concerned authority.
- Spillage prevention plan should be adopted and it should be implemented effectively.
- Floor surfaces shall be maintained and cleaned on regular basis.
- Floor should be kept clean and free of oil spills, other slippery fluids or materials and obstructions.
- The effective use of hearing-protection devices shall be ensured.
- Protective measures and emergency rescue procedures should be followed strictly.
- Only authorized persons shall be allowed in the processing areas.
- Unloading of the raw-material and loads of the final products should be controlled, supervised, slow and smooth.

viii. Security Risks

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

Nature of Impact

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

Mitigation Measures

Following mitigation measures will be adopted:

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

ix. Emergency Response

Emergency response preparedness committee will be formulated consisted of heads of all the departments. Emergency Response Leader will be the head of the team assisted by safety team and safety supervisors. Emergency Response Leader along with his team will ensure that in the case of emergency, team is prepared for fire-fighting and the first aid kits will be provided which may include; blankets, hot water bottles, stretchers, benches, sterilized dressing, snake bite kit, cotton and iodine (2% alcohol).

Incidents and accidents may take place unexpectedly during project operations no matter how effective, strong and efficient the mitigation measures for all adverse impacts; especially the safety issues may be adopted. These may include; accident and natural disasters.

Nature of Impact

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

Mitigation

Following mitigation measure will be adopted:

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

Socioeconomic Impact

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

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

Mitigation Measure

No mitigation measures will be required.

7.5 Environmental Enhancement Measures

The said project will be result in following benefits:

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

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

8 ENVIRONMENTAL MANAGEMENT AND MONITORING PROGRAM

This EIA Report provides the Environmental Management and Monitoring Plan (EMMP) for implementation of aforesaid project in order to keep anticipated environmental and social impacts in check by adopting suggested mitigation measures and monitoring of the certain parameters moreover, to ensure the compliance of EMMP. As per the environmental legislation in Pakistan, the EMMP for the operations phase, along with other documents, is to be submitted in EPA, Punjab to obtain confirmation for compliance and Environmental Approval/NOC for project execution. Even after implementation of the suggested mitigation measures, the impact may remain significant and require regular environmental monitoring. This section also underlines the monitoring framework for operation phase to check compliance of EMMP and to take timely actions for correction in case any negligence & accidence of significant criteria, requirements or goals is found.

Objectives of Environmental Management Program

The primary objectives of the EMP are to:

- Facilitate the implementation of the mitigation measures identified in this EIA Study.
- Define the responsibilities of the project proponent and contractor and provide a means of effective communication of environmental issues between them.
- Identify monitoring parameters in order to ensure the effectiveness of the mitigation measures.
- Provide a mechanism for taking timely action in the face of unanticipated environmental situations.
- Identify training requirements at various levels.

Components of EMMP

Components of EMP are as follows

- Management plan
- Monitoring Plan
- Communication and documentation
- Institutional capacity
- Environmental training

8.1 Proposed Mitigation actions

It lists all the mitigation measures identified in the EIA and the associated environmental or social aspect in line during operational phase with the administrative framework involving all the responsible implementing authorities who are required to take the planned actions/measures and monitor it accordingly. It enhances project benefits by reducing its impacts and making it environmental friendly.

Table 13: Environmental Management Plan

Category	Impact	Project Activity	Monitoring Mechanism	Frequency	Monitoring Frequency
Construction and Operation Phases					
Land Resource	Solid Waste	Implementation of SW* Management System	Record keeping and timely transfer of SW from bins to the disposal site for composting	Daily	Regularly
	Soil Contamination	Implementation of Management Plans	Visual monitoring and complete soil analysis	Daily and annually	
Air Resource	Air Emission	Dust emissions during construction and operation.	Monitoring of the emissions as per applicable standards Water sprinkling will be done regularly to avoid dust emissions	Once before start of operation and after that as when required during operation	
	Dust				
Ecological Resource	Flora	Uprooting of trees during construction phase and maintenance of photographic record	Inventory of uprooted trees and vegetation during operation phase	During Baseline Survey, once in a year and after the completion of the Project	

Noise	Plant operation & material transportation	As per applicable standards	Fortnightly	
**SW= Solid Waste, **EA= Executive Agency*				

8.2 Schedule for Implementation of Environmental Budget

The allocated environmental budget is **PKR 05 crore approx**. The allocated environmental budget will be spent on landscape/green zone management and solid waste management. The proponent will plant indigenous and ornamental plants to increase the aesthetic value of the area. Thus, the project is also a source of employment for locals and would help in economic development activities of the area.

8.3 Environmental Management Team along with their roles and responsibilities

The organizational roles and responsibilities of the key players are summarized below:

Table 14: Responsibilities of Management

Sr.#	Managers	Responsibilities
1.	**Contract Manager**	• Ensure EMP development. • Maintenance of EMP • Environmental issues identification within pre construction phase. • Communication of EMP with other employees.
2.	**Contractor**	• Ensuring that the control measures identified from environmental surveys are implemented as they are relevant to their work/visit. • Ensuring that the project management team is notified of any non-conformance of control measures or environmental incident where the environment has been put at risk.
3.	**Site Manager**	• Ensure site material and chemicals are safe • Controlled access arrangement to avoid hazards • Emergency egress arrangements to avoid dangerous situation. • Provide first aid facilities.

4.	**Site HSE Advisor**	• Ensure work is carried out in safe manner • Ensure good standards of workmanship • Health and safety advisor to complete the site waste management plan to be followed. • Ensure EMP implementation • Daily checks • Weekly checks • Consultation with workers
5.	**Site Environment Advisor**	• According to legislation and consent develop EMP • Ensure application of EMP • Carry out site inspection
6.	**Public Contact Officer**	• First point of contact for members of the public • Arrange and manage public forums • Maintain relation with stakeholders • Door to door surveys as appropriate • Coordination with work

8.4 Proposed Monitoring Program

Proposed monitoring has been mentioned in Environmental Management Plan. Moreover, during construction, monitoring of ambient air, noise and water quality will be done by EPA certified Lab as per requirement/condition of Environmental Approval/NOC.

8.5 Proposed EMP reporting and reviewing procedure

Reporting Mechanism

Environmental Specialist of contractor will prepare and submit the environmental compliance reports to the proponent. Environmental Specialist of M/s Victory Pipe Industries (Pvt) Ltd after reviewing the reports will submit the Due Diligence reports to DD Environment for onward submission to EPA, Punjab. At the completion of the project, Environmental Specialist of M/s Victory Pipe Industries (Pvt) Ltd will prepare the project completion report based on the periodical progress reports for submission to DD Environment for onward submission to EPA, Punjab.

Non-Compliance of the EMP

The contractor will be primarily responsible for ensuring implementation of the mitigation measures proposed in the EMP, which will be part of the contract documents. The provision of the environmental mitigation cost will be made in the total cost of project. However, if the contractor fails to comply with the implementation of EMP and submission of the monthly compliance reports, deductions will be made from the payments to the contractor's claimed under the heads of environmental components.

Change Management Plan (CMP)

The present EIA has been carried out on the basis of the Project information available at this stage. It is however possible that the changes are made in some components of the Project during the design and construction phases.

Information regarding changes will be shared with EPA-Punjab.

Additions to the EMP

The EMP has been developed based on the best possible information available at the time of the study. However, it is possible that during the execution of proposed project, additional mitigation measures based on the findings of environmental monitoring during the construction and operation may have to be included in the EMP. In such cases following actions will be taken for changes during the construction stage:

- A meeting will be held between Contractor and the M/s Victory Pipe Industries (Pvt) Ltd representatives. During the meeting, the proposed addition to the EMP will be discussed and agreed upon by all parties.

- Based on the discussion during the meeting, a change report will be produced collectively, which will include the additional EMP clause and the reasons for the addition.
- The report will be signed by all parties and will be finalized at the site office. A copy of the report will be sent to Contractor and M/s Victory Pipe Industries (Pvt) Ltd office.

All relevant project personnel will be given information about the addition/change.

Construction of aforementioned project will start after obtaining Environmental Approval/NOC from EPA-Punjab. Monitoring will be done on regular basis as per requirement. Moreover, PEQS compliance of ambient air, noise and drinking water will be ensured.

During construction & operation, EMP reporting and reviewing will be done by the contractor/HSE manager. Regular monitoring will be done and reports will be submitted in EPA as per condition of Environmental Approval.

Monitoring reports will be reviewed by EMP team and then will be shared by EPA.

Photographic records will also be maintained

Recorded data will be reviewed by supervisory contractor/proponent so that it can be further improved if required.

8.6 Environmental Training

Training is an integral part of a preventive strategy. Environmental and disaster management training will be required to ensure proper implementation of effective environmental management and monitoring plan; and disaster management plan. However, training could be organized by proponent involving relevant staff. As a trainer, competent Consultant can be outsourced. Important training under the spectrum needs to include:

- Training on fire fighting and safety management;
- Training on environmental safeguards and compliance;
- Staff training on environmental monitoring and reporting;
- Training on occupational health and safety measure.

Table 15: Training Schedule

Target Audience	Trainers	Contents	Schedule
Selected Management Staff	Subject Expert	Key finding of mitigation measure	After every five months

All Personnel	HSE Officer	Mitigation measures especially firefighting, safety, health and environment (emissions & discharges) etc.	Monthly
Technical Staff	HSE Officer	Waste disposal, vehicle movement restriction and other mitigation measures	After every three month
Other Staff	HSE Officer	Waste disposal, resource conservation and other mitigation workers	Monthly

9 PUBLIC CONSULTATION AND PUBLIC DISCLOSURE

Public consultation refers to the process by which the concerns of various stakeholders and local community who have a plausible stake in the environmental management & associated impacts of the project or activity are ascertained with a view to taking into account all the material concerns in the project or activity design as appropriate. According to the Review of IEE and EIA Review Regulations, 2022 public consultation is mandatory for any socio-environmental study for the commencement of any project.

General

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

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

It is envisaged, there will be no social impact being foreseen due to the commencement of aforesaid project at aforesaid location, the nearest community is located at safe distance from the project area. This EIA Report includes all the comments, which were taken into account during the social survey and preparing the definitive development concept for the installation and operation of proposed project. Public consultation performas is attached as **Annex-V** of this EIA Report.

Objectives of Consultation

Public consultation plays a vital role in studying the impacts of the proposed project on stakeholders in successful implementation and execution of project. It provides an opportunity to exchange knowledge with the beneficiaries and affected parties. Referring particularly to a project related to environmental assessment, involvement of the public is all the more essential, as it leads to better and more acceptable decision-making. The overall objective of consultation with stakeholders is to help verify the environmental and social issues, besides technical ones, that have been presumed to arise and to identify those which

are not known or are specific to project. In fact, discourse with many who have thoroughly observed the site conditions in the pre-development phase, goes a long way in updating the knowledge and understanding.

Consultation Process

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

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

Various meetings with the stakeholders were held the following objectives:

- Share information with stakeholders regarding said project and expected impacts on community in project vicinity.
- Understand stakeholders' concerns regarding various aspects of the project, including the existing condition of the upgrading requirements, and the likely impact of construction and operation activities.
- Provide an opportunity to the public to influence the project design in a positive manner.
- Obtain local and traditional knowledge, before decision making.
- Increase public confidence about the proponent, reviewers and decision makers.
- Reduce conflict through the early identification of controversial issues and work through them to find acceptable solutions.
- Dissemination of information through discussions, education and liaison.
- Documentation of information narrated by the stakeholders and mitigation measures proposed by the stakeholders.
- Incorporation of public concerns and their address in the EIA and eliciting their comments and feedback.
- Create a sense of ownership of the proposal in the mind of the stakeholders.

9.1 Proponent's Environmental Management Team

Consultation regarding "Establishment of M/s Victory Pipe Industries (Pvt) Ltd" was done with Proponent's Environmental management Team and anticipated impacts were discussed. Concerns of locals, Environmental Practitioners & experts and Government departments were discussed and asked to consider them while construction of above-said project. Locals will be preferred for employment after providing proper training. Mitigations measures mentioned in EMP will be truly implemented.

9.2 The responsible authority

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

9.3 Other department and agencies

Following officers of government departments were consulted by the socio-environmental team of the consultants and concerned details about the project were noted down through personal interviews, group meetings, etc., in their offices, for instance, see **Table 16** below.

Table 16: Views of Participants of Public Sector Stakeholders

Sr#	Participant	CNIC/Designation	Concerns/Remarks
Environmental Protection Department			
Deputy Director (Field), EPA			Following comments area summarized to control the pollution: • Solid waste should be managed in environmentally friendly manner. • Wastewater should be treated effectively prior to final disposal • HSE* at the site should be managed effectively. • No impact is being foreseen due to the selected location. • Locals should be given job opportunity.
Environmental Inspector			
Social Welfare Department			
3	**Zill-e-Huma**	**Deputy Director Officer**	Following comments are suggested by the Deputy Director on the behalf of Social Welfare Department: • Final goods should be affordable for the locals. • The proposed product should facilitate locals and they should be economical. • Job opportunities should be given to the locals. • Wages should be given according to the work assign to them. • Life insurance of the workers should be given as well as all the facilities should be given as per labor laws.
Irrigation Department			
4	**Malik Anwar**	**Superintendent Engineer**	Following comments were suggested:

			• Untreated wastewater should not be disposed off • Beneficial as job opportunities will be available to the local residents.
Forest Department			
5	**Muhammad Ali Butt**	**Divisional Forest Officer Faisalabad**	Following recommendation were suggested by the forest department: • Planation and landscape activities should be carried out on broader scale. • Indigenous species such as; Arjarn, Barna, Neem, Suharjna, Amaltas and Jaman should be planted. • Proper drainage system must be available at site.
**** HSE= Health, Safety and Environment***			

9.4 Environmental Practitioners and experts

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

Sr. No	Name	Designation	Comments/Suggestions
1.	**Engr. M.Ali**	Environmental Engineer	Following comments are summarized to control the air pollution generation during operational phase • Operation must be in controlled conditions.
2.	**Ms. Rabia**	Environmentalist	• She said that Installation of pipe industry will have positive impact on economy but its construction should be done in Environmental Friendly way • During construction and operation emissions must be controlled properly • Basic facilities should be provided to local community
3.	**Ms. Iffat Batool**	Ph.D. Scholar Environmental Sciences	Following mitigation measures should be adopted: • Tree plantation in designated green zones should be carried out • Proper disposal of the solid waste • HSE management measures should be adopted and implemented effectively.

4.	**Mr. Asadullah Shoaib**	Environmentalist	• He said that locals should be preferred for employment. • Value addition of area • In case of outsiders residence must be provided • Proper mitigation measures must be adopted while construction and operation of this project
5.	**Ms. Marium**	Environmentalist	• She said that in case of removal of vegetation trees must be planted after construction at designated green areas • Water conservation strategies must be adopted • Solid waste must be collected and dispose off properly • Wastewater should not mix with surface water channels it must be properly dispose off after meeting PEQS. • Avoid groundwater contamination
6.	**Engr. Taha Raheem**	Environmental Engineer	According to her following mitigation measures should be adopted during construction • Site re-vegetation must be done • Latest technology must be installed • Residence must be provided to contractors and workers • Locals must be preferred for employment

9.5 Consultation with Affected and wider community

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

Personal views of the respondents on the establishment of aforementioned unit possible disturbance to the residents near the AOI and infringement of their privacy were also recorded. The various rounds of public meetings and consultations were arranged in project and study area. The objectives of consultation with the affected persons are given in the table below:

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

4.8 Views, Concerns and Suggestions of Various Stakeholders

The major socio-economic concerns and problems of the affected persons of various communities have been given in tabulated form below (**Table 17**) along with their main concerns and remarks. Community showed a lot of concerns; a few are being mentioned here:

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

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

Table 17: Views and Concerns of Stakeholders

Sr#	Respondents	CNIC/Contact Nos.	Concerns
1	Ashfaq Ashraf	33100-5586905-9	During the survey in the study area following concerns of the local community were noted: • Air pollution should be controlled effectively such as emissions generated from power generating activities. • Locals should be preferred for the job opportunities. • Wastewater should be treated prior to final disposal in nearby drain. • Solid waste should be managed effectively by adopting the standard practices of the area. • Cleanliness of the area should be ensured. • An effective EMMP should be designed and enforced with true spirit. • Health of the workers should be ensured. • Planation should be carried out at extensive scale. • Construction activity should be carried out during day hours. • Noisy activities should be confined. • Workers should be hired from local community. • Proper disposal of solid waste should be practiced. • Indigenous tress around the facility should be planted to control air pollution. • Safeeda can be planted in the project area as the area in known to be affected by the logging and salinity. • Removal of shrubs and bushes should be avoided to the extent possible.
2	Akbar Ali	34101-6996979-5	
3	Asghar Ali	35502-0115975-3	
4	Azhar Hussain	35404-1583563-7	
5	Ali Faiyz	35404-9639820-1	
6	Azhar Javed	0348-7530319	
7	Azhar Ali	35501-0320261-5	
8	Ajaz Ahmed	33100-6629033-3	
9	Hasseb-ur-Rehman	33103-0407065-7	
10	Hafiz M. Naseem	35201-8203359-3	
11	M. Hassan	33100-7069780-7 0308-8301104	
12	Hajhat Ali	35403-1152260-1	
13	Iftikhar Ashraf	33100-0960726-9	
14	Jalal Raiz	35404-0851938-1	
15	M. Tayyab	33102-94494070-1	
16	M. Qasim	33103-5708449-5	
17	M. Imran Ali	33100-3718960-1	
18	M. Asif	33102-4405857-9	
19	M. Bilal	33102-6879266-9	
20	M. Jameel	35404-6472528-5	
21	Mehran Ali	33102-0749901-7	
22	Mehmood Ahmed	35404-5098871-1	
23	M. Hussain	35404-9874025-7	
24	Tahir Mahmood	35404-4675969-3	
25	Naseer Masshi	35404-8149454-3	
26	Shahbaz	35502-0145928-7	
27	Saif-ur-Rehman	0321-6616660	
28	Sakhawat Ali	31203-8256953-1	
29	Usman Haider	36602-3574677-3	
30	Uzair Hassan	35404-5501547-7	
31	Waqar Ahmed	33102-20354307	
32	Zunair Hassan	33103-8161080-1	

33	Zeeshan Liaqat	0308-3225030	