



Environmental Impact Assessment

The Palm Four

Final Report
September, 2023

Submitted To :
Sindh Environmental Protection Agency

ENVIRONMENTAL IMPACT ASSESSMENT FOR PALM FOUR (HOUSING SCHEME)

**Final Report
September, 2023**

Submitted By



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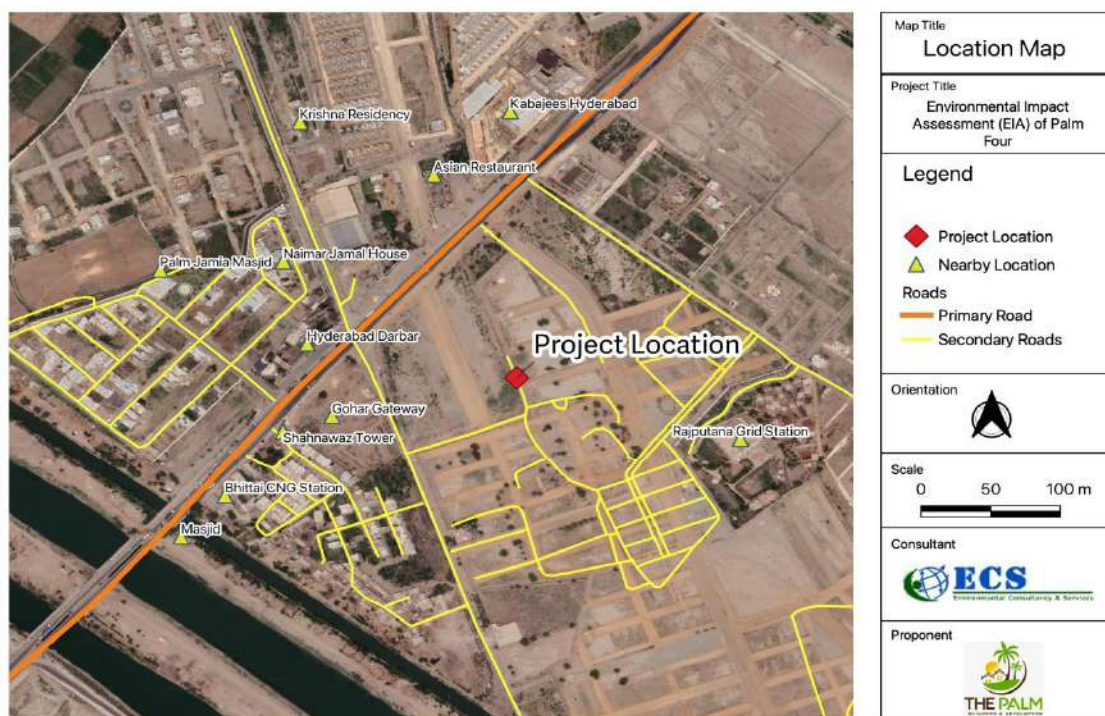
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EXECUTIVE SUMMARY

This Environmental Impact Assessment (EIA) report has been prepared for “Palm Four” project located near Main Bypass, Hyderabad. It is important to note that Hyderabad is the second-largest city in Sindh Province. The Hyderabad is rapidly urbanizing which has raised the challenges of urban sprawl and congestion in city. The population is continuously growing with the fast pace, which requires a robust solution. The only solution for this growing problem is sustainable urban planning and development at the outskirts’ areas of Hyderabad.

M/s. The Palm Builders & Developers (PBDS) is the proponent of the project “Palm Four (PF)”. The Project Proponent is a well-known builder who aims to provide affordable and luxurious standard residential and commercial projects in Hyderabad. The project “Palm Four” is located at Deh Mirzapur, Taluka Qasimabad, Hyderabad, Sindh. The project area is shown in the below figure.



The management of PBDS has an established reputation through hard work and commitment to the excellence and is now a trusted name in the field of construction business.

The management of PBDS has extensive experience in the construction sector and has competent team of qualified Engineers and Managers with the credentials of successful on time project completion. The management of PBDS constantly strives

to implement innovative and cost-effective solutions. The PBDS management intends to launch this state-of-the-art project called “Palm Four”.

The project spreads on a land measuring 92 Acres & 26.5 Ghuntaz. The project will have total 835 plots out of which 158 plots will have of 150 sq.yds, 490 plots of 200 sq.yds, 70 plots of 300 sq.yds, 48 plots of 400 sq.yds, 4 plots of 666.66 sq.yds, 55 plots of different sizes and 10 commercial plots of different sizes. The project will also have Theme park, parks, Masjids, club house, sport ground and amenities. The project will provide comfortable and luxurious living lifestyle to the residents and commercial opportunities. The project will have the residential plots, housing units, commercial plots, and amenities.

Since the project **“Palm Four” Falls in Schedule-III under the Category-I (1) of Urban Development and Tourism (Housing schemes above 50 Acres)**, thus require an EIA study.

To develop a comprehensive environmental and social baseline of the project area comprehensive review of literature was done by team of experts. The literature reviewed for developing a comprehensive environmental and social baseline was validated by frequent site visits and field investigations for ground trothing. Baseline investigations further revealed that the project lies near main bypass, Qasimabad, Hyderabad and the project area does not shelter any significant or endangered fauna species or protected site in the surrounding of project area.

However, a detailed Environmental Management & Monitoring Plan (EMMP) is prepared for the project to mitigate the impacts identified during this EIA study.

Under this EIA study following aspects has been covered:

- Review of relevant legislative requirements applicable to the project.
- Review documentation and analysis of the existing baseline conditions in project surrounding areas.
- Identification of documentation and analysis of environmental and social impacts associated with the project.
- Identification and documentation of mitigation safeguards to minimize the adverse environmental impacts of the project.

Therefore, this EIA study concludes the following:

The project will not have any long term significant and adverse environmental impact. Additionally, a detailed Environmental Management and Monitoring Plan (EMMP) identifies all the possible impacts associated with project and mitigation safeguards are integral part of plan to minimize adverse impacts associated with the project. Based on the point discussed above it is concluded that the project will not have any significant long term adverse impacts onto the existing environment if the M/s. PBDS ensures strict implementation of the (EMMP) during project execution. The impacts identified were mostly short term, site specific and would be easily managed by implementation of the EMMP in this EIA document.

CONCLUSION:

The EIA report for this project has achieved the following goals:

- Identification of the national and provincial environmental regulatory requirements that apply to the project activities.
- Identification of the environmental features of the project area including the physical, biological, social and likely impact of the project on the environment.
- Recommendation of appropriate mitigation measures that the project developer will incorporate and ensure as per this EIA into the project to minimize the adverse environmental impacts.

If the activities are undertaken as described in this EIA report, and the recommended mitigation measures along with environmental management plan are implemented in true letter and spirit, the project usage will not cause any long-term adverse environmental impacts. Additionally, the project will provide residential plots, housing units, commercial plots and amenities.

TABLE OF CONTENTS

CHAPTER 1: INTRODUCTION	1
1.1 Project Proponent.....	1
1.2 Project Overview.....	1
1.3 Approvals	2
1.4 Land Ownership	2
1.5 Legal Aspects of EIA Study	2
1.5.1 Legislative Requirement	2
1.5.2 Justification for EIA Study	2
1.5.3 Other Regulatory Requirements.....	3
1.6 Approach and Methodology of EIA Study	3
1.6.1 Scope of EIA Study	3
1.6.2 Purpose and Objectives	4
1.6.3 Methodology.....	4
1.6.4 Phases of Study.....	5
1.7 Report Structure	7
1.8 EIA Study Team	8
CHAPTER 2: ENVIRONMENTAL LEGISLATION	10
2.1 Introduction	10
2.2 Environmental Policies and Guidelines.....	10
2.2.1 National Conservation Strategy (NCS)	10
2.2.2 National Environmental Policy.....	11
2.2.3 Environmental Institutional Framework.....	11
2.3 Environmental Legislation	12
2.3.1 Sindh Environmental Protection Act 2014	12
2.4 Provincial Rules, Regulation and Standards	12
2.4.1 SEPA (Environmental Assessment) Regulations, 2021	12
2.4.2 Other Provincial Regulations/Rules	13
2.5 Sindh Environmental Quality Standards (SEQS)	13
CHAPTER 3: PROJECT DESCRIPTION.....	15
3.1 Overview of Project	15
3.2 Project Location	16
3.3 Construction.....	18
3.4 Construction Office	18

3.5	Project Infrastructure and Utilities	18
3.5.1	Water Supply System	18
3.5.2	Wastewater Management System	19
3.5.3	Storm Water Management.....	19
3.5.4	Fire Control System.....	19
3.5.5	Power supply and Requirement	19
3.5.6	Gas Supply.....	20
3.5.7	Solid Waste Management.....	20
3.5.8	Safety and Security System	20
CHAPTER 4: ENVIRONMENTAL & SOCIAL BASELINE		21
4.1	Background Information	21
4.2	Methodology of Conducting Baseline Study	21
4.3	Physical Environment.....	21
4.3.1	Topography and Land Use	21
4.3.2	Geological Conditions	22
4.3.3	Climate Change	23
4.3.4	Ambient Air Quality	27
4.3.5	Ambient Noise	27
4.3.6	Water Resources and Quality	28
4.3.7	Solid Waste Management.....	28
4.3.8	Disaster Risks	29
4.4	Ecological Resources.....	29
4.4.1	Fauna.....	30
4.4.2	Flora	30
4.5	Social Environment	30
4.5.1	Demography and Religious Affiliations.....	31
4.5.2	Livelihood and Human Settlements.....	31
CHAPTER 5: STAKEHOLDER CONSULTATION		32
5.1	Overview	32
5.2	Stakeholder Consultation Outcomes/Findings.....	33
Consultation outcomes have been discussed in the following sub sections.		33
5.2.1	Feedback by Primary Stakeholders.....	33
5.2.2	Views, Opinions and Recommendations of Secondary Stakeholders / Government Departments.....	34

CHAPTER 6: POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES	37
6.1 Overview	37
6.2 Potential Impacts	37
6.3 Construction Phase Impacts	38
6.3.1 Soil Erosion/Dust	38
6.3.2 Wastewater Discharges	39
6.3.3 Solid Waste Generation and Management	39
6.3.4 Air pollution	40
6.3.5 Noise and Vibration	40
6.3.6 Disturbance to the Traffic Flow	41
6.3.7 Water Consumption and Demand	41
6.3.8 Weather Conditions	42
6.3.9 Ground Water Pollution	42
6.3.10 Safety of Workers and Public	42
6.3.11 Sustainable Tree Plantation	43
6.3.12 Employment and Business Opportunity	43
6.4 Operation Phase Impacts	44
6.4.1 Wastewater Discharge	44
6.4.2 Solid Waste Disposal	45
6.4.3 Utility Services and Consumption of Resources	45
6.4.4 Fire Hazards	45
6.4.5 Safety and Security of the Project	46
6.4.6 Parking and Traffic Management	46
6.4.7 Employment Generation	47
CHAPTER 7: ENVIRONMENTAL MANAGEMENT PLAN	48
7.1 Overview	48
7.2 Environmental Monitoring System	48
7.3 Scope of EMP	49
7.4 Organization of the EMP	49
7.4.1 Maintenance of the EMP	50
7.4.2 Management Approach	50
7.5 Regulatory Requirements	51
7.5.1 Approvals, Authorizations and Permits	51
7.5.2 Environmental Quality Objectives	51

7.5.3 Compliance Monitoring	51
7.5.4 Implementation Stages of EMP	51
7.5.5 Planning and Design of the Project.....	51
7.6 Construction and Operation Phase.....	52
Conclusion.....	72
Annexure.....	73
Annexure 1: NOC from Hyderabad Development Authority (HDA).....	74
Annexure 2: Sindh Environmental Protection Act, 2014.	75
Annexure 3: SEPA (Environmental Assessment) Regulations, 2021.....	105
Annexure 4-A: SEQs for Municipal and Industrial Effluents.	123
Annexure 4-B: SEQs for Industrial Gaseous Emissions, Motor Vehicle Exhaust, Noise and Ambient Air Quality.....	125
Annexure 4-C: SEQs for Ambient Noise Level	133
Annexure 5: Laboratory Report of Ambient Air Monitoring.....	134
Annexure 6: Laboratory Report of Ambient Noise Monitoring	135
Annexure 7: Layout Plan of the Project	136

LIST OF FIGURES

Figure 1: Location map of the Project	17
Figure 2: Land Elevation Map of Project Site.....	22
Figure 3: Geological Map	22
Figure 4: Averages and Low Temp of Hyderabad City	24
Figure 5: Highest and Lowest RH	25
Figure 6: Wind speed experienced in Hyderabad.....	26
Figure 7: Precipitation Trend in Hyderabad.....	26
Figure 8: Risk Analysis Map of Hyderabad.....	29
Figure 9: Administrative Area Map.....	31
Figure 10: Consultations with Primary Stakeholders.....	34
Figure 11: Consultation with Sindh Environmental Protection Agency	35
Figure 12: Consultation with Water and sanitation Agency.....	35
Figure 13: Consultation with Sindh Town Planning Department	36
Figure 14: Consultation with Hyderabad Development Authority.....	36

LIST OF TABLES

Table 1: Detailed Summary of the Project.....	15
Table 2: Ambient Air Monitoring Results	27
Table 3: Ambient Noise Monitoring Results	28
Table 4: Overview of Potential Impacts of the Project.....	38
Table 5: Environmental Management (Mitigation) Plan	54
Table 6: Environmental Management (Monitoring) Plan.....	68
Table 7: Environmental Monitoring and Reporting Plan for the project	71

ACRONYMS

EA	ENVIRONMENTAL ASSESSMENT
EIA	ENVIRONMENTAL IMPACT ASSESSMENT
HDA	HYDERABAD DEVELOPMENT AUTHORITY
HESCO	HYDERABAD ELECTRIC SUPPLY COMPANY
IEE	INITIAL ENVIRONMENTAL EXAMINATION
kW	KILO WATTS
NCS	NATIONAL CONSERVATION STRATEGY
NEP	NATIONAL ENVIRONMENTAL POLICY
PBDS	THE PALM BUILDERS & DEVELOPERS
PF	PALM FOUR
SBCA	SINDH BUILDING CONTROL AUTHORITY
SEPA	SINDH ENVIRONMENTAL PROTECTION AGENCY
S-EPA	SINDH ENVIRONMENTAL PROTECTION ACT
SEQS	SINDH ENVIRONMENTAL QUALITY STANDARDS
SSGC	SUI SOUTHERN GAS COMPANY LIMITED
WASA	WATER AND SANITATION AGENCY

CHAPTER 1: INTRODUCTION

1.1 Project Proponent

M/s. The Palm Builders & Developers (PBDS) is the proponent of the project. The management of PBDS has established reputation through hard work and commitment to the excellence and is now a trusted name in the construction business.

The management of PBDS has extensive experience in the construction sector and has competent team of qualified Engineers and Managers with the credentials of successful on time project completion. The management of PBDS constantly strives to implement innovative and cost-effective solutions.

1.2 Project Overview

This report presents the findings of Environmental Impact Assessment (EIA) of the project “Palm Four” and analyses about the impact associated with the project. This EIA report also suggests mitigation measures and identifies the residual impacts which need monitoring.

The project will be developed on the area of 92 Acres & 26.5 Ghuntaz. The project is located at R.S. Nos. 93-AB, 94, 95, 96, 97, 98 99, 100, 101, 102/1, 113, 114, 118, 119 (part), 120-A, 120-B, 121-A, 121-B, 122 (part), 243, 311 (part), 344, 345, 346, 573, 574 (part), 610/1 (part), 610/2 (part), 611/1 (part), 611/2 (part) and 647 Deh Mirzapur Taluka Qasimabad, Hyderabad, Sindh. It includes residential plots, housing units, commercial plots and amenities.

The project will have total 835 plots out of which 158 plots will have of 150 sq.yds, 490 plots of 200 sq.yds, 70 plots of 300 sq.yds, 48 plots of 400 sq.yds, 4 plots of 666.66 sq.yds, 55 plots of different sizes and 10 commercial plots of different sizes. The project will also have Theme park, parks, Masjids, club house, sport ground and amenities. The project will provide comfortable and luxurious living lifestyle to the residents and commercial opportunities.

The EIA Report has been prepared in compliance with the requirements described in the Sindh Environmental Protection Act, 2014 and the Sindh EPA (Environmental Assessment) Regulations, 2021, for submission to the Sindh Environmental Protection Agency for the decision on environmental viability of this Project.

1.3 Approvals

1.3.1 Hyderabad Development Authority

The project has obtained NOC from Hyderabad Development Authority. Copy of NOC is attached as **Annexure-1**.

1.4 Land Ownership

The project located at Deh Mirzapur, Taluka Qasimabad, Hyderabad is owned by The Palm Builders & Developers.

1.5 Legal Aspects of EIA Study

1.5.1 Legislative Requirement

The objective of this study is to carry out an Environment Impact Assessment (EIA) of the project activities and to meet the environmental compliance laid down by the Environmental Protection Agency. The scope of study would be as per the Environmental Assessment Guidelines outlined by the Sindh Environment Protection Agency.

This EIA report aims to identify possible environmental aspects of the project activities and suggest mitigation measures to secure environment and to fulfill the entire requirement to obtain an environmental approval from the Environmental Protection Agency, Sindh.

The Sindh Environmental Protection Act of 2014 effectively established by the EPA as the principal authority for environmental management in Sindh. The Environmental Protection Act establishes the requirement for an Environmental Assessment, either through Environmental Impact Assessment (EIA) or Initial Environmental Examination (IEE), based on the nature and category of project.

Section-17 of EPA Act requires all developers of any project to submit an Initial Environmental Assessment (IEE) or Environmental Impact Assessment (EIA) prior to the commencement of project.

1.5.2 Justification for EIA Study

Sindh Environmental Protection Agency (Environmental Assessment) Regulations 2021 classifies projects on the basis of expected degree of adverse environmental impacts and lists them in three separate schedules. Schedule-I lists projects that may not have significant environmental impacts and therefore require a Checklist, similarly Schedule-II contains the lists projects that have no potentially significant

environmental impacts and requiring preparation of an IEE, similarly Schedule-III contains the lists projects that have no potentially significant environmental impacts and requiring preparation of an EIA.

The project “Palm Four” falls under **Schedule-III under the Category-I (1) of Urban Development and Tourism (Housing schemes above 50 Acres) which requires preparation of an EIA study**. Therefore, this EIA report has been prepared in compliance with the requirements mentioned under the prevailing environmental legislation act in Sindh.

1.5.3 Other Regulatory Requirements

The project will adhere pertinent legislative and regulatory requirements of the Government of Pakistan and the Government of Sindh. The legal statutes that have been reviewed include:

- Sindh Environmental Protection Act 2014
- Sindh EPA (Environmental Assessment) Regulations, 2021
- Sindh Environmental Quality Standards
- National Environmental Policy
- Sindh Building Control Authority
- Hyderabad Development Authority
- Water and Sanitation Agency

The project’s legal obligations with context to environmental protection were assessed in the light of above-mentioned statutes.

1.6 Approach and Methodology of EIA Study

1.6.1 Scope of EIA Study

The scope of this EIA Study is defined as follows:

- Identify the characteristics of the project that are likely to give rise to environmental impacts.
- Develop a baseline of projects’ current environmental scenario.
- Identify the type of impacts that may arise.
- Determine environmental resources which are particularly sensitive to impacts and categorize impacts on the basis of their severity and likelihood.
- Evaluate impacts due to construction and operational activities of Palm Four and compliance with the relevant environmental regulations of EPA Sindh.

- Evaluate impacts' severity/degree, likelihood and provide necessary mitigation measures.
- Identification of Stakeholder.
- Provide recommendations/suggestions for the environmental monitoring and management of social and physical environment in the surroundings of the project area during various phases of the project life.
- Ensure that all the important aspects of the project have been taken care of, all the relevant stakeholders have taken part in it, and all applicable legal and regulatory requirements are complied with.

1.6.2 Purpose and Objectives

The purpose of this EIA study is to evaluate the project activities against the Sindh Environmental Protection Agency (SEPA) requirements.

The specific objectives of this EIA are to:

- Assess the existing environmental and socioeconomic conditions at and around the project site, particularly identify areas with any environmental and social sensitivity;
- Identify the likely impacts of the project on the natural and socioeconomic environment, foresee and evaluate them quantitatively wherever possible and determine their significance in the light of technical and regulatory concerns, as well as those related to the public perceptions;
- Propose appropriate mitigation and monitoring measures that can be incorporated into the design of the project activities and to minimize any damaging effects or lasting negative consequences identified by the assessment;
- Prepare an EIA report for submission to the Sindh Environmental Protection Agency (SEPA).

1.6.3 Methodology

The environmental assessment has been conducted and following basic targets are listed down:

- Identification of the regulatory requirements that applies to the project activities in the project area, with context to environmental protection, health and safety.

- Assessment of the project activities in terms of their likely impacts on the environment during the construction and usage phases of the project, in order to identify issues of environmental concern.
- Recommendation of appropriate mitigation measures that can be incorporated to minimize any environmental impacts identified.
- To achieve the above targets harmoniously, following methodology adopted:
- Review of regulatory requirements based on preliminary assessment of project activities and the project area.
- Collection of information of the project activities, project design and schedule, with an emphasis on aspects that have an interface with natural and social environment.
- Secondary literature reviews to collect environmental data about the project area.
- Stakeholder consultation with the Government Department and general public, through formal and informal interview and meeting.
- Site visits for the collection of primary data related to various environmental aspects of the project area.
- Evaluation of the environmental parameters which are likely to undergo significant changes due to the project.
- Identification and evaluation of measures to mitigate the environmental impacts.

1.6.4 Phases of Study

The EIA study was performed on the basis of six main phases, which are illustrated below:

i Scoping:

The key activities of this phase included:

- **Project Data Compilation:** A specific description of the project activities relevant to the environmental assessment was compiled with the assistance of M/s The Palm Builders & Developers.
- **Published Literature Review:** Primary and Secondary data on weather, soil, water resources and ecology was carefully reviewed and compiled.
- **Legislative Review:** Information about relevant legislation, regulations, guidelines, and standards was reviewed and compiled.

- **Stakeholder Consultation:** A series of stakeholder meetings & surveys were arranged which involved meetings with the Government Officials, Business owners, Residents and general public visiting project location and the adjoining areas.
- **Identification of Potential Impacts:** The information collected in the previous steps was reviewed carefully and potential environmental issues pertinent to the project identified and listed down.

ii Baseline Studies:

Following the scoping exercise, the project area was surveyed to collect primary data. During the field visits, information was collected on environmental sensitivities in the areas, existing roads, neighborhood attributes, and public services currently available. Information on the ambient air quality, ambient noise levels, ground water quality and site-specific geo-technical conditions etc. were developed with primary sources.

iii Impact Assessment:

The environmental, socioeconomic and project information collected in the previous phases was used to assess the potential impacts of the project activities. The issues studied and potential project impacts included on:

- Surrounding built environment
- Ambient air quality
- Ambient noise levels
- Municipal services and utilities
- Road infrastructure
- Health services
- Firefighting facilities
- Workers' Safety

Following aspects were discussed in detail and evaluated for environmental scenarios associated with the construction and utilization phases of the project:

- Present baseline conditions.
- Change in environmental parameters likely to be affected by the project related activities.
- Identification of potential impacts.
- Likelihood and significance of potential impacts.

- Mitigation measures to reduce impacts to as low as possible.
- Determination of residual impacts.
- Implementation of mitigation measures through environment management protocols.
- Evaluation of controls and monitoring of residual impacts.

iv Stakeholder Consultation

Stakeholder meetings were arranged which involved meeting with nearby residents, housing schemes, local communities, and Government departments.

v Environmental Management Plan

An Environmental Management Plan (EMP) has been proposed for the project in order to follow the sustainable development procedures and to protect the environment.

vi Documentation:

The above steps, procedures and analysis have been documented in the form of an EIA report prepared according to the relevant guidelines of the Sindh Environmental Protection Agency and legal requirements. This report includes the findings of the assessment, project impacts, and mitigation measures to be implemented during the execution of the project activities.

1.7 Report Structure

The structure of this EIA Report is as follows:

Chapter 1: Introduction

It provides an introduction and categorization of the project with respect to the applicable environmental regulations.

Chapter 2: Environmental Legislation

It gives an overview of the policy and legislation with relevant guidelines, concerning to the various aspects of the project activities.

Chapter 3: Project Description

It describes the project description, its precise location, construction and operation related details of the project and project utilities details.

Chapter 4: Environmental & Social Baseline

It describes the existing environment in the project area. It provides details about the area i.e. physical, geological, climatic conditions of the area and solid waste management.

Chapter 5: Stakeholder Consultations

It describes the details about all the stakeholders and overall consultation process with their concerns and recommendations about the project.

Chapter 6: Potential Environmental Impacts & Mitigation Measures

It describes the anticipated environmental and social impacts of the project and their consequent screening in accordance with the general guidelines. The screening further identifies the residual impacts resulting as a consequence of the adoption of mitigation measures.

Chapter 7: Environmental Management Plan

It describes environmental management and monitoring plan to be implemented by the M/s. The Palm Builders & Developers for the effective mitigation of adverse impacts and to improve the environmental performance.

Conclusion:

Summarizes the report and presents conclusion.

Annexure:

A series of Annexure have been included in this report to provide the detail information about the project and the regulations that were considered to categorize the project, governing environmental compliance and other legal documents for validity proof of this project.

1.8 EIA Study Team

M/s. The Palm Builders & Developers has appointed M/s. Environmental Consultancy & Services (ECS) for conducting the Environmental Impact Assessment (EIA) Study of the project to assess the likely environmental and social impacts that may arise from the project activities and to identify measures to mitigate the negative impacts during construction and usage phase of the project. Consequently, the ECS formulated a team of professionals for conducting this study which are as follows;

Sr. #	Name	Position in EIA Assessment Team
1	Mr. Shahid Ali Lutfi	Team Leader / Sr. Environment Engineer
2	Mr. Mian Rashid Mahboob	Senior E&S Expert
3	Engr. Nouman Sheikh	Deputy Team Leader/ Sr. Environmental Engineer

4	Mr. Adnan Shaikh	Field Coordinator
5	Mr. M Ghufraan	Sr. Environmentalist
6	Engr. M. Saeed Akhtar	Sr. Environmental Engineer
7	Ms. Marriyam Intisama	Environmentalist

CHAPTER 2: ENVIRONMENTAL LEGISLATION

2.1 Introduction

The principal environmental regulatory agency in Pakistan was the Environmental Protection Agency (EPA) of Pakistan which formulates environmental policies, action plans and legislation. After the 18th amendment the environmental portfolio devolved to the provincial governments. Consequently, the Sindh Environmental Protection Agencies was empowered to formulate environmental legislation, rules, regulations and standards and their enforcement/implement in the entire Sindh provinces as a formulating, regulatory and monitoring agency. EPA Sindh head office is located at ST-2/1, Sector-23, Korangi Industrial Area, Karachi.

At present, the basic legislation available on environment is the Sindh Environmental Protection Act of 2014 (SEPA 2014). The EPA Sindh (Environmental Assessment) Regulations 2021, the Sindh Environmental Quality Standards 2016 (SEQS 2016) and other rules and regulation have been notified by the Government of Sindh. The EPA Sindh has also issued directions to the concerned parties for immediate compliance with these legislation and Rules and Regulations directly through written communication and also through print and electronic media.

This section provides synopsis of the policies, legislation, and guidelines that may have significant importance to the activities carried out by M/s. The Palm Builders & Developers according to the scope defined for this EIA. These relevant requirements of the policy documents and legislative framework have also been incorporated in the EIA being formulated for the better environmental impacts management. The Management of M/s PBDS is fully committed to follow and comply with the relevant requirements of the policy documents and legislative framework to ensure the better management of environmental aspects and impacts of their business-related activities.

2.2 Environmental Policies and Guidelines

2.2.1 National Conservation Strategy (NCS)

The National Conservation Strategy (NCS) is the primary policy document by the Government of Pakistan (GoP) on national environmental issues. This document was approved by the Federal Cabinet in March 1992. The NCS identifies 14 core areas and recommends immediate attention to the highlighted core areas in order to preserve the country's environment.

The main objectives of the strategy are conservation of natural resources, sustainable development and improved efficiency in the use and management of resources. It covers fourteen (14) key priority areas for policy formulation and intervention, including protecting watersheds; supporting forestry and plantations; protecting water bodies and sustaining fisheries; conserving biodiversity; increasing energy efficiency; developing and deploying renewable resources; preventing or decreasing pollution; managing urban wastes; and preserving the cultural heritage. Energy policies include promoting efficiency and conservation as well as co-generation, hydro, bio-gas, solar and new alternatives. The strategy also includes measures to control and limit pollution i.e. by proper management of urban waste material, recycling programs, safe disposal practices.

2.2.2 National Environmental Policy

National Environmental Policy has been approved by the Federal Cabinet in 2005. The policy covers all sectors and a wide range of means for promoting conservation and environmental protection in water, air and waste management, forestry, and transport. The policy aims to promote the protection of the environment, the honoring of international obligations, sustainable management of resources, and economic growth.

2.2.3 Environmental Institutional Framework

In post 18th Amendment to the Constitution of Pakistan, the provincial Environmental Protection Agencies are fully empowered to initiate, modify and enforce environmental legislation in their respective provinces. In the province of Sindh, the EPA is the prime regulatory and monitoring institute. The EPA is headed by a Director General who is the lead responsible person for enforcement of environmental legislation and is also responsible for the guidance of other provincial departments/institutes on environmental matters and related issues. The DG EPA Sindh functions from his registered head office located at Karachi, however, has regional offices in other major cities of the province functioning under senior officers.

EPA Sindh is attached with Environmental Climate Change & Coastal Development Department (ECC&CDD) Government of Sindh. The ECC&CDD, headed by a Secretary, is the administrative body and responsible for coordination with other line departments and agencies of the province. It also performs coordination and communication with other provinces and federal government agencies.

2.3 Environmental Legislation

2.3.1 Sindh Environmental Protection Act 2014

The Sindh Environmental Protection Act was notified by the Provincial Assembly of Sindh through notification #PAS/Legis-B-06/2014, dated March 20, 2014. The Act extends to whole of the province of Sindh to provide authority for the protection, conservation, rehabilitation and improvement of the environment, for the prevention and control of pollution, and promotion of sustainable development.

Under Section 2 (xxxI), the Act defines "pollution" as the contamination of air, land or water by the discharge or emission of effluent or wastes or air pollutants or noise or other matter which either directly or indirectly or in combination with other discharges or substances alters unfavorably the chemical, physical, biological, radiation, thermal or radio-logical or aesthetic properties of the air, land or water or which may, or is likely to make the air, land or water unclean, noxious or impure or injurious, disagreeable or detrimental to the health, safety, welfare or property of persons or harmful to biodiversity.

The Act, under Section 17, empowers the EPA Sindh to obtain from the proponent an environmental impact assessment (EIA) or initial environmental examination (IEE) document from the proponent of any project prior to commencement of any construction or operations activity. A copy of the Sindh Environmental Protection Act 2014 is attached as **Annexure-2**.

2.4 Provincial Rules, Regulation and Standards

2.4.1 SEPA (Environmental Assessment) Regulations, 2021

In exercise of the powers conferred by Section 37 of the Sindh Environmental Protection Act, 2014, the Sindh Environmental Protection Agency, with the approval of Government of Sindh has notified the 'Sindh Environmental Protection Agency (Environmental Assessment) Regulations, 2021' vide notification No. NO.EPA/TECH/739/2021 dated 3rd September 2021.

This regulation describes the procedure for conducting environmental assessments and their approvals process. Categories for projects requiring IEE, EIA or Environmental Checklists is mentioned in the regulation. The environmental assessment includes preparation of an Environmental Management Plan (EMP).

SEPA Environmental Assessment Regulations 2021 is attached as **Annexure-3** for ready reference and further guidance.

2.4.2 Other Provincial Regulations/Rules

In exercise of the powers conferred by Section 36 read with Section 26 of the Sindh Environmental Protection Act, 2014, the Sindh Environmental Protection Agency, with the approval of the Government of Sindh, has notified following Rules and Regulations in December 2014:

- **Sindh Environmental Protection Tribunal Rules, 2014:** It provides a complete process for functioning of the Environmental Tribunals, which are responsible for prosecution of environmental related matters and legal cases initiated by the EPA Sindh.
- **Sindh Environmental Protection (Composition of Offenses and Payment of Administrative Penalty) Rules 2014:** Describes the process for compounding offenses or complaints under Section 22(6) of the Act. The Rules describes the format that should be used for filling an Application to the DG SEPA by the accused; format for the Affidavit by the accused; and format for administrative penalty notices.
- **Sindh Environmental Quality Standards (Self-Monitoring and Reporting by Industry) Rules, 2014:** This describes the process to be adopted by every industry for compliance with the Environmental Quality Standards. It includes the categorizing of industrial unit for identification of the reporting parameters and frequency of reports submission to SEPA.

2.5 Sindh Environmental Quality Standards (SEQS)

SEQS is an important and prime legislation in the Sindh, targeted for the control of pollution. The Government of Sindh in exercise of the powers conferred under clause (g) of sub-section (1) of section of 6 of the Sindh Environmental Protection Act, 2014, the Sindh Environmental Protection Agency, with the approval of the Sindh Environmental Protection Council, has established following standards, copy of SEQS act is attached as **Annexure 4 (A, B & C)**.

- SEQS which were notified by the Sindh Environment Protection Council in 2016 with the prior approval of Government of Sindh. These SEQS for Municipal and Industrial Effluent, are effective and attached as **Annexure 4-A**.
- SEQS which were approved by the Sindh Environment Protection Council in 2016 with the prior approval of Government of Sindh. These SEQS for Industrial Gaseous Emissions, Motor Vehicle Exhaust, Noise and Ambient Air Quality are effective and attached as **Annexure 4-B**.

- SEQS which were approved by the Sindh Environment Protection Council in 2016 with the prior approval of Government of Sindh. These SEQS for Ambient Noise Level are effective and attached as **Annexure 4-C**.

CHAPTER 3: PROJECT DESCRIPTION

3.1 Overview of Project

This chapter presents detailed project description related to the construction and usage phase of the project “Palm Four”. A detailed insight regarding the project description was established after reconnaissance survey, site visit, and a series of detailed discussions between technical team of Project Proponent and M/s Environmental Consultancy & Services (ECS).

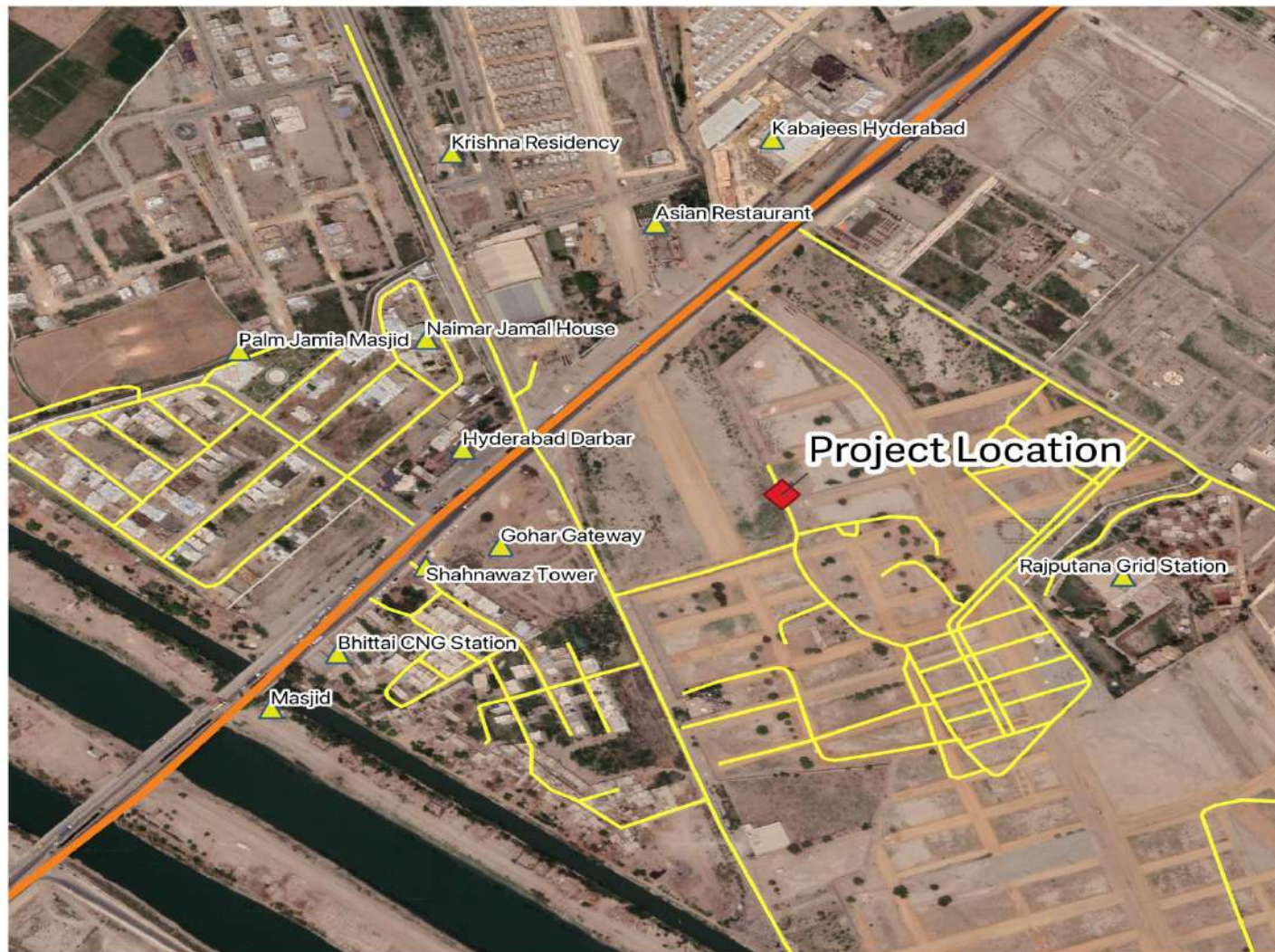
The project spreads on the area of 92 Acres & 26.5 Ghuntaz. The project is located at R.S. Nos. 93-AB, 94, 92, 96, 97, 98 99, 100, 101, 102/1, 113, 114, 118, 119 (part), 120-A, 120-B, 121-A, 121-B, 122 (part), 243, 311 (part), 344, 345, 346, 573, 574 (part), 610/1 (part), 610/2 (part), 611/1 (part), 611/2 (part) and 647 Deh Mirzapur Taluka Qasimabad, Hyderabad, Sindh. It includes residential plots, housing units, commercial plots and amenities. The proponent will also develop 44 housing units of 150 Sq.yds. Detailed summary of the project is given in Table-1. The approved layout plan of the project is attached as **Annexure-7**.

Table 1: Detailed Summary of the Project

Type of Blocks	Approximate Area (Sq.yds.)	No. of Units
Residential		
A	666.66	04
B	400	48
C	300	70
D	200	490
E	150	114
Villas (plot)	150	44
Different Sizes	-	55
Commercial		
10 Plots		
Amenities		
Central Masjid		1
Masjid		1
Parks		14
Theme Park		1
Sports Ground		1
Club House		1
Amenities		1

3.2 Project Location

The project “**Palm Four**” is located near main bypass, Qasimabad, Hyderabad and can be easily accessed via main national highway road. The location map of the project can be seen in the Figure-1.



Map Title
Location Map
Project Title
Environmental Impact Assessment (EIA) of Palm Four
Legend
 Project Location  Nearby Location Roads  Primary Road  Secondary Roads
Orientation

Scale
0 50 100 m
Consultant
 ECS Environmental Consultancy & Services
Proponent
 THE PALM BUILDERS & DEVELOPERS

Figure 1: Location map of the Project

3.3 Construction

The construction work at project will be carried out with all beams and columns reinforced with concrete and the internal walls will be constructed with solid concrete blocks. The material will include cement, sand, steel reinforcement, bricks etc.

3.4 Construction Office

A construction office will be developed for monitoring the following activities of the project.

- Leveling and compaction of the area
- Provision of water supply and drainage works
- Laying and compaction of the gravel topping
- Construction of storage tank area for generator fuel and the water tank
- Provision of fence, access and emergency gates
- Construction of septic tank
- Installation of sewage pipeline with manholes for the septic-tank system and sewerage.

3.5 Project Infrastructure and Utilities

The project is planned with an objective of developing residential plots, housing units, commercial plots and amenities. The project will involve site formation works and construction of infrastructure including, amenities structure, drains, sewers, storm water management, firefighting, parks, and utilities.

3.5.1 Water Supply System

The main water supply source to the project will primarily rely on city's supply for which NOC is acquired from WASA. The project will have bulk storage of underground water tanks capacity around 1,300,000 gallons. The plumbing system will be used for the water supply in the project, and it will supply water via distribution of pipes. The project will require approximately 146,000-160,000 gallons per day (GPD) during the full occupation period.

3.5.2 Wastewater Management System

The wastewater generated from the project will mainly comprise of domestic wastewater, which will be treated in septic tank. The septic tank has been designed based on the number of occupants expected at the project. The septic tank will reduce the level of pollution in the wastewater to the limits specified by the SEQS and from where it will be drained to the city's municipal ponds which are located at the distance of approximately 2-2.5 Km from the project.

3.5.3 Storm Water Management

The storm water drainage shall be achieved through purpose made built-in slopes in the ground all around the project and shall be terminated on gravity towards the Storm Water drainage at the road side. Following design criteria shall be considered;

- Local climate i.e. rainfall rate.
- Site topography
- Sizing by rational formula with full running pipe
- Run off co-efficient
- Site conditions, elevation, water level and location of other utilities etc.

3.5.4 Fire Control System

The fire protection system is planned in the project. The project design and development has been considered with utmost care and all provisions have been made for the safety and security of the property as well as the personnel. The normal causes for fire in the project are reviewed and project will undertake all prescribed norms for prevention of fire.

It will be in accordance with the requirement of Civil Defense Department, supported with portable fire trolleys and portable fire extinguishers & other systems at various locations such as Security Office / Entrance Gate and Maintenance Office.

3.5.5 Power supply and Requirement

The main power supply source to the project will primarily rely on city's power supply for which NOC is acquired from HESCO. The project will require approximately 3.4-3.7 MW. The electrical design of the project will be according to international standards and local regulatory authorities.

3.5.6 Gas Supply

The gas supply source to the project will primarily rely on city's gas supply for which NOC is acquired from SSGC. The project will require approximately 100-110 MMBTU.

3.5.7 Solid Waste Management

The solid waste generated on site will be collected by a solid waste contractor and number of trash bins will be placed inside the project area on dedicated places. The following methodology will be applied:

- Burning of refuse, scrap and waste in the open air will not be allowed.
- The construction debris will be removed from site.
- Timber and other scrap material with a commercial value shall be separated prior to removal.
- Oil and other drums shall be free from any leaks.
- Diesel storage tanks for generators shall be provided with the spill/drip trays to contain any spillage.

3.5.8 Safety and Security System

A high degree of general safety and security will be maintained, and CCTV Cameras will be installed at appropriate locations to monitor the access control of the project with following arrangements;

- Boundary wall around the project area.
- Entry / Exit gate control.
- Adequate Lighting in the project area during night time.
- Un-authorized person will not be allowed in the project premises.

CHAPTER 4: ENVIRONMENTAL & SOCIAL BASELINE

4.1 Background Information

The project “Palm Four” will be developed at Deh Mirzapur Taluka Qasimabad, Hyderabad, Sindh. This section of the EIA study highlights the Environmental and Social (E&S) baseline of the project’s surrounding and the area under focus for E&S baseline.

4.2 Methodology of Conducting Baseline Study

In order to develop the comprehensive Environmental and Social (E&S) baseline of the project area, a thorough review of the available and published literature was carried out by the team. The literature review was further supplemented by the site visits and field surveys for the data validation and on ground verification in context to the physical, ecological and the social baseline of the project area.

4.3 Physical Environment

A description of the physical environment in the region of the project location is given below.

4.3.1 Topography and Land Use

The city Hyderabad was initially founded on a limestone ridge on the eastern bank of the Indus River known as Ganjo Takkar, or "Bald Hill." The limestone outcropping provided several scenic vistas in the city, as well as inclined routes. The most famous incline, the Tilak Incline, is named after the early 20th century independence activist Lokmanya Tilak.

Hyderabad Located at 25.367 °N latitude and 68.367 °E longitude with an elevation of 13 meters (43 ft.), Hyderabad is located on the east bank of the Indus River and is roughly 150 kilometers (93 mi) away from Karachi, the provincial capital. Two of Pakistan's largest highways, the Indus Highway and the National Highway join at Hyderabad. Several towns surrounding the city include Kotri at 6.7 kilometers (4.2 mi), Jamshoro at 8.1 kilometers (5.0 mi), Hattri at 5.0 kilometers (3.1 mi) and Husri at 7.5 kilometers (4.7 mi). The project “Palm Four” is located at Deh Mirzapur Taluka Qasimabad, Hyderabad, Sindh. The land elevation of project is 21 m. The project site is shown in Figure-2.

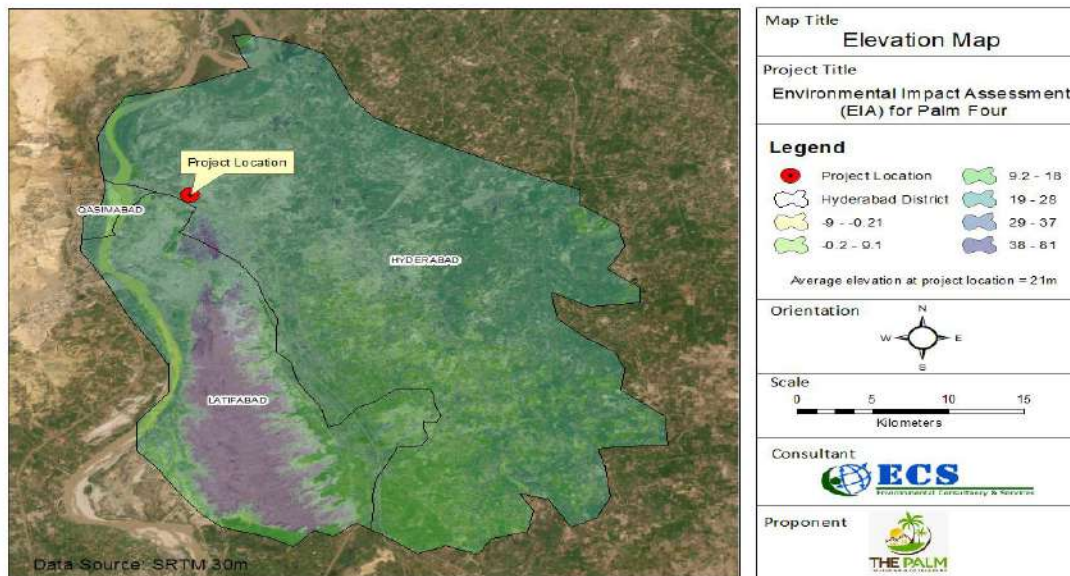


Figure 2: Land Elevation Map of Project Site

4.3.2 Geological Conditions

District Hyderabad lies in 68° 17' 26" to 68° 38' 26" east longitudes and 24° 9' 26" to 25° 33' 7" north latitudes. This district is bounded by district Tando Allahyar and Tando Muhammad Khan on the east, district Matiari on the north, district Jamshoro on the north-west, district Thatta on the south-west, and district Tando Muhammad Khan on the south. Indus River flows along the western border of the district.

District Hyderabad is a part of the lower Indus plain. There are no mountains or hills and the soil surface is uniform. The land cover structure of the district comprises the irrigated croplands with an average altitude of 50 meters above the sea level. The efficient canal system, combined with availability of water from Indus River, enhances the agriculture productivity of the district. Except for the populated areas, particularly the area of Hyderabad city, the remaining parts of the district are fertile and irrigated. Geological map is shown in Figure-3.

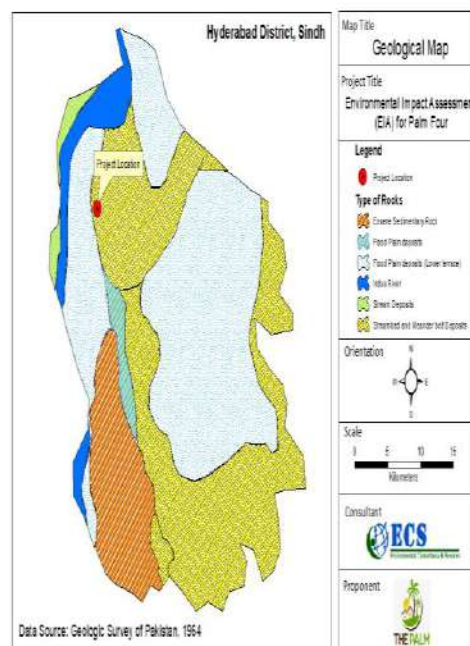


Figure 3: Geological Map

4.3.3 Climate Change

The seasons in Pakistan can be best classified as:

- Winter, from December to March
- Summer, from April to June
- Monsoon, from July to August
- Post-monsoon, from September to December

The project will be constructed in the Hyderabad, Sindh. The Pakistan Meteorological Department (PMD) has a weather station at Hyderabad Domestic Airport, which is located in the southeast of city. For the preparation of climate profile, the climate data of weather observing stations of Pakistan Meteorological Department (PMD) situated at Hyderabad (airport) is used.

A. Climate

The project would be constructed in the Hyderabad, Sindh. For the preparation of this climate profile, the climate data of weather observing stations of Pakistan Meteorological Department (PMD) situated at Hyderabad (airport) is used.

B. Temperature

At Hyderabad Airport, Pakistan Meteorological Department (PMD) has monitoring station, which recorded climatic data represents the all parts of Hyderabad. The ambient air temperature of this city varies from summer to winter and this change in temperature has a direct influence on the environment of the city. The hot weather during summer are sweltering, muggy, arid, and windy; the winters are short, comfortable, and dry; and it is mostly clear year round. Over the course of the year, the temperature typically varies from 54°F to 105°F and is rarely below 48°F or above 111°F.

The hot season lasts for 3.0 months, from April 9 to July 8, with an average daily high temperature above 99°F. The hottest day of the year is May 10, with an average high of 105°F and low of 79°F. The cool season lasts for 2.2 months, from December 6 to February 12, with an average daily high temperature below 80°F. The coldest day of the year is January 8, with an average low of 54°F and high of 74°F. The average and Low temperatures of Hyderabad city are given in Figure-4.

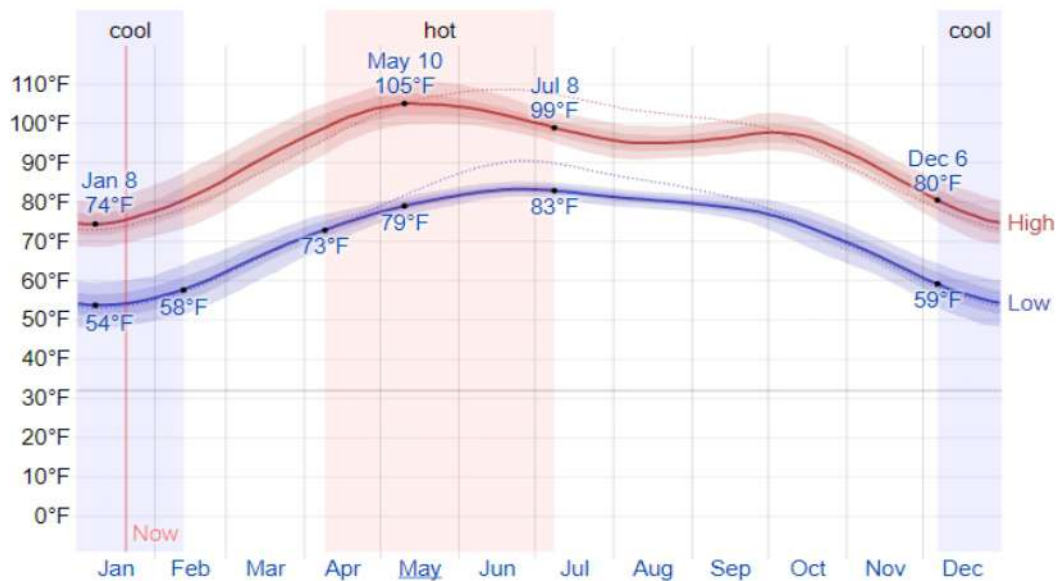


Figure 4: Averages and Low Temp of Hyderabad City

C. Humidity

The humidity comfort level on the dew point, as it determines whether perspiration will evaporate from the skin, thereby cooling the body. Lower dew points feel drier and higher dew points feel more humid. Unlike temperature, which typically varies significantly between night and day, dew point tends to change more slowly, so while the temperature may drop at night, a muggy day is typically followed by a muggy night.

The chance that a given day will be muggy in Hyderabad is very rapidly increasing during May, rising from 35% to 71% over the course of the month. The muggiest day of the year is July 30, there are muggy conditions 99% of the time, while on December 29, the least muggy day of the year, there are muggy conditions 0% of the time. Figure-5 shows the Highest and Lowest RH.



Figure 5: Highest and Lowest RH

D. Winds Speed

This section discusses the wide-area hourly average wind vector (speed and direction) at 10 meters above the ground. The wind experienced at any given location is highly dependent on local topography and other factors, and instantaneous wind speed and direction vary more widely than hourly averages.

The average hourly wind speed in Hyderabad experiences extreme seasonal variation over the course of the year.

The windier part of the year lasts for 4.9 months, from April 19 to September 15, with average wind speeds of more than 10.9 miles per hour. The windiest month of the year in Hyderabad is June, with an average hourly wind speed of 15.4 miles per hour.

The calmer time of year lasts for 7.1 months, from September 15 to April 19. The calmest month of the year in Hyderabad is November, with an average hourly wind speed of 6.3 miles per hour.

For reference, on June 30, the windiest day of the year, the daily average wind speed is 15.6 miles per hour, while on November 8, the calmest day of the year, the daily average wind speed is 6.2 miles per hour. The data on wind speed experienced in Hyderabad region is given in Figure-6.

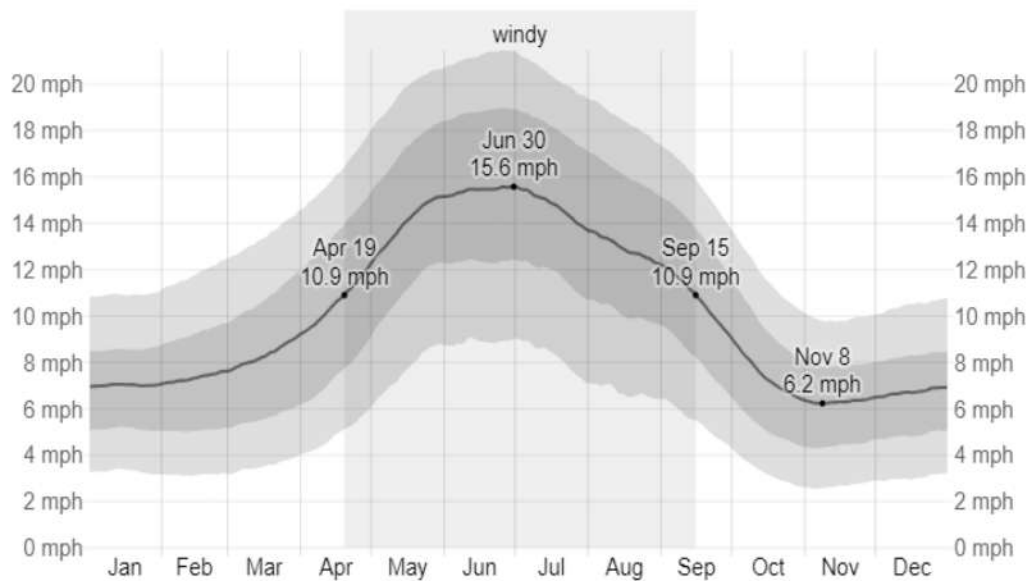


Figure 6: Wind speed experienced in Hyderabad

E. Precipitation

A wet day is one with at least 0.04 inches of liquid or liquid-equivalent precipitation. In Hyderabad, the chance of a wet day over the course of May is essentially constant, remaining around 1% throughout.

For reference, the year's highest daily chance of a wet day is 14% on July 30, and its lowest chance is 1% on May 9. The precipitation trend of year is shown in Figure-7.

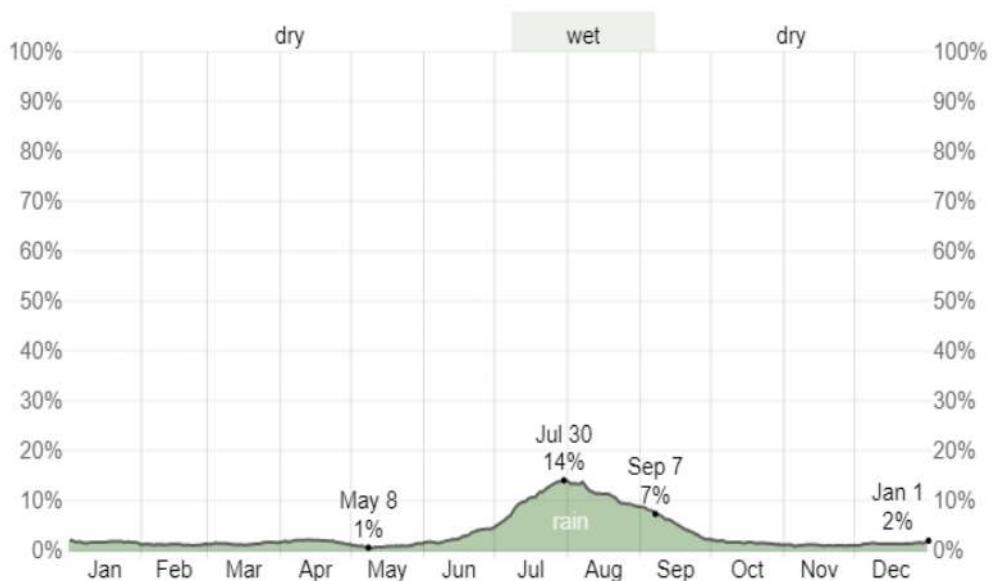


Figure 7: Precipitation Trend in Hyderabad

4.3.4 Ambient Air Quality

The ambient air quality monitoring of the project area was conducted by the consultant's team through third party SEPA approved Laboratory (Environmental Research Center, Bahria University). The air quality monitoring results show that the ambient air quality has concentrations of SO₂, NO, NO₂, O₃, SPM, PM₁₀, PM_{2.5}, pb and CO well within the prescribed limits of SEQs. Table-2 shows the monitoring results of ambient air quality. The copy of laboratory report is attached as **Annexure-5**.

Table 2: Ambient Air Monitoring Results

Sr. #	Parameters	SEQS Limits (24 hrs.)	Result
1.	SO ₂	120 (µg/m ³)	7.0
2.	NO	40 (µg/m ³)	29.0
3.	NO ₂	80 (µg/m ³)	39.0
4.	O ₃	130 (µg/m ³ /hr)	18.0
5.	SPM	500 (µg/m ³)	321
6.	PM ₁₀	150 (µg/m ³)	123
7.	PM _{2.5}	75 (µg/m ³)	34.0
8.	Lead	1.5 (µg/m ³)	<0.1
9.	CO	10.0 (mg/m ³ /hr)	0.87

4.3.5 Ambient Noise

The ambient noise monitoring of the project area was conducted by the consultant's team through third party SEPA approved laboratory (Environmental Research Center, Bahria University). The monitoring results show that ambient noise levels are ranging between 52.4-68.5 dBA and the results fall within the permissible limits of SEQs. Table-3 shows the results of ambient noise monitoring of the project area and the copy of laboratory report is attached as **Annexure-6**.

Table 3: Ambient Noise Monitoring Results

S.No	Locations	SEQS (dB) Limit	Minimum	Maximum	Average Results
1.	Main Gate	65.0	59.8	62.5	61.2
2.	Camp Office		66.7	68.5	67.6
3.	Location-1 W		53.1	55.4	54.3
4.	Location-2 S		59.1	61.2	60.2
5.	Location-3 N		53.3	54.5	53.9
6.	Location-4 E		52.4	55.9	54.2

4.3.6 Water Resources and Quality

The main water supply source in Hyderabad city is the surface water from Indus River. Surface water is extracted from upstream and downstream of Kotri Barrage located near Hyderabad, Sindh. The upstream distributaries of Kotri barrage are Akram Wah, Phuleli Canal and Pinyari Canal whereas downstream water extraction is directly from Indus River. Water and Sanitation Agency (WASA) Hyderabad manages the water supply and sewerage system in Hyderabad.

4.3.7 Solid Waste Management

Solid Waste Management (SWM) is the generation, separation, collection, transfer, transportation and disposal of waste in a way that takes into account public health, economics, conservation, aesthetics, and the environment, and is responsive to public demands.

Approximately 3973 tons of solid waste is generated each day in Hyderabad. Households, trade and industrial establishment, construction activity and a variety of intuitions contribute to waste generation. The amount of solid waste is expected to substantially increase with growth of population and economic activity. The quality of civic life is closely related and affected by sanitary conditions in the residential neighborhoods and other areas, where efficient collection of garbage is the key to a clean and healthy environment.

It is important to effectively organize primary collection of garbage i.e., from the households (within the union council) and location of origin/generations such as markets, industrial areas, hospitals, and recreational places. The city

conspicuously lacks garbage transfer stations which need to be developed for better handling of the garbage and transfer to sanitary landfill.

Poor planning, inappropriate technology and poor management are obviously the main areas of concern needing serious efforts on the part of the local government and other agencies towards efficient management and modern technological development of this sector.

4.3.8 Disaster Risks

District Hyderabad is one of the oldest districts of Sindh. It was hit by rains / floods in 2011. River Indus, after receiving water from 5 of its tributary rivers, causes floods in the northern and southern parts of Sindh province. The risk analysis map of Hyderabad is shown in Figure-8.

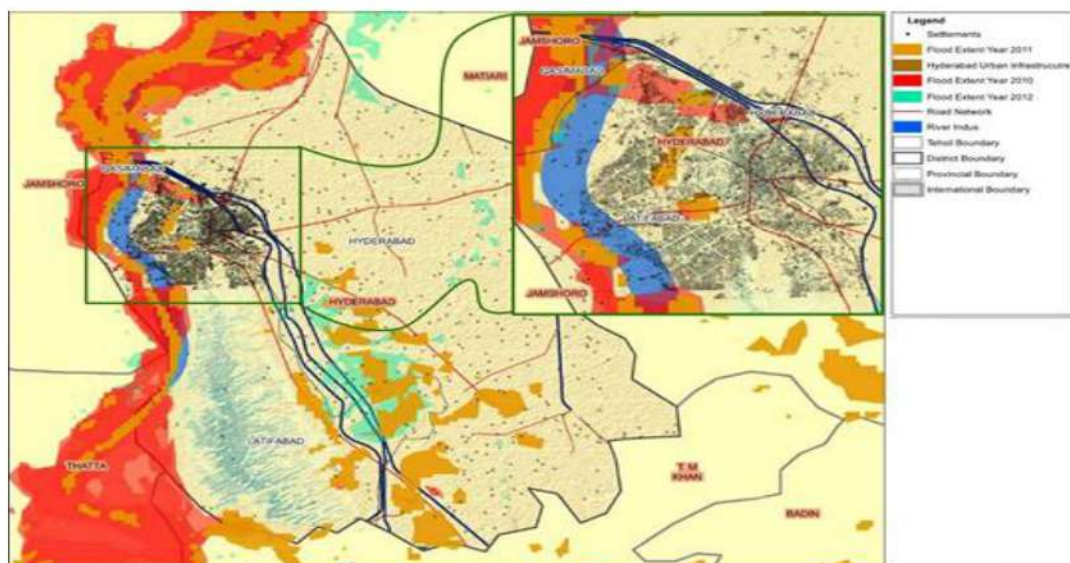


Figure 8: Risk Analysis Map of Hyderabad

4.4 Ecological Resources

Methodology Adopted

In order to compile the biodiversity in the vicinity of the project, the data and information were obtained from two sources; Primary data based on the various field surveys conducted within project surrounding in the month of April, 2023 and Secondary data from published literature.

B. Field survey

The survey of the project area was conducted by the team of consultant representatives.

C. Ecological Status

The project is located in Deh Mirzapur near main bypass in Qasimabad where no significant or endangered fauna species or protected site is found in the immediate surrounding of project site.

4.4.1 Fauna

During the survey, following common fauna species were recorded/reported in the vicinity of project's surroundings.

- Animals: Dog, Cat, Cow, Buffalo, Sheep and Goat.
- Mammals: Indian Gerbil, Five Striped Palm Squirrel, House Mouse, Mongoose, Porcupine, etc.
- Birds: Pigeon, Myna, Bulbul, Kite, Common Babbler, Sparrow, House Crow, etc.
- Insects: Butterflies, Ants, Bees, Wasp, Beetles, etc.
- Reptiles: House Gecko, Lizard, etc.

4.4.2 Flora

Since, the project is in Qasimabad, Hyderabad. During the survey, common flora species were recorded in the vicinity of project and surroundings which include Conocarpus, Ficus Religiosa (pepul), Palm tree, Azadirachta Indica (Neem) and other indigenous species.

4.5 Social Environment

Hyderabad is a city and the head quarter of Hyderabad division. It is the second-largest city of Sindh, and the eighth largest in Pakistan. The population of Hyderabad is increasing exponentially which is coupled by the effect of rural population migration to urban center for more livelihood opportunities. The city credits its growth to the mixed populations of economic and political migrants and refugees from different national, provincial, linguistic and religious origins largely come to settle here permanently. Figure-9 shows the administrative area map.

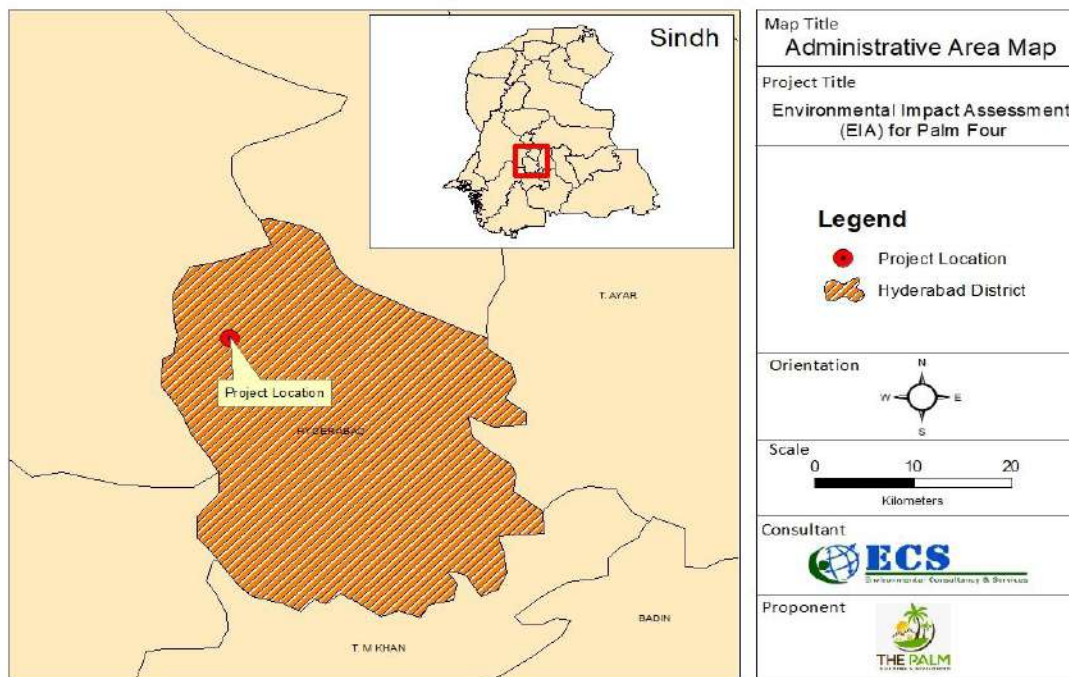


Figure 9: Administrative Area Map

4.5.1 Demography and Religious Affiliations

As per census 2017, Hyderabad had a population of 17,33622, of which 903,327 were males, 830,038 were females and 257 were transgender. Urdu is spoken by 52.57% of the population, 31.88% speak Sindhi, 5.25% speak Punjabi, 3.76% speak Pashto and 1.29% speak Saraiki as their first language.

The majority are Muslims with 93.25%, Hinduism is practiced by 5.65%, Christians are 1.04% of the population and 0.06% others not stated.

4.5.2 Livelihood and Human Settlements

The livelihood of the people near the project area is mostly dependent on real estate, business activities, private and government jobs. Hyderabad city is considered as opportunity hub for employment as various industrial units, malls, schools, shops, hospitals, banks, housing schemes, and markets are located in the city. The middle-class population mostly prefer jobs and are already employed on officer level positions in different government and private jobs. On the other hand, the lower-class people are mostly unskilled with limited education therefore they prefer to be engaged as laborer and staff within the existing, schools, shops, small scale businesses, industries, hospitals, etc. of the project area surrounding

CHAPTER 5: STAKEHOLDER CONSULTATION

5.1 Overview

The main objective of consultation is to disseminate information about the project and its anticipated impacts with the primary and secondary stakeholders. Stakeholder consultation with local community, nearby schemes and settlements and government departments is a mean of involving all primary and secondary stakeholders in the Project's decision-making process in order to address their concerns, improve project plan and give project legitimacy. Stakeholder consultation, if conducted in a participatory and objective manner, is a means of project sustainability.

The public consultation and participation serve, as an effective tool for social interaction. This tool helps to develop significant confidence between the stakeholders and the proponent of the project to minimize the anticipated environmental and social impacts of the project.

Primary stakeholders are usually referred to those, who may be directly affected by the project's activities; while on the other hand secondary stakeholders refer to those who are usually affected indirectly, or they have power to make decisions at governmental or institutional level. Detailed, limited stakeholder consultation meetings are carried out with different stakeholders.

The most important objective of these consultations is to determine the extent of the impact of project activities and suggest appropriate mitigation measures accordingly. This section of EIA clearly describes the issues raised by the stakeholders during different consultation meetings conducted specifically for this assignment, informal and focused group discussions with the primary and secondary stakeholders are carried out which was primarily focused on determining the perceptions of the following key stakeholders:

- Key Stakeholders of Surrounding Areas.
- Governmental Departments.

The overall objectives of the process are identified as follows:

- To inform and acquire feedback from primary and secondary stakeholders on project activities.
- To identify potential issues and mitigation measures.
- To incorporate stakeholders concerns in the project documents.
- To identify the negative impacts due to the project execution.

Following stakeholders approached for consultation meetings during this EIA study.

Primary Stakeholders

- Qadir Avenue
- Mustafa Bungalows
- Shinwari Restaurant
- Krishna Residency

Secondary Stakeholders

- Sindh Environmental Protection Agency
- Water and Sanitation Agency
- Sindh Town Planning Department
- Hyderabad Development Authority

5.2 Stakeholder Consultation Outcomes/Findings

Consultation outcomes have been discussed in the following sub sections.

5.2.1 Feedback by Primary Stakeholders

The comments, concerns and recommendations received from stakeholders during the primary stakeholder consultation have been included in this section. The comments gathered from stakeholder consultation were helpful in the screening of potential environmental and social aspects of the project. The stakeholder consultation was done in the month of March & April, 2023. Figure-10 shows the primary stakeholders' consultations.

- The project will positive impacts as it will increase job opportunities and boost commercial activities.
- Workforce should be preferred from local community.
- Traffic management plan should be developed for transportation during construction phase.
- Solid waste collection and disposal system should be developed and no waste should be dumped outside the project site during construction phase.
- Access for local people to the surrounding area should not be disturbed during construction phase.

- A provision of a school and hospital was suggested in the project.
- Green belts should be developed in and around the project.
- The project will offer a luxurious lifestyle, safety, and security to the occupants, as it will be enclosed within boundaries.
- The project will be a potential source of community development.



Figure 10: Consultations with Primary Stakeholders

5.2.2 Views, Opinions and Recommendations of Secondary Stakeholders / Government Departments

The recommendations received from secondary stakeholder consultations have been provided in this section, the consultations with secondary stakeholders were done in the month of March & April, 2023.

- Emergency response mechanism should be established for construction period of the project.

- The effluent treatment mechanism should be adopted for utilization of treated effluent into plantation and gardening and the residual effluent should be treated prior to its discharge.
- Proper solid waste management should be followed in the housing scheme according to 3R policy.
- Appropriate security arrangements should be provided to the people of housing scheme.
- The project must obtain all applicable permissions.
- They showed concerns regarding the effluent discharge, and recommended that the effluent should be treated prior to its discharge.
- Procedure should be prepared and provided to the owner of the project for claim, if any damage happens to the houses and if any legal issue related to land faced by the people live in the project.
- The renewable energy should be considered for street lights under project design.
- Comprehensive security measures should be provided to the occupants of the project.
- It was suggested that other stakeholder of the project area should be contacted to know their views.

Figures 11-14 show the stakeholder consultations with Government Departments.



Figure 11: Consultation with Sindh Environmental Protection Agency



Figure 12: Consultation with Water and sanitation Agency



Figure 13: Consultation with Sindh Town Planning
Department



Figure 14: Consultation with Hyderabad Development
Authority

CHAPTER 6: POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

6.1 Overview

After a thorough assessment of the existing environmental and socio-economic conditions and review of technical data, a team of environmental professionals analyzed the significant environmental impacts and suggested the necessary measures for mitigating the impacts. This chapter presents the environmental impact assessment of the project. This section of the EIA Report presents the screening process to identify the overall impacts of construction and operation activities on the physical, biological, and socioeconomic environment of the Project and suggest mitigation measures that need to be adopted, wherever necessary in order to reduce, minimize or compensate the negative impact anticipated from the project.

The project “Palm Four” has planned residential plots, housing units, commercial plots and amenities. The potential impacts associated with the design, construction and operation of project has been identified and assesses its nature and magnitude which is associated with the various activities of the project.

6.2 Potential Impacts

All the potentially significant environmental impacts from the project are grouped in following phases; Table-4 gives the overview of the potential impacts of the project construction and operation phases.

During the EIA study process, the potential design phase impacts are reviewed. The status is given below.

- The project land is property of PBDS and the major construction activities of the project are limited within premises of project boundary, hence no displacement of any person anticipated.
- The project is in an urbanized area surrounded by mainly housing schemes and urban infrastructure where no protected or cultural heritage site exists nearby.
- The project is the property of PBDS, where no such public utilities exist which require relocation.

Table 4: Overview of Potential Impacts of the Project

S. No	Impacts	Negative Impact		Positive Impact		No Impact
		Short Term	Long Term	Short Term	Long Term	
1	Construction Phase					
	Soil Erosion/Topography	√				
	Wastewater Discharges	√				
	Solid Waste Management	√				
	Air Pollution	√				
	Noise and Vibration	√				
	Disturbance to Traffic flow	√				
	Water consumption & Demand	√				
	Weather Conditions	√				
	Ground water pollution	√				
	Safety of Workers & Public	√				
	Sustainable Tree Plantation				√	
	Employment & Business Opportunities			√		
2	Operation Phase					
	Wastewater Discharges		√			
	Solid Waste Disposal		√			
	Utility services & Consumption of Resources		√			
	Fire Hazards		√			
	Safety and Security of housing scheme and Neighboring				√	
	Parking & Traffic Management				√	
	Employment Generation				√	

6.3 Construction Phase Impacts

6.3.1 Soil Erosion/Dust

Excavations will be carried out during foundation work of infrastructures and utility laying work would generate heaps of soil which may result in soil erosion.

Mitigation Measures:

- Excavated soil will be re-used as back filling material in civil work, road leveling, and filling of depressions.
- Soil stockpiles would be regularly wetted to keep airborne dust levels to minimum.
- Necessary measures and planning would be done to keep the excavation work to minimum possible duration.
- Good engineering practices will be adopted during construction work.
- Soil to be kept on safe site which can be reused for the development of parks and green built area etc.

6.3.2 Wastewater Discharges

Disposal of domestic wastewater generated from the construction site. The wastewater flows may contaminate the soil and ground water of the site or its surroundings if not properly managed. This may not only cause harm to soil and ground water, but also provide breeding place for mosquitoes and other insects, which is dangerous for the environment.

Mitigation Measures:

- Sewage water will be drained through piping into the main sewer drain.
- No direct discharge will be allowed.
- Wastewater will be drained after passing through settling pit.

6.3.3 Solid Waste Generation and Management

The project is expected to generate waste including; packing waste; scrap, excess construction waste, empty containers and drums, used lubricating oils and paint etc. during the construction phase. The impact of solid waste disposal would be significant if the waste management is not carried out appropriately.

Mitigation Measures:

- Separate waste bins will be placed for different type of wastes – plastic, paper, metal, glass, wood and cotton.
- Recyclable material will be separated at source and the recyclable waste will be managed in accordance with the SEPA requirement.
- No waste will be dumped at any location outside the site boundary.
- Surplus construction material including partially filled chemical and paints containers will be returned to supplier. Construction waste will be disposed of onsite as fill material or sold as scrap to contractors.

- Record of all waste disposed during construction period will be maintained.

6.3.4 Air pollution

Exhaust emissions from the operation of construction machinery and transportation vehicles may cause air pollution. Movement of heavy machinery and construction material transportation vehicles would create dust emissions in the area. Generators used for power generation may cause pollution in ambient air and have adverse impacts on the workers, operators and nearby area

Mitigation Measures:

- The management of M/s PBDS will be responsible for taking necessary mitigation measures for reduction of air pollution from dust emissions and safety measure during construction work.
- The impact from above mentioned activities will be mitigated by selection of good quality equipment, machinery and vehicles.
- Smoke releasing machinery and vehicles would not be allowed to be operated on the project by project developer and contractor or sub-contractor (if any).
- Water sprinkling and monitoring to be carried out regular to ensure adequate suppression of dust.
- High exhaust pipes would be used in generators and other fixed equipment for better dispersion of air emissions and to prevent high concentrations of pollutants in the immediate vicinity.
- Emission levels of the generators and other fixed equipment would be monitored and maintenance would be done as per the recommendation of the manufacturer/supplier.
- Duration of the work having potential of dust emissions would be minimized by proper project management.
- Movement of the vehicle would be planned and allowed on designated routes only. Water sprinkling would be done on vehicles, routes to control dust emissions from vehicular movement within the project site.

6.3.5 Noise and Vibration

The operation of generators and operation of machinery may create high noise and vibrations levels in the project area. However, this would be a localize issue and noise and vibration levels will attenuate with distance from the work site. Movement of vehicles for delivery of construction material may also induce high noise levels for short periods.

Mitigation Measures:

- The impact from above mentioned activities will be mitigated by the selection of good quality of generators and machinery.
- Noise and vibration producing machinery and vehicles would not be allowed to operate on the project site by the management of M/s PBDS and contractor or sub-contractor (if any).
- During generators installation at the work site all possible noise and vibration reducing measures would be adopted, including usage of canopy over the generator.
- Noise and vibration levels of the generators and other fixed equipment would be monitored and necessary maintenance would be done to control the noise and vibration levels.
- Duration of the work having potential of high noise and vibration generation would be minimized by proper project management.
- Movement of the vehicle would be planned and allowed on designated routes only.
- Night time movement would be avoided to the possible limits to minimize the disturbance to neighborhood.

6.3.6 Disturbance to the Traffic Flow

The movement of the construction machinery and construction material transportation vehicles may disturb the other traffic using the project adjoining road.

Mitigation Measures:

- A traffic management plan will be prepared for the project.
- Designated parking areas will be provided to minimize the impacts of traffic flow, parking along the road side will be prohibited at all the times.

6.3.7 Water Consumption and Demand

Water required for numerous construction activities will be fulfilled from the ground water; however, improper storage of water at site may disturb the project site. Usage of bad quality of water may also lead to poor construction.

Mitigation Measures:

- Water conservation practices will be adopted to prevent wastage of water.
- Water storage at site would be done in tanks in order to ensure no leakage.

- Fiberglass tanks of approved manufacturer will also be used for construction water storage.
- Water conservation practices will be adopted during the entire course of construction to keep the water demand as low as possible.

6.3.8 Weather Conditions

Weather parameters which include temperature, humidity and wind are the important parameters and variation in these parameters will affect the quality and efficiency of the construction and workers. High temperatures will affect the worker's efficiency and quality of concrete.

Mitigation Measures:

- Adequate drinking water will be provided to workers during high temperature times.
- To avoid any heat stroke to worker's awareness will be provided and adequate measures will be taken.
- Concrete pouring will be performed in the recommended timing as per concrete type during high temperature pouring will be avoided.
- Site will be kept clean and tidy to avoid dust emission and falling objects.

6.3.9 Ground Water Pollution

Storage of fuel and oil for generators and other construction related machineries may be a potential source of risk for ground water contamination at the project site. Any leakage or spill would cause contamination.

Mitigation Measures:

- Designated Fuel storage area will be developed in an isolated and safe area.
- Storage area will be properly bounded and lined with concrete floor or any suitable impervious sheet to prevent soil contamination.
- Storage of fuel at site would be kept to minimum quantities. Excess storage would be discouraged. Storage preferably in close mouth steel drums of 200-liter capacity with spill trays underneath.

6.3.10 Safety of Workers and Public

Operation of machinery, movement of vehicles, handling of materials, including cement, paints, solvents, etc. are some potential sources having safety concerns for the workers. In addition to these, trespassing of unauthorized personnel, snatching,

vandalism and terrorism activity may occur. The possibilities of accidents also cannot be ruled out during the construction phase.

Mitigation Measures:

- M/s PBDS Management will depute safety personnel to ensure safe working practices during construction.
- Necessary training will be provided to workers related to health and safety during construction phase.
- First aid facility will be provided for the workers at site.
- Necessary Personnel Protective Equipment (PPE) will be provided to the workers engaged in work having potential risk to health and safety.
- Safety signage's, unauthorized personnel prohibition and warning signage's will be posted along with the boundary limit of project site.
- The project site will be barricaded and entrance will be reserved.
- Security guard will control entrance access of unauthorized personnel.
- Incident and accident record shall be maintained and updated record shall be kept at site.
- Complaint register shall be kept at site and updated.

6.3.11 Sustainable Tree Plantation

Plantation at project is very important for a number of reasons. First and foremost, reason is as a mitigation measure to protect the degrading environment and cooling effects. The management of M/s PBDS will plant most suitable trees within project area and along the road side of project area.

Mitigation Measures:

- Not required

6.3.12 Employment and Business Opportunity

The Project would provide direct employment opportunities during construction period. Besides direct employment in the construction work, the project would provide several indirect opportunities of business and trade. These would include but not limited to supply of construction material, water, equipment, machinery, fuel. The procurement of material such as bricks/blocks, wood, glass, plumbing fixtures, sewerage pipes, electrical wires/cables, electrical fittings, stone, marble, tiles, sanitary fittings, etc. would promote business in the local markets and indirect opportunities of employment. Approximately 200-250 workers would be engaged (as

and when required) in the construction work depending on the stage of the construction. It would include skilled and semi-skilled workers.

Mitigation Measures:

- Preference would be given to hire services of trained labor for skilled and semi-skilled work.
- Preference would be given to local market for purchase of material.
- Preference would be given to local suppliers for procurement of construction material and machinery.

6.4 Operation Phase Impacts

6.4.1 Wastewater Discharge

Wastewater discharged from the project will be domestic nature and unsafe disposal of the wastewater may also contaminate the water supply system leading to serious adverse impacts on the occupants and public.

Mitigation Measures:

- Since the project is residential housing scheme, it will be mainly utilized for the residential purpose therefore; only domestic type wastewater would be generated.
- Proper sewage system will be designed with adequate slopes and sewer sizes for collection and transportation of wastewater from the project to the septic tank and from where it will be into city's municipal ponds which are located at the distance of approximately 2-2.5 Km from project site in compliance with SEQS.
- Screen chamber for solid waste segregation would be used to minimize entry of solid waste into wastewater streams.
- The internal drainage system will be of UPVC pipes and fittings to ensure smooth carriage of wastewater for desired disposal system.
- No open channel or drain would be designed in the project area for collection of wastewater to avoid choking in sewage flow due to deposition solid waste.
- All manholes would have RCC covers to prevent entry of solid waste or debris that might cause choking and disruption in sewage flow.
- Exhaust vent will be provided for escape of gases from the sewerage lines as a safety measure to avoid any mishap or incident.

6.4.2 Solid Waste Disposal

The operation stage will mainly generate domestic waste from the project. Domestic waste will mainly comprise of food waste, packaging material, paper, plastic and glass will be generated on regular basis. If these waste are not properly managed and disposed off may pose serious environmental hazard not only to the occupants but also to public of project's vicinity. Improper handling and storage of solid waste may also provide favorable ground for the breeding of vectors and rodents, source of foul smell.

Mitigation Measures:

- All solid waste shall be segregated into organic and recyclable waste source and then collected, stored, and transported for ultimate safe disposal.
- Separated waste bins for plastic, glass, paper and food waste will be placed, so that on site segregation can be managed.
- Dedicated garbage/waste storage area will be provided in the project for temporary storage.
- Awareness signs will be placed to educate occupants and visitors in the project for managing their solid waste properly.
- Disposal of solid waste shall be carried out according to SSWMB.

6.4.3 Utility Services and Consumption of Resources

Water, electricity and gas will be the prime utilities in the project. During normal usage of utilities likelihood of leakages from the network resulting in loss of resources as well as pollution in the Project area. Excessive and uncontrolled usage of these resources will contradict the principles of sustainable usage of natural resources.

Mitigation Measures:

- Best quality of electrical cables and gadgets, water supply pipes and control valves will be used in the project which would require less maintenance and prevent leakages of resources.

6.4.4 Fire Hazards

During the operation/usage, poor handling transfer and storage of fuel and oil for generators and electrical room which may have fire hazard. Moreover, electric short circuit may also cause fire.

Mitigation Measures:

- Dedicated Storage area will be provided for fuel storage and no unauthorized access except security staff and union management.
- Secondary containment shall be provided.
- Oil absorbent shall be placed at the storage area to avoid and control spillage hazard.
- For fire emergency, adequate fire extinguishers shall be placed at appropriate locations in the project.
- In addition to above adequate numbers of fire extinguishers shall be also kept in maintenance office as well as at security office.

6.4.5 Safety and Security of the Project

During the occupation, trespassing of unauthorized personnel, snatching, vandalism and terrorism activity can be of potential risk for the project and its immediate neighboring therefore, a well efficient safety and security system is the necessity of the project keeping in view the location of the project area.

Mitigation Measures:

- Security guards will be deputed to control entrance and exit access and ensure safety and security of housing scheme and immediate neighboring.
- CCTV cameras will be installed to monitor and control the access route of the housing scheme.
- Visitors Entry/Exit Register shall be also kept at the reception of housing scheme.
- Record of visitors along with the CNIC and contact numbers shall be maintained.

6.4.6 Parking and Traffic Management

The project has been designed with the adequate parking facility and as per by laws. The project will have the parking facility in each house units. This facility will ease the parking issues in the area of the project.

Mitigation Measures:

- Entry and exist point of the parking will be kept free from obstruction.
- No offsite parking will be allowed
- Signage's of No Parking will be installed.

6.4.7 Employment Generation

This project is expected to generate many direct employment and indirect employment opportunities. Direct would include staff for security, housekeeping and indirect would include teachers, cook, maids, servants, laundryman, drivers etc. Besides lots of suppliers and distributors for the residents.

Mitigation Measures:

- No mitigation measure is required

CHAPTER 7: ENVIRONMENTAL MANAGEMENT PLAN

7.1 Overview

After a thorough review and assessment of the existing environmental and socio-economic conditions and review of technical data, a team of environmental professionals analyzed the significant environmental impacts and suggested the necessary measures for mitigating the impacts. This chapter presents the environmental impact assessment of the project as a whole including all the components.

This section discusses the potential environmental and social impacts of the project activities associated with construction and operational phase of the project additionally this section of the report predicts the magnitude of the impact, assess its significance, recommends mitigation measures to minimize adverse impacts and identifies the residual impacts of the project.

Good management practice is one of the key elements of swift and sound operation, with reference to the concerns studied in section 6 of this report; this management plan has been developed to follow up operations, the major elements of the EMP are as follows:

- Environmental Monitoring System
- Environmental Management and Monitoring Team

7.2 Environmental Monitoring System

Environmental Monitoring is the process of repeated observation and measurement of one or more environmental quality parameters to enable changes to be observed over a period of time. These changes relate to the physical, chemical and biological parameters of various phases of the environment such as Air and water.

The main objective of the environmental monitoring program is the conservation of the quality of the various components of the environment. Monitoring is carried out to obtain quantitative information on current levels of harmful or potentially harmful parameters of air and water quality. The information obtained enables an assessment to be made of the extent of the polluting damages of these parameters, the increasing and the decreasing levels of specific polluting parameters, and the control measures that need to be implemented.

The following is an outline of a typical construction monitoring program that can be modified as necessary to meet the needs of SEPA. The monitoring program will include the following at a minimum:

- Introduction - explaining the nature of the project outlining the need for monitoring program and the relevant specific provisions of the permit granted.
- The various activities and parameters being monitored
- The methodology to be employed and the frequency of monitoring
- A summary of data collected. Tables will be used where appropriate.
- Discussion of results with respect to the project in progress, highlighting any parameters, which exceed the standards and mitigation implemented.
- Frequency of reporting to EPA.
- Recommendations
- Appendices of data

7.3 Scope of EMP

The EMP comprises the following elements along with the methods and procedures of their implementation:

- Organizational structure and roles and responsibilities of project personnel.
- Specific requirements for the implementation of the EMP.
- Mitigation or impact management matrix.
- Monitoring plan with the emphasis on specific parameters to be monitor.

7.4 Organization of the EMP

EMP provides the procedures; organisation and instruction to ensure Project personnel understand and implement environmental protection procedures for routine activities associated with the construction and operation phases of the Project and its anticipated facilities. The organisation, style and format of the EMP is intended to enhance its use by Project personnel in the field and to provide an important support document between overall environmental management of the

Project and various permits and authorisations issued for specific construction and operation related Project components and activities.

7.4.1 Maintenance of the EMP

EMP needs to be revised on timely basis to keep up-to-date as per the requirements come up regularly. Therefore, outlining the responsibilities and activities associated with the maintenance of the EMP is essential. The responsibilities of the Environmental Monitor are mentioned and procedures for requesting EMP revisions are outlined. EMP revision procedures include requirements for notification of the appropriate government, public, municipal and other relevant agencies so that their role is also included in the overall management process.

7.4.2 Management Approach

The management of M/s PBDS along with Project Manager and its EHS officer will undertake the overall responsibility of implementation and supervision for compliance with the EMP. It will ensure that all activities it executes with construction team comply with positive environmental sensitivities as well as it will cooperate with the concerned regulatory agencies such as the SEPA.

On the other hand, construction team will carry out field activities as part of the project that includes relevant and subsidiary construction work. M/s. PBDS Management will be subjected to certain liabilities under the environmental laws of the Province which will be mentioned in the implementation of Project Manager and Supervision of EHS officer.

Some of the approaches to be followed during the environmental management practices are given below:

- Complying with the relevant legislation and regulations
- Regularly reviewing of the impacts on the environment
- Developing appropriate indicators in order to monitor core impacts
- Communicating openly with internal and external stakeholder on environmental issues

7.5 Regulatory Requirements

7.5.1 Approvals, Authorizations and Permits

The list of potential approvals, authorizations and permits required for the Project from various agencies, are given below:

- Hyderabad Development Authority (HDA)
- Sindh Building Control Authority (SBCA)
- Sindh Environmental Protection Agency (SEPA)
- Water and Sanitation Agency (WASA)
- Hyderabad Electric Supply Corporation (HESCO)
- Sui Southern Gas Company (SSGC)

7.5.2 Environmental Quality Objectives

The criteria for management's quality objectives and generation of solid waste and wastewater quality, air quality and noise levels are detailed here. The management of M/s PBDS shall review Environmental Objectives once a year and try to complete them in the stipulated time frame. This will also include any applicable treatment criteria meeting the Sindh Effluent Quality Standards (SEQS) as per the Sindh Environment Protection Act 2014.

7.5.3 Compliance Monitoring

It would be required by the management of M/s PBDS to comply with the Environmental Monitoring Plan lay in the subsequent section. The compliance shall also require periodic reporting of the monitoring results in the form of report submitted with the Sindh Environmental Protection Agency. As the project is at moderate scale construction so it is proposed that during the construction, it will be on quarterly basis.

7.5.4 Implementation Stages of EMP

The success of the management plan will lie with its implementation. An EMP requires to be executed in every stage.

7.5.5 Planning and Design of the Project

Implementation of an EMP may tackle the environmental issues before they arise. Those components are given below:

A Construction of Project

It describes the location of the project, its adjoining conditions in the area, facilities to be installed in the project. If any design parameter changes at the time of approval, management will assess the environmental impacts that may arise from such changes. If the impacts are found to be different and in excess of those mentioned in the report, M/s PBDS Management will develop further mitigation measures with respect to the changes to minimize these impacts and seek approval for the required change from SEPA as well as other regulatory authorities, if comes under.

B Approvals

Obtaining NOC from SEPA does not relieve project of other obligations and hence management of M/s PBDS, will obtain all relevant clearances and necessary approvals required by the government prior to commencing the project.

7.6 Construction and Operation Phase

In order to implement the EMP successfully during construction, it is required to follow mitigation measures and monitoring plan strictly. Awareness will be required at each step and phase, also if necessary to change management processes, it will be documented and available to the employees.

A Mitigation Plan

It defines all the impacts and their remedial with highlighting the responsible personnel to work on those mitigations. An Environmental Management (Mitigation) Plan is basically the environmental mitigation matrix which is given as Table-5. All these impacts and mitigations have already been given in previous section of this report. The management of M/s PBDS will be required to adhere these mitigation measures throughout the project.

B Monitoring and Review

Environmental Management Plan (Monitoring) Plan of all the activities will be required to analyse the impacts of construction and operation on the environment as mentioned in Table-6. EHS Officer will coordinate with Project Manager and site representative to monitor environmental parameters during the construction phase. During operation, the management of M/s PBDS will make aware the project resident to follow the waste management and solid waste system will be look after

by the housekeeping staff and fire-fighting system shall be maintained properly by operation & maintenance committee of the project.

The management of M/s PBDS will conduct the Environmental Monitoring (Air, Noise, ambient noise and equipment noise) as per the frequencies and parameters mentioned in Table-7.

Table 5: Environmental Management (Mitigation) Plan

Environmental Issue	Impact	Mitigation Measure	Time frame	Implemented By	Supervised by
1. Construction Period Impacts					
Soil Erosion/Dust	Excavations will be carried out during foundation work of the amenities structures and utility laying work would generate heaps of soil which may result in soil erosion/dust.	- Excavated soil will be re-used as back filling material in civil work, road leveling, and filling of depressions - Soil stockpiles would be regularly wetted to keep airborne dust levels to minimum. - Necessary measures and planning would be done to keep the excavation work to minimum possible duration. - Good engineering practices will be adopted during construction work. - Soil to be kept on safe site which can be reused for the development of parks and green built area etc.	During Construction	Project Manager	EHS-Officer
Discharge of Wastewater	Discharge of waste water openly without settling and disposing to the proper channel may cause environmental nuisance and several health diseases.	- Sewage water will be drained through piping into the main sewer drain. - NO direct discharge will be allowed. - Wastewater will be drained after passing through settling pit.	During Construction	Project Manager	EHS-Officer

Solid Generation	Waste	The project is expected to generate waste including; packing waste; scrap, excess construction waste, empty containers and drums, used lubricating oils and paint etc. the impact of solid waste disposal would be significant if the waste management is not carried out appropriately. • Separate waste bins will be placed for different type of wastes – plastic, paper, metal, glass, wood and cotton. • Recyclable material will be separated at source and the recyclable waste will be managed in accordance with the SEPA requirement. • No waste will be dumped at any location outside the site boundary. • Surplus construction material including partially filled chemical and paints containers will be returned to supplier. Construction waste will be disposed of onsite as fill material or sold as scrap to contractors. • Record of all waste disposed during construction period will be maintained.	During Construction	Project Manager	EHS-Officer
Air Pollution		Exhaust emissions from the operation of construction machinery and transportation vehicles may cause air pollution. Movement of heavy machinery and construction material • The management of M/s PBDS will be responsible for taking necessary mitigation measures for reduction of air pollution from dust emissions and safety measure during construction work.	During Construction	Project Manager	EHS-Officer

transportation vehicles would create dust emissions in the area. Generators used for power generation may cause pollution in ambient air and have adverse impacts on the workers, operators and nearby area.

- The impact from above mentioned activities will be mitigated by selection of good quality equipment, machinery and vehicles.
- Smoke releasing machinery and vehicles would not be allowed to be operated on the project by project developer and contractor or sub-contractor (if any).
- Water sprinkling and monitoring to be carried out regular to ensure adequate suppression of dust.
- High exhaust pipes would be used in generators and other fixed equipment for better dispersion of air emissions and to prevent high concentrations of pollutants in the immediate vicinity.
- Emission levels of the generators and other fixed equipment would be monitored and maintenance would be done as per the recommendation of the manufacturer/supplier.
- Duration of the work having potential of dust emissions would be minimized by proper project management.

		• Movement of the vehicle would be planned and allowed on designated routes only. Water sprinkling would be done on vehicles, routes to control dust emissions from vehicular movement within the project site			
Noise and Vibration	The operation of generators and operation of machinery may create high noise and vibrations levels in the project area. However, this would be a localized issue and noise and vibration levels will attenuate with distance from the work site. Movement of vehicles for delivery of construction material may also induce high noise levels for short periods.	• The impact from mentioned activities will be mitigated by the selection of good quality of generators and machinery. • Noise and vibration producing machinery and vehicles would not be allowed to operate on the project site by the management of M/s PBDS and contractor or sub-contractor (if any). • During generators installation at the work site all possible noise and vibration reducing measures would be adopted, including usage of canopy over the generator. • Noise and vibration levels of the generators and other fixed equipment would be monitored and necessary maintenance would be done to control the noise and vibration levels.	During Construction	Project Manager	EHS-Officer

		• Duration of the work having potential of high noise and vibration generation would be minimized by proper project management. • Movement of the vehicle would be planned and allowed on designated routes only. • Night time movement would be avoided to the possible limits to minimize the disturbance to neighborhood.			
Disturbance to the Traffic Flow	The movement of the construction machinery and construction material transportation vehicles may disturb the other traffic using the project adjoining road.	• A traffic management plan will be prepared for the project. • Designated parking areas will be provided to minimize the impacts of traffic flow, Parking along the road side will be prohibited at all the times.	During Construction	Project Manager	EHS-Officer
Water Consumption and Demand	Water required for numerous construction activities will be fulfilled from ground water. However, improper storage of water at site may disturb the project site. Usage of bad quality of water may also lead to poor construction.	• Record of water consumption during the construction and operation will be maintained. • Water conservation practices will be adopted to prevent wastage of water. • Water storage at site would be done in tanks in order to ensure no leakage. • Fiberglass tanks of approved	During Construction	Project Manager	EHS-Officer

		manufacturer will also be used for construction water storage. Water conservation practices will be adopted during the entire course of construction to keep the water demand as low as possible			
Weather Condition	Weather parameters which include temperature, humidity and wind are the important parameters and variation in these parameters will affect the quality and efficiency of the construction and workers. High temperatures will affect the worker's efficiency and quality of concrete.	- Adequate drinking water will be provided to workers during high temperature times. - To avoid any heat stroke to worker's awareness will be provided and adequate measures will be taken. - Concrete pouring will be performed in the recommended timing as per concrete type during high temperature pouring will be avoided. - Site will be kept clean and tidy to avoid dust emission and falling objects.	During Construction	Project Manager	EHS-Officer
Ground Water Pollution	Storage of fuel and oil for generators and other construction related machineries may be a potential source of risk for ground water contamination at the project site. Any leakage or spill would cause	- Designated Fuel storage area will be developed in an isolated and safe area. - Storage area will be properly bounded and lined with concrete floor or any suitable impervious sheet to prevent soil contamination. - Storage of fuel at site would be kept to	During Construction	Project Manager	EHS-Officer

	contamination.	minimum quantities. Excess storage would be discouraged. Storage preferably in close mouth steel drums of 200-liter capacity with spill trays underneath.			
Safety of Workers and Public	Operation of machinery, movement of vehicles, handling of materials, including cement, paints, solvents, etc. are some potential sources having safety concerns for the workers. In addition to these, trespassing of unauthorized personnel, snatching, vandalism and terrorism activity may occur. The possibilities of accidents also cannot be ruled out during the construction phase.	• M/s PBDS Management will depute safety personnel to ensure safe working practices during construction. • Necessary training will be provided to workers related to health and safety during construction phase. • First aid facility will be provided for the workers at site. • Necessary Personnel Protective Equipment (PPE) will be provided to the workers engaged in work having potential risk to health and safety. • Safety signage, unauthorized personnel prohibition and warning signage's will be posted along with the boundary limit of project site. • The project site will be barricaded and entrance will be reserved. • Security guard will control entrance access of unauthorized personnel.	During Construction	Project Manager	EHS-Officer

		Incident and accident record shall be maintained and updated record shall be kept at site.			
Sustainable Tree Plantation	Plantation at project is very important for a number of reasons. First and foremost, reason is as a mitigation measure to protect the degrading environment and cooling effects. M/s PBDS Management shall plant most suitable trees within project area and along the road side of project area.	This has positive impacts on surrounding area.	During Construction	Project Manager	EHS-Officer
Employment and Business Opportunity	The Project would provide direct employment opportunities during construction period. Besides direct employment in the construction work, the project would provide several indirect opportunities of business and trade. These would include but not limited to supply of construction material, water,	- This has positive impacts on the area and requires no mitigation. - Preference would be given to hire services of trained labor for skilled and semi-skilled work. - Preference would be given to local market for purchase of material. - Preference would be given to local suppliers for procurement of construction material and machinery.	During Construction	Project Manager	EHS-Officer

equipment, machinery, fuel. The procurement of material such as bricks/blocks, wood, glass, plumbing fixtures, sewerage pipes, electrical wires/cables, electrical fittings, stone, marble, tiles, sanitary fittings, etc. would promote business in the local markets and indirect opportunities of employment. Approximately 250-300 workers would be engaged (as and when required) in the construction work depending on the stage of the construction. It would include skilled and semi-skilled workers.

2. Operation Period

Wastewater Discharge	Wastewater discharged from the project will be domestic in nature and unsafe disposal of the wastewater may also contaminate the water	Since the project is a housing scheme, it will be mainly utilized for the residential purpose therefore; only domestic type wastewater would be generated.	During Operation	Maintenance Team	Operation & Maintenance Committee
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supply system leading to serious adverse impacts on the occupants and public.

- Proper sewage system will be designed with adequate slopes and sewer sizes for collection and transportation of wastewater from the project to the septic tank from where it will be drained through pumps into the city's municipal ponds which are located at the approximate distance of 2-2.5 Km from the project in compliance with SEQS.
- Screen chamber for waste segregation would be used to minimize entry of solid waste into wastewater streams.
- The internal drainage system will be of UPVC pipes and fittings to ensure smooth carriage of wastewater for desired disposal system.
- No open channel or drain would be designed in the project area for collection of wastewater to avoid chocking in sewage flow due to deposition solid waste.
- All manholes would have RCC covers

		to prevent entry of solid waste or debris that might cause choking and disruption in sewage flow. Exhaust vent will be provided for escape of gases from the sewerage lines as a safety measure to avoid any mishap or incident.			
Disposal of Solid Waste	The operation stage will mainly generate domestic waste from the project. Domestic waste will mainly comprise of food waste, packaging material, paper, plastic and glass will be generated on regular basis. If these waste are not properly managed and disposed off may pose serious environmental hazard not only to the occupants but also to public of project's vicinity. Improper handling and storage of solid waste may also provide favorable ground for the breeding of vectors and rodents, source of foul smell.	- All solid waste shall be segregated into organic and recyclable waste source and then collected, stored, and transported for ultimate safe disposal. - Separated waste bin for plastic, glass, paper and food waste will be placed, so that on site segregation can be managed. - Dedicated garbage/waste storage area will be provided in the housing scheme for temporary storage. - Awareness signs will be placed to educate occupants and visitors on the housing scheme for managing their solid waste properly. - Disposal of solid waste shall be carried out according to SSWMB.	During Operation	Housekeeping Staff	Operation & Maintenance Committee

Utility Services and Consumption of Resource	Water, electricity and gas will be the prime utilities in the project. During normal usage of utilities likelihood of leakages from the network resulting in loss of resources as well as pollution in the Project area. Excessive and uncontrolled usage of these resources will contradict the principles of sustainable usage of natural resources.	• Best quality of electrical cables and gadgets, water supply pipes and control valves will be used in the project which would require less maintenance and prevent leakages of resources.	During Operation	Maintenance Team	Operation & Maintenance Committee
Fire Hazards	During the occupation, poor handling transfer and storage of fuel and oil for generators and electrical room which may have fire hazard. Moreover, electric short circuit may also cause fire.	• Dedicated Storage area will be provided for fuel storage and no unauthorized access except safety and security staff and scheme union management. • Secondary containment shall be provided. • Oil absorbent shall be placed at the storage area to avoid and control spillage hazard. • For fire emergency, adequate fire	During Operation	Maintenance Team	Operation & Maintenance Committee

		extinguishers shall be placed at appropriate locations in the project.			
		In addition to above adequate numbers of fire extinguishers shall be also kept in union office as well as at security office.			
Safety and Security	During the occupation, trespassing of unauthorized personnel, snatching, vandalism and terrorism activity can be of potential risk for the housing scheme and its immediate neighboring therefore, a well efficient safety and security system is the necessity of the project keeping in view the location of the project area.	- Security guards will be deputed to control entrance and exit access and ensure safety and security of housing scheme and immediate neighboring. - CCTV cameras will be installed to monitor and control the access route of the housing scheme. - Visitors Entry/Exit Register shall be also kept at the reception of housing scheme. - Record of visitors along with the CNIC and contact numbers shall be maintained.	During Operation	Security Staff	Operation & Maintenance Committee
Parking and Traffic Management	The project has been designed with the adequate parking facility and as per by laws. The project will have the parking facility in each house units. This facility	- Entry and exist point of the parking will be kept free from obstruction. - No offsite parking will be allowed - Signage's of No Parking will be installed.	During Operation	Security Staff	Operation & Maintenance Committee

will ease the parking issues
in the area of the project.

Employment Generation	This project is expected to generate many direct and indirect employment opportunities. Direct would include staff for security, housekeeping and indirect would include teachers, cook, maids, servants, laundryman, drivers etc. Besides lots of suppliers and distributors for the residents. • Not required.	During Operation	Maintenance Team	Operation & Maintenance Committee
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Table 6: Environmental Management (Monitoring) Plan

Environmental Issue	Monitoring Action	Timing	Monitoring Delivered By	Managed by	Supervised by
1. Construction Period Impacts					
Soil Erosion/Dust	Site Inspection Controls	(Visual) During excavation activities and usage as filling material.	Record of soil erosion control actions	Project Manager	EHS- Officer
Discharge of Waste Water	• Randomly check to ensure compliance.	During construction period.	Written and dated note indicating compliance or issue and action taken	Project Manager	EHS- Officer
Disposal of construction waste	• Monitor to check waste handling and disposal procedure	During construction period	Note to file, signed and dated	Project Manager	EHS- Officer
Releases of Air Emissions from vehicular and machinery exhaust	• Check maintenance log. • Site inspection (visual).	During operation, At maintenance location During construction period.	Inspection note to file for use in contractor reporting and in semi-annual audit report.	Project Manager	EHS- Officer
Noise and Vibration	• Using a portable noise meter, monitor checks conditions • Check noise level monitoring record • Site inspection (visual) to Check dampener-pads on generator platform.	During construction period	Inspection note with compliance status and noise reading results	Project Manager	EHS- Officer
Disturbance to Traffic	• Check traffic plan available	During construction	Inspection note, re-	Project	EHS- Officer

Flow	at site • Randomly check vehicle present at site.	period		findings signed and dated	Manager	
Water Consumption	• Check water consumption record • Compare water consumption	During period	construction	Inspection note, signed and dated	Project Manager	EHS- Officer
Weather Conditions	• Check concreting and pouring activity plan • Check high temperature timing working plan • Check record of training. • Check high wind days working plan	During period	construction	Note to file, signed and dated	Project Manager	EHS- Officer
Fuel Storage	• Check fuel storage record • Monitor to check fuel handling procedure. • Site inspection (visual)	During period	construction	Note to file, signed and dated	Project Manager	EHS- Officer
Safety of workers and public	• Inspection of construction location to ensure proper use of OHS gear and contractor enforcement. • Check the daily record of labour and project staff	During period	construction	Inspection note, signed and dated	Project Manager	EHS- Officer
Sustainable Tree Plantation	• Develop trees plantation plan strategy	Throughout trees plantation Period	Plant Strategy		Project Manager	EHS- Officer
2. Operating Period						
Wastewater Discharge	• Ensure that the treated	Operation/ usage period	-		Maintenance	Operation &

	- water to be re-used for plantation & landscape • Ensure the effluent is then drained into municipal drain after necessary treatment.			Team	Maintenance Committee
Disposal of Solid Waste	• Ensure proper disposal by approved contractor	Operation/ usage period	-	Housekeeping staff	Operation & Maintenance Committee
Noise and Vibration	• Site inspection (visual) to Check dampener-pads on generator platform. • Check generator maintenance record	Operation/ usage period	-	Maintenance Team	Operation & Maintenance Committee
Fire Hazards	• Check inspection record of fire-fighting system • Checking refilling record of portable extinguishers.	Operation/ usage period	-	Maintenance Team	Operation & Maintenance Committee
Safety and Security of Housing Scheme and Neighbouring	• Check the daily record of visitors. • Check the operation of CCTV camera.	Operation/ usage period		Security Staff	Operation & Maintenance Committee
Parking and Traffic Management	• Proper Signage's will be posted for guidance and parking numbers. • Adequate parking will be provided.	Operation/ Usage Period		Security staff	Operation & Maintenance Committee

Table 7: Environmental Monitoring and Reporting Plan for the project

GASEOUS EMISSION PLAN					
Parameters	Source	Frequency	Standards		
CO, Smoke, Noise	Construction Machinery	Quarterly	SEQS		
CO, NOx, SOx and Particulates	Power Generator	Monthly	SEQS		
AMBIENT AIR QUALITY PLAN					
Parameters	Locations	Frequency	Duration		
PM _{2.5} , PM ₁₀ , SPM, NO, NO ₂ , CO, SO _x	7 meters from the Project Boundaries	Quarterly	8-hours		
DRINKING WATER QUALITY SAMPLING PLAN					
Parameters	Locations	Frequency	Standard		
TDS, TSS, pH, Total Coliform, Fecal Coliform	Drinking Water Source	Quarterly	SDWQS/WHO		
WASTEWATER QUALITY SAMPLING PLAN					
Parameters	Locations	Frequency	Duration	Standards	
BOD, COD, DO, TSS, TDS, pH, NO ₃ , SO ₄ , Oil & Grease	Wash rooms points into drains	Quarterly	Grab sampling	SEQS	
NOISE LEVEL SAMPLING PLAN					
Parameters	Locations	Frequency	Duration	Standards	
Decibels [dB(A)Scale]	At the interface of project and residential community 7 meters from the equipment at construction site	Quarterly	Continuous for 8 hours in a full working day	WHO Noise Guidelines	
SOLID WASTE SAMPLING AND CHARACTERIZATION PLAN					
Parameters	Locations	Frequency	Duration	Standards	
• Waste generation rate, • Waste composition, • Recyclables and non-recyclables, • Hazardous waste,	At main solid waste collection point from where the waste is transported.	Quarterly	-	-	

Conclusion

Hyderabad City requires a better-quality facility with large residential and commercial spaces. It is essential to build a state of the art urban development project to fulfil the local demand of residential and commercial requirements of the city to fulfil the demand and supply gap. M/s The Palm Builders & Developers (PBDS) through their project will be able to cater the residential & commercial requirements for the people of Hyderabad and Sindh. The project during the construction and post developmental phase will also provide a considerable number of employment opportunities to various professionals, skilled and unskilled workers.

Baseline environmental and socio-economic information was collected from a various sources, including reports of previous studies, published literature and field surveys. The information collected was used to compose profiles of the natural, socio-economic and cultural environments likely to be affected by the project.

Potential environmental impacts due to the project are evaluated, mitigation measures presented which required to minimize or obviate the impacts be assessed, implemented and monitored. Any residual impacts may be assessed for their significance. All these requirements have been addressed in this EIA, which has in considerable length covered the project activities.

It is therefore concluded that impacts arising from the project can be mitigated and managed through the mitigation measures and EMP and that the residual impacts will have minor significance. Overall the project will have positive socio-economic impacts.

Further it is concluded that for this particular project activity, the EIA is adequate and covers all the environmental issues. Finally, the EIA reaches a finding of NO SIGNIFICANT IMPACT in accordance with the national laws and regulations.

Annexure

Annexure 1: NOC from Hyderabad Development Authority (HDA)

DIRECTORATE OF PLANNING & DEVELOPMENT CONTROL, HDA
4TH FLOOR CIVIC CENTRE, THANDI SARA, HYDERABAD.

Phone No. 9201405

No. HDA/P&DC/MP/PHS-/ 142 /2020.
Hyderabad dated: 10-01 /2020.

To

Mr. Qamar Zaman Memon, Mr. Raheel Iqbal,
Mr. Abdullah Jan & Mr. Raja Bhawan,
Sponsors of Palm Four Housing Scheme,
Deh Mirzapur, Taluka Qasimabad, Hyderabad.

Subject: APPROVAL OF LAYOUT PLAN OF PALM FOUR HOUSING SCHEME ON 92 ACRES
& 26.5 GHUNTAZ, OVER R.S. NOS. 93-AB, 94, 95, 96, 97, 98, 99, 100, 101,
102/1, 113, 114, 118, 119 (PART), 120-A, 120-B, 121-A, 121-B, 122 (PART),
243, 311 (PART), 344, 345, 346, 573, 574 (PART), 610/1 (PART), 610/2 (PART),
611/1 (PART), 611/2 (PART) & 647, DEH MIRZAPUR, TALUKA QASIMABAD,
HYDERABAD.

Reference: Your proposal dated: 05-12-2019.

Whereas your proposal quoted under reference on the subject matter has been examined and to inform that the competent authority has been pleased to approve the layout plan of your sponsored housing scheme titled as "Palm Four" for development of the scheme from planning point of view, on 92 acres & 26.5 Ghuntas, over R.S. Nos. 93-AB, 94, 95, 96, 97, 98, 99, 100, 101, 102/1, 113, 114, 118, 119 (PART), 120-A, 120-B, 121-A, 121-B, 122 (PART), 243, 311 (PART), 344, 345, 346, 573, 574 (PART), 610/1 (PART), 610/2 (PART), 611/1 (PART), 611/2 (PART) & 647 Deh Mirzapur, Taluka Qasimabad, Hyderabad with usable area as 265787 sq. yards.

This approval is subject to terms and conditions annexed hereto and as communicated from time to time.

Further, rest of the conditions under the provisions of SBDO should be followed by the owner / sponsor, as and when communicated by the competent authority.

DIRECTOR
PLANNING & DEV. CONTROL,
HDA, HYDERABAD

Copy F.w.cs. to:-

1. The Regional Director, (SBDO), Hyderabad Region.
2. The Project Director, Housing Project, HDA, Hyderabad.
3. The Managing Director, WASA, HDA, Hyderabad.
4. The Manager, HBFC, Hyderabad.
5. The Assistant Commissioner, Taluka Qasimabad, Hyderabad.
6. The Mukhtiar, Taluka Qasimabad, Hyderabad.
7. The Sub-Registrar, Taluka Qasimabad, Hyderabad.



Barq Khan
DIRECTOR
PLANNING & DEV. CONTROL,
HDA, HYDERABAD

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Annexure 2: Sindh Environmental Protection Act, 2014.



The Sindh Government Gazette

Published by Authority

KARACHI THURSDAY MARCH 20, 2014

PART-IV

PROVINCIAL ASSEMBLY OF SINDH

NOTIFICATION

KARACHI, THE 20th MARCH, 2014.

NO.PAS/Legis-B-06/2014-The Sindh Environmental Protection Bill, 2014 having been passed by the provincial Assembly of Sindh on 24th February, 2014 and assented by the Governor of Sindh on 19th March, 2014 is hereby published as an Act of the legislature of Sindh

**THE SINDH ENVIRONMENTAL PROTECTION
ACT, 2014**

SINDH ACT NO.VIII OF 2014

**AN
ACT**

to provide for the protection, conservation, rehabilitation and improvement of the environment, for the prevention and control of pollution, and promotion of sustainable development.

WHEREAS it is expedient to provide for the protection, conservation, rehabilitation and improvement of the environment, prevention and control of pollution, promotion of sustainable development, and for matters connected therewith and incidental thereto;

Preamble

PART-I

It is hereby enacted as follows:-

1. (1) This Act may be called the Sindh Environmental Protection Act, 2014.

**Short title and
commencement**

- (2) It extends to the whole of the Province of Sindh.
- (3) It shall come into force at once

2. In this Act, unless there is anything repugnant in the subject or context-

Definitions

- (i) "adverse environmental effect" means impairment of, or damage to, the environment and includes—
 - (a) impairment of, or damage to, human health and safety to biodiversity or property;
 - (b) pollution; and
 - (c) any adverse environmental effect as may be specified in the rules or regulations made under this Act;
- (ii) "Agency" means the Sindh Environmental Protection Agency established under section 5 of this Act;
- (iii) "agricultural waste" means waste from farm and agricultural activities including poultry, cattle farming, animal husbandry residues from the use of fertilizers, pesticides and other farm chemicals and agricultural runoff;
- (iv) "air pollutant" means any substance that causes pollution of air and includes soot, smoke, dust particles, odor, light, electro-magnetic, radiation, heat, fumes, combustion exhaust, exhaust gases, noxious gases, hazardous substances and radioactive substances;
- (v) "biodiversity" or "biological diversity" means the variability among living organisms from all sources, including inter-alia terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems;
- (vi) "biosafety" means the mechanism developing through policy and procedure to ensure human health and the environmentally safe application of biotechnology;
- (vii) "Council" means the Sindh Environmental Protection Council established under section 3 of this Act;
- (viii) "discharge" means spilling, leaking, pumping, depositing, seeping, releasing, flowing-out, pouring, emitting, emptying or dumping into the land, water or atmosphere;
- (ix) "ecosystem" means a dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit;

- (x) "effluent" means any material in solid, liquid or gaseous form or combination thereof being discharged from industrial activity or any other source and includes a slurry, suspension or vapour;
- (xi) "emission standards" means the permissible standards established by the Agency for emission of air pollutants and noise and for discharge of effluent and waste;
- (xii) "environment" means-
 - (a) air, water, land and natural resources;
 - (b) all layers of the atmosphere;
 - (c) all organic and inorganic matters and living organisms;
 - (d) ecosystems and ecological relationships;
 - (e) buildings, structures, roads, facilities and works;
 - (f) all social and economic conditions affecting community life; and
- (g) the inter-relationship between any of the factors in sub-clause (a) to (f) made under this Act;
- (xiii) "environmental aspect" means an organization's activities or services that can interact with the environment;
- (xiv) "environment audit" means a systemic scrutiny of environmental performance of an organization, factory, company or manufacturing and production unit regarding to its operations;
- (xv) "environmental impact assessment" means an environmental study comprising collection of data, prediction of qualitative and quantitative impacts, comparison of alternatives, evaluation of preventive, mitigation and compensatory measures, formulation of environmental management and training plans and monitoring arrangements, and framing of recommendations and such other components as may be prescribed;
- (xvi) "Environmental Management Plan" means a site specific plan developed to ensure that all necessary measures are identified and implemented in order to protect the environment and comply with the environmental legislation;
- (xvii) "Environmental Protection Order" means an order passed under Section 21 made under this Act.
- (xviii) "Environmental Protection Tribunal" means the Environmental Protection Tribunal constituted under section 25 of this Act ;

- (xvix) "Environmental Review" means a quantitative and qualitative assessment of documents submitted by proponent, comments from public and Government agencies or organizations;
- (xx) "factory" means any premises in which industrial activity is being undertaken;
- (xxi) "genetically modified organism" means any organism that possesses a novel combination of genetic material obtained through the use of modern biotechnology and which does not occur naturally through mating and or recombination and includes both living and non-living modified organisms;
- (xxii) "Government" means the Government of Sindh;
- (xxiii) "Government Agency" includes:-
 - (a) A department, attached department or any other office of Government; and
 - (b) A development authority, local authority, company body corporate established or control by Government;
- (xxiv) "Court" means the Court of the Judicial Magistrate First Class;
- (xxv) "hazardous substance" means-
 - (a) a substance or mixture of substances, other than a pesticide as defined in the Agricultural Pesticides Ordinance, 1971 (II of 1971), which, by reason of its chemical activity or toxic, explosive, flammable, corrosive, radioactive or other characteristics, causes, or is likely to cause, directly or in combination with other matters an adverse environmental effect; and
 - (b) any substance which may be prescribed as a hazardous substance;
- (xxvi) "hazardous waste" means waste which is or which contains a hazardous substance or which may be prescribed as hazardous waste, hospital waste, nuclear waste, obsolete pesticides and persistent organic pollutants;
- (xxvii) "hospital waste" means waste medical supplies and materials of all kinds, and waste blood, tissue, organs and other parts of the human and animal bodies, from hospitals, clinics, laboratories and veterinary facilities;

- (xxviii) "industrial activity" means any operation or process for manufacturing, making, formulating, synthesising, altering, repairing, ornamenting, finishing, packing or otherwise treating any article or substance with a view to its use, sale, transport, delivery or disposal, or for mining, for oil and gas exploration and development, or for pumping water or sewage, or for generating, transforming or transmitting power or for any other industrial or commercial purposes;
- (xxix) "industrial waste" means waste resulting from an industrial activity;
- (xxx) "initial environmental examination" means a preliminary environmental review of the reasonably foreseeable qualitative and quantitative impacts on the environment of a proposed project to determine whether it is likely to cause an adverse environmental effect for requiring preparation of an environmental impact assessment;
- (xxxi) "local authority" means any agency set up or designated by Government, by notification in the official Gazette, to be a local authority for the purposes of this Act;
- (xxxii) "local council" means a local council constituted or established under a law relating to local government;
- (xxxiii) "motor vehicle" means any mechanically propelled vehicle adapted for use upon land whether its power of propulsion is transmitted thereto from an external or internal source, and includes a chassis to which a body has not been attached, and a trailer, but does not include a vehicle running upon fixed rails;
- (xxxiv) "municipal waste" includes sewage, refuse, garbage, waste from abattoirs, sludge and human excreta and the like;
- (xxxv) "noise" means the intensity, duration and character of sounds from all sources, and includes vibration;
- (xxvi) "non degradable plastic products" means a plastic product which are made from the non-biodegradable substances;
- (xxxvii) "nuclear waste" means waste from any nuclear reactor or nuclear plant or other nuclear energy system, whether or not such waste is radioactive;

- (xxxviii) "Oxo-biodegradable Plastic Products" means a plastic product made of a polymer by adding a pro-degrading additive containing a transition metal salt, except cobalt, which cause the plastic to degrade and bio-grade from oxidative and cell mediated phenomena either simultaneously or successfully;
- (xxxix) "person" means any natural person or legal entity and includes an individual, firm, association, partnership, society, group, company, corporation, co-operative society, Government Agency, non-governmental organization, community-based organization, village organization, local council or local authority and, in the case of a vessel, the master or other person having for the time being the charge or control of the vessel;
- (xxxi) "pollution" means the contamination of air, land or water by the discharge or emission of effluent or wastes or air pollutants or noise or other matter which either directly or indirectly or in combination with other discharges or substances alters unfavorably the chemical, physical, biological, radiational, thermal or radiological or aesthetic properties of the air, land or water or which may, or is likely to make the air, land or water unclean, noxious or impure or injurious, disagreeable or detrimental to the health, safety, welfare or property of persons or harmful to biodiversity;
- (xli) "prescribed" means prescribed by rules made under this Act;
- (xlii) "project" means any activity, plan, scheme, proposal or undertaking involving any change in the environment and includes-
- (a) construction or use of buildings or other works;
 - (b) construction or use of roads or other transport systems;
 - (c) construction or operation of factories or other installations;
 - (d) mineral prospecting, mining, quarrying, stone-crushing, drilling and the like;
 - (e) any change of land use or water use; and
 - (f) alteration, expansion, repair, decommissioning or abandonment of existing buildings or other works, roads or other transport systems, factories or other installations;

- (xliii) "proponent" means the person who proposes or intends to undertake a project;
- (xliv) "regulations" means regulations made under this Act;
- (xlv) "rules" means rules made under this Act;
- (xlii) "sewage" means liquid or semi-solid wastes and sludge from sanitary conveniences, kitchens, laundries, washing and similar activities and from any sewerage system or sewage disposal works;
- (xlvii) "Schedule Plastic Products" means all types of flexible plastic packaging and disposable plastic products made of Polythene, Polypropylene, Polystyrene and Poly-ethylene Terephthalate (PET), used for food and non-food items, like shopping bags, garbage bags, snacks packs, water and milk packaging, shrink wraps, bubble pellet wraps, films, liners, woven or non-woven bags, mulch films;
- (xlviii) "Sindh Environmental Quality Standards" means standards established by the Agency under clause (e) of sub-section(1) of section 6 and approved by the Council under clause (c) of sub-section(1) of section 4 made under this Act;
- (xlix) "standards" means qualitative and quantitative standards for discharge of effluent and wastes and for emission of air pollutants and noise either for general applicability or for a particular area, or from a particular production process, or for a particular product, and includes the Sindh Environmental Quality Standards, emission standards and other standards established under this Act and the rules and regulations;
- (i) "strategic environmental assessment" mean an analysis of a proposed policy, legislation, plan or programme to determine whether the principles of sustainable development have been integrated therein and to identify its likely environmental effects and such components as require an initial environmental examination or environmental impact assessment;
- (ii) "sustainable development" means development that meets the needs of the present generation without compromising the ability of future generations to meet their needs;

- (iii) "trans-boundary environmental impacts" means environmental impact arising from beyond the boundaries or limits of Sindh province and causing any adverse environmental impact or pollution in the air, land, water and coaster water of Sindh province;
- (iii) "waste" means any substance or object which has been, is being or is intended to be, discarded or disposed-of, and includes liquid waste, solid waste, waste gases, suspended waste, industrial waste, agricultural waste, nuclear waste, municipal waste, hospital waste, used polyethylene bags and residues from the incineration of all types of waste.
- (iv) "waters (coastal waters, internal waters, territorial waters and historical waters)" means such limits of the waters adjacent to the land territory as may be specified in the Territorial Waters and Maritime Zones Act, 1976 (LXXXII of 1976).

PART-II

THE SINDH ENVIRONMENTAL PROTECTION COUNCIL.

Establishment of the Sindh Environmental Protection Council.

3. (1) The Government of Sindh shall, by notification in the official Gazette, establish a Council to be known as the Sindh Environmental Protection Council consisting of-

- (i) Chief Minister or such other person as the Chief Minister may nominate in this behalf. **Chairperson**
- (ii) Minister-in-charge of the Environment Protection Department. **Vice Chairperson**
- (iii) Additional Chief Secretary, Planning and Development Department, Government of Sindh. **Ex-officio member**
- (iv) Secretaries of the Environment, Finance, Public Health Engineering, Irrigation, Health, Agriculture, Local Government, Industries, Live Stock and Fisheries, Forest and Wildlife, Energy, Education, Departments of Government of Sindh and the divisional commissioners of Sindh. **Ex-officio members**

- | | | |
|------|---|-----------------------------|
| (v) | Such other persons not exceeding twenty- five as Government may appoint from representatives of the Chambers of Commerce and Industry and industrial associations, representatives of the Chambers of Agriculture, the medical and legal professions, trade unions, non-governmental organizations concerned with the environment and sustainable development, and scientists, technical experts and educationists. | Non-official members |
| vi) | Director General, Sindh Environment Protection Agency | Member / Secretary |
| vii) | Two Members of the Provincial Assembly of Sindh amongst the eleven Members of the Standing Committee on Environment nominated by the Speaker | Members |

2) The Members of the Council, other than ex-officio members, shall be appointed in accordance with the prescribed procedure.

(3) A non-official member, unless he sooner resigns or is removed, shall hold office for a term of three years and shall be eligible for re-appointment but shall not hold office for more than two terms.

(4) The Council shall frame its own rules of procedure.

(5) The Council shall hold meetings, as and when necessary, but not less than two meetings, shall be held in a year.

(6) The Council may constitute committees of its members and entrust them with such functions as it may deem fit, and the recommendations of the committees shall be submitted to the Council for approval.

(7) The Council, or any of its committees, may invite any technical expert or representative of any Government Agency or non-governmental organization or other person possessing specialized knowledge of any subject for assistance in performance of its functions.

4. (1) The Council shall-
- (a) co-ordinate and supervise the enforcement of the provisions of this Act and other laws relating to the environment in the province;
 - (b) approve comprehensive provincial environmental and sustainable development policies and ensure their implementation within the framework of a conservation strategy and sustainable development plan as may be approved by Government from time to time;
 - (c) approve the Sindh Environmental Quality Standards;
 - (d) provide guidelines for the protection and conservation of species, habitats, and biodiversity in general, and for the conservation of renewable and non-renewable resources.
 - (e) coordinate integration of the principles and concerns of sustainable development into socio-economic and development policies, plans and programmes at the provincial, district and local levels;
 - (f) consider the annual Sindh Environment report and give appropriate directions thereon and cause it to be laid before the Provincial Assembly;
 - (g) deal with inter-provincial and federal-provincial issues, and liaise and coordinate with other Provinces through appropriate inter-provincial forums regarding formulation and implementation of standards and policies relating to environmental matters with an inter-provincial impact;
 - (h) provide guidelines for biosafety and for the use of genetically modified organisms; and
 - (i) assist the Federal Government or Federal Agency in implementation and or administration of various provision of United Nation Convention on Laws on Seas, 1980 (UNCLOS) in coastal waters of the province;
- (2) The Council may, either itself or on the request of any person or organization, direct the Agency or any Government Agency to prepare, submit, promote or implement projects for the protection, conservation, rehabilitation and improvement of the environment, the prevention and control of pollution, and the sustainable development of resources or to undertake research in any specified aspect of environment.

PART III
THE SINDH ENVIRONMENTAL PROTECTION AGENCY

5. (1) Government shall, by notification in the Official Gazette, establish the Sindh Environmental Protection Agency, to exercise the powers and perform the functions assigned to it under the provisions of this Act and the rules and regulations made thereunder.

**Establishment
of the Sindh
Environmental
Protection
Agency.**

(2) The Agency shall be headed by a Director General who shall be appointed by Government on such terms and conditions as it may determine.

(3) The Agency shall have such administrative, technical and legal staff as Government may specify, to be appointed in accordance with such procedure as may be prescribed.

(4) The powers and functions of the Agency shall be exercised and performed by the Director General.

(5) The Director General may, by general or special order, delegate any of these powers and functions to staff appointed under sub-section (3).

(6) For assisting the Agency in the discharge of its functions Government shall establish Advisory Committees for various sectors and appoint as members thereof eminent representatives of the relevant sector, educational institutions, research institutes and non-governmental organizations.

6. (1) The Agency shall –

**Functions of the
Agency.**

- (a) administer and implement the provisions of this Act and the rules and regulations;
- (b) prepare, in co-ordination with the appropriate Government Agency or local council and, in consultation with the concerned Advisory Committees where established, environmental policies for the approval of the Council;
- (c) take all necessary measures for the implementation of the environmental policies approved by the Council;
- (d) prepare and publish an annual Sindh Environment Report on the state of the environment in the province;
- (e) prepare or revise and establish the Sindh Environmental Quality Standards with approval of the Council;

Provided that before seeking approval of the Council, the Agency shall publish the proposed Sindh Environmental Quality Standards for public opinion in accordance with the prescribed procedure;

(f) ensure enforcement of the Sindh Environmental Quality Standards;

(g) where the quality of ambient air, water, land or noise so requires, the Agency may, by notification in the Official Gazette establish different standards for discharge or emission from different sources and for different areas and conditions as may be necessary;

Provided that where these standards are less stringent than the Sindh Environmental Quality Standards; prior approval of the Council shall be obtained;

(h) establish systems and procedures for surveys, surveillance, monitoring, measurement, examination, investigation, research, inspection and audit to prevent and control pollution, and to estimate the costs of cleaning up pollution and rehabilitating the environment in various sectors;

(i) take measures to promote research and the development of science and technology which may contribute to the prevention of pollution, protection of the environment, and sustainable development;

(j) issue licences, approval for the consignment, handling, transport, treatment, disposal of, storage, handling or otherwise dealing with hazardous substances;

(k) certify laboratories as approved laboratories for conducting tests and analysis and one or more research institutes as environmental research institutes for conducting research and investigation for the purposes of this Act;

(l) identify the needs for and initiate legislation in various sectors of the environment;

(m) provide assistance to relevant Federal and Provincial Government Agencies in the management of environment accidents and natural and environmental disasters, including conduct of inquiry thereto;

(n) render advice and assistance in environmental matters including such information and data available with it as may be required for carrying out the purposes of this Act;

Provided that the disclosure of such information shall be subject to the restrictions specified in Part XI (Access to Information);

- (o) assist Government Agencies, local councils, local authorities and other persons to implement schemes for the proper disposal of wastes so as to ensure compliance with the Sindh Environmental Quality Standards;
 - (p) provide information and guidance to the public on environmental matters;
 - (q) recommend environmental courses, topics, literature and books for incorporation in the curricula and syllabi of educational institutions;
 - (r) promote public education and awareness of environmental issues through mass media and other means including seminars and workshops;
 - (s) establish and maintain mechanisms, including its own website, to disseminate information, subject to the provisions of this Act, regarding policies, plans and decisions of the Government, the Council and the Agency, relating to the environment;
 - (t) specify safeguards for the prevention of accidents and disasters which may cause pollution, collaborate with the concerned persons in the preparation of contingency plans for control of such accidents and disasters, and co-ordinate implementation of such plans;
 - (u) review and approve mitigation plans and give guidance and directions, where necessary, relating to clean up operations ordered under this Act;
 - (v) encourage the formation and working of non-governmental organizations, community organizations and village organizations to prevent and control pollution and promote sustainable development;
 - (w) take or cause to be taken all necessary measures for the protection, conservation, rehabilitation and improvement of the environment, prevention and control of pollution and promotion of sustainable development; and
 - (x) perform any function that the Council may assign to it.
- (2) The Agency may-
- (a) undertake inquiries or investigation into environmental issues, either of its own accord or upon complaint from any person or organization;
 - (b) request any person to furnish any information or data relevant to its functions;

- (c) initiate, with the approval of Government, requests for foreign assistance in support of the purposes of this Act and enter into arrangements with foreign agencies or organizations for the exchange of material or information and participate in international seminars or meetings;
- (d) recommend to Government and the Council the adoption of financial and fiscal programmes, schemes or measures for achieving environmental objectives and goals and the purposes of this Act, including -
 - (i) taxes, duties, cesses and other levies; and
 - (ii) incentives, prizes, awards, rewards, subsidies, tax exemptions, rebates and depreciation allowances;
- (e) establish and maintain laboratories to help in the performance of its functions under this Act and to conduct research in various aspects of the environment and provide or arrange necessary assistance for the establishment of similar laboratories in the private sector;
- (f) arrange, in accordance with such procedure as may be prescribed, financial assistance for projects designed to facilitate in discharge of its functions; and
- (g) acquire assistance of concerned authorities of district administration and other relevant agencies, departments and police assistance for enforcement of this Act.

**Power of the
Agency**

7. Subject to the provisions of this Act, the Agency may-

- (a) lease, purchase, acquire, own, hold, improve, use or otherwise deal in and with any property both moveable and immovable;
- (b) sell, convey, mortgage, pledge, exchange or otherwise dispose of its property and assets;
- (c) fix and realize fees, rates and charges for rendering any service or providing any facility, information or data under this Act or its rules and regulations;
- (d) enter into contracts, execute instruments, incur liabilities and do all acts or things necessary for proper management and conduct of its business;
- (e) appoint, with the approval of Government and in accordance with such procedures as may be prescribed, such advisers, experts and consultants as it considers necessary for the efficient performance of its functions on such terms and conditions as it may deem fit;
- (f) summon and enforce the attendance of any person and require him to supply any information or document needed for the conduct of any enquiry or investigation into any environmental issue;

- (g) Director General may authorize any officer or official to enter and inspect or under a search warrant issued by Environmental Protection Tribunal or a Court, search at any time, any land, building, premises, vehicle or vessel or other place where or in which there are reasonable grounds to believe that an offence under this Act has been, or is being, or likely to be committed;
- (h) take samples of any materials, products, articles or substances or of the effluent, wastes or air pollutants being discharged or emitted or of air, water or land in the vicinity of the discharge or emission;
- (i) arrange for the testing and analysis of samples at a certified laboratory;
- (j) confiscate any article used in the commission of the offence where the offender is not known or cannot be found within a reasonable time:

Provided that the powers under clauses (f), (g), (h) (i), and (j) shall be exercised in accordance with the provisions of the Code of Criminal Procedure, 1898 (Act V of 1898) or the rules and regulations and under the direction of the Environmental Protection Tribunal or a Court; and

- (k) establish the Sindh Environmental Co-ordination Committee comprising the Director-General as its Chairman and such other persons as Government shall appoint as its members to exercise such powers and perform such functions as shall be delegated or assigned to it by Government for carrying out the purposes of this Act and for ensuring coordination among Government Agencies in implementation of environmental policies.

PART IV SINDH SUSTAINABLE DEVELOPMENT FUND

8. (1) There shall be established a Sindh Sustainable Development Fund.

**Establishment of
the Sindh
Sustainable
Development
Fund.**

- (2) The Sindh Sustainable Development Fund shall be derived from the following sources, namely—

- (a) allocations and grants made or loans advanced by the Government of Sindh or by the Federal Government;
- (b) aid and assistance, grants, advances, donations and other non-obligatory funds received from foreign governments, national or international agencies, and non-governmental organizations: and

- (c) voluntary contributions from private, corporate, multinational organizations and other persons.
- (d) Any fees generated under the provision of this act including the fines imposed against contraventions including penalties.
- (3) The Sindh Sustainable Development Fund shall be utilized, in accordance with such procedures as may be prescribed for -
 - (a) providing financial assistance to projects designed for the protection, conservation, rehabilitation and improvement of the environment, the prevention and control of pollution, the sustainable development of resources and for research in any specified aspect of the environment; and
 - (b) any other purposes which, in the opinion of the Board, will help achieve environment objectives and the purposes of this Act.

9. (1) The Sindh Sustainable Development Fund shall be managed by a Board known as the Provincial Sustainable Development Fund Board consisting of— **Management of the Sindh Sustainable Development Fund.**

- (i) Additional Chief Secretary, Planning and Development Department, Government of Sindh, **Chairperson**
- (ii) Such officers of Government, not exceeding five (05), as Government may appoint including Secretaries of the Environment, Finance, Industries and Local Government Departments, Government of Sindh. **Ex-officio Members**
- (iii) Such non-official persons, not exceeding five (05), as Government may appoint, including representatives of the Chambers of Commerce and Industry, non-governmental organizations and major donors. **Non-official Members**
- (iv) Director General, Sindh Environmental Protection Agency. **Secretary/ Member**

(2) The members of the Board, other than ex-officio member shall be appointed in accordance with the prescribed procedure.

(3) A non-official member of the Board, unless he sooner resigns or is removed, shall hold office for a term of three years and shall be eligible for re-nomination, but shall not hold office for more than two terms.

(4) The Board shall frame its own rules of procedure with the approval of Government.

(5) In accordance with such procedures and such criteria as may be prescribed, the Board shall have the power to —

- (a) sanction financial assistance for eligible projects;
- (b) invest moneys held in the Sindh Sustainable Development Fund in such profit-bearing Government bonds, saving schemes and securities as it may deem suitable; and
- (c) take such measures and exercise such powers as may be necessary for utilization of the Sindh Sustainable Development Fund for the purposes specified in sub-section (3) of section 8.

(6) The Board shall constitute committees of its members to undertake regular monitoring of projects financed from the Sindh Sustainable Development Fund and to submit progress reports to the Board which shall publish an Annual Report incorporating its annual audited accounts and performance evaluation based on the progress reports.

10.(1) The Agency shall maintain proper accounts of the Sindh Sustainable Development Fund and other relevant records and prepare annual statement of accounts in such form as may be prescribed. **Accounts**

(2) The accounts of the Sindh Sustainable Development Fund shall be audited annually by the Auditor General of Pakistan.

PART V PROHIBITIONS AND ENFORCEMENT

11. (1) Subject to the provisions of this Act and the rules and regulations, no person shall discharge or emit or allow the discharge or emission of any effluent, waste, pollutant, noise or any other matter that may cause or likely to cause pollution or adverse environmental effects, as defined in section 2 of this Act, in an amount, concentration or level which is in excess to that specified in Sindh Environmental Quality Standards; or, where applicable, the standards established under Section 6(1)(g)(i); or direction issued under Section 17, 19, 20 and 21 of this Act; or any other direction issued, in general or particular, by the Agency.

Prohibition of certain discharges or emissions and compliance with standards.

(2) All persons, in industrial or commercial or other operations, shall ensure compliance with the Environmental Quality Standards for ambient air, drinking water, noise or any other Standards established under section 6(1)(g)(i); shall maintain monitoring records for such compliances; shall make available these records to the authorized person for inspection; and shall report or communicate the record to the Agency as required under any directions issued, notified or required under any rules and regulations.

(3) Monitoring and analysis under sub-section (1) and (2), shall be acceptable only when carried out by the Environmental Laboratory certified by the Agency as prescribed in the rules.

12. No person shall import hazardous waste into Sindh province or its coastal, internal, territorial or historical waters, except acquiring prior approval of the Agency.

Prohibition of import of hazardous waste.

13. Subject to the provisions of this Act, no person shall import, generate, collect, consign, transport, treat, dispose of, store, handle or otherwise use or deal with any hazardous substance except-

Handling of hazardous substances.

(a) under a licence issued by the Agency; or

(b) in accordance with the provisions of any other law, rule, regulation or notification for the time being in force, or of any international treaty, convention, protocol, code, standard, agreement or other instrument to which Government is a party.

14. (1) Subject to the provisions of this Act and the rules and regulations, no person shall cause any act, deed or any activity, including-

Prohibition of action adversely affecting Environment.

(a) recycling or reuse of hospital waste and infectious waste;

(b) disposal of solid and hazardous wastes at unauthorized places as prescribed;

(c) dumping of wastes or hazardous substances into coastal waters and inland water bodies;

(d) release of emissions or discharges from industrial or commercial operations as prescribed;

(e) recycling or reuse or recovery of hazardous wastes or industrial by-products in an unauthorized or non-prescribed manner or procedure; and

18

(f) any activity which may cause adverse environmental affect due to trans boundary projects of Province of Sindh.

which lead to pollution or impairment of or damage to biodiversity, ecosystem, aesthetics or any damage to environment and natural resources as defined in section 2 (xxxvi) of this Act.

(2) No person shall generate, handle, transport, dispose of or handle the hospital waste and infections waste except in accordance with the Hospital Waste Management Rules and in such manner as may be prescribed.

(3) No person shall import, manufacture, stockpile, trade, supply, distribute or sell any scheduled plastic product which is non-degradable. The scheduled plastic products must be oxo-biodegradable and the pro-degradant used must be approved by the Agency or any other department or agency and in such manner as prescribed.

15. (1) Subject to the provisions of this Act, no person shall operate or manufacture a motor vehicle or class of vehicles from which air pollutants or noise are being emitted in an amount, concentration or level which is in excess of the Sindh Environmental Quality Standards or, where applicable, the standards established under sub-clause (i) of clause (g) of sub-section (1) of section 6.

**Regulation of
motor vehicles.**

(2) For ensuring compliance with the standards mentioned in sub-section (1), the Agency may direct that any motor vehicle or class of vehicles shall install such pollution control devices or other equipment or use such fuels or undergo such maintenance or testing as prescribed.

(3) For ensuring compliance with the standards mentioned in sub-section (1), the Agency may direct that any manufacturer of motor vehicle or class of vehicles shall use such manufacturing standard or design or pollution control devices or other equipment or undergo such testing as may be prescribed.

(4) Where a direction has been issued by the Agency under sub-section (2) and (3) in respect of any motor vehicles or class of motor vehicles, no person shall operate or manufacture any such vehicle till such direction has been complied with.

16. (1) The monitoring, testing and analysis carried out in compliance or for the enforcement of any provisions of this Act.

**Certified
Environmental
Laboratory**

(2) The laboratory or organization having any facility for environmental monitoring, testing and analysis and intend to perform under sub-section (1) shall register with the Agency in accordance with the Environmental Laboratory Certification Rules as prescribed.

PART VI
ENVIRONMENTAL EXAMINATIONS AND ASSESSMENTS

17. (1) No proponent of a project shall commence construction or operation unless he has filed with the Agency an initial environmental examination or environmental impact assessment, and has obtained from the Agency approval in respect thereof.

**Initial
environmental
examination
and
environmental
impact
assessment.**

(2) The Agency shall –

(a) review the initial environmental examination and accord its approval, subject to such terms and conditions as it may prescribe, or require submission of an environmental impact assessment by the proponent; or

(b) review the environmental impact assessment and accord its approval subject to such terms and conditions as it may deem fit to impose or require that the environmental impact assessment be re-submitted after such modifications as may be stipulated or decline approval of the environmental impact assessment as being contrary to environmental objectives.

(3) Every review of an environment impact assessment shall be carried out with public participation and, subject to the provisions of this Act, after full disclosure of the particulars of the project.

(4) The Agency shall communicate its approval or otherwise within a period of two months from the date that the initial environmental examination is filed, and within a period of four months from the date that the environmental impact assessment is filed complete in all respects in accordance with the regulations, failing which the initial environmental examination or, as the case may be, the environmental impact assessment shall be deemed to have been approved, to the extent to which it does not contravene the provisions of this Act and the rules and regulations:

(5) The provisions of sub-sections (1), (2), (3) and (4) shall apply to such categories of projects and in such manner as prescribed:

(6) The Agency shall maintain separate registers for initial environmental examination and environmental impact assessment projects, which shall contain brief particulars of each project and a summary of decisions taken thereon, and which shall be open for inspection to the public during office hours.

20

18. (1) All provincial government agencies, departments, authorities, local councils and local authorities responsible for formulating policies, legislation, plans and programmes to be implemented in Sindh province which may cause any environmental impact in the jurisdiction of the province shall, before submitting the same to the competent authority for approval, forward to the Sindh Environmental Protection Agency a strategic environment assessment containing —

**Strategic
environmental
assessment.**

- (a) description of the objectives and features of the proposed policy, legislation, plan or programme that are in consonance with the principles of sustainable development;
 - (b) assessment of the adverse environmental effects, if any, likely to be caused during implementation of the policy, legislation, plan or programme along with proposed preventive, mitigation and compensatory measures;
 - (c) analysis of possible alternatives; and
 - (d) identification of those components of the policy, legislation, plan or programme, if any, in respect of which specific environmental impact assessment need to be carried out in due course.
- (2) The Agency shall, in consultation with the concerned Government Agencies and Advisory Committees where established, review the strategic environment assessment, within sixty (60) days of its filing, and prepare a report containing its comments and recommendations in respect thereof which shall be forwarded to the initiating Government Agency, authority, local council or local authority and duly considered by it and the competent authority before approval or otherwise of the proposed policy, legislation, plan or programme.
- (3) The provisions of sub-sections (1), and (2) shall apply to such categories of policies, plans and programmes and in such manner as may be prescribed.

19. (1) The Agency shall carry out or arrange environmental monitoring of all projects in respect of which it has approved an initial environmental examination or environmental impact assessment to determine whether the actual environmental impact exceeds the level predicted in the assessment and whether the conditions of the approval are being complied with.

**Environmental
monitoring.**

(2) For purposes of sub-section (1), the Agency may require the person in charge of a project to furnish such information as it may specify pertaining to the environmental impact of the project, including quantitative and qualitative analysis of -

(a) discharge of effluents, wastes, emissions of air pollutants, noise and any other matter or action that may be found offensive under section 14 from the project on daily, weekly, monthly or annual basis;

(b) ambient quality of the air, water, noise and soil before, during and after construction and during operation of the project.

(3) On review of the data collected by it and information provided, the Agency may issue such directions to the person in charge as it may consider necessary to ensure compliance with the conditions of the approval.

20. (1) The Agency shall from time to time require the person in charge of a project to furnish, within such period as may be specified, an environmental audit or environmental review report or environmental management plan containing a comprehensive appraisal of the environmental aspects of the project.

**Environmental
Audit and
Review**

(2) The report of a project prepared under sub-section (1) shall include -

(a) analysis of the predicted qualitative and quantitative impact of the project as compared to the actual impact;

(b) evaluation of the efficacy of the preventive, mitigation and compensatory measures taken with respect to the project; and

(c) recommendations for further minimizing or mitigating the adverse environmental impact of the project.

(3) Based on its review of the environmental audit report, the Agency may, after giving the person in charge of the project an opportunity of being heard, direct that specified mitigation and compensatory measures be adopted within a specified time period and may also, where necessary, modify the approval granted by it under section 17.

PART VII ENVIRONMENTAL PROTECTION ORDER

21. (1) Where the Agency is satisfied that the discharge or emission of any effluent, waste, air pollutant or noise, or the disposal of waste, or the handling of hazardous substances, or any other act or omission is likely to occur, or is occurring, or has occurred, in violation of any provision of this Act, the rules or regulations or of the conditions of a licence, or is likely to cause, or is causing or has caused an adverse environmental effect, the Agency may, after giving the person responsible for such

**Environmental
Protection
Order.**

discharge, emission, disposal, handling, act or omission an opportunity of being heard, by order direct such person to take such measures as the Agency may consider necessary within such period as may be specified in the order.

(2) In particular and without prejudice to the generality of the foregoing power, such measures may include —

- (a) immediate stoppage, preventing, lessening or controlling the discharge, emission, disposal, handling, act or omission, or to minimize or remedy the adverse environmental effect;
- (b) installation, replacement or alteration of any equipment or thing to eliminate, control or abate on a permanent or temporary basis, such discharge, emission, disposal, handling, act or omission;
- (c) action to remove or otherwise dispose of the effluent, waste, air pollutant, noise, or hazardous substances;
- (d) action to restore the environment to the condition existing prior to such discharge, disposal, handling, act or omission, or as close to such condition as may be reasonable in the circumstances, to the satisfaction of the Agency; and
- (e) impose a penalty as prescribed.

(3) Notwithstanding the provisions of sub-section (1), in an emergency situation where, for reasons to be recorded, the Agency is satisfied that the discharge or emission of any effluent, waste, air pollutant or noise, or the disposal of waste, or the handling of hazardous substances, or any other act or omission is likely to occur, or is occurring, or has occurred, in violation of the provisions of this Act and that circumstances of the case warrant immediate action in the public interest, it may pass an ad-interim order of the nature described in sub-sections (1) and (2) by providing reasonable opportunity of hearing.

PART VIII OFFENCES AND PENALTIES

22. (1) Whoever contravenes or fails to comply with the provisions of sections 11, 17, 18 and 21 or any order issued there under shall be punishable with a fine which may extend to five million rupees, to the damage caused to environment and in the case of a continuing contravention or failure, with an additional fine which may extend to one hundred thousand rupees for every day during which such contravention or failure continues:

Provided that if the contravention of the provisions of section 11 also constitutes a contravention of the provisions of section 15, such contravention shall be punishable under sub-section (2).

Penalties.

(2) Whoever contravenes or fails to comply with the provisions of sections 13, 14, 15 and 16 or any rule or regulation or conditions of any license, any order or direction, issued by the Agency, shall be punished with a fine, and in case of continuing contravention or failure with an additional fine which may extend to ten thousand rupees for every day during which such contravention continues.

(3) Where an accused has been convicted of an offence under sub-sections (1) and (2), the Environmental Protection Tribunal and Court shall, as the case may be, in passing sentence, take into account the extent and duration of the contravention or failure constituting the offence and the attendant circumstances.

(4) Where an accused has been convicted of an offence under sub-sections (1) or (2), the Environmental Protection Tribunal or Court, as the case may be, shall endorse a copy of the order of conviction to the concerned trade or industrial association, if any, or the concerned Provincial Chamber of Commerce and Industry or the Federation of Pakistan Chambers of Commerce and Industry.

(5) Where a person convicted under sub-sections (1) and (2) had been previously convicted for any contravention of this Act and its rules or regulations, the Environmental Protection Tribunal, as the case may be, may, in addition to the punishment awarded thereunder-

- (a) sentence him to imprisonment for a term that may extend up to three years;
- (b) order the closure of the factory;
- (c) order confiscation of the facility, machinery and equipment, vehicle or substance, record, document or other object used or involved in contravention of the provisions of this Act;
- (d) order such person to restore the environment at his own cost, to conditions existing prior to the contravention or as close to such conditions as may be reasonable in the circumstances to the satisfaction of the Agency; and
- (e) order that compensation be paid to any person or persons for any loss, or damage to their health or property suffered by such contravention.

(6) The Director General or an officer generally or specially authorised by him in this behalf may, on the application of the accused, compound an offence under this Act with the permission of the Environmental Protection Tribunal or Court in accordance with such procedure as prescribed.

(7) Where the Director General is of the opinion that a person had contravened any provision of this Act, he may, subject to the rules, by notice in writing to that person require him to pay to the Agency a penalty in the amount set out in the notice for each day the contravention continues.

23. Where any contravention of this Act has been committed by a body corporate, and it is proved that such offence has been committed with the consent or connivance of, or is attributed to any negligence on the part of, any director, partner, manager, secretary or other officer of the body corporate, such director, partner, manager, secretary or other officer of the body corporate, shall be deemed guilty of such contravention along with the body corporate and shall be punished accordingly:

**Offences by
body
corporate.**

Provided that in the case of a company as defined under the Companies Ordinance, 1984 (XLVII of 1984), only the Chief Executive as defined in the said Ordinance shall be liable under this section.

Explanation.— For the purposes of this Section, "body corporate" includes a firm, association of persons and a society registered under the Societies Registration Act, 1860 (XXI of 1860), or under the Co-operative Societies Act, 1925 (VII of 1925).

24. Where any contravention of this Act has been committed by any Government Agency, local authority or local council, and it is proved that such contravention has been committed with the consent or connivance of, or is attributable to any negligence on the part of, the Head or any other officer of Government Agency, local authority or local council, such Head or other officer shall also be deemed guilty of such contravention along with the Government Agency, local authority or local council and shall be liable to be proceeded against and punished accordingly.

**Offences by
Government
Agencies, local
authorities or
local councils.**

PART IX ENVIRONMENTAL PROTECTION TRIBUNALS AND COURTS

25. (1) Government may, by Notification in the Official Gazette, establish as many Environmental Protection Tribunals as it considers necessary and, where it establishes more than one Environmental Protection Tribunal, it shall specify territorial limits within which, or the class of cases in respect of which, each one of them shall exercise jurisdiction under this Act.

**Environmental
Protection
Tribunals.**

(2) An Environmental Protection Tribunal shall consist of a Chairperson who is, or has been, or is qualified for appointment as a Judge of the High Court to be appointed after consultation with the Chief Justice of the High Court and two members to be appointed by Government, of which at least one shall be a technical member nominated from amongst the officers of the Agency with suitable professional qualifications and experience in the environmental field.

(3) For every sitting of the Environmental Protection Tribunal, the presence of the Chairperson and not less than one Member shall be necessary.

(4) A decision of an Environmental Protection Tribunal shall be expressed in terms of the opinion of the majority of its members, including the Chairperson, or if the case has been decided by the Chairperson and only one of the members and there is a difference of opinion between them, the decision of the Environmental Protection Tribunal shall be expressed in terms of the opinion of the Chairperson.

(5) An Environmental Protection Tribunal shall not, merely by reason of a change in its composition, or the absence of any member from any sitting, be bound to recall and rehear any witness who has given evidence, and may act on the evidence already recorded by, or produced, before it.

(6) An Environmental Protection Tribunal may hold its sittings at such places within its territorial jurisdiction as the Chairperson may decide.

(7) No act or proceeding of an Environmental Protection Tribunal shall be invalid by reason only of the existence of a vacancy in, or defect in the constitution, of, the Environmental Protection Tribunal.

(8) The terms and conditions of service of the Chairperson and members of the Environmental Protection Tribunal shall be such as may be prescribed.

26. (1) An Environmental Protection Tribunal shall exercise such powers and perform such functions as are, or may be, conferred upon or assigned to it by or under this Act or the rules and regulations.

(2) All contraventions punishable under sub-section (1) of section 22 shall exclusively be triable by an Environmental Protection Tribunal.

(3) An Environmental Protection Tribunal shall not take cognizance of any offence triable under sub-section (2) except on a complaint in writing by—

- (a) the Agency or any Government Agency or local council; and
- (b) any aggrieved person, who has given notice of not less than thirty days to the Agency, of the alleged contravention and of his intention to make a complaint to the Environment Protection Tribunal.

**Jurisdiction
and powers of
Environmental
Protection
Tribunals.**

(4) In exercise of its criminal jurisdiction, the Environmental Protection Tribunal shall have the same powers as are vested under the Code of Criminal Procedure, 1898 (Act V of 1898).

(5) In exercise of the appellate jurisdiction under section 27 the Environmental Protection Tribunal shall have the same powers and shall follow the same procedure as an appellate court in the Code of Civil Procedure, 1908 (Act V of 1908).

(6) In all matters with respect to which no procedure has been provided for in this Act, the Environmental Protection Tribunal shall follow the procedure laid down in the Code of Civil Procedure, 1908 (Act V of 1908).

(7) An Environmental Protection Tribunal may, on application filed by any officer duly authorised in this behalf by the Director General, issue bailable warrant for the arrest of any person against whom reasonable suspicion exists, of his having been involved in contravention punishable under sub-section (1) of section 22:

Provided that such warrant shall be applied for, issued and executed in accordance with the provisions of the Code of Criminal Procedure, 1898 (Act V of 1898):

Provided further that if the person arrested executes a bond with sufficient sureties in accordance with the endorsement on the warrant he shall be released from custody, failing which he shall be taken or sent without delay to the officer in-charge of the nearest jurisdiction police station.

(8) All proceedings before the Environmental Protection Tribunal shall be deemed to be judicial proceedings within the meaning of sections 193 and 228 of the Pakistan Penal Code (Act XLV of 1860), and the Environmental Protection Tribunal shall be deemed to be a court for the purpose of sections 480 and 482 of the Code of Criminal Procedure, 1898 (Act V of 1898).

(9) No court other than an Environmental Protection Tribunal shall have or exercise any jurisdiction with respect to any matter to which the jurisdiction of an Environmental Protection Tribunal extends under this Act and the rules and regulations.

(10) Where the Environmental Protection Tribunal is satisfied that a complaint made to it under sub-section (3) is false and vexatious to the knowledge of the complainant, it may, by an order, direct the complainant to pay to the person complained against such compensatory costs which may extend to one hundred thousand rupees.

27. (1) Any person aggrieved by any order or direction of the Agency under any provision of this Act or the rules or regulations may prefer an appeal with the Environmental Protection Tribunal within thirty days of the date of communication of the impugned order or direction to such person.

**Appeals to the
Environmental
Protection
Tribunal.**

(2) An appeal to the Environmental Protection Tribunal shall be in such form, contain such particulars and be accompanied by such fees as prescribed.

28. (1) Any person aggrieved by any final order or by any sentence of the Environmental Protection Tribunal passed under this Act may, within thirty days of communication of such order or sentence, prefer an appeal to the High Court.

**Appeals from
orders of the
Environmental
Protection
Tribunal.**

(2) An appeal under sub-section (1) shall lie before the High Court of Sindh.

29. (1) Notwithstanding anything contained in the Code of Criminal Procedure, 1898 (Act V of 1898), or any other law for the time being in force, but subject to the provisions of this Act, all contraventions punishable under sub-section (2) of section 22 shall exclusively be triable by the Court of Judicial Magistrate of First Class having of First Class having jurisdiction.

**Jurisdiction of
Judicial
Magistrate.**

(2) A Judicial Magistrate shall be competent to impose any punishment specified in sub-sections (2) and (4) of section 22.

(3) A Judicial Magistrate shall not take cognizance of an offence triable under sub-section (1) except on a complaint in writing by—

(a) the Agency; and

(b) any aggrieved person.

30. Any person aggrieved by any final order or sentence passed by a Judicial Magistrate under section 28 may, within thirty days from the date of the communication of such order or sentence, appeal to the Court of the District and Sessions Judge defined as Green Court under this Act, whose decision thereon shall be final.

**Appeals from
orders of the
Judicial
Magistrate.**

**PART X
PUBLIC PARTICIPATION**

31.(1)The Agency shall cause relevant details of any proposed project regarding which an Environmental Impact Assessment has been received to be published, along with an invitation to the public to furnish their comments thereon within a specified period.

Public participation.

(2) In accordance with such procedure as may be prescribed, the Agency shall hold public hearings to receive additional comments and hear oral submissions.

(3) All comments received under sub-sections (1) and (2) shall be duly considered by the Agency while reviewing the environmental impact assessment or strategic impact assessment, and decision or action taken thereon shall be communicated to the persons who have furnished the said comments.

**PART XI
GENERAL**

32. The Agency may, by notification in the official Gazette, make and amend the schedule.

Power to make and amend schedule.

33. No suit, prosecution or other legal proceedings shall lie against Government, the Council, the Agency, the Director General of the Agency, members, officers, employees, experts, advisors, committees or consultants of the Agency or Environmental Protection Tribunal or Court or any other person for anything which is done or intended to be done in good faith under this Act or rules or regulations.

Indemnity

34. Any dues recoverable by the Agency under this Act and rules or regulations shall be recoverable as arrears of land revenue.

Dues recoverable as arrears of land revenue.

35. The provisions of this Act shall have effect notwithstanding anything inconsistent therewith contained in any other law for the time being in force.

Act to override other laws.

36. The Sindh Environment Protection Agency may, by notification in the Official Gazette, make rules for carrying out the purposes not in consistence of this Act with the approval of Government.

Power to make rules.

37. (1) For carrying out the purposes of this Act, the Agency may, by Notification in the Official Gazette and with the approval of Government, make regulations not inconsistent with the provisions of this Act or the rules.

Power to make regulations.

(2) In particular and without prejudice to the generality of the foregoing power, such regulations may provide for —

- (a) submission of periodical reports, data or information by any Government Agency, local authority or local council in respect of environmental matters;
- (b) preparation of emergency contingency plans for coping with environmental hazards and pollution caused by accidents, natural disasters and calamities;
- (c) appointment of officers, advisors, experts, consultants and employees;
- (d) levy of fees, rates and charges in respect of services rendered, actions taken and schemes implemented;
- (e) monitoring and measurement of discharges and emissions;
- (f) categorization of projects to which, and the manner in which sections 17, 18 and 20 applies;
- (g) laying down of guidelines for preparation of initial environmental examination, environmental impact assessment and strategic environmental assessment, and development of procedures of their filing, reviews and approval.
- (h) laying down standard operating procedures for environmental sampling, examination of water, waste water, gaseous emissions, solid waste and noise;
- (i) providing procedures for handling hazardous substances; and
- (j) installation of devices in, use of fuels by, and maintenance and testing of motor vehicles for control of air and noise pollution.

Annexure 3: SEPA (Environmental Assessment) Regulations, 2021.



**GOVERNMENT OF SINDH
SINDH ENVIRONMENTAL PROTECTION AGENCY**

Karachi dated the 03rd September, 2021

NOTIFICATION

NO.EPA/TECH/739/2021:- In exercise of the powers conferred by section 37 of the Sindh Environmental Protection Act, 2014, the Sindh Environmental Protection Agency, with the approval of Government, is pleased to make the following regulations, namely:-

1. Short title and commencement

- (1) These regulations may be called the Sindh Environmental Protection Agency (Environmental Assessment) Regulations, 2021.
- (2) They shall come into force at once.

2. Definitions. -

- (1) In these regulations, unless there is anything repugnant in the subject or context
 - (a) "Act" means the Sindh Environmental Protection Act, 2014 (VIII of 2014);
 - (b) "Agency" means the Sindh Environmental Protection Agency as defined under section 2(ii);
 - (c) "Director General" means the Director General of the Agency;
 - (d) Environmental Checklist means rapid environmental assessment or environmental screening through a prescribed checklist in respect of projects having least/minimal impacts on the environment.
 - (e) "Firm" means the Environmental Consulting Firm registered by the Agency.
 - (f) "Environmentally sensitive area" means a location, large or small, that has significant environmental values that contribute to maintaining biological diversity and integrity, have intrinsic or attributed scientific, historical or cultural heritage value, or are important in providing amenity, harmony or sense of community, ecosystem as declared by Agency.
 - (g) "Protected area" means any area which safeguards the earth's precious bio-diversity, protected areas of natural beauty and conservation of cultural significance as declared by relevant authority;
 - (h) "Schedule" means the Schedules provided in these regulations;

- (i) “Urban area” means an area within the limits of a town, municipality or city as determined by the Agency on the basis of population and environmental issues
 - (2) All other words and expressions used but not defined in these regulations shall have the same meaning as are assigned to them in the Act.
- 3. Projects requiring Environmental Checklist (EC)**

A proponent of a project falling in any category listed in Schedule-I shall file environmental checklist with the Agency and the provisions of section 17 shall apply to such projects.
- 4. Projects requiring an Initial Environmental Examination (IEE)**

A proponent of a project falling in any category listed in Schedule-II shall file an IEE with the Agency, and the provisions of section 17 shall apply to such projects.
- 5. Projects requiring an Environmental Impact Assessment (EIA)**

A proponent of a project falling in any category listed in Schedule-III shall file an EIA with the Agency, and the provisions of section 17 shall apply to such projects.
- 6. Projects not requiring an Environmental Assessment**
 - (1) A project not falling in any category listed in Schedules-I, II and III shall not be required to file an EC, IEE or EIA
 - (2) Notwithstanding anything contained in sub-regulation (1), the Agency may direct the proponent of a project, whether or not listed in Schedule I or II or III, to file an EC or IEE or EIA, for reasons to be recorded in such direction:

Provided that no such direction shall be issued without the recommendations in writing of the Advisory Committee constituted under regulations 21.
- 7. Preparation of environmental assessment report**
 - (1) The Agency may issue guidelines for preparation of an EC or IEE or EIA reports including guidelines of general applicability, and sectoral guidelines indicating specific assessment requirements for planning, construction and operation of projects relating to particular sector.
 - (2) The Agency may issue guidelines for preparation scope of an Environmental Management Plan(EMP) or Environmental Audit(EA).
 - (3) Where guidelines have been issued under sub-regulation (1) & (2), an EC, IEE or EIA or EMP or EA shall be prepared, to the extent practicable, in accordance therewith and the proponent shall justify any departure therefrom.
- 8. Review Fees**

The proponent shall pay, at the time of submission of an EC, IEE or EIA or EMP or BTS tower a non-refundable review fee to the Agency as prescribe in Schedule-IV.

9. Filing of report

- (1) Two hard copies and two electronic copies for an EC or IEE or EIA report shall be filed with the Agency by the proponent. The Agency may require the proponent to submit additional copies, as and when required during the review process.
- (2) Every EC, IEE and EIA shall be accompanied by -
 - (a) an application, in the form prescribed in Schedule-V;
 - (b) Copy of receipt showing payment of review fee as prescribed in Schedule-IV

10. Preliminary Scrutiny

- (1) Any report filed by the proponent or applicant shall be returned, if found incomplete in terms of Regulation 9.
- (2) Notwithstanding anything contained in sub-regulation (1) of regulation 12, the Agency may require the proponent to submit an additional information at any stage during the review process.

11. Public participation

- (1) In the case in an EIA, the Agency shall issue a public notice to be published in widely circulated English or Urdu or Sindhi national newspaper and in a local newspaper of general circulation in the area affected by the project, mentioning the type of project, its exact location, the name and address of the proponent and the date, time and place of public hearing for inviting comments from primary stakeholders.
- (2) The date fixed under sub-regulation (1) shall not be earlier than ten days from the date of publication of the notice.
- (3) The Agency shall also ensure the circulation of the EIA, where necessary, to the concerned Government Agencies and solicit their comments thereon.
- (4) All comments received by the Agency from the public or any Government Agency shall be duly considered before issuance of decision.
- (5) The Agency may issue guidelines indicating the basic techniques and measures to be adopted to ensure effective public consultation, involvement and participation in EIA assessment.

12. Review process

- (1) Notwithstanding anything contained in sub section (4) of Section 17, the Agency shall make every effort to conclude its review process of the EA, EMP or environmental checklist within fifteen days, of the IEE within thirty days, and of the EIA within sixty days after receiving of complete case.
- (2) In reviewing an EIA, the Agency shall consult such Committee of Experts be constituted for the purpose by the Director General, and may also solicit views of concerned Advisory Committee, if any, constituted by the Agency.

- (3) The Director General may, where considers it necessary, constitute a committee to inspect the site of the project and submit its report on such matters as may be specified.
- (4) In reviewing the IEE, the Director General may constitute a committee of the officers from within the Agency, on case to case basis, in view of the jurisdiction and location of the project for the purpose to extend final recommendation about the approval or rejection of the IEE.
- (5) The review of the IEE or EIA by the Agency shall be based on quantitative and qualitative assessment of the documents and data furnished by the proponent, comments from the public and Government Agencies received under regulation 12, and views of the committees mentioned in sub-regulations (2) and (3) above.
- (6) EMP, EA, EC shall be reviewed as per guidelines issued by SEPA

13. Decision

- (1) The documentary evidence in the form of videos (soft copies) of public hearing shall be submitted by the proponent within three days after conclusion of public hearing to the Agency.
- (2) On completion of the review process, the decision of the Agency shall be communicated to the proponent in the form prescribed in Schedule-VI or in case of an IEE or EMP or environmental checklist or environmental audit in the form prescribed in Schedule-VII in case of an EIA.

14. Conditions of approval

- (1) Every approval of an EC or IEE or EIA or EMP or EA shall, in addition to such conditions as may be imposed by the Agency, be subject to the condition that the project shall be designed, constructed or operated and mitigatory and other measures adopted, strictly in accordance with the EC or IEE or EIA or EMP or EA, unless any variations thereto have been specified in the approval by the Agency.
- (2) Where the Agency accords its approval subject to certain conditions, the proponent shall submit an undertaking to the Agency, before commencing operation of the project, in the form prescribed in Schedule-VIII that the conditions of approval, and the requirements in the IEE or EIA relating to design and construction, adoption of mitigation and other measures have been duly complied with.

15. Validity period of Approval

- (1) The approval accorded by the Agency under section 17 read with sub-regulation (2) of regulation 15 shall be valid, for commencement of construction, for a period of three years from the date of issue.
- (2) If construction is commenced during the initial three years validity period, the

validity of the approval shall stand extended for a further period of three year.

- (3) The proponent may apply to the Agency for extension in the validity periods mentioned in sub-regulations (1), (2), which may be granted by the Agency in its discretion for such period not exceeding three years at a time, if the conditions of the approval do not require significant change:

Provided that the Agency may require the proponent to submit a fresh IEE or EIA, if in its opinion changes in location, design, construction and operation of the project so warrant.

16. Entry and inspection

- (1) For the purpose of verification of any matter relating to the review or to the conditions of approval of an EC or IEE or EIA or EMP or EA list prior to, before or during and after commencement of construction or operation of a project, duly authorized staff of the Agency shall be entitled to enter and inspect the project site, factory building and plant and equipment installed therein.
- (2) The proponent shall ensure full cooperation of the project staff at site to facilitate the inspection, and shall provide such information as may be required by the Agency for this purpose and pursuant thereto.

17. Cancellation of approval

- (1) Notwithstanding anything contained in these regulations, if, at any time, on the basis of information or report received or inspection carried out, the Agency is of the opinion that the conditions of an approval have not been complied with, or that the information supplied by a proponent in the approved EC or IEE or EIA or EMP or EA list is incorrect, it shall issue notice to the proponent for show cause within two weeks of receipt thereof as to why the approval should not be cancelled.
- (2) In case no reply is received or if the reply is considered unsatisfactory, the Agency may, after giving the proponent an opportunity of being heard -
 - (i) require the proponent to take such measures and to comply with such conditions within such period as it may specify, failing which the approval shall stand cancelled; or
 - (ii) cancel the approval.
- (3) On cancellation of the approval, the proponent shall cease construction or operation of the project forthwith.
- (4) Any action taken under this regulation shall be without prejudice to any other action that may be taken against the proponent under the Act or rules or regulations or any other law for the time being in force.

18. Registers of EC or IEE and EIA projects

Separate Registers to be maintained by the Agency for EC or IEE and EIA projects shall be in the form prescribed in Schedule-IX.

19. Environmentally sensitive areas

- (1) The Agency may designate an area to be an environmentally sensitive area,
- (2) Notwithstanding anything contained in regulations 3 and 5, the proponent of a project situated in an environmentally sensitive area shall be required to file an EIA with the Agency.

20. Environmental assessment guidelines

- (1) The Agency may from time to time issue guidelines to assist proponents and other persons involved in the preparation of environmental assessment.
- (2) Where guidelines have been issued under sub-regulation (1), the projects shall be planned and prepared, to the extent practicable, in accordance therewith and any departure therefrom justified in the IEE/EIA pertaining to the project.

21. Environmental Assessment Advisory Committee. -

The agency may constitute one or more Committees for the purpose of rendering advice on implementation and enforcement of Section 17, which may include experts of relevant field, civil society, academia, environmental experts, representative of Administrative Department, legal expert and experts from natural resources.

22. Repeal and Savings.

- (1) The Sindh Environmental Protection Agency (Review of Initial Environmental Examination and Environmental Impact Assessment) Regulations 2014, shall, on commencement of these regulations, stand repealed.
- (2) All orders made, notification issued, actions taken under the repealed Regulations shall remain in force until amended, altered or repealed by the provisions of these regulations.

**DIRECTOR GENERAL
SINDH ENVIRONMENTAL PROTECTION
AGENCY**

SCHEDULE-I

(See Regulation 3)

List of projects requiring Environmental Screening (through check list)

- a. Subject to the compliance with concerned zoning laws:
 - i. Construction of residential and commercial buildings having total covered area from 60,000 sq.feet to 100,000 sq.feet
 - ii. Housing Schemes covering an area from 05 acres to 15 acres.
 - iii. Ware Houses for Non-Hazardous substances having total area from 1000 sq.yards to 5,000 sq.yards
 - iv. Warehouse for Fertilizers
 - v. Marriage Halls/Banquet/Restaurants/Baking facilities having total area more than 500 sq.yards
 - vi. Motor vehicle workshops/Service Stations having total area of more than 500 sq.yards.
- b. Construction/Reconstruction/Rehabilitation of roads in urban area from 500 meters to 01 kilometres and in rural area from 500 meters to 05 kilometres.
- c. Construction of Flyover, underpasses and bridges of length from 100 meters to 500 meters
- d. On-farm dams and fish farms
- e. Pulses mills
- f. Flour Mills
- g. Lining of existing minor canals and /or water courses.
- h. Canal cleaning
- i. Forest harvesting operations
- j. Rain harvesting projects
- k. Health care units of less than 50 beds
- l. BTS Tower
- m. Lime Kilns
- n. Ice factories and cold storage.
- o. Cotton oil mill
- p. Construction of LPG, CNG, LNG filling station and petrol pumps
- q. Carpet manufacturing units
- r. Rain harvesting projects
- s. Industrial Effluent Treatment Plant
- t. Sanitary Landfill site up to 500 tons/day

Schedule-II
(See Regulation 4)

List of projects requiring an Initial Environmental Examination

A. Agriculture, Livestock and Fisheries

1. Poultry, livestock and fish farms
2. Warehousing for pesticides and pharmaceuticals
3. Projects involving packaging, formulation, cold storage and warehouse of agricultural, livestock and fish products.
4. Construction & Operation of Slaughter houses

B. Energy

1. Hydroelectric power generation up to 25 MW
2. Thermal power generation up to 100 MW
3. Coal fired power plants with capacity up to 50 MW
4. Transmission lines up to 132 KV, and grid stations
5. Waste-to-energy generation projects including bio-mass up to 25 MW
6. Construction of Coal Handling and storage facilities
7. Handling, Transportation & Storage of Biofuel Facility
8. Handling and storage of edible grains and seeds
9. All Renewable energy Projects (excluding Protected/Sensitive area under any law)

C. Oil and Gas projects:

1. Oil and gas 2D/3D Seismic survey and drilling activities (on and off shore)
2. Oil and gas extraction projects including exploration and production located outside the environmentally sensitive/protected areas
3. Oil & Gas transmission gathering, storage, separation & transportation system
4. Construction of CNG, LPG Petroleum and LNG bulk storage facility
5. Oil blending and recycling units

D. Manufacturing and processing

1. Ceramics and glass units
2. Food processing units
3. Pharmaceutical units.
4. Rice mills, ghee/oil mills, Cotton ginning
5. Man-made fibers and resin projects

6. Tanning and leather finishing projects
 7. Manufacturing of apparel, textile garments units, including weaving, spinning, dyeing, bleaching and printing
 8. Woodwork units manufacturing products
 9. Steel re-rolling mills
 10. Waste recycling plants
 11. Battery manufacturing plant
 12. Brick Kilns
 13. Marble processing units
 14. Stone Crushing units
- E. Mining and mineral processing**
1. Commercial extraction of sand, gravel, limestone, clay, Sulphur and other minerals not included in Schedule I.
 2. Crushing, grinding and separation processes
 3. Metal Smelting plant production capacity up to 20 tons/day
- F. Transport**
1. Construction of flyovers, underpasses and bridges having length more than 500 meters to 1000 meters in urban areas and more than 5km in rural areas
 2. Bus terminals/ railway station/ metro stops and construction & operation of transport related terminals
 3. Rehabilitation or rebuilding or reconstruction of existing roads more than one kilometers in urban areas and more than 5 km from rural areas
- G. Water management, dams, irrigation and flood protection**
1. Dams and reservoirs with storage volume of less than 25 million cubic meters of surface area less than 4 square kilometers
 2. Irrigation systems and drainage system with the area of less than 15,000 hectors
 3. Flood protection bunds
- H. Water supply and filtration**
- Water supply schemes and filtration plants
- I. Waste disposal and wastewater treatment**
1. Solid and Non-hazardous waste with annual capacity up to 10,000 tonnes (excluding municipal landfill sites and commercial facilities) including Garbage Transfer station/composting plant

2. Wastewater treatment for sewerage treatment facility less than 100 mgd
3. Hospital waste disposal facilities including incineration units owned by Hospitals for own use excluding commercial facility.

J. Urban development

1. Housing schemes more than 15 acres to 50 acres
2. Residential, Commercial multistory High rise construction projects having covered area more than 100,000 sq. feet to 500,000 sq. feet.
3. Laboratories
4. Hospitals, health care unit of more than 50 beds
5. Construction of Educational and Academic institutions.

K. Other projects

Any other project for which filing of an IEE is required by the Agency under sub-regulation (2) of Regulation 6.

SCHEDULE III

(See Regulation 5)

List of projects requiring an EIA

A. Energy

1. Hydroelectric power generation more than 50 MW
2. Thermal power generation more than 100 MW
3. Coal power projects more than 50 MW
4. Transmission lines above 132 KVA and distribution projects.
5. Nuclear power plants
6. Wind, Solar or renewable energy projects if falls under any environmental sensitive and protected area.

B. Oil and Gas projects

1. Oil Petroleum refineries.
2. LPG and LNG Terminals Projects
3. Coal Handling Terminals Projects

C. Manufacturing and processing

1. Cement plants
2. Chemical manufacturing industries
3. Fertilizer plants
4. Steel Mills
5. Sugar Mills and Distilleries
6. Establishment of Industrial estates & Export processing zones
7. Petrochemicals complex
8. Synthetic resins, plastics and man-made fibers, paper and paperboard, paper pulping, plastic products, printing and publishing, paints and dyes.

D. Mining and mineral processing

1. Mining and processing of coal, gold, copper, sulphur and precious stones
2. Mining and processing of major non-ferrous metals, iron and steel rolling
3. Metal Smelting plant production capacity more than 20 tons/day

E. Transport

1. Airports
2. Construction of highway, motor ways, major roads (Intercity roads) more than one km and above

3. Ports and harbor development
4. Mass transit projects
5. Railway works
6. Construction of Flyover, underpass and bridges having total length more than one km.

F. Water management, dams, irrigation and flood protection

1. Dams and reservoirs with storage volume of 25 million cubic meters and above having surface area of 4 square kilometers and above
2. Irrigation and drainage projects serving more than 15,000 hectares and above

G. Water supply and filtration

Public water supply schemes and **filtration** plants.

H. Waste Disposal and treatment

1. Facilities for handling, storage or disposal of hazardous or toxic wastes or radioactive waste (including landfill sites, incineration units, etc.)
2. Solid waste municipal landfill sites.
3. Combine Effluent Treatment Plant
4. Domestic wastewater treatment plant more than 100mgd

I. Urban development and tourism

1. Housing schemes above 50 acres
2. Residential, Commercial High rise buildings subject to compliance of building bylaws of relevant organizations more than 500,000 sq.feet
3. All Projects located in High Density Zones notified by Government and relevant land controlling organization, irrespective of their size.
4. Commercialization of major corridors/roads in urban centers
5. Large Scale public facilities
6. Large-scale tourism development projects

J. Environmentally Sensitive Areas

All projects situated in environmentally sensitive areas being identified by the Agency.

K. Other projects

1. Any other project for which filing of an EIA is required by the Agency under sub-regulation (2) of Regulation 5.
2. Any other project likely to cause an adverse environmental effect.

Schedule-IV
(See Regulation 8)

Project Cost (in million)	Review Fee
Up to 20	Rs.50,000
Above 20 up to 100	Rs. 100,000
Above 100 up to 200	Rs. 200,000
Above 200 up to 500	Rs. 400,000
Above 500	Rs. 600,000
Review fee for Environmental Checklist or EMP shall be Rs. 40,000/=	
Review fee for BTS Tower shall be 20,000/=	

*

Note:

The fee shall be payable into the "Sindh Sustainable Development Fund" account
Details are as under:

A/C Title: Sindh Sustainable Development Fund

Account Number: 03084572626100

Bank: Sindh Bank

Branch Code: 0308-Korangi Industrial Area

SCHEDULE V
[See Regulation 9(2)(a)]
Application Form

1.	Name and address of Proponent		Phone:	
			Email:	
2.	CNIC No. of proponent			
3.	Brief description of project			
4.	Location of project			
5.	Cost of the Project			
6.	Objectives of project			
7.	IEE/EIA attached?	IEE/EIA:	Yes/No	
8.	Have alternative sites/options been considered/ reported in IEE/EIA?	Yes/No		
9.	Title document of the project			
10.	Existing land use		Land requirement	
11.	Is basic site data available, or has it been measured?	(only tick yes if the data is reported in the IEE/EIA)	Available	Measured
			Yes/No	Yes/No
		Meterology (including rainfall)	Yes/No	Yes/No
		Ambient air quality	Yes/No	Yes/No
12.	Have estimates of the following been reported, especially Quantitative Analysis?	Water balance	Estimated	Reported
		Solid waste	Yes/No	Yes/No
		disposal	Yes/No	Yes/No
		Liquid waste	Yes/No	Yes/No
13.	Source of power		Power requirement	
14.	Labour force (number)	Construction:		
		Operation:		
15.	Environmental Consulting Firm			

Verification. I do solemnly affirm and declare that the information given above and contained in the attached EC/IEE/EIA is true and correct to the best of my knowledge and belief.

Date

Signature, name _____
of proponent (with official
stamp/seal)

SCHEDULE VI
[See Regulation 13(2)]

Decision on IEE/Environmental Check List

1. Name and address of proponent _____
 2. Description of project _____
 3. Location of project _____
 4. Date of filing of IEE _____
 5. After careful review of the IEE, the Agency has decided –
 - (a) to accord its approval, subject to the following conditions:

 - or (b) that the proponent should submit an EIA of the project, for the following reasons –

- Dated _____
- Tracking no. _____

Director-General
Sindh Environmental Protection Agency
(with official stamp/seal)

SCHEDULE VII

[See Regulation 13(2)]

Decision on EIA

1. Name and address of proponent _____
 2. Description of project _____
 3. Location of project _____
 4. Date of filing of EIA _____
 5. After careful review of the EIA, and all comments thereon, the Federation Agency has decided –
 - (a) to accord its approval, subject to the following conditions:

 - or (b) that the proponent should submit an EIA with the following modifications-

 - or (c) to reject the project, being contrary to environmental objectives, for the following reasons:

- Dated _____
- Tracking no. _____

Director-General
Sindh Environmental Protection Agency
(with official stamp/seal)

SCHEDULE VIII
[See Regulation 14(2)]

Undertaking

I, (full name and address) as proponent for (name, description and location of project) do hereby solemnly affirm and declare that the conditions of approval and the requirements in the IEE or EIA relating to design and construction, adoption of mitigation and other measures and other relevant matters have been duly complied with in the design and construction of the project.

Signature, name and

designation of proponent
(with official stamp/seal)

Witnesses(full names and addresses)

SCHEDULE IX
(See Regulation 18)
Form of Registers for EC, IEE and EIA projects

<u>S. No.</u>	<u>Description</u>	<u>Relevant Provisions</u>
1	2	3
1.	Tracking number	
2.	Category type (as per Schedules I or II)	
3.	Name of proponent	
4.	Name and designation of contact person	
5.	Name of consultant	
6.	Description of project	
7.	Location of project	
8.	Date of submission of IEE/EIA	
9.	Date of public hearing / technical presentation	
10.	Date of committee of experts for schedule-II projects	
11.	Approval granted (Yes/No)	
12.	Date of approval granted or refused	

Annexure 4-A: SEQs for Municipal and Industrial Effluents.



PART-I

THE SINDH GOVT. GAZETTE EXT. JAN. 28, 2016

24

SINDH ENVIRONMENTAL QUALITY STANDARDS FOR MUNICIPAL AND
LIQUID INDUSTRIAL EFFLUENTS (mg/L, UNLESS OTHERWISE DEFINED)

S. No.	Parameter	Standards		
		Into Inland Waters	Into Sewage Treatment ⁽³⁾	Into Sea ⁽¹⁾
1	2	3	4	5
1.	Temperature 40 ⁰ C or Temperature Increase *	≤3 ⁰ C	≤3 ⁰ C	≤3 ⁰ C
2.	pH value (H ⁺)	6-9	6-9	6-9
3.	Biochemical Oxygen Demand (BOD) ₅ at 20 ⁰ C ⁽¹⁾	80	250	80**
4.	Chemical Oxygen Demand (COD) ⁽¹⁾	150	400	400
5.	Total Suspended Solids (TSS)	200	400	200
6.	Total Dissolved Solids (TDS)	3500	3500	3500
7.	Oil and Grease	10	10	10
8.	Phenolic compounds (as phenol)	0.1	0.3	0.3
9.	Chloride (as Cl ⁻)	1000	1000	SC***
10.	Fluoride (as F ⁻)	10	10	10
11.	Cyanide (as CN ⁻) total	1.0	1.0	1.0
12.	An-ionic detergents (as MBAS) ⁽²⁾	20	20	20
13.	Sulphate (SO ₄ ²⁻)	600	1000	SC***
14.	Sulphide (S ²⁻)	1.0	1.0	1.0
15.	Ammonia (NH ₃)	40	40	40
16.	Pesticides ⁽¹⁾	0.15	0.15	0.15
17.	Cadmium ⁽⁴⁾	0.1	0.1	0.1
18.	Chromium (trivalent and hexavalent) ⁽⁴⁾	1.0	1.0	1.0
19.	Copper ⁽⁴⁾	1.0	1.0	1.0
20.	Lead ⁽⁴⁾	0.5	0.5	0.5
21.	Mercury ⁽¹⁾	0.01	0.01	0.01
22.	Selenium ⁽⁴⁾	0.5	0.5	0.5
23.	Nickel ⁽⁴⁾	1.0	1.0	1.0
24.	Silver ⁽⁴⁾	1.0	1.0	1.0
25.	Total toxic metals	2.0	2.0	2.0
26.	Zinc	5.0	5.0	5.0
27.	Arsenic ⁽⁴⁾	1.0	1.0	1.0
28.	Barium ⁽⁴⁾	1.5	1.5	1.5
29.	Iron	8.0	8.0	8.0
30.	Manganese	1.5	1.5	1.5
31.	Boron ⁽⁴⁾	6.0	6.0	6.0
32.	Chlorine	1.0	1.0	1.0

Annexure 4-B: SEQs for Industrial Gaseous Emissions, Motor Vehicle Exhaust, Noise and Ambient Air Quality.

25

THE SINDH GOVT. GAZETTE EXT. JAN. 28, 2016

PART-I

Explanations:

1. Assuming minimum dilution 1:10 on discharge, lower ratio would attract progressively stringent standards to be determined by the Sindh Environmental Protection Agency. By 1:10 dilution means, for example that for each one cubic meter of treated effluent, the recipient water body should have 10 cubic meter of water for dilution of this effluent.
2. Methylene Blue Active Substances; assuming surfactant as biodegradable.
3. Pesticides include herbicides, fungicides, and insecticides.
4. Subject to total toxic metals discharge should not exceed level given at S. N. 25.
5. Applicable only when and where sewage treatment is operational and BOD₅=80mg/l is achieved by the sewage treatment system.
6. Provided discharge is not at shore and not within 10 miles of mangrove or other important estuaries.
 - * The effluent should not result in temperature increase of more than 3⁰C at the edge of the zone where initial mixing and dilution take place in the receiving body. In case zone is not defined, use 100 meters from the point of discharge.
 - ** The value for industry is 200 mg/l
 - *** Discharge concentration at or below sea concentration (SC).

Note: 1. Dilution of liquid effluents to bring them to the STANDARDS limiting values is not permissible through fresh water mixing with the effluent before discharging into the environment.

2. The concentration of pollutants in water being used will be subtracted from the effluent for calculating the STANDARDS limits".

"SINDH ENVIRONMENTAL QUALITY STANDARDS FOR INDUSTRIAL GASEOUS EMISSION (mg/Nm³, UNLESS OTHERWISE DEFINED)."

S. No.	Parameter	Source of Emission	Standards
1	2	3	4
1.	Smoke	Smoke opacity not to exceed	40% or 2 Ringleman Scale or equivalent smoke number
2.	Particulate matter	(a) Boilers and Furnaces	
	(i)	(i) Oil fired	300
		(ii) Coal fired	500
		(iii) Cement Kilns	300

PART-I THE SINDH GOVT. GAZETTE EXT. JAN. 28, 2016 26

		(b) Grinding, crushing, Clinker coolers and Related processes, Metallurgical Processes, converter, blast furnaces and cupolas.	500
3.	Hydrogen Chloride	Any	400
4.	Chlorine	Any	150
5.	Hydrogen Fluoride	Any	150
6.	Hydrogen Sulphide	Any	10
7.	Sulphur Oxides ⁽²⁾⁽³⁾	Sulfuric acid/ Sulphonic acid plants	
		Other Plants except power Plants operating on oil and coal	1700
8.	Carbon Monoxide	Any	800
9.	Lead	Any	50
10.	Mercury	Any	10
11.	Cadmium	Any	20
12.	Arsenic	Any	20
13.	Copper	Any	50
14.	Antimony	Any	20
15.	Zinc	Any	200
16.	Oxides of Nitrogen	Nitric acid Manufacturing unit.	3000
	(3)	Other plants except power plants operating on oil or coal;	
		Gas fired	400
		Oil fired	600
		Coal fired	1200

Explanations:-

1. Based on the assumption that the size of the particulate is 10 micron or more.
2. Based on 1 percent Sulphur content in fuel oil. Higher content of Sulphur will ease standards to be pro-rated.
3. In respect of emissions of Sulphur dioxide and Nitrogen oxides, the power plants operating on oil and coal as fuel shall in addition to Standards specified above, comply with the following standards:-

A. Sulphur Dioxide

Sulphur Dioxide Background levels Micro-gram per cubic meter ($\mu\text{g}/\text{m}^3$) Standards.

Background Air Quality (SO ₂ Basis)	Annual Average	Max. 24-hours Interval	Criterion I Max. SO ₂ Emission (Tons per Day Per Plant)	Criterion II Max. ground level increment to ambient (One year Average)
Unpolluted	<50	<200	500	50
Moderately Polluted*				
Low	50	200	500	50
High	100	400	100	10
Very Polluted**	>100	>400	100	10

* For intermediate values between 50 and 100 $\mu\text{g}/\text{m}^3$ linear interpolations should be used.
** No projects with Sulphur dioxide emissions will be recommended.

B. Nitrogen Oxide

Ambient air concentrations of Nitrogen oxides, expressed as NO_x should not be exceed the following:-

Annual Arithmetic Mean	100 $\mu\text{g}/\text{m}^3$ (0.05 ppm)
------------------------	--

Emission level for stationary source discharge before missing with the atmosphere should be maintained as follows:-

For fuel fired steam generators as Nanogram (10^0 -gram) per joule of heat input:

Liquid fossil fuel	130
Solid fossil fuel	300
Lignite fossil fuel	260

Note:- Dilution of gaseous emissions to bring them to the STANDARDS limiting value is not permissible through excess air mixing blowing before emitting into the environment.

PART-I THE SINDH GOVT. GAZETTE EXT. JAN. 28, 2016 28

**Sindh Environmental Quality Standards for Motor
Vehicle Exhaust and Noise**

(i) For in-use Vehicles

S. No.	Parameter	Standards (maximum permissible limit)	Measuring Method	Applicability
1	2	3	4	5
1.	Smoke	40% or on the Ringleman Scale during engine acceleration mode	To be compared with Ringleman Chart at a distance of 6 meters or more.	Immediate effect
2	Carbon Monoxide	6 %	Under idling conditions: Non- dispersive infrared detection through gas analyzer.	
3.	Noise	85 db (A)	Sound-meter at 7.5 meter from the source.	

For new Vehicles

EMISSION STANDARDS FOR DIESEL VEHICLES

(a) For passenger Cars and Light Commercial Vehicles (g/Km)

Type of Vehicle	Category/Class	Tiers	CO	HC+ NOx	PM	Measuring Method	Applicability
1	2	3	4	5	6	7	8
Passenger Cars.	M 1: with reference mass (RW).	Pak-II, IDI	1.0	0.7	0.08		All imported and local manufactured
	up to 2500 kg. Cars with RW over 2500 kg. to meet NI Category standards	Pak-II DI	1.0	0.9	0.10	NEDC (ECE 15+ EUDCL)	Diesel vehicles with effect from 01-07-2012
Light Commercial Vehicles	NI-I (RW<1250 Kg)	Pak-II IDI	1.0	0.70	0.08		
		Pak-II DI	1.0	0.90	0.10		
	NI-II(1250kg< RW < 1700 Kg)	Pak-II IDI	1.25	1.0	0.12		
		Pak-II DI	1.25	1.3	0.14		
	NI-III(RW<1700 Kg)	Pak-II IDI	1.50	1.2	0.17		
		Pak-II DI	1.50	1.6	0.20		

PART-I

THE SINDH GOVT. GAZETTE EXT. JAN. 28, 2016

30

Parameter Standards (maximum permissible limit) Measuring method

Noise 85 db (A) Sound-meter at 7.5 meters from the source

(b) For Heavy Duty Diesel Engines and Large Goods Vehicles (g/Kwh)

Type of Vehicle	Category/ Class	Tiers	CO	HC	NOx	PM	Measuring Method	Applicability
1	2	3	4	5	6	7	8	9
Heavy Duty Diesel Engines	Turks and Buses	Pak-II	4.0	1.1	7.0	0.15	ECE-R-49	All Imported and local manufactured diesel vehicles with the effect 1-7-2012
Large goods and up Vehicles	N2(2000 and up	Pak-II	4.0	7.0	1.10	0.15	EDC	

Parameter Standards (maximum permissible limit) Measuring method

Noise 85 db (A) Sound-meter at 7.5 meters from the Source

Emission Standards for Petrol Vehicles (g/km)

Type of Vehicle	Category/ Class	Tier	Co	HC*	NOx	Measuring Method	Applicability
1	2	3	4	5	6	7	
Passenger Cars.	M 1: with reference mass (RW), upto 2500 kg. Cars with RW over 2500 kg. to meet NI Category standards	Pak-II	2.20	0.5		NEDC (FCT 15) EUDCL	All imported and new models* locally manufactured* petrol vehicles with effect from 1 st July, 2009**

31 THE SINDH GOVT. GAZETTE EXT. JAN. 28, 2016 PART-I

Light	NI-I (RW<1250	Pak-II	2.20	0.5	
Commercial	kg) NI-II				
Vehicles	(1250kg> kg	Pak-II	4.0	0.65	
	RW < 1700 Kg)				
		Pak-II	5.0	0.08	
	NI-III(RW>				
	1700 kg)				
Motor	2,4 strokes <	Pak-II	5.5	1.5	ECER 40
Rickshaws	150 cc				
& Motor					
Cycles					
	2,4 strokes >	Pak-II	5.5	1.3	
	150cc				

Parameter Standards (maximum permissible limit) Measuring method

Noise source 85 db (A) Sound-meter at 7.5 meters from the

Explanations:

- DI: Direct Injection.
- IDI: Indirect Injection.
- EUDCL: Extra Urban Driving Cycle.
- NEDC: New European Driving Cycle.
- ECE: Urban Driving Cycle.
- M: Vehicles designed and constructed for the carriage of passenger and comprising no more than eight seats in addition to the driver's seat.
- N: Motor vehicles with at least four wheels designed and constructed for the carriage of goods.
- * New model means both model and engine type change.
- ** The existing models of petrol driven vehicles locally manufactured will immediately switch over to Pak-II emission standards but no late than 30th June, 2012.

SINDH ENVIRONMENTAL QUALITY STANDARDS FOR AMBIENT AIR

Pollutants	Time-weight average	Concentration in Ambient Air	Method of measurement
Sulphur Dioxide(SO ₂)	Annual Average*	80 µg/m ³	Ultraviolet Fluorescence method
Oxides of Nitrogen as (NO)	24 hours**	120 µg/m ³	Gas Phase Chemiluminescence
Oxides of Nitrogen as (NO ₂)	Annual Average*	40 µg/m ³	Gas Phase Chemiluminescence
O ₃	24 hours**	40 µg/m ³	Non dispersive UV absorption method
Suspended Particulate Matters(SPM)	1 hour	130 µg/m ³	High Volume
Respirable Particulate Matter PM10	Annual Average*	360 µg/m ³	Sampling (Average flow rate not less than 1.1 in 3/minutes)
Respirable Particulate Matter PM2.5	Annual Average*	120 µg/m ³	β-Ray absorption method
Lead Pb	24 hours**	150 µg/m ³	β-Ray absorption method
Carbon Monoxide(CO)	Annual Average*	40 µg/m ³ ***	β-Ray absorption method
	24 hours**	75 µg/m ³	
	Annual Average*	1 µg/m ³	ASS Method after sampling using EPM 2000 or equivalent filter paper
	24 hours**	1.5 µg/m ³	
	8 hours**	5 mg/m ³	Non Dispersive Infra Red(NDIR) method
	1 hours**	10 mg/m ³	

Annexure 4-C: SEQs for Ambient Noise Level

PART-I

THE SINDH GOVT. GAZETTE, EXT. JAN. 28, 2016

36

products to cut down Lead entering into environment. These steps will enable to achieve WHO guidelines for Arsenic, Lead, Cadmium and Zinc. However, for bottled water, WHO limits for Arsenic, Lead, Cadmium and Zinc will be applicable and PSQCA Standards for all the remaining parameters.

Sindh Environmental Quality Standards for Noise

S. No.	Category of Area / Zone	Effective from 1 st Jan, 2015		Effective from 1 st January, 2015	
		Limit in dB(A) Leq *			
		Day Time	Night Time	Day Time	Night Time
1.	Residential Area (A)	65	50	55	45
2.	Commercial Area (B)	70	60	65	55
3.	Industrial Area (C)	80	75	75	65
4.	Silence Zone (D)	55	45	50	45

Note: 1. Day time hours: 6:00 a.m to 10:00 p.m

2. Night time hours: 10:00 p.m to 6:00 a.m

3. Silence zone: Zones which are declared as such by the competent authority. An area comprising not less than 100 meters around hospitals, educational institutions and courts

4. Mixed categories of areas may be declared as one of the four above-mentioned categories by the competent authority.

* dB(A) Leq: Time weighted average of the level of sound in decibels on scale A which is reliable to human hearing.

3. Repeal and Savings.

- (1) The provisions of the Statutory Notification dated 10th August, 2000 and 18th October, 2010, issued by the Ministry of Environment, Government of Pakistan, to the extent of the Province of Sindh are hereby repealed.
- (2) All actions taken, proceedings initiated shall be deemed to have been taken and initiated validly under the provisions of these Rules.

DIRECTOR GENERAL,
SINDH ENVIRONMENTAL PROTECTION
AGENCY

Karachi: Printed at the Sindh Government Press
28-1-2016

Annexure 5: Laboratory Report of Ambient Air Monitoring



Environmental Research Center
Bahria University Karachi Campus

Discovering Knowledge



EPA CERTIFIED LAB.

EPA/LAB/Cer. 04/09

Lab. Rpt. Rf. No.: 30466/PB&D/ERCBUK/2023
Invoice/ Bill No.: 10865/ECS/ERCBUK/2023

Reporting date: 17-April-2023

Report to: M/s Palm Builder & Developers.
Hyderabad Bypass, Hyderabad-Sindh.

sampling date: 03-April-2023
sampling time: 1030 to 1230 hrs PST (+5GMT)
sample receiving date (at ERC): 03-April-2023
sample receiving time (at ERC): 1800 hrs PST (+5GMT)

Attention: Director ECS
Tel. # (+92) 21 3430 3636

Page: 1 of 1

Sample ID.: Ambient Air (1)25° 2'45.1"N 68° 20' 59.8"E (2)25° 26' 41"N 68° 21' 16"E & (3)25° 25' 52"N 68° 21' 35"E
Sample Description: Ambient Air Monitoring from Palm Royal Residency, Palm Village-III and Palm-IV Hyderabad Bypass
Sample Type: Air/Random Sample
Sample Collected/Submitted By: Environmental Research Centers' (ERC) Representative
Analyte Descriptions: Mentioned Below 09x SEQSA Parameters

ANALYTICAL TEST REPORT

Sr. #	Parameters/ Analytes Description	Methods ¹	SEQSA A ²	Units	Results		
					(1)Palm Royal Residency	(2)Palm Village-III	(3)Palm-IV
1	Sulphur Dioxide (SO ₂)	EPA EQSA0486-060	120.0	µg/m ³ / 24 hrs	3.0	5.0	7.0
2	Nitrogen Oxide (NO)	EPA RFNA1289-074	40.0	µg/m ³ / 24 hrs	23.0	21.0	29.0
3	Oxides of Nitrogen (NO ₂)	EPA RFNA1289-074	80.0	µg/m ³ / 24 hrs	31.0	33.0	39.0
4	Ozone (O ₃)	EPA 50270:1999	130.0	µg/m ³ / hr	16.0	19.0	18.0
5	Suspended Particulate Matters (PM ₁₀)	EPA 40CFR50, AppB	500.0	µg/m ³ / 24 hrs	291.0	343.0	321.0
6	Particulate Matter (PM ₁₀)	EPA 40CFR50, App L&J	150.0	µg/m ³ / 24 hrs	119.0	126.0	123.0
7	Particulate Matter (PM _{2.5})	EPA 40CFR50, App L&J	75.0	µg/m ³ / 24 hrs	31.0	37.0	34.0
8	Lead (Pb)	EPA 40CFR50, AppB	1.5	µg/m ³ / 24 hrs	<0.1	<0.1	<0.1
9	Carbon Monoxide (CO)	EPARFCA 098-054	10.0	mg/m ³ / hr	0.69	0.91	0.87

¹Methods: EPA= United State Environmental Protection Agency Methods.
²SEQSA= Sindh Environmental Quality Standards for Ambient Air (The Sindh Govt. Gazette No. EPA/TECH/739/2014) Part-I, page-32, on 28-Jan-2016.
Note: <0.1= Below Detection Limits.

Sample Analyzed by: Mr. M. Ahmed J. Qureshi
Name of Scientific Officer: Mr. Jawad A. Butt

Signature Head of ERC (Environmental Research Center):
Name: Dr. Yasmin Nergis


 Date: 17/4/23

Terms & Condition:

- Report is valid for current batch (sample).
- This Report is not valid for any other certification/ publication or judicial purposes.

13- National Stadium Road, Karachi-75260 (PAKISTAN), UAN: +92-21-111-111-028,
Tel. #: (+9221) 99240002-6 (Ext. 329) Fax #: (+9221) 99240351 Cell: +92-340-1330353
Email: erc.bukc@bahria.edu.pk, Web: bahria.edu.pk/bukc

Annexure 6: Laboratory Report of Ambient Noise Monitoring



Environmental Research Center
Bahria University Karachi Campus

Discovering Knowledge



EPA CERTIFIED LAB
EPA/LAB/Cer.04/09

Lab. Rpt. Ref. No.: 30472/PB&D/ERCBUKC/2023
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sample receiving time (at ERC): 1800 hrs PST (+5GMT)

Attention: Director ECS
Tel. # (+92) 21 3430 3636

Page: 1 of 1

Sample ID.: Noise Level at Palm Builder & Developers Projects (25° 25'52"N 68° 21'35"E)
Sample Description: Ambient Noise Monitoring from Palm-IV Hyderabad Bypass Hyderabad
Sample Type: Noise
Category of Area/Zone: Residential Area
SEQSN¹: 65.0 dBA
Sample Collected/Submitted by: Environmental Research Centers' (ERC) Representative
Method²: ASTM E1503

ANALYTICAL TEST REPORT

Sr #	Acoustic Source Description	Noise (dBA) Leq		
		Minimum	Maximum	Average
1	Main Gate	59.8	62.5	61.2
2	Camp Office	66.7	68.5	67.6
3	Location-I W	53.1	55.4	54.3
4	Location-II S	59.1	61.2	60.2
5	Location-III N	53.3	54.5	53.9
6	Location-IV E	52.4	55.9	54.2

¹SEQSN= Sindh Environmental Quality Standards for Noise (The Sindh Govt. Gazette No.EPA/TECH/739/2014) Part-I, pg-36, 28-Jan-2016.
²ASTM= American Society for Testing and Materials, Book of standards vol. 04.06.

Sample Analyzed by: Mr. M. Ahmed J. Qureshi Name of Scientific Officer: Mr. Jawad A. Butt

Signature Head of ERC (Environmental Research Center): Dr. Yasmin Nergis Date: 17/4/23

Terms & Condition:

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Annexure 7: Layout Plan of the Project

