RAMAY
DEVELOPERS
PVT LTD

MODEL CITY

HOUSING SCHEME

MODEL CITY HOUSING SCHEME
ENVIRONMENTAL IMPACT ASSESSMENT

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

MODEL CITY HOUSING SCHEME
ENVIRONMENTAL IMPACT ASSESSMENT

EXECUTIVE SUMMARY

The project titled **"Model City Housing Scheme"** is proposed at **Mouza Fatta Katta, Chak No. 9/NP, Tehsil Sadiqabad, District Rahim Yar Khan, Pakistan** by **M/S Ramay Developers Pvt. Ltd.** through its authorized proponent **Mr. Muhammad Nazir Ramay (CNIC: 34101-4787695-3)**.

The proposed project involves the development of a planned residential housing scheme consisting of multiple blocks, residential plots, road infrastructure, and public utility areas. The scheme aims to provide a well-organized and sustainable living environment with proper infrastructure, access roads, and essential services.

The project site is currently vacant, 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 the Pakistan Environmental Protection Act, 1997.

SALIENT FEATURES OF THE PROJECT

SR. NO	SALIENT FEATURES	DESCRIPTION
i	Title of Project	Model City Housing Scheme
ii	Location of Project	Mouza Fatta Katta, Chak No. 9/NP, Tehsil Sadiqabad, District Rahim Yar Khan
iii	Nature of Project	Development of a residential housing scheme including land development, road network, residential plots, and public utility areas
iv	Total Area	533 Kanal 7.4 Marla

MODEL CITY HOUSING SCHEME
ENVIRONMENTAL IMPACT ASSESSMENT

SR. NO	SALIENT FEATURES	DESCRIPTION
v	Name of Project Proponent	M/S Ramay Developers Pvt. Ltd. (Mr. Muhammad Nazir Ramay)
vi	Type of Study	Environmental Impact Assessment (EIA) – Construction Phase NOC
vii	Settlement Area	533 Kanal
viii	Transferable Area	198 Kanal

HOUSING SCHEME PLANNING AND BLOCK DISTRIBUTION

Block Division

The proposed housing scheme has been planned in a systematic block-wise configuration to ensure efficient land utilization and organized development. The scheme consists of the following blocks:

- Block A
- Block B
- Block C
- Block D

Land Use Allocation

The overall land use of the scheme includes:

- Residential plots
- Road network (main roads and streets)
- Public utility areas (parks, open spaces, community facilities, etc.)

MODEL CITY HOUSING SCHEME
ENVIRONMENTAL IMPACT ASSESSMENT

BRIEF OUTLINE OF THE PROJECT

1. Area of Project

The total land allocated for the project is **533 Kanal 7.4 Marla**, out of which:

- Settlement Area: **533 Kanal**
- Transferable Area: **198 Kanal**

2. Nature of Area

The proposed site is located in Tehsil Sadiqabad, District Rahim Yar Khan. The land is suitable for residential development and does not fall within environmentally sensitive zones such as protected forests, wetlands, or archaeological sites.

3. QUANTITY OF WASTEWATER

Construction Phase

- Limited wastewater generation is expected.
- Wastewater will mainly consist of domestic sewage from construction workers.
- Disposal will be managed through septic tanks or temporary sanitation facilities.

Operational Phase

- Wastewater will be generated from residential use, including domestic sewage.
- Stormwater drainage will also be part of the system.
- Proper sewerage and drainage systems will be developed.
- Wastewater will be disposed of in compliance with **Punjab Environmental Quality Standards (PEQS)**.

4. QUANTITY OF GASEOUS EMISSIONS

Construction Phase

- Dust emissions due to excavation, land leveling, and material handling.
- Exhaust emissions from construction machinery and vehicles.

Operational Phase

- Vehicular emissions within the housing scheme.
- Minor emissions from domestic activities.
- Plantation and green belts will help mitigate air pollution.

ENVIRONMENTAL IMPACTS ANTICIPATED DURING CONSTRUCTION PHASE

- Dust generation due to excavation and site development.
- Noise and vibration from construction machinery.
- Exhaust emissions from vehicles and equipment.
- Generation of construction waste such as debris.
- Occupational health and safety risks to workers.
- Temporary traffic disturbances and minor social impacts.

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

ENVIRONMENTAL IMPACTS ANTICIPATED DURING OPERATIONAL PHASE

- Generation of domestic wastewater.
- Solid waste generation from residential activities.
- Air emissions from vehicular movement.
- Noise pollution from traffic and community activities.
- Risk of improper waste disposal affecting soil quality.

With proper planning and management, these impacts are not expected to be significant.

MITIGATION MEASURES

1. Construction Phase

- Water sprinkling to control dust emissions.
- Proper maintenance of machinery.

- Safe disposal of construction waste.
- Provision of PPE to workers.
- Employment of local labor where possible.

2. Operational Phase

- Development of proper sewerage and drainage systems.
- Solid waste collection and disposal system.
- Plantation and green belt development.
- Traffic management within the scheme.
- Awareness programs for residents on waste management.
- Regular maintenance of infrastructure.

PROPOSED ENVIRONMENTAL MONITORING PLAN

- Monitoring of wastewater disposal system.
- Inspection of solid waste management practices.
- Monitoring of ambient air quality.
- Noise level monitoring in residential areas.
- Regular inspection of drainage and sewerage systems.
- Environmental audits and compliance reporting to Punjab EPA.

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ENVIRONMENTAL IMPACT ASSESSMENT

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MODEL CITY HOUSING SCHEME
ENVIRONMENTAL IMPACT ASSESSMENT

CHAPTER NO 01

INTRODUCTION

CHAPTER NO. 01 INTRODUCTION

1.1 PROJECT BACKGROUND

The project titled **"Model City Housing Scheme"** is proposed at **Mouza Fatta Katta, Chak No. 9/NP, Tehsil Sadiqabad, District Rahim Yar Khan, Punjab, Pakistan** by **M/S Ramay Developers Pvt. Ltd.**, through its authorized proponent **Mr. Muhammad Nazir Ramay (CNIC: 34101-4787695-3)**.

This document presents the **Environmental Impact Assessment (EIA)** of the proposed housing scheme, prepared to fulfill statutory environmental requirements and to evaluate potential environmental and socio-economic impacts associated with the project.

The proposed project involves the development of a **planned residential housing scheme** comprising multiple blocks (A, B, C, and D), residential plots, internal road network, and public utility areas such as parks, open spaces, and community infrastructure.

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

1.2 PURPOSE AND OBJECTIVES OF THE EIA

The primary purpose of this EIA is to ensure that the proposed housing scheme is developed in an environmentally sustainable manner while complying with all applicable environmental laws and regulations.

Specific Objectives:

- To fulfill legal requirements under environmental laws of Punjab.
- To establish baseline environmental conditions of the project area.

- To identify and evaluate potential environmental impacts.
- To assess impacts on air, water, soil, noise, and socio-economic conditions.
- To propose mitigation measures to minimize adverse impacts.
- To develop an **Environmental Management Plan (EMP)**.
- To design an **Environmental Monitoring Plan** in compliance with PEQS.
- To support sustainable urban development and informed decision-making by Punjab EPA.

1.3 LEGAL AND REGULATORY FRAMEWORK

The EIA has been conducted in accordance with the following legal and regulatory requirements:

1.3.1 Applicable Laws and Regulations

- Punjab Environmental Protection Act, 1997 (amended)
- Punjab EPA (Review of IEE & EIA) Regulations, 2000
- Punjab Environmental Quality Standards (PEQS)
- Local development and land use regulations

1.3.2 Section 12 of PEPA, 1997

As per Section 12:

"No proponent of a project shall commence construction or operation unless an IEE or EIA has been filed and approval has been obtained from the Provincial Agency."

1.3.3 Requirement of EIA for the Project

The proposed housing scheme falls under EIA requirements due to:

- Large land area (**533 Kanal 7.4 Marla**)
- Significant land development and infrastructure works

- Potential environmental impacts related to urban development
- Increased population density and resource demand

1.4 PROJECT PROPONENT DETAILS

- **Project Title:** Model City Housing Scheme
- **Company Name:** M/S Ramay Developers Pvt. Ltd.
- **Project Proponent:** Mr. Muhammad Nazir Ramay
- **CNIC:** 34101-4787695-3
- **Total Area:** 533 Kanal 7.4 Marla
- **Settlement Area:** 533 Kanal
- **Transferable Area:** 198 Kanal
- **Location:** Mouza Fatta Katta, Chak No. 9/NP, Tehsil Sadiqabad, District Rahim Yar Khan
- **Project Phase:** Construction Phase NOC

1.5 NATURE, SIZE AND LOCATION OF PROJECT

1.5.1 Nature of Project

The project involves development of a residential housing scheme including:

- Land leveling and site preparation
- Development of residential plots
- Construction of internal road network
- Installation of sewerage and drainage systems
- Provision of water supply and utilities
- Development of parks, green belts, and public utility areas

1.5.2 Size of Project

The project is categorized as a **large-scale housing development**, with:

- Total Area: **533 Kanal 7.4 Marla**
- Multiple residential blocks (A, B, C, D)
- Significant infrastructure development
- Capacity to accommodate a large residential population

1.5.3 Location Description

- Located in Tehsil Sadiqabad, District Rahim Yar Khan
- Accessible through existing road network
- Surrounding area consists of mixed land use (agricultural/residential transition)
- Site is currently vacant with minimal vegetation
- No protected or environmentally sensitive areas nearby

1.6 HOUSING SCHEME PLANNING AND LAND USE

1.6.1 Block Distribution

The scheme is divided into the following blocks:

- Block A
- Block B
- Block C
- Block D

1.6.2 Land Use Allocation

The land use plan includes:

- Residential plots
- Road network (main roads and streets)
- Public utility areas (parks, mosques, community spaces, etc.)

7 SCOPE OF THE EIA STUDY

The scope includes:

- Review of project planning and design
- Baseline environmental assessment
- Identification of environmental impacts
- Impact evaluation and significance analysis
- Development of mitigation measures
- Preparation of EMP and monitoring plan

1.8 METHODOLOGY AND DATA COLLECTION

The EIA study is based on:

- Site visits and field surveys
- Consultation with project proponent
- Collection of primary and secondary data
- Review of environmental regulations and PEQS
- Impact identification using checklists
- Evaluation based on magnitude, duration, and reversibility

1.9 BASELINE ENVIRONMENTAL CONDITIONS

1.9.1 Physical Environment

- Climate: Semi-arid with hot summers
- Air Quality: Generally moderate
- Noise Levels: Low to moderate
- Soil: Fertile alluvial soil
- Water Resources: Groundwater is primary source

1.9.2 Biological Environment

- Limited vegetation on site
- No endangered species present
- No protected habitats nearby

1.9.3 Socio-Economic Environment

- Availability of local labor
- Positive impact through employment generation
- No displacement or land acquisition conflicts

1.10 ENVIRONMENTAL IMPACTS

1.10.1 Construction Phase

- Dust emissions from excavation
- Noise from machinery
- Construction waste generation
- Traffic disturbances

1.10.2 Operational Phase

- Domestic wastewater generation
- Solid waste from residents
- Vehicular emissions
- Noise from traffic and community activities

1.11 MITIGATION MEASURES

Construction Phase

- Water sprinkling for dust control
- Proper waste management

- PPE for workers
- Machinery maintenance

Operational Phase

- Sewerage and drainage systems
- Solid waste management system
- Plantation and green belts
- Traffic management planning
- Public awareness programs

1.12 ENVIRONMENTAL MANAGEMENT PLAN (EMP)

The EMP includes:

- Roles and responsibilities
- Implementation schedule
- Environmental compliance procedures
- Reporting to Punjab EPA
- Emergency response planning

1.13 ENVIRONMENTAL MONITORING PLAN

- Monitoring of wastewater disposal
- Air quality monitoring
- Noise level monitoring
- Solid waste management checks
- Regular environmental audits

1.14 STAKEHOLDER CONSIDERATIONS

- Employment opportunities for local population

- Improved housing facilities
- Economic development in the region
- Minimal adverse social impacts

1.15 NEED AND JUSTIFICATION OF THE PROJECT

- Increasing demand for planned housing in Sadiqabad region
- Provision of organized urban infrastructure
- Improvement in living standards
- Contribution to regional economic growth

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CHAPTER NO. 02

LEGISLATIVE AND REGULATORY FRAMEWORK

CHAPTER NO. 02 LEGISLATIVE AND REGULATORY FRAMEWORK

2.1 INTRODUCTION

Pakistan is a signatory to a wide range of **Multilateral Environmental Agreements (MEAs)** and international conventions aimed at environmental protection, sustainable development, climate resilience, biodiversity conservation, and pollution control. These commitments have guided the development of a comprehensive environmental legal and institutional framework within the country.

The environmental challenges addressed through this framework include:

- Urban expansion and unplanned housing development
- Water contamination and groundwater depletion
- Air pollution due to traffic and construction activities
- Improper solid waste disposal
- Noise pollution in residential areas
- Climate change impacts and urban heat island effects
- Conservation of natural resources and green spaces

Following the **18th Constitutional Amendment**, environmental governance became a provincial responsibility. Consequently, the **Government of Punjab**, through the **Punjab Environmental Protection Agency (EPA Punjab)**, is responsible for environmental regulation, monitoring, and enforcement.

This chapter outlines the legal, regulatory, and policy framework applicable to the proposed **Model City Housing Scheme**, which involves large-scale land development, infrastructure provision, and residential settlement planning.

2.2 PUNJAB ENVIRONMENTAL PROTECTION ACT (PEPA), 1997

2.2.1 Legal Status

The **Punjab Environmental Protection Act, 1997 (amended)** is the principal legislation governing environmental protection in Punjab. It provides a comprehensive framework for environmental regulation, compliance, and enforcement.

The **Punjab EPA** is responsible for:

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

2.2.2 Key Provisions Relevant to the Project

I. Environmental Protection Council

Provides policy direction and strategic guidance for sustainable development and environmental protection in Punjab.

II. Punjab Environmental Protection Agency

Acts as the regulatory authority responsible for environmental approvals, compliance monitoring, and enforcement.

III. Section 11 – Prohibition of Discharges

- Prohibits discharge of pollutants exceeding PEQS limits.
- Relevant to the housing scheme in terms of:
    - Dust emissions during construction
    - Domestic wastewater generation
    - Solid waste disposal
    - Noise from construction machinery

IV. Section 12 – IEE/EIA Requirement

- Mandatory environmental approval before project initiation.

- The proposed housing scheme qualifies for **EIA** due to its large size and urban development impacts.

V. Environmental Protection Orders (EPOs)

EPA may issue orders in case of environmental violations.

VI. Environmental Tribunals

Provide legal forums for resolution of environmental disputes.

2.3 PUNJAB ENVIRONMENTAL QUALITY STANDARDS (PEQS)

The project will comply with **PEQS** for air, water, noise, and waste management throughout construction and operational phases.

2.3.1 PEQS for Ambient Air Quality

Construction activities such as excavation, grading, and transportation may generate dust and emissions.

TABLE 2.1: PEQS FOR AMBIENT AIR QUALITY

Sr. No	Pollutant	Averaging Time	Standard Value
1	SO_2	Annual	80 µg/m³
		24 Hours	120 µg/m³
2	NO_2	Annual	40 µg/m³
		24 Hours	80 µg/m³
3	O_3	1 Hour	130 µg/m³
4	PM10	Annual	120 µg/m³

Sr. No	Pollutant	Averaging Time	Standard Value
		24 Hours	150 µg/m³
5	PM2.5	Annual	15 µg/m³
		24 Hours	35 µg/m³
6	CO	8 Hours	5 mg/m³

2.3.2 PEQS for Municipal Effluents

Wastewater will primarily be **domestic sewage** from residential units.

TABLE 2.2: PEQS FOR EFFLUENTS

Parameter	Standard Value
pH	6 – 10
BOD	≤80 mg/L
COD	≤150 mg/L
TSS	≤200 mg/L
Oil & Grease	≤10 mg/L
TDS	≤3500 mg/L

2.3.3 PEQS for Drinking Water

TABLE 2.3: DRINKING WATER STANDARDS

Parameter	Standard Value
pH	6.5 – 8.5
TDS	<1000 mg/L
Arsenic	≤0.05 mg/L
Lead	≤0.05 mg/L
E. coli	Not detectable

2.3.4 PEQS for Noise

TABLE 2.4: NOISE STANDARDS (RESIDENTIAL AREA)

Area	Day (dB)	Night (dB)
Residential	55	45

2.4 SOLID WASTE MANAGEMENT

Solid waste generation in the housing scheme includes:

- Domestic waste
- Construction debris
- Green waste (from landscaping)

TABLE 2.5: WASTE CLASSIFICATION

Waste Type	Nature	Disposal Method
Domestic Waste	Biodegradable	Municipal Disposal
Construction Waste	Inert	Approved Dump Site
Recyclables	Non-hazardous	Recycling
Green Waste	Organic	Composting

2.5 OCCUPATIONAL HEALTH AND SAFETY

Applicable laws include:

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

TABLE 2.6: EXPOSURE LIMITS

Parameter	Limit
Noise	85 dB
Dust	10 mg/m³

2.6 LAND USE AND ZONING

- Project located in suitable development area
- No protected or sensitive ecosystems affected
- No displacement issues involved

2.7 INTERNATIONAL ENVIRONMENTAL CONVENTIONS

Pakistan is signatory to:

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

The project aligns with these through sustainable planning and pollution control.

2.8 ENVIRONMENTAL COMPLIANCE STRATEGY

- Obtain Construction Phase NOC
- Implement EMP
- Conduct environmental monitoring
- Maintain records
- Submit reports to Punjab EPA

CHAPTER NO.3

SCREENING AND SCOPING

CHAPTER 3: SCREENING AND SCOPING

3.1 PROJECT CATEGORY AND SCREENING

Under **Punjab EPA Regulations 2022**, projects are classified as:

- **Schedule I (IEE)**
- **Schedule II (EIA)**

The **Model City Housing Scheme** falls under **Schedule II (EIA)** due to:

- Large land area (**533 Kanal 7.4 Marla**)
- Significant land development and infrastructure works
- Potential environmental impacts (dust, waste, traffic, water demand)
- Increase in population and urban pressure

Therefore, a **full EIA study is mandatory**.

3.2 SCOPING

Scoping identifies key environmental issues requiring detailed assessment.

Scoping Activities Conducted:

- Review of project layout and planning
- Site visits and field observations
- Analysis of surrounding land use
- Identification of environmental receptors
- Consultation with stakeholders

Key Environmental Issues Identified:

- Dust emissions during construction
- Wastewater generation

- Solid waste management
- Traffic congestion
- Noise pollution
- Water supply and drainage

3.3 OBJECTIVES OF THE PROJECT

The primary objective is to develop a **modern, planned residential community** with:

- Proper infrastructure
- Improved living standards
- Sustainable land use
- Organized urban expansion

The project will:

- Provide residential facilities
- Generate employment
- Boost local economy
- Improve regional development

3.4 ANALYSIS OF ALTERNATIVES

3.4.1 No Project Alternative

- No development would occur
- Loss of economic and housing benefits
- Not considered viable

3.4.2 Site Alternatives

- Selected site is suitable due to:
    - Accessibility

- Availability of land
- Minimal environmental constraints

3.4.3 Design Alternatives

- Efficient layout planning
- Proper drainage and sewerage
- Green spaces inclusion

3.4.4 Environmental Alternatives

- Adoption of mitigation measures
- Sustainable infrastructure development

3.5 CONCLUSION OF SCREENING AND SCOPING

- Project classified under **EIA (Schedule II)**
- Key impacts identified and manageable
- Site suitable for development
- Environmental impacts can be mitigated through proper planning

The EIA ensures that the project proceeds in an environmentally sustainable manner while delivering socio-economic benefits.

CHAPTER 4: DESCRIPTION OF THE PROJECT

MODEL CITY HOUSING SCHEME
ENVIRONMENTAL IMPACT ASSESSMENT

CHAPTER 4: DESCRIPTION OF THE PROJECT

4.0 INTRODUCTION

This chapter provides a comprehensive description of the proposed **Model City Housing Scheme**, focusing primarily on the **construction phase**, while also presenting key operational aspects for context.

The project is proposed by **M/S Ramay Developers Pvt. Ltd.**, represented by **Mr. Muhammad Nazir Ramay (CNIC: 34101-4787695-3)**. The scheme will be developed on vacant land located at **Mouza Fatta Katta, Chak No. 9/NP, Tehsil Sadiqabad, District Rahim Yar Khan**.

The project involves the development of a **planned residential housing scheme** comprising multiple blocks (A, B, C, and D), residential plots, internal road network, and public utility infrastructure such as parks, open spaces, and community facilities.

The primary objective of the project is to provide a **well-planned, sustainable, and modern residential community**, ensuring efficient land utilization, infrastructure development, and environmental protection.

Construction activities will commence only after obtaining the **Environmental Approval (Construction Phase NOC)** from the Punjab Environmental Protection Agency under **Section 12 of PEPA, 1997**.

The construction phase is expected to span **12–24 months**, depending on site conditions, resource availability, and approvals. Environmental impacts during this phase are anticipated to be **temporary, localized, and manageable**, primarily associated with earthworks, machinery operation, and construction activities.

4.1 OBJECTIVES OF THE PROJECT

The main objective of the **Model City Housing Scheme** is to develop a **modern and organized residential community** to meet the increasing demand for planned housing in the region.

Specific Objectives:

- Development of residential plots with proper infrastructure and utilities
- Provision of a well-designed road network ensuring accessibility
- Development of parks, green belts, and public utility areas
- Promotion of sustainable land use planning
- Ensuring compliance with environmental regulations and PEQS
- Improvement of living standards in the area
- Generation of employment opportunities during construction and operation
- Contribution to regional economic and urban development

The project is designed with **environmental sustainability considerations**, including proper drainage, waste management systems, and green space development.

4.2 PARTICULARS OF THE PROJECT

TABLE 4.1: PARTICULARS OF THE PROJECT

Sr. No.	Particulars	Details
1	Name of Project	Model City Housing Scheme
2	Proponent	M/S Ramay Developers Pvt. Ltd.
3	Authorized Person	Mr. Muhammad Nazir Ramay
4	CNIC	34101-4787695-3

Sr. No.	Particulars	Details
5	Location	Mouza Fatta Katta, Chak No. 9/NP
6	Tehsil/District	Sadiqabad, Rahim Yar Khan
7	Total Area	533 Kanal 7.4 Marla
8	Settlement Area	533 Kanal
9	Transferable Area	198 Kanal
10	Nature of Project	Residential Housing Development
11	Project Phase	Construction Phase NOC

4.3 LOCATION AND LAYOUT OF THE PROJECT

The project site is located in **Tehsil Sadiqabad**, which provides good accessibility through existing road networks. The location is suitable for residential development due to its connectivity, availability of land, and absence of environmentally sensitive areas.

Proposed Layout Plan Includes:

- Residential blocks (A, B, C, D)
- Residential plots of various sizes
- Main roads and internal streets
- Parks and green belts
- Public utility areas (mosque, community spaces, etc.)

- Drainage and sewerage infrastructure
- Water supply system

The site is currently **vacant land**, which minimizes environmental disturbance and eliminates the need for demolition.

4.4 SIZE AND MAGNITUDE OF THE PROJECT

The project is categorized as a **large-scale housing scheme**, covering an area of:

- **Total Area:** 533 Kanal 7.4 Marla

The magnitude of development includes:

- Large number of residential plots
- Extensive road infrastructure
- Utility systems (water, sewerage, drainage)
- Public facilities and green areas

The scale of the project reflects significant urban development with manageable environmental impacts through proper planning.

4.5 AREA AND COST OF THE PROJECT

- **Total Land Area:** 533 Kanal 7.4 Marla
- **Settlement Area:** 533 Kanal
- **Transferable Area:** 198 Kanal
- **Estimated Cost:** To be determined (based on infrastructure, development works, and utilities)

The cost will include:

- Land development
- Road construction

- Utility installation
- Landscaping and public facilities

4.6 NATURE OF AREA AND LAND USE

The project site consists of **vacant land**, previously used for agricultural or unused purposes.

Post-Development Land Use:

- Residential plots
- Road network
- Public utilities
- Green spaces

The surrounding area includes **mixed land use**, including agricultural land and developing residential areas.

4.7 VEGETATIVE FEATURES

- Sparse natural vegetation present
- No protected or endangered species
- No significant tree cover requiring removal

The project will enhance vegetation through:

- Plantation of trees
- Development of parks and green belts

4.8 RELOCATION AND RESETTLEMENT

- No existing settlements on site
- No displacement of population
- No resettlement required

The land is privately owned and free from encumbrances.

4.9 STAFF / MANPOWER

Construction Phase:

- Approximately **50–100 workers**
- Includes skilled and unskilled labor
- Preference to local employment

Operational Phase:

- Staff for maintenance and management
- Municipal services personnel

4.10 UTILITIES AND INFRASTRUCTURE

Electricity

- Supply from national grid
- Backup generators (if required)

Water Supply

- Groundwater or approved source
- Distribution through internal network

Sewerage System

- Proper sewerage network
- Disposal in accordance with PEQS

Drainage System

- Stormwater drainage system to prevent flooding

4.11 WASTEWATER, SOLID WASTE AND AIR EMISSIONS

Construction Phase:

- Dust emissions from earthworks
- Minimal wastewater (domestic use)
- Construction waste (debris)

Operational Phase:

- Domestic wastewater
- Household solid waste
- Vehicular emissions

All impacts will be managed through proper systems.

4.12 NOISE

Construction Phase:

- Noise from machinery and vehicles

Operational Phase:

- Traffic-related noise

Mitigation measures will ensure compliance with **PEQS noise limits**.

4.13 SCHEDULE OF IMPLEMENTATION

Project duration: **12–24 months**

TABLE 4.2: PROJECT SCHEDULE

Activity	Timeline
Site preparation	Months 1–4
Infrastructure development	Months 5–12
Utilities installation	Months 9–16

Activity	Timeline
Finishing & landscaping	Months 16–24

4.14 CONSTRUCTION MATERIALS

- Sand, gravel, cement
- Bricks and concrete
- Steel for infrastructure
- Pipes and fittings

Environment-friendly materials will be preferred where feasible.

4.15 OPERATIONAL OVERVIEW

The housing scheme will function as a **planned residential community**, where:

- Residents will occupy housing units
- Municipal services will operate
- Waste management systems will be implemented
- Infrastructure will be maintained

The project emphasizes **sustainable urban living**, efficient resource use, and environmental compliance.

4.16 CONCLUSION

The **Model City Housing Scheme** represents a well-planned urban development project aimed at providing modern residential facilities while ensuring environmental sustainability.

With proper implementation of mitigation measures and environmental management practices, the project is not expected to cause significant adverse environmental impacts.

CHAPTER 5: DESCRIPTION OF THE ENVIRONMENT

CHAPTER 5: DESCRIPTION OF THE ENVIRONMENT

5.0 INTRODUCTION

This chapter presents a comprehensive description of the **baseline environmental conditions** of the proposed **Model City Housing Scheme**, covering the **physical, biological, and socio-economic environment** of the project area.

The assessment is based on:

- Field surveys and site visits
- Secondary data from government sources (EPD, PMD, PBS, Irrigation Department)
- Consultations with local communities and stakeholders

The project site is located at **Mouza Fatta Katta, Chak No. 9/NP, Tehsil Sadiqabad, District Rahim Yar Khan**, and is currently **vacant land**. The baseline study helps in identifying potential environmental impacts during:

- **Construction Phase** (earthworks, road development, utilities installation)
- **Operational Phase** (residential settlement, traffic, waste generation)

5.1 DATA COLLECTION

Primary Data

- Site inspections and surveys
- Observations of land use, vegetation, and surroundings
- Interaction with local communities

Secondary Data

- Climate data from PMD
- Population statistics from PBS
- Water and soil data from Irrigation Department

- Environmental data from Punjab EPA

5.2 PHYSICAL ENVIRONMENT

The project area lies within the **alluvial plains of Southern Punjab**, characterized by flat terrain and agricultural surroundings.

The site currently has **low environmental pollution levels**, as it is undeveloped land. However, nearby agricultural activities influence soil and groundwater conditions.

5.3 PHYSICAL RESOURCES

- Fertile soil suitable for agriculture
- Groundwater as main water source
- Existing road connectivity
- Availability of construction materials locally

Proper management will be required to avoid soil degradation and water contamination during construction.

5.4 GEOGRAPHY AND GEOLOGY

The project area lies in the **Indus Basin plains**, consisting of:

- Alluvial deposits (sand, silt, clay)
- Stable geological conditions
- Suitable soil for construction

The region falls in a **low to moderate seismic zone**, making it suitable for infrastructure development.

5.5 TOPOGRAPHY

- Flat terrain
- No major elevation changes
- No flood-prone depressions within site

However, proper drainage design is necessary to manage **rainwater runoff**.

5.6 HYDROLOGY

Groundwater

- Primary water source
- Depth varies depending on location
- Quality influenced by agriculture

Surface Water

- No major water bodies within immediate vicinity
- Nearby irrigation channels may exist

TABLE 5.1: HYDROLOGICAL PARAMETERS

Parameter	Description
Groundwater Source	Tube wells
Recharge	Rainfall and irrigation seepage
Usage	Domestic and agricultural

5.7 CLIMATE

The area experiences a **hot semi-arid climate**:

- Hot summers (up to 45°C)
- Mild winters
- Monsoon rainfall (July–September)

TABLE 5.2: CLIMATE DATA (REPRESENTATIVE)

Season	Temperature	Rainfall
Summer	35–45°C	Low
Winter	5–20°C	Minimal
Monsoon	Moderate	High

Climate conditions influence construction scheduling and design.

5.8 BIOLOGICAL ENVIRONMENT

5.8.1 Flora

- Sparse vegetation on site
- Nearby crops (wheat, cotton, fodder)
- Common trees: Neem, Kikar, Eucalyptus

5.8.2 Fauna

- Common birds (sparrow, crow, pigeon)
- Small mammals and reptiles
- No endangered species present

The project site has **low ecological sensitivity**.

5.9 SOCIO-ECONOMIC ENVIRONMENT

The surrounding area is primarily **rural-agricultural transitioning to residential development**.

Key Features:

- Availability of local labor
- Agriculture-based economy

- Increasing urbanization

The project will positively impact:

- Employment
- Housing availability
- Local economy

5.10 DEMOGRAPHY

- District Rahim Yar Khan population (approx.): significant and growing
- Mixed rural and urban population
- Increasing demand for housing

5.11 LITERACY RATE

- Moderate literacy rate
- Higher in urban areas
- Supports workforce availability

5.12 INFRASTRUCTURE AND AMENITIES

- Road access available
- Electricity supply present
- Water sources available
- Basic health and education facilities nearby

5.13 CONCLUSION OF BASELINE STUDY

- Site is environmentally suitable for housing development
- No sensitive ecological features
- Impacts are manageable with proper planning

CHAPTER 6: STAKEHOLDER CONSULTATION

CHAPTER 6: STAKEHOLDER CONSULTATION

6.0 INTRODUCTION

Stakeholder consultation is a critical component of the EIA process. It ensures that concerns of affected communities and institutions are identified and addressed.

For the **Model City Housing Scheme**, consultations were conducted in accordance with:

- **PEPA 1997**
- **Punjab EPA Regulations 2022**

6.1 OBJECTIVES OF CONSULTATION

- Share project information with stakeholders
- Identify environmental and social concerns
- Gather suggestions for improvement
- Ensure transparency and participation
- Promote sustainable development

6.2 METHODOLOGY

The consultation process included:

- Community meetings
- Focus group discussions
- Interviews with stakeholders
- Use of local language (Urdu/Punjabi)
- Documentation of feedback

6.3 IDENTIFICATION OF STAKEHOLDERS

Primary Stakeholders

- Local residents
- Landowners
- Nearby communities

Secondary Stakeholders

- Government departments
- Local businesses
- NGOs and community groups

6.4 CONSULTATION PROCESS

- Multiple consultation sessions conducted
- Participation from community members
- Issues discussed openly

TABLE 6.1: SAMPLE CONSULTATIONS

Name	Area	Concern
Muhammad Aslam	Nearby area	Dust during construction
Fatima Bibi	Local community	Employment
Ali Hussain	Roadside	Traffic

6.5 KEY FINDINGS

Environmental Concerns

- Dust during construction

- Noise from machinery
- Waste management

Social Concerns

- Employment opportunities
- Traffic issues
- Health impacts

Positive Feedback

- Demand for housing
- Economic development
- Improved infrastructure

6.6 INTEGRATION OF FEEDBACK

The following measures have been incorporated:

- Dust control (water sprinkling)
- Waste management system
- Traffic management plan
- Local employment priority
- Green area development

6.7 GRIEVANCE REDRESS MECHANISM (GRM)

- Complaint registration system
- Designated contact person
- Timely resolution process

6.8 CONCLUSION

Stakeholders generally support the project, provided environmental safeguards are implemented.

Continuous engagement will be maintained through:

- Regular meetings
- Monitoring reports
- Community updates

CHAPTER 7: POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

CHAPTER 7: POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

This chapter presents a comprehensive identification, evaluation, and mitigation of potential environmental impacts associated with the proposed **Model City Housing Scheme** by M/s Ramay Developers Pvt. Ltd. The project is located at Mouza Fatta Katta, Chak No. 9/NP, Tehsil Sadiqabad, District Rahim Yar Khan, covering a total area of **533 Kanal 7.4 Marla**.

Unlike industrial projects, the environmental aspects of a housing scheme are primarily related to **land use change, infrastructure development, population influx, and municipal services demand**. The assessment follows the requirements of the **Punjab Environmental Protection Act, 1997**, **Punjab Environmental Quality Standards (PEQS)**, and **Punjab EIA Regulations**.

The impact assessment considers both **construction phase** (short-term, temporary) and **operational phase** (long-term, permanent) impacts.

7.1 IDENTIFICATION OF POTENTIAL ENVIRONMENTAL IMPACTS

Potential environmental impacts have been identified through:

- Field surveys and site observations
- Review of baseline environmental data (Chapter 5)
- Stakeholder consultations (Chapter 6)
- Standard EIA checklists
- Professional judgment for housing and urban development projects

Major Impact Categories

i. **Land Use Change** – Conversion of agricultural/open land into residential use
ii. **Air Quality** – Dust emissions during construction
iii. **Noise Pollution** – Machinery and traffic noise

iv. **Water Resources** – Increased demand and wastewater generation

v. **Solid Waste** – Municipal waste generation

vi. **Soil & Groundwater** – Risk of contamination

vii. **Traffic & Infrastructure Load**

viii. **Ecological Impacts** – Loss of vegetation

ix. **Socio-economic Impacts** – Employment, housing demand

x. **Public Health & Safety**

7.2 SCOPING CRITERIA FOR IMPACTS

Impacts were evaluated using:

- **Spatial extent**: Local (site), area (1–5 km), regional
- **Temporal extent**: Short-term (construction), long-term (operation)
- **Magnitude**: Low, Moderate, High
- **Reversibility**: Reversible / Irreversible
- **Nature**: Adverse or Beneficial

7.3 IMPACT ASSESSMENT METHODOLOGY

A **matrix-based evaluation system** was used:

Impact Level	Description
High	Significant long-term damage
Moderate	Manageable with mitigation
Low	Minor, negligible
Beneficial	Positive impact

7.4 IMPACTS RELATED TO PROJECT LOCATION

The selected site is environmentally suitable due to:

- Located in a **developing peri-urban area**
- No protected forests, wetlands, or heritage sites
- Flat terrain suitable for housing development
- Availability of road access and infrastructure

Conclusion

The site presents **low environmental sensitivity**, making it suitable for a housing scheme.

7.5 CONSTRUCTION PHASE IMPACTS & MITIGATION

Construction duration: **2–4 years (phased development)**

7.5.1 Air Quality (Dust Emissions)

Impact:

- Dust from excavation, leveling, and material transport
- PM10 and PM2.5 increase

Significance: Moderate (short-term)

Mitigation:

- Water sprinkling (2–3 times/day)
- Covered transport of materials
- Speed control (≤20 km/h)
- Plantation along roads

7.5.2 Noise Pollution

Impact:

- Noise from machinery and vehicles

Significance: Moderate

Mitigation:

- Restrict work to daytime
- Use of maintained equipment
- PPE (ear protection) for workers

7.5.3 Soil & Land Degradation

Impact:

- Soil erosion and compaction

Mitigation:

- Controlled excavation
- Proper leveling and compaction
- Immediate landscaping

7.5.4 Waste Generation

Impact:

- Construction debris

Mitigation:

- Segregation of waste
- Reuse of materials
- Disposal at approved sites

7.5.5 Water Use & Wastewater

Impact:

- Domestic wastewater from labor

Mitigation:

- Temporary sanitation facilities
- Septic tanks

7.5.6 Occupational Health & Safety

Impact:

- Worker injuries, dust exposure

Mitigation:

- PPE (helmets, gloves, masks)
- First aid facilities
- Safety training

7.5.7 Socio-economic Impacts

Impact:

- Job creation (positive)
- Temporary traffic disturbance

7.6 OPERATIONAL PHASE IMPACTS & MITIGATION

7.6.1 Water Supply & Consumption

Impact:

- Increased demand for groundwater

Mitigation:

- Efficient water supply system
- Rainwater harvesting
- Water conservation practices

7.6.2 Wastewater Generation

Impact:

- Domestic sewage from residents

Mitigation:

- Sewerage system
- Treatment through septic tanks / STP

- Compliance with PEQS

- **7.6.3 Solid Waste Management**

Impact:

- Household waste generation

Mitigation:

- Waste collection system
- Segregation at source
- Municipal disposal

7.6.4 Traffic Impact

Impact:

- Increased vehicles

Mitigation:

- Proper road network design
- Parking facilities
- Traffic management plan

7.6.5 Air & Noise Pollution

Impact:

- Vehicle emissions
- Domestic noise

Mitigation:

- Plantation (green belts)
- Road paving
- Traffic control

7.6.6 Ecological Impact

Impact:

- Loss of vegetation

Mitigation:

- Development of parks and green areas
- Plantation of native species

7.6.7 Public Health & Safety

Impact:

- Urban health risks

Mitigation:

- Clean water supply
- Solid waste management
- Proper drainage

7.6.8 Socio-economic Benefits

Positive Impacts:

- Housing availability
- Employment generation
- Increase in land value
- Urban development

7.7 MITIGATION IMPLEMENTATION STRATEGY

Mitigation will be ensured through:

- Environmental Management Plan (EMP)
- Dedicated Environmental Officer
- Regular inspections
- Compliance with PEQS

7.8 ENVIRONMENTAL ENHANCEMENT MEASURES

- Development of **green belts and parks**
- Roadside plantation
- Energy-efficient street lighting
- Rainwater harvesting system
- Sustainable urban planning

7.9 MONITORING AND COMPLIANCE

Monitoring will include:

Parameter	Frequency
Air Quality	Quarterly
Noise	Biannually
Water Quality	Biannually
Waste Management	Monthly

- Reports will be submitted to **Punjab Environmental Protection Agency**
- Third-party lab testing will be conducted

7.10 SUMMARY OF IMPACTS

Impact	Phase	Significance	Mitigation
Dust	Construction	Moderate	Water sprinkling
Noise	Both	Moderate	PPE, scheduling
Wastewater	Operation	Moderate	Sewerage system
Solid Waste	Both	Low	Collection system
Ecology	Both	Low	Plantation
Socio-economic	Both	Beneficial	Employment

FINAL CONCLUSION

With proper implementation of mitigation measures and environmental management practices, the **Model City Housing Scheme** is environmentally feasible and sustainable. The project will contribute significantly to **urban development, housing availability, and economic growth** in District Rahim Yar Khan while maintaining compliance with environmental regulations.

CHAPTER 8: ENVIRONMENTAL MANAGEMENT & MONITORING PLAN (EMMP)

CHAPTER 8: ENVIRONMENTAL MANAGEMENT & MONITORING PLAN (EMMP)

The EMMP covers both the **construction phase** (estimated 12–18 months) 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 **Punjab Environmental Protection (Review of IEE and EIA) Regulations, 2022**.

Since the unit is dedicated exclusively to the manufacturing of motorcycle **fenders (mudguards)** for CD 70, CD 100, CD 125 and similar models, the EMMP focuses on the specific activities of sheet metal processing: raw material receipt (mild steel sheets/coils), cutting, stamping/pressing, forming, welding (where required), surface preparation, painting/powder coating, finishing, inspection, and packaging. Key environmental aspects addressed include dust and particulates from stamping and painting, noise from presses and machinery, solid waste (mainly recyclable steel scrap), minor wastewater (if generated from surface preparation), occupational health and safety, and resource consumption. No electroplating or heavy metal-related processes are involved in this unit.

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) and operation (e.g., air emissions from painting, noise from machinery, steel 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 (maximum recycling of steel scrap), and positive community contributions (local employment and safety awareness).

vi. Facilitate transparent reporting to Punjab EPA and support the long-term sustainable operation of the dedicated fender manufacturing unit.

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), 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.

TABLE 8.1: ROLES AND RESPONSIBILITIES

Entity / Role	Key Responsibilities
Project Proponent (Mr. Faheem Anwar / Company)	Overall leadership and accountability; appoint HSE/Environmental Officer; ensure 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 /	Participate in GRM; provide feedback during

Entity / Role	Key Responsibilities
Stakeholders	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)

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 discharge	Operation	HSE Officer / Operator	Compliance with PEQS; reuse where feasible	Quarterly lab tests

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 & downwind	Third-party lab / HSE Officer	High-volume samplers
Noise Levels	Equivalent continuous sound level dB(A)	≤75 dB(A) industrial daytime	Bimonthly (construction); Quarterly (operation)	Site perimeter & nearby receptors	HSE Officer / Lab	Sound level meter
Solid Waste Management	Quantity, segregation, recycling rate	Zero illegal dumping	Monthly	Waste storage area	HSE Officer	Waste logs & visual audits
Wastewater (if any)	pH, TSS, BOD, COD, TDS (if generated)	PEQS effluent standards	Quarterly	Any discharge point	Third-party accredited lab	Grab / composite sampling
Occupational Health & Safety	Incident records, PPE compliance	Internal + PEPA standards	Monthly	Work areas	HSE Officer	Checklists & medical logs
Water Consumption	Daily/weekly usage & recycling rate	Internal efficiency targets	Monthly	Metered sources	HSE Officer / Operator	Flow meters & 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

Target Personnel	Key Topics	Frequency	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

CHAPTER 9: CONCLUSION AND RECOMMENDATIONS

9.1 CONCLUSION

The findings of the Environmental Impact Assessment (EIA) indicate that the proposed **Model City Housing Scheme** by M/s Ramay Developers Pvt. Ltd., located at Mouza Fatta Katta, Chak No. 9/NP, Tehsil Sadiqabad, District Rahim Yar Khan, is **environmentally acceptable, socially beneficial, and economically viable**.

The project involves the development of a planned residential housing scheme over an area of **533 Kanal 7.4 Marla**, comprising residential plots, road networks, public utilities, commercial areas, and green spaces. Unlike industrial projects, the environmental aspects of this development are primarily associated with **land use transformation, infrastructure development, population settlement, and municipal service demand**.

Baseline environmental studies (Chapter 5) confirm that the project site consists of **vacant or agricultural land** with no environmentally sensitive receptors such as protected forests, wetlands, wildlife habitats, archaeological sites, or densely populated settlements within the immediate Area of Influence. The location is suitable for urban development, with adequate access to road infrastructure and nearby settlements.

Assessment of Environmental Impacts

The identified environmental impacts are manageable in nature:

Construction Phase Impacts

- Temporary dust emissions from land clearing, excavation, and construction activities
- Noise and vibration from construction machinery
- Generation of construction waste

- Temporary increase in traffic movement
- Occupational health and safety risks

These impacts are **short-term, localized, and reversible**.

Operational Phase Impacts

- Increased demand for water supply and utilities
- Generation of domestic wastewater and municipal solid waste
- Traffic increase due to residential population
- Minor air and noise pollution from vehicular movement
- Pressure on local infrastructure and services

All operational impacts are **moderate and manageable** through proper planning, infrastructure design, and environmental management systems.

With the implementation of the proposed **Environmental Management and Monitoring Plan (EMMP)**, all adverse impacts will be reduced to **acceptable levels in compliance with Punjab Environmental Quality Standards (PEQS)** and relevant environmental regulations under the Punjab Environmental Protection Act, 1997.

Project Benefits

The project offers significant socio-economic advantages:

- Provision of **planned and modern housing facilities**
- Generation of employment during construction and operation phases
- Improvement in local infrastructure (roads, drainage, utilities)
- Enhancement of land value and economic activity
- Contribution to **urban development and organized expansion** in District Rahim Yar Khan

Compared to the "No-Project" alternative, the proposed housing scheme is highly preferable as it promotes **planned urbanization**, avoids informal settlements, and ensures environmentally controlled development.

Final Statement

Based on the comprehensive assessment—including baseline studies, stakeholder consultations, impact evaluation, and mitigation planning—the project is **not expected to cause any significant adverse environmental impacts** when implemented as proposed.

Therefore, it is recommended that the **Punjab Environmental Protection Agency** grant **Environmental Approval (Construction Phase NOC)** to the project, subject to compliance with all commitments and conditions outlined in this EIA report.

9.2 RECOMMENDATIONS

To ensure environmental sustainability and regulatory compliance, the following recommendations must be strictly implemented:

i. Environmental Management Implementation

- Fully implement the Environmental Management and Monitoring Plan (EMMP)
- Appoint a qualified Environmental / HSE Officer
- Conduct regular environmental monitoring and submit reports to EPA

i. Construction Phase Controls

- Implement dust suppression measures (water sprinkling, covering materials)
- Restrict construction activities to daytime hours
- Properly manage construction waste through segregation and disposal

iii. Water Supply and Wastewater Management

- Develop a proper water supply system (preferably sustainable groundwater use)
- Install sewerage network and septic tanks / treatment systems

- Ensure wastewater disposal complies with PEQS

iv. Solid Waste Management

- Establish an organized waste collection system
- Use color-coded bins for segregation (biodegradable, recyclable, general waste)
- Ensure disposal through authorized municipal systems

v. Green Belt Development

- Develop parks, green belts, and roadside plantation
- Use native species such as Neem, Kikar, and Sheesham
- Maintain landscaping to improve environmental quality

vi. Traffic and Infrastructure Planning

- Design proper road network and parking facilities
- Implement traffic management plan
- Ensure safe pedestrian pathways

vii. Occupational Health and Safety

- Provide PPE to construction workers
- Conduct safety training and awareness programs
- Ensure availability of first aid and emergency response systems

viii. Community Engagement

- Establish a **Grievance Redress Mechanism (GRM)**
- Conduct periodic community consultations
- Address complaints related to dust, noise, or infrastructure

ix. Environmental Monitoring

- Monitor air quality, noise, and water quality regularly
- Maintain environmental records
- Conduct third-party testing where required

x. Sustainable Development Practices

- Promote energy-efficient systems (LED street lights, efficient pumps)
- Encourage rainwater harvesting
- Adopt environmentally friendly construction materials

xi. Institutional Compliance

- Ensure compliance with all applicable laws including:
    - Punjab Environmental Protection Act, 1997
    - Punjab Environmental Quality Standards (PEQS)
    - Local government and development authority regulations

xii. Budget Allocation

- Allocate **2–3% of total project cost** for environmental management
- Ensure funding for monitoring, plantation, waste management, and training

FINAL RECOMMENDATION

With proper implementation of the above measures, the **Model City Housing Scheme** will serve as a **sustainable, environmentally responsible, and well-planned urban development project**. It will significantly contribute to **housing needs, economic growth, and infrastructure development** in District Rahim Yar Khan while maintaining environmental integrity.