

DISCLAIMER

The data was based on the originality of project site shown by the project proponent/ stakeholders/ promoters, provided maps, verbal communications and all other related documents. The authenticity of supra-mentioned relies with the proponent/ stakeholders/ promoters, not with the environmental consultant. The EIA report can't be negotiated in any court of law.

*Author: _____
EIA & EIA Team*

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LIST OF ABBREVIATIONS

W & D	Works and Development
OSHA	Occupational Safety and Health Administration
EPA Punjab	Environmental Protection Agency, Punjab
EIA	Environmental Impact Assessment
IEE	Initial Environmental Examination
PEQS	Punjab Environmental Quality Standards
TORs	Term of references
WAPDA	Water and Power Development Authority
C & D	Construction & Demolition

LIST OF ANNEXURES

Annexure-A: Previous NOC

Annexure-B: Term of References

Annexure C: Google Map & Layout Map

Annexure-D: CNIC & relevant documents

Annexure-E: Baseline Lab Reports

Annexure-F: Public consultation survey forms

Annexure-G: Glossary

Annexure-H: References

Annexure-I: Study Team

Annexure-J: List of Abbreviation

EXECUTIVE SUMMARY

Title and location of the project:

The proponent Mr. Umer Farooq intend to get Environmental Approval by submitting the Environmental impact Assessment (EIA) report as per direction of Environmental Protection for compliance of section 12 of PEPA, 1997 (Amended 2012), for the proposed construction Re-Rolling Mill the Extension project of Hunza Steel Mill. The Total area of mill is 681,280 SFT, while the covered area of re-rolling mill will be over an area of 65875SFT by M/s Hunza Steel (Pvt.) Ltd. located at Dargai Shah Layyah Road, 18-Hazari District Jhang. The production capacity of project will be 300M. tons per day and total cost of project will be 5.5 billion. The previous approval of Steel Mill is attached as **Annexure-A**.

According to the Review of EIA/IEE Regulations 2022, the said project falls under Category B (Manufacturing and Process) Clause 17 (Iron and Steel Re-Rolling Mills) of Schedule II, so, the proponent intends to submit EIA Report of the said project. TORs of the study under clause 5 (f) of policy and procedure for the filing, review and approval of environmental assessment are annexed as **Annexure-B**.

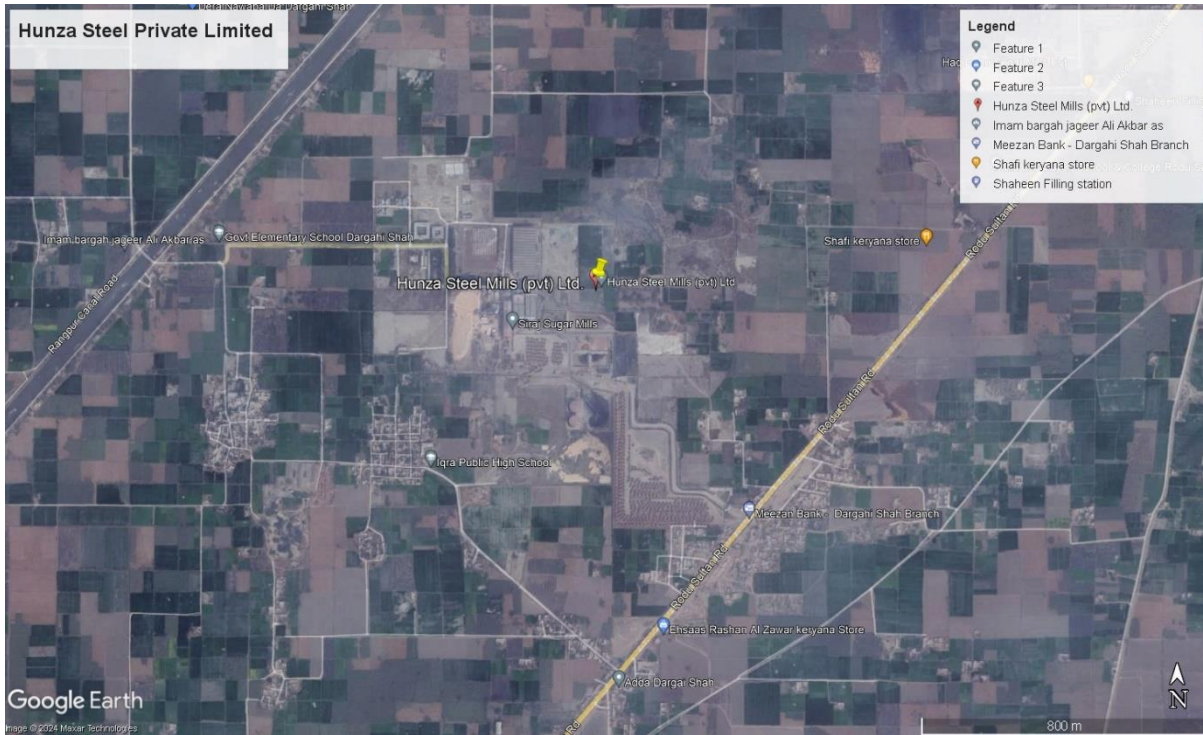
Location

Project site is located at Dargai Shah Layyah Road, 18-Hazari District Jhang. The google map and layout is attached as **Annexure-C**

Land co-ordinates of the proposed project site are:

Proposed Site	31°78'50"N	72°3'29.28"E
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North:	Open Land
South:	Open Land
East:	Access Road
West:	Open Land



Project Proponent

Name	Mr. Umer Farooq
CNIC	35202-7585001-5
Postal Address	House # 66, Block F, Model Town Lahore

For further details, copy of CNIC and other relevant documents are attached as **ANNEXURE-D**.

Environmental Consultant

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

Company office address is 46-M, Gulberg III, Lahore/ House No.01, Old Bara Road, University Town, Peshawar.

Contact: 042-35441444, 0308-4444186.

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

Brief Outline of the Proposal

The said project is the proposed construction of Re-Rolling Mill the Extension project of Hunza Steel Mill. The Total area of mill is 681,280 SFT, while the covered area of re-rolling mill will be over an area of 65875SFT by M/s Hunza Steel (Pvt.) Ltd. located at Dargai Shah Layyah Road, 18-Hazari District Jhang. The production capacity of project will be 300M. tons per day and total cost of project will be 5.5 billion. The previous approval of Steel Mill is attached as **Annexure-A**.

According to the Review of EIA/IEE Regulations 2022, the said project falls under Category B (Manufacturing and Process) Clause 17 (Iron and Steel Re-Rolling Mills) of Schedule II, so, the proponent intends to submit EIA Report of the said project. TORs of the study under clause 5 (f) of policy and procedure for the filing, review and approval of environmental assessment are annexed as **Annexure-B**.

Name of the proposed project	Proposed Construction of Re-Rolling Steel Mill the Extension Project of Hunza Steel Private Limited.
Purpose of the project	Making of Deformed Steel bar Grade 60 & Grade 40
PROCESS DETAILS	
Manufacturing Process	Deformed Steel bar Grade 60 & Grade 40
Finished Products	Steel Bar
Capacity	300MT per day
Description of process	In the process, the steel bars will be produced in grades 60 & 40 as per ASTM standards.
LAND/ AREA DETAILS	
Total Area of the existing unit	65875SFT
STATUS AND LOCATION	
Location of the proposed site	Dargai Shah Layyah Road, 18-Hazari District Jhang.
Current Status of the site area	Proposed Re-Rolling Steel Mill the Extension Project of Hunza Steel Private Limited.
Current Status of the surrounding areas	Many industrial units are already working in the vicinity of the subject site area
WATER REQUIREMENT	

Water consumption for the project	Approx. 500-600 gallons water is required for the operation of the existing unit For firefighting purpose, water tank available. Water will also be used for domestic purpose which will be treated through wastewater treatment facility before disposal.
Ways of extraction	Motor pump/ Turbine
Source of Water consumption	Underground (for process), Reutilization (for plantation/ domestic activities).
Source of waste water	Operation and Domestic activities.
SOLID WASTE	
Source of solid waste generation	Operation and Domestic sources i.e., Raw material packaging bags/ containers/ iron and domestic trash.
Mode of disposal	Will be handed over to contractors
MANPOWER	
Labor Force	About 50-70 person during operation
POWER REQUIREMENTS	
Source of power	Power requirements at the project site will be fulfilled by WAPDA/ standby power house. Standby generators only utilized in case of load shedding.

Study area:

The present EIA study area for said activity is of multi type land use including industrial setups, agricultural and commercial purposes, various industrial units are already working in the vicinity of the proposed site area as shown in Google Earth Map attached as **Annexure-C**.

Major Impacts

In order to identify all the activities associated with the project during operation phases with potential to cause adverse environmental impacts and harm a thorough review has been conducted. The subject project area located in industrial area. In case of impact arises from the project activities then possible necessary measures will be adopted to control them. Overall, the project has positive impacts on the local population in terms of employment opportunity and

economic activity in their area and country as a whole but also has some negative impacts which will be controlled through proper safety measures, mitigation measures and SOPs. As proposed site area has open land in existing steel mill with adequate safeguards/ mitigation measures taken for overall safety of environment, community and workers. Restoration & reclamation steps after construction phase has been taken by existing unit by planting the native species in and around local areas. Management of M/s Hunza Steel committed to implement the same strategies with additional safeguard measures for the proposed extension project.

**SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES
DURING CONSTRUCTION PHASE**

SUMMARY OF IMPACTS DURING CONSTRUCTION PHASE		
Potential Impacts	Criteria for determining Significance	Key Mitigation Measures
<p>Dust Emissions— Dust and PM may be generated during construction, movement on unpaved area and excavation activities.</p> <p>Gaseous emissions from site generators and transportation vehicles may affect ambient air quality in the vicinity of</p>	<p>An increase in visible dust beyond the boundaries of the construction site; or Concentration of PM₁₀ in excess of 150 µg/m³</p> <p>NEQS for Ambient Air</p>	<p>Sprinkling of water on dusty roads, tracts and surfaces is recommended;</p> <p>During excavation works drop heights will be minimized to control the fall of materials reducing dust escape;</p> <p>Use of wind shield around stockpiles is recommended;</p> <p>Vehicle speed restrictions should be applied in the project area;</p> <p>Raw materials should be transported in covered trucks;</p> <p>Face masks will be strictly implemented.</p> <p>Use of properly maintained and fit machinery</p>

<p>the project site.</p>		<p>for constructional activities.</p>
<p>Construction Noise- Noise may be generated during landscaping activities and from generators and transportation vehicles at the project site; which may be a nuisance for the workers.</p>	<p>OSHA standards</p>	<p>Activities generating high levels of noise should be minimized at the project site.</p> <p>If the noise level will exceed the permissible limits with reference to national and OSHA standards, following recommendations are suggested to take action against the high noise levels:</p> <ul style="list-style-type: none"> • Proper tuning of construction machinery and vehicles is recommended. • Ear muffs and ear plugs are recommended in case of high noise levels. • Rubber wounds should be placed underneath the generator to avoid the vibration.
<p>Solid waste Management— If solid waste will not be managed properly, it may cause negative impacts</p>	<p>Generation of excessive waste; Recyclable waste and reusable waste are discarded; Improper disposal</p>	<p>Constructional waste should be utilized for land filling and maintenance purposes;</p> <p>Domestic waste should be disposed off properly, handed over to contractors, placed in bins;</p> <p>Proper solid waste management plan should be</p>

		devised and implemented.
<p>Vegetation Loss/ Soil erosion— Minor negative impact may arise as only some weeds and grasses are present at the project site which will be cleared for the purpose of construction.</p>	<p>Unnecessary or excessive removal of trees and shrubs.</p>	<p>No tree cutting/ vegetation loss issue will be involved in the subject project as project site is free of any dense vegetation and trees.</p> <p>Plantation including native and fruit trees at the completion of construction phase is recommended.</p>
<p>Soil Contamination— Oil and chemical spills can contaminate the soil.</p>	<p>Presence of visible amount of hydrocarbon in soil</p>	<p>Provision of spill prevention and control kits;</p> <p>Use of impermeable surfaces in workshops, and storage areas; Contaminated soil will be collected and incinerated.</p>
<p>Traffic issues— Traffic issues may arise due to the constructional activities at the project site if traffic will not be managed properly.</p>	<p>Traffic congestion and blockage of entry/ exit area</p>	<p>Ample parking area must be allocated at the project site.</p> <p>Guards/ should be hired to manage the traffic at the project site.</p>
<p>Socioeconomic impacts—Inter-</p>	<p>No community complaints</p>	<p>Training of the non-local project staff on local culture and norms;</p>

<p>cultural differences between the project staff from other areas and the local community may arise due to the subject project.</p> <p>Positive socioeconomic impacts due to increased infrastructure, employment opportunities and economic growth.</p>	<p>Increased employment facilities in the area; Increased infrastructure</p>	<p>Avoidance of unnecessary interaction of local population with the non-local project staff.</p> <p>Employment opportunities should be provided to the local people.</p>
<p>Health and safety issues- may arise due to improper handling of work and if precautionary measures will not be adopted.</p>	<p>OSHA Standards</p>	<p>Proper training of workers and staff should be conducted to avoid the accidents. Use of PPEs should be implemented at workplace.</p> <p>First aid measures/medical facility should be provided at the project site.</p> <p>Safe drinking water must be provided to workers and staff.</p> <p>Safety signs & boards should be placed during constructional activities.</p> <p>Construction site should be fenced properly to avoid any damage to nearby settlements.</p> <p>Smoking or any drugs should be prohibited during working hours or performing work.</p>

		At the time of earthwork, fencing will be ensured for the area under the exploration.
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**SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES
DURING OPERATION PHASE**

SUMMARY OF IMPACTS DURING OPERATION PHASE		
Potential Impacts	Criteria for determining Significance	Key Mitigation Measures
<p>Air Emissions-</p> <p>During the operational phase of the project, gaseous emissions from project related activities and power sources may affect the air quality of the project area.</p> <p>Project activities can also impact the ambient air through release of PM.</p>	<p>PEQS for Ambient Air</p> <p>PEQS for Stack Emissions</p>	<p>Industry should ensure the PEQS compliance and should not be allowed to emit hazardous pollutants.</p> <p>Air Emission Control Measures are recommended to control the air emissions.</p> <p>Maximum possible plantation is recommended as it absorbs gaseous emissions as well as prevent lower atmospheric dust to move along with the air action.</p> <p>All project related machinery, standby generators, vehicles will be checked regularly to ensure that are in sound working condition and are not emitting smoke.</p> <p>Regular monitoring as per PEQS is recommended for ambient air and stack emissions.</p> <p>Proponent should keep the records of monitoring and equipment maintenance.</p>
<p>Noise- Noise due to industrial activity, machinery and generators can be a nuisance for the workers in the working area.</p>	<p>PEQS for ambient noise level.</p> <p>OSHA standards for covered working areas.</p>	<p>Activities generating high levels of noise should be minimized at the project site.</p> <p>If the noise level will exceed the permissible limits with reference to national and OSHA standards,</p>

		<p>following recommendations are suggested to take action against the high noise levels:</p> <ul style="list-style-type: none"> • Personal Protective Equipment PPEs including Ear muffs, Ear plugs and other noise abating equipment will be provided to the workers and other staff in case of noise at the project site. • Sound proof/ covered buildings should be built for placement of machinery i.e., generators (if any) to be installed at the project site to control the noise. • Proper tuning of machinery is recommended. • Rubber wounds/ vibration control platforms should be placed underneath the machinery/ generator to avoid the vibration. • Speed/ horn restriction should be imposed on all project related vehicles. • Maximum plantation is recommended within site area as it absorbs the noise waves and act as barrier. • Regular monitoring as per PEQS/ OSHA standards and record keeping is recommended.
<p>Discharge of wastewater- The discharge of untreated industrial effluents or municipal wastewater may be a negative impact of the subject project.</p>	<p>PEQS for Municipal and Liquid Industrial Effluents (mg/l, unless otherwise defined)</p>	<p>The process wastewater and domestic wastewater will be generated from the site which will be treated into existing wastewater treatment facility before disposal/ reuse.</p> <p>Treated wastewater will be used for plantation or can be used for sprinkling purpose on unpaved areas or simply drained out in nearby local drain present along with the northern boundary of the proposed site.</p> <p>Compliance of PEQS for Effluents should be ensured.</p> <p>Monitoring should be conducted as per PEQS and record should be maintained.</p>
<p>Health & Safety Issues- different operational activities at the</p>	<p>OSHA Standards</p>	<p>An HSE department is established to look after the worker and community's health, safety & environment related issues, headed by HSE officer.</p>

<p>project site may cause health and safety issues for workers if precautionary measures will not be adopted.</p>		<p>Proper training of workers and staff should be conducted to avoid the accidents.</p> <p>Use of PPEs should be implemented at workplace.</p> <p>First aid measures/ medical facility should be provided at the project site.</p> <p>Safe drinking water will be provided to workers and staff.</p> <p>Safety signs & boards should be placed during operational activities.</p> <p>Smoking or any drugs should be prohibited during working hours or performing work.</p> <p>Fire Fighting Arrangements/ Equipment should be installed and responsibility should be assigned for firefighting in emergency situation.</p> <p>SOPs for operational activities should be formulated and implemented.</p> <p>Regular review meetings should be arranged to assess the efficacy of EMP.</p>
<p>Soil Contamination— leaching from storage sites, Oil/chemical spills, solid waste and untreated wastewater disposal can contaminate the soil.</p>	<p>Presence of litter in soil.</p> <p>Untreated wastewater disposal.</p> <p>Presence of visible amount of hydrocarbon in soil.</p>	<p>Effective treatment of wastewater before disposal.</p> <p>Implementation of effective solid waste management plan.</p> <p>Oil/ chemicals/ raw material should be stored in properly constructed covered paved area to prevent leaching of contaminants in soil. i.e., in rainy seasons.</p> <p>Provision of spill prevention and control kits;</p> <p>Use of impermeable surfaces in workshops, and storage areas;</p>

<p>Solid waste management- If solid waste will not be managed properly, it may cause negative impacts.</p>	<p>Exposure to potentially hazardous waste; Generation of excessive waste; Recyclable waste and reusable waste is discarded; Littering; Improper disposal.</p>	<p>Solid waste from the sources should be disposed off properly by following SOPs. Proper solid waste management system is recommended for unit. Industrial ecology practices will be adopted wherever possible. 3R's of sustainability are recommended to achieve. Separate waste bins should be placed at suitable places.</p>
<p>Socioeconomic impacts—Inter-cultural differences between the project staff from other areas and the local community may arise.</p> <p>Positive socioeconomic impacts due to increased infrastructure, employment opportunities and economic growth.</p>	<p>No community complaints Increased employment facilities in the area; Increased infrastructure CSR Activities</p>	<p>Training of the non-local project staff on local culture and norms; Avoidance of unnecessary interaction of local population with the non-local project staff. Employment opportunities should be provided to the local people as possible. Grievance redress/ conflict resolve committee should be formulated in order to resolve worker's and local's concerns. CSR activities for welfare of local community.</p>

Proposed Environmental Monitoring

To oversee the environmental performance of the project through its lifecycle enforcing the PEQS an Environmental Monitoring Program has been conducted which ensures effective surveillance of the environmental parameters at various stages of the project development and compliances with PEQS and legal obligations. It has been showed that all the parameters are

within the range of prescribed limits of PEQS. Lab reports analysis results of baseline by EPA Certified lab are incorporated within this report as ANNEXURE-E

Ambient Air Monitoring

Regular monitoring for ambient air should be conducted during construction and operation phase as per PEQS rules and report should be submitted to EPA Punjab on quarterly basis.

Noise

Regular monitoring for noise level should be recorded periodically during construction and during operation it should be conducted on quarterly basis and report should be submitted to EPA Punjab.

Water quality

Regular monitoring for ground water should be conducted during construction and operation and report should be submitted to EPA Punjab.

Schedules of Proposed Monitoring:

Sr. No.	Parameters	Monitoring Schedules
1	Ambient Air Monitoring (NO _x , CO _x , SO _x , VOCs, PM ₁₀)	Quarterly
2	Noise Level	Quarterly
4	Water quality	Quarterly

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

CHAPTER # 1

INTRODUCTION

Purpose of the Report

Environmental Impact Assessment (EIA) report is being submitted to the Environmental Protection Agency (EPA), Government of the Punjab for the compliance of Section 12 of PEPA, 1997 (Amended 2012), for the approval of the said project.

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

Identification of the Project

According to the Review of EIA/IEE Regulations 2022, the said project falls under Category B (Manufacturing and Process) Clause 17 (Iron and Steel Re-Rolling Mills) of Schedule II, so, the proponent intends to submit EIA Report of the said project. TORs of the study under clause 5 (f) of policy and procedure for the filing, review and approval of environmental assessment are annexed as Annexure-B.

Purpose of EIA Report

The purpose of the report is to obtain the Environmental Approval for the proposed construction of Re-Rolling Mill as Extension project of Hunza Steel from the concerned Environment Department for proper execution of the project.

The EIA report has been prepared keeping in view the following Regulations and Guidelines:

- PEP Act 1997, (Amended 2012)
- Review of EIA/IEE Regulations 2022
- Punjab Environmental Quality Standards (Self-monitoring and reporting by the industry)
- National Environmental Policy, 2005
- Pakistan EIA procedures

- Guidelines for public participation.
- Guidelines for sensitive and critical areas.
- Detailed sectoral guidelines.

The purpose of the EIA study is to identify the possible and beneficial environmental impacts of the proposed project and propose the practical mitigation measures to be implemented to minimize the negative impacts of the subject proposed project. The specific stages of EIA study are:

- Review of available documents
- Site survey
- Overview of different project alternatives
- Collection of baseline data related to physical, ecological, and social domain of environment
- Evaluation of project impacts on environment and social settings
- Public Consultation with the stakeholders
- Suggestion, mitigation measures of adverse impacts for the proposed project
- Preparation of Environmental Management Plan (EMP)
- Preparation EIA report

Scope of the study:

The scope of study includes the preparation of single stage Environmental Impact Assessment (EIA) study of the proposed project for obtaining the environmental approval from the concerned environment department for the compliance of section 12 of PEP Act 1997, (amended 2012) and to ensure compliance with the PEQS. The scope of study includes baseline survey of the proposed project, collect relevant data from primary and secondary sources, assess the impacts related to the subject project, suggest the mitigation measures to control the anticipated impacts, formulate the environmental monitoring program to check the environmental parameters at PEQS, prepare an Environmental Management plan to implement the recommended mitigation measures, consultation with the stakeholder or nearby community to know their concerns regarding the subject project.

Project Proponent

Name	Mr. Umer Farooq
CNIC	35202-7585001-5

Postal Address

House 66, Block F, Model Town Lahore

For further details, copy of CNIC and other relevant documents are attached as **ANNEXURE-D**.

Details of Environmental Consultant

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

Company office address is 46-M, Gulberg III, Lahore/ House No. 01, Old Bara Road, University Town, Peshawar.

Contact: 042-35441444, 0308-4444186.

The current work has been carried out by the following professionals:

Sr. #	Designation	Name/Qualification	Experience
1.	Lead Environmental Professional	Abdul Hafeez Nasir PhD Scholar Environmental Management	12 Years' Experience as Environmentalist
2.	Environmental Professional	Iftikhar Ahmed M.Phil. Environmental Sciences	08 Years' Experience as Environmentalist
3.	Chief Chemist/ Subject Matter Specialist (SMS)	Muhammad Raza Ullah M.sc Chemistry GCU Lahore	Twenty Years' experience
4.	Project Coordinator	Ahmed Raza B.com, PU, Lahore	Eight Years' Experience
5.	Associate Environmental Professional	Sabeera Tauheed M.Phil. PU Lahore	4-year Experience as an environmentalist

Nature, Size and Location of the Proposed Project

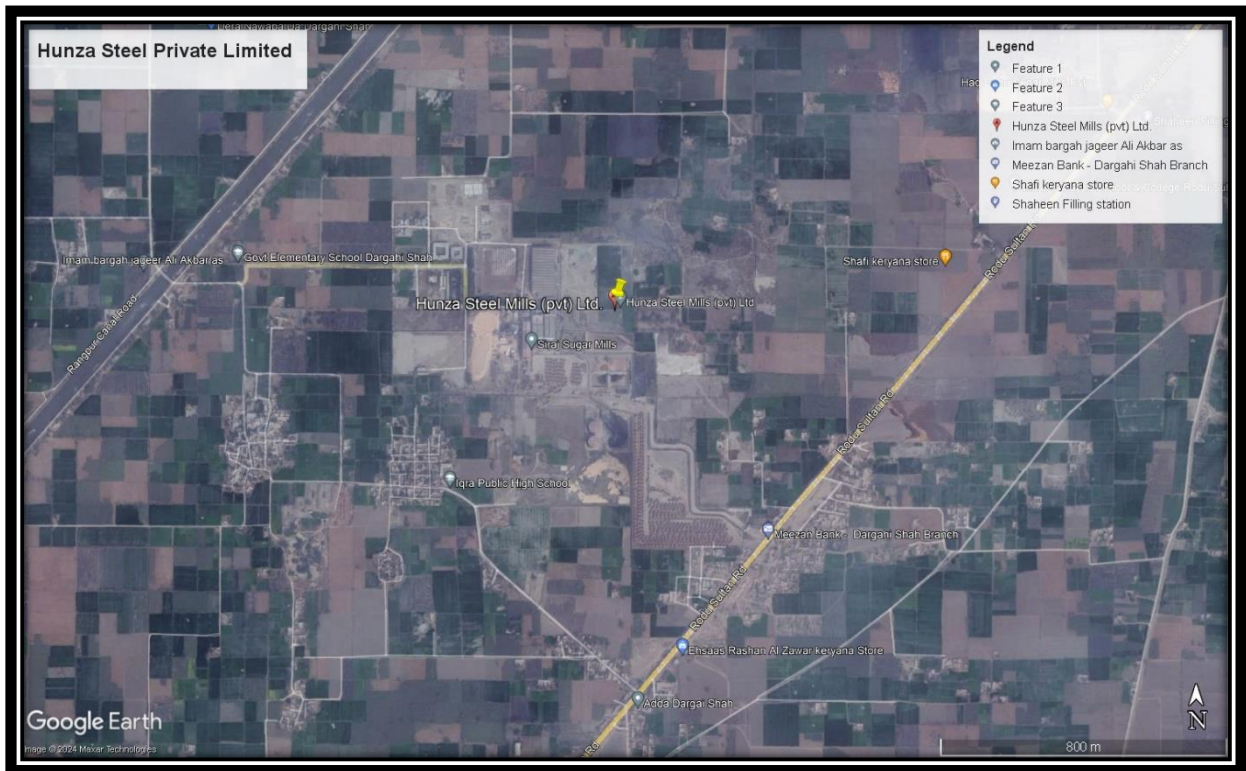
The subject proposed project is the proposed construction of Re-Rolling Mill the Extension project of Hunza Steel Mill. The Total area of mill is 681,280 SFT, while the covered area of re-rolling mill will be over an area of 65875SFT by M/s Hunza Steel (Pvt.) Ltd. located at

Dargai Shah Layyah Road, 18-Hazari District Jhang. The production capacity of project will be 300M. tons per day and total cost of project will be 5.5 billion. The previous approval of Steel Mill is attached as Annexure-A. This project is for the betterment of economic conditions and advancement of the region.

Location

Project site is located Dargai Shah Layyah Road, 18-Hazari District Jhang. Land co-ordinates of the subject project are: 31°78'50"N 72°3'29.28"E, A3 size google map is attached as ANNEXURE-C.

- North:** Open Land
- South:** Open Land
- East:** Access Road
- West:** Open Land



Methodology for EIA Report

For the purpose of this report, environmental and social baseline data and conditions at / around the project site has been undertaken. The methodology adopted to conduct the EIA Study includes Review of Layout Plan, detail meetings with the client, orientation session, development of data acquisition plan, Analysis of Data, review of existing data, primary &

secondary data collection survey, Screening of Potential Environmental Impacts and Mitigation Measures and also interviews with people near the project area has been conducted to collect their opinion regarding the proposed project and after findings it has been concluded that the project will not have any major adverse impacts on the socio-economic environment of the existing community.

The methodology adopted to carry out the single stage EIA study of the proposed project was as follow;

- A) Orientation
- B) Planning of Data Collection
- C) Data Collection
 - a. Site Reconnaissance
 - b. Analysis of Maps and Plots
 - c. Literature Review
 - d. Desktop Research
 - e. Discussions & meetings with stakeholders
 - f. Public Consultations
 - g. Field Studies

Environmental baseline survey of the project area:

To conduct the environmental base line study of the project, a multidisciplinary team was involved comprising engineers, environmentalist and sociologist. Prior to start of the base line environmental survey, a checklist was developed. The major components which were considered for physical, ecological and social environment are discussed in the subsequent paragraphs.

Physical Environment

For collecting the information on the physical environment, following main parameters were considered:

- a) Land Resources
- b) Water Resources
- c) Climate, Air and Noise Quality
- d) Other Infrastructure

Biological Environment

For biological environment study, the following parameters were covered:

- e) Flora
- f) Fauna
- g) Endangered Species (both flora & fauna)

Social and cultural study

To collect the social base line study of the project area, social survey was conducted to accomplish the following specific objectives:

- h) To identify the potential project affected persons (if any) in the project demarcated area
- i) To identify poor and vulnerable groups and strategies to ensure that such groups will get benefit from the project
- j) To identify the effects on available common resources of the community due to implementation of the project

Screening of potential environmental impacts and mitigation measures:

After thorough review of the field notes, data collection, extent of proposed project activities and detailed discussion with design team, the potential impacts of the project were assessed and safety measures were proposed to mitigate the negative impacts and to enhance the positive impacts. The potential impacts and mitigation measures were assessed covering the following parameters:

- Environmental impacts due to project location
- Environmental impacts related with design
- Environmental impacts associated with the construction
- Environmental impacts resulting from the project operation.

Preparation of environmental monitoring program and institutional requirement:

An Environmental Monitoring Program (EMP) depicting the mitigation measures and monitoring plan was also developed. Institutional capacity building of project was also reviewed and enhancement was proposed for effective implementation of the EMP.

EMP has been developed for effective implementation of the recommended mitigation measures. The EMP included controls to minimize the identified impacts, and monitoring program to monitor residual impacts, if any, during the operation. The EMP also lays down procedures to be followed during the operation of the project and identifies roles and responsibilities for all concerned personnel during the project, including reporting in operational phase.

Reporting:

The Environmental Impact Assessment Study presents the findings and compiles all the information into one document that includes:

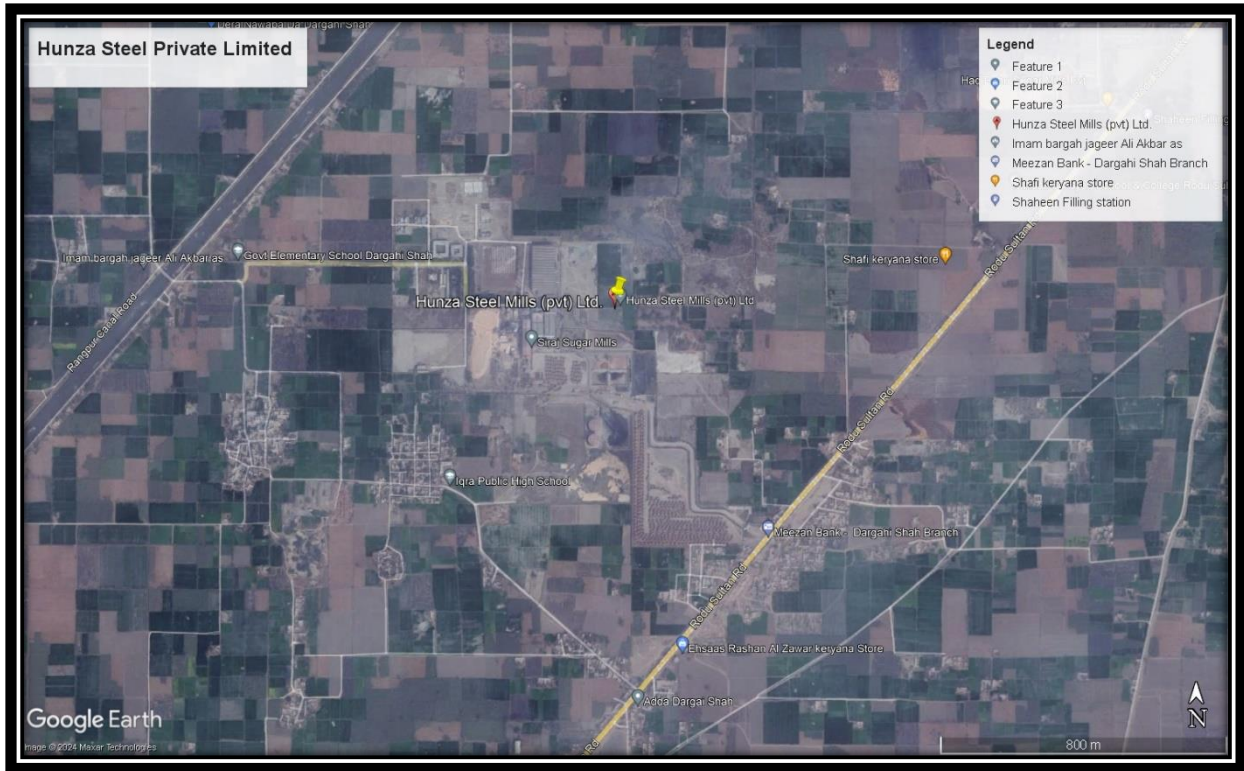
- Introduction
- Methodology for undertaking the EIA study.
- Description of the project.
- Information relating to the background environmental conditions in the area.
- Identification of environmental impacts.
- Evaluation of the significance of environmental impacts.
- Recommended mitigation measures and monitoring requirements.
- Development of Environmental Management Plan (EMP).
- Environmental Monitoring Program
- Participation of Stakeholders
- Conclusion & Recommendation

Screening

According to the Review of EIA/IEE Regulations 2022, the said project falls under Category B (Manufacturing and Process) Clause 17 (Iron and Steel Re-Rolling Mills) of Schedule II, so, the proponent intends to submit EIA Report of the said project. TORs of the study under clause 5 (f) of policy and procedure for the filing, review and approval of environmental assessment are annexed as Annexure-B.

Scoping**Spatial and Temporal Boundaries of Environmental Assessment**

This project spans at the area of 65875 SFT. The existing land use is industrial as the project lies in an Industrial area in District Jhang. The surrounding plots are either a property of farmers with agricultural lands and will most probably be sold to industries in future, so currently they are open plots and industrial units. The main road along with the project site is Industrial Road. The following map shows the spatial and temporal boundaries of the project. For further details Google earth map of the project on A3 page is attached as *Annexure- C* with the report



Important issues and concerns raised during consultation

Important issue and concerns raised by the community during consultation include the impact of untreated wastewater released from the mills that may be discharged into the drinking water supply. The Proponent ensured that to treat the wastewater coming out from the industry before final disposal into the nearby drain. The community was also concerned about employment to local people. The proponent ensured that maximum job opportunities will be given to residents of the area.

Significant Impacts to be determined

The major impact from this kind of facility will be air and water pollution from the re-rolling steel Mill. For this purpose, the proponent has ensured to proper air quality and ventilated system in the facility so avoid suffocation and any health hazards from indoor air pollution.

CHAPTER # 2

DESCRIPTION OF THE PROJECT

This chapter characterizes the project detail, type and category of project, location and site layout of the project, land use on the site, road access, vegetation feature of the site, cost and magnitude of operation, schedule of implementation, description of project (process flow chart/steps), restoration and rehabilitation plans, government approvals

Type and Category of the Project:

According to the Review of EIA/IEE Regulations 2022, the said project falls under Category B (Manufacturing and Process) Clause 17 (Iron and Steel Re-Rolling Mills) of Schedule II, so, the proponent intends to submit EIA Report of the said project. TORs of the study under clause 5 (f) of policy and procedure for the filing, review and approval of environmental assessment are annexed as Annexure-B.

Objectives of the Project

The main objectives of this project are:

1. Betterment and advancement of the region.
2. Increase Productivity and reduce costs and waste.
3. Increase personnel competence
4. Opening new opportunities by implementing new technologies and equipment in production

Consideration of Alternatives

Location alternatives:

The said project is the property of Hunza Steel which is already located in industrial area. So, the site is suitable for the proposed project.

Technology Alternatives

As the Hunza Steel is already in operation and their operation demands the re-rolling mill so that's why the management decide to construct the re-rolling mill. The management of M/s

Hunza steel decided to adopt the adequate pollution control equipment and built-in safety features.

REASONS OF SELECTION OF SUBJECT PROJECT SITE:

Following are the reasons for selection of subject project site:

- The property of Hunza Steel
- Availability of access road
- Communication facilities
- Availability of electricity
- Existing established infrastructure
- Less plantation/ no tree cutting issue involved
- No fauna species at site
- Convenient plot layout having adequate space for extension
- Industrial activity already going on in the area
- No protected species in the area

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

Location and Site Layout of the Project

Project site is located Dargai Shah Layyah Road, 18-Hazari District Jhang.

Land co-ordinates of the subject project are: **31°78'50"N 72°3'29.28"E**, A3 size google map is attached as **ANNEXURE- C**.

North: Open Land

South: Open Land

East: Access Road

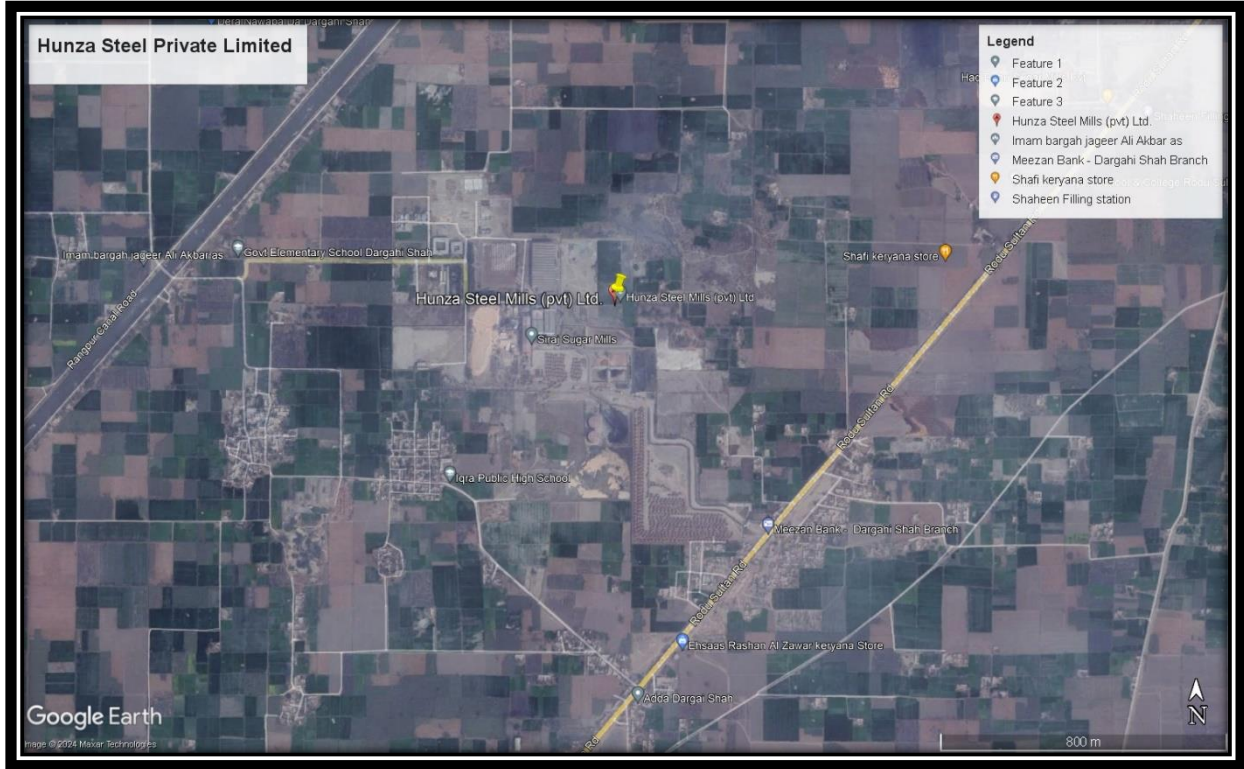
West: Open Land

Land use on site

Proposed site is located within the premises of Hunza Steel. The area is safe and not situated in the flooding zone.

Road Access

The access road is Rodu Sultan Road which is passing nearby of the project site. Google map highlighting access road to proposed project site is attached as (ANNEXURE-C).



Vegetation features of the project

No issue of trees cutting and clearing of vegetation involves as said project is located within the premises of Hunza Steel Mill hence, M/s Hunza Steel intends to restore the site area by planting native trees in possible systemic scientific way.

Cost and Magnitude of the Project:

Total area of the Project is 65875 SFT. Total estimated cost of the project is approx. 5.5 billion PKR.

Description of the project

the proposed construction of Re-Rolling Mill the Extension project of Hunza Steel Mill. The Total area of mill is 681,280 SFT, while the covered area of re-rolling mill will be over an area of 65875SFT by M/s Hunza Steel (Pvt.) Ltd. located at Dargai Shah Layyah Road, 18-Hazari District Jhang. The production capacity of project will be 300M. tons per day and total

cost of project will be 5.5 billion. The previous approval of Steel Mill is attached as Annexure-A.

According to the Review of EIA/IEE Regulations 2022, the said project falls under Category B (Manufacturing and Process) Clause 17 (Iron and Steel Re-Rolling Mills) of Schedule II, so, the proponent intends to submit EIA Report of the said project. TORs of the study under clause 5 (f) of policy and procedure for the filing, review and approval of environmental assessment are annexed as Annexure-B.

Project Process

Steel rolling consists of passing the material, usually termed as rolling stock, between two rolls driven at the same peripheral speed in opposite directions (i.e., one clockwise and the second anti-clockwise) and so spaced that the distance between them is somewhat less than the thickness of the section entering them. In these conditions, the rolls grip the material and deliver it reduced in thickness, increased in length and probably somewhat increased in width. This is one of the most widely used processes among all the metal working processes, because of its higher productivity and lower operating cost. Rolling is able to produce a product which is having constant cross section throughout its length. Many shapes and sections are possible to roll by the steel rolling process.

Steel sections are generally rolled in several passes, whose number is determined by the ratio of initial input material and final cross section of finished product. The cross-section area is reduced in each pass and form and the size of the stock gradually approach to the desired profile.

Rolling accounts for about 90 % of all materials produced by metal working process. Hot Rolling is carried out at elevated temperature above the re-crystallization temperature. During this phase, the coarse-grained, brittle, and porous structure of the continuously cast steel is broken down into a wrought structure having finer grain size and improved properties.

A long product rolling mill comprised of equipment for reheating, rolling and cooling. The primary objectives of the rolling stage are to reduce the cross section of the incoming stock and to produce the planned section profile, mechanical properties and microstructure of the product. Major parameters in the three stages of mill processing are as follows.

Reheating – The input material usually billet is heated in the reheating furnace to the rolling temperature. The important parameters are heating rate, time of heating, and temperature of reheating.

Rolling – The important parameters for rolling in the roughing, intermediate, and finishing group of stands in the rolling mill are temperature, percentage of reduction in area, inter-pass time and strain rate.

Cooling – The major parameters after finish rolling during cooling of the rolled product are start temperature, cooling rate and the final temperature.

When manufacturing long products, it is common to use a series of rolling stands in tandem to obtain high production rates. The stands are grouped into roughing, intermediate and finishing stages. Typical temperature, speed, inter-stand time (time between each stand), true strain and strain rate ranges at each stage are shown in Tab 1. Since cross-sectional area is reduced progressively at each set of rolls, the stock moves at different speeds at each stage of the rolling mill. A wire rod rolling mill, for example, gradually reduces the cross-sectional area of a starting billet (e.g., 150 mm square, 10-12 meters long) down to a finished rod (as small as 5.0 mm in diameter, 1.93 km long) at high finishing speeds (up to 120 m/sec).

The final dimensional quality of the rolled product is determined by the rolling stands within the finishing mill. The dimensional accuracy in the final product depends on many factors including the initial stock dimensions, roll pass sequence, temperature, microstructure, roll surface quality, roll and stand stiffness and the stock/roll friction condition.

With regards to the steel material steel, the development of the microstructure during rolling is complex and involves static and dynamic re-crystallization of austenite. From a practical point of view, the austenite grain size distribution in the rolled product is of paramount importance in controlling mechanical properties. In the roughing and intermediate stages of the rolling mill, the stock is moving slowly between the stands, such that the material has a chance to ‘normalize’ itself as a result of recovery and re-crystallization. During the finishing rolling stage, the stock is traveling at a high speed between closely spaced stands and consequently, and does not have adequate time to normalize. This lack of normalization can have a significant effect on the final microstructure and mechanical properties of the rolled product.

Since the chemical composition is fixed for specific steel grades, the requirements for a particular product that can be controlled in the rolling mill consist of geometry, mechanical properties and microstructure. The product characteristics which are controlled are the geometric shape and tolerance. These are determined from the section profile of the finished product. Mechanical properties include yield and ultimate tensile strengths, % reduction in area (ductility) and hardness. Microstructure characteristics include grain size, grain distribution, phase composition and phase distribution.

Rolling involves macroscopic and microscopic phenomena. The macroscopic phenomena can be broadly classified as (i) heat flow during rolling, and (ii) deformation under application of rolling load. The macroscopic phenomena include such factors as given below.

- Conduction in the rolling stock and the rolls and convection/radiation to the environment
- Adiabatic heating due to deformation
- Thermal expansion and contraction during the heating and cooling cycles.
- Large strains and displacements due to plastic flow
- The effects of strain, strain rate and temperature

Contact and friction

The process at the microscopic level involves many complex physical phenomena associated with nucleation and evolution of the microstructure. The principal microscopic phenomena that are important during the process of rolling are (i) austenite re-crystallization and grain growth, and (ii) transformation of austenite into ferrite, pearlite, bainite and martensite (and/or other phases).

Project’s Details

Name of the proposed project	Proposed Construction of Re-Rolling Steel Mill the Extension Project of Hunza Steel Private Limited.
Purpose of the project	Making of Deformed Steel bar Grade 60 & Grade 40
PROCESS DETAILS	
Manufacturing Process	Deformed Steel bar Grade 60 & Grade 40
Finished Products	Steel Bar
Capacity	300MT per day
Description of process	In the process, the steel bars will be produced in grades 60 & 40 as per ASTM standards.
LAND/ AREA DETAILS	
Total Area of the existing unit	65875SFT
STATUS AND LOCATION	
Location of the proposed site	Dargai Shah Layyah Road, 18-Hazari District Jhang.
Current Status of the site area	Proposed Re-Rolling Steel Mill the Extension Project of Hunza Steel Private Limited.

Current Status of the surrounding areas	Many industrial units are already working in the vicinity of the subject site area
WATER REQUIREMENT	
Water consumption for the project	Approx. 500-600 gallons water is required for the operation of the existing unit For firefighting purpose, water tank available. Water will also be used for domestic purpose which will be treated through wastewater treatment facility before disposal.
Ways of extraction	Motor pump/ Turbine
Source of Water consumption	Underground (for process), Reutilization (for plantation/ domestic activities).
Source of waste water	Operation and Domestic activities.
SOLID WASTE	
Source of solid waste generation	Operation and Domestic sources i.e., Raw material packaging bags/ containers/ iron and domestic trash.
Mode of disposal	Will be handed over to contractors
MANPOWER	
Labor Force	About 50-70 person during operation
POWER REQUIREMENTS	
Source of power	Power requirements at the project site will be fulfilled by WAPDA/ standby power house. Standby generators only utilized in case of load shedding.

Safety trainings:

Workers and all the staff will be provided with proper training about the work and safety practices.

Personal Protective Equipment (PPEs):

Workers will be provided with PPEs as Masks, Gloves, Helmets, Safety shoes, Ear plugs, Ear muffs & other personal protective equipment during the working hours to insure personnel

health & safety. Implementation of PPEs will be ensured by the proponent for the proposed project.

Risk Assessment and Disaster Management Plan:

Survey was conducted for the said subject project and according to the studies and local people of the area the subject area is not natural disaster prone i.e., flooding.

Occupational Exposure Mitigation Planning:

To control any occupational health and safety impact a detailed planning for mitigation measures has been done in the design stage of the project. Apart from the occupational exposure mitigation plans for various activities and work areas of hazards i.e., firefighting arrangements, following existing administrative control measures will be extended to and followed. All employees will be trained for EHS policies and practices.

The management will develop environmental management plan to implement the mitigation measures further. The plan will include institutional measures such as occupational health & safety planning and environmental compliance monitoring for environmental parameters.

Use of Drugs and Narcotics:

Drugs and narcotics are strictly prohibited during working hours in working area. Smoking will be only allowed in rest timings at properly isolated places.

Security:

The site will be fenced properly especially during project activity to avoid any unwanted entrance. Safety signs & boards should be placed at site during operational activity

Plantation

Plantation will be done within and outside of the proposed project.

Restoration / Rehabilitation Plan

All possible precautions are taken to prevent an untoward incident in terms of life and property losses. The waste materials will possibly be reused and recycled. All emission sources will be monitored and machinery will be maintained regularly.

On completion of the project, the debris will be removed from the site in order to maintain aesthetics of the project. All measures are undertaken for ensuring occupational safety, security

and clean environment in the project area. Ornamental trees and flower plants will be planted inside/ surroundings of the unit premises to restore the land.

Government Approvals Required by the Project:

Relevant Governmental approvals/NOCs from various departments has been obtained and are attached as **ANNEXURE-A**.

CHAPTER # 3

DESCRIPTION OF ENVIRONMENT

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

Physical Environment/ Resources

Topography:

Jhang is one of the oldest districts on the subcontinent (being one of five districts established in Punjab in 1849), having being populated even around 2,000 BC, when it was known as Jhagi Sial. Jhang is bordered by Sargodha District to the north, Gujranwala District to the northeast, Faisalabad District and Toba Tek Singh District to the east, Khanewal and Muzaffargarh District to the south, Leyah District and Bhakkar District to the west, and Khushab District to the northwest.

The district comprises on four administrative units (tehsils) Jhang, Athara Hazari, Shorkot, and Ahmad Pur Sial. Jhang District covers 8,809 km². Almost all the area is cultivatable land except in the north near Rabwah and Chenab Nagar where the land turns rocky as it approaches the Kirana hills. The western portion of the district holds the Thal Desert, which starts in Mari Shah Sakhira and extends to banks of the Jhelum River far to the west in the districts of Khushab and Bhakkar. There is also an area known as the Sandal Bar arising from Pabbarwala near the Gujranwala boundary. "Bar", in the local language, means a forested area where there are no resources for cultivation, like water. This area used to be forested and was unable to be cultivated before British colonial rule, when a canal system was installed near the town of Lyallpur (now Faisalabad), which is now the textile industry hub of Pakistan. Between the rivers Jhelum and Chenab is also a small area of Kirana bar, ending at Ghoriwala village. The area alongside the banks of rivers Ravi, Chenab and Jhelum is called Hitthar (area in which flood water reaches), while the upland area between the bars and Hitthar is called Utar.

Soils:

The surface of the district presents three distinct levels i.e. Sand Dunes of Thal on the extreme West, low lying river valley in the center and old Sandal Bar on the extreme East. The rivers

of Jhelum and Chenab make their way through the district and Trimmu Head-works is the point of their confluence.

Climate:

The climate is hot and dry in the summer and cold and dry in winter. The surface of the district presents three distinct levels (Thal's sand dunes on the extreme west, a low lying river valley in the centre and the Sandal Bar on the extreme east). The rivers of Jhelum and Chenab make their way through the district and Trimmu Head-works is the point of their confluence. Mari Shah Sakhira, a big town in the Thal Desert, is the district's hottest area, sometimes exceeding 50 C in June and July.

Air Quality:

The project is located in District Jhang. The major sources of air pollution in the area are vehicular traffic and surrounding factories.

To record the baseline ambient air quality of the project area, three samples were collected at different location to observe the level of CO, SO₂, NO₂ and Particulate Matter (PM10). The results of the samples are within the NEQS limits.

Noise Level:

Major sources of noise generation are vehicular traffic along the main road. Noise levels were monitored at different location of the project site. The noise levels are falling in the range of 42-72 dB (A).

Surface water:

The surface water is of good quality. All the parameters are within the NEQS.

Ground water:

Underground water is available in large quantity and its quality is good. The underground water is supplied by pumping system (tube well) to the residents of the area. The underground water is of good quality and all its parameters being tested are within the WHO guide lines and the water is fit for drinking purposes.

Lab reports are attached as Annexure E.

Demographics:

Population

The 2017 Pakistan Census reported the population of District Jhang to be approximately 2.74 million. This population is a mix of rural and urban dwellers, with a significant majority living in rural areas, reflecting the overall trend in many parts of Pakistan.

Agriculture and Fruits

District Jhang, being primarily an agrarian economy, is involved in the cultivation of various crops, including both food and cash crops. The agriculture sector prominently includes:

Wheat and Sugarcane: These are among the major crops. Wheat is a staple food grain, while sugarcane is important for sugar and related industries.

Cotton: Significant for the textile industry, cotton is another important cash crop in the region.

Rice: Also a staple, rice is cultivated in areas suitable for its growth.

Regarding fruits and other agricultural produce, while specific data on types and quantities might not be readily available without the latest agricultural reports, Punjab province, in general, is known for producing a variety of fruits such as:

Citrus fruits: Including oranges (kinnow, a mandarin variety is widely popular), which are significant export products of Pakistan.

Mangoes: Pakistan is one of the largest mango producers, and Punjab contributes a considerable share.

Guavas, Dates, and Pomegranates: These are also grown in various parts of Punjab, including districts with agro-climatic conditions similar to Jhang.

District Jhang, with its rural majority and agrarian economy, likely participates in the cultivation of these or similar fruits, contributing to both local consumption and broader markets.

Challenges and Considerations

It's important to note that agricultural production, including fruits, can be influenced by several factors such as water availability, climate change, and economic policies. District Jhang, like

many parts of rural Punjab, faces challenges including water management for irrigation, market access for farmers, and climate-related issues.

Language

Punjabi is the native language of the province and is the most widely spoken language in Jhang. Punjabi is the primary means of communication in both the city and adjoining rural areas.

Ecological Resources

Fisheries:

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

Biodiversity:

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

Flora:

The District's trees consist of *Prosopis juliflora* (mesquite), jand (*Prosopis spicigera*), karir (*Capparis aphylla*), beri (*Zizyphus jujuba*), van (*Salvadora oleoides*), kikar (*Acacia nilotica*), Shisham (*Dalbergia sissoo*) and aak (*Calotropis spp.*). Various herbs can also be found, including harmal, akrey and bathoo.



Plantation on project site

Fauna:

There is no any fauna in the selected site.

Rare or endangered species:

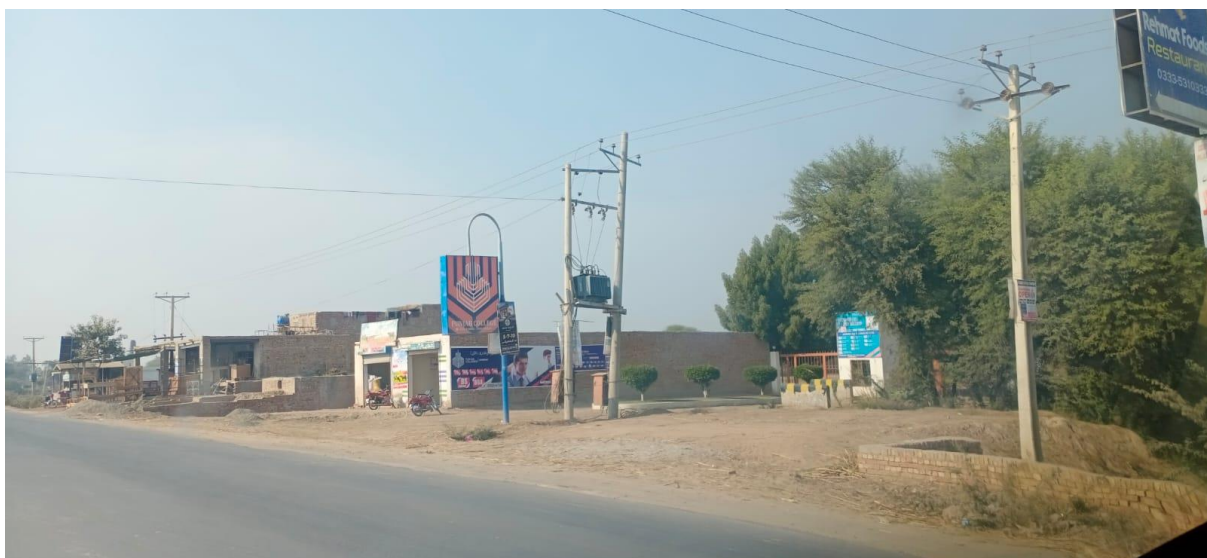
There are no game reserves or protected lands/areas or endangered or rare species either in the area in the range of 5 km from the project site.

Social and Cultural Study

Education:

District has number of educational institutions some important names are given below.

- Faran Model College, Jhang
- Punjab College, Jhang
- I-Soft College of Commerce and Computer Sciences Jhang



Punjab College, Jhang

Health Resources

Public

Details of physical infrastructure of public health facilities in the district are given in the table below:

Facility Type	Name/Number of Facility	Bed Strength	No. of Functional Beds
DHQ Hospital	1	253	253
THQ Hospital	2	120	120
RHCs	9	180	180
BHUs	58	116	116
Govt. Rural Dispensaries	2	0	0
MCH Centers	6	0	0
Sub Health Centers	31	0	0
TB Clinics	1	16	0

Facility Type	Name/Number of Facility	Bed Strength	No. of Functional Beds
Health houses	1394	0	0

Source: DHIS/EDOH office

Private

The district has provided a list of private service providers including hospitals, clinics, laboratories and maternity homes. These private providers are used for providing support in preventive programs like Polio and other EPI activities

Recreational Resources and Development:

The project area has not any private recreational facilities.

Aesthetic Values:

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

Archaeological and Historical Treasures:

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

CHAPTER # 4

ANALYSIS OF ALTERNATIVES

This Chapter deals with the analytical overview of different alternatives that have been considered. The analysis has been carried out critically so as to justify the need of the Project and to select the most feasible alternative. Besides the economic viability; environmental sustainability and social soundness of the proposed Project has also been considered while analyzing different alternatives.

THE NO PROJECT ALTERNATIVE

Adopting zero-alternative would mean abandoning all the potential that the site offers to investor(s), contribution to government revenue and even local community livelihoods' improvement.

LOCATION/SITE ALTERNATIVES

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

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

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

ALTERNATIVE SITE

No Alternative site has been considered due to insignificant environmental impacts. The proposed site fulfills the site selection criteria.

MODIFIED CONSTRUCTION TECHNOLOGY ALTERNATIVES

As the project site is located in the premises of Hunza Steel Private Limited so there is no any construction technology alternative involves in the said project

TECHNOLOGY ALTERNATIVES

M/s Hunza Steel Private Limited will install the best efficient machinery of the plant the proponent is ensuring the technology equipped with pollution abatement system.

A state-of-the-art system of Hunza Steel controls the operations. The system used a state-of-the-art calibration mechanism.

CHAPTER # 5

SCREENING OF POTENTIAL ENVIRONMENTAL IMPACTS & MITIGATION MEASURES

Assessing impacts:

The following chapter describes the overall possible impacts of project on the physical, biological and socioeconomic environment because of operation phases and mitigation measures to minimize the significance of the possible impacts up to an acceptable level. The anticipated impacts related to project location, design, installation and operational phases have been assessed and mitigation measures are provided accordingly.

Environmental impacts due to project location:

Site for the subject project is located at Dargai shah Layyah Road, 18-Hazari Jhang. No nearby fresh water channel in the surroundings of the project site and no adjacent human settlement near the project site. Site does not fall in the category of sensitive area and no environmentally sensitive localities exist within radius of study area.

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

Mitigation Measures for location phase impacts:

- Rehabilitation and plantation will be done to reduce long term serious effects.
- Safe drinking water, Heat stroke center and shelters will be providing to workers in summer.
- Proper parking area and traffic should be regulated to ensure better traffic conditions in the area.

Environmental Impacts due to the project design:

Subject project is proposed Construction of Re-Rolling Steel Mill unit under the name of M/s Hunza Steel Private Limited. Area for parking, wastewater treatment facility and solid waste management will be reserved within industry. Firefighting plan, health & safety plan, tree plantation plan, emergency response plan will be incorporated during the design phase of the project.

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

- Low utilization of available space
- Soil structure and soil bearing capacity
- Improper road infrastructure design
- Emergency exit in the proposed project
- Firefighting system
- Wastewater disposal system design
- Rain water harvesting capacity of the drainage system
- Electricity hazards
- Low social acceptability & functionality of design

Impact significance: moderate to high

Nature of impact: direct

Duration: Long-term

Timing: Constructional phase & Operation phase

Reversibility: NA

Likelihood: moderate to high

Consequences: moderate to high

Mitigation measures and recommendations

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

- Industrial unit will incorporate all HSE measures regarding the design of project.
- Structure stability of the building should be ensured.
- Emergency exist points should be marked within the project building and in overall plan.
- Firefighting system should be designed for the emergency situations.
- Electricity system should be design safe and sound.
- Electricity wires should be covered by thick plastic/electricity resistant covers.
- Design should be professional which accommodate the maximum space and has high social acceptability & functionality

Environmental Impacts during Construction Phase:

Impacts on Physical Environment

Topography

Project has plan land and some digs. In the proposed area there are little trees and excavation and leveling is involved in this construction.

Impact:

- Change in topography due to excavation
- Land filling of the area
- Construction of roads

Impact significance: Low

Nature of impact: Direct

Duration: Short-term

Timing: Constructional phase

Reversibility: NA

Likelihood: moderate

Consequences: Very Low

Mitigation:

- Cuttings of trees will be avoided
- Use of existing paved tracks as many as possible.
- Working should be in such a way that minimum excavation is involved

Air Quality:

Air quality will be affected by fugitive dust emissions from construction machinery; dust from the unpaved surface and construction vehicles. The critical sources of dust pollution during the construction phase will be;

- Unpaved road surface
- Transportation of materials and other construction activities that create dust emissions

Impact significance: Low

Nature of impact: Direct

Duration: Short-term

Timing: Constructional phase

Reversibility: NA

Likelihood: moderate

Consequences: Very Low

Impact:

Air quality deterioration, particulate matter/dust emissions due to construction activities; stand by generator (if any), equipment's and vehicle.

Mitigation:

- Sprinkling of water on track will reduce dust pollution
- Provision of dust masks for workers.
- Air quality monitoring is recommended on regular base
- Proper paved road infrastructure is recommended
- All vehicles, machinery, equipment and generators used during construction activities should be kept in good working condition and be properly tuned and maintained in order to minimize the exhaust emissions
- Blowing of dust and particulate matter from stockpiled loose materials (e.g., sand, soil) should be avoided either by sheeting them with tarpaulin or plastic sheets or by sprinkling them with light shower of water
- Open burning of solid waste from the Contractor's should be strictly banned;

Noise

Noise is a by-product of human activity, and area of exposure increases as function of mobility and construction activities. Sources of noise during construction are heavy machinery such as bulldozers, excavators, stabilizers and other equipment. Noise generated by construction machinery is likely to affect sensitive receptors located within 50 meters of the proposed Project.

Impact

- Persistently higher noise levels can produce psychological effects of distraction of attention, irritation and short temperedness in the exposed persons
- Noisy settings and higher background levels can cause temporary threshold shift and the consequent habit of speaking loudly, which may cause damage to vocal cords in the persons exposed
- Noise produced from moving construction vehicles and blowing of pressure horns, at times, could be intolerable particularly during quiet hours of night

Impact significance: Low

Nature of impact: Direct

Duration: Short-term

Timing: Constructional phase

Reversibility: NA

Likelihood: moderate

Consequences: Low

Mitigation:

- Selection of up-to-date and well-maintained plant or equipment with reduced noise levels ensured by suitable in-built damping techniques or appropriate muffling devices
- Confining excessively noisy work to normal working hours in the day, as far as possible
- Providing the construction workers with suitable hearing protection like ear cap, or earmuffs and training them in their use
- Preferably, restricting construction vehicles movement during night time
- Vehicles and equipment used should be fitted, as applicable, with silencers and properly maintained
- Use of low noise machinery, or machinery with noise shielding and absorption
- Contractors should comply with submitted work schedule, keeping noisy operations away from sensitive points; implement regular maintenance and repairs; and employ strict implementation of operation procedures

Water Resources

There will be no significant surface water resource of the project area so there will be no impact on surface water quality during the construction of the project area. Persistent and prolonged withdrawal of groundwater higher than the safe yield limits of the aquifer can initiate early depletion of aquifer. This situation can result in reduced water supplies for other users who share the same groundwater resource. Abstraction of the groundwater over and above the safe yield limit can produce serious hydrological and environmental consequences.

Impact:

- Early depletion of the aquifer resources
- Persistent lowering of the water table
- Reduced availability or non-availability of the groundwater to the neighboring communities sharing the same aquifer

These impacts are temporary and minor negative in nature

Impact significance: Low

Nature of impact: Direct

Duration: Short-term

Timing: Constructional phase

Reversibility: NA

Likelihood: moderate

Consequences: Low

Mitigation:

- Water required for construction will be obtained in such a way that the water availability and supply to nearby communities remain unaffected
- Regular water quality monitoring according to determined sampling schedule
- Prohibit washing of machinery and vehicles in surface waters, provide sealed washing basins and collect wastewater in sedimentation/retention pond
- Continuous withdrawal and over pumping of groundwater should be avoided. Instead, intermittent pumping be carried out to conserve the groundwater resources

- Take precautions construct temporary or permanent devices to prevent water pollution due to increased siltation

Soil

The project area is open land with no paved area. Soil erosion and contamination may occur on site due to the following likely impacts:

Impact:

- Excavation of earth/cutting operations
- Land leveling activities
- If the excavated area will be left unfilled for long, which may lead to rainfall induced soil erosion;
- The unspent materials and debris produced from consumed up materials, if left as such and allowed to mix with soil underneath, can degrade the quality of receiving soils and may render them unfit for plantation later on
- Leakages of oils, lubricants, chemicals, and other similar substances from their storage sites and from engines of the generators, machines, equipment and vehicles can spoil the receiving soils and may undermine ability of the spoiled soils to support growth of vegetation and plants (if any)
- Non-provision of septic tanks with the temporary worksite toilets, constructed for the labor and others, can contaminate the effluent receiving soils because of raw nature of the effluents
- Washing of the gadgets, machinery and equipment without proper drainage of the washout water can adversely affect the soil quality. This impact is, however, temporary.
- Onsite storage of the construction materials such as sand, aggregate, crushed stone, cement, bricks, lubricants, fuels and iron bars on the land without an intervening barrier, can degrade soil quality and may smear them with fine particulates of the dumped material

Impact significance: Low to Moderate

Nature of impact: Direct

Duration: Short-term

Timing: Constructional phase

Reversibility: NA

Likelihood: moderate

Consequences: Low

Mitigation:

- Non-bituminous wastes from construction activities will be dumped in approved sites, in line with the legal prescriptions for dumpsites, and covered
- As applicable and needed, plantation of grasses and shrubs will be done at appropriate place where required
- Unnecessary excavations should be avoided
- Oils, lubricants, chemicals, and other listed hazardous materials should be stored safely at their designated spots, enclosures or store rooms, which should be safe from rainfall and away from any potential source of fire
- Septic tanks of adequate capacities should be constructed for receiving and treating wastewater from all temporary worksite toilets and at the temporary container offices, if any. The toilet wastewater should not be discharged untreated onto the adjacent lands
- All machineries and materials should be stored at the designated areas and compounds
- All the unspent and left-over materials should be completely removed offsite upon completion of construction
- Washout from washing of equipment and gadgets should be drained into either a septic tank or a sand-gravel bed for removal of the grit and contaminants

Wastewater

Impact:

Wastewater generation due to construction activities. Sources of wastewater during construction include;

- Construction site surface runoff
- Wastewater from vehicle washing
- Wastewater from boring works

Mitigation:

- Wastewater generated during construction and domestic activities will be stored temporarily in septic systems comprising of septic tanks from where it will be routed to local drain/ nallah present near the project.

- Waste segregation measures will be employed to minimize entry of solid waste into the wastewater stream.
- An appropriately designed septic tank will be used to treat sewage/wastewater to achieve PEQS
- Periodic cleaning of the septic tank is recommended.

Solid Waste

Due to construction activities waste will be generated at construction and contractors camp site. The construction waste will include wastewater, oil spillage from machinery, domestic waste and solid waste etc. The handling and storage of oil, asphalt/bitumen may be a source of environmental pollution as a hazardous waste. This will result in unhygienic conditions, health risk to work force and public at the camp site.

Impact

- Insecure and unhygienic disposal of the solid wastes generated at the worksite, particularly garbage and trash may cause degradation of soil and land
- Insecurely disposed off heaps of wastes containing kitchen garbage and food waste can serve as breeding grounds for the disease spreading vectors and rodents
- Throwing away of solid wastes into water channels and the wastewater network can result into choking of the latter.

Impact significance: Low

Nature of impact: Direct

Duration: Short-term

Timing: Constructional phase

Reversibility: NA

Likelihood: moderate

Consequences: Moderate

Mitigation:

- An efficient and responsive solid waste management system should be devised for the entire duration of the construction phase. Such a system should provide for separate collection of different categories of constructional wastes. The wastes which will be

reusable/recyclable (iron bars, aluminum) should be sold to waste vendors and those which cannot be sold out (brick pieces) may be used as a filling material for leveling the depressions, subject to technical feasibility

- Training of working force in the storage and handling of materials and chemicals that can potentially cause soil contamination
- Solid waste generated during construction and camp sites will be safely disposed in demarcated waste disposal sites or handed over to the contractor

Health and Safety

Health risks and work safety problems may result at the workplace if the working conditions provide unsafe and/or unfavorable working environment and due to storage, handling and transport of hazardous construction material. Workers should be provided with safe and healthy working environment taking into account risks inherent to the particular sector and specific classes of hazards in project area. Mitigation measures will include:

Impact significance: Low to Moderate

Nature of impact: Direct

Duration: Short-term

Timing: Constructional phase

Reversibility: NA

Likelihood: moderate

Consequences: Moderate

Mitigation:

- Providing basic medical training to specified work staff and basic medical service and supplies to workers
- Layout plan for site, indicating safety measures taken by the contractor, e.g., firefighting equipment, safe storage of hazardous material, first aid, security, fencing, and contingency measures in case of accidents
- Work safety measures and good workmanship practices are to be followed by the contractor to ensure no health risks for laborer's

- Protection devices (ear muffs) should be provided to the workers doing job in the vicinity of high noise generating machines
- Provision of adequate sanitation, washing, cooking and dormitory facilities including light up to satisfaction
- Provision of protective clothing for laborers handling hazardous materials, e.g., helmet, adequate footwear for bituminous pavement works, protective goggles, gloves etc.
- Ensure strict use of wearing these protective clothing during work activities
- Instruct foremen to strictly enforce the keeping out of non-working persons, particularly children, off work sites
- Adequate signage, lightning devices, barriers, yellow tape and persons with flags during construction to manage traffic at construction sites, haulage and access roads.

Impact on Biological Environment

There is no any fauna or flora is present on the proposed project site. Few trees are there. On their behalf a complete plantation plan has been provided.

Impact on Socio-economic Environment

Economic Activity

Due to the construction of the proposed Project, economic activity will be generated in the project area as the laborers and semi-skilled staff will have an opportunity to work for the construction of the proposed project. This will help in developing their skills and capacities. This is a moderate positive impact.

Lifestyle and Culture

There are chances of arising of issues related to cultural differences/conflict between the Contractor's workforce and the local inhabitants, conflicts arising due to the mix of local and migratory job seekers as the use of local resources and products will be increased. In this situation, local residents may resist contractor's workforce attitudes, cultural clashes particularly when local/international contractors are engaged, social disturbance and dissatisfaction with employing outsiders may arise. This impact is temporary and minor negative in nature.

Mitigation

- Timely public notification and announcement of mobilizing equipment
- Local labor should be employed for construction works

Potential Impacts during operational phase:

Methodology for impact evaluation:

The methodology adopted for impact evaluation includes the Modified Leopold Matrix.

The analysis is performed with the Leopold Matrix (LM). This matrix has:

1. On the horizontal axis, the actions which cause environmental impact, and
2. On the vertical axis, the existing environmental conditions which may be affected by those actions.

This provides a format for comprehensive review of the interactions between proposed actions and environmental factors.

The most important blocks marked are evaluated individually, and a number between 0 and 10 is placed in the upper left-hand corner to indicate the relative magnitude of the impact (0 represents the least magnitude, and 10 the greatest). Likewise, a number between 0 and 10 is placed in the lower right-hand corner to indicate the relative importance of the impact (again, 0 represents the least magnitude and 10 the greatest).

Table 1: Scale for impact assessment (Significance & Magnitude)

Sr. No.	Type of Impact	Scale of Magnitude (0 – 10)	Scale of Importance (0 – 10)
1	No Impact	0	0
2	Low Impact	1 – 4	1 – 4
3	Medium Impact	5 – 6	5 – 6
4	High Impact	7– 10	7– 10

Over all the impact of project is positive in term of employment and infrastructure improvement. Mostly the average values are falling in 1.5 – 3 range which means the overall impact is low e.g., biodiversity, occupational hazards, solid waste and air emissions impact but for wastewater and water consumption score is high if mitigation measures will not adopt. To counter with the negative impacts Environmental Management Plan is formulated which will be ensured by the project proponent. Beside this environmental monitoring plan is also formulated for

environmental monitoring of various parameters which will be also implemented by the proponent.

Impact analysis and prediction:

In order to evaluate the socioeconomic and environmental impacts, filed surveys are extremely essential. In addition to the surveys, consultation with the community and their active participation plays a vital role in successful implementation of the project. For the impact analysis and predictions following methods were adopted:

Consultations/ case studies:

To study the impacts of the project on physical and biological environment, site visits were conducted by the environmental practitioners and experts and possible physical and biological impacts which may arise due to the subject project were identified through consultations and case studies and their mitigation measures were suggested accordingly.

Meetings:

For the identification of the social impacts of the project, meetings and group discussions were held with the local people, stakeholders, nearby residents and passerby because social acceptability of the project and the area is a key to success. Consultation with the stakeholders is a tool for managing two-way communication between the project proponent and the affected public. Its goal is to improve decision making and built understanding by actively involving individuals, groups and organizations, which have stake in the project. This involvement increases project's long-term viability and enhances its benefits to locally affected people and other stakeholders.

Impact assessment criteria:

The impacts were assessed in the light of criteria given as under:

- Magnitude or degree of impact
- Time and duration of impact
- Likelihood of impact occurrence
- Sensitivity of impact
- Risk related to impact

Air Quality:

Emissions can be produced by, standby generators and project in terms of the resulting pollutants (CO₂, CO, SO_x, NO_x, PM, etc.)

Nature of impact: Direct

Duration: long term

Timing: operation

Reversibility: irreversible

Likelihood: moderate if mitigation measures are being ensured.

Consequences: minor, if pollutants level in the ambient air is being controlled within acceptable limits by adopting proper mitigations.

Impact significance: high, if pollution control measures not taken, minor to moderate if fully adopted.

Mitigation Measures:

- Industry should ensure the PEQS compliance and should not be allowed to emit hazardous pollutants.
- Air Emission Control Measures are recommended to control the air emissions.
- Maximum possible plantation is recommended as it absorbs gaseous emissions as well as prevent lower atmospheric dust to move along with the air action.
- All project related machinery, standby generators, vehicles will be checked regularly to ensure that are in sound working condition and are not emitting smoke.
- Regular monitoring as per PEQS is recommended for ambient air and stack emissions.
- Proponent should keep the records of monitoring and equipment maintenance.

Water:

Wastewater will be generated from process.

Nature of impact: Direct

Duration: long term

Timing: operation

Reversibility: Not applicable

Likelihood: moderate if mitigation measures are being ensured.

Consequences: minor, if pollutants level in the wastewater is being controlled within acceptable limits by adopting proper mitigations.

Impact significance: moderate, based upon low likelihood and if measures are adopted.

Mitigation measure:

- Industry should construct treatment facility to treat its wastewater before its final disposal.
- Compliance of PEQS for Effluents should be ensured.
- Monitoring should be conducted as per PEQS and record should be maintained.
- Reuse of treated wastewater/ rejected RO water for associated activities is recommended.

Noise:

Noise is a by-product of human activity, and area of exposure increases as function of mobility and operational activities. Noise will be the major concern during the operation phase. It can be generated from the machinery used for operations i.e., loading and unloading of material, generators, plant production machinery.

Nature of impact: Direct

Duration: long term

Timing: operation

Reversibility: Not applicable

Likelihood: low

Consequences: slightly significant

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

Mitigation measures:

If the noise level will exceed the permissible limits with reference to national and OSHA standards, following recommendations are suggested to take action against the high noise levels:

- Activities generating high levels of noise should be minimized at the project site.
- Personal Protective Equipment PPEs including Ear muffs, Ear plugs and other noise abating equipment will be provided to the workers and other staff in case of noise at the project site.
- Sound proof/ covered buildings should be built for placement of machinery, generators (if any) to be installed at the project site to control the noise.
- Proper tuning of machinery is recommended.
- Rubber wounds/ vibration control platforms should be placed underneath the machinery/ generator to avoid the vibration.
- Speed/ horn restriction should be imposed on all project related vehicles.
- Regular monitoring as per NEQS/ OSHA standards and record keeping is recommended.

Solid waste:

In the operation of said project proper solid waste management system is being adopted for the prompt, timely and efficient disposal of solid waste for the reduction of its impacts. Impacts due to solid waste may be temporary and minor in nature.

Nature of impact: Direct

Duration: Short term

Timing: operation

Reversibility: Not applicable

Likelihood: Low (unlikely) if mitigation measures are being ensured that Solid waste management in efficient way.

Consequences: Mild, as it is being removed from site within few hours

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

Mitigation measures:

- Devise plan & develop guidelines for the safe handling, storage & disposal;
- PPEs are strongly recommended for workers for the handling of hazardous waste (if any);
- Separate bins at various places will be present for solid waste collection and segregation;
- Waste will be handed over to local waste contractor;
- Solid waste should be recycled and reuse at maximum level;
- Industrial ecology practices are being implemented wherever possible;
- 3R's of sustainability is recommended;

Energy:

Energy consumption in industrial area is usually very high. Machinery work runs all day in different industries. Energy conservation technique should be in mind.

Mitigation measures

- Do not waste the energy/ electricity when there is no need of it.
- Use energy efficient machinery and equipment
- Use energy saving products
- Conduct and maintain records for energy audits
- Do not leave the machinery in running form when there is no working being done
- Machinery will never be left unattended

- Renewable sources of energy are recommended to reduce dependency on fossil fuel.

Health and safety:

Health risks and work safety problems may result at the workplace if the working conditions provide unsafe and/or unfavorable working environment and due to storage, handling and transport of hazardous material. Workers should be provided with safe and healthy working environment taking into account risks inherent to the particular sector and specific classes of hazards in project area. Mitigation measures will include:

Mitigation:

- An HSE department should be established to look after the worker and community's health, safety & environment related issues, headed by HSE officer.
- Proper training of workers and staff should be conducted to avoid the accidents.
- Use of PPEs should be implemented at workplace.
- First aid measures/ medical facility should be provided at the project site.
- Safe drinking water is being provided to workers and staff.
- Safety signs & boards should be placed during operational activities.
- Smoking or any drugs should be prohibited during working hours or performing work.
- Fire Fighting Arrangements/ Equipment should be installed and responsibility should be assigned for firefighting in emergency situation.
- SOPs for operational activities should be formulated and implemented.
- Regular review meetings should be arranged to assess the efficacy of EMP.

Soil Contamination:

leaching from storage sites, Oil and chemical spills can contaminate the soil.

Mitigation measures:

- Raw material/ chemical/ oil should be stored in properly constructed covered paved area to prevent leaching of contaminants in soil. i.e., in rainy seasons.
- Provision of spill prevention and control kits.
- Use of impermeable surfaces in workshops, and storage areas;

Impact on socio-economic environment:

Due to the proposed project, economic activity will be generated in the project area as the laborers and semi-skilled staff will have an opportunity to work for the proposed project. This will provide them an employment opportunity close to their homes. This is a positive impact.

Potential environmental enhancement measures:

Following necessary measures should be adopted during operational phase of the project and most of them are being adopted:

- Sprinkling of water should done on dusty roads and tracks.
- Machinery should never be left unattended.
- Efforts should also be made to discuss traffic conditions so that regular traffic is not disturbed. Transporters engaged for the project would be forced to adhere to the load specifications of the access road. No overloading should be allowed in any case.
- Machinery should be kept maintained.
- Wastewater will be treated through WWTP that is already installed within the premises of the subject project.
- Proper SOPs will be followed with proper schedule along with the HSE conditions.
- A proper tree plantation plan is formulated to save the environment.
- Solid waste will be handled properly.
- Noise will be controlled by adopting proper measures.
- PPEs will be provided to workers during working.
- Hygienic conditions should be ensured and proper quality will be maintained by management.
- First aid facilities should have been made available.

Purpose of Mitigation measures:

What is the problem i.e. In terms of “major environmental impacts” which may arise by the subject project activity?

The major impacts which may arise by the subject project are air and noise pollution. Other impacts are of minor importance. These impacts may arise during operational phase of the project, during the operational phase of the subject project, it will be ensured that precautionary measures are being adopted, during the activity and post activity to cause minimum impacts to the environment.

When the problem will occur and when it should be addressed?

Negative impacts may arise during the operational phase of the project if proper precautionary measures and procedures are not being followed. If proper precautionary measures and procedures are being implemented, there should not be any major problem. If any impact would arise due to the subject project activity, it will be addressed on site. Trainings is being conducted on site while other precautionary measures will also be adopted to make the project safe and environment friendly.

Where and how the problem should be addressed?

The problem should be address at the site and immediate response should be provided to address the problem which may arise. Institutional capacity responsible for the implementation of EMMP is responsible for addressing such problems if arise.

CHAPTER#6

ENVIRONMENTAL MANAGEMENT PLAN & MONITORING PROGRAM

The primary objectives of the EMMP are to:

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

Institutional capacity:

The overall responsibility for compliance with the environmental management plan rests with the project proponent. He will appoint a HSE/ Project manager of relevant qualification. HSE/ Project manager is acting as Environmental Manager and is managing all HSE conditions according to the PEQS.

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

Following functionaries will be involved in the implementation of EMP:

- Project Proponent
- HSE Officer
- In-Charge Administration
- Supervisor of project

Training Schedule:

Training for the management and workers on environmental aspects of the project is being arranged during the operational phase of the project.

Table :Proposed training schedule

Sr. No.	Description of program	Labor/ Personnel involved	Time/ duration
1)	General HSE Training	Trainers and whole labor	Quarterly for 1 hour
2)	Instrument use/ workplace specific items	Trainers and whole labor	Quarterly for 1 hour
3)	PPEs use and safe work practices at work site.	Trainers and whole labor	Quarterly for 1 hour
4)	Reporting and investigating accidents/ incidents	Trainers and whole labor	Quarterly for 1 hour
5)	Emergency procedures	Trainers and whole labor	Quarterly for 1 hour
6)	Medical and first aid	Trainers and whole labor	Quarterly for 1 hour
7)	Health and safety promotion	Trainers and whole labor	Quarterly for 1 hour

In order to raise the level of professional and managerial staff, there is a need to upgrade their knowledge in the related areas. HSE/Project Manager should play a key role in this respect and arrange the training programs. HSE/Project Manager will provide training to staff and workers about the best environmental management practices. The training modules will include air, noise and water pollution monitoring, social awareness, Environmental Laws, Punjab Environmental Quality Standards (PEQS), Usage of personal protection equipment, and health and safety related issues on the project site.

The HSE/Project Manager will train all workers & staff in basic sanitation and health care issues (e.g., how to avoid malaria and transmission of Sexually Transmitted Infections (STI) HIV/AIDS and in general health and safety matters, and on the specific hazards of their work. Training

should also consist of basic hazard awareness, site specific hazards, safe work practices, and emergency procedures for fire, evacuation.

**SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES
DURING CONSTRUCTION PHASE**

SUMMARY OF IMPACTS DURING CONSTRUCTION PHASE		
Potential Impacts	Criteria for determining Significance	Key Mitigation Measures
<p>Dust Emissions— Dust and PM may be generated during construction, movement on unpaved area and excavation activities.</p> <p>Gaseous emissions from site generators and transportation vehicles may affect ambient air quality in the vicinity of the project site.</p>	<p>An increase in visible dust beyond the boundaries of the construction site; or Concentration of PM₁₀ in excess of 150 µg/m³</p> <p>NEQS for Ambient Air</p>	<p>Sprinkling of water on dusty roads, tracts and surfaces is recommended;</p> <p>During excavation works drop heights will be minimized to control the fall of materials reducing dust escape;</p> <p>Use of wind shield around stockpiles is recommended;</p> <p>Vehicle speed restrictions should be applied in the project area;</p> <p>Raw materials should be transported in covered trucks;</p> <p>Face masks will be strictly implemented.</p> <p>Use of properly maintained and fit machinery for constructional activities.</p>
<p>Construction Noise- Noise may be generated during landscaping</p>	<p>OSHA standards</p>	<p>Activities generating high levels of noise should be minimized at the project site.</p> <p>If the noise level will exceed the permissible</p>

<p>activities and from generators and transportation vehicles at the project site; which may be a nuisance for the workers.</p>		<p>limits with reference to national and OSHA standards, following recommendations are suggested to take action against the high noise levels:</p> <ul style="list-style-type: none"> • Proper tuning of construction machinery and vehicles is recommended. • Ear muffs and ear plugs are recommended in case of high noise levels. • Rubber wounds should be placed underneath the generator to avoid the vibration.
<p>Solid waste Management— If solid waste will not be managed properly, it may cause negative impacts</p>	<p>Generation of excessive waste; Recyclable waste and reusable waste are discarded; Improper disposal</p>	<p>Constructional waste should be utilized for land filling and maintenance purposes; Domestic waste should be disposed off properly, handed over to contractors, placed in bins; Proper solid waste management plan should be devised and implemented.</p>
<p>Vegetation Loss/ Soil erosion— Minor negative impact may arise as only some weeds and grasses are present at the project site which will be cleared for the purpose of</p>	<p>Unnecessary or excessive removal of trees and shrubs.</p>	<p>No tree cutting/ vegetation loss issue will be involved in the subject project as project site is free of any dense vegetation and trees.</p> <p>Plantation including native and fruit trees at the completion of construction phase is recommended.</p>

construction.		
Soil Contamination — Oil and chemical spills can contaminate the soil.	Presence of visible amount of hydrocarbon in soil	Provision of spill prevention and control kits; Use of impermeable surfaces in workshops, and storage areas; Contaminated soil will be collected and incinerated.
Traffic issues — Traffic issues may arise due to the constructional activities at the project site if traffic will not be managed properly.	Traffic congestion and blockage of entry/ exit area	Ample parking area must be allocated at the project site. Guards/ should be hired to manage the traffic at the project site.
Socioeconomic impacts —Inter-cultural differences between the project staff from other areas and the local community may arise due to the subject project. Positive socioeconomic impacts due to	No community complaints Increased employment facilities in the area; Increased infrastructure	Training of the non-local project staff on local culture and norms; Avoidance of unnecessary interaction of local population with the non-local project staff. Employment opportunities should be provided to the local people.

<p>increased infrastructure, employment opportunities and economic growth.</p>		
<p>Health and safety issues- may arise due to improper handling of work and if precautionary measures will not be adopted.</p>	<p>OSHA Standards</p>	<p>Proper training of workers and staff should be conducted to avoid the accidents. Use of PPEs should be implemented at workplace.</p> <p>First aid measures/medical facility should be provided at the project site.</p> <p>Safe drinking water must be provided to workers and staff.</p> <p>Safety signs & boards should be placed during constructional activities.</p> <p>Construction site should be fenced properly to avoid any damage to nearby settlements.</p> <p>Smoking or any drugs should be prohibited during working hours or performing work.</p> <p>At the time of earthwork, fencing will be ensured for the area under the exploration.</p>

SUMMARY OF IMPACTS AND THEIR MITIGATION MEASURES OF OPERATION PHASE

Table: Summary of impacts during operation phase

SUMMARY OF IMPACTS DURING OPERATION PHASE		
Potential Impacts	Criteria for determining Significance	Key Mitigation Measures
<p>Air Emissions-</p> <p>During the operational phase of the project, gaseous emissions from project related activities and power sources may affect the air quality of the project area.</p> <p>Project activities can also impact the ambient air through release of PM.</p>	<p>PEQS for Ambient Air</p> <p>PEQS for Stack Emissions</p>	<p>Industry should ensure the NEQS compliance and should not be allowed to emit hazardous pollutants.</p> <p>Air Emission Control Measures are recommended to control the air emissions.</p> <p>Maximum possible plantation is recommended as it absorbs gaseous emissions as well as prevent lower atmospheric dust to move along with the air action.</p> <p>All project related machinery, standby generators, vehicles will be checked regularly to ensure that are in sound working condition and are not emitting smoke.</p> <p>Regular monitoring as per PEQS is recommended for ambient air and stack emissions.</p> <p>Proponent should keep the records of monitoring and equipment maintenance.</p>
<p>Noise- Noise due to industrial activity, machinery and generators can be a nuisance for the workers in the working area.</p>	<p>PEQS for ambient noise level.</p> <p>OSHA standards for covered working areas.</p>	<p>Activities generating high levels of noise should be minimized at the project site.</p> <p>If the noise level will exceed the permissible limits with reference to national and OSHA standards, following recommendations are suggested to take action against the high noise levels:</p> <ul style="list-style-type: none"> • Personal Protective Equipment PPEs including Ear muffs, Ear plugs and other noise abating equipment will be provided to the workers and other staff in case of noise at the project site.

		<ul style="list-style-type: none"> • Sound proof/ covered buildings should be built for placement of machinery i.e., generators (if any) to be installed at the project site to control the noise. • Proper tuning of machinery is recommended. • Rubber wounds/ vibration control platforms should be placed underneath the machinery/ generator to avoid the vibration. • Speed/ horn restriction should be imposed on all project related vehicles. • Maximum plantation is recommended within site area as it absorbs the noise waves and act as barrier. • Regular monitoring as per PEQS/ OSHA standards and record keeping is recommended.
<p>Discharge of wastewater- The discharge of untreated industrial effluents or municipal wastewater may be a negative impact of the subject project.</p>	<p>PEQS for Municipal and Liquid Industrial Effluents (mg/l, unless otherwise defined)</p>	<p>Industry has treatment facility to treat its wastewater before its final disposal.</p> <p>The process wastewater and domestic wastewater will be generated from the site which will be treated into existing wastewater treatment facility before disposal/ reuse.</p> <p>Treated wastewater will be used for plantation or can be used for sprinkling purpose on unpaved areas or simply drained out in nearby local drain present along with the northern boundary of the proposed site.</p> <p>Compliance of PEQS for Effluents should be ensured.</p> <p>Monitoring should be conducted as per PEQS and record should be maintained.</p>
<p>Health & Safety Issues- different operational activities at the project site may cause health and safety issues for workers if</p>	<p>OSHA Standards</p>	<p>An HSE department is established to look after the worker and community's health, safety & environment related issues, headed by HSE officer.</p> <p>Proper training of workers and staff should be conducted to avoid the accidents.</p>

<p>precautionary measures will not be adopted.</p>		<p>Use of PPEs should be implemented at workplace.</p> <p>First aid measures/ medical facility should be provided at the project site.</p> <p>Safe drinking water will be provided to workers and staff.</p> <p>Safety signs & boards should be placed during operational activities.</p> <p>Smoking or any drugs should be prohibited during working hours or performing work.</p> <p>Fire Fighting Arrangements/ Equipment should be installed and responsibility should be assigned for firefighting in emergency situation.</p> <p>SOPs for operational activities should be formulated and implemented.</p> <p>Regular review meetings should be arranged to assess the efficacy of EMP.</p>
<p>Soil Contamination— leaching from storage sites, Oil/chemical spills, solid waste and untreated wastewater disposal can contaminate the soil.</p>	<p>Presence of litter in soil.</p> <p>Untreated wastewater disposal.</p> <p>Presence of visible amount of hydrocarbon in soil.</p>	<p>Effective treatment of wastewater before disposal.</p> <p>Implementation of effective solid waste management plan.</p> <p>Oil/ chemicals/ raw material should be stored in properly constructed covered paved area to prevent leaching of contaminants in soil. i.e., in rainy seasons.</p> <p>Provision of spill prevention and control kits;</p> <p>Use of impermeable surfaces in workshops, and storage areas;</p>

<p>Solid waste management- If solid waste will not be managed properly, it may cause negative impacts.</p>	<p>Exposure to potentially hazardous waste; Generation of excessive waste; Recyclable waste and reusable waste is discarded; Littering; Improper disposal.</p>	<p>Solid waste from the sources should be disposed off properly by following SOPs. Proper solid waste management system is recommended for unit. Industrial ecology practices will be adopted wherever possible. 3R's of sustainability are recommended to achieve. Separate waste bins should be placed at suitable places.</p>
<p>Socioeconomic impacts—Inter-cultural differences between the project staff from other areas and the local community may arise. Positive socioeconomic impacts due to increased infrastructure, employment opportunities and economic growth.</p>	<p>No community complaints Increased employment facilities in the area; Increased infrastructure CSR Activities</p>	<p>Training of the non-local project staff on local culture and norms; Avoidance of unnecessary interaction of local population with the non-local project staff. Employment opportunities should be provided to the local people as possible. Grievance redress/ conflict resolve committee should be formulated in order to resolve worker's and local's concerns. CSR activities for welfare of local community.</p>

Equipment maintenance detail:

The Company should maintain the records for Health, Safety & Environment and hiring HSE manager to check and deal with the HSE issues. The company should maintain PPEs, medical facilities, firefighting Equipment's as fire buckets, fire hydrants and fire extinguishers and records for their periodic fillings or replacement.

Environmental Budget:

The cost which is required to effectively implement the mitigation measures is important for the sustainability of the project in operation stage of the project. Management of M/s Hunza Steel Pvt. Ltd will allocate Environmental Budget for meeting the following purposes:

Table: Environment budget detail

HSE training	On quarterly basis
Maintenance and management of environment	On regular basis
Maintenance of equipment	On regular basis
Restoration	As per requirement
Plantation	During the operation phase
Strategic planning to cope with any emergency situation	As per policy
Formulate the disaster management plan to cope with natural disaster	As per policy

Implementation of all these parameters will be included in the environmental budget. Any equipment failure will not be included in this budget.

ENVIRONMENTAL MANAGEMENT PLAN FOR PROPOSED EXTENSION PROJECT OF M/S HUNZA STEEL PVT. LTD

Sr. No.	Aspects	Impact & mitigations to be taken			
		Impacts	Mitigation measures Operation	Responsibility	Monitoring
AMBIENT AIR QUALITY					
1	Gaseous emissions	Air pollution due to site machinery i.e., Boiler, standby generator and project vehicles.	<ul style="list-style-type: none"> • Industry should ensure the PEQS compliance and should not be allowed to emit hazardous pollutants. • Air Emission Control Measures are recommended to control the air emissions. • Maximum possible plantation is recommended as it absorbs gaseous emissions as well as prevent lower atmospheric dust to move along with the air action. • All project related machinery, standby generators, vehicles will be checked regularly to ensure that are in sound working condition and are not emitting smoke. • Regular monitoring as per PEQS is recommended for ambient air and stack emissions. • Proponent should keep the records of monitoring and equipment maintenance. 	HSE Department	Environmental Consultant/ HSE Dept./ Maintenance Dept.
NOISE LEVEL					
3	Noise & Vibration	The major sources of the noise at proposed site is due to industrial activity, vehicles, machinery and generators, which can be a nuisance for the workers in the working area.	<ul style="list-style-type: none"> • PPEs as Ear plugs/muffs should be provided to workers in case of high noise during working hours • Proper maintenance and tuning of the vehicles should be done. 	HSE Department	Environmental Consultant/ HSE Dept./ Maintenance

		<ul style="list-style-type: none"> • Heavy machinery operation and generators at the site is the main source of noise & vibrations. • High noise level may cause hearing loss, deafness, high blood pressure, headache, depression and mentally disturbance. • Noise level will not exceed 75 dB(A) at the boundary walls of industrial activity site and is located at a safe distance from the nearest human settlement. <p>The maximum threshold level for the vibration is between 50 and 100 mm/S ppv have been suggested by Grimshaw (1971) as critical threshold level.</p>	<ul style="list-style-type: none"> • Sound proof room/ covering should be built for generator to control the noise. • Rubber wounds should be placed underneath the generator to avoid the vibration. • Speed/ horn restriction should be imposed on all vehicles. • be conducted as per EPA PEQS Rules. • Maximum plantation is recommended within site area as it absorbs the noise waves and act as barrier 		Dept.
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SOIL CONTAMINATION

4	Soil contamination	<ul style="list-style-type: none"> • Soil may be contaminated due to raw material storage on un suitable area, oil and other chemicals storage, transportation • Soil contamination due to untreated wastewater disposal 	<ul style="list-style-type: none"> • SOPs should be developed for the transportation, storage of raw material, oil and other hazardous substance handling and transportations • Soil contamination should be controlled by adopting mitigation measures such as storage of raw material, oil, fuels etc. on paved/ covered area, by maintaining leakage record and by regular inspection. • Treated wastewater should be disposed off in drain. 	HSE Department	HSE Dept./ Area manager/ Supervisor
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HEALTH AND SAFETY

4	Health and safety	<ul style="list-style-type: none"> • Health & safety issues of workers and nearby community • Health and safety issues will be arose during 	<ul style="list-style-type: none"> • Training of workers should be conducted regarding health safety & environment. • Use of PPEs should be 	HSE Department	Environmental Consultant/ HSE Dept./
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		transportation, handling, loading and unloading, other industrial activities, by release of flue gases, operation of machinery, improper practices of work etc.	<p>implemented at workplace.</p> <ul style="list-style-type: none"> • First aid measures/medical facility should be provided to project related employees. • Safe drinking water will be provided to workers, staff & poor people of the area. • Water consumption records should be maintained • Safety signs & boards should be placed at during operation activity. • smoking or any drugs should be prohibited during working hours or performing work • Do not place any flammable or hazardous substance near the explosive material 		Area Manager/ Supervisor
WASTEWATER					
5	Waste water	<ul style="list-style-type: none"> • Wastewater generation from domestic & process activities in operation. • Waste water may cause Spread of diseases, underground and surface water contamination 	<ul style="list-style-type: none"> • Waste water generated from the site should be treated in wastewater treatment facility before disposal • Monitoring should be conducted as per EPA PEQS Rules 2001 	ETP Manager	Environmental Consultant/ ETP Manager
SOLID WASTE GENERATION					
6	Solid Waste Generation	<ul style="list-style-type: none"> • Solid waste generation may cause land & soil contamination, aesthetic degradation, foul smell etc. • Solid waste may generate from the operational raw material & packaging material, domestic sources. 	<ul style="list-style-type: none"> • A solid waste management team should be formulated. • Solid waste generated from the various activities should be utilized by recycling and reuse to the possible extent. • solid waste from the domestic sources should be disposed off properly by placing separate waste bins for reusable/ recyclable and other waste sources. • Hazardous waste should be handed over to certified contractor for proper disposal. 	HSE Department	HSE Dept./ Area Manager/ Supervisor
SOCIO ECONOMIC IMPACTS					

8	Culture and norms of the area	<p>Socioeconomic impacts may arise due to:</p> <ul style="list-style-type: none"> • Change in cultural language • Change in social behavior and economic gains • Social performance of the individuals in the area • Change in culture by the influx of nomadic people • Gender inequality 	<ul style="list-style-type: none"> • Community wellbeing should be considered and anticipated measures are recommended to preserve the local culture and ecosystem • Local people should be preferred for the employment • The project proponent will initiate educational awareness program with the coordinator of local people. • The project proponent will assist the local impacted community for the improvement of local community. • Subject project will uplift the economic status of the nearest human settlements. 	Admin/ HR Manager	---
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CHAPTER # 7

STAKEHOLDERS PARTICIPATION

Team of M/s Pak Green Enviro-Engineering (Pvt.) Ltd. visited the project site, had discussions with stakeholders and consult with the local people to evaluate the project socio-economic impacts. People provide the massive information about the project and have positive remarks regarding the project development

Methodology of Consultation:

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

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

Consultation was held with following:

Proponent

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

The Responsible Authority

Management of the subject project is the responsible authority to take all measures prior to the activity.

Other Departments and Agencies

For the impact analysis detailed meetings were held with the management of the subject project, local community, education institutes, health institutes, hospital and NGOs. Issues were discussed that may affect the environment and also the implementation of proposed

project. All possible mitigation measures were considered and incorporated in the Environmental Management Plan.

Scoping sessions, focused group discussion and way side consultations were held with the relevant stakeholders in the area. The purpose of such consultations is to obtain the feedback from the relevant persons. Socio economic survey form are annexed as **ANNEXURE-F**.

Environmental Practitioners and Experts

Team of M/s Pak Green visited the project site, had discussions with stakeholders and consulted with the workers of the existing unit and nearby people to evaluate the project socio-economic impacts. People provide the massive information about the project and have positive remarks regarding the project development.

Affected & Wider Community

There is no affected community present in the radius of our study area. Pak Green team has consulted with the inhabitants of the different villages. They provided positive remarks regarding the subject project and in the favor of the subject activity for the proposed housing scheme. Stakeholders' participation Performa's and socioeconomic questionnaire were get filled by the inhabitants to evaluate the project socio-economic impacts.

CHAPTER # 8

CONCLUSION AND RECOMMENDATIONS

Conclusions

- The EIA study reveals that the project is economically viable, socially acceptable and environment friendly.
- On completion of the project of M/S Hunza Steel Pvt. Ltd. to general public.
- It will generate additional jobs during operation phases.
- Project is environmentally friendly and pollution free.
- The proponent has committed to implement the project in the environment friendly manner.
- Project proponent has ensured to install the Septic Tank to treat the domestic waste water prior to discharge into drain or use for irrigation purposes.
- Project proponent has ensured to adopt the proper solid waste management system.
- Proponent has ensured to adopt all the necessary measures to control any impact if resulting from the project.
- Project proponent has ensured to provide the safe drinking water to all workers and staff.
- Proponent of Hunza Steel Pvt. Ltd intends to register the project with local Government.
- Project proponent has prepared and implemented very comprehensive Emergency Preparedness and Response Standard Operating Procedures.

Recommendations

- In view of the comprehensive screening process and findings of the present study there is no need of conducting further investigations.
- Tree plantation inside and near the society is recommended.
- Septic Tank should be installed for primary treatment of waste water.
- Proper solid waste management system should be followed according to direction of the Local Government.
- The untreated wastewater should not be reused for irrigating the vegetation and lawns without treatment.

- High standards of bio-security and safety should be enforced during operation stage. Safety of the workers should be top priority for the management.
- M/S Hunza Steel Pvt. Ltd should continue to assist the local communities as a corporate/social responsibility.

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

GLOSSARY

Words	Dictionary
mitigation	The action of lessening in severity or intensity
legislation	law enacted by a legislative body
compliance	Acting according to certain accepted standards
flora	All the plant life in a particular region or period
fauna	All the animal life in a particular region or period
demarcated	Separate clearly, as if by boundaries
Screening	The display of a motion picture
substitutions	An event in which one thing is substituted for another
regulations	An authoritative rule
stakeholders	A person or organization with an interest or concern in something
vulnerable	Susceptible to attack