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## EXECUTIVE SUMMARY

### Title & Location of the project

Subject project for which this Environmental Impact Assessment study has been conducted is the proposed construction of Ceramics Unit by M/S SA Ceramics (Private) Limited, located at plot no: 59&60, Allama Iqbal Industrial City, Faisalabad. The proposed project will deal with the production of water closet (WC) and washbasins with the production capacity of 700 pieces/day of each product. The total area of the proposed project site is 1764555 SFT (324 Kanals), in which covered area will be 1003004 SFT (184 Kanals). The cost of the proposed project is 1.67 billion Rupees.

The proposed project falls under Schedule II (List of project requiring EIA, Category B (Manufacturing and processing), clause 13 (Ceramics and Glass units) of Punjab Environmental Protection (Review of IEE and EIA Regulations), 2022. TORs of the study under clause 5 (f) of policy and procedure for the filing, review and approval of environmental assessment are annexed as **Annexure – A**.

### Background of the Project:

The site for this proposed project is an open land located at plot no: 59&60, Allama Iqbal Industrial City, Faisalabad. The provisional allotment letter by FIEDMC is attached as **Annexure-E**, and the layout map of the proposed project site is attached as **Annexure-B** with this report. The proponent is intended to do construction for this proposed project of Ceramics unit by M/S SA Ceramics Private Limited.

### Location

Subject proposed project is located at plot no: 59&60, Allama Iqbal Industrial City, Faisalabad having coordinates:

- 31°39'59.65"N
- 73°11'6.23"E

East..... Open Plot

West..... Open Plot

North..... Access Road

South..... Industrial Unit



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



### Details of the proponent:

Name	Faisal Khalid
CNIC	42201-3038857-5
Mailing Address	House No: 3/2, Zulfiqar Street No: 13, Off Kh-Qasim, Phase 8, Karachi

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

### Name of organization preparing the report:

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

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

Contact: 042-35441444, 0303-4442335.

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

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

### A brief outline of the proposal

<b>Name of the project:</b>	Subject project will be proposed construction of Ceramics Unit by M/S SA Ceramics (Private) Limited.
<b>Location of the project:</b>	Plot no: 59&60, Allama Iqbal Industrial City, Faisalabad.
<b>Proposed Area:</b>	The total area of the proposed project site is 1764555 SFT (324 Kanals), in which covered area will be 1003004 SFT (184 Kanals).
<b>Nature of Project:</b>	Nature of the project is proposed and construction will be started after getting the environmental approval.
<b>Cost of the project:</b>	Overall, the cost of the proposed project is 1.67 billion Rupees.
<b>Project process:</b>	Process will include the production of water closet (WC) and washbasins.
<b>Raw materials</b>	Clays, Feldspar, Mesh powder, Sodium Silicate, Talc, Glazes etc (Detailed list of Raw Materials is attached as <b>Annexure-H</b> )
<b>Production capacity</b>	The capacity of the proposed ceramics unite is the 700 pieces/day of each product (including water closet (WC) and washbasins)
<b>Power Requirement:</b>	1500 KW from WAPDA
<b>Labor/ Workforce:</b>	During construction: 50-80

	During Operation: 150-200
<b>Water Requirement:</b>	During Construction: approximately 50 cubic meter per day for constructional and domestic uses. During Operation: maximum 50 cubic meter/d for domestic use and for industrial purposes 200 Cubic Mtr per day
<b>Solid waste:</b>	During Construction: 90-120 kg/day construction and domestic waste During operation: 30-40 kg/day domestic and project related waste

### The major impacts

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

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

Potential Impact	Criteria for determining Significance	Key Mitigation Measures
<b>Dust Emissions</b> —Particulate matter emitted during construction activities and gaseous emissions from transportation vehicles can result in deterioration of ambient air quality in the vicinity of the project site, and be a nuisance to the surrounding workers.	An increase in visible dust beyond the boundaries of the construction site; or Concentration of PM <sub>10</sub> in excess of 150 µg/m <sup>3</sup> PEQS for Ambient Air.	Sprinkling of water on unsealed surfaces is recommended Vehicle speed restrictions should be applied in the project area; Raw materials should be transported in covered trucks. Ensuring that no stockpile is within 250 m of the community.
<b>Construction Noise</b> - Disturbance to surrounding communities due to operation of construction machinery at the project site.	PEQS for Noise OSHA standards	Noise monitoring has been conducted at the project site before starting the construction activity. Reduce noise at source; Take noise levels in consideration during detailed design and construction planning; Reduce traffic noise.
<b>Solid waste Management</b> — Improper waste management may generate health and aesthetic issues	Generation of excessive waste; Recyclable waste and reusable waste is discarded; Improper disposal.	Development of a waste management plan; Constructional waste should be utilized for road filling and maintenance. Domestic waste should be disposed of properly, handed over to contractors, placed in bins.

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

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

Potential Impact	Criteria for determining Significance	Key Mitigation Measures
<b>Machinery Noise-</b> Working of machinery can be a nuisance for the workers in the working area.	OSHA Standards	PPEs i.e. ear muffs should be provided to workers in case of high noise.
<b>Health &amp; Safety Issues-</b> Health and Safety issues e.g. Cuts and Injuries may be caused during the machinery handling.	OSHA Standards	Proper training of the staff should be conducted to avoid the accidents. First aid measures should be provided at the workplace.
<b>Solid waste management-</b> Improper solid waste management may cause health problems and aesthetic issues	Exposure to potentially hazardous waste; Generation of excessive waste; Recyclable waste and reusable waste is discarded; Improper disposal.	Waste bins should be placed at suitable places. Domestic and process related waste should be handed over to contractors.
<b>Groundwater</b> —The increased withdrawal of groundwater for the project will affect the groundwater resources of the project area	Water extracted for the project can directly affected the ability of the community to meet their water needs	No impact on the community groundwater needs is envisaged as a result of the project.

## Proposed Environmental Monitoring

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

- **Ambient Air**

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

- **Noise**

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

- **Water quality**

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

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

**Proposed Environmental Monitoring Program:**

Sr. No.	Parameters	Monitoring Schedules During Construction	Monitoring Schedules During Operation	Monitoring Duration
1	Stack Emission Analysis	Quarterly	Quarterly	As per PEQ's
1	Ambient Air Monitoring (NO <sub>x</sub> , CO <sub>2</sub> , SO <sub>2</sub> , PM <sub>10</sub> )	Quarterly	Quarterly	As per PEQ's
2	Noise Level	Quarterly	Quarterly	As per PEQ's
4	Drinking water quality	Quarterly	Quarterly	Some parameters on site Others in lab
5	Waste Water	Quarterly	Quarterly	Some Parameters on Site Others in Lab

## CHAPTER # 1

### 1. INTRODUCTION

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

#### 1.1. Purpose of the report

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

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

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

#### 1.2. Identification of the project and proponent

The proposed project falls under Schedule II (List of project requiring EIA), Category B (Manufacturing and processing), clause 13 (Ceramics and Glass units) of Punjab Environmental Protection (Review of IEE and EIA Regulations), 2022.

### 1.2.1. Proponent:

Name	Faisal Khalid
CNIC	42201-3038857-5
Mailing Address	House No: 3/2, Zulfiqar Street No: 13, Off Kh-Qasim, Phase 8, Karachi

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

### 1.3. Details of Consultant

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

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

The current study was carried out by the following professionals:

<b>Abdul Hafeez Nasir</b>	<b>PhD Scholar Environmental Management</b>
<b>Iftikhar Ahmed</b>	Environmental Specialist
<b>Umair Rasheed</b>	Environmentalist
<b>Muhammad Imran</b>	Environmental Engineer
<b>Nageen Quyyum</b>	Environmentalist

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

Subject project for which this Environmental Impact Assessment study has been conducted is the proposed construction of Ceramics Unit by M/S SA Ceramics (Private) Limited, located at plot no: 59&60, Allama Iqbal Industrial City, Faisalabad. The proposed project will deal with the production of water closet (WC) and washbasins with the production capacity of 700 pieces/day of each product. The total area of the proposed project site is 1764555 SFT (324 Kanals), in which covered area will be 1003004 SFT (184 Kanals). The cost of the proposed project is 1.67 billion Rupees.

<b>Name of the project:</b>	Subject project will be proposed construction of Ceramics Unit by M/S SA Ceramics (Private) Limited.
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<b>Solid waste:</b>	During Construction: 90-120 kg/day construction and domestic waste During operation: 30-40 kg/day domestic and project related waste

#### 1.4.1. Location

Subject proposed project is located at plot no: 59&60, Allama Iqbal Industrial City, Faisalabad having coordinates:

- 31°39'59.65"N
- 73°11'6.23"E

East..... Open Plot

West..... Open Plot

North..... Access Road

South..... Industrial Unit

Google map of site proposed for the subject project



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

## 1.5. Screening

The proposed project falls under Schedule II (List of project requiring EIA), Category B (Manufacturing and processing), clause 13 (Ceramics and Glass units) of Punjab Environmental Protection (Review of IEE and EIA Regulations), 2022.

## CHAPTER # 2

### 2. DESCRIPTION OF THE PROJECT

#### 2.1. Type and Category of the Project:

Subject project for which this Environmental Impact Assessment study has been conducted is the proposed construction of Ceramics Unit by M/S SA Ceramics (Private) Limited, located at plot no: 59&60, Allama Iqbal Industrial City, Faisalabad. The proposed project will deal with the production of water closet (WC) and washbasins with the production capacity of 700 pieces/day of each product. The total area of the proposed project site is 1764555 SFT (324

Kanals), in which covered area will be 1003004 SFT (184 Kanals). The cost of the proposed project is 1.67 billion Rupees.

The proposed project falls under Schedule II (List of project requiring EIA), Category B (Manufacturing and processing), clause 13 (Ceramics and Glass units) of Punjab Environmental Protection (Review of IEE and EIA Regulations), 2022.

## 2.2. Objectives of the Project

Objectives of the establishment of the subject project are:

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

## 2.3. Alternative Considerations and Reasons for their Rejection:

### 2.3.1. Location alternatives:

To fulfill the commercial aspects of the project under reference of this EIA Report, it is to be sited at a place where industrial/commercial processing activity is either already going on or there are bright prospects of the same. The current project is the proposed construction of Ceramics Unit by M/S SA Ceramics (Private) Limited, located at plot no: 59&60, Allama Iqbal Industrial City, Faisalabad, it must also meet the legal requirements of the Punjab Environmental Protection Act, 1997 (Amended 2012). Availability of land at the best convenient place is equally important among other considerations for the site selection. Availability of access roads, communication facilities, electricity, basic infrastructure, sewerage etc. is yet the other necessary requirements.

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

Keeping these requirements and their feasibility and other basic infrastructural requirements, the selected site is ideally suited for Construction of the Ceramics Unit.

## 2.4. Location and site layout of the project:

Subject proposed project is located at plot no: 59&60, Allama Iqbal Industrial City, Faisalabad having coordinates:

- 31°39'59.65"N
- 73°11'6.23"E

East..... Open Plot

West..... Open Plot

North..... Access Road

South..... Industrial Unit



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

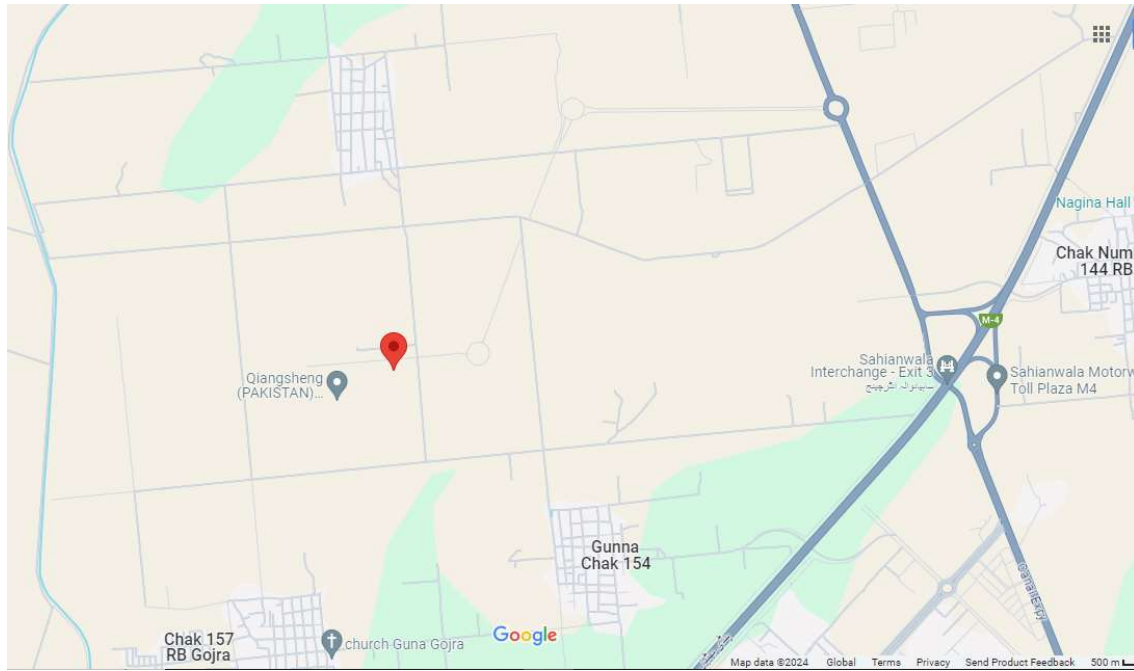
For further details, layout map of the project is attached as **Annexure-B** and Google Earth Map as **Annexure-G** with the report.

## 2.5. Land Use on site

Site proposed for the said project is an empty plot and it is the property of the proponent, reserved by the proponent for the construction of ceramics unit by M/S SA Ceramics (Private) Limited.

## 2.6. Road Access

Paved road at the front side of the project site is connected with Sahianwala Interchange Faisalabad.



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

## **2.7. Vegetation features of the project**

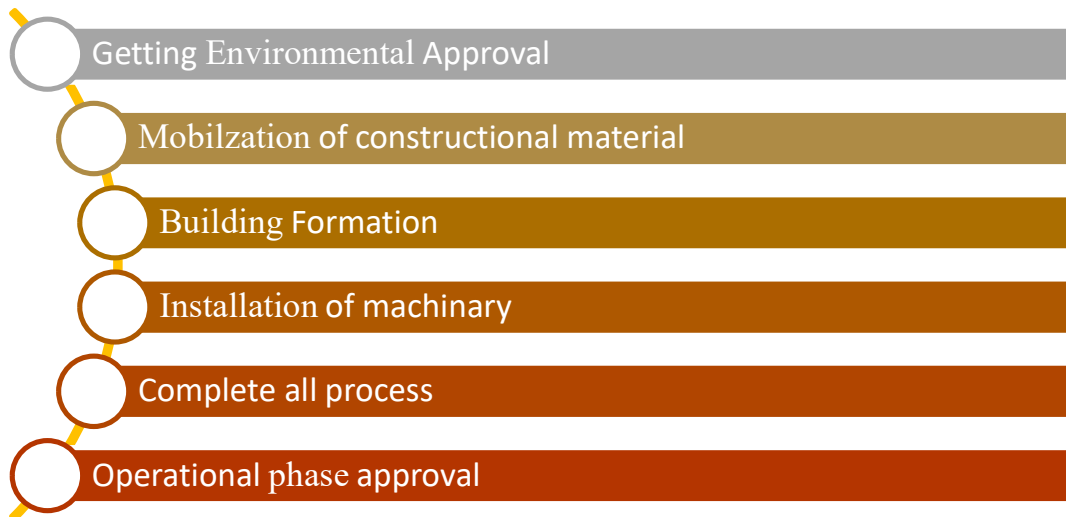
Land proposed for the subject project is clear and free of dense vegetation, only shrubs and small plants are present.

## **2.8. Cost and magnitude of the operation**

The proposed project will deal with the production of water closet (WC) and washbasins with the production capacity of 700 pieces/day of each product. The total area of the proposed project site is 1764555 SFT (324 Kanals), in which covered area will be 1003004 SFT (184 Kanals). The cost of the proposed project is 1.67 billion Rupees.

## **2.9. Schedule of Implementation**

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



### 2.10. Description of the project:

Subject project for which this Environmental Impact Assessment study has been conducted is the proposed construction of Ceramics Unit by M/S SA Ceramics (Private) Limited, located at plot no: 59&60, Allama Iqbal Industrial City, Faisalabad. The proposed project will deal with the production of water closet (WC) and washbasins with the production capacity of 700 pieces/day of each product. The total area of the proposed project site is 1764555 SFT (324 Kanals), in which covered area will be 1003004 SFT (184 Kanals). The cost of the proposed project is 1.67 billion Rupees

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<b>Project process:</b>	Process will include the production of water closet (WC) and washbasins.
<b>Raw materials</b>	Clays, Feldspar, Mesh powder, Sodium Silicate, Talc, Glazes etc (Detailed list of Raw Materials is attached as <b>Annexure-H</b> )
<b>Production capacity</b>	The capacity of the proposed ceramics unite is the 700 pieces/day

	of each product (including water closet (WC) and washbasins)
<b>Power Requirement:</b>	1500 KW from WAPDA
<b>Labor/ Workforce:</b>	During construction: 50-80 During Operation: 150-200
<b>Water Requirement:</b>	During Construction: approximately 50 cubic meter per day for constructional and domestic uses. During Operation: maximum 50 cubic meter/d for domestic use and for industrial purposes 200 Cubic Mtr per day
<b>Solid waste:</b>	During Construction: 90-120 kg/day construction and domestic waste During operation: 30-40 kg/day domestic and project related waste
<b>Solid waste:</b>	During Construction: 90-120 kg/day construction and domestic waste During operation: 30-40 kg/day domestic and project related waste

## 2.11. ACTIVITIES OF THE PROJECT

### 2.11.1. Raw Material Preparation

Raw materials that will be primarily used in the manufacture of ceramic basins and toilets are gaolin, feldspar, and quartz, etc.

### 2.11.2. Stirring The Clay

According to the composition, the mud of raw materials proportionally will go into the water pump, then to the mud pool after filtered. The compositions are well tested before the next progress.

As the production of ceramic basin and toilet is a continuous process, the clay is stirring continuously and done to fill into the production moulds by pipes since the moulding begins.

### 2.11.3. Moulding

- **High Pressure Casting**

High pressure casting is the latest manufacture method, to quicken the production (4 times than standard moulding), ensure the higher quality, and it is not affected by the weather.

- **Standard Moulding**

The clay goes into the clean production moulds through the transferring pipes within several minutes. It will keep still until the shape of ceramic basin or toilet is well formed. Then the cover will be open for drying.

#### **2.11.4. 1st Time Drying**

Once the ceramic basin or toilet is formed initially, the faucet hole, overflow hole (if needed), and drainer hole will be made. Then the basin will be dried in the natural air or under the industrial fan. When it's dried to 60% to 70%, it could proceed to the ceramic basin or toilet body repair state.

#### **2.11.5. Repair**

Manual repair by workers with more than 10 years of experience in the industry enables the product to be inspected and remedied before glazing and firing, so as to improve the quality of the finished product, and thus reduces production costs.

The ceramic product's body repairing focus on product size, concave protruding parts, and the straightness of basin edge. Repairing tools include the sandpaper, repairing knife or brusher.

#### **2.11.6. 2nd Time Drying**

After repairing the ceramic basin and toilet body, they will be sent to the kilns for firing. The space keeps the residual temperature in 50 to 60 degrees (°C), or 122 to 140 degrees Fahrenheit (°F). The products will be dried to 70% to 80% to the next inspection part.

#### **2.11.7. Semi-Finished Product Inspection**

At each stage of production, workers will check on the completion of the previous step before starting a new one. Whereas, the semi-finished product inspection is actually our named initial quality inspection. This inspection is to check if the product is with air bubbles, pinholes or cracks. Workers in protective clothing would clean the product with a sponge, and check for defects in the light. If there is a defect, it will be returned to the previous steps for reproduction.

#### **2.11.8. Glazing**

Using the automatic glazing machine, the glaze is evenly sprayed on the semi-finished product body. Manual glaze will be applied afterwards, this step mainly makes up the defects of uneven spraying glaze by the automatic machine.

By applying the 0.8mm thickness glaze with nano materials, it helps the ceramic basin and the toilet easy to clean, with high brightness, and reduce the breeding of bacteria.

### **2.11.9. Kiln Burning**

Water content shall be less than 5% for the ceramic basin and toilet body before going into kiln burning. Staying in the shuttle kiln for over 17 hours (each shuttle kiln is 100CBM in volume), the highest temperature is 1280 degree to make the ceramic basin or toilet fully porcelainized.

The tunnel kiln is generally divided into preheating zone, firing zone and cooling zone. And ceramic products in the firing process go through four stages. (Low temperature stage – Oxidation stage – High temperature and heat preservation stage –Cooling stage)

### **2.11.10. Final Inspection and Testing**

Tests carried out on finished products include visual inspection, flushing tests, water absorption, chemical resistance, crazing resistance, resistances to staining and burning.

### **2.11.11. Storage**

Quality approved ceramic products will be stored in the warehouse for packaging and dispatched.

### **2.11.12. Package**

Standard or branding package will be applied in the package stage. The custom design package helps the brand to stand out. Good packaging ways could save the space in the container, deduct the cost when offloading at destination port, and help to storage better in your warehouse or at site.

### **2.11.13. Loading**

Goods and packaging shall be in good condition before container loading. And experienced container loading team will load with the safest and most space-saving method.

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

## **2.12. Water requirements:**

During the construction phase of the project estimated 50 cubic meter/day of water will be required for constructional and domestic purposes while during the operational phase of the project, according to an estimate, 200 Cubic Mtr per day will be used. Ground water will be used as a source of water to fulfill the water requirements during the construction and operation phases of the project

### **2.13. Waste water treatment:**

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

### **2.14. Solid waste:**

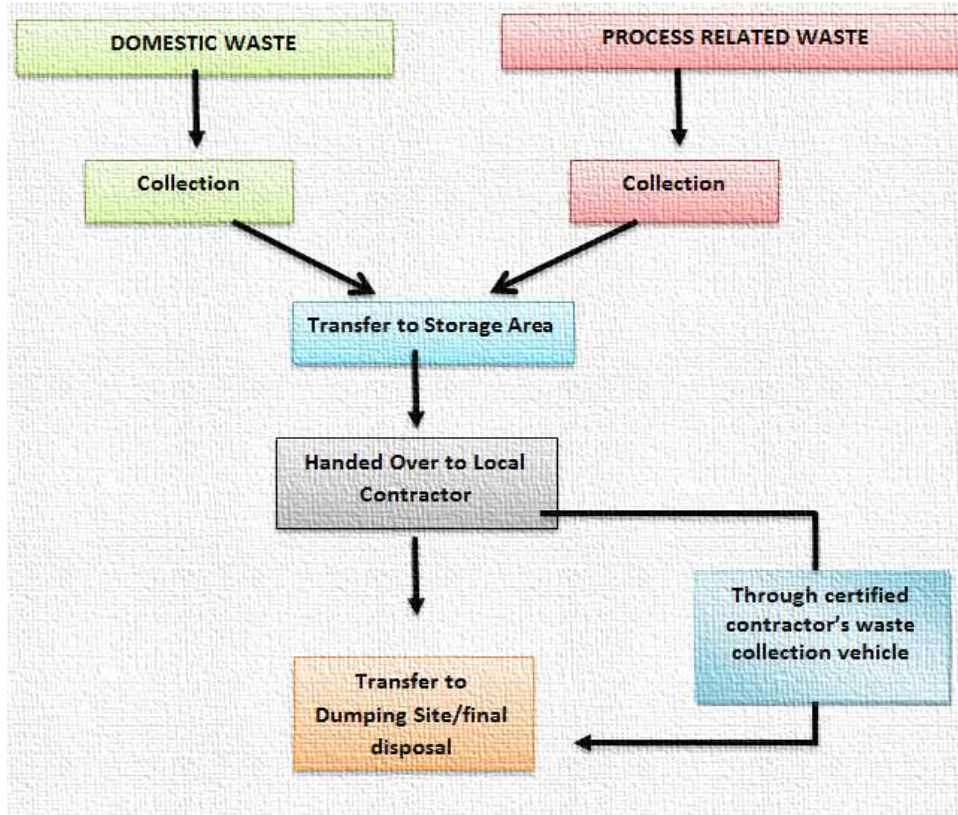
During the construction phase of the project, 120 kg/day construction and domestic waste will be produced. Constructional waste will be recycled during the constructional activities for road filling and maintenance purposes. According to an estimate, 40-50 kg/day domestic and project related solid waste will be produced during the operation phase of the project (based on solid waste generation rates of 0.45 kg/capita/day urban waste generation). Project related waste will include raw material loss, broken material, packaging material and kiln dust etc., which will be handed over to the certified contractors.

#### **2.14.1. Solid waste management system/practices**

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

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

#### 2.14.10. Flow chart of solid waste management plan:



#### 2.15. Plantation

Area for plantation will be reserved within the premises of the project and plantation will be done within, outside and at the boundary wall of the unit.

#### 2.16. Parking Area

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

#### 2.17. Fire Protection System

An addressable fire protection system with detection and alarm annunciation and other installations etc. would be provided to protect against any fire hazards. Fire buckets and fire extinguishers will be installed at all sensitive places within the unit.

#### 2.18. Emergency Exits:

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

### **2.19. Personal protective equipment:**

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

### **2.20. Power sources and transmission:**

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

### **2.21. Available Facilities**

Available facilities at the proposed project site include:

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

### **2.22. Restoration / Rehabilitation Plan**

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

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

### **2.23. Government approvals required by the project:**

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

## CHAPTER # 3

### 3. DESCRIPTION OF ENVIRONMENT

This chapter presents information on existing environmental and socioeconomic condition of the proposed project area. It discusses aspects pertaining to geology and soils, climatic conditions, hydrology, ambient air quality and noise levels as well as land use. Further, the chapter presents details related to flora and fauna as well as socio-economic environment.

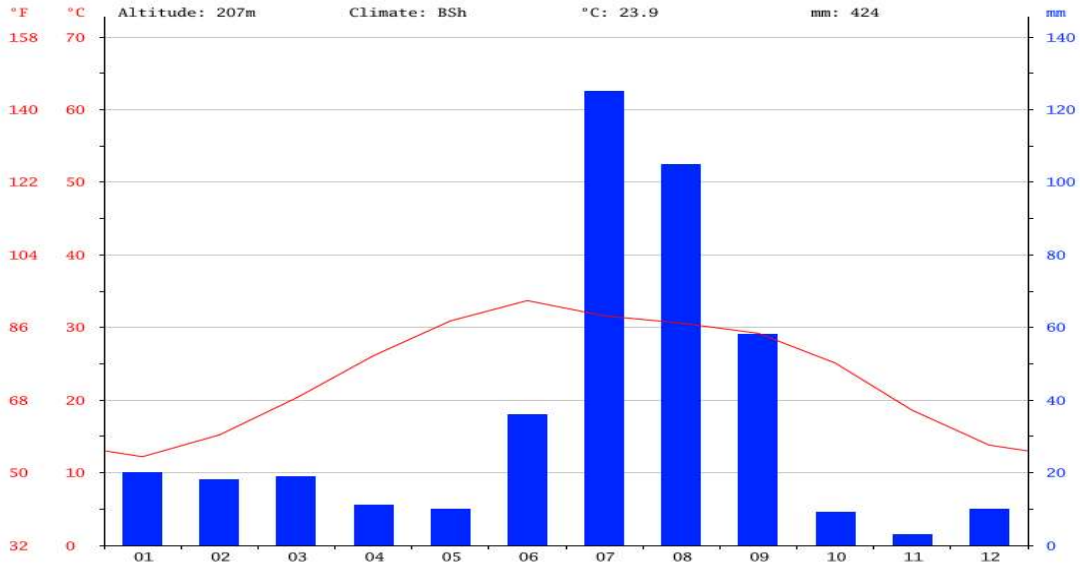
#### 3.1. Physical Environment/ Resources

##### 3.1.1. Topography:

Faisalabad features a predominantly flat topography within the fertile plains of the Indus River. Characterized by a relatively low elevation and a landscape that is well-suited for agriculture. The Chenab River flows nearby, and the city benefits from an extensive canal system that irrigates the surrounding farmland, contributing to the region's agricultural productivity. The urban area has undergone significant development, with a grid-like street layout in many parts, reflecting the city's commercial and residential zones. Overall, the city is a hub of agricultural and industrial activity in the region. The general height of the area is 183 meters above the sea level.

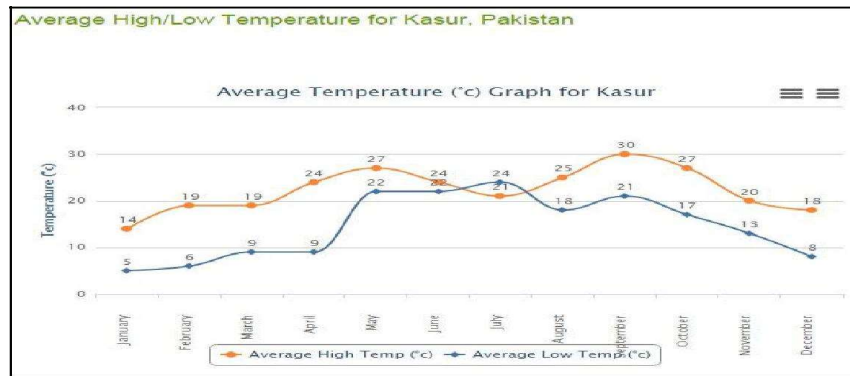
##### 3.1.2. Climate:

The climatic conditions of the project area are same as the condition of the district Faisalabad. Faisalabad has a semi-arid climate, with very hot-humid summers and dry, cold winters. Summers usually starts in June and ends in September and in June. In June, the average high and low temperatures are 46 °C (114 °F) and 30 °C (86 °F), respectively. The winters usually start from October till the middle of March and the recorded average low temperature in winter is 12.5°C. Faisalabad receives an average annual rainfall is only about 100 millimeters (14.8 inches) of which roughly half of the annual rainfall occurs in July and August during the monsoon season. In the Faisalabad Division, July has the highest relative humidity (66 %) due to heavy precipitation while May has the lowest relative humidity (20 %).



**3.1.3. Temperature:**

Over the course of a year, the temperature typically varies from 5°C to 30°C and is rarely below 2°C or above 44°C. At an average temperature of 33.7 °C, June is the hottest month of the year. The lowest average temperatures in the year occur in January, when it is around 12.2 °C.



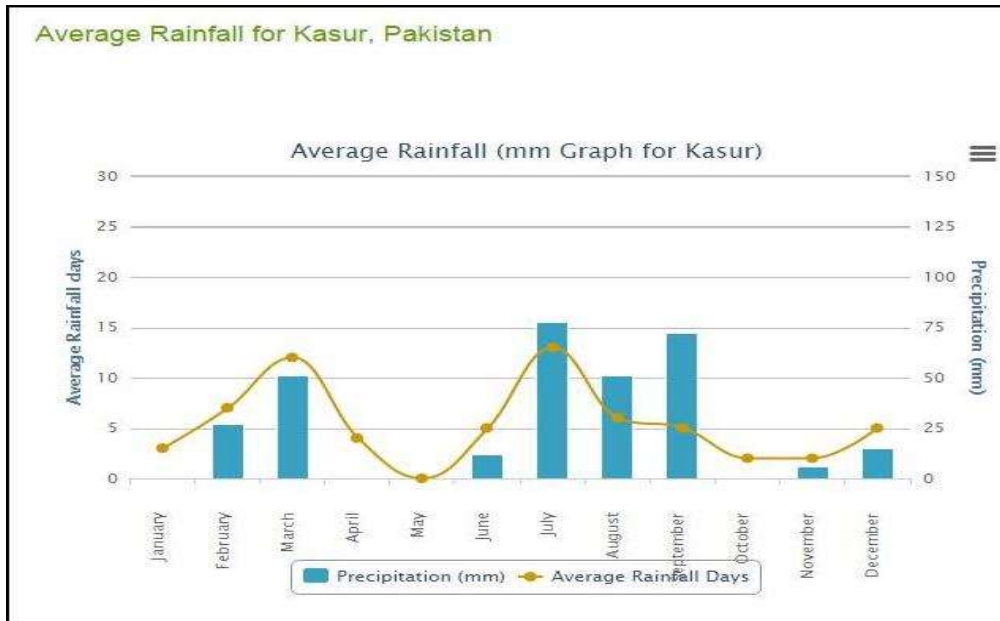
Climate data for Kasur



### 3.1.4. Precipitation:

Precipitation is the lowest in November, with an average of 3 mm. The greatest amount of precipitation occurs in July, with an average of 125 mm.

Between the driest and wettest months, the difference in precipitation is 122 mm. The variation in temperatures throughout the year is 21.5 °C.



### 3.1.5. Air Quality:

Atmospheric pollution, particularly in industrial areas has a strong impact on daily life. Project site is located at B-13 A M-3, Industrial Estate, Sahianwala Enterchange (Fiedmc), District Faisalabad where many industrial activities are already in process. Industries and vehicles are a major source of air pollution in the project area. Monitoring was conducted at the project site by using Fine Dust Sampler IPM-FDS 2.5/10µ and Ambient Air Analyzer.

To record the baseline ambient air quality of the project area, monitoring was conducted at advised locations to assess the concentration of priority pollutants (Carbon monoxide, Nitrogen dioxide, Sulphur dioxide and PM<sub>10</sub>) in the air.

### 3.1.6. Noise Level Monitoring:

#### 3.1.6.1. Basic Environmental conditions:

During the measurement following conditions were prevailed on workplace:



### 3.1.6.2. Metrological Conditions:

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

### 3.1.6.3. Monitoring Instrument:

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

Name: Digital sound level meter

Model: AR824

Company: Intel Instruments plus

Frequency Range: 31.5 Hz to 8 kHz

### 3.1.6.4. Methodology adopted:

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

## 3.2. Ground water:

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

## 3.3. Ecological Resources

Biodiversity has an important role in the functioning of the ecosystem. Human being is one of the species of the ecosystem and that species is the end user in the food chain. Fauna and flora are the important components of the ecosystem. The observed species of fauna and flora at the project site are described below.

### 3.3.1. Flora:

Native plants of the Punjab have been restricted to the graveyards and other protected sites/areas. The observed flora in and around the project area is mentioned below.

- Kikar (Acacia arbica)
- Beri (Zizyphus jajaba)
- Shisham or Tali (Dalbergia sissoo)
- Neem (Azadirachta indica)
- Milkweed (Asclepias)

### **3.3.2. Fauna:**

Birds including sparrows, crows, and myna were observed in the vicinity of the project area. During the interview with the local people, they reported the presence of rare sightings of Asiatic jackals and wild boar in the night. Domestic cats and dogs are commonly present. Reptiles are also present in the project area like garden lizards, snakes, the common Indian monitor, and the Indian Cobra. Lastly, mammals like Cape Hare, Indian Mongoose, Indian desert Jird, and Indian Gerbil are present in the vicinity.

### **3.4. Socioeconomic Environment:**

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

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

#### **3.4.1. Profession**

Main profession of the area is agricultural activities however some of the peoples are doing jobs in different institutes of the district and upcountry.

#### **3.4.2. Education level**

Literacy rate in the area is moderate.

#### **3.4.3. Language**

The popular language of the area is “Punjabi”

#### **3.4.4. Cultural Diversity**

The residents adhere to a conservative lifestyle, upholding their traditional social, cultural, and moral values rigorously in every aspect of their lives. Successful arranged marriages are a common practice, and there is a preference for limited interaction between males and females. Faisalabad's citizens joyously observe a multitude of cultural and religious festivals throughout the year, featuring arts, crafts, music, local gatherings, and religious celebrations. Notable festivals include Rang-e-Bahar, Kisaan Mela, Canal Mela, among others.

### **3.4.5. Quality of life values**

Quality of life the in the project area is poor as there are no proper sanitation system and basic health facilities. Some of the important factors are discussed are below;

### **3.4.6. Health & Education**

Basic health & education facilities are available in the rural area of the project site but these health and educational facilities are not sufficient. People have to visit the city Faisalabad for the proper health and educational facilities.

### **3.4.7. Compensation in money terms**

As the project has been developed on the land of proponent and people are not getting affected from the project.

### **3.5. Archaeological and Historical Treasures**

Archaeological or historical treasures within the project area are not available.

### **3.6. Lab reports of environmental analyses**

Lab reports of ambient air, drinking water and noise level monitoring of project area is annexed as **Annexure-D**

## CHAPTER # 4

### 4. CONSIDERATION OF ALTERNATIVES

#### 4.1. Site alternatives:

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

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

Keeping these requirements and their feasibility and other basic infrastructural requirements, the selected site is ideally suited

##### 4.1.1. Reasons of Rejection

The reasons of rejection of this site are:

- High cost of land
- Nearby human settlements
- Due to the ownership conflict of surrounding land
- No proper communication facility
- Fauna & Floral Species are present at this site in abundance.

#### 4.2. Technology Alternatives:

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

M/s SA Ceramics (Private) Ltd is an Environmental conscious company which intends to use modern and state of art machinery with minimum impacts on Environment.

### **4.3. Environmental alternative**

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

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

### **4.4. Economic Alternatives**

The project proponent intends for the construction of Ceramics Unit by M/S SA Ceramics (Private) Limited, located at plot no: 59&60, Allama Iqbal Industrial City, Faisalabad. The installation of this project will lead to the project towards sustainability as the project will not release any untreated wastewater into the drains. This will improve the project brand in the international market and attract international investment. This project will provide employment during construction phase and managerial staff at operation phase as laborer's workers and managerial staff. This project will accelerate the economic development of the district Faisalabad and in turn Pakistan.

## CHAPTER # 5

### 5. SCREENING OF POTENTIAL ENVIRONMENTAL IMPACTS & THEIR MITIGATION MEASURES

#### 5.1. Environmental Impacts due to project location

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

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

**Impact significance:** Low or may be positive

**Nature of impact:** Direct

**Duration:** Long-term

**Timing:** construction phase

**Reversibility:** NA

**Likelihood:** Low (unlikely),

**Consequences:** Mild or may be positive

#### 5.2. Mitigation Measures for location phase impacts

- Project site should have good road infrastructure and efficient road infrastructure already exists there that is used currently to access the site and there is no issue of the road congestion due to the wide, good and paved road named Sahianwala Interchange, Faisalabad
- Location can be considered as the positive impacts due to utilization of the product in the same District.
- The project will provide the jobs to the local residents as well as to those from the suburban areas.

### 5.3. Environmental Impacts due to the project design

Subject project for which this Environmental Impact Assessment study has been conducted is the proposed construction of Ceramics Unit by M/S SA Ceramics (Private) Limited, located at plot no: 59&60, Allama Iqbal Industrial City, Faisalabad. The proposed project will deal with the production of water closet (WC) and washbasins with the production capacity of 700 pieces/day of each product.

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

- Canteen
- Dormitory
- Production Line 1
- LPG plant
- Raw material Storage Area
- Control Area
- Power house
- Office Building
- Sewage Treatment Plant Area
- Guest House
- Finished Products Warehouse
- Laboratory

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

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

**Impact significance:** moderate to high or may be negative

**Nature of impact:** direct

**Duration:** Long-term

**Timing:** Constructional phase & Operation phase

**Reversibility:** NA

**Likelihood:** moderate to high

**Consequences:** moderate to high or may be negative

#### 5.4. Mitigation measures and recommendations

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

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

#### 5.5. Environmental Impacts during the construction phase

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

- **Grubbing and stripping**

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

- **Leveling and compaction of the land**

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

- **Ground water quality**

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

- **Impacts on Fauna and Flora**

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

- **Security threat**

Security issue is a major socioeconomic impact which may arise during the construction phase.

- **Impact on land value**

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

- **Dislocation of the people**

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

- **Loss of public and private infrastructure**

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

**Impact significance:** moderate to high or may be negative

**Nature of impact:** direct

**Duration:** Short Term

**Timing:** Construction phase

**Reversibility:** NA

**Likelihood:** moderate

**Consequences:** moderate

## 5.6. Mitigation Measures and Recommendations

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

- No movable or immovable property and infrastructure of public and private sectors will be lost or damaged during construction and operation stages. Impact will be nil.

### 5.7. Environmental Impacts during Operation Stage

Main environmental issues associated with Project operation are as follows.

- Health and safety issues for workers may arise during the project process e.g. Particulate matter may be generated during production, which may cause the health issues for the workers and noise of machinery can also be a negative impact on the health of workers.
- Waste water due to domestic and process activities.
- Fire due to short circuits and other activities.
- Solid waste generation due to domestic and project related activities.
- Noise pollution from generator and other machinery.
- Health hazards including the electricity hazards.
- Vehicle access is required especially for transportation. The site is well served with the road network. Heavy traffic will be allowed only during night time during operational phase. The traffic issues at any stage of project life cycle will not arise.

**Impact significance:** moderate to high or may be negative

**Nature of impact:** direct

**Duration:** Long-term

**Timing:** operational phase

**Reversibility:** NA

**Likelihood:** moderate to high

**Consequences:** moderate to high or may be negative

### 5.8. Recommendations

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

- Project proponent should submit all the monitoring report in the EPA Punjab Office for the compliance of the PEQS.

### **5.9. Potential Environmental Enhancement Measures**

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

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

### **5.10. Purpose of Mitigation measures**

Purpose of mitigation measures should include:

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

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

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

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

### **5.11. Ways of achieving mitigation measures**

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

Management of M/S SA Ceramics (Private) Limited shall take appropriate measures to provide pollution free and safe environment during the proposed project activity by implementing improved management practices and monitoring techniques suggested in EMP.

M/S SA Ceramics (Private) Limited will adopt such plan that will assure the minimum impact on the environment and health by implementing proper mitigation measures. Design of the project will assure the structure stability and project life in a long run.

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

## CHAPTER # 6

### 6. ENVIRONMENTAL MANAGEMENT AND MONITORING PROGRAM

#### 6.1. Purpose and Objectives of the EMP:

The primary objectives of the EMP are to:

- Facilitate the implementation of the mitigation measures identified in the EIA.
- Define the responsibilities of the project proponent.
- Define a monitoring mechanism and identify monitoring parameters in order to:
  1. Ensure the complete implementation of all mitigation measures.
  2. Ensure the effectiveness of the mitigation measures.
  3. Provide a mechanism for taking timely action in the face of unanticipated environmental situations
  4. Identify training requirements at various levels.

#### 6.2. Management Approach:

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

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

#### 6.3. Institutional Capacity

Following functionaries will be involved in the implementation of EMP:

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

#### 6.4. Training Schedules

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

### **6.5. Training of building contractor**

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

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

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

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

### **6.6. Responsibility of EMP**

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

## Summary of impacts and their mitigation measures

Serial	Environmental Issues/ Impacts	Mitigation Measures
<b>PLANNING, SITE SELECTION AND DESIGN STAGE</b>		
1	Observance of administrative and legal formalities	It is recommended for obtaining of approval from other relevant departments.
2	Acquisition of land	The proposed land is the property of the project proponent.
3	Loss of environmentally sensitive areas	There is not any sensitive area near the project site however the project proponent will achieve the PEQS at the boundary wall of the subject project to avoid the environmental impacts on the nearby industrial unit.
4	Changes in traffic pattern	There is no need to change the traffic pattern due the development of the subject project because no. of industries have been developed at the same link road only few vehicles will visit the project on daily basis.
5	Potential conflicts with stakeholders	There is not any conflict at the current stage of the project. Neighboring industries were visited regarding their concerns. They have no objection regarding development of the subject project as per proposed design.
6	Resettlement issues	No resettlement issues
7	Project Design	Provision of Emergency Exits, Assembly Points, firefighting arrangements, water storage for firefighting should be incorporated in the design. Installation of Dust/flue gases/odor controlling devices should be incorporated in the design. Project proponent is committed to provide all these provision in the design of the project.
<b>SITE DEVELOPMENT STAGE</b>		

1	Erosion due to stripping and site clearance.	Sprinkling of water on road sides or dusty tracks.
2	Generation of dust	Careful loading and unloading of construction materials is recommended. Sprinkling of water on construction site and surrounding areas is recommended.
3	Generation of noise	<ul style="list-style-type: none"> <li>• Avoid use of horns at the site.</li> <li>• Do not throw heavy equipment and construction materials in haphazard manner.</li> </ul>
4	Local flooding/ponding	Immediate repair and maintenance of water supply pipes and sewers in case of any defect will be undertaken.
5	Outbreak of fire	Firefighting equipment must be maintained at the site in good working condition.
6	Safety	Safety of the workers and others must be ensured. Privacy of the neighbors must not be disturbed.
7	Labor issues	Employ the local labor as far as possible Wages of the labor should be as per Government policy
<b>CONSTRUCTION STAGE</b>		
1	Minor erosion of land	<p>There are two types of erosions:</p> <ol style="list-style-type: none"> <li>1. Wind Erosion</li> <li>2. Water erosion</li> </ol> <ul style="list-style-type: none"> <li>• It is recommended to construct the boundary wall first that will reduce the soil erosion due to wind and chances of water erosion due to water flow from the adjacent will be reduced also.</li> <li>• Clearing of land should be step wise; vegetation should be removed only from the area where main building will be developed.</li> <li>• Add more vegetation, restore the land by more plantation</li> </ul>

		<ul style="list-style-type: none"> <li>• Sprinkle water on dusty tracks is recommended</li> </ul>
2	Contamination of land and water	<p>Hazardous substances like oil, fuel, etc. should be kept on concreted surface.</p> <p>Essential services like water supply, sewerage disposal and solid waste management must be in working condition.</p>
3	Impacts of dust, noise and flue gases on neighbors	<p>Sprinkling of water on dusty tracks is recommended.</p> <p>Avoid use of horns at the site.</p> <p>Do not throw heavy equipment and construction materials in haphazard manner.</p> <p>Proper tunings of vehicles and machinery must be ensured.</p> <p>Schedule construction timings should be implemented for minimum disturbance to neighbors.</p> <p>Continuous Environmental monitoring must be ensured as per proposed monitoring plan.</p>
<b>OPERATION STAGE</b>		
1	Contamination of land and water sources	<p>Continuous vigilance on maintenance of services.</p> <p>Tarpaulin sheets must be placed to avoid leaching of oil into ground.</p>
2	Fire breakouts	<p>Training of workers regarding flammable substances will be ensured. SOPs of fire prevention will be adopted like forbidden of smoking, regular testing of electricity infrastructures and regular testing of gas supply system to the industry.</p> <p>Firefighting equipment must be kept in working condition at site.</p>
3	Safety/security concerns	<p>Safety of the workers and others will be ensured.</p> <p>Privacy of the neighbors will not be disturbed.</p>
4	Malfunction of utilities	<p>It is proposed to appoint maintenance engineer with technicians like plumber and electrician for smooth operation of utility services.</p>

5	Occupational Health, Safety and Environment	<ul style="list-style-type: none"> <li>• Regular medical check-ups must be ensured to improve the working condition and efficiency of workers.</li> <li>• Safety of management, workers and visitors must be ensured.</li> <li>• Observance construction and safety codes must be ensured.</li> <li>• Provision of emergency exits must be ensured.</li> </ul>
6	Production of Solid Waste	<p>Area for solid waste must be reserved within the subject project.</p> <p>The solid waste must be managed on regular basis.</p> <p>The domestic waste will be disposed-off in environment friendly way.</p>

### 6.7. Equipment Maintenance Detail

The Subject project for which this Environmental Impact Assessment study has been conducted is the proposed construction of Ceramics Unit by M/S SA Ceramics (Private) Limited, located at plot no: 59&60, Allama Iqbal Industrial City, Faisalabad. The proposed project will deal with the production of water closet (WC) and washbasins with the production capacity of 700 pieces/day of each product.. The company will maintain the records for Health Safety & Environment and will hire HSE manager to check and deal with the HSE issues. The company shall maintain PPEs, medical facilities, firefighting Equipment’s as fire buckets, fire hydrants and fire extinguishers and records for their periodic fillings or replacement.

### 6.8. Environmental Budget

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

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

## 6.9. ENVIRONMENTAL MANAGEMENT PLAN FOR MANUFACTURE SA CERAMICS (PRIVATE) LIMITED

Serial No.	Environmental Parameter/ Element	Mitigation measure to be taken during construction stage	
		Construction	Regular operations
<b>1.</b>	Gaseous/ Dust emissions	<p><b>1-</b> Construction materials i.e. sand, clay shall be transported to the project site during night time and will be stored away from the road or foot path. They will be kept under cover to avoid any fugitive dust.</p>	<p>Management will ensure that masks will be provided to workers during the working hours.</p>
		<p><b>2-</b> The site proposed for the construction of Manufacturing Unit is located away from human settlements.</p>	<p>Vehicles to use for the transport of raw materials Manufacturing Unit should be properly tuned.</p>
		<p><b>3-</b> All equipment, generators, and vehicles used during the project will be properly tuned and maintained in good working condition in order to minimize exhaust emissions.</p>	<p>One diesel fired generator shall be used for emergency situation on site. Exhaust will be emitted through an adequately fabricated stack. It should be kept in mind that the generator should be properly tuned.</p>

			only function during emergency condition for limited period.	
		4- All project vehicles will be checked regularly to ensure that engines are in sound working condition and are not emitting smoke.	Monitoring should be conducted on Monthly basis as per EPA PEQS Rules.	
2.	Noise	1- All activities will be under PEQS level of noise during construction phase.	All activities will be under PEQS level of noise during operation phase.	<b>HSE/Environment Manager</b>
		2- Ear plugs will be provided & implemented (ensured by the management of Ali Murtaza Associates Pvt. Ltd	PPEs i.e. ear muffs should be provided to workers in case of high noise.	
3.	Health & safety	1- Local people will be informed in advance when work is about to start in an area. This may result in people keeping young children away from work areas. 2- Machinery will never be left unattended.	1- The EMP guidelines will be followed strictly (committed by the management). 2- Training of workers will be conducted regarding health and safety.	<b>HSE/Environment Manager</b>

		<p>3- Safe driving practices will be adopted, particularly while passing through settlements.</p> <p>4- Basic health facilities will be provided to workers.</p> <p>5- PPEs will be provided &amp; implemented.</p> <p>6- Electrical wires, D.Bs will be kept covered to avoid electrical hazards.</p>	<p>3- PPEs will be provided and implemented.</p> <p>4- First aid measures will be provided to workers.</p> <p>5- Shift Rotation, proper ventilation will be provided to workers in case of thermal stress.</p> <p>6- Safety signs, safety boards, exit arrows etc. will be placed on site.</p> <p>7- An Assembling point will be kept to gather in case of emergency situation such as fire hazards.</p> <p>8- Floors will be kept clean without slippery to avoid any hazard.</p> <p>9- Firefighting system will be installed to avoid any health hazards.</p>	
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			<p>10- Electrical wires, D.Bs will be kept covered to avoid electrical hazards.</p> <p>11- Machinery will never be left in running condition.</p>	
4.	Generation of domestic & project process related solid waste.	Construction Solid waste will be stored in solid waste bins and will be reused for land filling and maintenance purposes and domestic waste will be handed over to the certified contractors.	Domestic, process related solid waste and sludge will be stored in solid waste bins and will be handed over to certified contractors.	<b>HSE/Environment Manager</b>
5.	Waste effluents	Wastewater must be treated	The sewage to be generated shall be treated in current treatment facility of unit & then will be drained out in the nearby Sundar Industrial Estate drain.	<b>HSE/Environment Manager</b>
6.	Water supply	It shall be ensured that no activity tempers with the water supply system and water availability	It shall be ensured that no activity tempers with the water supply system and water availability	<b>HSE/Environment Manager</b>
7.	Soil erosion	The clearing of vegetation along proposed site will be minimized as far as possible.	Plants will be planted during operation phase of the subject Division.	<b>HSE/Environment Manager</b>

8.	Enhancement of aesthetic beauty of the building and the area.	---	<p>1- Flower pots containing flowers and plants will be provided in front of the building to add to the improvement of the environment around.</p> <p>2- All other necessary measures will be taken to maintain standards of cleanliness so that the building may add to the scenic/aesthetic beauty of the area around.</p>	<b>HSE/Environment Manager</b>
9.	Staff for catering the Environmental Management Plan	---	<p>1- Special staff will be recruited to implement this Environmental Management Plan on regular basis.</p>	<b>HSE/Environment Manager</b>
10.	<b>Sludge from Effluent treatment plant</b>	----	Sludge will be handle properly and after successful removal from tanks It will hand over to contractors	<b>HSE/Environment Manager</b>

## CHAPTER # 7

### 7. STAKEHOLDERS PARTICIPATION

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

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

#### 7.1. Objectives of Consultation

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

The important general objectives of the consultation process are:

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

## **7.2. Methodology of consultation:**

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

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

## **7.3. Proponent**

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

## **7.4. Responsible Authority**

Management of M/S SA Ceramics (Private) Limited is the responsible authority to take all measures prior to start the activity.

## **7.5. Other departments and agencies**

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

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

## **7.6. Affected & Wider Community**

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

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

#### 7.7. Categories of stakeholders interviewed in the project area:

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

#### 7.8. Issues Discussed:

Following issues were discussed during the stakeholder consultation:

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

#### 7.9. Findings of the Overall Discussion:

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

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

## CHAPTER # 8

### 8. CONCLUSION AND RECOMMENDATIONS

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

#### 8.1. CONCLUSIONS

- The EIA study reveals that the project is economically viable, socially acceptable and environment friendly.
- It will generate additional jobs during construction and operation phases.
- The proponent has committed to implement the project in the environment friendly manner.
- M/S SA Ceramics (Private) Limited intends to register the project with local Government.
- M/S SA Ceramics (Private) Limited will prepare and implement very comprehensive Emergency Preparedness and Response Standard Operating Procedures.
- M/S SA Ceramics (Private) Limited will prepare and implement very comprehensive Security and Fire Fighting Standards Operating Procedures during operational and constructional phase.

#### 8.2. RECOMMENDATIONS

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