

**PROJECT TITLE: CONSTRUCTION PHASE NO OBJECTION CERTIFICATE
(NOC) FOR ENVIRONMENTAL IMPACT ASSESSMENT (EIA) REPORT**



MODEL AVENUE HOUSING SCHEME

**SUBMITTED BY:
M/S RAMAY BUILDERS & TOWN DEVELOPERS PVT LTD**



**REPORT TYPE: EIA REPORT FOR CONSTRUCTION PHASE NOC
SUBMISSION DATE: OCTOBER 2023**

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ENVIRONMENTAL IMPACT ASSESSMENT EIA

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 |

ENVIRONMENTAL IMPACT ASSESSMENT EIA

EXECUTIVE SUMMARY

1. INTRODUCTION

The project titled “**Model Avenue Housing Scheme**” is proposed to be developed by **M/S Ramay Builders & Town Developers (Pvt.) Ltd.** in **Tehsil Sadiqabad, District Rahim Yar Khan**. The project proponent is **Mr. Muhammad Nazir Ramay (CNIC: 34101-4787695-3)**.

The proposed project involves the development of a **planned residential housing scheme**, designed to provide organized residential infrastructure along with supporting road networks and public utility areas. The scheme is planned in a **block-wise configuration** to ensure efficient land utilization and systematic urban development.

The project will be executed 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.

2. SALIENT FEATURES OF THE PROJECT

| Sr. No. | Description | Details |
|---------|-------------------|---|
| i | Title of Project | Model Avenue Housing Scheme |
| ii | Location | Tehsil Sadiqabad, District Rahim Yar Khan |
| iii | Nature of Project | Development of residential housing scheme including plots, roads, and public utility infrastructure |
| iv | Total Area | 780 Kanal 15 Marla |
| v | Settlement Area | 780.75 Kanal |

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| Sr. No. | Description | Details |
|---------|-------------------|--|
| vi | Transferable Area | 263.97 Kanal |
| vii | Mortgaged Land | Approximately 101 Kanal |
| viii | Project Proponent | Mr. Muhammad Nazir Ramay |
| ix | Type of Study | Environmental Impact Assessment (EIA) – Construction Phase NOC |
| x | Total Plots | Approximately 4,993 residential plots |

3. HOUSING SCHEME PLANNING AND LAND USE

3.1 Block Distribution

The proposed housing scheme has been planned in a block-wise configuration to ensure systematic development. The scheme comprises the following residential blocks:

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

3.2 Plot Distribution

- Total number of residential plots: **Approximately 4,993 units**

3.3 Land Use Allocation

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The land within the project boundary is allocated for:

- Residential plots
- Road network (main roads and streets)
- Public utility areas

4. WASTEWATER GENERATION

4.1 Construction Phase

- Minimal wastewater generation is expected.
- Main source: domestic sewage from construction workers.
- Disposal through septic tanks or temporary sanitation arrangements.

4.2 Operational Phase

- Wastewater will be generated from residential activities.
- Includes domestic sewage from households.
- Proper sewerage system will be developed.
- Wastewater will be managed in compliance with **Punjab Environmental Quality Standards (PEQS)**.

5. GASEOUS EMISSIONS

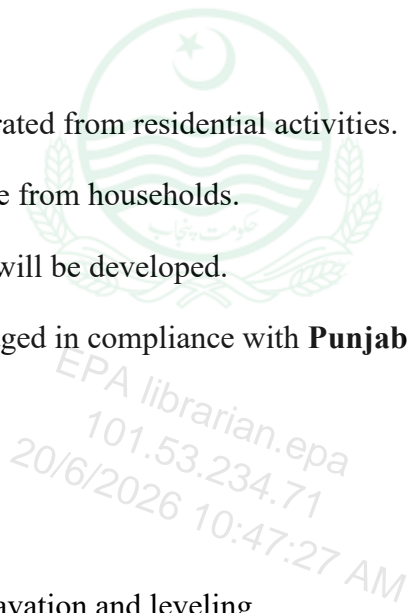
5.1 Construction Phase

- Dust emissions from excavation and leveling
- Emissions from construction machinery and vehicles

5.2 Operational Phase

- Vehicular emissions within the housing scheme
- Minor emissions from domestic activities

6. ANTICIPATED ENVIRONMENTAL IMPACTS



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6.1 Construction Phase

- Dust generation due to earthworks
- Noise and vibration from machinery
- Construction waste generation
- Traffic disturbance
- Occupational health and safety risks

These impacts are **temporary and manageable**.

6.2 Operational Phase

- Domestic wastewater generation
- Solid waste generation from households
- Traffic-related air and noise pollution
- Increased demand on utilities

These impacts are **long-term but manageable with proper planning**.

7. MITIGATION MEASURES

7.1 Construction Phase

- Water sprinkling to control dust
- Proper waste collection and disposal
- Maintenance of machinery
- Provision of PPE
- Controlled construction activities

7.2 Operational Phase

- Development of proper sewerage system
- Solid waste management system



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- Plantation and green belts
- Proper road planning to reduce congestion
- Awareness programs for residents
- Compliance with PEQS

8. ENVIRONMENTAL MONITORING PLAN

- Monitoring of wastewater disposal system
- Inspection of solid waste management
- Ambient air quality monitoring
- Noise level monitoring
- Maintenance of environmental records
- Regular reporting to Punjab EPA



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**ENVIRONMENTAL IMPACT ASSESSMENT
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CHAPTER NO 01

INTRODUCTION



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ENVIRONMENTAL IMPACT ASSESSMENT EIA

CHAPTER NO. 01 INTRODUCTION

1.1 PROJECT OVERVIEW

The project titled “**Model Avenue Housing Scheme**” is proposed to be developed by **M/S Ramay Builders & Town Developers (Pvt.) Ltd.** in **Tehsil Sadiqabad, District Rahim Yar Khan**. The project proponent is **Mr. Muhammad Nazir Ramay (CNIC: 34101-4787695-3)**.

This document presents the **Environmental Impact Assessment (EIA)** of the proposed housing scheme. The primary objective of this study is to ensure full compliance with applicable environmental laws and regulations of Punjab, particularly under **Section 12 of the Punjab Environmental Protection Act (PEPA), 1997 (as amended)**, which requires prior environmental approval before commencement of construction activities.

The proposed project involves the development of a **planned residential housing scheme** consisting of approximately **4,993 residential plots**, along with road infrastructure and public utility areas. The scheme is designed using a **block-wise planning approach (Blocks A, B, C, and D)** to ensure organized development and efficient land utilization.

The EIA study identifies potential environmental impacts during both **construction and operational phases** and proposes mitigation measures along with an **Environmental Management Plan (EMP)** and **Environmental Monitoring Plan** to ensure sustainable development.

1.2 PURPOSE AND OBJECTIVES OF THE EIA

The purpose of this EIA Report is to fulfill legal requirements under:

1. Punjab Environmental Protection Act, 1997 (as amended)
2. Punjab Environmental Protection Agency (Review of IEE & EIA) Regulations, 2000
3. Punjab Environmental Quality Standards (PEQS)

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This report serves as the basis for obtaining the **Construction Phase NOC** from Punjab EPA and demonstrates that the proposed housing scheme is environmentally acceptable.

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 IEE or EIA and has obtained approval.”

The proposed project qualifies for **EIA** due to:

1. Large land area (**780 Kanal 15 Marla**)
2. Development of a full-scale housing scheme
3. Potential impacts related to land use change, wastewater generation, solid waste, and traffic

1.4 OBJECTIVES OF THE EIA STUDY

The key objectives of this study are:

1. To establish baseline environmental conditions
2. To identify impacts during construction and operation
3. To assess impacts on air, water, soil, and socio-economic environment
4. To propose mitigation measures
5. To develop an Environmental Management Plan (EMP)
6. To design an Environmental Monitoring Plan
7. To ensure environmentally sustainable urban development
8. To facilitate decision-making by Punjab EPA

1.5 PROPONENT DETAILS

- Project Title: Model Avenue Housing Scheme

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- Company Name: M/S Ramay Builders & Town Developers (Pvt.) Ltd.
- Project Proponent: Mr. Muhammad Nazir Ramay
- CNIC: 34101-4787695-3
- Total Area: 780 Kanal 15 Marla
- Settlement Area: 780.75 Kanal
- Transferable Area: 263.97 Kanal
- Mortgaged Land: Approximately 101 Kanal
- Location: Tehsil Sadiqabad, District Rahim Yar Khan
- Project Phase: Construction Phase NOC

1.6 NATURE, SIZE AND LOCATION OF PROJECT

1.6.1 Nature of Project

The proposed project involves:

- Development of residential plots
- Construction of road network (main roads & streets)
- Provision of public utility areas
- Development of infrastructure for a planned housing scheme

1.6.2 Size of Project

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

- Total area: **780 Kanal 15 Marla**
- Approximately **4,993 residential plots**
- Multiple residential blocks (A, B, C, D)

1.6.3 Location Description

- Located in **Tehsil Sadiqabad, District Rahim Yar Khan**

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- Area is suitable for residential development
- Land is currently open/underdeveloped
- No protected forests, wetlands, or sensitive ecological zones are present

1.7 SCOPE OF THE EIA STUDY

The scope includes:

1. Review of project layout and planning
2. Baseline environmental assessment
3. Identification of environmental impacts
4. Impact evaluation and analysis
5. Development of mitigation measures
6. Preparation of EMP
7. Preparation of Environmental Monitoring Plan

1.8 METHODOLOGY AND DATA COLLECTION

The study methodology includes:

1. Site visits and field observations
2. Consultation with project proponent
3. Collection of primary and secondary data
4. Review of PEPA and PEQS
5. Impact identification using checklists
6. Evaluation based on magnitude and duration

1.9 BASELINE ENVIRONMENTAL CONDITIONS

1.9.1 Physical Environment

- Climate: Semi-arid with hot summers

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- Air Quality: Generally moderate
- Noise Levels: Within acceptable limits
- Soil: Alluvial soil typical of southern Punjab
- Water: Groundwater is main source

1.9.2 Biological Environment

- Sparse vegetation on site
- No endangered species present
- No protected habitats

1.9.3 Socio-Economic Environment

- Availability of local labor
- Positive impact through housing development
- No displacement issues

1.10 ENVIRONMENTAL IMPACTS

1.10.1 Construction Phase

- Dust from earthworks
- Noise from machinery
- Construction waste
- Traffic disturbance

1.10.2 Operational Phase

- Domestic wastewater generation
- Solid waste from households
- Traffic-related emissions
- Noise from vehicles



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- Increased demand on utilities

1.11 MITIGATION MEASURES

1.11.1 Construction Phase

- Water sprinkling for dust control
- Proper waste disposal
- Use of PPE

1.11.2 Operational Phase

- Proper sewerage system
- Solid waste management system
- Plantation and green belts
- Traffic management planning
- Compliance with PEQS

1.12 ENVIRONMENTAL MANAGEMENT PLAN (EMP)

The EMP includes:

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

1.13 ENVIRONMENTAL MONITORING PLAN

- Wastewater monitoring
- Air quality monitoring
- Noise monitoring
- Solid waste tracking



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- Environmental record maintenance

1.14 STAKEHOLDER CONSIDERATIONS

- Employment generation
- Improved housing facilities
- Economic development
- No significant negative social impact

1.15 REPORT STRUCTURE

1. Introduction
2. Project Description
3. Existing Environment
4. Impact Assessment
5. Environmental Management Plan
6. Monitoring Plan
7. Institutional Arrangements
8. Conclusion



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**ENVIRONMENTAL IMPACT ASSESSMENT
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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, public health, and resource conservation.

To address environmental challenges, the country has established a comprehensive legal and institutional framework covering issues such as:

1. Domestic wastewater management
2. Solid waste disposal
3. Air quality deterioration due to traffic and urban activities
4. Noise pollution in residential areas
5. Public health and sanitation
6. Urban planning and land use management
7. Climate change and sustainable development

Following the **18th Constitutional Amendment**, environmental management became a provincial responsibility. Accordingly, the **Government of Punjab** regulates environmental matters through the **Punjab Environmental Protection Agency (EPA Punjab)**.

This chapter presents the legislative, regulatory, and policy framework applicable to the proposed **Model Avenue Housing Scheme**, which involves land development, residential infrastructure, road networks, and public utilities.

2.2 PUNJAB ENVIRONMENTAL PROTECTION ACT (PEPA), 1997

2.2.1 Legal Status

The **Punjab Environmental Protection Act, 1997 (as amended)** is the primary environmental legislation governing environmental protection in Punjab.

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The **Punjab EPA** is responsible for:

- Implementation of environmental policies
- Monitoring environmental quality
- Reviewing and approving IEE/EIA reports
- Ensuring compliance with environmental standards

2.2.2 Key Provisions Relevant to the Project

I. Environmental Protection Council

Provides policy guidelines and strategic direction for environmental protection and sustainable development.

II. Punjab Environmental Protection Agency

EPA Punjab is responsible for regulation, monitoring, and enforcement of environmental laws.

III. Section 11 – Prohibition of Certain Discharges or Emissions

No discharge of effluents, emissions, or noise exceeding **PEQS limits** is allowed.

Relevance to Housing Scheme:

- Domestic wastewater from residential units
- Solid waste generation from households
- Vehicular emissions within the scheme
- Noise from traffic and community activities

IV. Section 12 – IEE and EIA Requirement

- No project can commence construction without prior environmental approval.
- The proposed housing scheme requires **EIA approval** due to:
 - Large land area (**780 Kanal 15 Marla**)
 - Development of approximately **4,993 plots**

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- Potential impacts on land use, water, and infrastructure

V. Environmental Protection Orders (EPOs)

EPA may issue orders in case of non-compliance.

VI. Environmental Tribunals

Environmental disputes are handled through designated tribunals.

2.3 PUNJAB ENVIRONMENTAL QUALITY STANDARDS (PEQS)

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

2.3.1 PEQS for Ambient Air Quality

The housing scheme may generate emissions from:

- Vehicular traffic
- Construction activities
- Dust from roads and open areas

Compliance with ambient air standards is mandatory.

TABLE 2.1: PEQS FOR AMBIENT AIR QUALITY

| Sr. No | Pollutant | Averaging Time | Standard Value |
|--------|-------------------------------------|----------------|-----------------------|
| 1 | Sulfur Dioxide (SO ₂) | Annual | 80 µg/m ³ |
| | | 24 Hours | 120 µg/m ³ |
| 2 | Nitrogen Dioxide (NO ₂) | Annual | 40 µg/m ³ |
| | | 24 Hours | 80 µg/m ³ |
| 3 | Ozone (O ₃) | 1 Hour | 130 µg/m ³ |

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| Sr. No | Pollutant | Averaging Time | Standard Value |
|--------|----------------------|----------------|------------------------------|
| 4 | PM10 | Annual | 120 $\mu\text{g}/\text{m}^3$ |
| | | 24 Hours | 150 $\mu\text{g}/\text{m}^3$ |
| 5 | PM2.5 | Annual | 15 $\mu\text{g}/\text{m}^3$ |
| | | 24 Hours | 35 $\mu\text{g}/\text{m}^3$ |
| 6 | Carbon Monoxide (CO) | 8 Hours | 5 mg/m^3 |

2.3.2 PEQS for Municipal Effluents

Wastewater generated will mainly 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

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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

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



2.4 SOLID WASTE MANAGEMENT

Solid waste generated from the housing scheme includes:

- Household waste
- Packaging waste
- Garden/green waste
- Construction debris (during development phase)

TABLE 2.5: WASTE CLASSIFICATION

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

2.5 OCCUPATIONAL HEALTH AND SAFETY

During construction, the project will comply with:

- Punjab Factories Act (where applicable)
- Labor Laws
- Occupational Health & Safety Guidelines

TABLE 2.6: EXPOSURE LIMITS

| Parameter | Limit |
|--------------|----------------------|
| Noise | 85 dB |
| Dust | 10 mg/m ³ |
| Temperature | 18–30°C |
| Illumination | 300–500 lux |

2.6 HAZARDOUS MATERIAL MANAGEMENT

- No major hazardous chemicals will be used
- Limited use of construction materials (fuel, lubricants, paints)

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- Proper storage and handling procedures will be adopted
- Spill prevention and emergency response measures will be implemented

2.7 LAND USE AND ZONING

- The project is a **planned residential housing scheme**
- Land is allocated for:
 - Residential plots
 - Roads and streets
 - Public utility areas
- No environmentally sensitive areas are affected
- No displacement or resettlement issues reported

2.8 INTERNATIONAL ENVIRONMENTAL CONVENTIONS

Pakistan is signatory to:

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

The project supports these commitments through sustainable planning and environmental management.

2.9 ENVIRONMENTAL COMPLIANCE STRATEGY

To ensure compliance:

1. Obtain Construction Phase NOC under Section 12
2. Implement Environmental Management Plan (EMP)
3. Establish proper sewerage and waste management system
4. Conduct environmental monitoring

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5. Maintain environmental records
6. Submit reports to Punjab EPA

TABLE 2.7: MONITORING FREQUENCY

| Parameter | Frequency |
|--------------------------|------------------|
| Wastewater | Quarterly |
| Drinking Water | Biannually |
| Noise | Biannually |
| Solid Waste | Monthly |
| Environmental Inspection | Monthly |

2.10 SUMMARY OF APPLICABLE LAWS

| Law | Relevance |
|--------------------------------------|------------------------|
| PEPA 1997 | Environmental approval |
| PEQS | Pollution control |
| Local Government Rules | Waste management |
| Housing & Urban Planning Regulations | Land use planning |
| OHS Guidelines | Worker safety |

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CHAPTER NO.3

SCREENING AND SCOPING



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CHAPTER 3: SCREENING AND SCOPING

3.1 INTRODUCTION

This chapter describes the **screening process, project categorization, scoping exercise, project objectives, and analysis of alternatives** conducted for the proposed **Model Avenue Housing Scheme**.

The screening and scoping have been carried out in accordance with the requirements of the **Punjab Environmental Protection Act (PEPA), 1997 (as amended)** and the **Punjab Environmental Protection (Review of IEE & EIA) Regulations, 2022**.

3.2 TYPE AND CATEGORY OF PROJECT

According to Section 12 of PEPA, 1997:

“No proponent of a project shall commence construction or operation unless he has filed with the Provincial Agency an IEE or EIA and has obtained approval.”

The Punjab Environmental Protection (Review of IEE & EIA) Regulations, 2022 classify projects into:

- **Schedule-I:** Projects requiring IEE
- **Schedule-II:** Projects requiring EIA

The proposed project is a **large-scale residential housing scheme** comprising:

- Total Area: **780 Kanal 15 Marla**
- Settlement Area: **780.75 Kanal**
- Transferable Area: **263.97 Kanal**
- Approximately **4,993 residential plots**
- Block-wise development (**Blocks A, B, C, and D**)
- Road infrastructure and public utility areas

Due to:

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- Large land development and land use change
- Significant population settlement
- Generation of domestic wastewater and solid waste
- Traffic generation and infrastructure demand

The project falls under **Schedule-II** of the Regulations, requiring a **full Environmental Impact Assessment (EIA)**.

This EIA has been prepared to obtain the **Construction Phase NOC** from Punjab EPA.

3.3 SCOPING

Scoping is a key step in the EIA process used to identify major environmental issues requiring detailed assessment.

The scoping for this housing scheme was carried out through:

- Review of project layout plan, block distribution, and land use allocation
- Site visits and assessment of surrounding land in **Tehsil Sadiqabad, District Rahim Yar Khan**
- Analysis of baseline environmental conditions
- Identification of environmental receptors such as:
 - Air quality
 - Soil
 - Groundwater
 - Nearby settlements
 - Traffic conditions
- Consultation with project proponent

Key Outcomes of Scoping

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i. **Spatial Boundary:** Project site and surrounding area within 1–2 km radius

ii. **Temporal Boundary:**

- Construction Phase: Short-term
- Operational Phase: Long-term (residential use)

iii. **Key Environmental Concerns Identified:**

- Dust and noise during construction
- Domestic wastewater generation
- Solid waste management
- Traffic increase
- Pressure on local infrastructure

iv. **Priority Issues for Detailed Assessment:**

- Air quality
- Wastewater management
- Solid waste disposal
- Noise levels
- Land use impacts
- Socio-economic impacts



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3.4 OBJECTIVES OF THE PROJECT

The primary objective of the **Model Avenue Housing Scheme** is to develop a **planned residential community** with proper infrastructure and modern urban planning.

The project aims to:

- Provide **approximately 4,993 residential plots**

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- Develop **organized housing blocks (A, B, C, D)**
- Establish road networks and public utility infrastructure
- Improve living standards in the area
- Generate employment during construction and operation
- Promote **planned urban development in Tehsil Sadiqabad**
- Contribute to regional economic growth

The project is designed to incorporate **environmental safeguards** such as proper sewerage systems, solid waste management, and green areas.

3.5 ALTERNATIVES

3.5.1 No-Project Alternative

The “No-Project” option would mean that the housing scheme is not developed.

This would result in:

- Loss of housing opportunities
- No economic development
- No employment generation
- Continued unplanned land use

Therefore, the “No-Project” alternative is **not considered viable**.

3.5.2 Site Alternatives

The selected site in **Tehsil Sadiqabad, District Rahim Yar Khan** is suitable due to:

- Availability of large contiguous land
- Accessibility through existing road networks
- Compatibility with surrounding land use
- Absence of environmentally sensitive areas

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Other locations were considered but were less suitable due to:

- Higher land cost
- Limited accessibility
- Lack of infrastructure

3.5.3 Planning Alternatives

The project adopts a **block-wise planning approach** including:

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

This approach ensures:

- Efficient land utilization
- Better infrastructure planning
- Organized development



3.5.4 Environmental Alternatives

The project incorporates environmentally sound alternatives such as:

- Proper sewerage and drainage systems
- Solid waste management system
- Plantation and green belts
- Dust control during construction
- Traffic management planning

These measures ensure compliance with **PEQS** and minimize environmental impacts.

3.6 CONCLUSION OF SCREENING AND SCOPING

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Screening confirms that the project falls under **Schedule-II**, requiring a **full EIA**.

Scoping has identified key environmental aspects including:

- Air quality
- Wastewater management
- Solid waste
- Noise
- Traffic impacts
- Socio-economic considerations

The selected site and planning approach represent the **most suitable and environmentally feasible option**.

With implementation of mitigation measures and Environmental Management Plan (EMP), the project is expected to proceed in an **environmentally sustainable manner**, while providing significant socio-economic benefits to the region.



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**CHAPTER 4: DESCRIPTION OF THE
PROJECT**



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ENVIRONMENTAL IMPACT ASSESSMENT EIA

CHAPTER 4: DESCRIPTION OF THE PROJECT

4.0 INTRODUCTION

This chapter provides a detailed description of the proposed **Model Avenue Housing Scheme** being developed by **M/S Ramay Builders & Town Developers (Pvt.) Ltd.**. The project proponent is **Mr. Muhammad Nazir Ramay (CNIC: 34101-4787695-3)**.

The chapter primarily focuses on the **construction phase activities**, while also outlining key operational aspects of the housing scheme for environmental assessment purposes.

The project is a **planned residential housing development** located at **Tehsil Sadiqabad, District Rahim Yar Khan**, covering a total area of **780 Kanal 15 Marla**.

The scheme is designed to provide organized urban development including residential plots, road infrastructure, and public utility services. The development is structured in a **block-wise layout (Blocks A, B, C, and D)**.

Construction activities will commence only after obtaining the required **Environmental Approval (Construction Phase NOC)** from the Punjab Environmental Protection Agency under the Punjab Environmental Protection Act, 1997 (as amended).

The construction phase is expected to continue for **12–18 months**, depending on approvals, weather conditions, and availability of construction materials. Activities will include site preparation, earthworks, road development, utility installation, infrastructure development, and landscaping.

Potential environmental impacts during construction are expected to be **temporary, short-term, localized, and reversible**, including dust generation, noise, construction waste, and minor traffic disturbance. These impacts will be mitigated through standard engineering practices and compliance with **Punjab Environmental Quality Standards (PEQS)**.

ENVIRONMENTAL IMPACT ASSESSMENT EIA

4.1 OBJECTIVES OF THE PROJECT

The primary objective of the **Model Avenue Housing Scheme** is to develop a **planned, modern, and sustainable residential community** that meets the growing housing demand in the region.

Key objectives include:

- Development of approximately **4,993 residential plots**
- Provision of organized residential blocks (A, B, C, D)
- Construction of roads, streets, and infrastructure facilities
- Promotion of planned urban development in Tehsil Sadiqabad
- Improvement of housing availability and living standards
- Generation of employment opportunities during construction
- Contribution to regional socio-economic development

The project is designed with environmental considerations such as proper drainage, sewerage systems, solid waste management, and green plantation zones.

4.2 PARTICULARS OF THE PROJECT

TABLE 4.1: PROJECT PARTICULARS

| Sr. No. | Particulars | Details |
|----------------|--------------------|---|
| 1 | Project Name | Model Avenue Housing Scheme |
| 2 | Proponent | M/S Ramay Builders & Town Developers (Pvt.) Ltd. / Mr. Muhammad Nazir Ramay |

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| Sr. No. | Particulars | Details |
|---------|-------------------|---|
| 3 | CNIC | 34101-4787695-3 |
| 4 | Location | Tehsil Sadiqabad, District Rahim Yar Khan |
| 5 | Total Area | 780 Kanal 15 Marla |
| 6 | Settlement Area | 780.75 Kanal |
| 7 | Transferable Area | 263.97 Kanal |
| 8 | Mortgaged Area | Approximately 101 Kanal |
| 9 | Nature of Area | Vacant land in planned development zone |

4.3 LOCATION AND LAYOUT OF THE PROJECT

The project site is located in **Tehsil Sadiqabad, District Rahim Yar Khan**, within an area suitable for residential development. The land is currently **vacant and free from major structures**, allowing smooth commencement of development activities.

The scheme is planned with a **systematic block-wise layout**, including:

- Block A
- Block B
- Block C

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- Block D

Proposed Layout Components:

- Residential plots (approximately 4,993 units)
- Main roads and internal street network
- Public utility zones
- Open spaces and green belts
- Drainage and sewerage system corridors
- Commercial pockets (if planned in layout approval)

The layout ensures efficient land utilization, accessibility, and infrastructure integration.

4.4 SIZE AND MAGNITUDE OF THE PROJECT

The project is a **large-scale residential development scheme** covering:

- Total land area: **780 Kanal 15 Marla**
- Residential plots: **~4,993 units**
- Multiple planning blocks (A–D)
- Full urban infrastructure development

The magnitude of the project classifies it as a **major housing development project** under Punjab EPA guidelines.

4.5 AREA AND PROJECT COST

- Total Land Area: **780 Kanal 15 Marla**
- Nature: Residential housing development with infrastructure
- Estimated Project Cost: To be finalized based on engineering design, land development works, utilities, and infrastructure provision

The cost includes development of roads, sewerage systems, water supply,

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electrification, and environmental management measures.

4.6 NATURE OF AREA AND LAND USE

The project site consists of **vacant land designated for planned development**. Existing land use is non-productive, and the area is suitable for conversion into residential infrastructure.

Surrounding land uses include:

- Mixed residential and developing urban areas
- Agricultural/open land patches
- Road connectivity corridors

No environmentally sensitive ecosystems are present within or near the site.

4.7 VEGETATION ON SITE

The site contains **sparse natural vegetation**, mainly grasses and shrubs typical of vacant land in Punjab.

- No forest cover exists
- No endangered or protected species are reported
- Vegetation removal impact is minimal

4.8 RESETTLEMENT AND REHABILITATION

- No residential structures exist on site
- No population displacement is required
- No resettlement or rehabilitation issues are involved
- Land is already privately owned and available for development

4.9 MANPOWER REQUIREMENT

Construction Phase

- Estimated workforce: **100–200 workers**

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- Includes engineers, masons, machinery operators, electricians, and laborers
- Preference will be given to local labor

Operational Phase

- Indirect manpower through services such as maintenance, security, and municipal services
- Employment opportunities for local residents in commercial and service activities

4.10 UTILITIES AND SERVICES

- **Electricity:** Supply from WAPDA grid with backup arrangements
- **Water Supply:** Tube wells and/or approved municipal sources
- **Sewerage:** Proper underground sewerage network with treatment system
- **Drainage:** Stormwater drainage system integrated into layout
- **Solid Waste:** Collection system linked with municipal disposal mechanisms

4.11 AIR EMISSIONS, WASTEWATER AND SOLID WASTE

Construction Phase

- Dust from excavation and earthworks
- Emissions from construction machinery
- Construction waste (soil, debris, packaging material)
- Minimal wastewater from labor camps

Operational Phase

- Vehicular emissions within housing scheme
- Domestic wastewater from residential units
- Household solid waste generation
- Managed through proper municipal systems

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4.12 NOISE

- Temporary noise during construction due to machinery and transport
- Controlled under PEQS limits
- Operational noise will be limited to traffic and domestic activities
- Noise mitigation through planning and plantation buffers

4.13 IMPLEMENTATION SCHEDULE

The construction period is estimated at **12–18 months**.

TABLE 4.2: INDICATIVE PROJECT SCHEDULE

| Activity | Months 1–4 | Months 5–8 | Months 9–12 | Months 13–18 |
|---|------------|------------|-------------|--------------|
| Site preparation & approvals | ✓ | | | |
| Earthworks & infrastructure development | ✓ | ✓ | | |
| Road & utility installation | | ✓ | ✓ | |
| Plot development & finishing | | | ✓ | ✓ |
| Landscaping & completion | | | | ✓ |

4.14 MATERIALS AND EQUIPMENT

- Earthmoving machinery (excavators, bulldozers)
- Construction materials (cement, steel, gravel, sand)
- RCC for roads and infrastructure
- Pipes for water supply and sewerage

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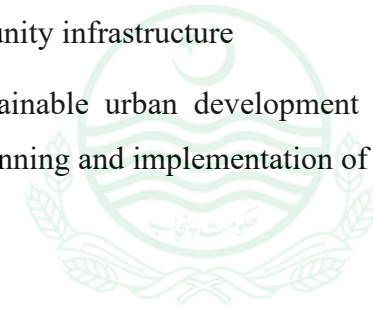
- Electrical infrastructure materials
- Environmentally compliant construction practices will be adopted

4.15 PROJECT OPERATION (OVERVIEW)

Once completed, the housing scheme will function as a **planned residential community** with:

- Residential living units
- Road and transport network
- Water supply and sewerage systems
- Waste management systems
- Green spaces and community infrastructure

The project ensures sustainable urban development with minimal environmental impact through proper planning and implementation of environmental safeguards.



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**ENVIRONMENTAL IMPACT ASSESSMENT
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**CHAPTER 5: DESCRIPTION OF THE
ENVIRONMENT**



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CHAPTER 5: DESCRIPTION OF THE ENVIRONMENT

5.0 INTRODUCTION

This chapter describes the **baseline environmental conditions** of the proposed project area for the **Model Avenue Housing Scheme** located in **Tehsil Sadiqabad, District Rahim Yar Khan**, developed by **M/S Ramay Builders & Town Developers (Pvt.) Ltd.**

The baseline assessment covers the **physical, biological (ecological), and socio-economic environment** of the project site and its surroundings. The information has been compiled using:

- Secondary data from Punjab Environmental Protection Department (EPD), Pakistan Meteorological Department (PMD), Pakistan Bureau of Statistics (PBS), and Irrigation Department
- Published hydrological and geological studies
- Field visits to the project site and surrounding areas
- Consultations with local stakeholders and relevant departments

This baseline is essential for evaluating potential environmental impacts during:

- Construction phase (earthworks, road development, infrastructure installation)
- Operational phase (residential occupation, wastewater generation, solid waste, traffic increase)

Since the project is a **planned residential housing scheme**, environmental impacts are mainly associated with **urban development activities**, which are generally manageable through proper planning and mitigation.

5.1 DATA COLLECTION

Primary Data

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Primary data was collected through:

- Site inspections of the vacant project land
- Observation of land use, soil condition, and vegetation
- Assessment of surrounding settlements and infrastructure
- Field verification of environmental conditions

Secondary Data

Secondary data sources include:

- Punjab EPD reports
- PMD climatic data
- Punjab Irrigation Department hydrological records
- Pakistan Bureau of Statistics (2023 Census)
- Academic and technical publications

Socio-economic Inputs

- Local community consultations
- Interaction with nearby residents and stakeholders
- Review of district development data

This combined approach ensures a reliable baseline for environmental assessment of the housing scheme.

5.2 PHYSICAL ENVIRONMENT

The project site is located in **Tehsil Sadiqabad, District Rahim Yar Khan**, within the southern Punjab plain. The region forms part of the **Indus Basin alluvial floodplain**, characterized by fertile agricultural land and developing urban settlements.

The area around the project site consists of:

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- Agricultural land
- Scattered residential settlements
- Developing road infrastructure
- Small commercial activity zones

The site is currently **vacant land**, with minimal anthropogenic disturbance. No major surface water bodies exist within the immediate project boundary; however, nearby irrigation canals and drains influence the regional hydrological system.

5.3 PHYSICAL RESOURCES

Physical resources in the project area include:

- Fertile alluvial soils suitable for agriculture
- Groundwater aquifers used for domestic and agricultural purposes
- Canal irrigation systems linked to Sutlej and Indus basin networks
- Road infrastructure connecting Sadiqabad with surrounding towns

Soils are generally **loam to clay-loam**, supporting agriculture but requiring careful management during construction to avoid erosion, compaction, and contamination.

5.4 GEOGRAPHY AND GEOLOGY

Rahim Yar Khan District lies in the **southern Punjab alluvial plain**, characterized by:

- Thick unconsolidated alluvial deposits (clay, silt, sand)
- Flat topography with gentle slope
- Highly fertile soil conditions

Geologically, the area is stable with no major fault lines directly affecting the project site. According to seismic zoning maps of Pakistan, the region falls under **low to moderate seismic risk zone**, making it suitable for residential development with

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standard engineering design practices.

No rocky terrain or unstable geological formations are present at the site.

5.5 TOPOGRAPHY

The project area has a **flat to gently sloping topography**, typical of southern Punjab plains. Elevation is relatively uniform with no significant natural depressions or elevated landforms.

Drainage is generally controlled through irrigation canals and natural runoff channels. Proper stormwater drainage systems will be required in the housing scheme to prevent waterlogging during monsoon season.

5.6 HYDROLOGY

Groundwater Conditions

Groundwater is the primary source of water in the region, accessed through tube wells. The aquifer system consists of thick alluvial deposits with variable depth and quality.

- Shallow groundwater may show elevated salinity or hardness
- Deeper aquifers are generally more suitable for potable and construction use

Surface Water

Surface water resources include:

- Irrigation canals
- Seasonal drains
- Agricultural runoff channels

Project Implications

- Construction water demand will be moderate
- Operational phase will require a reliable water supply system
- Proper sewerage and drainage systems will be developed to protect groundwater

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quality

Compliance with **Punjab Environmental Quality Standards (PEQS)** will ensure protection of local water resources.

5.7 CLIMATE

The project area has a **hot semi-arid climate (BSH type)** typical of southern Punjab.

Climate Characteristics:

- Very hot summers (April–June)
- Monsoon season (July–September)
- Mild winters (December–February)
- Average annual rainfall: ~150–250 mm (lower than northern Punjab)

Key Climate Considerations:

- High summer temperatures may exceed 45°C
- Dust storms occur during dry months
- Monsoon rains require proper drainage design

These climatic conditions will be considered in:

- Construction scheduling
- Drainage planning
- Landscaping and plantation design

5.8 BIOLOGICAL ENVIRONMENT

5.8.1 Flora

The project area supports **typical southern Punjab vegetation**, including:

- Kikar (*Acacia nilotica*)
- Eucalyptus plantations

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- Date palm (in nearby cultivated areas)
- Agricultural crops such as wheat, cotton, sugarcane, and fodder

The project site itself contains **minimal vegetation**, as it is largely vacant land. No protected forests or sensitive ecological habitats are present.

5.8.2 Fauna

The fauna in the area consists of common species adapted to human-modified environments, including:

- Birds: sparrow, crow, pigeon, mynah
- Small mammals: rodents, rabbits (rare in urban edges)
- Reptiles: lizards, snakes (limited presence)
- Domestic animals: cattle, goats, buffalo in nearby settlements

No endangered or protected species have been observed within or near the project site.

5.9 SOCIO-ECONOMIC ENVIRONMENT

The project area falls within a developing semi-urban region with mixed agricultural and residential land use.

Key Features:

- Economy based on agriculture and livestock
- Growing construction and real estate activity
- Availability of local labor force
- Access to basic utilities and road networks

Project Impact:

- Positive contribution through housing development
- Employment generation during construction
- Improvement in local infrastructure

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- Increased economic activity in the region

5.10 DEMOGRAPHY

According to the **2023 Population Census**, Rahim Yar Khan District has a large and growing population, with a mix of rural and urban settlements.

Key demographic features:

- High rural population share
- Young labor force availability
- Continuous urban expansion in Sadiqabad region

This ensures adequate demand and workforce availability for the housing scheme.

5.11 LITERACY RATE

The literacy rate in the district is estimated at **moderate levels (approximately 50–65%)**, with higher literacy in urban centers such as Sadiqabad.

This supports:

- Skilled labor availability for construction activities
- Employment in services, maintenance, and administration
- Awareness of housing and urban development needs

5.12 INDUSTRIAL AND ECONOMIC PROFILE

The project area is primarily:

- Agriculture-based
- Emerging real estate and construction zone
- Supported by small-scale commercial activities

The housing scheme aligns with regional development trends by:

- Supporting urban expansion

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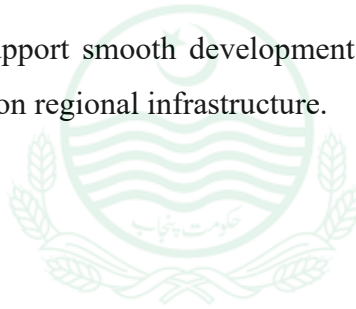
- Increasing land value
- Improving infrastructure availability

5.13 AMENITIES AND INFRASTRUCTURE

The project site benefits from access to:

- Road networks connecting Sadiqabad and surrounding towns
- Electricity supply (WAPDA grid)
- Basic water supply sources (tube wells)
- Nearby healthcare and educational facilities
- Market and commercial centers within accessible distance

These existing facilities support smooth development of the housing scheme with minimal additional burden on regional infrastructure.



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**ENVIRONMENTAL IMPACT ASSESSMENT
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**CHAPTER 6: STAKEHOLDER
CONSULTATION**



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CHAPTER 6: STAKEHOLDER CONSULTATION

Stakeholder consultation is a structured process of engaging individuals, local communities, institutions, and government departments that may have an interest in or be affected by the environmental, social, and economic aspects of a proposed development project. The objective is to ensure that stakeholder concerns are identified at an early stage, incorporated into project planning and design, and appropriately addressed to promote sustainable and socially acceptable development outcomes.

For the proposed **Model Ramay Housing Scheme**, consultations were carried out in accordance with the requirements of the **Punjab Environmental Protection Act (PEPA), 1997 (as amended)** and the **Punjab Environmental Protection (Review of IEE and EIA) Regulations, 2022**, as well as guidelines issued by the Punjab Environmental Protection Department (EPD). The consultation process also followed best practices for housing and urban development projects in Punjab.

The consultations focused on key project activities including land development, site leveling, road infrastructure, construction of residential plots, provision of utilities (water supply, sewerage, electricity), and allied infrastructure. Potential environmental and social aspects such as dust generation during construction, noise from machinery, solid waste generation, traffic movement, and pressure on local infrastructure were discussed in detail. As the project is a residential housing scheme, its impacts are primarily construction-phase based and manageable through proper mitigation measures.

6.1 OBJECTIVES OF STAKEHOLDER CONSULTATION

The stakeholder consultation process was conducted to obtain meaningful feedback from affected communities, government departments, and other relevant stakeholders.

The key objectives are as follows:

- i. To share detailed information about the Model Ramay Housing Scheme, including location, layout plan, number of residential plots, infrastructure development, and

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project timeline.

ii. To discuss potential environmental and social impacts during the construction phase, including dust, noise, vibration, traffic congestion, and waste generation.

iii. To identify stakeholder concerns regarding water supply, sewerage disposal, solid waste management, and pressure on local infrastructure and services.

iv. To collect suggestions for improving project design, including proper drainage systems, dust control measures, traffic management plans, and plantation/green belt development.

v. To understand community perceptions regarding benefits such as improved housing facilities, employment opportunities, and local economic development.

vi. To raise awareness about the project's positive contribution to planned urban development and improved living standards in the area.

vii. To ensure balanced consideration of environmental, social, and economic impacts and promote sustainable housing development.

viii. To establish effective communication channels between the proponent and stakeholders for continuous engagement during project execution.

6.2 METHODOLOGY OF STAKEHOLDER CONSULTATION

The consultation process was conducted using a participatory and inclusive approach in line with EPD guidelines. The methodology included:

- Initial scoping meetings for information sharing
- Detailed community consultations on environmental and social impacts
- Follow-up discussions for feedback validation

The following tools and methods were used:

- Key informant interviews with government officials and local representatives
- Focus Group Discussions (FGDs) with residents, landowners, and local community

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members

- Community meetings supported by maps, layout plans, and project illustrations
- Structured questionnaires covering environmental and social concerns
- Separate sessions for women to ensure inclusive participation
- Use of local languages (Urdu/Punjabi) for better understanding
- Proper documentation including attendance sheets, photographs, and meeting minutes

This approach ensured transparency, inclusiveness, and meaningful participation from all relevant stakeholders.

6.3 IDENTIFICATION OF STAKEHOLDERS

Stakeholders were identified and grouped as follows:

Primary Stakeholders:

- Local residents and landowners in and around the project area
- Potential future residents of the housing scheme
- Local labor force engaged during construction

Secondary Stakeholders:

- Punjab Environmental Protection Agency (EPA)
- Local government and municipal authorities
- Public health and utility service departments
- NGOs and community-based organizations
- Infrastructure and development agencies

6.4 CONSULTATION PROCESS

Stakeholder engagement activities were carried out through multiple field visits and community meetings. Approximately 150–250 individuals participated in various

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consultation sessions, including residents, workers, and local stakeholders.

Table 6.1: Sample List of Consulted Stakeholders

| Sr. No. | Name | Area | Key Concern |
|---------|----------------|---------------------|-----------------------------|
| 1 | Muhammad Aslam | Nearby Village | Dust and construction noise |
| 2 | Abdul Rehman | Local Area | Water supply and drainage |
| 3 | Fatima Bibi | Adjacent Settlement | Housing benefits and safety |
| 4 | Ali Hussain | Nearby Road | Traffic and access issues |
| 5 | Sana Ullah | Local Community | Employment opportunities |

6.5 KEY FINDINGS

Environmental Concerns:

- Dust and noise during construction activities
- Disposal of construction waste and debris
- Traffic congestion due to construction vehicles
- Proper drainage and stormwater management

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Social Concerns:

- Demand for local employment opportunities
- Adequate provision of water supply and sewerage system
- Safety of nearby communities during construction

Positive Feedback:

- Strong demand for planned housing development
- Expected improvement in living standards
- Economic activity and job creation during construction
- Improvement in local infrastructure and urban services

6.6 INTEGRATION OF FEEDBACK

All feasible suggestions received from stakeholders have been incorporated into the project planning and design, including:

- Dust control measures during construction
- Proper traffic management plan
- Efficient drainage and sewerage system design
- Plantation and green belt development
- Priority local employment during construction
- Establishment of grievance redress mechanism (GRM)
- Regular monitoring and compliance with EPA requirements

6.7 CONCLUSION AND CONTINUED ENGAGEMENT

The stakeholder consultation process confirmed general support for the Model Ramay Housing Scheme, provided that environmental and social mitigation measures are properly implemented. The consultation process has strengthened the planning and environmental design of the project.

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A **Stakeholder Engagement Plan (SEP)** will be implemented to ensure continued communication with stakeholders throughout the project lifecycle. This includes periodic consultations during construction, grievance handling procedures, and coordination with local authorities to ensure sustainable and environmentally responsible development of the housing scheme.



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**ENVIRONMENTAL IMPACT ASSESSMENT
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**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, evaluation, and mitigation of potential environmental impacts associated with the proposed **Model Ramay Housing Scheme**. The assessment is based on the project's nature as a residential township development, its land area, location conditions, and construction activities.

The project involves development of residential plots, internal road networks, drainage and sewerage systems, water supply infrastructure, electrification, commercial areas, and associated urban facilities. The scheme is planned on suitable vacant land within a developing/peri-urban area, and all development activities will be carried out in compliance with the **Punjab Environmental Protection Act (PEPA), 1997 (as amended)**, the **Punjab Environmental Protection (Review of IEE and EIA) Regulations, 2022**, and the **Punjab Environmental Quality Standards (PEQS)**.

Given the nature of housing development, environmental impacts are mainly associated with the construction phase and are temporary, localized, and manageable through standard mitigation practices.

7.1 IDENTIFICATION OF POTENTIAL ENVIRONMENTAL IMPACTS

Potential environmental impacts were identified through:

- Review of project layout and development plan
- Site inspections and field observations
- Consultation with stakeholders (Chapter 6)
- Review of similar housing schemes in Punjab
- Professional judgment and EIA checklists

Key project activities likely to generate impacts include:

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- i. **Air Quality:** Dust emissions from earthwork, excavation, and construction vehicle movement
- ii. **Noise and Vibration:** Operation of construction machinery and equipment
- iii. **Solid Waste:** Construction debris, packaging material, and domestic waste from labor camps
- iv. **Wastewater:** Domestic sewage from construction workforce and future residential use
- v. **Soil and Water Resources:** Risk of erosion, runoff, or minor contamination during construction
- vi. **Traffic Movement:** Increased movement of construction vehicles and material transport
- vii. **Occupational Health & Safety:** Risks related to construction activities
- viii. **Socio-economic Environment:** Employment generation and temporary disturbance
- ix. **Ecology:** Minor disturbance to sparse vegetation on site
- x. **Resource Consumption:** Water, electricity, and construction materials

No significant impacts are expected on cultural heritage, protected ecological zones, or archaeological resources.

7.2 SCOPING CRITERIA FOR IMPACTS

Impacts were scoped using the following criteria:

- Baseline environmental conditions of the project area
- Compliance with PEQS standards (air, noise, water, waste)
- Stakeholder concerns (dust, traffic, water supply, waste management)
- Spatial extent: site level, neighborhood level, and surrounding area
- Temporal scale: short-term (construction) and long-term (operation)
- Reversibility: most impacts are reversible

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- Magnitude: low, moderate, or high
- Nature: positive, negative, or neutral

7.3 METHODOLOGY FOR IMPACT ASSESSMENT

A qualitative matrix approach was adopted considering:

- Severity (magnitude of impact)
- Likelihood (probability of occurrence)
- Sensitivity of receptors (residential and nearby land use)

Table 7.1: Impact Significance Criteria

| Level | Description |
|------------|--------------------------------------|
| High | Severe or long-term impact |
| Moderate | Noticeable but manageable impact |
| Low | Minor or short-term impact |
| Beneficial | Positive environmental/social effect |

7.4 SITE-RELATED IMPACTS

The selected site for Model Ramay Housing Scheme is generally suitable for residential development due to:

- Flat topography and stable soil conditions
- Absence of environmentally sensitive ecosystems
- Accessibility through existing road infrastructure
- Availability of surrounding utilities and services
- No presence of archaeological or protected sites

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Therefore, site-specific environmental risks are considered low, provided proper planning and mitigation measures are implemented.

7.5 IMPACTS DURING CONSTRUCTION PHASE AND MITIGATION MEASURES

The construction phase includes site preparation, excavation, infrastructure development, road construction, and utility installation. Impacts are temporary and manageable.

7.5.1 Air Quality (Dust Emissions)

- **Impact:** Dust generation from excavation and material handling (Moderate)
- **Mitigation:** Regular water sprinkling, covering of materials, vehicle speed control, and dust masks for workers

7.5.2 Noise and Vibration

- **Impact:** Noise from machinery, trucks, and equipment (Moderate)
- **Mitigation:** Restriction of noisy activities to daytime hours, maintenance of machinery, and use of PPE

7.5.3 Solid Waste Generation

- **Impact:** Construction debris and packaging waste (Low)
- **Mitigation:** Waste segregation, recycling of reusable material, and disposal at approved sites

7.5.4 Wastewater and Drainage

- **Impact:** Domestic wastewater from labor camps and stormwater runoff (Low)
- **Mitigation:** Proper drainage channels, septic systems, and sediment control measures

7.5.5 Soil and Erosion

- **Impact:** Soil disturbance and minor erosion risks (Low)

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- **Mitigation:** Proper grading, slope stabilization, and immediate landscaping after construction

7.5.6 Ecology

- **Impact:** Minor disturbance to sparse vegetation (Insignificant)
- **Mitigation:** Preservation of trees where possible and plantation of native species in green belts

7.5.7 Occupational Health & Safety

- **Impact:** Construction-related accidents and exposure risks (Moderate)
- **Mitigation:** PPE provision, safety training, first aid facilities, and site supervision

7.5.8 Socio-economic Impacts

- **Impact:** Temporary disturbance and traffic increase; employment generation (Beneficial overall)
- **Mitigation:** Traffic management plan and priority local hiring

7.6 IMPACTS DURING OPERATIONAL PHASE AND MITIGATION MEASURES

Operational impacts are long-term and mainly associated with residential occupancy.

7.6.1 Wastewater Generation

- **Impact:** Domestic sewage from households (Moderate)
- **Mitigation:** Proper sewerage network and connection to treatment or municipal system

7.6.2 Solid Waste

- **Impact:** Household waste generation (Moderate)
- **Mitigation:** Waste collection system, segregation, and municipal disposal arrangements

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7.6.3 Water Demand

- **Impact:** Increased demand for groundwater or municipal supply (Moderate)
- **Mitigation:** Efficient water supply system, conservation measures, and possible rainwater harvesting

7.6.4 Traffic and Mobility

- **Impact:** Increased residential traffic (Moderate)
- **Mitigation:** Proper road design, parking areas, and traffic management planning

7.6.5 Noise

- **Impact:** Domestic and traffic-related noise (Low)
- **Mitigation:** Zoning, landscaping buffers, and speed control inside scheme

7.6.6 Socio-economic Impacts

- **Impact:** Positive improvement in housing availability and local economic activity (Beneficial)
- **Mitigation:** Planned urban development and provision of community facilities

7.7 ACHIEVEMENT OF MITIGATION MEASURES

Mitigation will be ensured through:

- Integration of environmental controls in engineering design
- Implementation of an Environmental Management Plan (EMP)
- Appointment of site environmental supervision team
- Regular monitoring during construction and early occupation phases
- Compliance with PEQS and EPA conditions

7.8 ENVIRONMENTAL ENHANCEMENT MEASURES

- Plantation of trees and development of green belts

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- Proper landscaping of roads, parks, and open spaces
- Energy-efficient street lighting systems
- Sustainable drainage systems (SUDS)
- Waste recycling and segregation system
- Community parks and green recreational areas

7.9 MONITORING AND COMPLIANCE

- Appointment of environmental focal person during construction
- Periodic monitoring of dust, noise, and wastewater
- Waste management tracking system
- Compliance reporting to Punjab EPA
- Internal environmental audits

Table 7.2: Summary of Key Impacts and Mitigation Measures

| Impact | Phase | Significance | Mitigation |
|------------|--------------|--------------|--------------------------------------|
| Dust | Construction | Moderate | Water sprinkling, covering materials |
| Noise | Construction | Moderate | Daytime work, PPE, maintenance |
| Wastewater | Operation | Moderate | Sewerage |

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| Impact | Phase | Significance | Mitigation |
|----------------|-------|--------------|--------------------------------|
| er | | | system |
| Solid Waste | Both | Moderate | Proper collection & disposal |
| Traffic | Both | Moderate | Traffic planning & road design |
| Socio-economic | Both | Beneficial | Housing & employment benefits |

7.10 CONCLUSION

With proper implementation of mitigation measures and environmental management practices, the potential adverse impacts of the **Model Ramay Housing Scheme** will be reduced to acceptable levels. The project will result in significant positive socio-economic benefits, including improved housing facilities, infrastructure development, and planned urban growth in the region.



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**ENVIRONMENTAL IMPACT ASSESSMENT
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**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 proposed **Ramay Housing Scheme**, to be developed on planned residential land located in District Rahim Yar Khan, Punjab, Pakistan.

The EMMP has been prepared to ensure that all construction and development activities of the housing scheme are carried out in an environmentally responsible manner in compliance with the **Punjab Environmental Protection Act (PEPA), 1997 (as amended)**, the **Punjab Environmental Protection (Review of IEE and EIA) Regulations, 2022**, and applicable **Punjab Environmental Quality Standards (PEQS)**.

The project involves the development of a planned residential township including plot development, internal road infrastructure, drainage system, water supply network, sewerage system, electrification, landscaping, and allied civic amenities. Since the project is purely residential in nature, environmental impacts are primarily associated with construction activities, utility installation, increased traffic, dust generation, noise, and temporary waste generation.

8.1 OBJECTIVES OF THE EMMP

The key objectives of the EMMP are:

- i. To ensure effective implementation of mitigation measures during construction and operational phases of Ramay Housing Scheme.
- ii. To minimize adverse environmental impacts such as dust emissions, noise, construction waste, and water contamination.
- iii. To establish a structured environmental monitoring system for compliance with PEQS and regulatory requirements.
- iv. To define institutional responsibilities for environmental management during all project phases.

ENVIRONMENTAL IMPACT ASSESSMENT EIA

v. To ensure efficient use of natural resources such as water, energy, and construction materials.

vi. To promote safe, healthy, and sustainable living conditions within the housing scheme.

vii. To ensure compliance with EPA Punjab approval conditions and facilitate sustainable urban development.

8.2 COMPONENTS OF EMMP

The EMMP includes:

- i. Environmental Management Plan (EMP)
- ii. Environmental Monitoring Plan
- iii. Institutional Arrangements
- iv. Grievance Redress Mechanism (GRM)
- v. Training and Capacity Building
- vi. Reporting and Documentation System
- vii. Budget Allocation for Environmental Management

8.3 INSTITUTIONAL ARRANGEMENTS

| Entity | Responsibilities |
|---|--|
| Project Proponent (Ramay Housing Scheme Management) | Overall implementation, resource allocation, compliance with EPA conditions |
| Environmental Officer | Day-to-day monitoring, reporting, supervision of mitigation measures |
| Contractors | Implementation of site-level mitigation (dust control, waste handling, safety) |

ENVIRONMENTAL IMPACT ASSESSMENT EIA

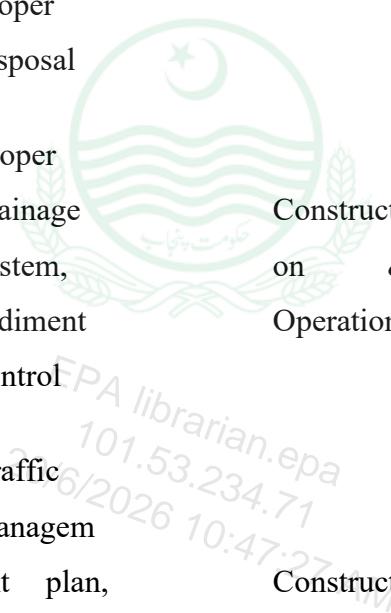
| Entity | Responsibilities |
|-------------------------|---|
| | measures) |
| Third-Party Consultants | Environmental monitoring and laboratory testing |
| EPA Punjab | Regulatory oversight and inspections |
| Local Community | Feedback through GRM |

8.4 ENVIRONMENTAL MANAGEMENT PLAN (EMP)

| Impact Area | Mitigation Measures | Phase | Responsibility |
|--------------------|--|--------------|-----------------------|
| Dust Generation | Water sprinkling, covering of soil stockpiles, speed control | Construction | Contractor |
| Noise | Restriction of construction timings, maintenance | Construction | Contractor |

ENVIRONMENTAL IMPACT ASSESSMENT EIA

| Impact Area | Mitigation Measures | Phase | Responsibility |
|---------------------|---|--------------------------|----------------|
| Solid Waste | Use of excavated soil, proper disposal | Construction | Contractor |
| Wastewater | Segregation, reuse of excavated soil, proper disposal Proper drainage system, sediment control | Construction & Operation | Proponent |
| Traffic | Traffic management plan, signage, access control | Construction | Contractor |
| Occupational Safety | PPE provision, safety | Construction | Contractor |



ENVIRONMENTAL IMPACT ASSESSMENT EIA

| Impact Area | Mitigation Measures | Phase | Responsibility |
|-------------|--------------------------------------|-------|----------------|
| | training, first aid facilities | | |

8.5 ENVIRONMENTAL MONITORING PLAN

| Parameter | Method | Frequency | Location | Responsibility |
|--------------------------|----------------------------|------------|----------------------------|--------------------------|
| Air Quality (Dust/PM) | Instrumental monitoring | Quarterly | Site boundary | Environmental Officer |
| Noise Levels | Sound meter | Quarterly | Near construction zones | Environmental Officer |
| Water Quality | Lab testing | Biannually | Tube wells / drainage | Third-party lab |
| Solid Waste | Visual inspection | Monthly | Site storage areas | Contractor |
| Safety Compliance | Checklist | Monthly | Site-wide | HSE Officer |

8.6 GRIEVANCE REDRESS MECHANISM (GRM)

A structured GRM will be established:

- Level 1: Site Engineer (resolution within 7 days)

ENVIRONMENTAL IMPACT ASSESSMENT EIA

- Level 2: Project Management (resolution within 15 days)
- Level 3: EPA Punjab escalation (if unresolved within 30 days)

All complaints will be recorded, tracked, and resolved transparently.

8.7 TRAINING AND CAPACITY BUILDING

Training will be provided on:

- Construction safety practices
- Dust and noise control
- Waste management practices
- Emergency response and fire safety
- PPE usage

8.8 BUDGET FOR EMMP

Approximately **2–3% of total project cost** will be allocated for environmental management, including:

- Monitoring and testing
- Safety equipment and PPE
- Waste management
- Plantation and landscaping
- Training programs

8.9 CONCLUSION

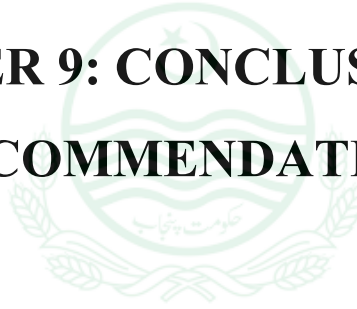
The EMMP ensures that the Ramay Housing Scheme is developed in an environmentally sustainable and socially responsible manner. Implementation of this plan will minimize environmental impacts and ensure compliance with all applicable environmental regulations.



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**ENVIRONMENTAL IMPACT ASSESSMENT
EIA**

**CHAPTER 9: CONCLUSION AND
RECOMMENDATIONS**



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ENVIRONMENTAL IMPACT ASSESSMENT EIA

CHAPTER 9: CONCLUSION AND RECOMMENDATIONS

9.1 CONCLUSION

The Environmental Impact Assessment (EIA) of the proposed **Ramay Housing Scheme** indicates that the project is environmentally feasible, socially beneficial, and economically important for the planned urban expansion in District Rahim Yar Khan.

The project involves the development of a planned residential community with housing plots, roads, water supply, sewerage, drainage, electrification, and landscaping facilities. The scheme is located on relatively flat land with no environmentally sensitive habitats, endangered species, or cultural heritage sites.

The baseline environmental conditions indicate that the project area is suitable for residential development, being located near existing settlements and accessible infrastructure corridors.

Key Findings:

- Construction phase impacts are temporary and include dust, noise, and construction waste.
- Operational phase impacts are minimal and mainly relate to domestic waste, water consumption, and traffic movement.
- No significant irreversible environmental impacts are expected.
- Socio-economic benefits include housing availability, job creation, and urban development.

With proper implementation of mitigation measures and the EMMP, all impacts will remain within acceptable limits under PEQS standards.

Overall, the project is environmentally acceptable and significantly more beneficial than the “No Project” option.

9.2 RECOMMENDATIONS

ENVIRONMENTAL IMPACT ASSESSMENT EIA

To ensure sustainable development of Ramay Housing Scheme, the following recommendations are made:

- i. Strict implementation of the EMMP throughout construction and operation phases.
- ii. Proper dust control measures including water sprinkling and material covering.
- iii. Controlled construction timing to minimize noise disturbance.
- iv. Development of an efficient drainage, sewerage, and solid waste management system.
- v. Plantation of trees and development of green belts within the housing scheme.
- vi. Provision of safe drinking water and sanitation facilities for workers during construction.
- vii. Establishment of a functional Grievance Redress Mechanism (GRM).
- viii. Regular environmental monitoring and reporting to EPA Punjab.
- ix. Implementation of fire safety systems and emergency response plans.
- x. Promotion of energy-efficient infrastructure and sustainable urban design.

FINAL STATEMENT

With the implementation of recommended mitigation measures, the Ramay Housing Scheme will contribute positively to urban development while maintaining environmental integrity and ensuring compliance with all applicable environmental regulations.