

EXECUTIVE SUMMARY

INTRODUCTION

This executive summary presents an overview of the main findings of the Environmental Impact Assessment (EIA) report for the project named as “smelting plant is an industrial facility where metal ores are heated to high temperatures to extract the pure metal from the ore. Smelting is a crucial step in the metal production process and is used for metals like Iron (from iron ore), Copper, Lead, Zinc, Nickel, Aluminum (though this typically involves electrolysis rather than traditional smelting). The coordinates of the are 32.1926750, 74.1572410.

Proposed project is about a smelting plant like as smelting plant is an industrial facility where metal ores are processed to extract pure metals through high-temperature heating and chemical reactions. This process is a crucial stage in the metal production value chain and plays a vital role in supporting industries such as construction, electronics, automotive, and infrastructure. The proposed project is located at the Located at Mouza Kotli Johd Singh, Tehsil Gujranwala Sadar, Near Shalimar Town, GT Road, District Gujranwala. The cost of project is 50 million. A smelting plant is a cornerstone of any country’s mineral and metallurgical industry. With proper planning, technology, and environmental safeguards, it can transform raw resources into valuable metals while supporting economic development and sustainability.

SALIENT FEATURES OF PROJECT

| | | |
|----|----------------------|--|
| 1. | Project title | Installation of Smelting Plant by ABM Recycling (Pvt) Limited |
| 2. | Location | Located at Mouza Kotli Johd Singh, Tehsil Gujranwala Sadar, Near Shalimar Town, GT Road, District Gujranwala |
| 3. | District | Gujranwala |
| 4. | Name of proponent | Mr. Anas Bin Aamir S/o Aamir Mahmood (Proponent) |
| 5. | Address of proponent | R/O Al Habib Arcade, Flate No. Y-306, Block 7, Muhallah Main Road Clifton, Karachi Janoobi |

| | | |
|-----|--|--|
| | | |
| 6. | Area of the project | Toala Area= 29K- 3M- 121F |
| 7. | Type and category of project | The proposed project falls under sub-clause 19 (Smelting Plant) of clause B (Manufacturing and Processing) of Schedule-II requiring the EIA study. |
| 8. | Nature of the Project | It is a proposed project i-e smelting plant. Proponent will start all activities after the approval by EPA as per requirement. |
| 9. | Total cost of the project | 50 millions in PKR |
| 10. | Availability of resources | Transportation, water supplies, electricity will be available at that specified area. |
| 11. | Source of electricity | WAPDA Electricity is available at that specified site. |
| 12. | Manpower requirement | 10 workers in constructional site and 10 workers in operational site. |
| 13. | Water requirement | The whole project will require about 200 gallons/day of water during constructional phase and approximately 100 gallons/day of water during operational phase. This will be met by ground water. |
| 14. | Solid waste and its management | Solid waste during construction phase will be re-used in construction activities. During operational phase, sanitary workers will collect the waste on daily basis. |
| 15. | Wastewater and its treatment in proposed project | Waste water quantity will discharge after treatment through septic tanks into nearby fields. |

Environmental Consultants

An Environmental Impact Assessment (EIA) study report has been prepared to identify and predict the significant environmental impacts likely to arise from the commencement of the proposed project along with environmental impact statement followed by delineation of appropriate Environmental Management Plan and Environmental Monitoring Plan to check the implementation of the EMMP. Proponent of “Installation of Smelting Plant by ABM Recycling (Pvt) Limited located at Mouza Kotli Johd Singh, Tehsil Gujranwala Sadar, Near Shalimar Town, GT Road, District Gujranwala has decided to conduct EIA report through environmental consultants, Ecosphiron Environmental Services, Office # VII, F-2, 9 Kashmir Block, Jalal Center, Allama Iqbal Town, Lahore.

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A Brief Outline of Proposal

Respective project is an open plot where there are no any squatter settlements. There are no any structures on the proposed site so no any structure will be demolished. This Environmental Impact Assessment (EIA) report has been prepared to evaluate the potential environmental impacts associated with the development and operation of a proposed site. The primary purpose of the project is to provide a scientifically managed and environmentally sound facility for the disposal of municipal solid waste generated within the designated service area.

The increasing volume of solid waste, driven by urbanization, population growth, and industrial activities, necessitates the development of a sustainable waste management solution. The proposed project site is designed in accordance with national regulations and international best practices to minimize negative environmental effects, such as groundwater contamination, air pollution, and greenhouse gas emissions.

This report outlines the baseline environmental conditions of the project site, identifies and assesses the potential impacts of the project's construction and operation, and proposes mitigation measures to reduce adverse effects on the

surrounding environment and communities. The EIA also includes a detailed evaluation of alternatives, public consultation outcomes, and an environmental management plan (EMP) to ensure long-term environmental compliance and sustainability of the project.

Currently, it is a proposed project. While proper operation with compliance of Environmental Conditions will be started after getting Environmental Approval.

The Major Impacts & Recommended Mitigation Measures

Keeping in view, all the findings of the baseline study, and through general observation and desktop study, and understanding of the activities and processes involved in the project, environmental impacts have been anticipated. Following impact assessment methodology; i.e. defining the criteria for evaluation of the impacts, identification of mitigation measures (all possible options), evaluation of the residual impacts and identification of the monitoring requirements, adequate and effective mitigation measures have been proposed for all construction and operation related likely environmental impacts of the project. These mitigation measures have been proposed in order of attempts to eliminate or minimize the impact, provide some compensation or rehabilitate the environment by some means.

Weather describes an impact as having both spatial and temporal impacts, which can be described as the change in an environmental parameter over a specified period and within a defined area, resulting from a particular activity compared with the situation which would have occurred had the activity not been initiated. The expected impacts from the project are mostly insignificant and others are of limited nature. In this regard possible improvements and mitigation measures have been taken. The study also shows that there will be no exploitation and consequential depletion of the local natural resources. The general approach to Environmental Management Plan for the project, for the construction and operational phases of the Project has been presented, along with an outline plan for the project Environmental Management Plans (EMPs). Site specific and practically suitable mitigation measures are recommended to mitigate the impacts.

Proposed Monitoring:

Monitoring at the proposed sites has been conducted for ambient air, Noise level and ground water and the reports demonstrated that results are within the limits prescribed by PAK-PEQS (2016). The values of these parameters are present in baseline study of project.

Conclusion

The Environmental Impact Assessment (EIA) contains description of the project, description of the environmental baselines, potential environmental impacts and suggested mitigation measures. An implementation mechanism for mitigation measures in the form of an Environmental Management Plan is included in the study. While the objectives of this study have been to describe the project and its environmental impact, it also identifies adverse environmental factors associated with the project. Appropriate mitigation measures as explained in the environmental study should reduce, if not eliminate, these impacts so that these are within acceptable limits.

It is further concluded that all potential environmental concerns associated with the project have been adequately addressed, and no further study is required in this context.



The main persons involved in finalizing EIA report are following;

Ms. Shakeela Rani

(Environmentalist)

Mr. Manzoor Ahmad

(Environmentalist)

For the Proponent

I have reviewed the project EIA report and found the contents to be valid and true to the best of knowledge and belief.

Mr. Anas Bin Aamir S/o Aamir Mahmood

(Proponent)

**Installation of Smelting Plant by
ABM Recycling (Pvt.) Limited, Gujranwala**

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CHAPTER I

INTRODUCTION

1.0 Purpose

Installation of Smelting Plant by ABM Recycling (Pvt) Limited is located at Mouza Kotli Johd Singh, Tehsil Gujranwala Sadar, Near Shalimar Town, GT Road, District Gujranwala. The study has been carried out to estimate the potential environmental and social impact assessment, both positive and negative, on the environment as well as socio-economic fabric of the surrounding environment during construction as well as operational phase. This report intends to provide satisfactory mitigation measures to avoid/eliminate any chance of adverse environmental impact on the socio-cultural, economic and environmental components. This report also intends to fulfill the regulatory requirements set under Punjab Environmental Protection Act (Amended 2012) 1997 and its consequent legislative framework for IEE/EIA including the IEE/EIA Regulations **2022 and the guidelines drafted for IEE and EIA under numerous sectorial heads. The entire set of legislative framework** requires any new development project to undergo an IEE or EIA based on the categorization of the project under Schedule I and/or Schedule II.

1.1 Identification of the Proponent

Name of Proponent: Mr. Anas Bin Aamir S/o Aamir Mahmood

Address of Proponent: R/O Al Habib Arcade, Flate No. Y-306, Block 7, Muhallah Main Road Clifton, Karachi Janoobi

1.2 Environmental Consultants

The Environmental Impact Assessment (EIA) has been carried out by aptly skilled and duly qualified group of professionals working for the environmental consulting Services namely Ecosphiron Environmental Services. The consulting team can be approached through the following contact details:

Ecosphiron Environmental Services, Office # VII, F-2, 9 Kashmir Block, Jalal Center, Allama Iqbal Town, Lahore. 0322-4908520, 0301- 4276787, ecosphiron@gmail.com

1.3 Nature and Size of Project

The project aims as the management is establishing the “Installation of Smelting Plant by ABM Recycling (Pvt) Limited is located at Mouza Kotli Johd Singh, Tehsil Gujranwala Sadar, Near Shalimar Town, GT Road, District Gujranwala”.

The capital cost of the project is 50 million in PKR. The project will spread over an area of 29K- 3M- 121F with tree plantation around the boundary. As a result of the project, around 10 people will get jobs during establishment phase and another approximately 10 persons will be engaged during operational process depending upon capacity/production of the unit. Labor from the locals will be preferred.

1.4 Eco-Friendly Features of the Project

Special feature of the project is its eco-friendly design through provision of unique elevation and landscaping. The basic idea of the concept is to create a safe, modern as well as environmentally friendly design to ensure improved working conditions required by the potential users. The reason of adopting sustainability or ‘bioclimatic’ approach to the design provides opportunities to address problems relating to energy usage and air quality.

1.5 Location

The proposed project Installation of Smelting Plant by ABM Recycling (Pvt) Limited located at Mouza Kotli Johd Singh, Tehsil Gujranwala Sadar, Near Shalimar Town, GT Road, District Gujranwala. The project site is surrounded by open plot area while in front main road is passing. Based on the current land use of the proposed project, the said project is not located in an ecologically sensitive area.

1.6 Extent/scope of EIA Study

This EIA report has been conducted in accordance with the requirements of PEPA, 1997 (amended 2012), IEE/EIA regulations 2022 as well as section 2.3 of the guidelines for the perpetration and review of environmental reports, November 1997/2022. This EIA report presents screening of potential environmental impacts of the proposed construction and operational phase and presents the necessary mitigation measures to eliminate or reduce the negative impacts to an acceptable level. The report provides an Environmental Management and Monitoring Plan and the institutional requirements for the implementation of this plan.

The EIA process followed all the complementary stages described in the guidelines for IEE/EIA preparation and review. A brief flowchart exhibiting the different stages involved is in figure 1.1.

The format of this EIA covers the followings:

- Introduction
- Project Description
- Environmental Regulatory Framework
- Description of the Environment
- Screening of Potential Environmental Impacts and Mitigation Measures
- Environmental management and Monitoring Plan
- Stakeholders Consultation
- Conclusions and Recommendations
- Annexure

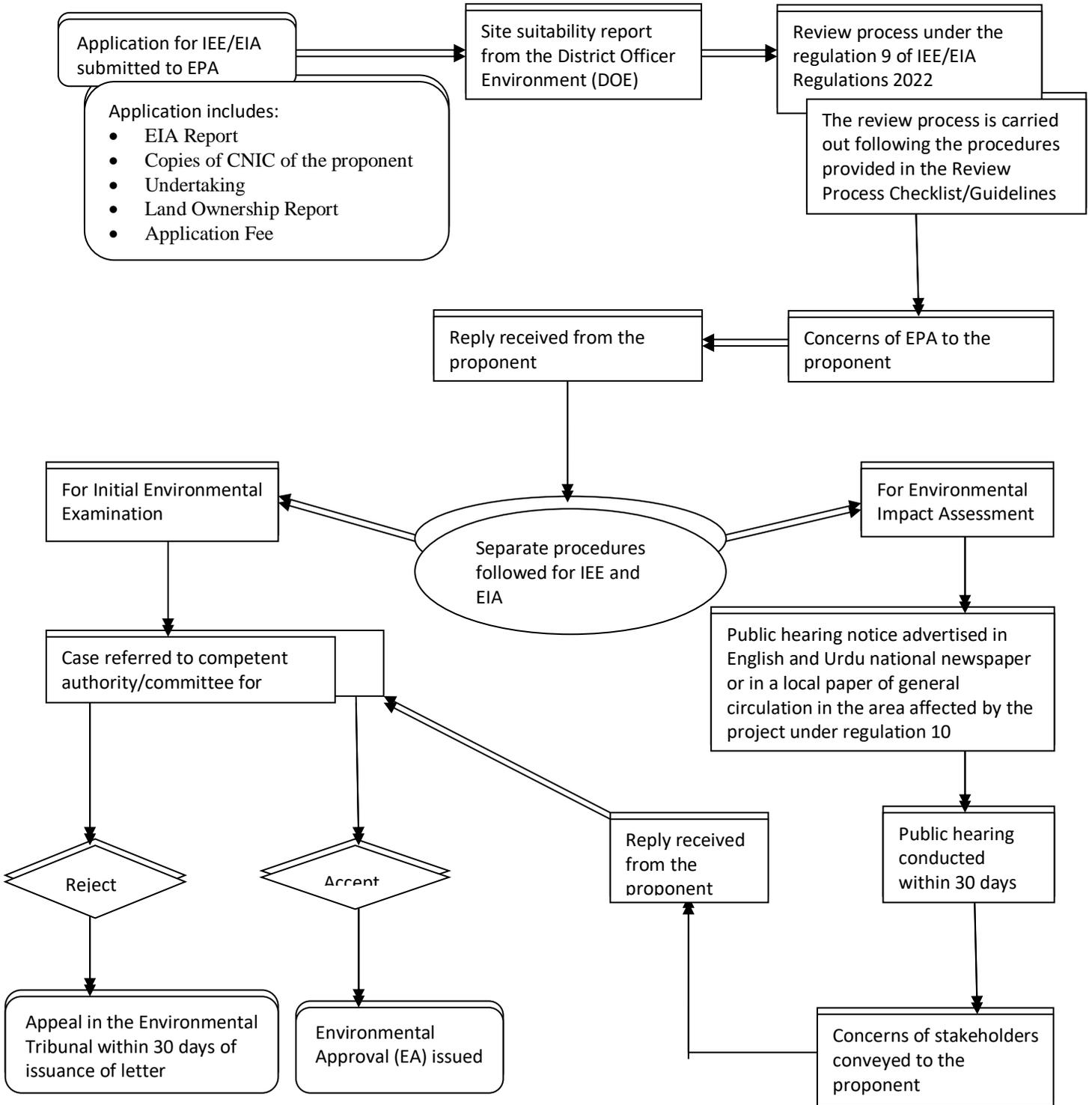


Figure 1.1 A Process Flowchart

CHAPTER II

DESCRIPTION OF THE PROJECT

2.0 Type and Category of Project

According to projects categorization for environmental assessment studies, the proposed project that is “Installation of Smelting Plant by ABM Recycling (Pvt) Limited located at Mouza Kotli Johd Singh, Tehsil Gujranwala Sadar, Near Shalimar Town, GT Road, District Gujranwala” falls under sub-clause 19 (Smelting Plant) of clause B (Manufacturing and Processing) of Schedule-II requiring the EIA study. This report is required to fulfill the legal requirements set under section 12 of the Punjab Environmental Protection Act, 1997 (Amended 2012). This section of the study renders a detailed account of the project and its salient features, such as location and various phases. Inputs and discharges relevant to different phases of the project, such as electricity & materials etc. have also been examined as a response to possible environmental concerns.

Category of Smelting Plant

According to its capacity and categorization it falls in EIA type projects.

2.1 Objectives of the Project

The objectives of project is as following;

1. Metal Extraction and Refinement

- To efficiently extract **pure metal** from raw ore using thermal and chemical processes.
- To achieve high **metal recovery rates** with minimal waste.

2. Value Addition to Natural Resources

- To convert locally or regionally available **raw ores** into **refined metal products**, adding economic value before export or use in manufacturing.

3. Support Downstream Industries

- To provide a **reliable supply** of processed metals for industries such as:
 - Construction

- Automotive
- Electronics
- Infrastructure development

4. Economic Development

- To contribute to **regional and national economic growth** through:
 - Job creation
 - Infrastructure development
 - Revenue generation (through exports, taxes, etc.)

5. Import Substitution and Export Promotion

- To **reduce dependence on imported refined metals**.
- To **increase foreign exchange earnings** by exporting finished or semi-finished metal products.

6. Environmental Responsibility

- To operate in compliance with **environmental regulations**.
- To implement **pollution control technologies** for emissions, slag, and wastewater.
- To minimize the plant's carbon footprint through energy-efficient practices.

7. Technological Advancement

- To introduce or adopt **modern, energy-efficient smelting technologies**.
- To continuously improve production methods for better yield and lower environmental impact.

8. Sustainable Resource Utilization

- To maximize the use of local ore deposits in a **sustainable and responsible** manner.
- To promote recycling of metal waste and by-products where applicable.

9. Skills Development and Employment

- To create **direct and indirect employment** opportunities.
- To provide **technical training** and skill development for local communities.

10. Health and Safety Compliance

- To ensure a **safe working environment** for employees through health and safety standards, training, and monitoring.

DISCIPLINARY POLICY

The project expects that its employees will strive to work together to promote the interests of all legitimate business operations. Each employee will be shown, informed and trained to perform the functions which the plant requires to be performed. Employees are expected to perform their tasks as required, and with responsibility.

Disciplinary action may be initiated by the immediate supervisor of the employee or by members of management, after the case has been discussed with the immediate supervisor. All disciplined employees have the right to appeal a perceived injustice by bringing the case before management. However, the immediate supervisor must be informed by the employee that he would like to redress an action taken against him/her by discussing it with a member of management.

Any of these actions will result in immediate dismissal, without recourse to review.

Around 10 people will get jobs during establishment phase and another 10 people approximately will be engaged during operational phase depending upon capacity/production of the unit. Labor from the locals will be preferred.

The project proponent established contact with the Environmental Protection Agency (EPA), Government of the Punjab for the grant of environmental approval.

This requirement is under the regulation of Review of IEE and EIA Regulation 2022. Accordance with the above-mentioned list this project falls in the category of projects requiring EIA.

The preparation and submission of an EIA report for any project is a statutory obligation under Punjab Environmental Protection Act, 1997 (Amended, 2002) in terms of Section 12 (1) of the Act which states as under:

“No proponent of a project shall commence construction or operation unless he has filed with the Provincial Agency an Environmental Impact Assessment (EIA) or where the project is likely to cause an adverse environmental effect, an environmental impact assessment, and has obtained from the Federal Agency approval in respect thereof”.

Accordingly this EIA report has been prepared following the format conforming to the “Guidelines for the preparation and review of Environmental Reports, October 1997” approved by the Government of Pakistan.

The baseline study of the existing environmental conditions in the project area including the identification of environmentally sensitive areas is as under.

1. Identification of environmental issues and activities arising because of project’s intervention.
2. Assessment of environmental impacts and their significance.
3. Suggesting appropriate mitigation measures for minimizing/ reducing/ controlling the adverse impacts.
4. Designing environmental monitoring and evaluation methods for supervising the environmental performance of the project.
5. Formulation of Environmental Management Plan for environmentally smooth implementation of the project.
6. Assess the proposed activities and determine their compliance with the relevant environmental regulations in Pakistan.
7. Prepare an EIA report for submission to the Environmental Protection Agency (EPA) Punjab.
8. To provide information to the proponent, stakeholders and designers for alleviating potential adverse impacts. To identify the potential impacts of the project intervention on resources and receptors (direct or indirect).

2.2 Site Alternatives Considerations

Site Alternatives for Proposed Smelting Plant

To identify the most suitable location for the proposed smelting plant, multiple site alternatives were considered, including the **preferred site** at *Mouza Kotli Johd Singh, Tehsil Gujranwala Sadar, Near Shalimar Town, GT Road, District Gujranwala*. These alternatives were evaluated based on proximity to raw material sources, availability of infrastructure, environmental sensitivity, and socio-economic impact.

Alternative 1 (Preferred Site)

Location: *Mouza Kotli Johd Singh, Tehsil Gujranwala Sadar, Near Shalimar Town, GT Road, District Gujranwala*

Justification:

- Close proximity to major transportation route (GT Road), ensuring efficient logistics.
- Located in a semi-industrial area with existing infrastructure (electricity, water supply).
- Reasonable distance from densely populated residential zones.
- Land availability and relatively flat terrain suitable for construction.
- Accessible labor force from nearby urban areas.
- No major ecological sensitivity observed on preliminary assessment.

Challenges:

- Moderate air quality baseline; emissions control will be crucial.
- Some nearby residential settlements may require buffer zones.

Alternative 2

Location: *Mouza Wazirabad Road, Near Kamoke Industrial Area, Tehsil Kamoke, District Gujranwala*

Justification:

- Located near the Kamoke industrial zone, which may facilitate faster regulatory approvals.
- Proximity to Wazirabad Road allows good access to transport.
- Industrially zoned area reduces risk of community resistance.

Challenges:

- Slightly longer distance from raw material sources.
- Higher land acquisition costs compared to the preferred site.
- More congestion due to industrial traffic and infrastructure limitations.

Alternative 3

Location: *Mouza Qila Didar Singh, Tehsil Gujranwala Sadar, District Gujranwala*

Justification:

- Availability of large land parcels.
- Lower population density; fewer direct social impacts.
- Further from sensitive environmental zones.

Challenges:

- Underdeveloped infrastructure: power and water connections would need to be extended.
- Poor road access compared to GT Road; increases transportation costs.
- Further from labor pool and support services.

Alternative 4 (Rural Location)

Location: *Mouza Nowshera Virkan, Tehsil Nowshera Virkan, District Gujranwala*

Justification:

- Remote rural location offers low land costs.
- Minimal risk of community opposition or displacement.
- Opportunity for regional development.

Challenges:

- Significant infrastructure development required (electricity, water, roads).
- High logistics costs due to distance from urban centers and highways.
- May raise concerns about agricultural land conversion.

Summary of Alternatives

| Criteria | Alternative 1 (Preferred) | Alt 2: Kamoke | Alt 3: Qila Didar Singh | Alt 4: Nowshera Virkan |
|-------------------------------|--------------------------------------|--------------------------|------------------------------------|---------------------------------------|
| Proximity to GT Road | Excellent | Good | Fair | Poor |
| Infrastructure Availability | Good | Good | Moderate | Poor |
| Environmental Sensitivity | Moderate | Moderate | Low | Low |
| Land Cost | Moderate | High | Low | Very Low |
| Proximity to Labor & Services | Good | Good | Moderate | Low |
| Overall Suitability | High | Medium | Medium | Low |

Conclusion

After evaluating all alternatives, the site at **Mouza Kotli Johd Singh, Near Shalimar Town, GT Road, Gujranwala** is considered the most suitable due to its balance of accessibility, infrastructure readiness, and manageable environmental and social impacts. It offers an optimal foundation for establishing the smelting plant with lower capital investment in infrastructure development and strong potential for operational efficiency.

**Site Selection Format for “Project Site Installation of Smelting Plant by
ABM Recycling (Pvt) Limited, Gujranwala”**



The steps involved in implementing a site selection study which identifies sites which meet the "obviously superior"* criterion must at some point consider that:

- The existing laws and environmental standards for air, water, and waste disposal must be incorporated into the site selection criteria.
- Various environmental, social/economic, and engineering considerations, usually called “issues of concern," must be incorporated into the study. Examples of such issues are :
 - Aquatic biology

- Noise
- Terrestrial biology
- Aesthetics
- Air quality
- Ground water contamination
- Socioeconomic effects
- Surface water contamination
- Project cost
- Health

Keeping these considerations in mind five alternatives considered.

After the completion of construction after obtaining Environmental Approval from EPA Punjab, the proponent will take into consideration, all the locally available technology options to incorporate the best one into project operation.

In view of all these facts, it is concluded that a feasible project at the most suited location has been proposed and will employ the best locally available technology option considering all the alternatives. Keeping these requirements and their availabilities, the present site is the best suited for the construction of the project. The area is far away from the dense residential activity. All the other basic infrastructural requirements are available at the selected site.

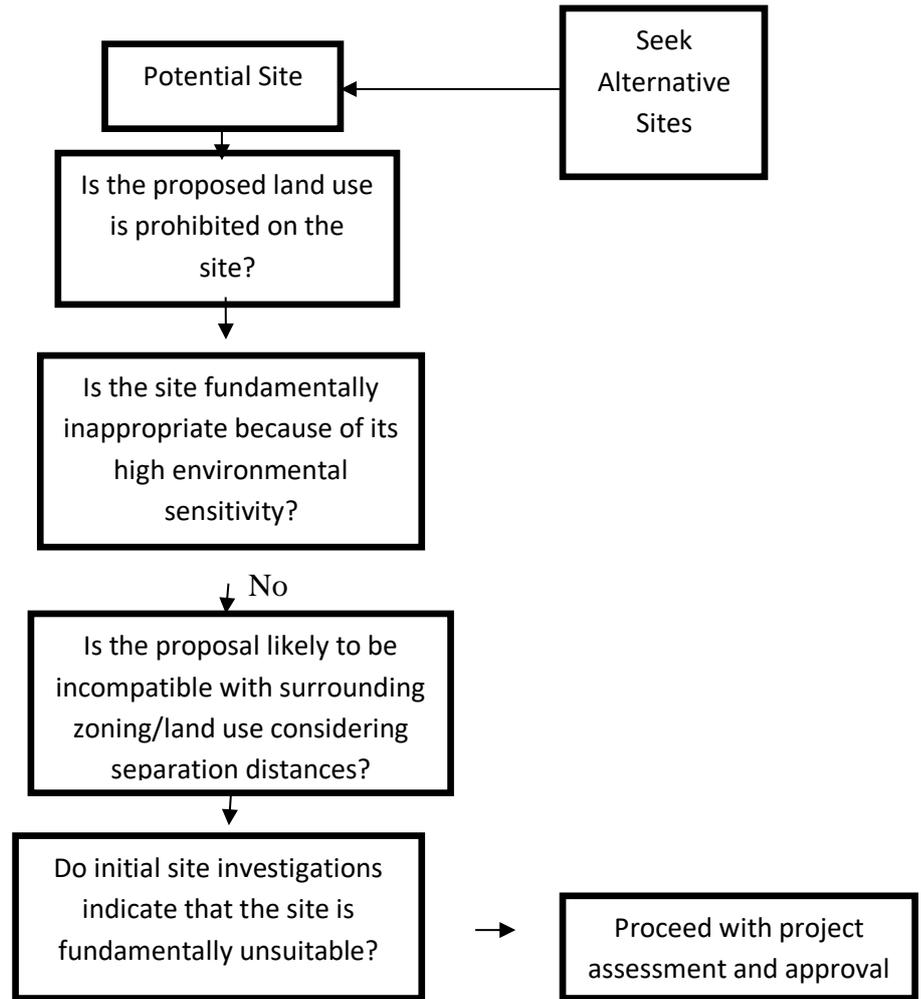


Figure 1.2: Site Selection Principle

Moreover, there is no ecologically sensitive or declared protected area such as Territorial Waters, forest, game reserve or biodiversity parks within a 05 km radius of the project site, requiring the proponent to look for site alternatives.

2.3 Location Plan/Map

The proposed project “Installation of Smelting Plant by ABM Recycling (Pvt) Limited is located at Mouza Kotli Johd Singh, Tehsil Gujranwala Sadar, Near Shalimar Town, GT Road, District Gujranwala”.

And project layout plan is attached herewith this report as annexure.

2.4 Magnitude of the Operation Including Capital Cost and Associated Activities

The proposed project intends on development of Installation of Smelting Plant by ABM Recycling (Pvt) Limited which is located at Mouza Kotli Johd Singh, Tehsil Gujranwala Sadar, Near Shalimar Town, GT Road, District Gujranwala. The cost of the project comprises of 50 million in PKR approximately. The said project is an open plot. There is no any reserved forest or protected area within 5km of the proposed site.

There are no significant or well-shaped trees and shrubs on the project site. No fresh water bodies are known to exist in the vicinity of the project area; therefore, there will not be any deterioration of surface water quality. During the construction vehicles and machinery will be employed. These will generate some dust and smoke temporarily which will definitely stop on completion of the construction work.

The potential negative impacts during construction and operational stage of the project will be mitigated to an acceptable level. Comparison of potential adverse and beneficial impacts of the project shows that project will prove to be beneficial for the inhabitants of the area. Hence the proposed project will prove to be beneficial and also increase the socio-economic status of the nearby inhabitants, and will contribute in the overall economy of the country.

Necessary mitigation measures are recommended in the report to make the proposed project Environment Friendly. Environmental Management Plan identifies monitoring needs and implementation on Environmental Management Plan is also recommended. The EIA concludes that the proposed project has indicated that there are no significant environmental impacts associated with the construction and operation phase of the project, if the anticipated impacts are properly mitigated; therefore, no further EIA study is required.

2.5 Water Requirement

The surplus water during the construction phase of the whole project will be estimated to meet any unforeseen situation. The water demand will be fulfilled from ground water. Water demand for various uses has been estimated on the basis of WASA specifications. Water requirement for maintenance of green belts will be done on daily basis by ground water through pumps and pipes to avoid wastage of water. The

water requirement for the construction phase will be 200 gal/day while during operational phase water requirement will be 100 gal/day

2.6 Wastewater Generation and Disposal

Wastewater to be generated from the project during construction phase will be reused for multi purposes like sprinkling on dust, making of construction material etc. while domestic wastewater during construction phase will be no issue because workers will use surrounding bathrooms like of masjid etc. During construction phase, wastewater quantity is unpredicted might be 200-300 gallons/day while this wastewater will never be Wastewater will be drain out after treatment into the WASA drainage system which is nearby of project site approximately at 5km distance. The wastewater during operational phase will be domestic only for these purpose septic tanks will be made. Its quantity is might be 200-250 gallons/day.

2.7 Solid Waste Generation and Disposal

Estimated quantity of solid waste during construction phase is varied. The reason being, solid waste will have excavation material as major part of its overall composition. However, the earth material will be reused within the site eventually leaving zero waste due to excavation activities. Therefore, during operational phase, waste will be collected by sanitary workers on daily basis.

2.8 Energy Demand

The energy will be supplied by WAPDA.

2.9 Manpower Required

The man power during construction phase will be approximately 10 and operational stages will be approximately 10 persons. Thus, the project is source of employment for economic development activities of the area.

2.10 Proposed Schedule of Implementation

It is estimated that the completion of construction phase of entire project will be started after getting environmental approval from EPA, Punjab.

Activities involved are:

- Land acquisition – already done (Land ownership documents are along with this report)
- Lay out plan of project (attached herewith this EIA report)
- Leveling of land
- Excavation for foundation building
- Construction of site
- All finishing work of the entire construction work will be furnished after last step.

2.11 Details of Restoration and Rehabilitation at the End of the Project Life

“Installation of Smelting Plant by ABM Recycling (Pvt) Limited is located at Mouza Kotli Johd Singh, Tehsil Gujranwala Sadar, Near Shalimar Town, GT Road, District Gujranwala” will staff more people for the proper maintenance of the proposed project under the skilled supervision of the site supervisors. This staff will add to the already working staff for the maintenance of activities. Regular maintenance can increase the life expectancy of such project considerably. However, if and when the end-of-life time period of the project comes, safety measures will be adopted.

2.12 Government Approvals

Project need Environmental approval after winning bid.

Working on a **smelting plant site** involves exposure to physical, chemical, and biological hazards. To ensure **security and safety**, workers and operators must follow structured safety protocols, use protective equipment, and undergo proper training.

2.13 Get work on Smelting Plant Site with security and safety

Work on Smelting Plant with Security and Safety Considerations

The construction and operation of a smelting plant involve high-temperature processes, handling of hazardous materials, and significant mechanical and electrical infrastructure. As such, security and safety are critical to protecting workers, equipment, the surrounding community, and the environment.

1. Occupational Health & Safety (OHS) Measures

a. Workplace Safety Standards

- Full compliance with Occupational Safety and Health Administration (OSHA) or local equivalents.

- Implementation of Standard Operating Procedures (SOPs) for all high-risk tasks.
- Use of Lockout/Tagout (LOTO) systems during maintenance to prevent accidental start-ups.

b. Personal Protective Equipment (PPE)

- Mandatory use of:
 - Flame-resistant clothing
 - Hard hats
 - Heat-resistant gloves
 - Safety goggles/face shields
 - Respirators where required
- Regular PPE inspections and training.

c. Hazard Management

- Identification of high-risk zones (e.g., furnace area, chemical storage).
- Installation of gas leak detectors, temperature sensors, and emergency shutoff systems.
- Fire and explosion hazard analysis.

d. Training and Safety Drills

- Routine safety training for all workers.
- Induction safety training for new employees and contractors.
- Regular fire drills, evacuation plans, and emergency response training.

2. Security Measures

a. Site Access Control

- Controlled entry/exit points with security personnel and ID card systems.
- Perimeter fencing with surveillance cameras (CCTV).
- 24/7 on-site security patrols.

b. Monitoring and Surveillance

- Real-time monitoring using CCTV and motion sensors.
- Centralized security control room.

- Record keeping of all visitor and vehicle entries.

c. Material Security

- Secure storage of:
 - Precious metals or concentrates
 - Hazardous chemicals and reagents
 - Tools and maintenance equipment
- Inventory management systems to track materials and prevent loss or theft.

3. Emergency Preparedness and Response Plan (EPRP)

a. Fire Prevention and Response

- Installation of automatic fire suppression systems.
- Fire extinguishers and hydrants placed strategically across the plant.
- Fire alarms and emergency lighting.

b. First Aid and Medical Response

- On-site first aid station and trained responders.
- Agreements with nearby hospitals/ambulance services.
- Emergency medical kits available in all high-risk areas.

c. Evacuation and Shelter Plans

- Clearly marked emergency exits and assembly points.
- Emergency evacuation routes posted in visible areas.
- Regular mock evacuation drills.

4. Environmental and Public Safety

- Dust and fume control via scrubbers, bag filters, and chimney stacks.
- Safe disposal of slag and other byproducts.
- Noise control measures (enclosures, silencers).
- Spill prevention and containment systems.

5. Documentation & Compliance

- Maintain safety logs, incident reports, and equipment inspection records.
- Regular internal and third-party audits.

- Compliance with:
 - Punjab Environmental Quality Standards (PEQS)
 - Local labor and factory laws

Conclusion

In smelting plant operations, safety is not optional—it is essential. By implementing strict occupational health standards, robust physical security, emergency preparedness, and continuous training, the plant can operate effectively while protecting its workforce, community, and environment.

2.14 Project Description

Installation of Smelting Plant by ABM Recycling (Pvt) Limited

Project Title

Installation of a Smelting Plant by ABM Recycling (Pvt) Limited

Project Location

Mouza Kotli Johd Singh,
Tehsil Gujranwala Sadar,
Near Shalimar Town, GT Road,
District Gujranwala, Punjab, Pakistan

Nature of the Project

ABM Recycling (Pvt) Limited proposes to install a **modern smelting plant** for the purpose of **recycling and refining metal scraps and ores** into usable metal products. The project is part of the company's strategic expansion into value-added metal recovery and sustainable industrial processing.

Objectives of the Project

- To establish a technologically advanced smelting facility in Gujranwala.
- To promote recycling of industrial metal waste into usable forms.
- To support local industries by supplying refined metal products.
- To contribute to import substitution and support export potential.

- To create employment and contribute to regional economic growth.
- To operate in compliance with environmental and safety regulations.

Key Project Components

1. **Raw Material Storage Yard**
2. **Smelting Furnace Unit** (e.g., induction or blast furnace)
3. **Metal Refining Section**
4. **Slag and Waste Management Area**
5. **Cooling and Water Management System**
6. **Air Pollution Control Systems** (e.g., bag filters, scrubbers)
7. **Finished Product Storage**
8. **Administrative Block**
9. **Security and Fire Safety Systems**
10. **Internal Roads and Utilities**

Project Capacity

- **Annual Production Capacity:** [Specify, e.g., 50,000 metric tons per year]
- **Type of Metals Processed:** Ferrous and non-ferrous metals (e.g., copper, aluminum, iron)
- **Raw Materials:** Industrial metal scrap, ore concentrates, alloy components

Investment and Cost Estimate

- **Total Estimated Project Cost:** PKR [50 million]
- **Funding Source:** Private investment (ABM Recycling equity & possible financing)

Environmental and Safety Considerations

- EIA/IEE to be conducted as per Punjab Environmental Protection Act.

- Installation of **emission control systems** to minimize air pollution.
- **Waste management** systems for slag and process water.
- On-site **firefighting equipment, first aid units, and safety protocols**.
- Staff training in **Occupational Health & Safety (OHS)**.

Employment and Economic Benefits

- **Direct Employment:** [e.g., 10 workers during operation]
- **Indirect Employment:** Through transportation, supply chain, and support services
- **Local Development:** Use of local labor and material where possible
- **Industrial Contribution:** Strengthening Gujranwala's role as a regional industrial hub

Sustainability Aspects

- Promotion of **metal recycling** and circular economy
- Reduction in environmental burden from metal waste
- Compliance with national and international environmental standards
- Long-term goal of transitioning to **energy-efficient technologies**

Conclusion

The installation of the smelting plant by **ABM Recycling (Pvt) Limited** at Mouza Kotli Johd Singh represents a significant step towards sustainable industrial growth in Gujranwala. The project will not only improve metal recovery and recycling capabilities but also generate economic, social, and environmental benefits aligned with national industrial and environmental policies.

CHAPTER III

STATUTORY REQUIREMENTS

3.1 General

Sustainable development and green economy is a concept that has emerged over the past decades to describe a new framework aimed at economic and social development while maintaining the long term integrity of the ecological system and environmental resources. The principal of sustainable development is in the process of being incorporated into the national policy and legislation through various statutory instruments. This chapter describes the current legal responsibilities of the proponent in context of environmental and sustainable development, and the institutions that exist in the country that may influence the environmental management of the project.

This section deals with the current policy as well as legal and administrative framework related to carrying out of Environmental Impact Assessment (EIA) of the project. An efficient and effective organizational structure is essential for successful implementation of the mitigation measures identified for the project. Like other projects, the project, before its implementation, is required to go through an Environmental Assessment, in accordance with the provisions of the Punjab Environmental Protection (Amendment) Act 2012.

3.2 Existing Legislation and Legal Framework

The Federal Ministry of Environment was responsible authority for policy making on environmental protection in Pakistan but after 18th Amendment in the Constitution, the Provincial Governments have taken over the subject of Environment. This EIA study has been carried out in the light of the policy guidelines of the Preparation of IEE/EIA Reports under the procedures and practices formulated by the Pak EPA and adopted by the Punjab Environmental Protection Agency (EPA).

3.3 Institutional Setup

3.3.1 Environmental Protection Councils

The Punjab Environmental Protection Council (PEPC) is the apex decision-making body of Punjab. It has been developed under the provision of Punjab Environmental Protection (Amendment) Act 2012. It is headed by Chief Minister of Punjab with other members. The purpose of EIA is basically to obtain Environmental Approval from the Environmental Protection Agency (EPA), Punjab in compliance with Pakistan Environmental Protection Act (PEPA) - 1997, now having been replaced by Punjab Environment Protection (Amendment) Act 2012.

3.3.2 Environmental Protection Agencies

Pak EPA has been established at the Federal level and EPAs are established at Provincial level also. In Punjab an independent Environmental Protection Agency is constituted headed by the Director General.

3.3.3 Environment Protection Department, Punjab

The Punjab Government has established Environment Protection Department (EPD) administratively controlled by the Secretary, Government of Punjab. The EPD has its independent Minister. According to the provisions of the Punjab Environmental Protection (Amendment) Act, 2012, EPD has a significant role in policy making and implementation of the environmental laws in the Punjab Province.

3.3.4 Relevant Legal / Institutional Framework

The applicable laws for the environmental study of the project are briefly given below. The proponent of the project will abide by the applicable laws and regulations.

A number of laws have been promulgated by the Government of the Pakistan to deal with the environmental and social aspects related to the implementation of various development projects in the country. In 1983, the Government of Pakistan issued an Environmental Protection Ordinance (EPO) that was replaced by the PEPA, 1997, through an Act of Parliament. According to the 18th Amendment in Constitution, the

PEPA 1997 has been confined to Federal Area and provinces have been allowed to formulate their own environmental legislation in the subject of environment.

Under the PEP Act, it is mandatory to carry out IEE or EIA for all development projects. The Pak EPA has also framed guidelines for environmental assessment of projects in various developmental sectors, According to 1997; the Punjab Environmental Quality Standards (PEQS) were established for effluents discharges and gaseous emissions of various Municipal and Industrial sources. The latest revision of NEQS as carried out in year 2022.

Provincial Environmental Protection Departments are also working on the formulation and enforcement of environmental statutes and by-laws. The Pak EPA has issued several policies guidelines and adopted measures for streamlining the environmental assessment. Though, the need for environmental screening and assessment has received some weight during the recent past, strict implementation of the NEQS is still a dream to be realized. The applicable laws for the environmental study of the Project are briefly described below:

3.4 Pakistan Environmental Protection Order (PEPO) 1983

In 1983, the Government of Pakistan issued an Environmental Protection Ordinance (EPO) 1983. It was the first legislation promulgated for the protection of environment. According to PEPO, 1983 it was necessary to carry out IEE / EIA for all development projects, but there were no IEE / EIA regulations under that ordinance.

3.5 Punjab Environmental Protection (Amendment) Act 2012

Section 12 of the Punjab Environmental Protection (Amendment) Act 2012 makes it mandatory for the proponent of a project to file with the Environmental Protection Agency either an Environmental Impact Assessment (EIA) or Initial Environmental Examination (IEE) , as the case may be, in respect of the project.

As per definition given in the Punjab Environmental Protection (Amendment) Act 2012, Environmental Impact Assessment (EIA) means an environmental study comprising collection of data, prediction of qualitative and quantitative impacts, comparison of alternatives, evaluation of preventive, mitigatory, and compensatory

measures, formulation of environmental management & training plans & monitoring arrangements, and framing of recommendations and such other components as may be prescribed. The provision of Section 12 has been incorporated “as it is” in the new Punjab Environmental Protection (Amendment) Act, 2012.

3.6 National Environmental Policy 2005

Government of Pakistan has notified National Environmental Policy 2005, for different projects/aspects in which guidelines/priorities have been given to undertake/commence the projects having significant environmental impacts.

The National Environmental Policy (2005) provides a framework for addressing the environmental issues (particularly pollution of fresh water bodies and coastal waters, air pollution, lack of proper waste management, deforestation, loss of bio diversity, desertification etc.) confronting Pakistan. It recognizes the goals and objectives of the Pakistan National Conservation Strategy (PNCS, 1992), National Environmental Action Plans, and other existing environment related national policies, strategies, and action plans. It also provides broad guidelines to the Federal Government, Provincial Governments, federally administrated territories and local governments to address their environmental concerns and to ensure effective management of their environmental resources.

3.7 Review of IEE / EIA Regulations 2022

The Pak EPA has issued Review of the Environmental Impact Assessment (EIA) and Initial Environmental Examination (IEE) Regulations 2022, to review the Environmental Impact Assessment (EIA) / Initial Environmental Examination (IEE) reports. Categorization of the projects for IEE and EIA is one of the main components of the Regulations. Projects have been classified on the basis of expected degree of adverse environmental impacts. Projects type listed in Schedule I are designated as potentially less adverse effect, schedule I projects require an IEE and projects given in schedule II require EIA to be conducted.

Salient features of the Regulations are listed below:

- Categories of project requiring IEE and EIA are issued through two schedules attached with the regulations.
- A fee depending on the cost of the project has been imposed for the review of IEE and EIA.
- The submittal is to be accompanied by an application in prescribed format included as Schedule IV of the Regulation.
- The EPA is required to issue conformation of compliance within 15 days of receipt of request and complete documentation.
- The IEE / EIA approval for construction of the project will be valid for three years from date of accord.

3.8 Guidelines for the Preparation of IEE/EIA Reports

The Pak EPA has also framed Guidelines for the Preparation of IEE / EIA of projects in various developmental sectors.

3.9 The Punjab Local Government Ordinance, 2001

Schedules 4 and 8 of this Ordinance pertain to environmental pollution. There are not withstanding any specific provisions, every local government may perform functions conferred by or under the Punjab Local Government Ordinance, 2001, and in performance of such functions may exercise such powers, which are necessary and appropriate. Under the ordinance, the local councils are authorized to restrict projects causing pollution to air, water or land. They may also initiate schemes for improving the environment.

3.10 Pakistan Penal Code, 1860

This defines the penalties for violations concerning pollution of air, water bodies and land. Sections 272 and 273 of this Act deal with the adulteration of food or drink. Noise pollution has been covered in section 268, which defines and recognizes noise as a public nuisance. "A person is guilty of a public nuisance who does any act or is guilty of an illegal omission which causes any common injury, danger of annoyance

to the public or the people in general who dwell or occupy property in the vicinity, or which must necessarily cause injury, obstruction, danger or annoyance to persons who may have occasion to use any public right".

3.11 The Land Acquisition Act, 1894

The Land Acquisition Act (1894) deals with the acquisition of private properties for public purposes. There are 55 sections in this Act mainly dealing with area notification, surveys, acquisition, compensation, apportionment awards, disputes resolution, penalties and exemptions.

Although quite old, this act laid out the legal basis for any property affected by a project and for compensating the effected owners of the land.

3.12 Factories Act, 1934

The clauses relevant to the project are those that concern the health, safety, and welfare of workers, disposal of solid waste and effluent and damage to private and public property. The Factories Act also provides regulations for handling and disposal of toxic and hazardous materials. Given that construction activity is classified as ‘industry’, these regulations will be applicable to the project contractors.

3.13 Labor Laws

Construction and operational activities during the course of construction may affect occupational health of workers. Employers are required to abide by labor laws in respect of their own employees and also to ensure that contractors to follow the relevant labor laws and rules relating to safety of the workforce and creating a healthy working environment. The proponents shall ensure that the labor force engaged at the project site is not exposed to any danger by monitoring the contractor’s work frequently.

CHAPTER 4

DESCRIPTION OF THE ENVIRONMENT

4.1 General

The existing environment around the site of proposed project has been studied with respect to physical, ecological and socio-economic resources. The existing information to establish a database for the EIA of the project was collected from different departments, review of previous studies and through the site visits carried in out in the project area.

Gujranwala District is situated on the main railway line connecting Lahore and Peshawar. The Grand Trunk Road runs parallel to the railway line and passes through the center of the city, mostly the old city being on the west and new abadies on the east. The Chenab river forms the northern boundary of the district. Beyond the river, it is bounded by Gujrat and Mandi Bahauddin districts, on the east by Sialkot district, on the south by Sheikhpura district and on the west by Hafizabad district. Gujranwala district is spread over an area of 3,622 Square Kilometres and comprises the seven towns.

4.2 Physical Environment

The study examines the physical resources, topography, soil, climate, surface and ground water and geology is of not only the project site but also the city as whole to assess whether the project under review can or does impact on any of these parameters. The description of physical environment of District Gujranwala and the project site is present in the following sub sections.

4.2.1 Geological Formation

Gujranwala is 226 metres (744 ft) above sea level, sharing borders with Ghakhar Mandi and several towns and villages. About 80 kilometres (50 mi) south is the provincial capital, Lahore. Sialkot and Gujrat lie to its north. Gujrat connects Gujranwala with Bhimber, Mirpure Azad Jammun and Kashmir, and Silakot connects it with Jammun. About 160 kilometres (99 mi) southwest is Faisalabad. To its west are Hafizabad and Pindi Bhattian, which connect Gujranwala to Jhang, Chiniot and

Sargodha. The soil is alluvial and fertile. It is a flat strip of land running roughly east to west.

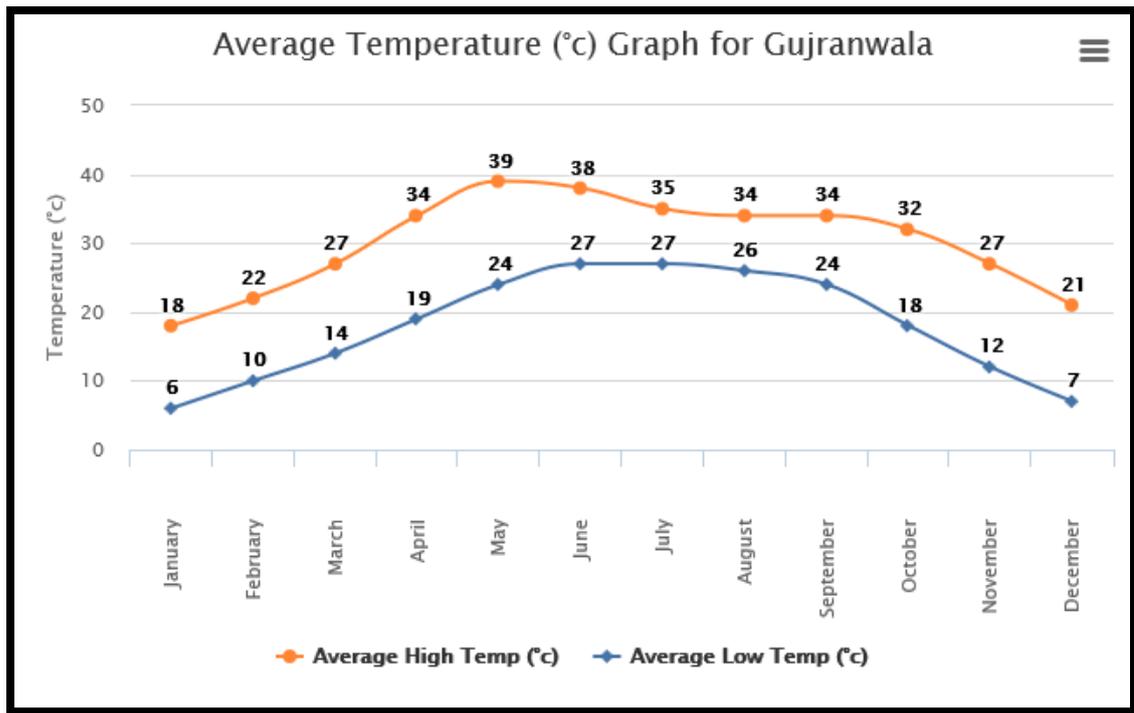
The main types of soil in the district are (i) Gora, an artificial soil highly manured, commonly found around villages and wells; (ii) Rohi, the finest natural soil and stiff clay dark/reddish dark in color; (iii) Doshair or Missi which is a fine clay soil; (iii) Maira, which is of less loam with less clay than sand; (iv) Tibba, which is inferior maira; (v) Kallar, which is a sour and barren clay unsuitable for cultivation within adequate suitable treatment and (vi) Bela of the riverain soil is a fine alluvial soil mixed with sand.

4.2.2 Climate

Gujranwala has a hot semi-arid climate according to the Köppen-Geiger system, and changes throughout the year. During summer (June to September), the temperature reaches 36–42 °C (97–108 °F). Relief is only provided by occasional dust storms. The coldest months are usually November to February, when the temperature can drop to an average of 7 °C (45 °F). The highest-precipitation months are usually July and August, when the monsoon reaches the Punjab. During the other months, the average rainfall is about 25 millimetres (0.98 in). The driest months are usually November to April, with little rainfall.

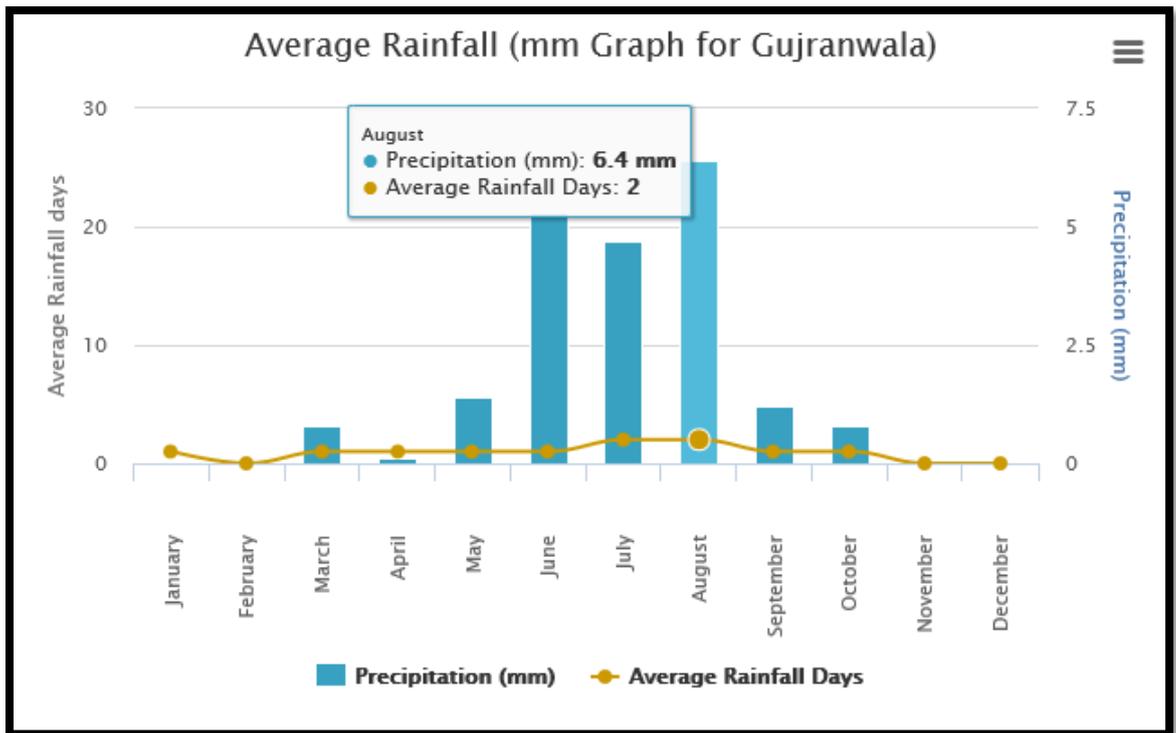
Table 1: Seasons in Gujranwala

| Weather | Months |
|----------------|-------------------|
| Autumn | October-November |
| Winter | November-February |
| Spring | March-April |
| Summer | June-September |
| Monsoon | July-August |



4.2.4 Rainfall

The rainy season starts in July and ends in September. Average Annual rainfall during 1961-98 is about 629mm. More rains occur in July and August than any other months. Most of the winter rains are received in the months of March and April. Precipitation is the lowest in November, with an average of 5 mm. The greatest amount of precipitation occurs in August, with an average of 167 mm.



4.2.5 Topography

With the exception of the southeastern corner of the district which is traversed by the Dek nullah, the district is a flat plain. The district can broadly be divided into two parts. The low-lying area close to the Chenab river and the Dek nullah and the uploads between the two. The uplands decrease in fertility as the distance from the Himalayas increases until in the southwest it merges into what is known as the Bar tract in its natural aspect was a level prairie.

4.2.6 Altitude:

There is no variation of altitude above sea level in the land along the alignment and the short length of the distribution line means no variation between the climates of the subproject area.

4.2.7 Ambient Air Quality

The degradation of air quality in all the large cities is a major environmental concern these days. Air pollution levels in urban centers have either crossed safe limits given in the NEQS or have reached the threshold values. About 60 to 70 % of the deterioration in the air quality is due to the vehicular emissions. The parameters which

have proved to be the major threat are particulate matter and concentration of oxides of nitrogen that are relatively higher in all the large cities of Punjab. The PM_{2.5} has shown an estimated increase of more than 60 % since last 3 years. Further the present road infrastructure cannot cater the need of growing automobiles flow resulting in the mounting concentrations of NO_x and SO₂. There is dire need to adopt strict measures to obviate this issue, which is not only a hazard for the environment but also to the health and quality of life of the people.

4.2.8 Noise

Noise is generally used as an unwanted sound, or sound which produces unpleasant effects and discomfort on the ears. Noise is considered as environmental pollution, even though it is thought to have less damage on humans than water, air or land pollution. Generally, problems caused by noise pollution include stress, hearing loss, sleep disruption etc.

4.2.8 Water Resources

Irrigation is largely dependent on two irrigation canals i.e. Lower Chenab Canal and Upper Chenab Canal, but tube wells have also been sunk in the areas where water is fit for irrigation. Potable water is available. Irrigation supplies are perennial and tube wells have been installed. The strata of the subproject area are water bearing and alluvial deposits, giving groundwater potential throughout the district. The water table is not seasonal and dug wells do not generally run dry.

4.2.8.1 Drinking Water Quality

Only 35 percent people in Pakistan's 7th largest city have been provided by Gujranwala Water and Sanitation Agency (WASA) with clean drinking water while most of them are forced to intake contaminated water owing to out-of-date infrastructure of the water supply system. A survey report revealed that the WASA could only deliver water supply services to 35 percent of the population while only 70 percent of the masses in the city area have the civic amenity of sewerage system. The WASA has 87 tube-wells in the city out of which 21 are not functioning these days while only seven water tanks out of 10 are functioning.

4.2.8.2 Irrigation:

The main sources of irrigation in the district are the two canals known as the Lower Chenab Canal and Upper Chenab canal. The Lower Chenab canal takes off from the Chenab river at Khanki head works in the Wazirabad tehsils and enters the Hafizabad district at Muradian and irrigates Wazirabad tehsil. The Upper Chenab Canal takes off from the Chenab River at Marala Head works in Sialkot district and enters the Gujranwala district at Nandipur, thirteen Kilometers to the northeast of Gujranwala city and runs southwest into the Sheikhpura district and irrigates western half of the Wazirabad and Gujranwala tehsil. The other source of irrigation is tube well. There are 29,797 tube wells in Gujranwala district.

4.3 Biological Environment

Preservation of biodiversity is of global concern, but the causes of loss and their solutions are very often local in scale. The development schemes continues to be a major player in the overall reduction of biodiversity, and proper planning at the project level can go a long way in limiting the loss, while still serving the transport need.

Wildlife, Fisheries and Aquatic Biology

Wild boar is fairly common in the forest reserve around Gujranwala and in the river area. Black buck, river deer, and hog deer are sometimes, though rarely, found in the Belas (islands in the river) around Gujranwala after heavy rains. Wolves are common in forests along the Jhang border. Hare and Jackal are fairly common all over the district. There are no reservoirs or other water bodies except Chenab River that forms the northern boundary of the district.

4.3.1 Flora

Trees, also called the ‘lungs’ of the earth, are important for the restoration of the ecosystem. People can benefit immensely from their survival and existence. Trees have also been a source of medicine for thousands of years and a refuge for various species of birds. Several species of the trees in Gujranwala are being used in medicines. Some trees of significant medicinal value are grown easily in the city.

Trees commonly found in the district are Shisham, (*Dalbergia sissoo*), Keekar (*Acacia Arabica*), Shareen (*Albizza lebbck*), Bari (*Ziziphus Jujuba*), Guava, citrus etc. in the recent past some farmers have started growing mini forest of Popular, eucalyptus, symbal etc. There are some marshy areas along the river Chenab where water stagnates. These areas are popularly known as Baila. These are also covered with tall grasses, reeds and spices.

There is little forestry in the district the forest area is only 1162 acres. There is no protected forest near the areas of works. There are also planted trees along canals and roads. The major trees grown in the forest are Shisham (*Dalbergia sissoo*), Kikar (*Acacia arabica*) and Poplar and Eucalyptus. In general permission should be sought from the local concerned department for the felling of any trees.

Inventory of some Flora of District Gujranwala

| Sr. No. | Scientific Name | Common Name |
|---------|-----------------------|-------------|
| 1 | <i>Amaranthaceae</i> | Ghunar |
| 2 | <i>Amaranthaceae</i> | Puthknda |
| 3 | <i>Apocynaceae</i> | Kneer |
| 4 | <i>Apiaceae</i> | Saunf |
| 5 | <i>Asclepiadaceae</i> | Dasi Ak |
| 6 | <i>Asclepiadaceae</i> | Chonga |
| 7 | <i>Asteraceae</i> | Partha |
| 8 | <i>Boraginaceae</i> | Gorkh paan |
| 9 | <i>Boraginaceae</i> | Kulfa |
| 10 | <i>Chenopodiaceae</i> | Bathu |
| 11 | <i>Cannabinaceae</i> | Bhung |

| | | |
|----|-----------------------|----------------|
| 12 | <i>Convolvulaceae</i> | Bahar bail |
| 13 | <i>Crassulaceae</i> | Zakhm-i-hayat |
| 14 | <i>Asteraceae</i> | Chota dhatoora |

Protected areas / National sanctuaries

In Pakistan there are several areas of land devoted to the preservation of biodiversity through the dedication of national parks and wildlife sanctuaries. There is no wetland, protected area or national sanctuary near the area of works and subproject area.

4.3.2 Fauna

There is no significant wild life found in Gujranwala because of huge agglomeration of human settlements. While some animals like Wild boar, Hog deer (rarely found), Wolf, Hare and Jackal are seen round the outskirts and nearby wilderness. There are no rare, threatened or endangered species of fauna in the project area. Domestic livestock includes buffalo, cattle and goats. Some of the residents also have pigeons. Different species of reptile and amphibians such as lizards and frogs are also found. Various bird species known to occur in the area include myna, bulbul, crow and sparrow. No wild animal/endangered species is found in the area except pet animals.

Inventory of some Fauna of District Bahawalpur

| Sr. No. | Scientific Name | Common Name |
|---------|-------------------------------|---------------------------|
| 1 | <i>Suncus etruscus</i> | Mediterranean pygme shrew |
| 2 | <i>Scotophilus kuhlii</i> | Lesser house bat |
| 3 | <i>Funnambulus pennantii</i> | Northern palm squirre |
| 4 | <i>Rattus rattus</i> | House rat |
| 5 | <i>Nesokia indica</i> | Short tailed mole rat |
| 6 | <i>Tatera indica</i> | Indian gerbil |
| 7 | <i>Meriones hurrianae</i> | Indian desert jird |
| 8 | <i>Milvus migrans migrans</i> | Indian/Black Kite |
| 9 | <i>Hoplopterus indicus</i> | Red-wattled Lapwing |

| | | |
|----|--|-----------------------------------|
| 10 | <i>Psittacula eupatria</i> | Alexandrine/Large Indian Parakeet |
| 11 | <i>Alexandrine/Large Indian Parakeet</i> | Pied Crested Cuckoo |

4.3.3 Parks and Grounds

There are many parks and grounds in Gujranwala. It includes Khawaja Ground, Sagheer Shaheed Park, Muhannadi Park, Ladies Park, model town, D-Park Sheranwala Bagh, Janat Bibi Park, Milad-e- Mustafa Park. There are important archeological/ cultural sites like Nishan –E-Manzil, Gulshan Park, Jinnah Stadium, Gold’s Gym, Jinnah Park and Rail Bazaar etc.

4.4 Socio Economic Assessment

Social change is the consequence of almost any intrusion into the community life of any society. The intrusion can be in the form of any developmental projects or nonspecific, less tangible forms such as increased exposure to other cultures, technological changes and so on. The social change that results from intrusion into community life can also be beneficial, but can have undesirable or negative outcomes. Even that change in the long run may have positive effect on the social well-being of a community.

Social Impact Assessment is a methodology used for examining social change due to external sources, especially specific developmental projects, but also government policies, technological changes and social processes or anything that has a social impact.

The objectives of the given study are outlined as follow:

- To carry out the assessment of social impact.
- Acquire socioeconomic data to evaluate and identify the project interventions.
- Assess needs of community related environmental concerns.
- To assess adverse and beneficial socioeconomic and health impacts of the activity.
- To suggest remedial measures and solutions to improve socio economic

conditions.

- To analyze socio economic conditions of community, with special reference to environment and conservation of natural resources.

4.4.1 Demographic Profile of Gujranwala:

According to the 1998 census of Pakistan the population of district was 3,400,940 of which 50.17% were urban. It is thus the third-most advanced district in Punjab, the population now stands at 4,308,905.

Gujranwala is in fact a City district. The district is divided into following tehsils:

- i) Gujranwala City
- ii) Gujranwala Saddar
- iii) Wazirabad
- iv) Kamonki
- v) Naushehra Virkan

Furthermore there are following towns under these tehsils

- i) Khiali Shahpure Town
- ii) Aroop Town
- iii) Nandipure Town
- iv) Qila Didar Singh Town
- v) Wazirabad Town
- vi) Kamonki Town
- vii) Naushehra Virkan Town

First four towns lie in Gujranwala City and Saddar Tehsils while the last three towns are under their respective tehsils, i.e. Tehsil Wazirabad, Kamonki and Naushehra

Virkan respectively. Gujranwala is the distt. Headquarter while Gujranwala, Wazirabad, Kamonki and Naushehra Virkan are tehsils headquarters.

There are 192 UCs, and total area of the City is 3622 Sq Km, total Population of the City (Population reported by Urban Unit) was 3400940 in1998 and average growth rate was 2.85% (1981-98). The literacy ratio of the City was 56.5%, average household size 7.6, annual growth rate during 1981-98 was 2.85 %.(District Census Report 1998).

| Indicators | Value | Indicators | Value |
|--------------------------------------|--------------|---|-----------|
| Total population | 4.76 million | Urban population | 2,431,285 |
| Population of tehsil Gujranwala | 2,773,297 | Rural population | 2,334,028 |
| Population of tehsil Wazirabad | 838,335 | Population density (persons per sq.km) | 1315 |
| Population of tehsil Noshehra Virkan | 559,422 | Sex ratio (number of males over 100 females) at birth | 104 |
| Population of tehsil Kamonke | 594,259 | Population annual growth rate | 2.85% |

4.4.2 Health facilities

In district Gujranwala, thirty-one (31) health facilities were assessed, including 1 District headquarter (DHQ) hospital, 3 Tehsil Headquarter (THQ) hospitals, 9 Rural Health care (RHCs) and 18 Basic health units (BHU). An OPD, LHV's residences and labour room were available at all of the BHUs.

Table: Number of Health facilities in the District

| Type | Number | Bed strength |
|-------------------------------|--------|--------------|
| Teaching hospital | 0 | 0 |
| District headquarter hospital | 1 | 450 |
| Tehsil headquarter hospitals | 3 | 180 |
| Rural health centres | 9 | 180 |
| Basic health units | 88 | 176 |
| Govt. rural dispensary | 5 | |
| MCH centre | 9 | |
| Sub health centre | 34 | |

4.4.3 Educational Facilities:

There are 2,442 educational institutions in Gujranwala district imparting education from Mosque/Primary School to postgraduate level. There are many Government and Private Schools for Boys and Girls, College, a virtual University and Punjab College, Punjab University Campus, located at Solangi Awan at 1 km. There are also primary schools for girls and boys in each of the affected village. The number of institutions, enrolment and teaching staff available in 1995-96 is given in the following table.

Educational Institutions

| TYPE OF INSTITUTION | MALE | FEMALE | TOTAL |
|-----------------------------------|------|--------|-------|
| Degree colleges | 1 | 1 | 2 |
| Higher secondary schools | 2 | 3 | 5 |
| High schools | 35 | 8 | 43 |
| Middle schools | 13 | 26 | 39 |
| Primary schools | 322 | 367 | 689 |
| Commercial/vocational institution | 1 | 1 | 2 |

Source: Punjab Development Statistics, Bureau of Statistics, Punjab.

4.4.4 Transportation and Communication

The main Peshawar-Karachi railway line passes through Gujranwala district. The district is linked with Sialkot, Hafizabad and Gujrat districts through railway network. There is a network of metalled and un-metalled roads in the district. There are also metalled canal roads. All tehsil headquarters and important towns are connected



through metalled roads. The Motorway roads M-2 pass through Hafizabad. Railway branch line between Faisalabad and Wazirabad section is passing through Hafizabad. A Hafizabad district is not linked by air with other parts of the country but it is connected with other parts of the country through Lahore International Airport which is about 50 km from Gujranwala.

CHAPTER V

SCREENING OF POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

5.1 General

The potential environmental impacts related to the establishment of the project have been studied related to design, construction and operational stages of the Project. Environmental protection measures are recommended to eliminate adverse impacts on environment or to reduce them to an acceptable level within the prevailing legislative and regulatory framework. These Impacts are evaluated on the basis of magnitude, immediacy and sustainability. A careful consideration of project aspect, their potential environmental impacts and mitigation measures are proposed in this chapter.

Evaluation criteria are as follow:

- Magnitude: Type of impact (direct, indirect, and cumulative)
- Immediacy: Temporal extent (during construction, after construction)
- Spatial extent (local, widespread)
- Sustainability and Reversibility:
 - Mitigability (fully, partially)
 - Monitoring (fully, partially)

5.2 Environmental Problems Due to Project Location

1. Introduction

Project Title: Installation of Smelting Plant by ABM Recycling (Pvt) Limited is located at Mouza Kotli Johd Singh, Tehsil Gujranwala Sadar, Near Shalimar Town, GT Road, District Gujranwala

- Purpose of EMP: To ensure environmentally sound planning and management of the project site based on scientific and regulatory criteria during the site selection process.

2. Site Selection Overview

Site selection is a critical step to minimize environmental, health, and social risks. Key criteria considered:

2.1. Environmental Criteria

- **Away from surface and.. groundwater sources** (e.g., 500–1000 m buffer)
- **Low flood risk** area
- **Avoidance of wetlands, forests, and sensitive ecosystems**

2.2. Social and Land Use Criteria

- At least **500 m away from residential areas**
- No schools, hospitals, or public facilities nearby
- Not on agricultural or high-value land
- Compatible with the local land use plan

2.3. Technical and Operational Criteria

- Suitable **soil type** (e.g., clayey soils preferred to prevent leachate migration)
- Adequate land area for future expansion (minimum 15–20 years capacity)
- Good access roads for waste transportation
- Stable topography for construction

Table 5.1 . Potential Environmental Impacts & Mitigation (Related to Site Selection)

| Sr. # | Environmental Component | Potential Impact | Mitigation Measure |
|--------------|--------------------------------|-------------------------------------|--|
| 1 | Water Resources | Groundwater contamination | Site >500m from water bodies |
| 2 | Air Quality | Dust & odor emission | Site located downwind of settlements; buffer zones with vegetation |
| 3 | Biodiversity | Habitat disturbance | Site selected away from ecological sensitive zones |
| 4 | Soil | Soil erosion, leachate infiltration | Use of clay lining, proper drainage design |

| | | | |
|----------|----------------------|---------------------------------------|---|
| 5 | Noise | Traffic and machinery | Site away from populated zones; operation during working hours only |
| 6 | Socioeconomic | Public nuisance, property devaluation | Community consultation; proper fencing, access restrictions |

The potential impacts assessed due to project location are change in land use pattern, pressure on the existing natural resources, natural hazards like floods, earth quake, changes in the socio-cultural patterns of the local community, local community displacement issues, and obstruction of accessibility to the community already residing in the locality. A detailed explanation of each potential impact is given hereunder in tabulated form is mentioned as following.

Table 5.2: Environmental Management Plan (EMP) – for smelting Plant at Gujranwala

| | POTENTIAL IMPACTS | MITIGATION MEASURES |
|----|--|---|
| 1. | Change in Land Use Pattern | |
| | Any new intervention has its first and foremost impact of changing the land use pattern of the area. The impact of this nature is irreversible therefore site selection needs to have careful consideration of the impacts that may arise due to the changes in land use patterns. | Prior to selection of site, the project proponent has had careful consideration of site alternatives and hence due to current land use nature, price, and comparatively less environmental impacts the site was selected out of the two alternatives. Another factor adding to the feasibility of the proposed site was that it involved no displacement of local community, closeness to existing commercial hub and less energy consumption for transportation. |
| 2. | Pressure of Resources | |
| | Yet another impact to be considered prior to site identification is the availability of already existing resources e.g. water, gas, electricity, | Considering this very important factor, the site identification was done after evaluating the extent of provision of |

| | | |
|----|---|---|
| | etc. any new intervention can exert pressure and marginalize the existing community. This could eventually create a sense of deprivation among the already existing community and may eventually result in social unrest. | resources. The water requirements, energy requirement, social services (identified in the previous chapters) were done and based on the availability of resources to meet the present and future demand, the mentioned site was identified. |
| 3. | Natural Hazards | |
| | It is very important to assess the extent of damage any natural hazard e.g. earthquake, floods, landslides may cause. The geological formation of the capital territory is such that it has been categorized into earthquake zones. | The proposed site identified within environmentally /geologically safe and does not fall in any of the earthquake zones in which the capital territory is divided. |
| 4. | Displacement of Local Community | |
| | Displacement of local community can tend to create social issues and aggravate negative feelings from the existing population towards the project. | The proposed project is planned on a site which has already been acquired by the proponent after going through its socio-culture, environmental and economic considerations. The land is an empty plot hence does not require local community displacement. |
| 5. | Accessibility Issues to the Local Community | |
| | Another important impact considered was obstruction or changes in the patterns of transportation and increase travel time/distance for the local community. | The proposed project site is a vacant plot within boundary surrounding it from all sides and does not involve damage to any roads. Nature, size and scope of work also limit the extent of activities during construction as well as operational phases. |
| 6. | Presence of Sensitive Areas | |
| | Development interventions can degrade the quality and life expectancy of ecologically, socially and historically sensitive areas. | There are not sensitive areas of any nature be it ecological, social or historical in the proposed area. |
| 7. | Availability of Existing Infrastructure and Services | |

| | | |
|--|--|--|
| | <p>Unavailability of infrastructure can render the entire project void and impractical due to absence of important community infrastructure.</p> | <p>The proposed project is well connected to the rest of the city through major asphalt roads. Commercial buildings, housing societies, hospitals, clinic and transport facilities available hence making the location ideal for the said purpose.</p> |
|--|--|--|

5.3 Environmental Problems Due to Project Design

Environmental issues may also arise during project design phase which may cause potential threats to the overall project life is not considered timely.

Environmental Management Plan (EMP) – Due to Project Design

Project: Installation of Smelting Plant

Proponent: ABM Recycling (Pvt) Limited

Location: Mouza Kotli Johd Singh, Tehsil Gujranwala Sadar, Near Shalimar Town, GT Road, District Gujranwala

Purpose of the EMP

This Environmental Management Plan outlines the **preventive, mitigate, and corrective actions** related to the **design phase** of the smelting plant, to ensure environmental protection from the earliest stage of the project lifecycle.

EMP Table: Environmental Aspects Related to Project Design

| Environmental Aspect | Potential Impact | Mitigation Measure | Responsible Party | Monitoring/Verification |
|--|--|---|----------------------------------|--|
| 1. Site Layout and Land Use | Land disturbance, loss of vegetation, disruption of natural drainage | - Optimize layout to minimize land clearing - Preserve natural drains - Designate green buffer zones | Project Design Team & Contractor | Review of site plans; site inspection |
| 2. Plant Design Near Residential Area | Noise and air pollution impact on community | - Design with adequate setbacks and buffer zones - Use acoustic barriers and green belts | Design Consultant; EHS Officer | Acoustic modeling; design approval checklist |
| 3. Waste Management Infrastructure | Inadequate handling of slag, scrap, or wastewater | - Integrate slag storage yards, wastewater treatment, and hazardous material storage areas in the design | Design Team; EIA Consultant | EMP audit; design plan verification |

| | | | | |
|--|--|---|-----------------------------------|--|
| 4. Air Pollution Control System | Uncontrolled release of dust, gases, and fumes | <ul style="list-style-type: none"> - Incorporate chimney stacks, scrubbers, and bag filters into design - Design for compliance with PEQS | Air Quality Engineer; Design Team | Emission modeling; system specs review |
| 5. Water Supply and Wastewater Disposal | Water contamination, overuse of groundwater | <ul style="list-style-type: none"> - Design closed-loop cooling systems - Include effluent treatment plant (ETP) - Provide rainwater harvesting | Civil Engineer; Water Expert | Hydraulic modeling; water balance plan |
| 6. Fire Safety and Hazardous Material Storage | Explosion, fire, chemical risk | <ul style="list-style-type: none"> - Design fire exits, suppression systems, and chemical storage per HSE guidelines | Safety Engineer; Design Team | Fire safety review and HAZOP study |
| 7. Stormwater Drainage | Flooding, water logging, | <ul style="list-style-type: none"> - Include separate | Civil | Drainage layout |

| | | | | |
|------------------------------------|-----------------------------------|---|-----------------------------------|--|
| System | pollution spread | stormwater drainage with oil/grease traps - Avoid mixing with process effluent | Engineer | approval; field check |
| 8. Traffic and Access Roads | Road safety, local congestion | - Design dedicated truck entry/exit lanes - Provide parking and turning areas inside site | Transport Planner; Architect | Site plan verification |
| 9. Energy Efficiency | High operational energy footprint | - Use energy-efficient equipment - Incorporate natural lighting and ventilation in admin buildings | Electrical Engineer; Architect | Review of equipment specs and building plans |
| 10. Noise Source | Occupational and off-site | - Place noisy equipment (furnaces, | Mechanical Engineer; Design | Equipment layout plans; noise modeling report |

| | | | | |
|------------------|-----------------|--|------|--|
| Placement | noise pollution | compressors) in enclosed, insulated buildings - Use vibration dampeners | Team | |
|------------------|-----------------|--|------|--|

Monitoring & Reporting Plan (Design Phase)

- **Design Audit:** Conduct pre-construction **design compliance reviews** by the Environmental, Health & Safety (EHS) team.
- **Third-party Verification:** Engage third-party consultants to validate critical environmental design elements (air, water, noise).
- **Reporting:** Submit **monthly design compliance reports** to project management and the relevant regulatory authorities (e.g., EPA Punjab).

Documentation Requirements

- Architectural and engineering drawings with integrated environmental controls.
- Design basis documents referencing PEQS, IFC, and local guidelines.
- Environmental Clearance Certificate (ECC) or Initial Environmental Examination (IEE) submission showing compliance.

Conclusion

The incorporation of environmental considerations at the **project design stage** ensures that the smelting plant operates within environmental limits from the outset. Early integration reduces long-term risk, ensures community acceptance, and supports compliance with legal and regulatory frameworks.

5.4 Environmental Problems Associated with Project Construction Stage

Environmental Management Plan (EMP) – Construction Phase

Project: Installation of Smelting Plant

Phase: Construction

Proponent: ABM Recycling (Pvt) Limited

Location: Mouza Kotli Johd Singh, Near Shalimar Town, GT Road, District Gujranwala

EMP Table: Construction Phase Impacts and Mitigation Measures

| Environmental Aspect | Potential Impact | Mitigation Measures | Responsible Party | Monitoring Method |
|---|---|---|--------------------------------|--|
| 1. Land Clearing & Excavation | Soil erosion, dust, loss of vegetation | <ul style="list-style-type: none"> - Minimize land disturbance - Use erosion control measures (e.g., silt fences) - Preserve topsoil | Site Engineer; Contractor | Daily site inspection |
| 2. Air Emissions (Dust & PM) | Air pollution due to vehicle movement and material handling | <ul style="list-style-type: none"> - Water sprinkling on unpaved areas - Cover trucks carrying fine material - Limit vehicle speed | Contractor; EHS Officer | Visual monitoring; air quality spot checks |
| 3. Noise from Machinery & Vehicles | Disturbance to nearby residents and workers | <ul style="list-style-type: none"> - Use low-noise machinery - Prohibit work | Contractor; Site Supervisor | Noise level measurement; complaint logs |

| | | | | |
|------------------------------------|--|---|--------------------------------|--|
| | | during night hours - Provide PPE to workers | | |
| 4. Waste Generation (Solid) | Littering, visual impact, and environmental degradation | - Provide designated waste bins - Recycle construction waste - Dispose of debris at approved sites | Contractor; Waste Manager | Waste logs; waste disposal receipts |
| 5. Water Use and Wastewater | Pressure on local water resources and contamination risks | - Use water efficiently - Prevent runoff of wastewater into drains - Provide on-site sanitation for workers | Contractor; EHS Officer | Water use log; sanitation inspection |
| 6. Oil and Chemical Spills | Soil and water contamination from leaks of fuels or lubricants | - Store fuel in bunded areas - Maintain spill kits on site - Train staff in spill response | Contractor; Store In-charge | Weekly checklist; spill incident log |
| 7. Construction Traffic | Traffic congestion and road safety issues | - Prepare traffic management plan | Transport Supervisor | Vehicle log; local traffic monitoring |

| | | | | |
|--|---|---|-----------------------------|---|
| | | <ul style="list-style-type: none"> - Schedule deliveries during off-peak hours - Train drivers | | |
| 8. Worker Health & Safety | Accidents, injuries, and health hazards | <ul style="list-style-type: none"> - Provide proper PPE - Train workers on site safety - First aid kits and trained staff available | Contractor; HSE Officer | Daily toolbox talks; safety audit reports |
| 9. Impact on Nearby Communities | Noise, dust, and nuisance to local population | <ul style="list-style-type: none"> - Install notice boards - Address complaints promptly - Limit noisy operations | Community Liaison Officer | Grievance log; community meetings |
| 10. Construction Camps (if any) | Sanitation, solid waste, pressure on local services | <ul style="list-style-type: none"> - Set up temporary toilets and waste collection - Provide clean drinking water - Avoid encroachment | Contractor; Site Manager | Weekly camp inspections; hygiene checklists |

Environmental Monitoring Plan (Construction Phase)

| Parameter | Monitoring Frequency | Method/Tool | Responsibility |
|---------------------------|----------------------|---|---------------------|
| Dust and PM | Weekly | Visual checks, air sampler (if available) | EHS Officer |
| Noise levels | Monthly or as needed | Sound level meter | EHS Officer |
| Waste management | Weekly | Waste logs and site inspection | Waste Manager |
| Water use | Monthly | Water meter/logbook | Contractor |
| Health & safety incidents | Ongoing | Incident report forms | Site Safety Officer |

Documentation and Reporting

- **Daily Site Log** – Records of dust control, waste management, and safety practices
- **Monthly EMP Report** – Summary of compliance, incidents, and corrective actions
- **Grievance Register** – Documentation of community feedback and resolution steps
- **Incident Reports** – For accidents, spills, or non-compliance issues

Responsibilities Summary

| Role | Key Responsibilities |
|-------------------------------------|---|
| Project Proponent (ABM Recycling) | Overall supervision, funding, and EMP enforcement |
| Contractor | On-ground implementation of mitigation and safety measures |
| EHS Officer | Monitoring, reporting, and training on environmental compliance |
| Community Liaison Officer | Handling local community interactions and grievances |
| Regulatory Authorities (EPA Punjab) | Periodic inspection and environmental compliance enforcement |

Conclusion

The construction phase of the smelting plant can result in **temporary environmental disturbances** if not properly managed. This **EMP ensures that all foreseeable impacts are mitigated through proactive planning, monitoring, and enforcement**, ensuring regulatory compliance and community trust.

5.5 Environmental Problems Associated with Project Operations

Project: Smelting Plant – Operational Phase

Proponent: ABM Recycling (Pvt) Limited

Location: Mouza Kotli Johd Singh, Near Shalimar Town, GT Road, District Gujranwala

EMP Table: Operational Phase Environmental Impacts & Mitigation Measures

| Environmental Aspect | Potential Impact | Mitigation Measures | Responsible Party | Monitoring Method |
|--|---|--|------------------------------------|---|
| 1. Air Emissions (Furnace, Chimney) | Release of PM, SO _x , NO _x , CO, metal vapors | <ul style="list-style-type: none"> - Use of air pollution control devices (e.g., bag filters, scrubbers) - Stack emission testing - Regular maintenance of equipment | EHS Officer; Plant Manager | Emission monitoring; PEQS compliance testing |
| 2. Wastewater Discharge | Water pollution, heavy metal contamination | <ul style="list-style-type: none"> - Installation of Effluent Treatment Plant (ETP) - Regular water quality testing - Reuse treated water (where possible) | Utilities Supervisor; ETP Operator | Monthly lab testing; EPA reporting |
| 3. Solid Waste (Slag, Dust) | Land pollution, hazardous waste risks | <ul style="list-style-type: none"> - Safe storage of slag and dust - Reuse/recycle slag in construction - Disposal at approved project site | Waste Management Officer | Waste tracking logs; disposal certificates |
| 4. Noise Pollution | Worker hearing loss, community disturbance | <ul style="list-style-type: none"> - Enclosure of noisy equipment - Maintenance of motors/fans - PPE (earplugs) for staff | Maintenance Engineer; EHS Team | Periodic noise level testing; worker feedback |
| 5. Occupational | Accidents, | - Use of Personal | HSE Officer; | Health |

| | | | | |
|---|---|--|--------------------------------|--|
| Health & Safety | respiratory issues, heat stress | Protective Equipment (PPE) - Regular health checks - Emergency response drills | Admin Manager | records; safety training logs |
| 6. Hazardous Material Handling | Spills, exposure risks | - Secure storage with labels - Secondary containment - Spill response plans & kits | Storekeeper; Safety Supervisor | Weekly inspection; incident logs |
| 7. Fire and Explosion Risk | Loss of life, property damage | - Fire alarms, extinguishers, hydrants - Fire drills & trained fire response team - High-temperature control systems | Safety Officer; Fire Marshal | Fire drill logs; fire equipment inspection |
| 8. Energy Consumption | High operational cost, indirect GHG emissions | - Use energy-efficient motors, furnaces, lighting - Monitor energy use via meters | Electrical Engineer | Monthly energy audits; KPI tracking |
| 9. Community Health & Complaints | Public complaints due to odor, noise, dust | - Establish Community Liaison Office - Maintain Grievance Redress Mechanism - Periodic outreach | Public Relations Officer | Grievance register; community feedback forms |
| 10. Traffic and Logistics | Road congestion, safety risk | - Designated loading/unloading zones - Schedule vehicle movement - Trained drivers | Transport Manager | Vehicle logs; traffic incident reports |

Environmental Monitoring Plan – Operational Phase

| Parameter | Frequency | Monitoring Method | Responsibility |
|--|------------------|--|---------------------------|
| Stack emissions (PM, SO _x) | Quarterly | Stack sampling + lab analysis (per PEQS) | EHS Officer |
| Ambient air quality | Bi-annually | Ambient air testing near boundary | 3rd-Party Lab + EHS |
| Noise levels | Monthly | Sound meter measurements | EHS Officer |
| Wastewater quality | Monthly | Lab testing (pH, BOD, TDS, heavy metals) | ETP Operator |
| Solid waste volume | Monthly | Weighing and recording | Waste Manager |
| Worker health & safety | Ongoing | Medical checkups, incident logs | HSE Department |
| Community complaints | As received | Grievance mechanism tracking | Community Liaison Officer |

Documentation & Reporting Requirements

- **Environmental Monitoring Reports** – Submitted to EPA Punjab as per approval conditions
- **Annual Environmental Audit Report** – Prepared internally or by a certified third party
- **Incident & Spill Reports** – Maintained on site and shared with regulators (if required)
- **Training Records** – Health and safety training, emergency drills, and PPE compliance
- **Waste Manifests** – For transportation and disposal of hazardous and non-hazardous waste.

Roles & Responsibilities

| Position | Key Responsibilities |
|-----------------------------|--|
| Plant Manager | Ensure overall compliance with EMP and legal obligations |
| Environmental Officer (EHS) | Daily monitoring, record keeping, training |
| Maintenance Engineer | Keep pollution control and safety systems functional |
| Waste Manager | Track and manage all types of solid waste |
| Fire & Safety Officer | Conduct fire drills and oversee emergency preparedness |
| Community Liaison Officer | Maintain relations with community and manage complaints |

Conclusion

Implementing this **EMP during the operational phase** ensures that the smelting plant remains environmentally compliant, socially responsible, and safe for both workers and nearby communities. Ongoing monitoring, regular training, and proactive management are critical to minimizing environmental risks and upholding sustainability commitments.

5.6 Potential Environmental Enhancement Measures

In order to enhance the environment, the following measures will be adopted:

1. Trees will be planted within the premises to beauty the surrounding area.
2. A special budget will be designated for the environmental improvement of the environment on annual basis probably 1 million. The administration will be responsible for spending of this budget. The team leader will prepare the inventory of environmental improvement activities and communicate it with the rest of the team for implementation.

5.7 Occupancy

Adequate number of staff will be employed to maintain various facilities and activities related to environment and resource conservation e.g. water supply,

electricity and other wastewater management, security, green areas, repair and associated infrastructures etc. some employees to be engaged for the maintenance and repair will also reside within the proposed project.

5.8 Additional Considerations

It is very importance to plan a project after evaluating its cumulative socio-environment and cultural impacts. The project is planned after keeping all the parameters of environment, health and safety for site identification, design, construction phase and operational phase. That's why the cumulative impacts of the project are negligible.

CHAPTER VI

ENVIRONMENTAL MANAGEMENT AND MONITORING PLAN

6.0 Background:

The purpose of developing this Environmental Management and Monitoring Plan (EMMP) is to provide a dynamic guideline to the concerned stakeholders to define details of who, what, where and when environmental management and mitigation measures are to be implemented besides providing the contractors and proponents better on-site environmental management control over the life of the project. The scope of this Environmental Management and Monitoring Plan includes the activities during construction as well as operational and eventually a decommission phase of the proposed project. However, to ensure the compatibility of the Environmental Management and Monitoring plan in accordance with the changing socio-cultural, economic and environmental factors, it would be used as a dynamic tool which means that the EMMP would undergo necessary modifications to keep catering to the changing environmental needs of the proposed project.

Table 6.1: Users of this EMMP would include but not be restricted to the following:

| Sr. # | EMMP Elements | End Users |
|-------|--------------------------|--|
| 1 | Background | All stakeholders – internal and external Community groups Approval or consent authority e.g. EPA Punjab |
| 2 | Environmental Management | The management and supervisory staff of Installation of Smelting Plant by ABM Recycling (Pvt) Limited EPA Punjab |
| 3 | Implementation | The management and supervisory staff of Installation of Smelting Plant by ABM Recycling (Pvt) Limited Community groups, EPA Punjab |
| 4 | Monitor and review | The management and supervisory staff of Installation of Smelting Plant by ABM Recycling (Pvt) Limited |

| | | |
|--|--|----------------|
| | | and EPA Punjab |
|--|--|----------------|

6.1 EMMP Context:

Being an environment conscious and law-abiding entity, Installation of Smelting Plant by ABM Recycling (Pvt) Limited at Gujranwala has decided to identify, develop and implement an EMMP that identifies the environmental aspects of their project besides providing them a guideline to tackle any environmental issues that may arise in the future. Under the Punjab Environmental Protection Act, 1997 (Amended, 2012), conducting an IEE/EIA prior to commencement of a project is obligatory. This is further reinforced through the IEE/EIA Rules 2022. A more elaborated guideline for Environmental Report Writing further provides a step-by-step procedure for drafting of an IEE/EIA report. An Environmental Management and Monitoring Plan have been made a compulsory part of the IEE/EIA report under the same guidelines. It is for this reason that project has planned to meet pre-requisite of the Environmental Approval by drafting a meticulously planned EMMP.

6.2 EMMP Objective:

The primary objectives of this EMP are to:

- Prevent, minimize, and control adverse environmental impacts
- Ensure compliance with environmental laws and regulations
- Define roles and responsibilities for environmental management
- Provide a structured plan for environmental monitoring and reporting
- Promote health, safety, and environmental awareness among workers and local communities

6.3 Environmental Policy

“Installation of Smelting Plant by ABM Recycling (Pvt) Limited” strives for environmental reverence which is why it has devised its environmental policy stating vision of the company towards environmental conservation. Our policy is:

1. to provide a modern yet sustainable and environmentally friendly working condition to its employees
2. conserve natural resources through adopting less waste policy
3. energy conservation through promoting environment friendly plant designs
4. to provide trainings to all employees to meet our environmental objectives

6.4 Environmental Management and Monitoring Plan Structure and Responsibility

Table 6.2: Roles and Responsibilities

| Sr. # | Positions | Significance | Stage | Environmental Responsibilities |
|-------|-------------------------|--------------|---------------------------|---|
| 1 | Proponent / Owner | Critical | Construction / Operations | <ul style="list-style-type: none"> • Oversee Environmental Policy and EMMP • Serve as primary contact to the regulatory authorities • Commit resources to achieve environmental objectives |
| 2 | All Employees | Critical | Construction / Operation | <ul style="list-style-type: none"> • Attend training and understand their roles in the implementation of EMMP • Understand the Environmental Policy / Objectives and act accordingly • Participate in the review of EMMP • Coordinate with the responsible authorities within the project to report any noncompliance to their Environmental Policy |
| 3 | Construction Supervisor | Critical | Construction | <ul style="list-style-type: none"> • Understand the environmental policy of the project • Operate in accordance with the environmental policy • Ensure reducing solid waste generation • Reduce water and energy wastage • Ensure all machineries /equipment are |

| | | | | |
|---|--|----------|--------------------------|---|
| | | | | <p>in good conditions</p> <ul style="list-style-type: none"> • Ensure health and safety of the workers during construction phase |
| 4 | Maintenance Manager | Critical | Construction / Operation | <ul style="list-style-type: none"> • Understand the environmental policy of the project • Operate in accordance with the environmental policy • Ensure reducing the chances of increased solid waste • Reduce water and energy wastage • Ensure all machineries /equipment are in good conditions • Ensure health and safety of the workers during construction / operational phase • Provides health, safety and environmental awareness trainings to the staff |
| 5 | Administrative Person Deal with Environment Issues | Critical | Operational | <ul style="list-style-type: none"> • Understand the environmental policy of the project • Operate in accordance with the environmental policy • Ensure reducing the chances of increased solid waste • Reduce water and energy wastage • Ensure all machineries /equipment are in good conditions • Ensure health and safety of workers during operational phase • Receive health, safety and environmental awareness trainings • Prepare and maintain |

| | | | | |
|--|--|--|--|--|
| | | | | <p>accidents/environmental risk records</p> <ul style="list-style-type: none"> • Timely coordination with the responsible authority |
|--|--|--|--|--|

6.5 Environmental Management Plan for “Installation of Smelting Plant by ABM Recycling (Pvt) Limited locate at Gujranwala”.

Installation of Smelting Plant by ABM Recycling (Pvt) Limited located at Gujranwala which is why it has developed a comprehensive Environmental Management and Monitoring Plan for its construction as well as operational phase.

6.5.2 EMP During Construction Phase

1. Introduction

- **Project Title:** Smelting Plant Development Project
- **Purpose of EMP:** To ensure all environmental aspects and impacts are managed during the construction and operation of the smelting plant.

2. Applicable Legislation and Standards

- Environmental Protection Act
- Occupational Health and Safety Act
- Hazardous Waste Regulations
- Air Quality and Emissions Regulations
- Water Use and Wastewater Discharge Permits
- International Best Practices (e.g., IFC, ISO 14001)

3. Construction Phase EMP

Key Environmental Aspects

- Land disturbance
- Dust and air emissions
- Noise pollution
- Solid and hazardous waste
- Water use and runoff
- Biodiversity impacts

- Socioeconomic impacts

6.2 Mitigation Measures

| Environmental Aspect | Potential Impact | Mitigation Measures | Responsible Party | Monitoring |
|-----------------------------|----------------------------|--|--------------------------|-------------------------|
| Land Clearing | Soil erosion, habitat loss | Limit clearing to designated areas, replant after use | Contractor | Weekly inspection |
| Air Quality | Dust and emissions | Water spraying, cover trucks, use low-emission equipment | Site Engineer | Daily visual checks |
| Noise | Disturbance to communities | Schedule work during day, use silencers | Contractor | Noise monitoring weekly |
| Waste | Improper disposal | Segregate, label, dispose at licensed sites | HSE Officer | Waste log maintained |
| Water Management | Contamination, overuse | Silt traps, no discharge of pollutants | Site Supervisor | Monthly water testing |
| Biodiversity | Flora/fauna disturbance | Avoid sensitive habitats, train workers | Environmental Officer | Pre-construction survey |

6.6. Operational Phase EMP

6.6.1 Key Environmental Aspects

- Air emissions (SO₂, PM, heavy metals)
- Slag and hazardous waste generation
- Wastewater discharge
- Energy and water use
- Occupational health risks
- Community relations

6.3 Mitigation Measures

| Environmental Aspect | Potential Impact | Mitigation Measures | Responsible Party | Monitoring |
|-----------------------------|--------------------------------|---|--------------------------|--|
| Air Emissions | Air pollution, health issues | Install scrubbers, bag filters, emission monitoring | Plant Manager | Continuous Emission Monitoring System (CEMS) |
| Waste | Land/groundwater contamination | Proper storage, recycling, disposal permits | Waste Officer | Monthly audits |
| Water Use & Discharge | Water scarcity, pollution | Closed-loop systems, treat effluent | Process Engineer | Effluent quality testing |
| Energy Use | GHG emissions | Use energy-efficient tech, monitor usage | Energy Manager | Energy audits |
| Occupational Hazards | Health/safety risks | PPE, training, emergency plans | Safety Officer | Regular safety drills |
| Community Impact | Conflict, health impacts | Grievance mechanism, CSR programs | Community Liaison | Public consultation reports |

6.4. Monitoring and Reporting Plan

| Parameter | Frequency | Method | Responsible |
|------------------------------|------------------|---------------------|-----------------------|
| Air quality | Continuous | CEMS | Environmental Officer |
| Noise levels | Monthly | Sound meter | HSE Officer |
| Effluent quality | Monthly | Laboratory analysis | Lab Technician |
| Waste generation | Monthly | Inventory/log | Waste Management Team |
| Health & safety | Quarterly | Internal audits | Safety Manager |
| Biodiversity (if applicable) | Annually | Ecological survey | Biologist |

6.7. Emergency Response Plan

- Fire and explosion risks
- Chemical spills
- Medical emergencies
- Emergency contacts list
- Training and mock drills schedule

6.5. Roles and Responsibilities

| Role | Responsibility |
|-----------------------|------------------------------------|
| Project Manager | Overall environmental compliance |
| Environmental Officer | EMP implementation and monitoring |
| Safety Officer | Health & safety oversight |
| Contractor | Compliance with site rules and EMP |
| Community Liaison | Engagement with local communities |

6.8. Training and Capacity Building

- Induction training for all workers
- Regular refresher courses on EMP and safety
- Toolbox talks on specific hazards

6.9. Grievance Redress Mechanism

- Transparent process for community complaints
- Register and address within a defined timeframe
- Periodic reporting to stakeholders

6.10. Review and Updating of EMP

- EMP is a living document

- Review annually or after major incidents
- Update based on monitoring data and regulatory changes

6.11 Environmental Monitoring Plan

Environmental monitoring will be undertaken in accordance with the requirements of the environmental authority (EPA, Punjab) to ensure compliance to the National Environmental Quality Standards (PEQS) as and when required. Proponent has decided to spend 1 million PKR annually for sake of Environmental Budget.

Environmental monitoring will include parameters that will be mentioned in the Environmental Approval accorded by the Environmental Protection Agency, Punjab for its construction phase.

Table: 6.6 Environmental Monitoring Plan

| Parameter | Method | Frequency | Location | Responsibility |
|---------------------------------|----------------------|-------------|------------------------|--------------------------|
| Air Quality (PM, Odor) | On-site sampling | Monthly | Active face, boundary | Environmental Officer |
| Groundwater Quality | Lab analysis | Quarterly | Downstream boreholes | Consultant |
| Noise Levels | Decibel meter | Monthly | Boundary areas | HSE Officer |
| Leachate Volume & Quality | Flow meter, lab test | Monthly | Leachate tank | Site Engineer |
| Soil Quality | Laboratory analysis | Bi-annually | Within and around site | Consultant |
| Health & Safety Audits | Site inspection | Monthly | Entire facility | Safety Officer |

6.12 Institutional Arrangement

Administration under the supervision of the maintenance manager will report directly to the proponent. The administration will consist of skilled personnel with expertise in health, environment and safety issues. Roles and responsibilities for the implementation of EMMP are further explained earlier under the head Roles and Responsibilities.

6.13 Reporting

The proponent aims to provide timely, relevant and appropriately presented information to the concerned government authorities, local community surrounding the proposed project site on the environmental, health and safety performance of the project. The commitment would be met by record keeping and presenting it to the concerned authorities as and when required.

6.14 Staff Training

Staff training is important parameter that needs to be fulfilled adequately in order to ensure the successful implementation of environmental objectives. Keeping this fact under consideration, “Installation of Smelting Plant by ABM Recycling (Pvt) Limited” will ensure that the employees, contractors and workers receive appropriate environmental awareness training. This will be obtained through a variety of methods including training sessions, formal/informal meetings and discussion and formal presentations. Environmental awareness training would take place at various stages of the persons concerned with the proposed project. This would occur at the induction of any new employee/contractor/workers and will be made a regular on-site feature. Records of training content and attendance will be maintained.

“Installation of Smelting Plant by ABM Recycling (Pvt) Limited” would require the persons involved during construction as well operational phase to be aware of following responsibilities and equipment, maintenance detail:

1. Their roles and responsibilities (including environmental incident reporting)
2. The environmental impacts (potential and actual) of their activities during construction and operation
3. Natural hazards such as earth quake and floods etc.

4. The potential consequence of poor environmental performance
5. Site emergency plans and their execution procedures

Table: 6.10 Capacity Building and Training

| Topic | Target Group | Frequency |
|-------------------------------------|---------------------|------------------|
| Waste handling and safety | Workers, operators | Quarterly |
| Emergency response (fire, gas leak) | All staff | Every 6 months |
| Environmental awareness | Community members | Annually |
| PPE and first-aid training | Field workers | Bi-annually |

Table 6.11: Persons involved during constructional and operational phase to be aware of following responsibilities and equipment, maintenance detail:

| # | Description | Responsibility | Who will be involved | Outcomes |
|----------|--------------------|-----------------------|-----------------------------|---|
| 1 | Air Quality | Administration | All employees | <ul style="list-style-type: none"> • Better understanding of the health impacts associated with air pollution • Develop a monitoring and reporting system for air pollution • Third party involvement especially EPA approved labs will be decided under potentially harmful circumstances |
| 2 | SWM | Administration | Staff | <ul style="list-style-type: none"> • The staff will be trained to follow the principles of recycle, reuse, reduce and will be taught to follow solid waste segregation at source • Improved understating regarding health impacts associated with unplanned waste management |

| | | | | |
|---|-------------------|----------------|---|---|
| | | | | <ul style="list-style-type: none"> • A monitoring and reporting system that would enable the supervisor to keep control of all unnecessary scattering |
| 3 | Wastewater | Administration | Employees but specific attention to the staff | <ul style="list-style-type: none"> • Improved understanding of the conservation techniques • Quality assurance through lab analysis, if need be, found • Overflow control in the drains through continuous cleaning |
| 4 | Noise | Administration | All employee | <ul style="list-style-type: none"> • Monitoring and reporting system for noise related issues if detected • Appropriate measures would be identified and implemented • Guidance to the employee on adopting good practices for noise and any other practice that otherwise could lead to environmental nuisance. |
| 5 | Firefighting | Administration | All employee | <ul style="list-style-type: none"> • Improved understanding of keeping a tab on all potential threats that could lead to fire hazards • Understanding on how to use the firefighting equipment • Understanding regarding emergency exits and use of fire point |
| 6 | Landscaping | Administration | Staff | <ul style="list-style-type: none"> • Improved efforts for maintaining the green belts and tree plantations |
| 7 | Accidental Spills | Administration | All staff | <ul style="list-style-type: none"> • Improved understanding regarding how to react during minor and major spills according to the |

| | | | | |
|--|--|--|--|---------------------|
| | | | | measures identified |
|--|--|--|--|---------------------|

6.15 Environmental Audits and Reviews

“Installation of Smelting Plant by ABM Recycling (Pvt) Limited” will ensure conducting environmental audits to assess compliance with the conditions set under the environmental legislation and those mentioned by the EPA, Punjab during grant of Environmental Approvals. The objective of the environmental audit and review is to monitor and report both compliance and non-compliance with the statutes, EMMP and the conditions set under Environmental Approval. This would be done for both the construction as well as operational phase of the proposed project under the supervision of the administration.

6.16 Public Consultation

Social survey was held with the surroundings from the project area. They are pro project. They were of the view that the project will bring new income opportunities for the surrounding community ultimately helping in the reduction of poverty in the area to a greater extent. A sample of the questionnaire used for public consultation is attached along as **Annexure**.

Emphasis was placed on community awareness and perception about the proposed project. This was an important component of the entire study as social assessments are complementary part of environmental assessment. By and large, the people of the proposed project area are well aware of the project and can well anticipate the activities that would entail once the project enters its construction and operational phase. All of the respondents who participated in the public consultation process welcomed the proposed project considering it beneficial both economically and socially. According to their point of views, the proposed project would be really beneficial by providing medical facilities. People foresee this project as a positive precursor that would give rise to employment opportunities and small vendor’s activities during construction phase. No opposition from the public was confronted for the project.

6.17 Compensation in Money Terms

The said project is situated in almost open area where already agricultural cum commercial activities are running. There will be no cutting of flora and no harm to fauna by this proposed project. There is no any structure or residence which will be damaged by proposed project so there will be no need for money compensation. Proposed project is environment friendly.

6.18 Replacement, Relocation and Rehabilitation

Proposed project will be done on the open plot where there is neither any population nor any structure. So, there will be no need for replacement, relocation and rehabilitation of said project. This will come in operational here and will work here in environment friendly manners.

6.19 Environmental Breakdown Structure (EBS)

Total Environmental Budget: PKR 1,000,000

Smelting Plant Environmental Management

Total Budget: PKR 1,000,000 (10 lakh)

Level 1: Construction Phase Environmental Management

Budget Allocation: PKR 300,000

| Code | Activity | Description | Budget (PKR) |
|-------------|--------------------------------|--|---------------------|
| C1 | Dust Suppression | Water spraying, dust nets, gravel access roads | 70,000 |
| C2 | Waste Management | Segregation bins, licensed disposal, recycling | 50,000 |
| C3 | Noise Control | Barriers, mufflers, restricted working hours | 40,000 |
| C4 | Training & Awareness | Worker induction & regular toolbox talks | 40,000 |
| C5 | Erosion & Sediment Control | Silt traps, drainage improvements | 50,000 |
| C6 | Biodiversity Protection | Surveys, buffer zones, signage | 50,000 |
| | Subtotal (Construction) | | 300,000 |

Level 2: Operational Phase Environmental Management

Budget Allocation: PKR 550,000

| Code | Activity | Description | Budget (PKR) |
|------|-----------------------------------|--|----------------|
| O1 | Air Quality Monitoring | Continuous and periodic stack emissions testing (SO ₂ , PM, heavy metals) | 120,000 |
| O2 | Wastewater & Effluent Testing | Monthly comprehensive lab analysis | 80,000 |
| O3 | Hazardous Waste Management | Proper containment, labeling, training, PPE | 60,000 |
| O4 | Safety Equipment & PPE | Masks, gloves, respirators, safety clothing | 80,000 |
| O5 | Emergency Preparedness | Firefighting equipment, spill kits, drills | 60,000 |
| O6 | Community Engagement & CSR | Public meetings, grievance redressal, awareness campaigns | 70,000 |
| O7 | Environmental Signage & Awareness | Updated signs, notices throughout the plant | 80,000 |
| | Subtotal (Operation) | | 550,000 |

Level 3: Monitoring, Audit & Reporting

Budget Allocation: PKR 150,000

| Code | Activity | Description | Budget (PKR) |
|------|-------------------------------|---------------------------------------|--------------|
| M1 | Internal Environmental Audits | Regular audit to check compliance | 40,000 |
| M2 | Regulatory Reporting | Preparation and submission of reports | 40,000 |
| M3 | EMP Review & Update | Annual review, update based on | 20,000 |

| | | | |
|----|--|--|----------------|
| | | findings | |
| M4 | Data Management & Documentation | Record keeping, software, printing | 20,000 |
| M5 | Third-Party Environmental Verification | Independent spot checks and lab verification | 30,000 |
| | Subtotal (Monitoring & Reporting) | | 150,000 |

Summary of Budget Allocation

| Category | Amount (PKR) | Percentage |
|------------------------|------------------|-------------|
| Construction Phase | 300,000 | 30% |
| Operational Phase | 550,000 | 55% |
| Monitoring & Reporting | 150,000 | 15% |
| Total Budget | 1,000,000 | 100% |

CHAPTER VII

STAKEHOLDERS CONSULTATION

General

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

Stakeholder consultation is a critical part of the environmental assessment process. It ensures transparency, promotes social inclusion, and provides an opportunity for affected persons and institutions to voice concerns, suggestions, or support for the project. This chapter outlines the methods, participants, key issues discussed, and responses collected during the stakeholder engagement process for the proposed Installation of Smelting Plant by ABM Recycling (Pvt) Limited located at Gujranwala.

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 were measured. A social impact assessment survey was conducted. Informal group discussions were also held as an additional tool for obtaining feedback from the stakeholders that are being discussed in the following pages.

Objectives of Consultation

Public consultation plays a vital role in studying the effects of the project on the stakeholders and in the successful implementation and execution of the 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 operation of the project.

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 the Project;
- Documenting mitigation measures proposed by the stakeholders

Proponent

The project is “Installation of Smelting Plant by ABM Recycling (Pvt) Limited” at Gujranwala and the proponent is Anas Bin Aamir S/o Aamir Mahmood

The Responsible Authority

The management of “Installation of Smelting Plant by ABM Recycling (Pvt) Limited, Gujranwala” is the responsible for the impacts of their project.

Table 7.1: Responsibility of “Installation of Smelting Plant by ABM Recycling (Pvt) Limited, Gujranwala” administration

| Sr. # | Positions | Stage | Environmental Responsibilities |
|-------|----------------------|----------------------|--|
| 1 | Proponent / Owner | Operations/stitching | <ul style="list-style-type: none"> • Oversee Environmental Policy • Serve as primary contact to the regulatory authorities |

| | | | |
|---|----------------------------|------------------------|--|
| 2 | All Employees | Operation/stitching | <ul style="list-style-type: none"> Attend training and understand their roles Understand the Environmental Policy / Objectives and act accordingly Coordinate with the responsible authorities within the project to report any noncompliance to their Environmental Policy |
| 3 | Operational Supervisor | Operational /stitching | <ul style="list-style-type: none"> Understand the environmental policy of the project Operate in accordance with the environmental policy Ensure reducing solid waste generation Reduce water and energy wastage Ensure all machineries /equipment are in good conditions Ensure health and safety of the workers during construction phase |
| 4 | Maintenance Manager | Operation /stitching | <ul style="list-style-type: none"> Understand the environmental policy of the project Operate in accordance with the environmental policy Ensure reducing the chances of increased solid waste Reduce water and energy wastage Ensure all machineries /equipment are in good conditions Ensure health and safety of the workers during operational phase Provides health, safety and environmental awareness trainings to the staff |
| 5 | Administrative Person Deal | Operational/stitching | <ul style="list-style-type: none"> Understand the environmental policy of the |

| | | | |
|--|-------------------------|--|---|
| | with Environment Issues | | <p>project</p> <ul style="list-style-type: none"> • Operate in accordance with the environmental policy • Reduce water and energy wastage • Ensure all machineries /equipment are in good conditions • Ensure health and safety of workers during operational phase • Receive health, safety and environmental awareness trainings • Timely coordination with the responsible authority |
|--|-------------------------|--|---|

Methodology for consultation

The EIA Team carried out public consultations at various locations within and around the project site. The stakeholder’s consultation during this phase of the work targeted the project area, administrative and private offices etc. near the project area:

- Selection of the stakeholders for consultation, reconnaissance of the project site and initial discussions with the neighboring villagers, drivers etc.
- Appraising the targeted stakeholders initially for the purpose of consultation and working out a schedule for holding regular consultation meetings
- Distribution of questionnaires to obtain opinions and concerns
- Meetings with the stakeholders through the participation of environmental consultants and social specialists and documenting the opinions of the stakeholders expressed during the meetings etc.

Affected and wider community

The stakeholders contacted during the survey belonged to different categories of people as shown in the Table 5.2.

Table 7.2: Categories of Stakeholders Interviewed in the Project Area

| Sr. No. | Stakeholder Category |
|----------------|-----------------------------|
| 1 | Neighbor workers |
| 2 | Project workers |
| 3 | Potential Distributors |

Issues Discussed

Following issues were discussed during the stakeholder consultation:

- Overall activities of the project operational phase
- Possible mitigation measures
- Benefits or implications of the project specifically for the local people

Findings of the Overall Discussion

- After making complete feasibility the site is being used for stitching activities.
- Project increases revenue generation for the Government
- It creates employment opportunities
- Local people should be given preference for employment in the project

Majority of people favored the project in a sense that the project overcomes the increasing needs of garments in market.

Socioeconomic Trends around the “Installation of Smelting Plant by ABM Recycling (Pvt) Limited, Gujranwala”

” Socioeconomic status (SES) is an economic and sociological combined total measure of a person's work and of an individual's or family's economic and social position in relation to others, based on income, education, and occupation.

This chapter includes the information that how the present study has been conducted and what are the results of this socioeconomic survey in the surrounding areas of “Installation of Smelting Plant by ABM Recycling (Pvt) Limited, Gujranwala”.

Study Population

The target population was comprised of nearby factory area’s workers around the project site of “Installation of Smelting Plant by ABM Recycling (Pvt) Limited, Gujranwala”.

| Study Size | Sr. # | Variables | Frequency | Percent (%) |
|--|--------------|------------------|---------------------|--------------------|
| <p>Therefore, approximately a total of 20 households of different socio-economic conditions were surveyed and their heads of households were our main respondents.</p> | 1 | Name & Address | - | - |
| | 2 | Date | - | - |
| | 3 | Address & CNIC | - | - |
| | 4 | Age | 89 (above 30 years) | 89% |
| | 5 | Education | 93 (under matric) | 92.8 |

Study Instrument

Data collection tool was questionnaire; it was a 19- items based semi structured questionnaire

| | | | |
|-----------|----------------------------------|-------------------|------|
| 6 | Occupation | 96 (Private jobs) | 95.9 |
| 7 | Marital Status | 99 (married) | 99 |
| 8 | If married then no. of children | 87 (> 4) | 86.7 |
| 9 | Total Family members | 90 (< 5) | 90 |
| 10 | Religion | 97 (Islam) | 96.8 |
| 11 | No. of earning members in family | 88 (< 3) | 88 |
| 12 | Total income | 97 (> 25 PKR) | 96.3 |
| 13 | Source of income | 99 (Private jobs) | 99 |
| 14 | Experience of Diseases | 67 (no disease) | 67 |
| 15 | If Yes, then nature of disease | 37 | |

Table: 7.3 feedbacks of stakeholders

Sampling Procedure for Questionnaire

Procedure Table: Socioeconomic Questionnaire

Before filling the questionnaire, respondents were fully assured that their data will not be disclosed. They were told about the purpose of study. They were also told if they have any problem to understand the questions in questionnaire can ask.

Description of Tables:

In the above table, only frequency and percentage has been measured (by SPSS) of those parameters which are probably present in maximum quantity.

Written Feedback:

The majority people of the nearby communities are strongly in favor of the proposed project. They have the perspective of healthy future which will bring prosperity to their young ones. They also gave comments that these projects will pave the path of development. Stakeholders are in favor of this project because of this project jobs will be generated for local people. According to stakeholders, this is an Environment friendly project.

Study Areas

Somehow at surrounding and nearer factory area was visited for socio-economic aspects. Details of these sites are discussed below. These areas were surveyed by team of Ecosphiron Environmental Services as per requirement of socioeconomic survey for Initial Environmental Examination Report of “Installation of Smelting Plant by ABM Recycling (Pvt) Limited, Gujranwala”.

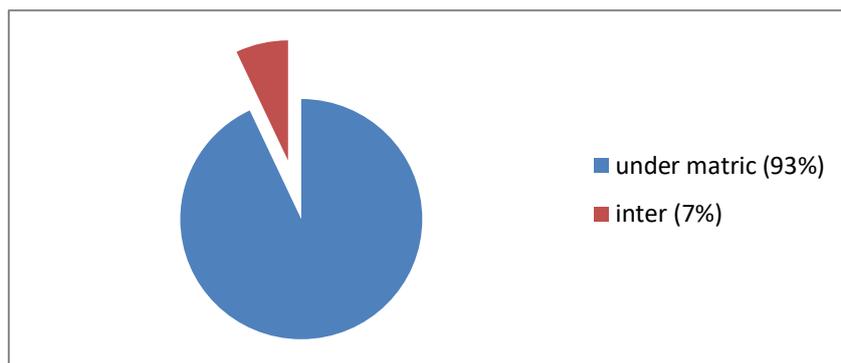
Statistics Measures

After preparing the questionnaire, field surveys were conducted. The data selected from questionnaire was analyzed by using SPSS version 16. The data collected with the help of questionnaire was analyzed in SPSS to get the descriptions of current study.

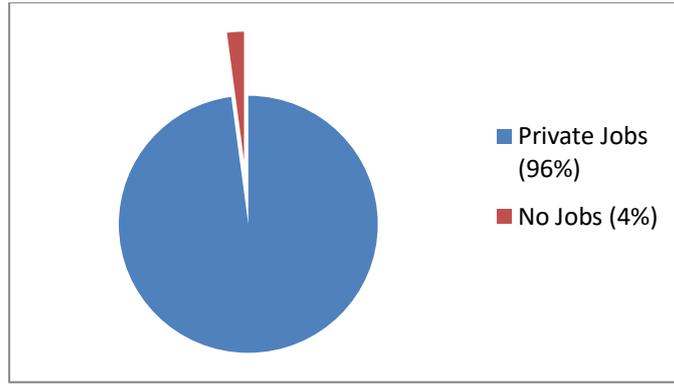
Table: 7.4 Key Concerns Raised by Stakeholders

| Stakeholder | Concerns / Issues Raised | Response / Mitigation |
|------------------------|--|--|
| Local Residents | Odor, water pollution, flies, land value decline | Site is >500m from residences, odor control and leachate systems planned |
| Farmers | Groundwater contamination and soil impact | Leachate containment and lined base to be installed |
| School Representatives | Health impacts on children due to gas and vectors | Vector control, gas venting system, buffer zone plantation |
| Waste Pickers | Restricted access may impact livelihoods | Awareness, PPE provision, possible integration in recycling |
| Local NGOs | Long-term sustainability and community involvement | Regular monitoring, public grievance mechanism planned |
| Municipal Committee | Budget constraints for environmental management | Low-cost EMP with phased improvements planned |

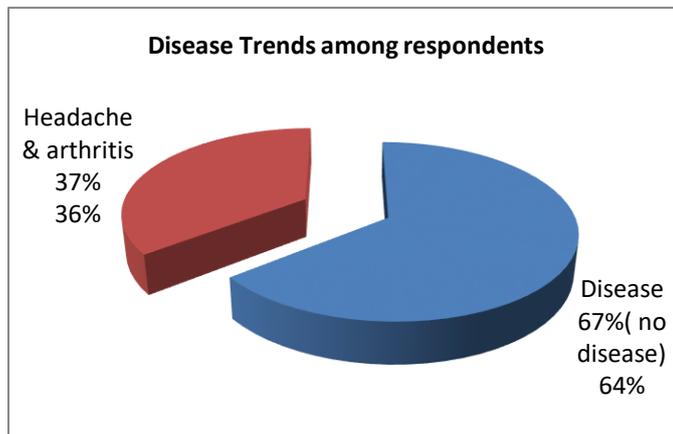
Site: “Installation of Smelting Plant by ABM Recycling (Pvt) Limited, Gujranwala”.



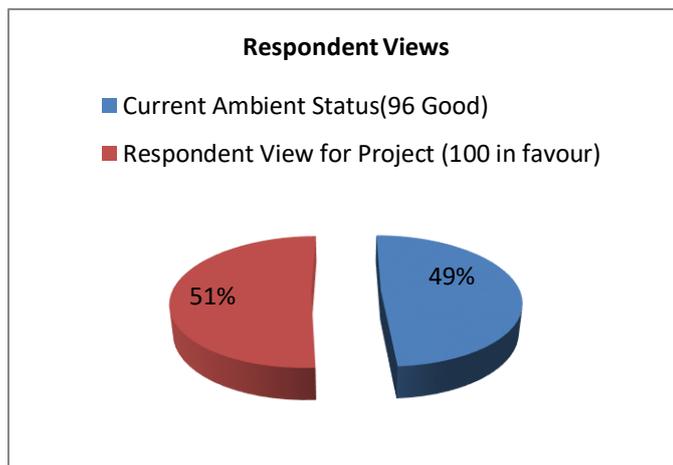
Graphical Presentation of Education around the Project Site



Trends of jobs around the project site



Health Status of Respondents



Respondent View about Project

Stakeholder Concerns and Recommendations

The finding of the community consultation has been addressed in various sections of EIA. Mitigation plan has been incorporated into EMP. The summary of consultation with various stakeholders is given below:

Project Approval

The community consultations demonstrated that goodwill towards the project proponent indeed exists. Approval for project activities by communities was evident. The consultations were considered a good gesture and were appreciated; especially by men and women. The poverty level is such that communities are looking forward to any project proponent to improve their financial well-being to a great extent. Benefit from the project should be distributed judiciously and equitably among the primary stakeholders in the project area, and the proponent will continue to ensure that this principle is followed in this project and community development program.

Local Employment

Communities in the project area emphasized that local inhabitants should be given priority when employing people for related works and activities according to their skills.

Other departments and agencies

Other departments and agencies such nearby schools and other educational institutes were also surveyed during whole consultation process. The suggestions and mitigation measures has been incorporated in the Environmental Management Plan.

Environmental practitioners and experts

Environmental experts were also considered as integral part of this consultation process of “Installation of Smelting Plant by ABM Recycling (Pvt) Limited, Gujranwala”.

The suggestions and mitigation measures has been incorporated in the Environmental Management Plan. The project is benefited for the local community and it will enhance the employment.

Recommendations from Stakeholders

- Plant trees around the site to reduce visual and odor impact
- Establish a helpline or complaint mechanism
- Include local people in monitoring committees
- Avoid burning waste
- Provide basic health services to project workers

These recommendations have been **integrated into the EMP** and design phase wherever feasible.

Information Disclosure

The project summary and consultation notices were:

- Shared on **notice boards** at the Municipal Committee Office
- Announced via **mosques and local cable**
- Verbal outreach by **UC officials**

Full EIA/EMP document will be made available at the Municipal Committee office and on request to the Punjab EPA.

Grievance Redress Mechanism (GRM)

A simple, accessible, and transparent **GRM** will be established:

- **Register available at site** for written complaints
- **Dedicated phone number** for voice/SMS complaints
- Complaints will be addressed within **7 working days**
- Quarterly summary of complaints and resolutions will be shared with the EPA and local community leaders.

Conclusion

The stakeholder consultation process has been instrumental in improving the design, environmental safeguards, and social acceptability of the Installation of Smelting Plant by ABM Recycling (Pvt) Limited, Gujranwala”. Most stakeholders showed support for the project once they were informed of planned mitigation measures. Their feedback will continue to guide the **implementation and monitoring** phases..

CHAPTER VIII

CONCLUSIONS AND RECOMMENDATIONS

Title of proposed project is “Installation of Smelting Plant by ABM Recycling (Pvt) Limited, Gujranwala” which will start construction immediately after getting environmental approval. The construction work will only take place during day time. In order to ensure compliance with the lawful provision of section 12 of PEPA 1997 (Amended 2012) read with IEE/EIA Regulations 2022, the Environmental Impact Assessment (EIA) Report has been prepared and is being filed to the Environmental Protection Agency, Lahore for issuance of environmental approval.

Accordingly, this EIA Report describes social, environmental, physical and other relevant aspects of the project during pre-construction, construction and post construction stage and at its regular occupancy. The report also specifies necessary measures to be adopted for mitigation of environmental impact on the environment. It also provides information as desired under the format used for the preparation of this EIA Report.

The project envisages at construction of “Installation of Smelting Plant by ABM Recycling (Pvt) Limited, Gujranwala”. However, the environmental aspects and impacts associated with construction and operational phase have been considered. All infrastructure e.g., sewerage, water supply, electric supply, gas etc. already exist in the proposed project area. The proposed project will be an environmentally friendly site after its completion. Septic tank will be provided in the site premises for the treatment of domestic wastewater. Total solid waste generated from the project will comprise mainly of paper, plastics organic matter, medical waste, food waste and medical solid waste like syringes etc. The municipal waste will be ultimately collected by sanitary workers of that area from that point where it will be dumped while hazardous waste will be collected in safe and sealed form to eliminate the factor of hazard and in safely manners this waste will be shifted towards incinerator. The project will have its own administration set up for environmental monitoring and maintenance of site both during construction and operation stage. In order to handle

fire hazards, fire hydrants and sprinklers will be provided at many locations within the premises.

The baseline study has been conducted reviewing the available literature. The overall impact of the proposed project can be considered positive. However, it may pose some minor and moderate negative social which will be temporary and environmental impacts which will require proper mitigation measures.

Handling and disposal of construction waste, increase in noise level, air quality, traffic disruption and disturbance to people, workers safety, sanitation and solid waste disposal and effects on social life are vital factors during the construction stage that will require necessary mitigation measures which have been proposed in the report of this report. Responsibility for each of the mitigation has also been given in the report.

Construction of the proposed building will be a labor-intensive process and will create employment opportunities for the local people. At the operational stage, traffic management, wastewater and solid waste generation, and emergency response are the significant impacts that need to be managed. Mitigation measures and their responsibility for each of the mitigation have been given in the report. Emergency Response Plan will be developed and adequate measures to reduce, reuse and recycle paper waste will be adopted. The proposed mitigation measures will be strictly implemented to save the environment.

For the effective implementation and management of the proposed mitigation measures, an outline Environmental Management and Monitoring Plan (EMMP) has been developed.

This “Installation of Smelting Plant by ABM Recycling (Pvt) Limited, Gujranwala” will also be based on the principles of sustainable development. The aim of constructing “Installation of Smelting Plant by ABM Recycling (Pvt) Limited, Gujranwala” is to create an environment friendly design which should be kind to nature, healthy and sympathetic to the life style of its occupants.

- Energy Efficiency
- Water Conservation
- Use of Local Building Materials
- Materials will be used that permit the building membrane to 'breathe'.

8.1 Conclusion

In view of the above it has been concluded that “Installation of Smelting Plant by ABM Recycling (Pvt) Limited, Gujranwala” is environmentally friendly with sustainable design and has no adverse effects on environment. It is therefore requested to issue the environmental approval under section 12 of PEPA 1997 (Amended 2012) for the construction and operation of the said project.

8.2 RECOMMENDATIONS

The Environmental Impact Assessment (EIA) study and survey results are finally evaluated to recommend the following:

The present EIA Report of “Installation of Smelting Plant by ABM Recycling (Pvt) Limited, Gujranwala” meets the administrative and legal framework of the EPA Punjab.

- Implementation of EMP must be given top priority.
- During construction phase Create environmental awareness amongst the workers by training.
- Provide guidance to workers on use of PPEs and also make it compulsory for them to use PPEs during construction.
- Installation of fire extinguishers in the premises.
- Use of equipment with low operating noise levels within PEQS limits and regular monitoring of machines used during construction phase.