

EIA

ENVIRONMENTAL IMPACT ASSESSMENT

Asphalt Plant By

M/S M. Asghar Construction Company (Pvt) Limited

G42H+5HG Maddar, Tehsil Sharaqpur, District Sheikhupura



Submitted By:

Mr. Muhammad Asghar

Prepared By:



Enviro Stewards Co. (Pvt) Ltd



0301-1199600



www.envirostewardspk.com



akmal@envirostewardspk.com

DISCLAIMER

The information presented herein is derived from the unique attributes of the project site as disclosed by the project proponents, stakeholders, and promoters, through provided maps, verbal communications, and all associated documentation. The veracity of the detail's rests solely with the project proponents, stakeholders, and promoters, and not with the environmental consultant. The Environmental Impact Assessment (EIA) or Initial Environmental Examination (IEE) report is not subject to dispute in any court of law.



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Representative: EIA & IEE Team

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TABLE OF CONTENT

EXECUTIVE SUMMARY	i
Brief Outline of Project.....	ii
Legal And Administrative Framework	iii
Assessment of Major Impacts	iv
Mitigation Measures for the Installation and Operation of an Asphalt Plant	vii
Proposed Monitoring Framework.....	ix
Conclusion & Recommendations.....	ix
1 INTRODUCTION	1
1.1 General	1
1.2 Purpose of the Report	1
1.3 Identification of the project and proponent.....	2
1.4 Consultant Information	2
1.5 Nature and Size of The Project	3
1.6 Project Location.....	4
1.7 Scope and depth of the environmental impact assessment (EIA) study	6
1.8 Extent of the EIA Study, Scope of the Study, Magnitude of the Efforts	6
2 POLICY, LEGISLATION, LEGAL & ADMINISTRATIVE FRAMEWORK.....	7
2.1 Screening	7
2.2 Existing Regulation and Framework	7
2.3 Relevant Regulation and Framework.....	7
3 SCOPING.....	12
3.1 Spatial and Temporal Boundaries of Environmental Assessment	12
3.2 KEY ISSUES AND CONCERNS IDENTIFIED.....	15

3.3	Significant Environmental Impacts and Management Factors:	16
4	ALTERNATIVE CONSIDERATION	18
4.1	Site Alternatives	18
4.2	Design/Technology Alternatives.....	18
4.3	Environmental Alternatives.....	19
4.4	Economic Alternatives	19
5	PROJECT DESCRIPTION	20
5.1	Type and Category of the Project.....	20
5.2	Objective of the Project	21
5.3	Land Use of the Site	21
5.4	Location and Site Layout	21
5.5	Road Access	22
5.6	Vegetative Features of the Site	23
5.7	Plantation Plan.....	23
5.8	Magnitude & Cost of the Project.....	24
5.9	Proposed schedule for implementation (Tentative).....	25
5.10	Description of the project.....	26
5.10.1	Process Description:.....	26
5.10.2	List of machinery	27
5.11	Available Facilities.....	28
5.12	Restoration and Rehabilitation Details.....	29
5.13	Government Approvals and Leases	30
5.14	Health, Safety & Hygiene	30
5.15	Safety Signs/Safety Boards	30
6	DESCRIPTION OF ENVIRONMENT.....	32

6.1	Physical Environment.....	32
6.1.1	Geographical Overview:	32
6.1.2	Topography and Geology:	33
6.1.3	Seismicity	33
6.1.4	Soil Characteristics:	34
6.1.5	Climate:	34
6.1.6	Surface and Groundwater Resources:.....	34
6.1.7	Ambient Air Quality:.....	34
6.1.8	Demographic Profile:	34
6.2	Ecological Environment:	35
6.2.1	Flora	35
6.2.2	Fauna	36
6.3	Socio Economic Environment	37
6.3.1	Study Objectives	37
6.3.2	Resettlement Patterns	37
7	Potential Environmental Impact Assessment.....	42
7.1	Impact Assessment Method	42
7.1.1	Evaluation Methods Include:	42
7.2	Evaluation of the Residual Impacts.....	43
7.3	Characteristics of Impact.....	43
7.4	Impact Analysis of Said Project.....	46
7.4.1	Positive Impacts	46
7.4.2	Mitigation and Management Strategies	46
8	ANTICIPATED IMPACTS AND MITIGATION MEASURES	48
8.1	Purpose of Environmental Mitigation Measures	48

8.2	Impact Identification Methodology	49
8.2.1	Approaches for Mitigation Measures	50
8.3	Potential Environmental Impacts and Mitigation Measures due to Project Location.....	50
8.4	Potential Environmental Impacts and Mitigation Measures due to Design	50
8.5	Potential Environmental Impacts and Mitigation Measures During Construction Phase.....	53
8.6	Anticipated Impacts and Mitigation Measures During Operational Phase	55
8.7	Environmental Enhancement Measures	57
9	ENVIRONMENTAL MANAGEMENT & MONITORING PLAN (EMMP)	60
9.1	Objectives of the Environmental Management Program	60
9.2	Environmental Budget	61
9.3	Environment Management and Monitoring Plan (EMMP)	62
9.4	Proposed Monitoring/EMP Reporting and Reviewing Mechanism	68
9.5	Training of Workers for Environmental Management	69
9.5.1	Components of the Environmental Training Program	69
9.6	Training Schedule and Log	69
9.6.1	Key Training Areas	69
9.7	Environmental Management Team	71
9.7.1	Key Members of the Environmental Management Team:	72
9.7.2	Responsibilities of Functionaries:	72
9.8	Equipment Maintenance Details	72
9.9	Proposed Environmental Monitoring	73

9.9.1	Monitoring Components:	73
10	STAKEHOLDER CONSULTATION.....	74
10.1	Benefits and Objectives of Stakeholder Consultation.....	74
10.2	Identification and Classification of Stakeholders	74
10.3	Views, Concerns, and Suggestions of Various Stakeholders	74
10.4	Methodology for Consultation	75
10.5	Proponent's Environmental Management Team and Experts	76
10.6	The Responsible Authority for EMP Implementation.....	77
10.7	Environmental Practitioners and Experts	77
10.8	Other Departments and Agencies	78
10.9	Consultation with Affected and Wider Community	80
11	CONCLUSION.....	81
	GLOSSARY	82
	LIST OF ABBREVIATIONS.....	85
	LIST OF INDIVIDUALS AND THEIR FEEDBACK	87
	SOURCE OF DATA.....	88
	List Of Names, Qualifications and Roles of Team Members Carrying Out the IEE/EIA Study	89

EXECUTIVE SUMMARY

This Executive Summary provides an overview of the critical findings from the Environmental Impact Assessment (EIA) for the proposed project of installation of asphalt plant by M/s M. Asghar Construction Company (Pvt) Limited. The project aims to establish a unit to make asphalt, situated at G42H+5HG Maddar, Tehsil Sharaqpur, District Sheikhpura, covering an area of 16 Kanal. The initiative seeks the benefits that significantly enhance efficiency, productivity, making them more profitable and accessible, support local economies, and advance sustainable development goals. Enviro Stewards Company (Pvt.) Limited has been appointed as the consulting firm for this venture.

In alignment with the environmental examination the project is classified under Schedule II (requiring an EIA), Category J (Other Projects that requires EIA) as per the IEE/EIA Regulations 2022, established under Section 12 of the Punjab Environment Protection Act 1997 (Amended 2012). Consequently, conducting an Environmental Impact Assessment (EIA) is a prerequisite for obtaining Environmental Approval.

The EIA provides a comprehensive analysis of the anticipated environmental and social impacts associated with the project. It includes an Environmental Impact Assessment (EIA) report to evaluate the potential impacts throughout the project's life cycle on local environmental quality and surrounding communities. The assessment has identified a series of impact mitigation strategies designed to lessen any adverse effects on the environment and nearby populations. A detailed description of the manufacturing process is outlined in Chapter 05, under the section titled "Process Details."

Title and Location of The Project

The project, spearheaded by the proponent, aims to establish an installation of asphalt plant which contributes to economic development, thereby contributing to economic upliftment of the proponent. Operating under the name "Installation

of Asphalt Plant by M/s M. Asghar Construction Company (Pvt) Limited.” The facility is to be located at G42H+5HG Maddar, Tehsil Sharaqpur, District Sheikhupura, covering a total area of 16 Kanal.

Name of the Proponent

The detail of the proponent is given below:

Detail of the Proponent	
Proponent name	Mr. Muhammad Asghar
Address	Defence View Main Road, House no.1 Jaranwala, District Faislabad

Name of the Consultant Preparing the Report

The detail of the consultant preparing the report is given below:

Detail of the Consultant	
Company name	Enviro Stewards Company (Private) Limited
Address	Plot 134 A, Block A1, Gulberg III, Lahore.
Contact	0301-1199600

Brief Outline of Project

The proposed project involves the installation of an asphalt plant by M/s M. Asghar Construction Company (Pvt) Limited, spearheaded by Muhammad Asghar, at G42H+5HG Maddar, Tehsil Sharaqpur, District Sheikhupura. The plant will be established on a 16 Kanal area with a production **capacity** of 120 tons. The primary objective of this project is to produce asphalt concrete, a crucial material for road construction, by combining bitumen, fuel oil, stone crush, stone dust, and aggregates. The project is estimated to **cost** PKR 25 million and will take approximately six months to complete.

The GPS coordinates of the site are 31.500430 N, 74.128946 E and a Google map (A3 size) is attached for reference. The project will create employment opportunities for both skilled and unskilled workers. During the construction phase, approximately 20 to 25 workers will be engaged, while the operational phase will require 30 to 40 personnel for plant management, operation, and maintenance. The estimated construction period is six months, ensuring the timely commencement of asphalt production. The site has a groundwater depth of 100–150 ft.

Given the nature of the project, **environmental concerns** primarily revolve around air emissions, solid waste, and liquid waste disposal.

Air pollution from emissions and dust will be controlled through filters, scrubbers while noise pollution will be minimized using sound barriers and scheduled operations. Solid waste, including bitumen residues and packaging materials, will be managed through EPA-approved vendors and through recycling where possible. Wastewater will be treated in a septic tank, will prevent contamination. To protect groundwater double-lined storage tanks will be used, along with regular water quality monitoring. The project will comply with Punjab Environmental Quality Standards (PEQS 2016) and EPA regulations.

The environmental impact assessment (EIA) for the project will be supervised by Enviro Stewards Company (Private) Limited, which will oversee environmental risk management. The plant's operations will follow best practices in the industry to ensure efficiency, worker safety, and environmental sustainability.

Legal And Administrative Framework

The project has been meticulously evaluated considering an array of national environmental guidelines and legislation. This includes the National Conservation Strategy (1992), National Environment Policy (2005), Pakistan Labor Policy (2010), and the Punjab Environmental Protection Act (PEPA 1997), alongside its subsequent amendment in 2012. Furthermore, adherence to the Punjab Environmental Quality Standards (PEQS), the Land Acquisition Act

(1894), the Prohibition of Cutting of Trees Act (1975), the Punjab Wildlife Act (1974), the Punjab Plantation and Maintenance of Trees Act (1974), and the Antiquities Act (1975) has been ensured.

A thorough review of environmental documents was conducted, highlighting the compulsory submission of an environmental assessment study report as mandated by the Pakistan Environmental Protection Ordinance (PEPO), 1983, and reinforced by the Pakistan Environmental Protection Act (1997). Specifically, Section 12(1) of the amended PEPA (2012) mandates that any project entailing construction or modification of the physical environment is contingent upon conducting an EIA, or an IEE, and securing an approval (NOC) from the pertinent provincial environmental authority.

In the composition of this Environmental Impact Assessment (EIA) report, comprehensive consideration has been given to the PEPA (1997), the Punjab Environmental Protection (Amendment) Act (2012), and all other pertinent legal mandates of both the Pakistan and Punjab governments, including the Land Acquisition Act (1894).

Assessment of Major Impacts

The construction and operation of the proposed unit is anticipated to exert a range of influences on the environmental parameters of the project site. Notably, these impacts may include alterations to water quality, land integrity, and air composition. Furthermore, the generation of solid waste is an expected byproduct of the project's activities.

The extent of these environmental impacts is projected to be considerable unless effective mitigation strategies are systematically implemented to counterbalance the adverse effects. There are numerous environmental and social impacts foreseen throughout both the construction and operational phases of the project. The identification and management of the significant impacts are critical for the sustainable progression of this initiative.

Construction Phase

- Air Pollution – Dust emissions from excavation, material handling, and vehicular movement.
- Noise Pollution – High noise levels from construction machinery and heavy vehicle movement.
- Soil Erosion & Land Contamination – Excavation and improper disposal of construction waste.
- Water Pollution – Potential contamination from spillage of fuel, lubricants, and cement slurry.
- Waste Generation – Solid waste including packaging materials, construction debris.
- Occupational Health & Safety Risks – Hazards such as injuries, dust inhalation, and heat stress for workers.
- Traffic Disruptions – Increased heavy vehicle movement, causing congestion and road wear.

Operational Phase

- Air Emissions – Release of particulate matter (PM), volatile organic compounds (VOCs), sulfur oxides (SOx), nitrogen oxides (NOx), and carbon monoxide (CO) from asphalt production.
 - Odor & Hydrocarbon Emissions – Bitumen heating releases strong odors and potential harmful hydrocarbons.
 - Noise Pollution – Continuous operation of mixers and vehicle movement.
 - Solid Waste Generation – Waste bitumen, aggregates, and damaged asphalt materials.
- Water Pollution – Oil spills, wastewater discharge, and potential groundwater contamination.
- Heat Effect – High temperatures from asphalt production affecting the surrounding environment.

- Worker Safety & Health Risks – Exposure to bitumen fumes, high temperatures, and dust.
- Traffic & Road Safety Issues – Heavy vehicle movement causing congestion and road damage.

Environmental Impact Assessment for Installation of an Asphalt Plant

Environmental Component	Nature of Impact (Positive/Negative)	Impact Magnitude (Low/Moderate/High)	Phase (Construction/Operation)
Air Quality	Negative (Dust emissions, gaseous pollutants, bitumen fumes)	High	Both
Noise Pollution	Negative (Machinery, asphalt mixing, truck movement)	Moderate	Both
Water Quality	Negative (Oil spills, wastewater discharge)	Moderate	Both
Soil & Land Degradation	Negative (Soil compaction, contamination from bitumen/fuel spills)	High	Both
Biodiversity (Flora & Fauna)	Negative (Habitat destruction, air pollution affecting vegetation)	Low/Negligible	Both
Waste Generation	Negative (Bitumen residues, aggregates, packaging)	Moderate	Both
Occupational Health & Safety	Negative (Exposure to fumes, dust, heat, machinery risks)	High	Both
Traffic & Road Infrastructure	Negative	Moderate	Both

	(Increased truck movement, congestion)		
Heat Effect	Negative (Elevated temperature due to asphalt production)	Moderate	Both
Economic Growth	Positive (Job creation, infrastructure development)	High	Both
Local Business Development	Positive (Boost to material suppliers, transporters)	Moderate	Both

Mitigation Measures for the Installation and Operation of an Asphalt Plant

To minimize the environmental impacts associated with the construction and operational phases of the installation of an asphalt plant, the following mitigation strategies will be implemented:

During the Construction Phase

- Strict adherence to best practices for machinery and vehicle operation, including the use of low-sulfur fuels, regular maintenance, and installation of emission control devices (e.g., mufflers, silencers).
- Provision of temporary housing facilities equipped with essential water and sanitation amenities for workers.
- Proper waste management practices, ensuring compliance with municipal regulations for handling and disposing of construction waste.
- Regular inspection and servicing of all machinery to minimize emissions and optimize efficiency.
- Installation of a septic tank for the safe disposal of wastewater, preventing contamination of surrounding water sources.

- Use of covered trucks for transporting raw materials to prevent dust dispersion and material spillage.
- Development of a greenbelt around the plant area, including a tree plantation drive to mitigate the effects of dust pollution.
- Enclosure and maintenance of power generators to reduce noise and air pollution.
- Deployment of traffic management personnel to regulate vehicle movement within and around the site, ensuring smooth logistics.
- Utilization of low-noise machinery to limit noise pollution in nearby areas.

During the Operational Phase

- Implementation of a comprehensive solid waste management plan, ensuring proper disposal of process-related waste through EPA-certified contractors.
- Installation of a septic tank with sufficient capacity to treat wastewater before discharge into nearby channels, preventing water pollution.
- Placement of safety signage on roads near the plant to mitigate traffic-related hazards.
- Establishment of a dedicated Health, Safety, and Environment (HSE) department to maintain a safe and secure workplace, reducing occupational risks and improving worker well-being.
- Conducting regular HSE training sessions for employees to ensure awareness of best practices in workplace safety and environmental conservation.
- Mandatory use of Personal Protective Equipment (PPE) such as masks, gloves, and protective clothing, particularly for workers handling hazardous materials like bitumen.
- Establishment of incident reporting protocols for immediate action in case of environmental or workplace safety concerns.

- Enhancement of the greenbelt and continued tree plantation efforts to further reduce dust pollution and improve air quality.
- Installation of an efficient ventilation system and implementation of a preventive maintenance schedule for generators and asphalt production machinery to control emissions and ensure compliance with Punjab Environmental Quality Standards (PEQS).

Proposed Monitoring Framework

Given the necessity for an Environmental Impact Assessment (EIA) due to the expected long-term, significant, or adverse impacts of the project, it is imperative to establish a robust Environmental Monitoring Program. This program is designed to oversee the environmental parameters meticulously at different phases of the project's life cycle, ensuring compliance with the Punjab Environmental Quality Standards (PEQS) and legal obligations.

The environmental management and monitoring plan serves as a strategic framework to mitigate potential environmental impacts during the construction and operational phases of the project. It aims to amplify the project's benefits while introducing and upholding exemplary health and safety standards. This comprehensive plan is crucial for the anticipated proposed project.

The proponent is committed to the meticulous execution of the mitigation measures throughout the installation, operation, and maintenance phases, with adequate monitoring being a pivotal component of this commitment. Details of the monitoring strategy are encapsulated in Chapter 08 of the EIA report.

Conclusion & Recommendations

The installation of an asphalt plant is crucial for infrastructure development, particularly in road construction. However, its construction and operation present environmental concerns such as air and noise pollution, dust emissions, wastewater generation, and solid waste disposal. To minimize these impacts, the project must adhere to Punjab Environmental Quality Standards (PEQS) 2016

and other regulatory requirements while implementing best environmental management practices. Key recommendations include the installation of air pollution control devices like dust collectors, regular environmental monitoring for air, noise, and water quality, and efficient waste management through collaboration with EPA-certified vendors. Sustainable practices such as water recycling, greenbelt development, and tree plantation should be adopted to mitigate environmental impacts, while strict health and safety protocols must be enforced to ensure worker protection. Additionally, traffic management measures should be implemented to reduce congestion and road damage, and energy-efficient machinery should be used to lower carbon emissions. Continuous community engagement and awareness initiatives will also help in fostering responsible operations. By integrating these measures, the installation of asphalt plant can achieve sustainable and environmentally responsible operations, balancing economic development with ecological conservation.

As a key recommendation, it is advised that the proponent secures environmental approval, specifically a No Objection Certificate (NOC), from the Punjab-EPA before initiating construction activities, in adherence to the regulatory prerequisites.

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1 INTRODUCTION

1.1 General

M. Asghar Construction Company (Pvt) Limited supports growth of national economy and provide logistics solution for development of industries and business in Pakistan. The installation of an asphalt plant in Sheikhpura, Punjab, is a strategic initiative aimed at supporting Pakistan's growing infrastructure sector, particularly in road construction. Asphalt is a critical material used in paving roads, highways, and other infrastructure projects. The plant will manufacture high-quality asphalt by mixing aggregates (crushed stone, gravel, sand) with bitumen and filler materials under controlled conditions to ensure durability and performance.

Located in G42H+5HG Maddar, Tehsil Sharaqpur, District Sheikhpura, the project benefits from proximity to major cities such as Islamabad, Rawalpindi, and Peshawar, ensuring efficient supply chain management and distribution. The region is rich in essential raw materials, minimizing transportation costs and enabling a stable production process. The plant is designed with modern environmental controls to mitigate potential impacts such as dust emissions, noise pollution, and wastewater generation.

1.2 Purpose of the Report

This report has been prepared to conform to the requirements of the Punjab Environmental Protection (Amendment) Act 2012 (PEPA), which states that:

“No proponent of a project shall commence construction or operation unless he has filed with the Provincial Agency an Environmental Impact Assessment or where the project is likely to cause an adverse environmental effect, an environmental impact assessment, and has obtained from the Provincial Agency approval in respect thereof.”

The EIA report is comprehensive, covering socio-economic, physical, and environmental aspects, including land use, forestry, crops, water bodies,

biodiversity (flora and fauna), heritage, and other factors relevant to the project and its surrounding area. It meticulously details mitigation strategies intended to address and neutralize potential environmental impacts on human and environmental health in the vicinity of the project site. These strategies are applicable during both the construction phase and the regular operation of the project.

Moreover, the report serves as a crucial document for decision-makers, particularly the EPA of Punjab, providing all necessary information in the officially approved format. This facilitates an informed decision-making process regarding the issuance of the required environmental approval. Through this EIA report, the proponent demonstrates a commitment to adhering to the Punjab Environment Quality Standards (PEQS) and maintaining a robust environmental management order throughout the lifecycle of the project.

1.3 Identification of the project and proponent

The detail of the project and proponent is given below:

Details of the Project and Proponent	
Proponent name	Mr. Muhammad Asghar
Proponent designation	Proponent
Address of proponent	Defence View Main Road, House no.1 Jaranwala, District Faislabad
Project title	Installation of asphalt plant by M/s M. Asghar Construction Company(Pvt) Limited
Location of the project	G42H+5HG Maddar, Tehsil Sharaqpur , District Sheikhupura

1.4 Consultant Information

The initiator has contracted with M/s Enviro Stewards Company (Private) Limited for the execution of an Initial Environmental Examination (IEE) for the

aforementioned project, in alignment with the standards and guidelines set forth by the Environmental Protection Agency (EPA) of Punjab. To fulfill this objective, M/s Enviro Stewards Company (Private) Limited has assembled a team of experts, including environmental specialists, environmental engineers, and chemical engineers. Further information on the consultancy team is provided below:

Detail of the Consultant	
Company name	Enviro Stewards Company (Private) Limited
Address	Plot 134 A, Block A1, Gulberg III, Lahore.
Contact No.	0301-1199600
Detail of the Team Leader	
Name	Miss Sara Fatima
Designation	Senior Environmentalist
Contact No.	0301-1198600

1.5 Nature and Size of The Project

The project under consideration involves the installation of asphalt plant by M/s M. Asghar Construction Company (Pvt) Limited. This facility is to be situated at G42H+5HG Maddar, Tehsil Sharaqpur, District Sheikhupura, encompassing an area of 16 Kanal

The project is expected to generate employment opportunities for approximately 20-25 individuals during its construction phase. Furthermore, upon transitioning to the operational phase, it is anticipated that an additional 30-40 personnel will be employed.

1.6 Project Location

The designated location for the project is situated at G42H+5HG Maddar, Tehsil Sharaqpur, District Sheikhupura. The geographical coordinates marking the project site are 31.500430 N, 74.128946 E.



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Figure 1 Location of Site

1.7 Scope and depth of the environmental impact assessment (EIA) study

The Environmental Impact Assessment (EIA) study was conducted in strict adherence to section 2.3 of the "Guidelines for the Preparation and Review of Environmental Reports, October 1997." Following the mandates of the Pakistan Environmental Protection Act (PEPA) of 1997, as amended in 2012, an exhaustive IEE report has been meticulously prepared by a dedicated team of environmental experts. This comprehensive document encompasses an analysis of all conceivable environmental impacts attributed to the proposed project within and surrounding the project site. It includes a detailed assessment of physical, ecological, and socio-economic dimensions, in addition to pinpointing potential beneficial and adverse impacts.

Notably, the study excludes any development activities beyond the immediate vicinity of the project, such as road rehabilitation or the construction of additional factories outside the project area.

1.8 Extent of the EIA Study, Scope of the Study, Magnitude of the Efforts

- Detailed scrutiny of construction-related activities, encompassing land leveling and marking operations.
- Examination of pertinent off-site construction endeavors, including the potential construction of access roads, as necessary.
- An in-depth analysis of environmental repercussions stemming from both constructional and operational phases of the project.
- Evaluation of the project's positive contributions towards elevating the local economy's level.

This EIA report thus represents a thorough investigation into the varied environmental, biological, and socio-economic impacts, ensuring a holistic understanding of the project's footprint on the local ecosystem and community welfare.

2 POLICY, LEGISLATION, LEGAL & ADMINISTRATIVE FRAMEWORK

The project proponent established contact with the Environmental Protection Agency (**EPA**), Government of Punjab for the grant of environmental approval before the start of the project. This requirement is under the regulation of Review of IEE and EIA Regulation 2022. According to the above-mentioned list this project falls in the category of projects requiring EIA.

2.1 Screening

The project is the installation of asphalt plant by M/s M. Asghar Construction Company (Pvt) Limited. The capital cost of the project is around 25 million. According to projects categorization for environmental assessment studies, the proposed project falls under Schedule II (list of projects requiring EIA), Category J (Other Projects that requires EIA) as per the IEE/EIA Regulations 2022, established under section 12 of Punjab Environment Protection Act 1997 (Amended 2012).

2.2 Existing Regulation and Framework

This EIA study has been carried out in the light of the policy guidelines of the preparation of IEE/EIA Reports under the procedure and practices formulated by the Provincial Environmental Protection Agency (EPA).

2.3 Relevant Regulation and Framework

I. National Conservation Strategy, 1992

On March 1, 1992, the Cabinet of Pakistan approved the National Conservation Strategy. It describes the stark reality of the country's deteriorating resource base and its implications for what is still largely a natural resource-based economy. It sets forth the beginnings of a plan to integrate environmental concerns into virtually every aspect of Pakistani economic life. The strategy has three overriding objectives: conservation of natural resources, sustainable development, and improved efficiency in the use and management of resources.

II. PEPO, 1983 and PEPA 1997 (Amended 2012)

In 1983, the Government of Pakistan issued an Environmental Protection Ordinance (EPO), which was replaced by the Pakistan Environmental Protection Act (PEPA) 1997, through an Act of Parliament. Now the PEPA 1997 has been replaced by Punjab Environmental Protection Act 1997 (Amended 2012) on 18th April 2012.

Under Sec. 8 of Environment Protection Ordinance (EPO) 1983, it was necessary to carry out EIA for all development projects, but there were no IEE/EIA regulations under that ordinance.

Under section 12 of the Punjab Environmental Protection Act, 1997 (Amended 2012) it is mandatory to take an Environmental Approval Environmental Protection Agency for commencement of any of the project.

III. National Environmental Policy 2005

The Government of Pakistan (GOP) has notified National Environmental Policy 2005, for different aspects in which guidelines have been given, to commence the projects having significant environmental impacts.

IV. Review of EIA and EIA Regulations, 2022

The GOP has issued Review of EIA for Environmental Impact Assessment Regulations 2022, to review the (EIA) / reports.

V. Guidelines for the Preparation and Review of Environmental Reports, 1997

The GOP has also framed guidelines for the preparation and review of EIA of projects in various developmental sectors.

VI. National Environmental Quality Standards (NEQS)

According to Punjab Environmental Protection Act, 1997 (Amended 2012), National Environmental Quality Standards (NEQS) were established for

municipal and industrial effluents and air emissions. The latest revision of NEQS carried out in 2001 is attached as an annexure to this report.

VII. Guidelines for Sensitive and Critical Areas

GOP issued Guidelines for Sensitive and Critical Areas in October 1997. The objective of the guideline is to provide guidance to project proponents and other stakeholders in the environmental assessment process, so that the proposed projects are planned and sited in a way that protects the values of sensitive and critical areas.

VIII. Policy and Procedures for the Filing, Review and Approval of Environmental Assessments, November-1997

Environmental Assessment is the Primary means of managing the approval of new development proposals in Pakistan. Environmental Assessment allows for the systematic examination of proposals, clear procedures which provide for the interests of relevant Government Departments and other stakeholders to carefully consider.

IX. Punjab Wildlife Protection Act, 1974

This act was framed in 1974 by the province Punjab and is about the protection and conservation of wildlife.

X. Forest Act, 1927

This act was framed in 1927. The Forest Act, 1927 is still the basic charter for the forest departments in Pakistan. This law empowers provincial governments to manage forest areas.

XI. Explosive Act, 1884

This act deals with explosives in prohibiting either absolutely or subject to conditions, the manufacture, possession, or importation of any explosive which

is so dangerous in character that, in the opinion of the appropriate Government, it is expedient for public safety to issue the notification.

XII. Punjab Local Government Ordinance, 2022

Schedules 4 and 8 of these ordinances are to pertain to environmental pollution. Under the ordinance, the local councils are authorized to restrict projects causing pollution to air, water, or land. They may also initiate proposed projects for improving the environment.

XIII. Mines Act, 1923

Mines Act, 1923 is a federal legislative framework empowering the provincial governments to make rules and regulations for their respective provinces for different categories of mines. The act emanates from the constitution which provides for 'Regulation of Labor and Safety in Mines'. The Mines Act is a law relating to the safety of mines and safety of health and welfare of mine workers.

XIV. Pakistan Penal Code, 1860

This defines the penalties for violations concerning pollution of air, water bodies and land. Sections 268 to 291 are about offences affecting public health. The offences relating to public health, safety and environment are as under.

1. Sec 268: Public Nuisance
2. Sec 269: Negligent act likely to spread infection of disease dangerous to life:
3. Sec 270: Malignant act likely to spread infection of disease dangerous to life:
4. Sec 278: Making atmosphere noxious to health:
5. Sec 284: Negligent conduct with respect to poisonous substance:
6. Sec. 290: Punishment for public nuisance in cases not otherwise provided for:

7. Sec. 291: Continuance of nuisance after injunction to discontinue.

XV. Punjab Land Use Rules 2009

In January 2009 the Punjab government notified Punjab Land Use Rules 2009 for the clarification of Lahore Master Plan. In these rules permissible land use according to area type is defined.

XVI. Antiquities Act 1975

The law relates to the protection of antiquities, monuments, national and international heritage. Compliance of this act is mandatory for the installation of generators. Under section 22 of the act, no development plan can be done within distance of 1500ft from the residence areas. There is no historical site or monuments in the proximity of the project.

XVII. Solid Waste Management Rules 2005

The solid waste management department, CDGL has notified these rules for proper waste management.

XVIII. Labor Laws

The labor laws apply on child labor and measuring instruments.

XIX. Safety & Civil Defense Laws

The civil defense laws provide details about safety, fire protection and civil defense.

3 SCOPING

Scoping is a pivotal phase in the Environmental Impact Assessment (EIA) process, aimed at defining the scope and focus of the assessment for a proposed project or activity. This phase involves a thorough evaluation of potential environmental impacts, including direct, indirect, cumulative, and long-term effects on various environmental domains such as air quality, water quality, biodiversity, and cultural heritage. A multidisciplinary team of environmental and social experts conducts this analysis to identify and prioritize potential environmental risks and impacts.

In Pakistan, public participation is a mandatory requirement in the EIA process, as stipulated by national environmental regulations. This participatory approach allows stakeholders, including local communities and interested parties, to provide input, express concerns, and contribute to the assessment process. Such involvement ensures that diverse perspectives are considered, enhancing the comprehensiveness and accuracy of the EIA. Public consultation fosters transparency, accountability, and community engagement, leading to more informed and sustainable environmental outcomes.

3.1 Spatial and Temporal Boundaries of Environmental Assessment

The proposed project involves transitioning the land use at coordinates 31.500430 N, 74.128946 E from open land to a specialized asphalt manufacturing facility. Although there are a few residences within a 500 meter radius, comprehensive mitigation measures will be implemented to minimize potential disturbances to the local community.

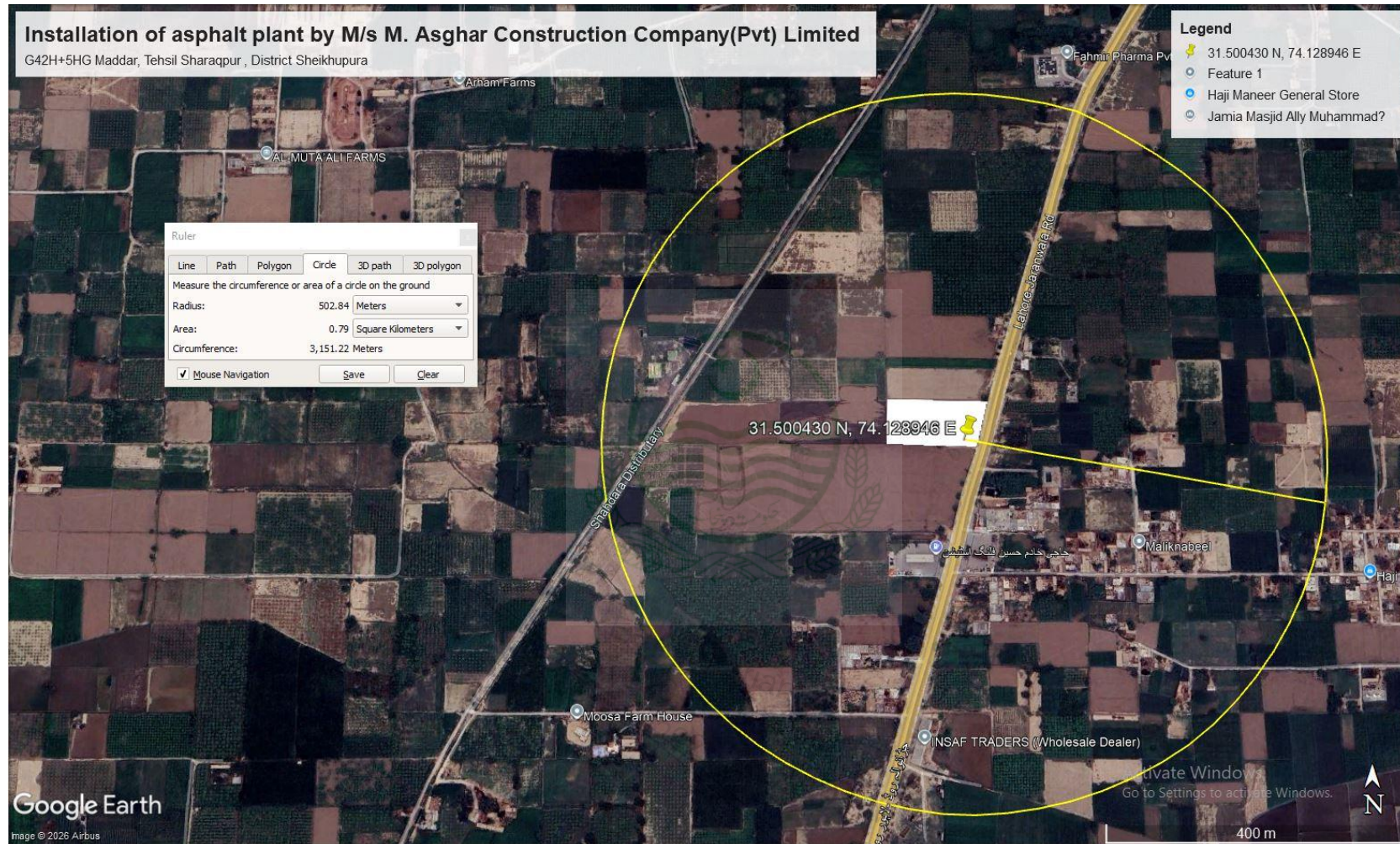
The project's operations are primarily focused on storage activities, which are not expected to result in significant air emissions, thereby ensuring a negligible impact on air quality. Additionally, wastewater generated from the facility will undergo rigorous testing and treatment to comply with the Punjab

Environmental Quality Standards (PEQS), ensuring that water quality remains within acceptable limits.

Notably, there are no environmentally sensitive areas within a defined safe distance from the project site, significantly reducing the risk of adverse impacts on critical habitats, biodiversity, or ecologically sensitive zones. This approach to land use change, coupled with proactive environmental management practices, demonstrates the project's commitment to minimizing its ecological footprint while adhering to relevant environmental regulations and standards.



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3.2 KEY ISSUES AND CONCERNS IDENTIFIED

During the consultation phase of the Environmental Impact Assessment (EIA) for the proposed Installation of asphalt plant, a diverse group of stakeholders—including local community members, government departments, environmental practitioners, experts, and nearby industries—provided valuable feedback. While there was general support for the project, several key concerns were identified:

3.2.1 Employment Opportunities:

Stakeholders emphasized the importance of prioritizing local hiring to ensure that the community benefits directly from job opportunities associated with the project.

3.2.2 Worker Training:

The need for comprehensive training programs was highlighted to enhance worker skills and ensure safety during plant operations.

3.2.3 Noise Pollution:

Concerns were raised about potential noise disturbances. Stakeholders recommended implementing measures to limit noisy activities, especially during sensitive times, to minimize community disruption.

3.2.4 Air Pollution Control:

Effective strategies to manage and reduce air pollution were deemed essential. This includes implementing dust management plans and monitoring emissions to ensure compliance with environmental standards.

3.2.5 Wastewater Management:

The importance of treating wastewater before disposal was underscored. Stakeholders advocated for the installation of adequate treatment facilities to prevent environmental contamination.

3.2.6 Solid Waste Management:

Timely collection and proper disposal of solid waste were emphasized to maintain environmental cleanliness and prevent potential health hazards.

3.2.7 Environmental Mitigation and Management:

Recommendations included developing a robust Environmental Management and Monitoring Plan (EMMP), initiating tree plantation drives, and ensuring worker health and safety protocols are in place.

3.2.8 Resource Conservation:

Stakeholders called for the responsible use of groundwater resources and emphasized the importance of maintaining overall cleanliness in the area.

3.2.9 Transportation and Community Impact:

Suggestions were made to cover transport vehicles during construction to reduce air pollution and to engage in initiatives aimed at community betterment.

These insights are crucial for refining project strategies, ensuring environmental compliance, and fostering positive community relations. Addressing these concerns will contribute to the project's sustainability and acceptance within the local context.

3.3 Significant Environmental Impacts and Management Factors:

The consultation process also helped identify critical environmental impacts and management factors necessary for sustainable project execution:

3.3.1 Dust and Air Quality Management:

Implement strategies to minimize dust and particulate emissions, such as installing dust suppression systems and regularly monitoring air quality.

3.3.2 Wastewater Treatment:

Ensure all wastewater is treated according to standards before disposal, aligning with environmental regulations to protect local water bodies.

3.3.3 Solid Waste Management:

Establish a solid waste collection and disposal mechanism to manage waste effectively and prevent environmental degradation.

3.3.4 Occupational Health and Safety:

Implement measures to protect worker health and safety, including regular training sessions and the provision of appropriate personal protective equipment (PPE).

3.3.5 Site Security and Traffic Management:

Ensure secure and efficient site operations and traffic flow to prevent accidents and minimize disruptions to the local community.

3.3.6 Hygiene and Community Impact:

Maintain high hygiene standards within the plant and assess the project's impact on the community to foster positive relations.

3.3.7 Resource Conservation:

Focus on water conservation, energy efficiency, and other sustainable practices to minimize the environmental footprint.

3.3.8 Environmental Restoration and Green Initiatives:

Commit to site restoration post-construction and promote green spaces through tree plantation initiatives, enhancing local biodiversity.

Incorporating these considerations into the project plan will address stakeholder concerns and contribute to the project's long-term sustainability and positive reception within the community.

4 ALTERNATIVE CONSIDERATION

The Environmental Impact Assessment (EIA) for Said project involves a comprehensive analysis of various alternatives to ensure that the project achieves its objectives with minimal environmental impacts.

Alternatives are recommended and examined to determine the best method of achieving project objectives, while minimizing environmental impacts. The discussion and analysis of alternatives in an EIA (Environmental Impact Assessment) study should consider other practicable strategies that will promote the elimination of negative environmental impacts identified.

This section covers the project alternatives which were examined for the proposed project in the said location. This analysis encompasses site selection, design and technology choices, environmental considerations, and economic strategies, aiming to identify the most suitable options based on environmental, economic, and health and safety criteria.

4.1 Site Alternatives

The project's location is strategically chosen within an open area, ensuring compatibility with surrounding land use and adequate space for the proposed facility and its infrastructure. The site's selection was influenced by several factors i.e., Aligns with the area's existing land use, minimizing land use conflicts. Facilitates logistical efficiency and access.

These characteristics underscore the site's suitability for the proposed project, negating the need for consideration of alternative locations.

4.2 Design/Technology Alternatives

The project commits to adopting state-of-the-art technology and new machinery to minimize long-term environmental impacts. This approach prioritizes:

- **Low Emission Technologies:** Ensuring operational efficiency while minimizing air pollutants.
- **Water Mitigation Techniques:** Including advanced wastewater treatment plants to manage effluents effectively.

This focus on cutting-edge technology and investment in high-quality machinery demonstrates a commitment to environmental stewardship and product quality.

4.3 Environmental Alternatives

The chosen site's location, away from sensitive biodiversity areas and cultural heritage sites, supports the project's environmental feasibility. Additional environmental considerations include:

- **Landscaping:** To enhance the site aesthetically post-construction.
- **Fire Safety:** Installation of advanced fire-fighting facilities.
- **Resource Conservation:** Emphasis on environmental protection through sustainable practices.

4.4 Economic Alternatives

The project's design and operational strategies are economically viable, offering multiple benefits:

- **Tree Plantation:** To lower area temperatures and serve as a noise buffer.
- **Energy-Efficient Building Design:** Maximizing natural daylight and utilizing LED lighting to reduce electricity consumption.
- **Employment Opportunities:** Creating jobs for both local and skilled workers, contributing to the local economy.

These elements indicate a holistic approach to project design, balancing economic efficiency with environmental and social benefits. The cumulative impact of such projects is expected to contribute significantly to economic growth, affirming the chosen alternatives' appropriateness for M/s M. Asghar Construction Company (Pvt) Limited.

5 PROJECT DESCRIPTION

The proponent is set to installation of Intallation of asphalt plant by "**M/s M. Asghar Construction Company (Pvt) Limited**" This facility will be located at G42H+5HG Maddar, Tehsil Sharaqpur, District Sheikhupura, sprawling over an area of 16 Kanal. The primary aim of this project is to fulfill the growing market demand thereby contributing to economic upliftment of the proponent.

Financial Overview

The estimated investment for the proposed project is approximately 25 million PKR. This budget allocation underscores the project's scale and the commitment to establishing a state-of-the-art product manufacturing facility.

Positive Impacts

The initiation of M/s M. Asghar Construction Company (Pvt) Limited is poised to have a significant positive impact on both the local and national economy:

- Provide quality products.
- Employment Opportunities
- Economic Contribution

5.1 Type and Category of the Project

Capital Cost:

The project entails an investment of 25 million PKR, highlighting its significant economic scale.

Area Coverage:

The project will be developed over an area of 16 Kanal.

Employment Generation:

It is anticipated to create 20-25 jobs during the construction phase and 30-40 jobs during the operational phase, contributing significantly to local employment.

Environmental Assessment Category:

According to the environmental assessment categorization, this project is classified under **Schedule II (requiring an EIA), Category J (Other Projects)** as per the IEE/EIA Regulations 2022. This classification necessitates conducting an Environmental Impact Assessment (EIA) for environmental approval, underlining the project's adherence to environmental governance.

5.2 Objective of the Project

The project is aimed at installation of asphalt plant with the following objectives:

- 1. Efficient Asphalt Production** – To produce high-quality asphalt for road construction and infrastructure projects.
- 2. Environmental Compliance** – Minimize air pollution, dust, and emissions to meet regulatory standards.
- 3. Market Demand:** To fulfill the market demand, ensuring the availability of cost-effective products.
- 4. Socio-economic Uplift:** To contribute to the socio-economic upliftment of the proponent and the local community by adding value through this project.

5.3 Land Use of the Site

The selected land is an open plot and surrounding also covered with greenery, ensuring that the project aligns with the existing land use policy and negates the need for land use change.

5.4 Location and Site Layout

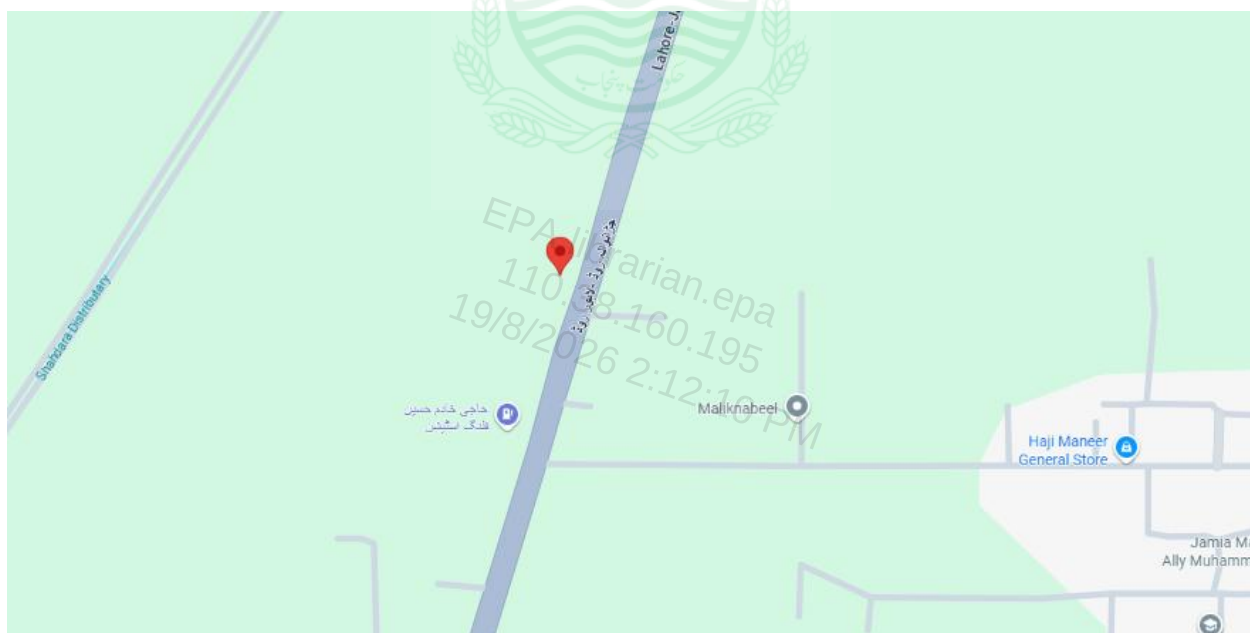
- **Site Location:** The facility is to be located at G42H+5HG Maddar, Tehsil Sharaqpur, District Sheikhupura, with coordinates 31.500430 N, 74.128946 E, strategically chosen for its suitability for industrial development.

- **Site Layout:** The detailed layout of the project is meticulously planned, considering the operational requirements and environmental considerations, with the layout provided in the attached file.
- **Schedule of area**

Description	Area
Covered area	8 K
Total area	16 Kanal

5.5 Road Access

The project site boasts paved road access via the main road near the project site facilitating easy access for both construction and operational activities. This accessibility is crucial for the efficient transportation of materials and products, as well as for employees commuting to the site. The road access map provided offers detailed insight into the project site's connectivity.



5.6 Vegetative Features of the Site

G42H+5HG Maddar, Tehsil Sharaqpur, District Sheikhpura, primarily consists of shrublands dominated by hardy shrubs and bushes, various grass species adapted to limited water availability, and scattered drought-resistant trees such as Acacia (Kikar) and Prosopis (Mesquite).

The soil in this region varies, with some areas having sufficient potassium content, which supports certain types of vegetation. The area surrounding the proposed project site boasts a blend of agricultural characteristics, enriched with several green patches. Recognizing the importance of sustainable development, the project plans to introduce green belts around the site during its operational phase. These green belts are not only intended to augment the site's aesthetic appeal but also serve a critical environmental function. They will function as natural buffers to mitigate pollution emanating from various sources, particularly vehicular emissions, and will play a role in dampening noise pollution from within the premises. The development of a green belt is a strategic recommendation aimed at enhancing atmospheric quality and providing a serene environment around the project area.

5.7 Plantation Plan

Following the completion of the proposed project in G42H+5HG Maddar, Tehsil Sharaqpur, District Sheikhpura, and a comprehensive plantation plan will be implemented to restore the environment and enhance community well-being. The plan will encompass the following key components:

- **Selection of Suitable Tree Species:** Tree species that are well-adapted to the local climate and soil conditions will be selected to ensure sustainability and resilience. Recommended species will include:
 - **Acacia nilotica (Kikar):** A native species known for its drought resistance and soil stabilization properties.

- **Dalbergia sissoo (Shisham):** Valued for its hardwood and adaptability to local conditions.
- **Morus alba (White Mulberry):** Provides shade and has economic benefits through its leaves, which are used in sericulture.
- **Eucalyptus camaldulensis:** A fast-growing species suitable for timber; however, its water consumption will be carefully monitored.

These species have been identified as suitable for the Sheikhpura region based on land suitability assessments.

- **Maintenance and Monitoring:** A maintenance schedule will be established, including regular watering, pruning, and protection from pests. Continuous monitoring will ensure the health and growth of the plantation, allowing for timely interventions when necessary.

5.8 Magnitude & Cost of the Project

The project is poised to be a significant industrial venture with an estimated initial capital investment of around 25 million PKR. This investment will cover the costs associated with the procurement of raw materials, processing, manufacturing, and maintenance activities essential for the operation phase of the project. Emphasis will be placed on ensuring the safety of equipment and operations through diligent management practices. It is noted that no separate fund allocation is required for these operational assurances, indicating a comprehensive budget plan that encompasses all necessary safety and environmental measures. This strategic financial planning underscores the project's commitment to both economic viability and environmental responsibility.

Amenities	Cost in PKR
Machinery	10 million
Infrastructure cost	04 million
Raw Material & Others	06 million

Environmental Budget	03 million
Landscaping & Tree plantations	1.5 million
EMMP	0.5 million
Total Cost	25 million

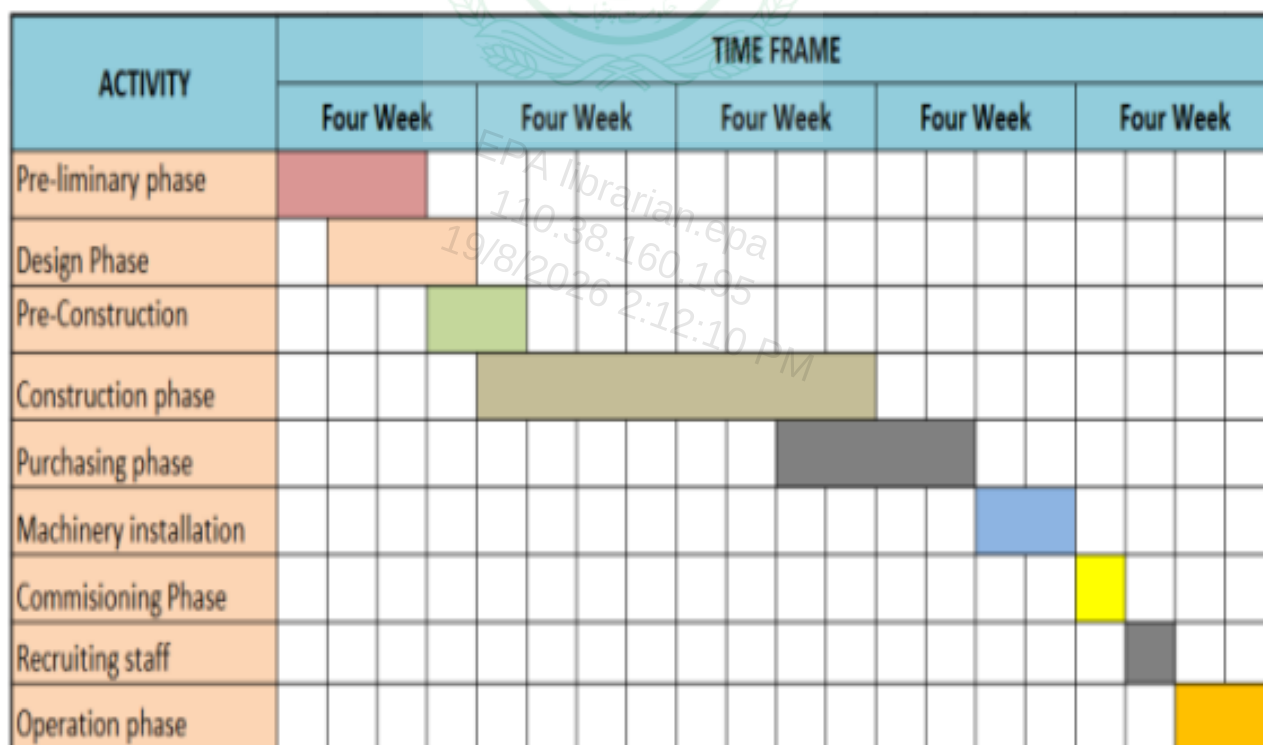
5.9 Proposed schedule for implementation (Tentative)

Stage I: The clearing of land, and preparation of land for construction activity.

Stage II: During this phase, machinery will be brought to the site and installed.

Stage III: In this phase all the outstanding activities will be completed, and construction activities will be initiated.

Stage IV: After completing construction, employees will be hired, and staff will be assigned their respective work. The operation activities will be initiated



5.10 Description of the project

The proponent intends the installation of asphalt plant by M/s M. Asghar Construction Company (Pvt) Limited, located at G42H+5HG Maddar, Tehsil Sharaqpur, District Sheikhupura, over an area of 16 Kanal. The purpose of this project is to meet the market demand, to produce high quality products and economic uplift. The estimated cost for the subject proposed project will be about 25 million PKR. The project will pose positive impacts in terms of employment opportunities, will create jobs during construction and operation, and will contribute to the country's economy by meeting the demands.

5.10.1 Process Description:

The asphalt manufacturing process involves several stages, from raw material preparation to final packing and distribution. Below is a step-by-step breakdown:

i. Raw Material Preparation

Aggregates such as crushed stone, sand, and mineral fillers are stored in designated areas before processing. These materials are transported to hoppers via loaders or conveyor belts. Bitumen, the primary binding agent, is stored in Bitumen Tanks to keep it at the required temperature. The Hot Oil Tank maintains the bitumen's viscosity, preventing solidification. Fuel tanks store the required fuel (diesel) for heating processes.

ii. Heating & Drying Process

Aggregates are transported to the Dryer via conveyor belts. The Dryer removes moisture and heats the aggregates to the required temperature. Dust and fine particles generated during this process are collected in the Dust Filter to minimize environmental impact.

iii. Mixing Process

Heated aggregates are transferred to the Mixer using the Badge Elevator. Bitumen is added in a controlled manner to ensure proper binding. The Mixer blends the components thoroughly to form hot mix asphalt.

iv. Screening

After mixing, the asphalt is screened to remove any oversized particles or impurities that could affect the quality of the final product. This ensures that the asphalt mixture is uniform and free from debris.

v. Storage & Quality Control

The mixed asphalt is temporarily stored in silos or directly transferred to transportation units. Quality checks, including temperature, viscosity, and composition analysis, are performed to meet industry standards.

vi. Packing & Distribution

The asphalt mix is loaded directly into insulated trucks to maintain temperature and prevent premature cooling. In some cases, asphalt is packed in drums or bags for storage and later use in road construction.

5.10.2 List of machinery

Following will be used during the production:

Hot Oil Tank – Used for heating and maintaining the temperature of bitumen.

Fuel Tank – Storage for fuel used in heating and drying processes.

Dryer – Used for heating and drying aggregates before mixing.

Dust Filter – Captures and filters out dust particles from the drying process.

Mixer – Blends heated aggregates with bitumen to produce asphalt.

Badge Elevator – Likely used for lifting and transferring materials between processes.

Hoppers – Stores and transfers aggregates at different stages.

5.11 Available Facilities

✓ Water Resources

The project plans to utilize groundwater for its water consumption needs. The anticipated depth for groundwater extraction is between 100-150 feet.

✓ Fire Safety Measures

A comprehensive firefighting system will be in place to address any emergencies, ensuring the safety of the premises, the workforce, and the environment. Automatic fire detection and alarm system provided. First aid boxes are provided on each floor and dry chemical fire extinguisher is provided.

✓ Wastewater Management

To manage and treat wastewater effectively, a Septic Tank will be installed and maintained, demonstrating the project's commitment to environmental sustainability and compliance with regulatory standards.

✓ Parking Facilities

The project site will include a specifically allocated area for vehicle parking, accommodating the transportation needs of employees and visitors, thus ensuring orderly and safe vehicular movement.

✓ Power Requirement

The power required to run this industry will be fulfilled by WAPDA.

✓ Workforce Requirements

The construction phase will require 20-25 workers, whereas the operational phase will see an increase to about 30-40 workers. This reflects the project's capacity to generate employment and contribute to the local economy.

✓ Personnel Protective Equipment (PPE)

To safeguard workers during both construction and operational phases, the following personal protective equipment will be provided, tailored to the specific activities undertaken:

- Protective goggles
- Leather or rubber safety shoes
- Gloves
- Face masks
- Helmets
- Overcoats

These measures emphasize the project's dedication to maintaining high standards of workplace safety, environmental protection, and operational efficiency, aligning with best practices and regulatory requirements.

5.12 Restoration and Rehabilitation Details

After the completion of the proposed project, restoration and rehabilitation measures will be undertaken to ensure environmental sustainability and minimize any adverse impacts. All construction debris, leftover materials, and temporary structures will be removed, and proper waste disposal practices will be implemented in compliance with environmental regulations. The disturbed land areas will be leveled and stabilized to prevent erosion, and soil improvement techniques will be applied to restore fertility. A plantation plan will be executed, involving the planting of indigenous trees, shrubs, and grasses to enhance biodiversity and create a green belt around the site. Water management strategies, such as restoring drainage channels and implementing rainwater harvesting systems, will be adopted to promote sustainable water use. Measures to control air and noise pollution, including maintaining green buffers, will be continued to ensure a healthy environment. Regular monitoring and maintenance will be carried out to ensure the effectiveness of rehabilitation efforts, and any necessary corrective actions will be taken to maintain the ecological balance of the site.

5.13 Government Approvals and Leases

Compliance with environmental regulations is paramount, necessitating approval from the Environmental Protection Agency (EPA) of Punjab, as per Section 12 of the Punjab Environmental Protection (Amendment) Act 2012. The preparation of the report for submission to EPA Punjab is a critical step towards securing the necessary governmental endorsements to commence construction, underscoring the project's adherence to legal and environmental mandates.

5.14 Health, Safety & Hygiene

The project prioritizes health, safety, and hygiene through the implementation of comprehensive measures:

- **First Aid Facility:**

Adequate first aid resources and training will be available on-site to address emergencies, ensuring immediate response capabilities.

- **Safety Training:**

Employees will receive training on workplace safety and operational best practices to minimize risks and enhance overall safety awareness.

- **Substance Use Policy:**

The use of drugs and narcotics is prohibited within the workplace to maintain a safe and healthy working environment, with designated smoking areas provided during breaks.

5.15 Safety Signs/Safety Boards

To ensure the safety of workers and visitors at the asphalt manufacturing plant, various safety signs and symbols will be installed across the site. Mandatory signs, such as those requiring helmets, safety goggles, ear protection, gloves, and protective footwear, will be placed in operational areas to ensure proper personal protective equipment (PPE) usage. Warning signs indicating high-temperature hazards, flammable materials, slippery surfaces, heavy machinery operation, and dust exposure will be prominently displayed near bitumen tanks, mixers,

dryers, and fuel storage areas. Prohibition signs, including "No Unauthorized Entry," "No Smoking," and "No Open Flames," will be installed in restricted zones, particularly around fuel tanks and control-sensitive areas. Emergency and first aid signs will be placed strategically to indicate the locations of first aid stations, emergency exits, fire extinguishers, assembly points, and eyewash stations. Additionally, fire safety signs will be positioned to mark fire extinguishers, fire hose reels, and fire alarms to facilitate quick response in case of emergencies. These safety measures will help create a secure working environment and minimize potential risks.



6 DESCRIPTION OF ENVIRONMENT

Environmental baseline data study is essential while preparing EIA reports. The basic purpose is to establish a clear understanding of existing environmental conditions in the project area and to identify potential impacts of the proposed project. It refers to the collection of baseline information on biophysical, social, and economic aspects of project location.

A site visit was conducted to survey the field area for collection of relevant data. Interviews were conducted with the public and stakeholders of the project area to seek public opinion on the implementation of the proposed project. Various Governmental and Non-Governmental Organizations (NGOs) were also visited for the collection of relevant data and their views on the proposed project were recorded for incorporation into the EIA report. The environmental impacts of any activity or process will be assessed based on deviation from the baseline or normal situation. The following components form part of the baseline.

- Physical Environment
- Ecological Environment
- Socio-Economic Environment

6.1 Physical Environment

This section examines the physical resources of Tehsil Sharaqpur, District Sheikhpura, including topography, soil, climate, surface and groundwater resources and quality, ambient air quality, and geology. The assessment encompasses both the project site and the broader region to evaluate potential impacts of the proposed project on these environmental parameters.

6.1.1 Geographical Overview:

Sheikhpura is one of the major districts of Punjab, Pakistan. It is located northwest of Lahore and serves as an important administrative and industrial region of the province. Sheikhpura District covers an area of approximately 5,960 square kilometers and consists of several tehsils, including Sheikhpura,

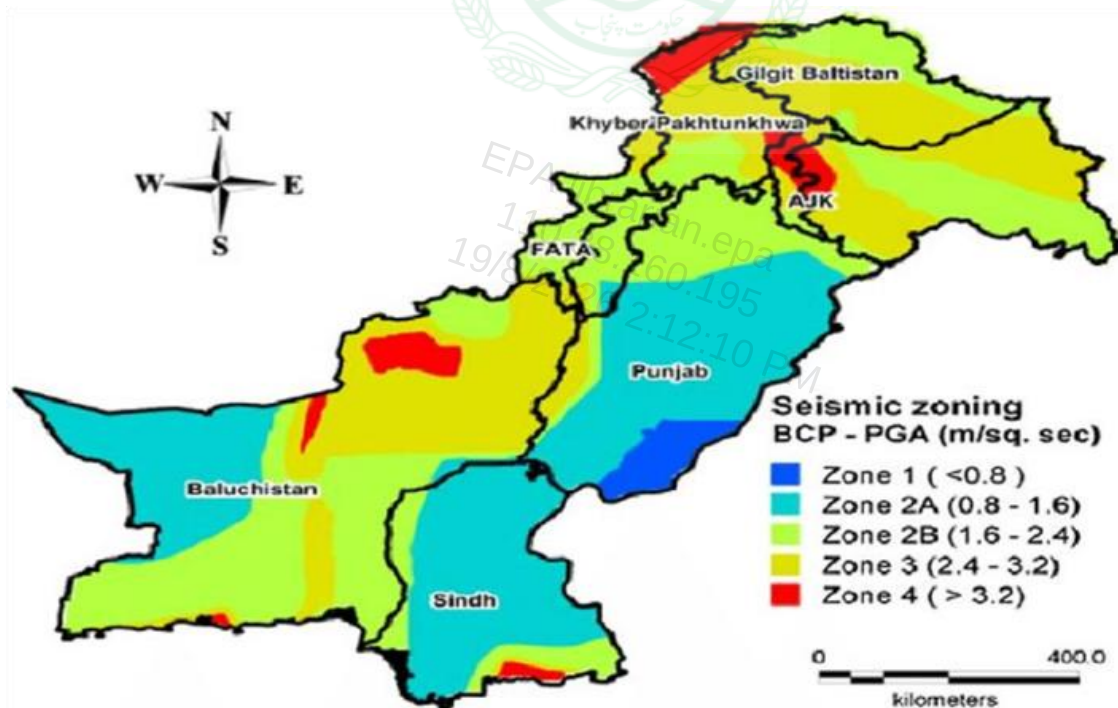
Ferozewala, Muridke, Sharaqpur Sharif, and Safdarabad. The district is known for its agricultural productivity, industrial development, and historical landmarks such as Hiran Minar.

6.1.2 Topography and Geology:

The terrain of Sheikhpura District is mainly flat to gently undulating plains, forming part of the fertile alluvial plains of central Punjab. It lies within the Upper Indus Plain and is influenced by the Ravi River and canal systems. The geology consists primarily of recent alluvial deposits such as sand, silt, and clay, making the area suitable for agriculture and development.

6.1.3 Seismicity

Pakistan lies on an active seismic belt of earth. Seismic observations indicate that hundreds of shocks originate every year. Mostly, these seismic waves are of low intensity and do not have significant effect. According to seismic zones of UN- Habitat the project area falls under Zone 2A. The seismic zoning is shown in the figure.



6.1.4 Soil Characteristics:

Soils in Sheikhpura District are mainly alluvial, ranging from sandy loam to clay loam. They are generally fertile with adequate potassium, though organic matter and phosphorus levels may vary, requiring proper soil management to sustain productivity.

6.1.5 Climate:

The climate of Sheikhpura District is classified as semi-arid to sub-humid, with hot summers and cool winters. The area receives most of its rainfall during the monsoon season from July to September, with additional light showers in winter. Summer temperatures can rise significantly, while winters remain relatively mild to cool, influencing cropping patterns and water management practices in the district.

6.1.6 Surface and Groundwater Resources:

Surface water resources in the region include seasonal streams and rivers that flow during the monsoon season. Groundwater is a vital source for domestic and agricultural use. The quality of groundwater is generally suitable for irrigation and drinking purposes; however, localized variations in water quality parameters may occur, necessitating regular monitoring to ensure safety and sustainability.

6.1.7 Ambient Air Quality:

Ambient air quality in Sheikhpura District is influenced by both urban expansion and significant industrial activity. While some rural areas maintain relatively moderate air quality, emissions from industries, brick kilns, vehicular traffic, and agricultural burning can contribute to elevated pollution levels. Seasonal smog and dust also affect the region, particularly in winter. Continuous air quality monitoring and effective pollution control measures are essential to manage emerging environmental concerns.

6.1.8 Demographic Profile:

According to the 2017 Census, Sheikhpura District has a population of about 3.46 million, with both urban and rural communities engaged in agriculture,

industry, and trade. Population density is higher in urban and industrial areas, while rural zones support agricultural activities.

6.2 Ecological Environment:

This section describes the baseline ecological conditions of Sheikhpura District, with a focus on the biological environment. These baseline conditions provide the foundation for assessing potential impacts of development and industrial activities on local flora and fauna.

6.2.1 Flora

Sheikhpura District does not have extensive natural forests or ecologically significant conservation areas. Most natural vegetation has been replaced by agricultural lands, supported by canal and groundwater irrigation. The district is known for its diverse crops, including wheat, rice, sugarcane, and vegetables.

Although no major research institutes exist in the area, agriculture plays a vital role in the local economy, with farmers relying on traditional and modern farming techniques.

The fruiting plant species are:

Local Name	Scientific Name
Beri	<i>Ziziphus mauritiana</i>
Date Palm	<i>Phoenix dactylifera</i>
Jaman	<i>Syzygium cumini</i>
Pomegranate	<i>Punica granatum</i>
Falsa	<i>Grewia asiatica</i>

And the common plant species are:

Local Name	Scientific Name
Phulai	<i>Acacia modesta</i>
Kikar	<i>Acacia nilotica</i>
Sufaida	<i>Eucalyptus camaldulensis</i>
Shisham	<i>Dalbergia sissoo</i>
Peepal	<i>Ficus religiosa</i>
Siris	<i>Albizia lebbeck</i>

6.2.2 Fauna

The biodiversity of Tehsil Sheikhpura is shaped by its semi-arid climate and topography, supporting a variety of wildlife species. The fauna of the area includes mammals, reptiles, amphibians, and bird species commonly found in this region.

Category	Local Name	Scientific Name
Mammals	Jackal	<i>Canis aureus</i>
	Wild Boar	<i>Sus scrofa</i>
Birds	Quail	<i>Coturnix coturnix</i>
	House Crow	<i>Corvus splendens</i>
	Pigeon	<i>Columba livia</i>
Reptiles	Monitor Lizard	<i>Varanus bengalensis</i>
Amphibians	Frog	<i>Rana tigrina</i>

6.3 Socio Economic Environment

The project site is in industrial land; hence direct disturbance to communities will be minimum from the project activities. However, the physical extent of the study area extends up to 5km surrounding the proposed site (referred as project area) considering the physical, ecological, and socioeconomic boundaries beyond which the project is not likely to significantly influence local communities, and with a view of covering a substantial sample size for collection of reliable and authentic socio-economic data.

6.3.1 Study Objectives

The socio-economic study undertaken for the Environmental Impact Assessment was designed and conducted to meet the following objectives:

- To assess the human environment of the area i.e., to determine the Quality of life of communities within the Region of Influence.
- To have an insight into the day-to-day activities of people especially focusing on their income generating activities viz., agriculture and labor.
- To assess the vulnerabilities of the local communities and the effects of project activities on their Quality of Life and Consultation with communities regarding the proposed project activities and to find out their concerns and aspirations.

6.3.2 Resettlement Patterns

Settlement patterns in Sheikhpura District vary, comprising katcha, pakka, and semi-pakka houses. While urban populations are concentrated in cities like Sheikhpura, Muridke, and Ferozewala, most residents in rural areas live in villages or on agricultural lands. Settlements are generally dispersed, with no strict formal layout in rural zones.

The family system in the area is predominantly joint family-based, though some nuclear families also exist. Electricity and Sui gas facilities are available in most villages, but drainage and sanitation systems remain underdeveloped.

Groundwater is the primary source of drinking water, accessed through hand pumps and tube wells, usually without any treatment.

6.4.3 Indigenous People

The residents of Tehsil Sheikhpura belong to various castes and ethnic groups. Many families have lived in the area for generations, typically 20 to 25 years, leading to a homogeneous culture and a self-sustaining rural economy. There is no risk of indigenous community displacement, as the locals remain deeply rooted in their cultural and traditional practices.

6.4.4 Religion, Ethnic Groups, and Caste Patterns

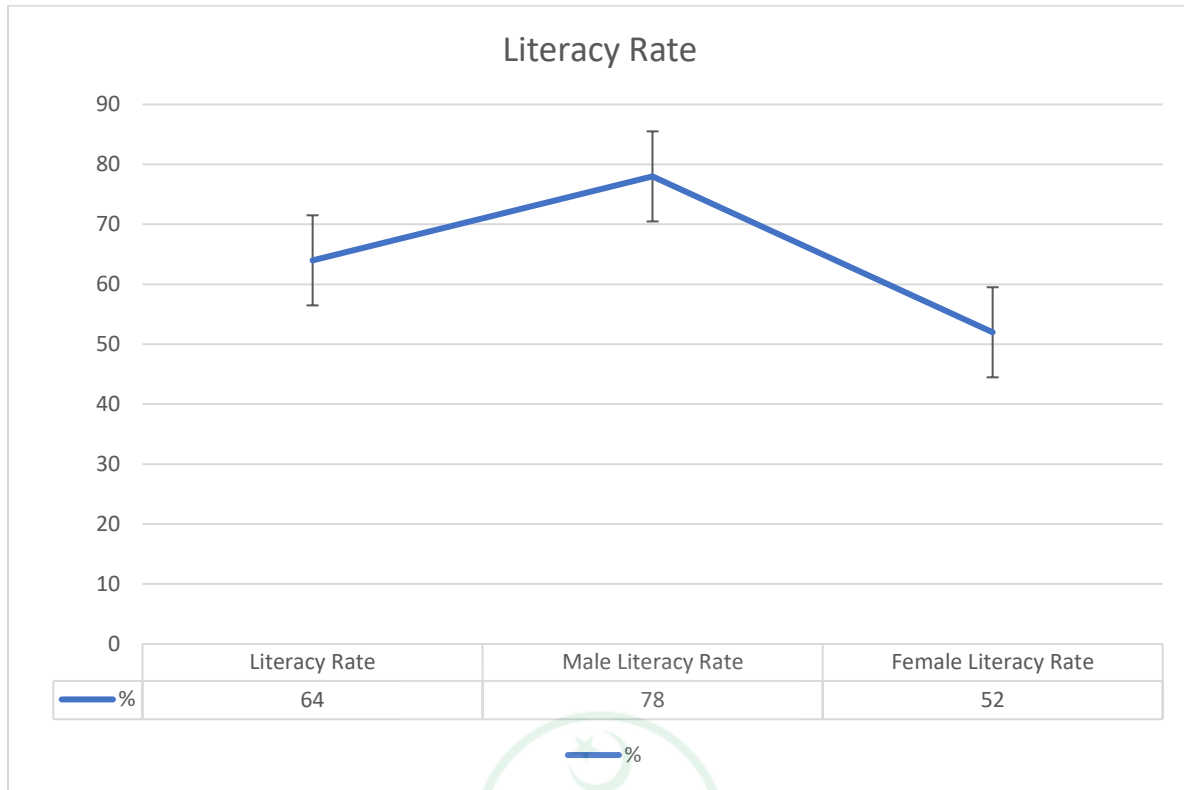
Approximately 99% of the local population speaks Punjabi, while a small percentage speaks Pashto and Urdu. Religion plays a central role in the social structure, with the majority being Sunni Muslims, while a few families belong to Ahl-e-Tasheeh and Ahl-e-Hadees sects.

6.5 Quality of Life

Overall, the social and physical infrastructure in Tehsil Sheikhpura is moderately developed compared to other rural areas of the province. However, there are several challenges related to education, healthcare, infrastructure, and economic opportunities.

6.5.1 Education

The literacy rate in Tehsil Sheikhpura is lower than the district average. The majority of the population receives primary-level education. While government and private schools are present, higher secondary schools and colleges are available in nearby towns. For university education, people often travel to Sheikhpura, Lahore, and Islamabad.



6.5.2 Health Facilities

The health infrastructure in the project area includes:

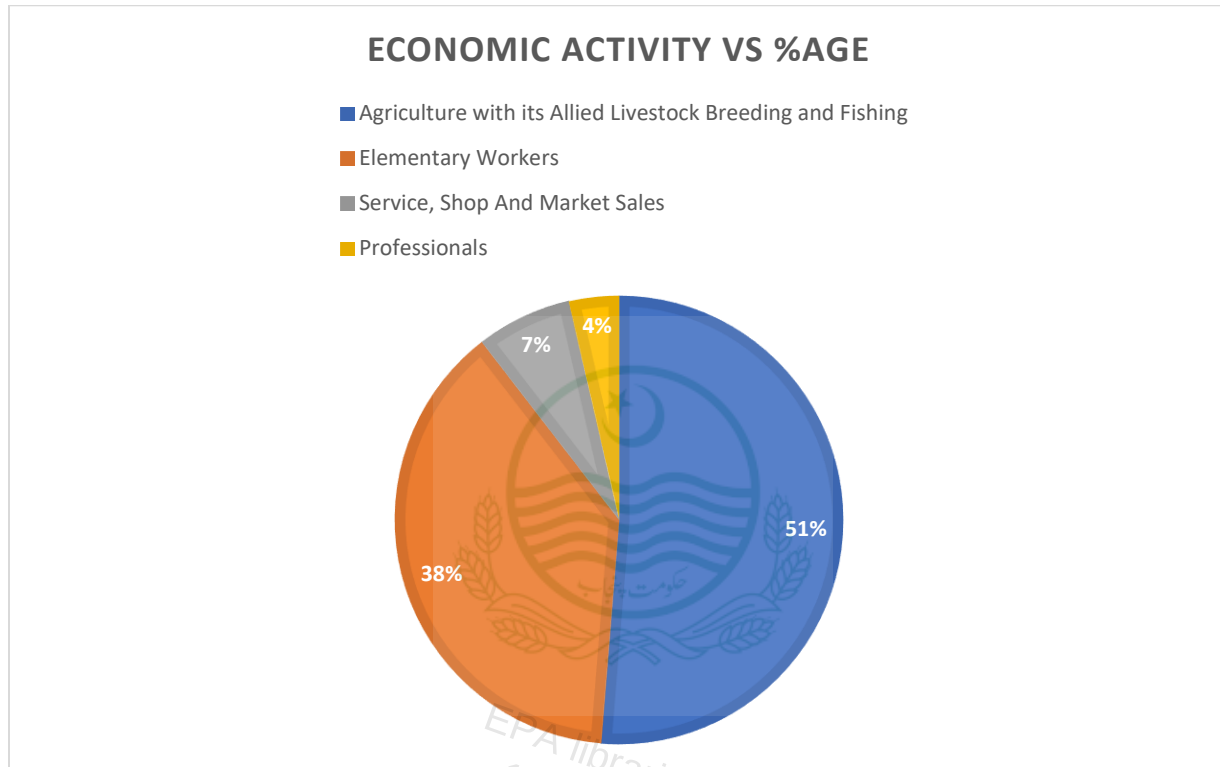
- Basic Health Units (BHUs)
- Dispensaries
- Private clinics

For specialized medical treatments, people travel to hospitals in Sheikhpura. Common diseases reported in the area include fever, malaria, respiratory infections, and Hepatitis-C.

6.5.3 Economy of the Area

The economy of Tehsil Sheikhpura is agriculture-driven, with additional contributions from trade, government jobs, and daily-wage labor. Some residents commute to Lahore and Islamabad for employment in industries, universities, and service sectors.

- Women actively participate in economic activities, particularly in education, healthcare, and small businesses.
- Daily-wage labor is a significant source of income for many households.
- Agriculture and livestock are the primary means of subsistence for most families.



6.5.4 Agriculture

Agriculture is the **dominant occupation** in the project area. The major crops grown in the region include:

- **Rabi Season:** Wheat, Barley, Mustard, Fodder, and Seasonal Vegetables
- **Kharif Season:** Maize, Millet, Fodder, and Seasonal Vegetables

The area relies on tube-well irrigation, as there are limited canal water supplies. Rain-fed farming is also practiced in some areas.

6.5.5 Livestock

Livestock farming plays a secondary but essential role in the local economy. Many households own cattle, goats, and sheep, which serve as a source of milk, butter, and meat. During financial hardships, livestock sales provide an economic safety net.

Common livestock in Tehsil Sheikhpura include:

- Cows and Buffaloes (for milk production)
- Goats and Sheep (for meat and trade)
- Donkeys, Horses, and Mules (used for labor and transport)

The livestock sector remains crucial in supplementing household incomes, particularly for families dependent on rain-fed agriculture.



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7 Potential Environmental Impact Assessment

The establishment of the manufacturing facility necessitates a detailed Environmental Impact Assessment (EIA) to identify, evaluate, and mitigate potential environmental and socio-economic impacts. This assessment aims to:

- Identify alternative methods to conduct project activities minimizing adverse effects.
- Enhance the project's environmental and social benefits.
- Mitigate adverse impacts to the extent possible.
- Maintain residual adverse impacts within acceptable limits.

7.1 Impact Assessment Method

The EIA utilizes a Checklist/matrices Method to systematically evaluate the project's potential impacts on the geomorphology, soil, water, air, biological resources, and socio-economic conditions of the area. This method facilitates the identification of the significance, magnitude, nature, reversibility, and extent of potential impacts, assessed across the project's construction and operational phases.

7.1.1 Evaluation Methods Include:

1. Checklists

Simplified approach for identifying potential impacts.

2. Matrices:

It helps in visualizing the relationship between project actions and environmental aspects.

3. Networks:

Illustrates the interconnections between different environmental factors.

4. Overlays:

Utilized for spatial analysis, often in conjunction with GIS.

5. GIS and Computer Expert Systems:

Advanced tools for detailed spatial and environmental analysis.

The Checklist Method has been instrumental in delineating the significant environmental aspects to be addressed through the project lifecycle. Therefore, the method used to evaluate the impacts of the said project is the **Checklist/matrices Method**.

7.2 Evaluation of the Residual Impacts

While the incorporation of mitigation measures is expected to significantly reduce the project's environmental footprint, some residual impacts may persist. This stage assesses the anticipated impacts remaining after the application of mitigation strategies, underscoring the importance of ongoing management and monitoring to ensure they remain within acceptable bounds. The conclusion drawn highlights the suitability of the selected site and adopted technologies for mitigating environmental impacts effectively, assuming proper management practices are in place.

7.3 Characteristics of Impact

The nature of the project's impacts is further categorized into:

- **Positive and Negative Impacts:** Evaluating both the beneficial and adverse effects of the project.
- **Long and Short-Term Impacts:** Differentiating between immediate and enduring impacts.
- **Direct and Indirect Impacts:** Identifying impacts that occur as a direct result of project activities and those that are secondary.
- **Continuous and Intermediate Impacts:** Distinguishing between ongoing and sporadic effects.
- **Wide and Local Impacts:** Assessing the geographical extent of impacts, whether widespread or confined to the local area.
- **Large, Moderate, and Minor Impacts:** Classifying the severity of impacts based on their scale.

DURING CONSTRUCTION PHASE													
Impact Type	Positive	Negative	Short-Term	Long-Term	Direct	Indirect	Continuous	Intermediate	Local	Wide	Large	Moderate	Minor
Land Clearing & Excavation	X	X	✓	X	✓	X	X	✓	✓	X	✓	✓	X
Air & Dust Pollution	X	✓	✓	X	✓	✓	✓	✓	✓	✓	✓	X	✓
Noise Pollution	X	✓	✓	X	✓	✓	✓	✓	✓	✓	✓	✓	X
Employment Generation	✓	X	✓	✓	✓	X	X	✓	✓	✓	✓	✓	✓
Use of Heavy Machinery	X	✓	✓	X	✓	✓	✓	✓	✓	X	✓	X	X
Water Consumption	X	✓	✓	X	✓	✓	✓	✓	✓	X	✓	X	X
Solid & Liquid Waste	X	✓	✓	X	✓	✓	✓	✓	✓	X	✓	X	X
Traffic Congestion	X	✓	✓	X	✓	✓	✓	✓	✓	X	✓	X	X
Soil Contamination	X	✓	✓	X	✓	✓	✓	✓	✓	X	✓	X	X
Occupational Safety Risks	X	✓	✓	X	✓	✓	✓	✓	✓	X	✓	X	X

DURING OPERATIONAL PHASE													
Impact Type	Positive	Negative	Short-Term	Long-Term	Direct	Indirect	Continuous	Intermediate	Local	Wide	Large	Moderate	Minor
Air & Dust Pollution	X	✓	✓	✓	✓	✓	✓	X	✓	X	✓	X	✓
Noise Pollution	X	✓	✓	✓	✓	✓	✓	X	✓	X	✓	X	✓
Employment Generation	✓	X	✓	✓	✓	✓	✓	X	✓	✓	✓	✓	X
Use of Heavy Machinery	X	✓	✓	✓	✓	✓	✓	X	✓	X	✓	X	✓
Water Consumption	X	✓	✓	✓	✓	✓	✓	X	✓	X	✓	X	✓
Solid & Liquid Waste	X	✓	✓	✓	✓	✓	✓	X	✓	X	✓	X	✓
Traffic Congestion	X	✓	✓	✓	✓	✓	✓	X	✓	X	✓	X	✓
Soil Contamination	X	✓	✓	✓	✓	✓	✓	X	✓	X	✓	X	✓
Occupational Safety Risks	X	✓	✓	✓	✓	✓	✓	X	✓	X	✓	X	✓

7.4 Impact Analysis of Said Project

The establishment and operation of a manufacturing unit, such as asphalt manufacturing unit has significant implications for various stakeholders, ranging from the industrial sector to the broader socio-economic landscape. This analysis explores both the positive contributions and potential challenges associated with such a facility.

7.4.1 Positive Impacts

Economic Contribution: The operation of the asphalt manufacturing facility stimulates the driving innovation, research, and development. It also creates direct employment opportunities and supports ancillary services.

Regulatory Compliance and Product Safety: Adherence to stringent quality and safety standards ensures the reliability of products, enhancing public trust in this sector.

7.4.2 Mitigation and Management Strategies

- **Environmental Management Practices (EMP):**

Implementing comprehensive environmental management practices to minimize the release of residues into the environment.

- **Regulatory Compliance:**

Ensuring strict adherence to guidelines for the responsible use of product.

- **Research and Development:**

Investing in the development of alternative and sustainable practices to mitigate environmental impacts.

- **Public and Stakeholder Engagement:**

Collaborating with regulatory bodies, and the public to promote awareness.

- **Personal Protective Equipment (PPE):**

Enforcing the use of appropriate PPE among workers to ensure their safety and minimize occupational exposure to hazardous substances.

By addressing these potential challenges through proactive management and mitigation measures, the facility can significantly contribute to economic

growth while maintaining a commitment to environmental sustainability and regulatory compliance. The continuous improvement in practices and adherence to an effective Environmental Management Plan (EMP) are key to mitigating the associated impacts and ensuring the long-term viability.



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8 ANTICIPATED IMPACTS AND MITIGATION MEASURES

This chapter provides a review of the potential impacts of the construction of a facility located at District Sheikhpura, over an area of 16 Kanal. The purpose of this project is to meet the market demand and proponent economic uplift. The estimated cost for the subject proposed project will be about 25 million PKR. These impacts could be both positive and negative and have been classified accordingly by a thorough review of the construction and operational phases of the project. This assessment numerates the magnitude of these impacts with the aid of environmental checklist and presents effective mitigation measures to counter their adverse nature.

8.1 Purpose of Environmental Mitigation Measures

Environmental mitigation measures are essential for ensuring the sustainable operation of the asphalt manufacturing unit, aligning with environmental compliance, and safeguarding ecological integrity. The rationale behind these measures is dissected through a series of critical inquiries:

1. Identification of the Problem

The core issue arises when environmental resources are exploited unsustainably, leading to significant degradation. Such exploitation diminishes the environment's resilience and carrying capacity, severely impeding its natural recovery processes. In the context of the proposed project, this could manifest as pollution, habitat disruption, or resource depletion, directly impacting the local ecosystem's health and functionality.

2. Timing for Addressing the Problem

The environmental impacts of the project will become apparent from the onset of construction activities and continue throughout the operational phase. These effects are not confined to the project site but may extend to surrounding areas influenced by project activities. Early identification and timely intervention are crucial for preventing long-lasting or irreversible damage. Mitigation efforts should be initiated at the planning stage and integrated into all phases of the project lifecycle.

3. Location for Mitigation Efforts

Mitigation strategies should be applied at the source of the environmental impact. This means implementing measures directly within the project site and, as necessary, in adjacent areas that might be affected by project-related activities. Focusing on the origin of potential problems ensures targeted and effective mitigation, reducing the overall environmental footprint of the project.

4. Approach to Addressing the Problem

Addressing environmental issues necessitates adopting eco-friendly practices and technologies throughout the project's development and operation. Mitigation plans should include:

Resource Efficiency: Minimizing the use of natural resources and promoting recycling and reuse to reduce waste.

Pollution Control: Implementing advanced pollution control technologies and practices to minimize emissions, effluents, and waste generation.

Habitat Protection: Avoiding or minimizing impacts on natural habitats and biodiversity, including the development of green belts and conservation areas.

Community Engagement: Involving local communities and stakeholders in decision-making processes to ensure that mitigation measures address their concerns and benefit the local environment and population.

Monitoring and Compliance: Establishing rigorous monitoring systems to assess the effectiveness of mitigation measures and ensure compliance with environmental regulations.

8.2 Impact Identification Methodology

The methodology for identifying potential environmental impacts associated with the proposed facility involves a comprehensive approach. It includes:

- **Review of Project Activities:** Detailed examination of all phases of the project to understand the range of activities and their potential environmental interactions.

- **Environmental Study:** Assessment of the surrounding environment to identify sensitive areas, ecological value, and any existing vulnerabilities.
- **Literature Review:** Analysis of existing studies, reports, and publications related to similar projects to draw parallels and learn from past experiences.
- **Expert Judgment:** Utilization of insights from environmental experts to predict potential impacts based on their expertise and knowledge of similar projects.

8.2.1 Approaches for Mitigation Measures

Mitigation of environmental impacts involves several strategies:

- **Avoid:** Altering project plans such as route or site adjustments to protect ecological or archaeological features.
- **Replace:** Creating equivalent ecological habitats elsewhere if the original habitat is disturbed.
- **Reduce:** Implementing measures like filters, cyclones, noise barriers, and visual screening to lessen impacts.
- **Restore:** Rehabilitating the site post-operations to their original state or better.
- **Compensate:** Providing support to displaced communities or individuals through relocation, facilities, or financial means.

8.3 Potential Environmental Impacts and Mitigation Measures due to Project Location

The project, situated with convenient access via the main road, is not expected to cause significant enduring, high, or adverse impacts. The industrial nature of the site, ownership clarity, and absence of ecologically significant species or archaeological sites within a 2km radius favor the project's location regarding environmental compatibility.

8.4 Potential Environmental Impacts and Mitigation Measures due to Design

The design phase incorporates several measures to mitigate environmental impacts:

- **Technical Standards Compliance:**

Ensuring construction and operational activities meet all relevant environmental standards.

- **Waste Management:**

Implementing strategies for the proper handling and disposal of waste generated during the project lifecycle.

- **Technology and Machinery:**

Adopting advanced, eco-friendly technologies and machines that minimize emissions and environmental disturbance.

- **Fuel Choice:**

Selecting fuels for machinery that are less polluting to reduce the carbon footprint.

- **Transportation and Infrastructure:**

Planning efficient transportation routes through main roads and developing infrastructure that supports environmental sustainability.

The design unit has sought to minimize any environmental potential impacts by ensuring that the project should be in according to the environmental orders. Local aesthetic value is another issue to be considered during the project design.

ENVIRONMENTAL PROBLEMS

Environmental problems related to location of the project are mostly in the areas of the physical setting, socioeconomic setting, ecological setting, and specific areas. Field survey revealed that the impacts of the project are mostly insignificant in nature.

The construction will sometimes go around the clock, therefore, during all the construction activities the followings will be the major pollutants or aspects are:

- Soil erosion
- Particulate matter, dust, and gaseous emissions
- Noise
- Garbage
- Dust during raw materials unloading and its use in construction.
- Sewage and solid wastes from construction camp
- Some social impacts due to accumulation of workers may arise.
- Problems due to infrastructure

Several machinery and equipment are in operation for the construction of building which include:

- Batching plants
- Excavators
- Truck
- Transport vehicles.
- Concrete mixers
- Vibrators
- Welding plants
- Generators



Most of these are using diesel engines that generate noise and exhaust emissions. The possibility of exhaust emissions increases when old vehicles plants are utilized for the execution purposes. The movement of heavy machinery and vehicles on the dirt tracks.

Due to the movement of vehicles, noise and vibrations will be increased and residents of the nearby settlements will be affected.

Sources of air pollution for this project activities are unpaved roads. Dust plumes behind vehicles. The turbulent wake continues to act on the road surface. Fugitive dust is generated from the unpaved rocks.

8.5 Potential Environmental Impacts and Mitigation Measures during Construction Phase

The construction phase of the installation of an asphalt plant is expected to have various environmental impacts. To mitigate these effects, effective management strategies will be implemented.

1) Air Quality

Potential Issues:

The construction activities, including excavation, material handling, and operation of heavy machinery, will result in emissions of pollutants such as sulfur oxides (SO_x), nitrogen oxides (NO_x), particulate matter (PM), and dust. Movement of trucks carrying raw materials will contribute to air pollution and deteriorate the air quality.

Mitigation Measures:

To control air pollution, regular water sprinkling will be conducted to suppress dust. The construction machinery and vehicles will be maintained regularly to minimize emissions. Additionally, vehicles transporting raw materials will be covered with tarpaulins to prevent dust dispersion.

2) Noise Quality

Potential Issues:

The operation of construction machinery, transportation vehicles, and excavation activities will generate significant noise and vibrations, which can disturb nearby communities and wildlife.

Mitigation Measures:

Noise pollution will be controlled by using low-noise and well-maintained construction equipment. Unnecessary horn usage will be avoided, and silencers will be installed on heavy-duty vehicles. Green belts with dense plantation will be developed around the site to act as natural noise barriers.

3) Water Availability

Potential Issues:

Groundwater extraction for construction purposes may lead to depletion of local water resources, affecting the availability of water for nearby communities.

Mitigation Measures:

Efficient water usage strategies will be adopted to minimize consumption. Where feasible, treated wastewater will be reused for non-potable applications such as dust suppression and equipment cleaning.

4) Wastewater Drainage

Potential Issues:

Wastewater generated from construction activities may carry pollutants such as oils, sediments, and chemicals, which can contaminate local water sources.

Mitigation Measures:

A well-structured wastewater management system will be implemented, ensuring that wastewater is treated before being discharged. Compliance with Punjab Environmental Quality Standards (PEQS) will be maintained.

5) Solid Waste Management

Potential Issues:

Construction debris, leftover raw materials, and packaging waste can contribute to environmental pollution and block drainage systems.

Mitigation Measures:

A solid waste management plan will be enforced, including the provision of waste bins, timely waste collection, and appropriate disposal of construction debris in designated areas.

6) Ecological Impacts

Potential Issues:

Construction activities, including land clearing, may lead to habitat destruction, affecting local flora and fauna.

Mitigation Measures:

Vegetation removal will be minimized, and a no-hunting policy will be strictly enforced. Protective measures will be adopted to prevent unnecessary habitat disruption.

7) Impacts Related to Health and Safety**Potential Issues:**

Workers may be exposed to occupational hazards, including accidents, injuries, and exposure to harmful materials.

Mitigation Measures:

Strict adherence to safety protocols will be ensured. Workers will be provided with Personal Protective Equipment (PPE), including helmets, gloves, ear protection, and masks. Emergency response measures and first aid facilities will be made available on-site.

8) Increase in Employment Opportunities**Positive Impact:**

The construction phase will generate employment opportunities for 15-20 local workers, providing economic benefits to the community.

8.6 Anticipated Impacts and Mitigation Measures During Operational Phase

The operational phase of the installation of an asphalt plant will bring various environmental challenges. Proper mitigation strategies will be implemented to minimize negative effects.

1. Impact on Air Quality**Potential Issues:**

The operation of the Installation of an asphalt plant will involve emissions of pollutants such as volatile organic compounds (VOCs), particulate matter (PM), sulfur dioxide (SO₂), and nitrogen oxides (NO_x). Dust from raw material handling and vehicular movement will contribute to air pollution.

Mitigation Measures:

Air pollution control systems, including dry scrubbers and dust collectors, will be installed to reduce emissions. Routine maintenance of equipment will ensure optimal performance. A tree plantation drive will be conducted to enhance air quality.

2. Impact of Noise

Potential Issues:

The asphalt production process and vehicular movement will generate high noise levels, potentially affecting workers and nearby residents.

Mitigation Measures:

A greenbelt will be developed around the facility to act as a noise buffer. Soundproofing measures will be adopted, and regular vehicle maintenance will be ensured.

3. Solid Waste Management

Potential Issues:

Solid waste, including unused asphalt mix, packaging materials, and hazardous waste like used solvents and oils, may cause environmental degradation.

Mitigation Measures:

A waste management system will be established to segregate, recycle, and dispose of waste appropriately. Hazardous waste will be handled following strict safety regulations.

4. Impacts of Wastewater

Potential Issues:

Wastewater from cleaning and processing activities may contaminate local water sources.

Mitigation Measures:

A wastewater treatment plant will be installed to treat effluents before discharge. Regular monitoring of water quality will be conducted.

5. Health & Safety of Workers**Potential Issues:**

Exposure to hazardous chemicals, hot materials, and machinery poses risks to worker safety.

Mitigation Measures:

Workers will be trained in health and safety protocols. PPE, including gloves, helmets, and masks, will be provided. Emergency protocols will be implemented to address accidents.

6. Impact on Flora and Fauna**Potential Issues:**

Operational activities may disturb the natural habitat.

Mitigation Measures:

Post-construction tree plantation and conservation initiatives will be undertaken to support local biodiversity.

8.7 Environmental Enhancement Measures

The implementation is designed with a strong emphasis on environmental stewardship and safety. To mitigate potential environmental impacts and promote a safe, healthy workplace, the project will incorporate the following enhancement measures during both the construction and operational phases:

The proposed project will be installed with all precautionary measures to enhance and save the environment. The following necessary measures will be adopted during construction and operation:

- At the workplace workers and employers have enough information, knowledge, and training regarding first aid treatment in case of any emergency. The project provides proper medical facilities to workers and staff to cope with any incidental accidents and tackle them.
- Drugs and narcotics are strictly prohibited during working hours in working areas.
- The staff/attendants of the machinery will use proper protective gear.
- Sprinkling of water will be done on dusty roads and tracks.
- PPEs will be provided during construction activity.
- Constructional waste and domestic solid waste will be disposed of or utilized properly.
- Local people will be informed in advance when work is about to start in an area.
- Machinery will never be left unattended.
- Efforts should also be made to discuss traffic conditions so that regular traffic is not disturbed. Transporters engaged in the project would be forced to adhere to the load specifications of the access road. No overloading would be allowed in any case.
- Safety signs and boards will be placed during construction.
- Proper SOPs will be followed with a proper schedule along with the HSE conditions.
- The area will be restored with native plants. A proper tree plantation plan will be formulated to save the environment.
- Solid waste will be handed over to contractors and an agreement will be made.
- Noise will be controlled by adopting proper measures.
- PPEs will be provided to workers during work.
- Safety signs will be placed at all locations where required.
- First aid facilities will be made available.

- Any possible measure will be adopted to make the project safe and environmentally friendly.
- To control any occupational health and safety impact a detailed planning for mitigation measures will be done. All employees will be trained in EHS policies and practices. The management will follow the environmental management plan to implement the mitigation measures further. Institutional measures such as occupational health & safety planning and environmental compliance monitoring for environmental parameters will be strictly followed.



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9 ENVIRONMENTAL MANAGEMENT & MONITORING PLAN (EMMP)

The Environmental Management and Monitoring Plan (EMMP) is a crucial component of the project's overarching strategy to ensure environmental sustainability and compliance throughout the construction and operational phases of said project. The primary aim of the EMMP is to effectively manage and mitigate adverse environmental impacts identified in the report, promoting environmental stewardship and sustainable development practices.

9.1 Objectives of the Environmental Management Program

The objectives of the EMMP are multi-faceted, focusing on the comprehensive management of environmental aspects associated with the project:

- Defining Roles and Responsibilities
- Mitigation Measures
- Monitoring Mechanism
- Communication and Documentation
- Training and Capacity Building
- Management and Implementation

By addressing these objectives, the EMMP serves as a comprehensive guide for the project team to not only comply with regulatory requirements but also to adopt best practices in environmental management. This initiative-taking approach to environmental protection will help to minimize the project's ecological footprint, promote sustainability, and contribute positively to the local community and environment.

9.2 Environmental Budget

Environmental Component	Quantity	Amount Pak Rs.	Details/Basis
Landscaping/Plantation	1000-2000 approx.	1.5 million	Cost includes plantation and maintenance up to three years
Solid waste management	L.S	01 million	Lump Sum
Health & Safety Measures	L.S.	01 million	Lump sum
Wastewater management	L.S.	01 million	Lump sum
Miscellaneous Cost	L.S.	0.5 million	Lump sum
Air Quality Monitoring	2	10,000	2 samples @ 5000/sample
Water Quality Monitoring	2	10,000	2 samples @ 5000/sample
Noise Level Monitoring	2	10,000	2 samples @ 5000/sample
Soil Tests	2	10,000	2 samples @ 5000/sample
Training		10,000	Lump sum
External Monitoring		50,000	
Total Environmental and Social Management Cost		05 million PKR	

9.3 Environment Management and Monitoring Plan (EMMP)

ENVIRONMENT MANAGEMENT AND MONITORING PLAN				
S. #.	IMPACT	MITIGATION MEASURE	RESPONSIBILITY	
			IMPLEMENTATION	MONITORING
A	CONSTRUCTION PHASE			
1.	AIR QUALITY			
	Dust, SO ₂ , NO _x & CO emissions from trucks cause health issues to workers. There will be particulate matter during the Construction.	- Spray by water trucks to minimize the dust. - Maintenance of construction machinery should be mandatory to reduce emissions. - Haul-trucks carrying earth, sand, aggregate and other materials will cover with tarpaulin to reduce dust pollution.	Contractor	Proponent through Consultant
2.	NOISE			
	The impact of noise generated during construction	Engines of vehicles visiting project site should be properly tuned-up. The green zone of plants will also help decrease sound levels.	Contractor	Proponent through Consultant
3.	OCCUPATION, HEALTH, AND SAFETY			

	There will always be the possibility of hazard to health and safety of workers to occur during construction stage, lying of piles, and machines installation.	- First aid facilities should be readily available for the workers at the site. The contractor will ensure the availability of transport and driver to manage any mishap which may occur. - Relevant safety devices like belts, gloves and testers should be strictly used by the Labor force at the work site. - Implement training programs that support the achievement of the staff and personnel's competency in relation to HSE.	Contractor	Proponent through Consultant
4.	DISPOSAL OF CONSTRUCTION DEBRIS			
	Each phase of the development shall produce solid waste, disposal of which, if not managed properly could have negative impacts on the site and surrounding area.	- A site waste management plan should be the responsibility of the contractor. The waste should segregate and separate to encourage recycling of some useful waste materials. - Train or educate the involved stakeholders on the importance and means of waste management and handling.	Contractor	Proponent through Consultant
5.	GROUND WATER QUALITY			

	No appreciable impacts on the ground water quality occur.	Avoid accidental spills through decent work practice.	Contractor	Proponent through Consultant
6.	SOIL CONTAMINATION			
	Any improper storage or handling of materials including paints, fuels, solvents, oil, cement, etc. would result in soil contamination.	The contractor should require imparting proper training to their workforce in the storage and handling of materials	Contractor	Proponent through Consultant
7.	FLORA & FAUNA			
	No negative impact on the ecological environment will take place on account of cutting of any trees in the project area and clearing of vegetation from the site.	- Trees and ornamental plants shall be planted along the project boundary which will increase the aesthetic value of the site and will combat pollution. - Landscaping is seemed to be a powerful mitigation activity with a positive impact.	Contractor	Proponent through Consultant
8.	SOCIO-ECONOMIC ENVIRONMENT			
	Several categories of employees will be required during the construction phase.	The socially responsible attitude of the project management towards local people and resources can make project people friendly.	Contractor & Proponent	SIE

	This would have a positive impact on the local economy and on regional unemployment.	Awareness and educational programs introduced by the project management or the area can reduce the fear among the people regarding non-local people.		
B.	OPERATIONAL STAGE			
1.	AIR QUALITY			
	Air pollution is due to transport and vehicles and production activities	Proper maintenance and tuning of the vehicles can reduce it.	Proponent	EPA
2.	NOISE QUALITY			
	Noise due to movement of vehicles, during transfer of materials	Plantation along with boundary will make buffer zone to avoid noise.	Proponent	EPA
3.	OCCUPATION, HEALTH, AND SAFETY			
	There will always be the possibility regarding hazards to health and safety of workers to occur during the operational phase of the project.	- All the workers involved in the transport of the materials suggested wearing boots, gloves, and a safety cap to avoid injury. - All workers must know the safety measures regarding handling of material.	Proponent	EPA

	In Case of any leakage/evaporation skin burn issues will be there.			
4.	SOLID WASTE			
	The solid waste may negatively impact the site, the workers, the visitors, and the factory surrounding in diverse ways including aesthetically, occupationally as well as from health, safety, and environmental point of view.	- Domestic solid waste will be collected in waste bins. Hazardous waste will be collected in separate bins. - Must use protective gloves while carrying the containers to avoid any hazardous effect	Proponent	EPA
5.	WASTEWATER QUALITY			
	Domestic wastewater will be generated. During Process wastewater will also be generated.	Wastewater treatment plant will be done by installing septic tanks.	Proponent	EPA
6.	FLORA AND FAUNA			

	Excessive plantation shall be done on the walls. This will function as buffer zone and bring healthy change to the environment during operational phase of project.	The process of plantation should be kept sustainable throughout project life.	Proponent	EPA
7.	SOCIO-ECONOMIC ENVIRONMENT			
	A few employees will be required in the operational phase, and this would have a positive impact on the local economy and on regional unemployment.	- The management of the project can capitalize the cheerful outlook of people of the study area towards this project by offering them maximum employment opportunities. - Measurements and steps should be taken to keep undisturbed the privacy of adjoining workplaces.	Proponent	EPA

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9.4 Proposed Monitoring/EMP Reporting and Reviewing Mechanism

Category	Impact	Project Activity	Monitoring Mechanism	Frequency	Monitoring Agency
Construction and Operational Phase					
Land Resource	Solid Waste	Implementation of Solid Waste Management system	Record keeping and timely transfer of Solid waste from bags to the disposal site for disposal	Daily	Manager HSE/Project Proponent
	Soil Contamination	Implementation of Management Plan	Visual monitoring and complete soil analysis	Daily and annually	
Ecological	Flora	Uprooting of trees	Inventory of uprooted	During Baseline	
Air Resource	Air Emission	Dust emissions during Construction and Operation	Monitoring of the emissions as per applicable standards Water sprinkling will be done regularly to avoid dust emissions	Once before the start of operation and after that as when required during the operation	
	Dust				
Noise	Noise Pollution	Development/operational material transportation	As per applicable standards	Fortnightly	
Water Quality	Wastewater generation	Domestic wastewater, due to construction activities	Water quality testing	Monthly	
Health and Safety	Health risk	During construction and operational phase due to more chemical usage	Keep record of workers as they use PPE's and follow safety signs and instructions	Daily	
Resource		During construction phase	Trees and vegetation during operation phase	Survey, once in a year and after the completion of the Project	

9.5 Training of Workers for Environmental Management

Training of workers plays a pivotal role in enhancing the environmental performance of the said project. By equipping project personnel and contractors with the necessary knowledge and skills, the project aims to ensure adherence to environmental policies and the successful implementation of the Environmental Management and Monitoring Plan (EMMP).

9.5.1 Components of the Environmental Training Program

The environmental training program is designed to be comprehensive and multifaceted, incorporating various educational tools and resources:

- **Promotional Materials:** Use of company literature, broadsheets, posters, and project updates to emphasize the importance of environmental protection measures.
- **Guidance Notes:** Provision of detailed guidance on environmental protection practices to contractors, ensuring they are well informed about their responsibilities and best practices.
- **Signage:** Installation of obvious signs at work sites to delineate prohibited activities such as waste disposal and smoking, alongside signs marking sanitary disposal areas and safe drinking water sources.

9.6 Training Schedule and Log

To ensure the systematic delivery and tracking of environmental training, a structured schedule will be established:

- Training Log Maintenance:

The project management and contractors will maintain a detailed training log, documenting the topic, date, time, location, trainer, and participants for each session.

9.6.1 Key Training Areas

The training program will cover essential topics to ensure comprehensive understanding and capability among staff:

▪ **Firefighting and Safety Management:**

Educating workers on emergency response procedures, fire safety protocols, and the use of firefighting equipment to manage and mitigate fire hazards.

▪ **Environmental Safeguards and Compliance:**

Training on environmental regulations, the importance of safeguarding natural resources, and strategies for ensuring project compliance with environmental standards.

▪ **Environmental Monitoring and Reporting:**

Instruction on monitoring environmental parameters, data collection, and reporting mechanisms to track the project's environmental impact over time.

▪ **Occupational Health and Safety Measures:**

Guidance on health and safety practices to prevent occupational hazards, including the use of personal protective equipment (PPE), safe handling of chemicals, and ergonomics.

By implementing a robust environmental training program, the project commits to fostering a culture of environmental awareness and responsibility among all project participants. This approach not only contributes to the project's compliance with environmental regulations but also promotes the long-term sustainability of project operations and the well-being of workers and the surrounding community.

Participants	Date, Time & Location	Training Topics	Schedule	Responsible Authority
Staff of proposed project and the contractor	As specified	- Introduction to project EIA/IEE and EMMP - EMMP communication, documentation, monitoring, and	Every month	Project Manager

		reporting requirements		
All site personnel	As specified	• Site induction training on HSE system and requirements at Incinerating Site • Environmental sensitivities of the project area • Communication of environmental problems to corresponding officials • Waste disposal	After every week	Project Manager
Drivers	As specified	• Road safety • Road restrictions • Vehicle restrictions • Waste disposal. • Defensive driving	After every 3 months	Project Manager
Camp Staff	As specified	• Camp operations. • Waste disposal. • Good housekeeping	Monthly	Project Manager

9.7 Environmental Management Team

The successful implementation of the Environmental Management and Monitoring Plan (EMMP) for the proposed facility hinges on the coordinated efforts of a resolute environmental management team. This team comprises various functionaries, each with distinct roles and responsibilities throughout the construction and operational phases of the project.

9.7.1 Key Members of the Environmental Management Team:

Proponent: Serves as the project proponent and owner of the Environmental Management Plan, overseeing its execution during both construction and operational stages.

Project Contractor(s):

Function as executors of the EMMP during the construction phase, responsible for integrating environmental mitigation measures into project activities.

Operational & Maintenance (O&M) and Health, Safety, and Environment Team:

Execute the EMMP during the operational phase, ensuring ongoing compliance with environmental standards.

Environmental Protection Agency (EPA), Punjab: Functions as the regulatory body for reviewing and monitoring the project's compliance with environmental remediation and mitigation measures outlined in the EIA.

9.7.2 Responsibilities of Functionaries:

- 1. Project Management:** Charged with overall environmental supervision, monitoring progress, overseeing mitigation measure implementation, documentation, training program development, and reporting on EMMP status.
- 2. Project Contractor:** Responsible for adhering to all EMMP provisions, and environmental codes of conduct, and ensuring workers are equipped with and trained in the use of Personal Protective Equipment (PPE).
- 3. Environmental Protection Agency (EPA):** Reviews and monitors the project's adherence to the EIA's remedial and mitigation strategies.

9.8 Equipment Maintenance Details

A well-organized maintenance program is critical for ensuring the safety and efficiency of all tools, equipment, and vehicles used in the project. Regular

inspections and adherence to safety regulations are mandatory to prevent accidents and injuries.

9.9 Proposed Environmental Monitoring

Environmental monitoring is vital for assessing the project's compliance with environmental regulations and its effects on the environment. It is divided into:

1. **Compliance Monitoring:** Ensures the project's adherence to EIA and EMMP requirements through routine inspections and site monitoring.
2. **Effects Monitoring:** Identifies unanticipated impacts or those exceeding anticipated levels, allowing for the timely implementation of additional mitigation measures.

9.9.1 Monitoring Components:

Comprehensive baseline monitoring will be conducted across several key environmental parameters, including:

- Noise Levels
- Ambient Particulate Matter
- Ambient Air Gases
- Ground Water Quality
- Wastewater Quality
- Soil Contamination
- Solid Waste Management
- Vehicular Traffic and Emissions
- Flora & Fauna
- Health & Safety Practices
- Machinery and Equipment Maintenance

By establishing a robust environmental management framework, the project aims to minimize its environmental footprint, ensure the safety of its workers, and contribute positively to the local ecosystem and community.

10 STAKEHOLDER CONSULTATION

Stakeholder consultation is a critical component in the environmental assessment process for the proposed project. It fosters communication among diverse groups, facilitating information exchange, feedback collection, and collaborative decision-making.

10.1 Benefits and Objectives of Stakeholder Consultation

Engaging with stakeholders offers several advantages, including improved project understanding, identification of environmental concerns, and incorporation of local insights into project planning. Key objectives include:

- **Enhancing Understanding:** Clarifying the project's aims and potential impacts to ensure stakeholders are well-informed.
- **Addressing Concerns:** Identifying and resolving stakeholder issues to prevent opposition and build consensus.
- **Building Trust:** Establishing a foundation of trust and cooperation between the project proponent and stakeholders.
- **Informed Decision-Making:** Leveraging stakeholder input to make informed decisions regarding project design and implementation.

10.2 Identification and Classification of Stakeholders

A comprehensive stakeholder identification process was undertaken to recognize all parties with a personal stake in the project, classified as:

- **Industries:** Businesses and institutions directly affected or influential to the project outcome.
- **Local Communities:** Residents and groups in proximity to the project site are likely to experience its direct impact.

10.3 Views, Concerns, and Suggestions of Various Stakeholders

Stakeholder feedback highlighted several areas of concern and interest:

- **Environmental Preservation:** Emphasis on minimizing tree removal and establishing green zones.

- **Local Employment:** Dedicated support for prioritizing local residents in hiring processes.
- **Dust and Air Pollution Control:** Recommendations for regular dust suppression measures and continuous air quality monitoring.
- **Noise Management:** Suggestion to limit noise-generating activities to daytime hours.
- **Solid Waste Management:** Advocacy for proper waste disposal techniques to mitigate environmental impacts.

10.4 Methodology for Consultation

The consultation process involved a dynamic exchange of ideas through discussions, meetings, and field visits, aimed at:

- **Scoping Sessions:** Initial meetings to define project scope and identify key stakeholder concerns.
- **Focus Group Discussions:** In-depth conversations with local communities and government representatives to gather detailed feedback.
- **Location-Based Meetings:** Engagements held at various sites to ensure broad stakeholder participation and input.

This stakeholder consultation process underscores the project's commitment to environmental stewardship, community engagement, and sustainable development. By incorporating stakeholder feedback into the EIA process, the project aims to achieve a balance between development objectives and environmental conservation, fostering positive relationships with all affected parties.

10.5 Proponent's Environmental Management Team and Experts

Sr. #	Managers	Responsibilities
1.	Contract Manager	• Implementation of EMP • Environmental issues identification during pre- construction phase. • Communication EMP to all employees.
2.	Contractor	• Ensure that the control measures identified during environmental surveys are implemented as they are relevant to their work/visit. • Ensure that the project management team is notified of any non-conformance of control measures or environmental incidents where the environment has been put at risk.
3.	Site Manager	• Ensure site material and safe handling of hazardous waste. • Controlled access arrangement to avoid hazards. • Emergency egress arrangements to avoid any unfortunate incident. • First aid facilities/services should be readily available on-site.
4.	Site HSE Advisor	• Ensure good standards of workmanship. • Engaged health and safety to devise site waste management plan to be followed and implemented. • Daily checks & weekly checks. • Regular consultation with workers.
5.	Site Environment Advisor	• According to legislation and consent develop EMP. • Ensure application of EMP. • Conduct regular site inspection.
6.	Public Contact Officer	• First point of contact for members of the public. • Arrange and manage public forums. • Maintain relation with stakeholder

10.6 The Responsible Authority for EMP Implementation

The successful implementation of the Environmental Management Plan (EMP) is a pivotal aspect of ensuring the environmental integrity and sustainability of the proposed unit. The ultimate responsibility for overseeing and ensuring the effective execution of the EMP lies with the project proponent.

Appointment of an HSE/Project Manager

To facilitate this, the project proponent will appoint a Health, Safety, and Environment (HSE)/Project Manager possessing the necessary qualifications and expertise. This individual will assume the role of Environmental Manager, tasked with the comprehensive management of all health, safety, and environmental conditions as per the Punjab Environmental Quality Standards (PEQS).

Responsibilities of the HSE/Project Manager

As Environmental Manager, the HSE/Project Manager's responsibilities will encompass a broad spectrum of duties, designed to ensure that the project not only complies with all relevant environmental regulations but also adopts best practices in environmental stewardship.

10.7 Environmental Practitioners and Experts

Consultation with Environmental Practitioners and experts was done, and the following comments and suggestions were noticed.

Sr. No.	Name	Designation	Comment/ Suggestions
1.	Sara Fatima	Senior Environmentalist	- She said that the project will have a positive impact on the economy, but its construction should be done in an environmentally friendly way. - Basic facilities should be provided to local community
2.	Zia Ur Rehman Farooqi	Ph.D. Scholar Environmental Sciences	- Tree plantation in designated green zones should be conducted. - Proper disposal of the solid waste

			HSE management measures should be adopted and implemented effectively
3.	Dr. Hina Ahmed Malik	Ph. D Environmental Sciences	- He said that locals should be preferred for employment. - Value addition of area. Proper mitigation measures must be adopted while construction and operation of this project
4.	Kanza Fatima	Junior Environmentalist	- Waste must be collected and disposed of properly. - Ensure the use of PPE's during the operational activities. - Wastewater should be treated. - Ensure the tree plantation
5.	Aleeza Kanwal	Junior Environmentalist	- Health and safety department and trained people should be there in case of any emergency. - Periodic monitoring of every fire extinguisher (expiry date, type)
6.	Hasham Fatima	Research Associate	- Noise & Air Control: Manage dust and noise during construction and operation. - Community Training: Provide local awareness and training on environment, health, and safety.
7.	Engr. M. Bilal	Environmental Engineer	It should be ensured that the pollution abatement technique

10.8 Other Departments and Agencies

Following officers of government departments were consulted by the socio-environmental team of the consultants and concerned details about the project were noted down through personal interviews, group meetings, etc, in their offices, for instance.

Sr. No.	Designation	Concerns
1.	Environment Protection Department (EPD)	
	General Manager	• Solid waste should be managed in Environmentally friendly manner. • Wastewater should be treated effectively & approval should be acquired from concerned agency before disposing off in nearby drain.
	Environmental Inspector	• HSE* at the site should be managed effectively. • No impact is being foreseen due to the selected location. • Locals should be given job opportunity.
2.	Social Welfare Department (SWD)	
	Deputy Director Officer	• Final goods should be affordable for the locals. • The proposed product should facilitate locals and they should be economical. • Job opportunities should be given to the locals. • Wages should be given according to the work assigned to them. • Life insurance of the workers should be given as well as all the facilities should be given as per labor laws.
3.	Irrigation Department	
	Subdivision	Following comments were suggested:
	Executive Engineer	• Untreated wastewater should not be disposed of in the nearby drains without proper treatment. • Beneficial as job opportunities will be available to the residents.
4.	Forest Department	
	District Forest Officer	Following recommendation were suggested by the forest department: • Plantation and landscape activities should be conducted on a broader scale. • Proper drainage system must be available at site

10.9 Consultation with Affected and Wider Community

In addition, the use of direct methods to evince the response of the various stakeholders in targeted population residing in study area was ascertained by conducting a sample survey, through specially formatted questionnaires. Questions posed to the public were related to the creation of impacts, adverse impacts, and beneficial impacts, including employment opportunities, income generation activities, change in living standards and provision of the basic amenity.

Personal views of the respondents on the establishment of proposed project disturbance to the residents near the AOI and infringement of their privacy were also recorded. Various rounds of public meetings and consultations were arranged in the project and study area. The stakeholder category involves nearby residents, different industries, shopkeepers. The issues discussed with them are mostly related to the following:

- Activities of project.
- Impacts caused due to certain activities during construction and operational phase.
- The proposed mitigation measures.

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11 CONCLUSION

The project aims at the construction of an asphalt manufacturing unit. The project falls under the category of projects requiring Environmental Impact Assessment (EIA).

At the end of this study, it has been found that:

- There are no sensitive elements/segments of environment around the project site.
- It has also developed ways and means for environmentally sustainable disposal of solid wastes to be generated from the project operations.
- The noise levels will be kept well within the required limiting values of the NEQS Pakistan.
- This project will create job opportunities during construction and operation stages leading towards reduction of poverty.
- Sewage will be passed through Septic Tanks before final treatment and disposal.
- It will help in the improvement of the community in the local area. It will also provide such facilities for people from other places.
- Project site means the development criteria like electricity supply, gas supply, water supply and sewage system.
- EMP, as recommended in this EIA Report, is to be put in place during all operational stages of the project.
- Environmental monitoring by the project proponent and a third party also ensures that the project will run in accordance with legal requirements.

Based on these findings of the EIA Report the project merits the issuing of Environmental Approval by the Environmental Protection Agency, Government of Punjab, and Lahore.

GLOSSARY

Accommodate	(of a building or other area) provide lodging or sufficient space for. "The cottages accommodate up to six people"
Assessment	The action of assessing someone or something. "The assessment of educational needs"
Aspects	A distinct feature or element in a problem
Adverse	– Preventing success or development; harmful; unfavorable. "Taxes are having an adverse effect on production"
Authorized	– having official permission or approval. "An authorized dealer"
Amendment	a minor change or addition designed to improve a text, piece of legislation, etc. "an amendment to existing bail laws"
Ambient Air	Ambient air quality refers to the quality of outdoor air in our surrounding environment. It is typically measured near ground level, away from direct sources of pollution
Archaeological	the scientific study of material remains (as fossil relics, artifacts, and monuments) of past human life and activities
Annunciation	A formal public statement
Baseline	The existing conditions against which impacts of the proposed action and its alternatives can be compared.
Crushing	Deform, pulverize, or force inwards by compressing forcefully. "You can crush a pill between two spoons"
Containers	An object for holding or transporting something. "The cakes will keep for up to two weeks if kept in an airtight container"
Compliance	Acting according to certain accepted standards
Discrepancies	A difference between conflicting fact, claims or opinions
Disposal	the action or process of getting rid of something
Dumped	Deposit or dispose of (rubbish, waste, or unwanted material), typically in a careless or hurried way
Effluent	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 vapor
Environmental impact statement (EIS)	A document prepared to analyze the impacts on the environment of a proposed action and released to the public for review and comment. An EIS must meet the requirements of NEPA, CEQ, and the directives of the agency responsible for the proposed action.
Emission	The production and discharge of something, especially gas, or radiation." The effects of lead emission on health"

Evaluated	Estimate or determine the nature, value, quality, ability, extent or significance
Graded	Arranged in a sequence of grades or ranks; "stratified areas of the distribution"
Generation	The production or creation of something
Incinerator	A furnace or a container for burning waste materials
Inadequate	Not capable or competent; lacking
Implementation	The process of putting a decision or plan into effect; execution
Intends	To have in mind as something to be done or brought about, plan to design or mean for a particular purpose, use, recipient, etc.
Landfill site	for the disposal of solid waste in which refuse is buried between layers of dirt to fill in or reclaim low-lying ground
Legislation	Law enacted by a legislative body
Mobilization	To release or make available, as cells or chemical substances
Mitigation	The action of lessening in severity or intensity
Noise	Loud, unpleasant, unexpected, or undesired sound that disrupts or interferes with normal human activities
Potential	Having or showing the capacity to develop into something in the future
Pedestrian	A person who goes or travels on foot; walker
Proponent	The person who proposes or intends to undertake a project
Sanitary	Relating to the conditions that affect hygiene and health, especially the supply of sewage facilities and clean drinking water
Segregate	Set apart from the rest or from each other; isolate or divide. "Disabled people should not be segregated from the rest of society"
Settlement	An official agreement intended to resolve a dispute or conflict. "Unions succeeded in reaching a pay settlement"
Ton	A short or net ton is equal to 2,000 pounds; a long or British ton is 2,240 pounds; a metric ton is approximately 2 to 205 pounds
Transportation	The action of transporting someone or something or the process of being transported. "The era of global mass transportation"

Ultimate	Being or happening at the end of a process; final. "Their ultimate aim was to force his resignation"
Violations	the action of violating someone or something
Working place	From the out by side of the last open crosscut to the face
Flora	All the plant life in a particular region or period
Fauna	All the animal life in a particular region or period
Demarcated	Separately clearly, as if by boundaries
Screening	The display of a motion picture
Substitutions	An event in which one thing is substituted
Smelting	extract (metal) from its ore by a process involving heating and melting
Regulations	An authorized rule
Recycling	process of converting waste materials into new materials and objects
Stakeholders	A person or organization with an interest or concern in something
Rehabilitation	The conversion of waste land into land suitable for use of habitation or cultivation



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LIST OF ABBREVIATIONS

AA	Ambient Air
APHA	American Public Health Association
AOI	Area Of Influence
BOD₅	Biological Oxygen Demand
CMS	Convention On Migratory Species
COD	Chemical Oxygen Demand
dB(A)	Decibel
EA	Environmental Assessment
EHS	Environmental Health Safety
EIA	Environmental Impact Assessment
EPD	Environmental Protection Department
PEPA	Pakistan Environmental Protection Act
EPA	Environmental Protection Agency
ESIA	Environmental And Social Impact Assessment
ESA	Environmental And Social Assessment
ESMP	Environmental/Social Management Plan
EMP	Environmental Management Plan
EC	Electrical Conductivity
GIS	Geographical Information System
GOP	Government Of Pakistan
GPS	Global Positioning System
GRC	Grievance Redress Committee
GRM	Grievance Redress Mechanism
HSE	Health Safety & Environment
HWMS	Hazardous Waste Management System
EIA	Environmental Impact Assessment
I & D	Irrigation And Drainage
IAIA	International Association for Impact Assessment
IWM	Industrial Waste Management
IUCN	International Union for Conservation of Nature

KM	Kilometers
LGO	Local Government Ordinance
MW	Mega Watt
MEAS	Multilateral Environmental Agreements
MSDS	Material Safety Data Sheets
NEQS	National Environmental Quality Standards
PMD	Pakistan Meteorological Department
PPE	Personal Protective Equipment
PEQS	Punjab Environmental Quality Standards
NEAP	National Environmental Assessment Plan
NWFP	Northwest Frontier Province
Q&EHS	Quality, Environment, Health & Safety
O & M	Operation And Maintenance
PKR	Pak Rupees
PAP	Project Affected People
PEPC	Pakistan Environmental Protection Council/Punjab
PSC	Project Steering Committee
QA/C	Quality Assurance/Quality Control
RAP	Resettlement Action Plan
ROG	Reactive Organic Gas
SWM	Solid Waste Management
TDS	Total Dissolved Solids
UNFC	United Nation Framework Convention on Climate Change
UNCC	United Nation Convention to Combat Desertification
UNEP	United Nations Environmental Programs
GOP	Government Of Pakistan
WHO	World Health Organization
R&R	Rehabilitation And Resettlement
WWTP	Waste Water Treatment Plant

LIST OF INDIVIDUALS AND THEIR FEEDBACK

Sr.#	Name	Concerns
1	Kamran Ali Khan	During the survey in the study area following concerns of the local community were noted: • Air pollution should be controlled effectively, such as emissions generated from power-generating activities. • Solid waste should be collected timely and avoid the spreading of waste. • Locals should be preferred for the job opportunities. • Wastewater should be treated prior to final disposal in a nearby drain. • Solid waste should be managed effectively by adopting the standard practices of the area. • The cleanliness of the area should be ensured. • An effective EMMP should be designed and enforced with true spirit. • The health of the workers should be ensured. • Planation should be carried out on an extensive scale. • Construction activity should be carried out during day hours. • Noisy activities should be confined.
2	Muhammad Waqas	
3	Qaiser Farooq	
4	Ghulam Mujtaba	
5	Mehboob Alam Shahid	
6	Muhammad Latif	
7	Mazhar Hussain	
8	Shahbaz Khan	
9	Waseem Ahmed	
10	Rab Nawaz	
11	Allah Yar	
12	Ahmed Saeed	
13	Muhammad Jabbar	
14	Muhammad Ramzan	
15	Kamran	

SOURCE OF DATA

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**List Of Names, Qualifications and Roles of Team Members Carrying Out
the IEE/EIA Study**

Sr. #	Name	Qualification
Team Leader		
1.	Miss. Sara Fatima	M.Phil. Environmental Sciences
Environmental Scientist		
2	Dr. Hina Ahmed Malik	Ph.D. Environmental Sciences
3	Mr. Zia Ur Rehman Farooqi	Ph.D. Environmental Sciences (Scholar)
4	Hafiz Zeeshan Safdar	M.Sc. Analytical Chemistry
5	Mr. Saffi Ahmed	M.Phil. Environmental Sciences
Environmental Engineers		
6	Engr. Kanza Fatima	B.Sc. Environmental Engineering
7	Engr. Aleeza Kanwal	B.Sc. Environmental Engineering
8	Hasham Fatima	BSc (hons) Environmental Science
Sociologist		
9	Ahmed Raza	M. Phil Sociology

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