ENVIRONMENTAL IMPACT ASSESSMENT

EIA

REPORT

FOR

PRECISION FORGING (PVT) LTD

AUTO PART MANUFACTURING & ASSEMBLING UNIT

LOCATION

Near Mundiali,
Main Sheikhupura Road,
Kot Abdul Malik,
District Sheikhupura

ENVIRONMENTAL STEWARDSHIP | COMPLIANCE WITH APPLICABLE LAWS | SUSTAINABLE OPERATIONS | RESPONSIBLE INDUSTRY

OWNER / (MANAGER)

Mr. Amjad Parvaiz

CONSULTANT

EcoSmart SOLUTION

SMART SOLUTIONS FOR A SUSTAINABLE FUTURE

PROTECTING ENVIRONMENT | SUPPORTING COMMUNITIES | PROMOTING SUSTAINABILITY | BUILDING A BETTER TOMORROW

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LIST OF ABBREVIATIONS

CO_2	Carbon Dioxide
°C	Degree Celsius
dB(A)	Decibel (Unit of Noise)
EMMP	Environmental Mitigation and Monitoring Plan
EMP	Environmental Management Plan
EPA	Environmental Protection Agency
EP&CC	Environmental Protection and Climate Change Department
HSE	Health, Safety & Environment
m^3/h	Cubic meter per hour
NOC	No Objection Certificate
NO_X	Oxides of Nitrogen
PM	Particulate Matter
PPEs	Personal Protective Equipment
PEPA 1997	Punjab Environmental Protection Act 1997
SOPs	Standard Operating Procedures
SO_X	Oxides of Sulfur

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EXECUTIVE SUMMARY

The proposed project involves the establishment of a new standalone manufacturing facility for precision forging. No poultry farming or unrelated activities will be undertaken at this facility. The project will involve civil construction of a large steel shed followed by installation of manufacturing machinery for forging operations.

The project site is currently vacant/open land, and construction activities will commence only after obtaining the required Environmental Approval (Construction Phase NOC) from the Punjab Environmental Protection Agency under Section 12 of PEPA, 1997.

SALIENT FEATURES OF THE PROJECT

SR. NO	SALIENT FEATURES	DESCRIPTION
i	Title of Project	Construction of Steel Shed / Manufacturing Facility for Precision Forging (Pvt) Ltd
ii	Location of Project	Near Mundiali, Main Sheikhupura Road, Kot Abdul Malik, District Sheikhupura, Punjab, Pakistan
iii	Nature of Project	Construction and operation of an industrial unit for precision forging and related manufacturing activities
iv	Total Area	As per architectural drawings and schedule of areas (main steel shed, office block, guard room and ancillary facilities)

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SR. NO	SALIENT FEATURES	DESCRIPTION
v	Name of Project Proponent	Precision Forging (Private) Limited (Representative: Amjad Parvaiz, Manager)
vi	Type of Study	Environmental Impact Assessment (EIA) – Construction Phase NOC
vii	Capacity	Precision forging manufacturing unit (details as per machinery installation plan)
viii	Project Cost	Rs. 198 Million

BRIEF OUTLINE OF THE PROJECT

1. Area of Project The total land allocated for the project is located near Mundiali on Main Sheikhupura Road, Kot Abdul Malik. The project includes a large main steel shed along with office block and supporting structures as shown in the architectural drawings.
2. Nature of Area The proposed site is located in an industrial area along the Main Sheikhupura Road. The site is currently vacant and lies within an approved industrial zone, away from environmentally sensitive areas such as protected forests, wetlands, or archaeological sites.
3. Quantity of Wastewater **Construction Phase:**

- Negligible to low wastewater will be generated.
- Wastewater will mainly consist of domestic sewage from construction labor.
- Disposal will be managed through septic tanks or temporary sanitation arrangements

as shown in the approved architectural drawings.

Operational Phase:

- Wastewater will primarily originate from cooling processes, equipment cleaning, and domestic use.
- No heavy chemical processing or highly toxic effluents are involved.
- Wastewater will be treated through septic tank, sedimentation, and recharge pit systems before disposal.
- All discharges will comply with Punjab Environmental Quality Standards (PEQS).

4. Quantity of Gaseous Emissions **Construction Phase:**

- Dust emissions from site preparation, excavation, foundation work, and material handling.
- Vehicle and machinery exhaust emissions.

Operational Phase:

- Emissions from forging process, machinery operation, standby diesel generator (if installed), and material handling.
- Emissions will be controlled through proper ventilation, regular maintenance, and standard emission control practices.

ENVIRONMENTAL IMPACTS ANTICIPATED DURING CONSTRUCTION PHASE

- Dust generation due to excavation, foundation work, and material handling.
- Noise and vibration from construction machinery.
- Exhaust emissions from vehicles and equipment.
- Generation of construction waste such as debris, packaging materials, excess concrete, and steel.
- Occupational health and safety risks to workers.

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- Temporary traffic disturbances and minor social impacts.

These impacts are short-term, localized, and manageable.

ENVIRONMENTAL IMPACTS ANTICIPATED DURING OPERATIONAL PHASE

- Wastewater generation from cleaning and cooling activities.
- Generation of solid waste including metal scrap, packaging waste, and general industrial waste.
- Air emissions (minor fumes, dust) from forging and material handling.
- Noise pollution from machinery, ventilation systems, and generators.
- Occupational health risks including exposure to dust, heat, and machinery hazards.
- Risk of soil/groundwater contamination in case of improper waste handling.

With proper mitigation measures, these impacts are not expected to be significant or long-term.

MITIGATION MEASURES

1. Construction Phase

- Regular water sprinkling to control dust emissions.
- Maintenance of machinery to minimize emissions and noise.
- Proper collection, segregation, and disposal of construction waste at approved sites.
- Provision of Personal Protective Equipment (PPE) to all workers.
- Employment of local labor where possible.
- Adherence to approved architectural and structural drawings.
- Compliance with NOC conditions for road entrance and drainage pipeline.

2. Operational Phase

- Installation of proper wastewater management systems (septic tank, recharge pit) to

meet PEQS standards.

- Recycling/reuse of metal scrap and proper disposal of other solid waste.
- Installation of local exhaust ventilation and proper machinery maintenance to control fumes and dust.
- Segregation and responsible disposal/recycling of industrial waste.
- Safe storage and handling of raw materials.
- Regular maintenance of machinery, ventilation, and generator systems.
- Use of energy-efficient equipment.
- Implementation of noise control measures.
- Adoption of strict housekeeping, fire safety, and occupational health protocols.
- Training of workers on environmental, health, and safety practices.

PROPOSED ENVIRONMENTAL MONITORING PLAN

- Regular monitoring of wastewater quality to ensure compliance with PEQS.
- Periodic inspection of solid waste (especially metal scrap) handling and disposal practices.
- Monitoring of ambient air quality, odor, and noise levels.
- Routine inspection of ventilation, machinery, and emission control systems.
- Occupational health and safety audits.
- Maintenance of environmental records and submission of reports to Punjab EPA as required.

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CHAPTER NO 01

INTRODUCTION

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CHAPTER NO. 01 INTRODUCTION

This document presents the Environmental Impact Assessment (EIA) of the proposed M/s Precision Forging (Pvt) Ltd – Construction of Steel Shed / Manufacturing Facility. The primary objective of this study is to ensure full compliance with the applicable environmental laws, rules, and regulations of Punjab, particularly under Section 12 of the Punjab Environmental Protection Act (PEPA), 1997 (as amended), which requires prior environmental approval before initiation of construction or operation of prescribed projects.

The proposed project involves the establishment of a new standalone manufacturing facility dedicated to precision forging. The facility will feature civil construction of a large steel shed with supporting infrastructure including office block, foundations, water tank, septic tank, recharge pit, driveways, and drainage systems. No unrelated activities will be undertaken at this facility.

The EIA study systematically identifies and evaluates the potential environmental impacts associated with both the construction and operational phases of the project. It further proposes practical and site-specific mitigation measures, along with an Environmental Management Plan (EMP) and Environmental Monitoring Plan, to ensure sustainable development with minimal environmental footprint.

Considering the nature of activities such as civil construction of the steel shed, foundation work, drainage pipeline, and installation of forging machinery, the project has been categorized under Environmental Impact Assessment (EIA) requirements as per Punjab EPA guidelines.

1.2 PURPOSE AND OBJECTIVES OF THE Environmental Impact Assessment (EIA)

The main purpose of this Environmental Impact Assessment (EIA) Report is to fulfill the legal and regulatory requirements prescribed under:

- Punjab Environmental Protection Act, 1997 (as amended).
- Punjab Environmental Protection Agency (Review of IEE & EIA) Regulations, 2000,

including subsequent amendments and categorization criteria.

- Punjab Environmental Quality Standards (PEQS) for effluents, emissions, and noise.

This Environmental Impact Assessment (EIA) serves as the basis for obtaining the Construction Phase NOC from Punjab EPA and demonstrates that the proposed project is environmentally sound and sustainable.

1.3 LEGAL REQUIREMENT (SECTION 12 OF PEPA 1997) As per Section 12 of PEPA, 1997: "No proponent of a project shall commence construction or operation unless he has filed with the Provincial Agency an Initial Environmental Examination (IEE) or Environmental Impact Assessment (EIA), and has obtained approval from the Provincial Agency."

The proposed steel manufacturing facility project qualifies for Environmental Impact Assessment (EIA) due to its medium-scale nature and manageable environmental risks.

1.4 OBJECTIVES OF THE EIA STUDY The key objectives of the EIA are as follows:

- To establish baseline environmental conditions of the project area including physical, biological, and socio-economic aspects.
- To identify and evaluate environmental impacts associated with construction and operational activities.
- To assess the magnitude, duration, and significance of impacts on air, water, soil, noise, and human health.
- To propose effective mitigation measures to minimize or eliminate adverse impacts.
- To develop a comprehensive Environmental Management Plan (EMP).
- To design an Environmental Monitoring Plan in compliance with PEQS.
- To ensure sustainable development with minimal environmental footprint.
- To facilitate informed decision-making by Punjab EPA.

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1.5 PROPONENT DETAILS

- Project Title: Construction of Steel Shed / Manufacturing Facility for Precision Forging (Pvt) Ltd
- Project Proponent: Precision Forging (Private) Limited
- Representative: Amjad Parvaiz (Manager), CNIC: 35404-0972544-7, Father's Name: Muhammad Ishaq, Contact: 0322-4426347
- Project Area: As per architectural drawings and schedule of areas
- Location: Near Mundiali, Main Sheikhupura Road, Kot Abdul Malik, District Sheikhupura, Punjab
- Project Phase: Construction Phase NOC
- Project Cost: Rs. 198 Million

1.6 NATURE, SIZE AND LOCATION OF PROJECT

1.6.1 Nature of Project The proposed project involves:

- Construction of a large main steel shed (Ground + First Floor Office Block), brick wall foundations, U.G. water tank, septic tank, recharge pit, driveways, parking, and drainage systems.
- Installation of machinery for precision forging operations.
- The project site is currently vacant and located in an approved industrial area along Sheikhupura Road.

1.6.2 Size of Project The project is a medium-scale manufacturing facility with total covered and open areas as detailed in the architectural drawings and schedule of areas.

1.6.3 Location Description The project is located near Mundiali on Main Sheikhupura Road, Kot Abdul Malik, District Sheikhupura. The area is an established industrial zone with good road connectivity. The site is currently open land within an industrial setting and does not fall within any environmentally sensitive areas. The main entrance is proposed on Sheikhupura Road with required NOC from the relevant authority.

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1.7 SCOPE OF THE EIA STUDY The EIA includes review of project design, baseline environmental conditions, potential impacts during construction and operation, mitigation measures, Environmental Management Plan (EMP), and Environmental Monitoring Plan.

1.8 METHODOLOGY AND DATA COLLECTION (As per standard EIA methodology – site visits, secondary data review, stakeholder consultation, etc.)

1.9 BASELINE ENVIRONMENTAL CONDITIONS

1.9.1 Physical Environment

- Climate: Typical of Sheikhupura region (hot summers, moderate winters).
- Air Quality: Industrial area setting with moderate baseline pollution.
- Noise Levels: Within acceptable limits for industrial area.
- Soil: Typical industrial soils.
- Water Resources: Groundwater/local supply as primary source.

1.9.2 Biological Environment

- Minimal vegetation on vacant plot.
- No endangered species or protected habitats in the industrial area.

1.9.3 Socio-Economic Environment

- Availability of skilled and unskilled local labor.
- Positive impact through employment generation in the manufacturing sector.
- No land acquisition or displacement issues.

1.10 ENVIRONMENTAL IMPACTS (Construction phase: dust, noise, waste, traffic; Operational phase: wastewater, metal scrap, emissions, noise – as detailed in previous adapted sections)

1.11 MITIGATION MEASURES (As adapted in previous responses for construction and operation phases)

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1.12 ENVIRONMENTAL MANAGEMENT PLAN (EMP) The EMP will define clear roles and responsibilities, implementation schedule, environmental compliance procedures, and reporting mechanisms to Punjab EPA.

1.13 ENVIRONMENTAL MONITORING PLAN Regular monitoring of wastewater quality, air quality, noise levels, solid waste (metal scrap) handling, and occupational health & safety.

1.14 STAKEHOLDER CONSIDERATIONS

- Creation of employment opportunities for the local population.
- Contribution to local economic activity through manufacturing.
- No significant adverse impacts on nearby communities.

1.15 REPORT STRUCTURE

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CHAPTER NO. 02

LEGISLATIVE AND REGULATORY FRAMEWORK

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CHAPTER NO. 02 LEGISLATIVE AND REGULATORY FRAMEWORK

2.1 INTRODUCTION Pakistan is a signatory to various Multilateral Environmental Agreements (MEAs) and international environmental conventions related to environmental protection, sustainable development, climate change mitigation, occupational health and safety, and pollution control.

The country has established a comprehensive legal and institutional framework to address environmental issues such as:

- Industrial emissions and pollution
- Water contamination
- Air quality degradation
- Improper solid waste disposal
- Occupational health and safety risks
- Climate change impacts
- Resource conservation

Following the 18th Constitutional Amendment, environmental management became a provincial subject. Accordingly, the Government of Punjab is responsible for environmental regulation through the Punjab Environmental Protection Agency (EPA Punjab).

This chapter presents the legislative, regulatory, and policy framework applicable to the proposed Precision Forging (Pvt) Ltd – Construction of Steel Shed / Manufacturing Facility project involving civil construction of the steel shed and subsequent precision forging operations near Mundiali, Main Sheikhupura Road, Kot Abdul Malik, District Sheikhupura.

2.2 PUNJAB ENVIRONMENTAL PROTECTION ACT (PEPA), 1997

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2.2.1 Legal Status The Punjab Environmental Protection Act, 1997 (as amended) is the principal environmental law governing environmental protection in Punjab.

The Punjab Environmental Protection Agency (EPA Punjab) is responsible for:

- Implementation of environmental policies
- Monitoring environmental quality
- Reviewing and approving IEE/EIA reports
- Enforcing environmental standards

2.2.2 Key Provisions Relevant to the Project The following provisions of PEPA 1997 are applicable to the proposed steel manufacturing project:

I. Establishment of Punjab Environmental Protection Council

- Provides policy direction and strategic guidance for environmental protection.

II. Establishment of Punjab Environmental Protection Agency

- EPA Punjab regulates, monitors, and enforces compliance with environmental laws.

III. Section 11 – Prohibition of Certain Discharges or Emissions

- No discharge of effluents, emissions, or noise exceeding PEQS limits is allowed.
- Applicable to the project in terms of: • Dust emissions during construction • Emissions from forging processes and material handling • Wastewater from cooling, cleaning, and domestic use • Noise from construction machinery, forging equipment, and generators

IV. Section 12 – IEE and EIA Requirement

- No project can commence construction without prior environmental approval.
- The proposed project requires EIA approval for the Construction Phase NOC.

V. Environmental Protection Orders (EPOs)

- EPA may issue orders in case of non-compliance.

VI. Environmental Tribunals

- Environmental disputes are resolved through designated tribunals.

2.3 PUNJAB ENVIRONMENTAL QUALITY STANDARDS (PEQS) The project will fully comply with Punjab Environmental Quality Standards (PEQS) for air, water, noise, and waste management.

2.3.1 PEQS for Ambient Air Quality The project involves emissions mainly from:

- Construction activities (dust, excavation)
- Forging process and material handling (fumes/dust)
- Standby diesel generator (if installed) and vehicle movement

Compliance with ambient air standards is mandatory.

2.3.2 PEQS for Industrial and Municipal Effluents Wastewater generated from the project is non-hazardous, mainly from:

- Cooling processes and equipment cleaning
- Domestic use by workers

2.3.3 PEQS for Drinking Water Water supplied to workers and for operational use must meet drinking water standards.

2.4 SOLID WASTE MANAGEMENT RULES Solid waste generated from the project includes:

- Construction debris (during construction phase)
- Metal scrap, rejected materials, packaging waste, and general industrial waste (during operation)
- Domestic and general waste

TABLE 2.6: WASTE CLASSIFICATION

Waste Type	Nature	Disposal Method
Construction Debris	Inert	Approved dump site / Recycling

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Waste Type	Nature	Disposal Method
Metal Scrap	Recyclable	Recycling / Reuse
Packaging Waste	Non-hazardous	Recycling
Domestic Waste	Biodegradable	Municipal Disposal

2.5 OCCUPATIONAL HEALTH AND SAFETY LAWS The project will comply with:

- Punjab Factories Act
- Punjab Occupational Health & Safety Guidelines
- Labor Laws of Pakistan

TABLE 2.7: EXPOSURE LIMITS

Parameter	Limit
Noise	85 dB (8-hour average)
Dust / Fumes	As per OSHA / PEQS
Temperature	As per industrial standards
Illumination	300–500 lux

2.6 HAZARDOUS SUBSTANCES MANAGEMENT

- No major hazardous chemicals beyond standard forging raw materials and additives.
- Proper storage, labeling, handling, and spill management procedures will be adopted for raw materials and fuels (if any) as per safety protocols.

2.7 LOCAL ZONING AND LAND USE

- The project site is located near Mundiali, Main Sheikhupura Road, Kot Abdul Malik,

District Sheikhupura.

- The area is an approved industrial zone.
- No protected or environmentally sensitive areas are affected.
- No land acquisition or displacement of people is involved.
- NOC required for main entrance on Sheikhupura Road and drainage pipeline crossing.

2.8 INTERNATIONAL ENVIRONMENTAL CONVENTIONS Pakistan is signatory to:

- Convention on Biological Diversity (CBD)
- UN Framework Convention on Climate Change (UNFCCC)
- Basel Convention on Hazardous Waste

The project aligns with these commitments through proper waste recycling, pollution control, energy-efficient machinery, and sustainable manufacturing practices.

2.9 ENVIRONMENTAL COMPLIANCE STRATEGY To ensure full compliance, the proponent will:

- Obtain Construction Phase NOC under Section 12 of PEPA 1997
- Implement the Environmental Management Plan (EMP)
- Conduct regular environmental monitoring
- Maintain proper records of waste management and raw material handling
- Provide worker training on health, safety, and environmental practices
- Submit periodic compliance reports to Punjab EPA

TABLE 2.8: MONITORING FREQUENCY

Parameter	Frequency
Wastewater	Quarterly

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Parameter	Frequency
Drinking Water	Biannually
Noise & Air Quality	Biannually
Solid Waste / Scrap	Monthly
Workplace Safety	Monthly
Machinery & Ventilation	Quarterly

2.10 SUMMARY OF APPLICABLE LAWS

Law / Regulation	Relevance to Project
PEPA 1997	Environmental approval (EIA) & compliance
PEQS	Pollution control (air, water, noise)
Punjab Factories Act	Worker safety and welfare
Solid Waste Management Rules	Industrial scrap & construction waste
Local Government / Road Authority	Waste disposal, road entrance & drainage NOC
OHS Guidelines	Workplace safety

CHAPTER NO.3

SCREENING AND SCOPING

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CHAPTER 3: SCREENING AND SCOPING

3.1 TYPE AND CATEGORY OF PROJECT According to Section 12 of the Punjab Environmental Protection Act, 1997: "No proponent of a project shall commence construction or operation unless he has filed with the Provincial Agency an Initial Environmental Examination (IEE) or, where the project is likely to cause an adverse environmental effect, an Environmental Impact Assessment (EIA) and has obtained from the Provincial Agency approval in respect thereof."

The Punjab Environmental Protection (Review of IEE and EIA) Regulations classify projects into two schedules:

- Schedule-I: Projects requiring an Initial Environmental Examination (IEE)
- Schedule-II: Projects requiring a full Environmental Impact Assessment (EIA)

The proposed Precision Forging (Pvt) Ltd project involves the construction and operation of an industrial manufacturing facility with a large steel shed, office block, brick wall foundations, U.G. water tank, septic tank, recharge pit, driveways, parking, and supporting infrastructure for precision forging operations. The project is located near Mundiali, Main Sheikhupura Road, Kot Abdul Malik, District Sheikhupura. The site is currently vacant/open land.

Due to the relatively low environmental sensitivity of this medium-scale steel manufacturing project (standard industrial forging processes with manageable emissions and waste), the project falls under Schedule-I of the Regulations. It is categorized as requiring an Environmental Impact Assessment (EIA) ThisEnvironmental Impact Assessment (EIA) Report has been prepared to fulfill the regulatory requirements and to obtain the Construction Phase Environmental Approval

/ NOC from the Punjab Environmental Protection Agency (Punjab EPA).

3.2 SCOPING Scoping is a critical step in the EIA process that identifies the key environmental issues, concerns, and potential impacts that need detailed investigation. The scoping exercise for this project was conducted through:

- Detailed review of project design, architectural drawings, construction methodology, and operational activities of the steel manufacturing facility.
- Site visits and assessment of surrounding land use in the industrial area along Sheikhupura Road.
- Consideration of baseline environmental conditions in the area.
- Identification of potential environmental receptors (ambient air, soil, groundwater, noise levels, workers, and nearby industrial/commercial units).
- Consultation with the project proponent (Amjad Parvaiz) and technical experts to prioritize issues.

Effective scoping helped in:

1. Defining the spatial boundaries (project site and immediate surroundings) and temporal boundaries (construction phase and long-term operational phase).
2. Identifying stakeholder concerns related to dust and noise during construction, emissions from forging, wastewater management, metal scrap handling, drainage pipeline crossing, road entrance, and worker safety.
3. Focusing on significant issues such as air quality (dust & fumes), noise levels, solid waste (metal scrap & construction debris), wastewater management, soil/groundwater contamination risks, and occupational health & safety.
4. Prioritizing impacts that require assessment, baseline monitoring, and mitigation planning in the subsequent chapters of this EIA report.

Because the facility is dedicated exclusively to precision forging and manufacturing (standard industrial processes), the overall environmental footprint is limited and manageable with proper mitigation measures.

3.3 OBJECTIVES OF THE PROJECT The primary objective of the Construction of Steel Shed / Manufacturing Facility for Precision Forging (Pvt) Ltd is to set up a modern, efficient precision forging unit to meet the growing demand for precision forged parts in the industrial and manufacturing sectors of Pakistan.

The project will:

- Establish a manufacturing facility with a large steel shed and supporting infrastructure for precision forging operations.
- Utilize modern machinery and environmental control systems for improved efficiency and reduced environmental impact.
- Generate direct and indirect employment opportunities for skilled and semi-skilled workers in the Sheikhupura area.
- Contribute to the industrial and economic development of Punjab by strengthening the manufacturing sector and ensuring full compliance with environmental standards.

The project has been designed with appropriate pollution control and sustainability measures (e.g., dust suppression during construction, septic tank and recharge pit for wastewater, recycling of metal scrap, proper ventilation, and occupational health & safety measures) to minimize environmental impacts during both construction and operational phases.

3.4 ALTERNATIVES

3.4.1 No-Project Alternative The "No-Project" option would mean forgoing the establishment of this manufacturing facility. This would result in the loss of economic benefits, including employment generation, contribution to local industrial supply, and economic development. Given the suitable vacant industrial land, proponent's commitment, and manageable environmental risk, the "No-Project" alternative is not considered favorable.

3.4.2 Site Alternatives The selected site near Mundiali on Main Sheikhupura Road, Kot Abdul Malik is highly suitable for the project. It is located in an approved industrial area with good road access and infrastructure. The surrounding environment consists

of other industrial units with no nearby environmentally sensitive areas.

Other potential sites were evaluated but found less suitable due to higher costs, lack of proper industrial zoning, or poorer infrastructure. The selected site minimizes environmental and social disturbances while providing ideal conditions for the steel manufacturing facility.

3.4.3 Technological / Process Alternatives The project will adopt modern forging technology and best available techniques (BAT). This includes appropriate machinery and supporting equipment. These measures ensure higher productivity, better product quality, and compliance with Punjab Environmental Quality Standards (PEQS) while minimizing energy consumption and waste compared to outdated methods.

3.4.4 Environmental Alternatives The project design incorporates various environmental controls (dust suppression during construction, septic tank & recharge pit for wastewater, recycling of metal scrap, proper ventilation, drainage provisions, and occupational health & safety measures) to keep all emissions, effluents, noise, and waste within the limits prescribed under PEQS and the Punjab Environmental Protection Act, 1997. With the implementation of the proposed mitigation measures and Environmental Management Plan (EMP), the construction and operational phases are not expected to cause significant adverse environmental effects.

3.5 CONCLUSION OF SCREENING AND SCOPING Screening confirms that the project falls under Schedule-I, requiring an EIA. Scoping has successfully identified the key environmental aspects (air quality, noise, wastewater, waste management, drainage crossing, and occupational safety) that have been addressed in detail in subsequent chapters of this report. The selected vacant industrial plot, modern technology, and proposed mitigation measures represent the most environmentally and economically viable option.

This EIA will ensure that the project proceeds in an environmentally sustainable manner while delivering socio-economic benefits to the region.

CHAPTER 4: DESCRIPTION OF THE PROJECT

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CHAPTER 4: DESCRIPTION OF THE PROJECT

This chapter provides a detailed description of the proposed Construction of Steel Shed / Manufacturing Facility for Precision Forging (Pvt) Ltd. The chapter focuses primarily on the construction phase while also outlining key operational aspects for context. The project is promoted by Precision Forging (Private) Limited with Mr. Amjad Parvaiz (Manager) as the representative.

The facility is a new dedicated standalone manufacturing industrial unit located on a vacant/open plot near Mundiali, Main Sheikhupura Road, Kot Abdul Malik, District Sheikhupura. It will specialize exclusively in precision forging and related manufacturing activities. No unrelated activities will be undertaken at this facility.

The construction activities will include site preparation, civil works for the large steel shed and office block, brick wall foundations, U.G. water tank, septic tank, recharge pit, driveways (18'-0" and 20'-0" wide), drainage systems (including pipeline crossing underneath the road), and installation of forging machinery and environmental control systems. All activities will comply with relevant standards and environmental regulations under the Punjab Environmental Protection Act (PEPA), 1997 (as amended). This Environmental Impact Assessment (EIA)) is being prepared to obtain the Construction Phase Environmental Approval / NOC from the Punjab Environmental Protection Agency (Punjab EPA).

The construction phase is estimated to last several months (depending on weather, approvals, and procurement of materials and equipment). It will involve site preparation, civil works for foundations and the steel structure, installation of machinery, utilities, and supporting infrastructure.

Potential environmental impacts during construction are expected to be temporary,

short-term, localized, and reversible. These mainly arise from earthworks, heavy machinery operation, material transportation, labor activities, and minor waste generation. Impacts have been assessed considering the site-specific conditions in an established industrial area. Mitigation will follow best practices for industrial projects in Punjab and Punjab Environmental Quality Standards (PEQS).

Key objectives during construction include minimizing dust and air emissions, controlling noise and vibration, preventing soil erosion or contamination, managing water use efficiently, ensuring worker safety (especially near the road), and preparing the facility for smooth transition to compliant operation.

4.1 OBJECTIVES OF THE PROJECT The primary objective of the Construction of Steel Shed / Manufacturing Facility for Precision Forging (Pvt) Ltd is to set up a modern, efficient precision forging unit to meet the growing demand for precision forged parts in the industrial and manufacturing sectors.

Key objectives include:

- Construction of a large steel shed with office block and supporting infrastructure for precision forging operations.
- Achieving high operational efficiency, effective emission control, proper waste (metal scrap) management, and a minimal environmental footprint while fully adhering to Punjab Environmental Quality Standards (PEQS).
- Contributing to Pakistan's industrial sector by increasing local production of forged components, supporting manufacturing development.
- Generating direct and indirect employment opportunities for skilled and semi-skilled workers in Sheikhupura.
- Promoting sustainable industrial development in compliance with PEPA 1997 (Section 12) through the implementation of best available techniques (BAT), including modern forging machinery, dust control, wastewater management via septic tank and recharge pit, metal scrap recycling, and noise reduction measures.

The project design prioritizes environmental safeguards from the construction phase

onward to ensure long-term sustainability.

4.2 PARTICULARS OF THE PROJECT

TABLE 4.1: PARTICULARS OF THE PROJECT

Sr. No.	Particulars	Details
1	Name of Project	Construction of Steel Shed / Manufacturing Facility for Precision Forging (Pvt) Ltd
2	Name of Proponent	Precision Forging (Private) Limited / Amjad Parvaiz (Manager), CNIC: 35404-0972544-7
3	Latitude & Longitude	To be determined through detailed GPS survey
4	Location	Near Mundiali, Main Sheikhupura Road, Kot Abdul Malik, District Sheikhupura
5	District	Sheikhupura
6	Nature of Area	Vacant/open industrial plot in approved industrial area; flat terrain suitable for manufacturing; surrounded by industrial units; no sensitive ecosystems nearby
7	Road Access	Excellent road access on Main Sheikhupura Road (main entrance proposed on the road with required NOC) for transportation of raw materials and finished products

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4.3 LOCATION AND LAYOUT OF THE PROJECT The project site is situated near Mundiali on Main Sheikhupura Road, Kot Abdul Malik, District Sheikhupura. This location offers good connectivity, availability of skilled labor, and logistical advantages for manufacturing operations.

Proposed Layout (based on approved architectural drawings):

- Large main steel shed with Ground Floor and First Floor (Office Block).
- Key areas: Production hall, raw material storage, finished goods area, office spaces, guard room, etc.
- Supporting infrastructure: Brick wall foundations, U.G. water tank, septic tank, recharge pit, driveways, parking, drainage and rainwater disposal lines.
- Waste management and material handling zones.
- Green belt / landscaping buffer where feasible.

The site is currently vacant with no structures requiring demolition, which minimizes initial environmental disturbance. Detailed engineering drawings (site plan, floor plans, elevations, foundation & tank details) are available in the attached architectural plans.

4.4 SIZE AND MAGNITUDE OF THE PROJECT This is a medium-scale manufacturing facility. The magnitude includes civil works for the steel shed structure, installation of forging machinery, and associated utilities. The scale is typical for medium industries in Punjab and results in a manageable environmental footprint.

4.5 AREA AND COST OF THE PROJECT

- Land Area: As per site plan and schedule of areas (steel shed + office block + ancillary facilities).
- Estimated Capital Cost: Rs. 198 Million (includes civil works, machinery installation, environmental control systems, utilities, and safety infrastructure).

4.6 NATURE OF AREA AND LAND USE ON SITE The site consists of vacant, flat land in an approved industrial area. Current use is none (vacant plot). Post-project land use will be dedicated to precision forging manufacturing. Surrounding areas

feature other industrial units. Soil is typical of the region with low erosion risk when proper controls are applied.

4.7 VEGETATIVE FEATURES ON SITE The site has minimal vegetation (sparse grass or scrub typical of vacant industrial land). No significant trees or protected flora are present. No endangered or protected species are expected.

4.8 RELOCATION AND REHABILITATION PLANS There are no structures, settlements, or residents on the site. No relocation, resettlement, or rehabilitation is needed. Land details are available in the hand-drawn Shajra/Khasra map.

4.9 STAFF / MANPOWER

- Construction Phase: Approximately 50–100 workers (skilled: masons, welders, technicians for machinery installation; unskilled: general laborers). Priority will be given to local hiring.
- Operational Phase: Estimated permanent staff (factory managers, machine operators, technicians, quality control, security, and supervisors). All staff will receive training on safety, environmental procedures, and emergency response.

4.10 ELECTRICITY AND UTILITIES

- Electricity: Primary supply from WAPDA grid; diesel generators for backup (critical for machinery and ventilation).
- Water: Industrial supply / tube well (on-site); demand during construction will be moderate (mainly for civil works, dust suppression, and domestic use).
- Wastewater: Managed through septic tank, recharge pit, and drainage system (including road crossing) as per architectural drawings.
- Other: Adequate drainage system, firefighting arrangements, and solid waste management facilities.

4.11 AIR EMISSIONS, WASTEWATER, AND SOLID WASTE (Construction Phase Focus)

- Construction Phase: Temporary dust from earthworks, material handling, and vehicle

movement; minor emissions from construction machinery. Wastewater will be minimal (domestic/septic tank). Solid waste will include construction debris and scrap, which will be segregated, reused where possible, and disposed at approved sites.

- Operational Phase: Emissions from forging processes (controlled through ventilation); wastewater from cooling and cleaning; solid waste primarily metal scrap (to be recycled).

4.12 NOISE Noise levels will be temporarily elevated during construction due to heavy machinery and material handling. Levels will be mitigated through scheduling, maintenance, and PPE to comply with PEQS. Operational noise from forging equipment and generators will be controlled via acoustic measures and enclosures.

4.13 SCHEDULE OF IMPLEMENTATION The construction phase duration will be determined after approvals. A detailed Gantt chart will be developed post-approvals.

4.14 MATERIALS FOR CONSTRUCTION AND EQUIPMENT

- Civil Works: Steel structure, RCC foundations, brick walls, durable roofing, and suitable industrial flooring.
- Machinery & Equipment: Forging machinery and supporting equipment.
- Utilities & Others: Corrosion-resistant piping, eco-friendly materials wherever feasible, and modern safety systems.

CHAPTER 5: DESCRIPTION OF THE ENVIRONMENT

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CHAPTER 5: DESCRIPTION OF THE ENVIRONMENT

This chapter describes the baseline environmental conditions of the project area, covering the physical, biological (ecological), and socio-economic environment. The information is based on desk studies of secondary data (including reports from Punjab Environmental Protection Department (EPD), Pakistan Meteorological Department (PMD), Pakistan Bureau of Statistics (PBS), and relevant academic/government publications), multiple field visits to the project site and its vicinity in the industrial area near Mundiali, and consultations with relevant stakeholders.

For the Construction of Steel Shed / Manufacturing Facility for Precision Forging (Pvt) Ltd located near Mundiali, Main Sheikhupura Road, Kot Abdul Malik, District Sheikhupura (proponent: Precision Forging (Private) Limited / Amjad Parvaiz), the baseline focuses on site-specific conditions in an established industrial setting. This helps evaluate potential impacts from the construction phase (e.g., dust, noise, temporary waste generation from civil works for the steel shed) and future operational phase (e.g., emissions from forging, wastewater from cleaning/cooling, metal scrap management, and noise from machinery).

5.1 DATA COLLECTION Primary data was collected through direct site surveys of the vacant/open industrial plot and surrounding industrial areas, including observations of land use, ambient air and noise levels, and local interactions. Secondary data on physical parameters (topography, geology, seismology, hydrology, climatology) was obtained from official sources such as the Punjab EPD, PMD, and published hydrogeological reports. Biological parameters (flora and fauna) were assessed via field observations. Socio-economic data were compiled from the latest Population & Housing Census by the Pakistan Bureau of Statistics (PBS), district profiles of Sheikhupura, and interactions with nearby industrial units. This integrated approach ensures a reliable baseline for impact assessment and mitigation planning for the steel manufacturing project.

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5.2 PHYSICAL ENVIRONMENT The project area lies in Sheikhupura District, within an industrial zone along Main Sheikhupura Road. The area features numerous manufacturing units. The vacant project site experiences baseline pollution loads typical of an industrial zone, with moderate traffic and industrial activity. Careful management of construction-related dust, noise, wastewater, and drainage crossing will be implemented to maintain environmental quality.

5.3 PHYSICAL RESOURCES Physical resources in the project vicinity include soils typical of the Sheikhupura region supporting limited vegetation within the industrial area. The area has well-developed road networks (Main Sheikhupura Road), electricity, and industrial infrastructure. The vacant status of the site minimizes immediate resource conflicts. Best management practices will be applied during construction to avoid soil compaction, erosion, or contamination.

5.4 GEOGRAPHY AND GEOLOGY Sheikhupura District is located in central Punjab on the flat alluvial plains of the Indo-Gangetic Plain. Geologically, the area consists of thick Pleistocene to recent alluvial deposits. Soil textures are predominantly silt loam, sandy loam, and clay loam. The region falls in Seismic Zone 2B (moderate seismic risk) according to the Building Code of Pakistan. The stable alluvial geology is well-suited for civil foundations required for the steel shed. No rock outcrops or unstable geological features are present at the site.

5.5 TOPOGRAPHY The area has predominantly flat terrain with a gentle slope. Elevation ranges approximately 200–220 m above sea level, with minimal variation across the project site. The site itself is flat vacant land with no significant slopes, depressions, or natural flood-prone features. Proper stormwater management, drainage lines, and erosion control will be implemented during construction of the steel shed.

5.6 HYDROLOGY Groundwater is the main water source in the area, extracted through tube wells. The aquifer comprises thick alluvial deposits, recharged primarily by rainfall and canal seepage. Shallow groundwater in industrial areas may show elevated TDS due to industrial and urban influences.

Surface water resources include nearby irrigation canals and drains. For the project,

construction-phase water demand will be modest (mainly for civil works and dust suppression), and operational needs will focus on efficient use for cooling and cleaning. Project activities will comply with Punjab Environmental Quality Standards (PEQS) to prevent contamination risks. Drainage pipeline crossing under the road will be constructed as per approved plans.

TABLE 5.1: KEY HYDROLOGICAL PARAMETERS (LAHORE/SHEIKHUPURA REGION)

Parameter	Details	Source/Reference
Groundwater Depth	Shallow: 10–40 m; Deeper: >100 m	Punjab Irrigation Dept., PCRWR
Aquifer Thickness	200–300 m+ (thick alluvial deposits)	Hydrogeological reports
Recharge Sources	Rainfall, canal seepage	PMD, Irrigation Department
Extraction Rate	High (industrial, domestic)	PCRWR / WASA reports

5.7 CLIMATE The region has a hot semi-arid climate characterized by extreme seasonal variations: very hot summers and mild winters. The hot season extends from April to July, with June being the hottest month (average high around 40–42°C). Winters are cooler, with January as the coldest month. Annual precipitation is approximately 500–700 mm, mostly during the monsoon season (July–August).

Climate parameters influence project design such as ventilation and dust suppression during dry periods, and stormwater drainage during monsoon.

TABLE 5.2: AVERAGE MONTHLY TEMPERATURE AND PRECIPITATION (LAHORE/SHEIKHUPURA REGION)

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Month	Avg. High (°C)	Avg. Low (°C)	Avg. Precipitation (mm)
Jan	19–21	6–8	20–30
Feb	22–24	9–11	30–50
Mar	28–30	14–16	30–50
Apr	35–37	20–22	20–30
May	39–41	25–27	15–25
Jun	40–42	28–30	50–80
Jul	36–38	27–29	150–200
Aug	35–37	26–28	140–180
Sep	34–36	24–26	60–90
Oct	32–34	19–21	10–20
Nov	26–28	12–14	5–15
Dec	21–23	7–9	10–20
Annual	~31–32	~19–20	~600–700

5.8 BIOLOGICAL ENVIRONMENT

5.8.1 Flora The area features vegetation typical of urban-industrial zones, including planted trees (Eucalyptus, Kikar, Neem) along roads and sparse grass/scrub on vacant plots. The project site, being vacant industrial land, has minimal vegetation with no

significant trees or endangered/protected flora. No protected forests or biodiversity hotspots are located within the industrial area.

5.8.2 Fauna Fauna includes common urban-adapted species such as rodents, stray dogs, cats, birds (sparrows, crows, mynahs, pigeons), and lizards. No endangered, threatened, or protected species have been recorded on or near the site. The project is not expected to affect any sensitive ecological receptors.

5.9 SOCIO-ECONOMIC RESOURCES The project area benefits from abundant skilled and semi-skilled labor available in the industrial economy of Sheikhupura. The local economy is driven by manufacturing, trade, and services. The proposed steel manufacturing facility will strengthen the industrial supply chain and contribute to employment generation.

Community infrastructure includes good road connectivity (Main Sheikhupura Road), access to healthcare, education, and utilities. Positive socio-economic impacts are anticipated through job creation during construction and operation.

5.10 DEMOGRAPHY Sheikhupura District has a significant urban and peri-urban population density, providing a readily available labor pool for the project.

5.11 LITERACY RATE Literacy rates in the district are relatively good, supporting recruitment of skilled and semi-skilled workers for machine operation, quality control, and technical roles.

5.12 INDUSTRIES AND COMMERCE Sheikhupura is part of the industrial corridor with strong presence in manufacturing and engineering sectors. The proposed Precision Forging unit aligns well with the local industrial economy and will contribute to economic development.

5.13 AMENITIES The district offers good access to hospitals, educational institutions, electricity (WAPDA grid), water sources, and transportation networks. The project location benefits from existing industrial infrastructure.

CHAPTER 6: STAKEHOLDER CONSULTATION

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CHAPTER 6: STAKEHOLDER CONSULTATION

Stakeholder consultation is a systematic process of engaging relevant individuals, communities, institutions, and government departments who may have an interest in or be affected by the environmental, social, economic, or operational aspects of the proposed project. This engagement ensures that concerns are identified early, incorporated into project planning and design, and adequately addressed to achieve sustainable development outcomes.

For the Construction of Steel Shed / Manufacturing Facility for Precision Forging (Pvt) Ltd located near Mundiali, Main Sheikhupura Road, Kot Abdul Malik, District Sheikhupura (proponent: Precision Forging (Private) Limited / Amjad Parvaiz), consultations were carried out to meet the mandatory requirements of the Punjab Environmental Protection Act (PEPA), 1997 (as amended), and the Punjab Environmental Protection (Review of Initial Environmental Examination and Environmental Impact Assessment) Regulations. The process followed Punjab Environmental Protection Department (EPD) guidelines, which emphasize public participation and inclusive stakeholder engagement for EIA projects. Consultations also drew upon best practices from similar industrial manufacturing projects in Punjab.

Emphasis was placed on key project aspects such as temporary construction impacts (dust, noise, and vibration from civil works for the steel shed, foundations, and machinery installation), operational activities (forging processes, raw material handling), solid waste (metal scrap), air emissions (fumes and dust), noise from machinery and generators, wastewater management, and drainage pipeline crossing. Because the facility is dedicated exclusively to precision forging, the scope of potential impacts is limited and manageable with proper mitigation.

6.1 OBJECTIVES OF STAKEHOLDER CONSULTATION Stakeholder consultation sessions were organized to obtain informed feedback from local communities, government officials, industry representatives, and potential workers. The specific objectives, tailored to this steel manufacturing project, are as follows:

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i. To transparently share project information, including the site layout, construction timeline, facility design (large steel shed with office block), and proposed environmental safeguards (dust suppression, wastewater management through septic tank and recharge pit, metal scrap recycling, ventilation, and noise control measures). ii. To discuss potential impacts on the physical environment (temporary dust and noise during construction, emissions and wastewater during operation), biological environment (minimal disturbance to sparse vegetation on vacant land), and socio-economic environment (positive impacts such as job creation in manufacturing sector; minor issues such as temporary traffic increase). iii. To identify and record stakeholders' specific concerns regarding air quality (dust & fumes), noise levels, solid waste (metal scrap management), water use, occupational health and safety, road entrance, and drainage crossing. iv. To gather practical suggestions for improving project design, such as effective dust suppression during construction, recycling of metal scrap, priority local hiring, worker training on safety and environmental procedures, and establishment of a grievance redress mechanism (GRM). v. To understand community perceptions about social benefits (employment opportunities and contribution to local industrial supply) and any potential adverse effects on nearby industrial/commercial activities. vi. To raise awareness about the project's benefits, including contribution to precision forging manufacturing growth, support for industrial development, economic uplift in Sheikhupura, and full compliance with Punjab Environmental Quality Standards (PEQS). vii. To ensure balanced consideration of both positive impacts (employment generation, local economic uplift) and manageable negative impacts, while promoting sustainable development. viii. To establish ongoing communication channels, including contact details of the proponent, a formal grievance redress mechanism, and periodic updates during construction and operation.

Stakeholder consultation forms an integral part of the EIA process under PEPA. It promotes transparency, reduces potential conflicts, and helps refine mitigation measures. Consultations covered the project's Area of Influence (AOI), generally within the industrial area and immediate surroundings.

6.2 METHODOLOGY OF STAKEHOLDER CONSULTATION The consultation methodology followed Punjab EPD guidelines for EIA projects and incorporated best practices for inclusive engagement. A multi-phase approach was adopted: • Scoping Phase (initial information sharing) • Detailed Consultation Phase (impact-specific discussions) • Follow-up Phase (verification of feedback)

Methods included:

- One-on-one interviews and key informant meetings with government officials and experts.
- Focus Group Discussions (FGDs) with homogeneous groups (e.g., local residents, industrial workers, nearby factory representatives).
- Community meetings using visual aids such as project layout maps and architectural drawings of the steel shed.
- Structured questionnaires covering environmental (dust, noise, waste management), social (employment, health), and operational concerns.
- Use of Urdu and Punjabi languages for better accessibility.
- Full documentation through attendance registers, signed consent forms, photographs (with permission), and detailed minutes of meetings.

Primary data came from direct field interactions, while secondary information was drawn from EPD reports and similar EIA studies of industrial units. The entire process ensured transparency, voluntary participation, and cultural sensitivity.

6.3 IDENTIFICATION OF STAKEHOLDERS Stakeholders were identified and categorized as per Punjab EPD guidelines:

Primary Stakeholders (directly affected or benefiting):

- Local residents and communities within the industrial area vicinity.
- Potential workers and laborers from the area.
- Nearby industrial units, landowners, and local businesses.

Secondary Stakeholders (indirectly involved or having influence):

- Government departments (Punjab EPA, relevant road authority for NOC, local authorities, Labour & Human Resource Department).
- Local NGOs and community-based organizations.
- Manufacturing sector associations.
- Academic or technical experts in environmental management and industrial processes.

Identification took into account the industrial character of the area along Sheikhupura Road.

6.4 CONSULTATION PROCESS An independent environmental consultancy team facilitated all consultation activities. Multiple community sessions and institutional meetings were held. Visual tools helped explain the steel shed operations and environmental controls. All proceedings were properly documented.

TABLE 6.1: SAMPLE LIST OF CONSULTED COMMUNITY MEMBERS (REPRESENTATIVE)

Sr. No.	Person Name (Representative)	Address / Area	Key Discussion Focus
1	Muhammad Aslam	Near project site	Dust and noise during construction
2	Abdul Rehman	Nearby industrial area	Traffic, road entrance and air quality
3	Fatima Bibi	Adjacent community	Employment opportunities

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Sr. No.	Person Name (Representative)	Address / Area	Key Discussion Focus
4	Ali Hussain	Local area	Waste (metal scrap) management
5	Sana Ullah	Sheikhupura	Job opportunities and safety

Additional FGDs were conducted with potential workers (machinery operation and training needs), nearby factory representatives (possible effects on operations), and women (family benefits and health concerns).

6.5 KEY FINDINGS: CONCERNS AND SUGGESTIONS Overall, stakeholders expressed strong support for the project due to its economic benefits, particularly job creation and contribution to the local manufacturing sector. Key findings included:

Environmental Concerns & Suggestions:

- Temporary dust and noise during construction — suggested water sprinkling, daytime scheduling, and use of barriers.
- Emissions and noise from machinery during operation — recommended proper ventilation design, regular maintenance, and acoustic measures.
- Solid waste (metal scrap) — emphasis on recycling and responsible disposal.
- Wastewater from cleaning/cooling — suggested septic tank, recharge pit and proper treatment to meet PEQS.
- Protection of nearby areas from runoff and proper drainage crossing.

Social & Health Concerns:

- Priority for local hiring.
- Worker safety training, fire safety protocols, and provision of PPE.
- Protection of community health from construction-related dust and traffic.

Positive Aspects Highlighted:

- Generation of direct and indirect employment.
- Contribution to local industrial supply and economy.
- Skill development in modern forging manufacturing.
- Potential for Corporate Social Responsibility (CSR) activities.

6.6 INTEGRATION OF FEEDBACK INTO PROJECT DESIGN All practical and feasible suggestions received from stakeholders have been incorporated into the project design and Environmental Management Plan (EMP), including:

- Implementation of dust suppression measures during construction.
- Installation of proper ventilation and machinery maintenance systems.
- Commitment to metal scrap recycling and scientific waste management.
- Priority local employment and comprehensive worker training on safety and environmental procedures.
- Establishment of a formal Grievance Redress Mechanism (GRM) with clear contact details of the proponent.
- Regular environmental monitoring and reporting to Punjab EPA.
- Compliance with NOC requirements for road entrance and drainage.

6.7 CONCLUSION AND ONGOING ENGAGEMENT The stakeholder consultations confirmed broad community and institutional support for the project, provided that recommended mitigation measures are effectively implemented. The consultations have helped strengthen the environmental and social safeguards of Precision Forging (Pvt) Ltd.

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A Stakeholder Engagement Plan (SEP) has been developed as part of this EIA It includes provisions for ongoing communication, periodic meetings during construction, effective grievance handling, and reporting to Punjab EPA. This will ensure adaptive management and sustained positive outcomes throughout the project lifecycle.

CHAPTER 7: POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

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CHAPTER 7: POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

This chapter presents a systematic identification, assessment, and mitigation of potential environmental impacts associated with the Construction of Steel Shed / Manufacturing Facility for Precision Forging (Pvt) Ltd. The assessment is based on the project's nature, scale, location, and activities. The facility is a dedicated medium-scale manufacturing unit near Mundiali, Main Sheikhupura Road, Kot Abdul Malik, District Sheikhupura, promoted by Precision Forging (Private) Limited / Amjad Parvaiz.

The project involves construction of a large steel shed with office block followed by installation and operation of forging machinery. Key activities during construction include site preparation, civil works for the steel structure and foundations, installation of machinery, utilities, septic tank, recharge pit, drainage (including road crossing), driveways, and landscaping. Operational activities will involve raw material handling, forging processes, cooling, finishing, packing, and waste management. Because the project does not involve heavy chemical synthesis or highly polluting processes, the overall environmental footprint is limited and manageable.

The impact assessment follows Punjab Environmental Protection Department (EPD) guidelines, the Punjab Environmental Protection (Review of IEE and EIA) Regulations, Punjab Environmental Quality Standards (PEQS), and best practices from similar industrial manufacturing projects in Punjab. Both adverse (negative) and beneficial (positive) impacts have been evaluated for the construction phase and operational phase.

7.1 IDENTIFICATION OF POTENTIAL ENVIRONMENTAL IMPACTS

Potential impacts were identified using a combination of:

- Desktop review and standardized IEE checklists
- Site-specific observations on the vacant industrial plot
- Stakeholder feedback (Chapter 6)

- Proponent consultations
- Professional judgment based on similar forging/manufacturing projects

Main project aspects that may generate impacts include: i. Ambient Air Quality — Dust from earthworks (construction) and minor fumes/dust from forging and material handling (operation). ii. Noise and Vibration — From construction machinery and forging equipment/generators. iii. Solid Waste — Construction debris and metal scrap during operation. iv. Wastewater — Minor quantities from construction labor and cooling/cleaning during operation. v. Soil and Groundwater — Risk of minor contamination from spills or improper waste handling. vi. Traffic and Vehicle Movement — Increased movement of raw materials and finished products (road entrance). vii. Occupational Health and Safety — Machinery operation, dust, heat exposure, and mechanical risks. viii. Socio-economic Conditions — Employment generation and minor localized disturbances. ix. Ecology — Minimal impact on vacant land with sparse vegetation. x. Resource Use — Electricity and water for machinery and operations.

No significant impacts are anticipated on archaeology, cultural heritage, or protected ecological areas.

7.2 SCOPING CRITERIA FOR IMPACTS Impacts were scoped using the following criteria adapted from Punjab EPD guidelines:

- Alignment with baseline environmental conditions (Chapter 5)
- Compliance with PEQS (noise, air quality, effluent standards)
- Stakeholder concerns (dust, noise, waste management, local employment, drainage)
- Spatial extent: Local (<1 km), moderate (1–5 km), regional (>5 km)
- Temporal extent: Short-term (construction phase), long-term (operational phase)
- Reversibility: Most impacts are reversible with proper mitigation
- Intensity: Low, moderate, or high based on magnitude and receptor sensitivity
- Nature: Adverse, beneficial, or neutral

7.3 METHODOLOGY FOR IMPACT ASSESSMENT Impacts were evaluated using a matrix approach that considers the severity (magnitude) and likelihood (probability) of each impact. Significance was determined as Insignificant, Low, Moderate, High, or Beneficial.

TABLE 7.1: IMPACT SIGNIFICANCE CRITERIA

Level	Severity of Impact	Likelihood
High	Significant or irreversible harm	High / Continuous
Moderate	Measurable but manageable damage	Moderate / Periodic
Low	Minor or negligible harm	Low / Rare
Beneficial	Positive contribution (e.g., employment)	—

7.4 POTENTIAL ENVIRONMENTAL IMPACTS ASSOCIATED WITH PROJECT LOCATION The selected site near Mundiali on Main Sheikhupura Road offers several advantages that minimize inherent risks:

- Located in a designated industrial area with compatible land use for manufacturing.
- Flat vacant land with excellent road access and industrial infrastructure.
- No dense residential areas or environmentally sensitive zones in the immediate vicinity.
- Sufficient space for the steel shed, supporting infrastructure, waste management, and green buffer.

Overall, the site is environmentally suitable for a modern forging facility, with low location-specific adverse impacts when standard mitigation measures are applied.

7.5 POTENTIAL IMPACTS DURING CONSTRUCTION PHASE AND

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MITIGATION MEASURES The construction phase duration will depend on approvals and procurement. Main activities include site preparation, civil works for the steel shed, foundations, drainage crossing, and installation of utilities. Impacts during this phase are temporary, localized, and largely reversible.

7.5.1 Dust Emissions and Air Quality

- Potential Impact: Generation of PM10/PM2.5 from earthworks, material handling, and vehicle movement. Significance: Moderate (short-term).
- Mitigation Measures: Regular water sprinkling, covering of material stockpiles, use of tarpaulin on trucks, speed limits on site, and provision of dust masks to workers. Ambient air monitoring during peak activities.

7.5.2 Noise and Vibration

- Potential Impact: Elevated noise and vibration from excavators, compactors, and machinery. Significance: Moderate (temporary).
- Mitigation Measures: Restrict noisy activities to daytime, use of silenced equipment, temporary noise barriers, and provision of ear protection to workers.

7.5.3 Solid Waste Generation

- Potential Impact: Construction debris (concrete, steel scrap, packaging waste). Significance: Low.
- Mitigation Measures: Segregation at source, recycling of usable materials, and disposal of remaining debris at approved sites. No open burning.

7.5.4 Wastewater and Runoff

- Potential Impact: Minor site runoff and domestic wastewater from labor. Significance: Low.
- Mitigation Measures: Sedimentation traps, portable septic tanks (as per drawings), recharge pit, and reuse of water for dust suppression where feasible.

7.5.5 Soil Contamination and Erosion

- Potential Impact: Minor risk from fuel/oil spills or exposed soil. Significance: Low.
- Mitigation Measures: Spill containment kits, proper storage of fuels, and re-vegetation after civil works.

7.5.6 Ecological Impacts

- Potential Impact: Negligible (sparse vegetation on vacant land). Significance: Insignificant.
- Mitigation Measures: Minimize clearing and develop a green belt with native plants.

7.5.7 Occupational Health and Safety

- Potential Impact: Risk of accidents and dust exposure. Significance: Moderate.
- Mitigation Measures: Mandatory PPE, daily safety briefings, first-aid facilities, insurance coverage, and fire safety training.

7.5.8 Socio-economic Impacts

- Potential Impact: Temporary traffic increase near Sheikhupura Road; positive job creation (50–100 workers). Significance: Overall beneficial.
- Mitigation Measures: Traffic management plan and priority local hiring.

7.6 POTENTIAL IMPACTS DURING OPERATIONAL PHASE AND MITIGATION MEASURES Operational impacts are long-term but can be effectively controlled through modern machinery and good housekeeping.

7.6.1 Air Emissions

- Potential Impact: Minor fumes and dust from forging and material handling. Significance: Low to Moderate.
- Mitigation Measures: Local exhaust ventilation, regular machinery maintenance, and proper raw material storage.

7.6.2 Noise Pollution

- Potential Impact: Noise from forging equipment, compressors, and generators. Significance: Moderate.

- Mitigation Measures: Acoustic enclosures, maintenance schedules, and ear protection for workers. Compliance with PEQS noise standards.

7.6.3 Solid Waste Generation

- Potential Impact: Metal scrap, rejected materials, and packaging waste. Significance: Moderate.
- Mitigation Measures: Recycling/reuse of metal scrap, segregation, and responsible disposal of non-recyclable waste.

7.6.4 Wastewater Generation

- Potential Impact: Wastewater from cooling and equipment cleaning. Significance: Low to Moderate.
- Mitigation Measures: Septic tank and recharge pit system (as per approved drawings) with proper treatment to meet PEQS. Efficient water use.

7.6.5 Occupational Health and Safety

- Potential Impact: Risks from machinery, heat, dust, and mechanical hazards. Significance: Moderate.
- Mitigation Measures: Comprehensive training, PPE, regular health check-ups, and emergency response plan.

7.6.6 Socio-economic Impacts

- Potential Impact: Creation of permanent jobs and support to local manufacturing sector. Significance: Beneficial.
- Mitigation Measures: Local hiring priority, skill training, and CSR initiatives.

7.7 WAYS OF ACHIEVING MITIGATION MEASURES Mitigation will be achieved through:

- Incorporation into detailed engineering design and layout plan.
- Implementation of a comprehensive Environmental Management Plan (EMP).
- Appointment of a dedicated Health, Safety & Environment (HSE) officer.

- Regular monitoring and third-party audits.

7.8 ENVIRONMENTAL ENHANCEMENT MEASURES

- Development of a green belt around the boundary.
- Promotion of energy-efficient machinery and processes.
- Metal scrap recycling program.
- Community support through local employment and CSR activities.

7.9 MONITORING AND COMPLIANCE

- Appointment of an HSE officer.
- Adequate budget for environmental monitoring.
- Periodic reporting to Punjab EPA.

TABLE 7.2: SUMMARY OF KEY ENVIRONMENTAL IMPACTS & MITIGATION MEASURES

Potential Impact	Phase	Significance	Key Mitigation Measures
Dust / Particulates	Construction	Moderate	Water sprinkling, covered handling
Air Emissions (Fumes)	Operation	Low-Moderate	Ventilation, machinery maintenance
Noise &	Both	Moderate	Daytime

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Potential Impact	Phase	Significance	Key Mitigation Measures
Vibration			restriction, enclosures, PPE
Solid Waste (Scrap/Debris)	Both	Moderate	Recycling, segregation, proper disposal
Wastewater	Both	Low	Septic tank, recharge pit, treatment to PEQS
Occupational Health & Safety	Both	Moderate	PPE, training, emergency plan
Socio-economic (Employment)	Both	Beneficial	Local hiring, skill training, CSR

With the implementation of the proposed mitigation measures and the Environmental Management Plan (EMP), all potential adverse impacts will be reduced to acceptable levels. The project will operate in an environmentally sustainable manner while

delivering significant socio-economic benefits to the Sheikhupura region.

CHAPTER 8: ENVIRONMENTAL MANAGEMENT & MONITORING PLAN (EMMP)

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CHAPTER 8: ENVIRONMENTAL MANAGEMENT & MONITORING PLAN (EMMP)

This chapter presents the Environmental Management and Monitoring Plan (EMMP) for the Construction of Steel Shed / Manufacturing Facility for Precision Forging (Pvt) Ltd located near Mundiali, Main Sheikhupura Road, Kot Abdul Malik, District Sheikhupura (proponent: Precision Forging (Private) Limited / Amjad Parvaiz).

The EMMP covers both the construction phase and the operational phase to ensure the project maintains a minimal environmental footprint, achieves full compliance with the Punjab Environmental Quality Standards (PEQS), the Punjab Environmental Protection Act (PEPA), 1997 (as amended), and the relevant Punjab Environmental Protection Regulations.

Since the facility is dedicated exclusively to precision forging manufacturing, the EMMP focuses on the specific activities of civil construction of the steel shed and office block, installation of forging machinery and supporting systems, raw material handling, forging processes, and waste management. Key environmental aspects addressed include dust and particulates from construction, noise from machinery and generators, solid waste (metal scrap and construction debris), wastewater from cooling and cleaning, occupational health and safety, energy consumption, drainage crossing, and resource management.

The plan incorporates Punjab EPD guidelines for industrial projects, a condition-wise compliance matrix, mitigation tracking, performance indicators, corrective action protocols, and adaptive management based on monitoring results and stakeholder feedback.

8.1 OBJECTIVES OF THE EMMP The primary objectives of the EMMP are to:

i. Ensure systematic implementation of all mitigation measures identified in Chapter 7 to prevent, minimize, or offset adverse environmental impacts during construction (e.g., dust, noise, vibration, temporary waste, drainage) and operation (e.g., minor fumes from forging, noise from machinery, wastewater from cooling/cleaning, and

metal scrap management). ii. Establish a robust and verifiable monitoring framework to track environmental performance against PEQS limits, project commitments, and stakeholder expectations, enabling early detection and correction of any deviations. iii. Define clear institutional responsibilities, training requirements, and resource allocation to achieve and maintain compliance with Punjab EPA approval conditions. iv. Enable adaptive management by using monitoring data, audit findings, and stakeholder inputs to continuously improve environmental performance. v. Promote resource efficiency (water and energy conservation), waste minimization (especially metal scrap recycling), proper maintenance of machinery and ventilation systems, and positive community contributions (local employment). vi. Facilitate transparent reporting to Punjab EPA and support the long-term sustainable operation of Precision Forging (Pvt) Ltd.

8.2 COMPONENTS OF THE EMMP The EMMP consists of the following interconnected components: i. Environmental Management Plan (EMP) — Detailed mitigation actions, Standard Operating Procedures (SOPs) for machinery operation, raw material handling, metal scrap recycling, responsibilities, and timelines. ii. Environmental Monitoring Plan — Parameters, methods, frequency, locations, and responsible parties. iii. Communication, Reporting, and Documentation — Protocols for record-keeping and reporting. iv. Institutional Arrangements and Capacity Building — Organizational structure, roles, and training programs. v. Grievance Redress Mechanism (GRM) — Structured process for handling complaints. vi. Budget and Resources — Cost estimates and funding sources. vii. Auditing and Adaptive Management — Procedures for periodic review and improvement.

8.3 INSTITUTIONAL ARRANGEMENTS AND RESPONSIBILITIES A clear institutional framework will be established to ensure effective implementation of the EMMP.

The overall responsibility for EMMP implementation lies with the Project Proponent (Precision Forging (Private) Limited / Amjad Parvaiz). Day-to-day execution will be supervised by a designated Health, Safety & Environment (HSE) Officer appointed for

the project.

Key Roles and Responsibilities:

- **Project Proponent**: Provide necessary resources, ensure overall compliance, liaise with Punjab EPA and relevant authorities (including road NOC), and oversee the entire EMMP.
- **HSE Officer**: Oversee implementation of EMP, coordinate monitoring (air, water, noise, waste), conduct internal audits, prepare compliance reports, and manage occupational health & safety protocols.
- **Construction Contractor**: Implement all construction-phase mitigation measures (dust suppression, noise control, waste management, drainage crossing), ensure worker safety, and maintain daily environmental records.
- **Factory / Operational Manager**: Ensure compliance during day-to-day manufacturing operations, including machinery maintenance, raw material handling, metal scrap recycling, cooling systems, and waste management.
- **Workers / Staff**: Follow SOPs, use required PPE, report any environmental or safety concerns immediately, and participate in training programs.

External support will include third-party laboratories for monitoring (wastewater, air quality, noise) and consultants for periodic audits as required by Punjab EPA. Regular training sessions will be conducted for all staff on environmental procedures, machinery operation, fire safety, emergency response, waste (metal scrap) handling, occupational health & safety, and resource conservation.

TABLE 8.1: ROLES AND RESPONSIBILITIES

Entity / Role	Key Responsibilities
Project Proponent (Mr. Faheem Anwar /	Overall leadership and accountability; appoint HSE/Environmental Officer; ensure

Company)	budget allocation; submit required reports to Punjab EPA; respond to grievances and regulatory queries.
HSE / Environmental Officer (full-time during operation; part-time during construction)	Day-to-day implementation and supervision; coordinate monitoring; organize training; maintain records; prepare internal and compliance reports; liaise with Punjab EPA and third-party laboratories.
Contractor (Construction Phase)	Execute site-specific mitigation measures (dust suppression, noise control, waste segregation, safety); report incidents immediately; ensure worker compliance.
Third-Party Accredited Laboratory	Conduct sampling and analysis of air, noise, wastewater (if any), and other parameters; issue certified reports.
Punjab EPA (Sheikhupura / Lahore Office)	Review reports; conduct site inspections and audits; enforce approval conditions.
Local Community / Stakeholders	Participate in GRM; provide feedback during consultations.

8.4 ENVIRONMENTAL MANAGEMENT PLAN

The EMP translates the mitigation measures from Chapter 7 into practical, trackable actions with clear responsibilities and performance indicators. Standard Operating Procedures (SOPs) will be developed for key activities such as dust control, painting booth operation, scrap handling, and emergency response.

TABLE 8.2: MITIGATION MANAGEMENT MATRIX (SUMMARY)

EPA NOC REPORT

Impact Area	Key Mitigation Measures	Phase	Responsibility	Performance Indicator / Target	Frequency
Dust & Particulates	Water sprinkling, dust extraction systems, covered material handling, filtration in paint booths	Construction & Operation	HSE Officer / Contractor	No visible dust beyond boundary; PM10/PM2.5 within PEQS	Daily (construction); Quarterly (operation)
Noise & Vibration	Acoustic enclosures, restricted working hours, ear protection, equipment maintenance	Both	HSE Officer / Contractor	Noise ≤75 dB(A) at perimeter; worker exposure logs	Bimonthly
Solid Waste (Steel Scrap)	Segregation at source, recycling of all metal scrap, proper storage	Both	HSE Officer	>90% recycling rate; zero illegal dumping	Monthly audits
Wastewater (if generated)	Efficient water use, recycling where possible, treatment to PEQS before discharg	Operation	HSE Officer / Operator	Compliance with PEQS; reuse where feasible	Quarterly lab tests

	e				
Occupational Health & Safety	Mandatory PPE, training, ventilation in painting areas, machinery guarding, emergency plans	Both	HSE Officer	Zero lost-time incidents; 95%+ training attendance	Monthly inspections
Traffic & Community Disturbance	Traffic management plan, local hiring priority	Construction	Contractor / HSE Officer	No major complaints; local employment target	As required

8.5 ENVIRONMENTAL MONITORING PLAN

Monitoring will verify the effectiveness of mitigation measures and ensure early detection of any issues. It includes visual inspections, instrumental measurements, and laboratory analysis.

TABLE 8.3: ENVIRONMENTAL MONITORING PLAN (SUMMARY)

Environmental Component	Parameters to be Monitored	Applicable Standards (PEQS)	Monitoring Frequency	Location(s)	Responsibility	Method / Equipment
Ambient Air Quality	PM10, PM2.5, dust/particulates	PEQS limits	Bimonthly (construction); Quarterly (operation)	Site boundaries & down wind	Third-party lab / HSE Officer	High-volume samplers
Noise Levels	Equivalent continuous sound	≤75 dB(A) indus	Bimonthly (construction);	Site perimeter & nearb	HSE Officer / Lab	Sound level meter

	level dB(A)	trial dayti me	Quarterl y (operati on)	y recept ors		
Solid Waste Manage ment	Quantity, segregati on, recycling rate	Zero illega l dump ing	Monthl y	Waste storag e area	HSE Officer	Wast e logs & visua l audit s
Wastew ater (if any)	pH, TSS, BOD, COD, TDS (if generate d)	PEQ S efflue nt stand ards	Quarterl y	Any disch arge point	Third-party accredit ed lab	Grab / comp osite samp ling
Occupat ional Health & Safety	Incident records, PPE complian ce	Inter nal + PEP A stand ards	Monthl y	Work areas	HSE Officer	Chec klists & medi cal logs
Water Consum ption	Daily/we ekly usage & recycling rate	Inter nal effici ency target s	Monthl y	Meter ed sourc es	HSE Officer / Operato r	Flow meter s & logs

All laboratory analyses will be carried out by Punjab EPA-approved accredited laboratories. Baseline data from Chapter 5 will be used for comparison where relevant.

8.6 SUPERVISION, AUDITING AND CORRECTIVE ACTIONS

- The HSE Officer will conduct daily/weekly site supervision during construction and regular inspections during operation.
- Non-compliances will trigger immediate corrective actions (within 7–14 days depending on severity).
- Annual third-party environmental audits will be conducted.
- Punjab EPA will be notified immediately of any major non-compliance.
- Adaptive management will be applied based on monitoring results and audit findings.

8.7 COMMUNICATION AND DOCUMENTATION

All environmental records (monitoring data, lab reports, training records, incident logs, grievance registers, and photographs) will be maintained in both digital and physical formats.

- Internal monthly reviews will be held.
- Quarterly and annual compliance reports (including Semi-Annual Environmental Monitoring Reports where required) will be submitted to Punjab EPA.
- Relevant information will be shared with stakeholders during periodic consultations.

8.8 GRIEVANCE REDRESS MECHANISM (GRM)

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

- **Level 1**: Site-level resolution by HSE Officer (within 7 days).
- **Level 2**: Escalation to Project Proponent (Mr. Faheem Anwar) (within 15 days).
- **Level 3**: Referral to Punjab EPA if still unresolved (within 30 days).

The GRM will be publicized through site signage, community meetings, and contact details (phone/email). Anonymous complaints will be accepted, and resolution rates will be tracked (>90% target within defined timelines).

8.9 ENVIRONMENTAL TRAINING AND CAPACITY BUILDING

Training programs will be conducted to ensure all personnel understand their roles in EMMP implementation.

TABLE 8.4: TRAINING SCHEDULE (SUMMARY)

Target Personnel	Key Topics	Frequency	Trainer
Management & Proponent Staff	EMMP overview, compliance, reporting	Induction + Quarterly	External expert / HSE Officer
All Workers & Operators	PPE usage, safety, waste segregation, emergency response	Induction + Bimonthly refreshers	HSE Officer

Machine & Painting Operators	Dust/fume control, machinery safety, painting booth operation	Monthly / On-the-job	HSE Officer / External trainer
Contractors	Construction safety, dust & noise control	At mobilization + Monthly	HSE Officer

Attendance and effectiveness will be evaluated through quizzes and practical drills.

8.10 BUDGET AND RESOURCES FOR EMMP IMPLEMENTATION

An adequate budget will be allocated for successful implementation of the EMMP (approximately 2–3% of the project cost).

Indicative Annual Budget (Operational Phase):

- Environmental monitoring & laboratory analysis: PKR 800,000 – 1.2 million
- Training & capacity building: PKR 300,000 – 500,000
- PPE, safety equipment & maintenance: PKR 400,000
- Green belt maintenance & waste handling: PKR 200,000
- GRM & community engagement: PKR 100,000
- Contingency (10–15%): As required

The proponent will ensure timely release of funds from project operational expenditure. The budget will be reviewed annually and adjusted based on actual needs and audit recommendations.

This EMMP provides a comprehensive, practical, and enforceable framework for managing environmental aspects throughout the project lifecycle. Full implementation of this plan will be a mandatory condition of the Punjab EPA Environmental Approval / NOC and will ensure the New Fender Manufacturing Unit operates sustainably while delivering economic benefits to the region.

CHAPTER 9: CONCLUSION AND RECOMMENDATIONS

EPA NOC REPORT

CHAPTER 9: CONCLUSION AND RECOMMENDATIONS

This Environmental Impact Assessment (EIA)) Report has been prepared for the Construction of Steel Shed / Manufacturing Facility for Precision Forging (Pvt) Ltd located near Mundiali, Main Sheikhupura Road, Kot Abdul Malik, District Sheikhupura. The project proponent is Precision Forging (Private) Limited (represented by Amjad Parvaiz, Manager).

The study has systematically assessed the potential environmental impacts associated with both the construction and operational phases of the project. The proposed project involves civil construction of a large steel shed with office block, foundations, utilities, drainage systems, and installation of forging machinery and supporting systems for precision forging operations. No unrelated or heavy chemical processing activities are involved.

9.1 CONCLUSION The assessment concludes that the project is environmentally feasible and sustainable. Most potential impacts are short-term, localized, and manageable during the construction phase, while operational impacts (primarily related to minor process fumes, noise from machinery, metal scrap management, and wastewater from cooling/cleaning) can be effectively controlled through modern machinery, good housekeeping practices, and the proposed mitigation measures.

Key findings of the Environmental Impact Assessment (EIA) are:

- The site is a vacant industrial plot in an approved industrial area with no sensitive ecological features, protected areas, or significant resettlement issues.
- Construction-phase impacts (dust, noise, waste, drainage crossing) are temporary and can be minimized through standard best management practices.
- Operational-phase impacts are low to moderate and can be reduced to acceptable levels through proper ventilation, machinery maintenance, metal scrap recycling, septic tank and recharge pit system, and full compliance with Punjab Environmental Quality Standards (PEQS).

- The project will generate significant positive socio-economic benefits, including direct and indirect employment, contribution to the local manufacturing sector, support for industrial development, and economic growth in Sheikhupura.
- Stakeholder consultations revealed strong community support, particularly for employment opportunities, provided that environmental safeguards are properly implemented.

With the effective implementation of the Environmental Management and Monitoring Plan (EMMP) presented in Chapter 8, all identified adverse impacts can be mitigated to insignificant or low levels. The project fully complies with the requirements of Section 12 of the Punjab Environmental Protection Act (PEPA), 1997, and relevant regulations.

9.2 RECOMMENDATIONS

1. **Grant of Environmental Approval**: It is recommended that the Punjab Environmental Protection Agency (EPA) grant the Construction Phase NOC / Environmental Approval for the project, subject to strict adherence to the mitigation measures and EMMP outlined in this Environmental Impact Assessment (EIA)
2. **Implementation of EMMP**: The proponent shall fully implement the Environmental Management and Monitoring Plan, including appointment of a qualified HSE Officer, regular monitoring, and timely submission of compliance reports to EPA.
3. **Key Mitigation Actions**:
    - Adopt dust suppression, noise control, and proper waste management during construction.
    - Install and maintain proper ventilation and local exhaust systems for forging operations.
    - Ensure recycling of metal scrap, proper wastewater management through septic tank and recharge pit, and machinery maintenance.
    - Provide comprehensive training and PPE to all workers on occupational health,

safety, and fire prevention.

- Comply with NOC conditions for main entrance on Sheikhupura Road and drainage pipeline crossing.

4. **Monitoring and Reporting**: Conduct regular environmental monitoring (air quality, noise, wastewater, waste management) and submit quarterly compliance reports to Punjab EPA during the first year of operation, followed by biannual reports.
5. **Stakeholder Engagement**: Maintain ongoing communication with local communities and nearby industries through the Grievance Redress Mechanism (GRM) and implement suggested CSR activities.
6. **Adaptive Management**: Review and update the EMMP periodically based on monitoring results, audits, and any new stakeholder feedback.

The Construction of Steel Shed / Manufacturing Facility for Precision Forging (Pvt) Ltd will not only meet the growing demand for precision forged parts in Pakistan but will also serve as a model of environmentally responsible industrial development in the Sheikhupura industrial area. The project is expected to deliver substantial socio-economic benefits while maintaining a minimal environmental footprint.