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LIST OF ABBREVIATIONS

CO_2	**Carbon dioxide**
dB(A)	A weighted decibel scale
EIA	Environmental Impact Assessment
EMP	Environmental Management Program
Engr.	Engineer
EPA	Environmental Protection Agency
ESPAK	Environmental Services Pakistan
ETP	Effluent Treatment Plant
IEE	Initial Environmental Examination
Ltd.	Limited
M/S	Messrs
m^3	Cubic meter
m^3/h	Cubic meter per hour
No.	Number
NOC	No Objection Certificate
NO_x	Oxides of Nitrogen
PEPA, 2012	Punjab Environmental Protection (Amendment) Act, 2012
PEQS	Punjab Environmental Quality Standards
PKR	Pakistani Rupees
PM	Particulate Matter
PPEs	Personal Protective Equipment
Pvt.	Private
SOPs	Standard Operating Procedures
SO_x	Oxides of Sulfur
WAPDA	Water and Power Development Authority
WWTP	Wastewater Treatment Plant

EXECUTIVE SUMMARY

1.1 Title and Location of Project

This executive summary presents an overview of the main findings of the Environmental Impact Assessment (EIA) Report for establishment of Water and Oil based Paint Manufacturing Unit under the name of M/s Mubeen Paint Industries Pvt. Limited at 8-Km Khushab Road, Near Dharema, Sargodha. The coordinates of the site are: **Latitude** 32.14905946778278 **North** and **Longitude** 72.62324322848528 **East.** The main goal of this project is to establish a sustainable and environmentally responsible paint manufacturing facility that meets industry standards while minimizing its ecological footprint. This includes ensuring compliance with environmental regulations, adopting eco-friendly production processes, and implementing effective waste management and pollution control measures. The project aims to produce high-quality paints using sustainable raw materials, reduce energy and water consumption, and promote workplace safety. Additionally, it seeks to foster positive community relations by addressing environmental concerns and contributing to local economic growth through job creation and responsible industrial practices.

Name of the Proponent

The details of the proponent are as follow:

Proponent Details	
Name	Mubeen Raza Khokhar
Designation	*Proponent*
Company	M/s Mubeen Paint Industries Pvt. Limited
Address	8-Km Khushab Road, Near Dharema, Sargodha

Copy of CNIC of proponent is attached as **Annexure A**

1.2 Name of Consultant

M/s Ecogreen Company (Pvt.) Limited has been engaged for conducting EIA Study of the above stated project. The main objectives of the said project are to establish baseline environmental conditions, identify potential environmental impacts and to suggest suitable mitigation measures accordingly.

1.3 A brief outline of the proposal (type, process, technology and land requirement)

As per Punjab Environmental Protection Act 1997 (amended 2012) and Punjab Environmental Protection Review of Initial Environmental Examination and Environmental Impact Assessment 2022 said project falls under **Category B**

Manufacturing & Processing and **Clause 5;** Paper and Paperboard, Paper pulping, **Paint** and Dyes of the projects mentioned in **Schedule II.**

Establishment of Paint Manufacturing Unit by Mubeen Paint Industries Pvt. Limited has been executed on proponent's own land. Water-based and oil-based paints are two primary types used for various applications. Water-based paints, known for their quick drying and low emissions, are easy to clean and ideal for indoor use. Oil-based paints, valued for their durability and smooth finish, provide excellent resistance to wear and moisture. Both types offer high-quality finishes and are used based on specific project needs and surface requirements. The total project cost is **PKR 100 Million PKR**.

1.4 Salient Features of Project

Project Title	Establishment of Paint Manufacturing Unit under the name of M/s Mubeen Paint Industries Pvt. Limited.
Purpose of Project	The purpose of this project is to establish an environmentally responsible paint manufacturing facility that ensures high-quality production while minimizing ecological impact. It aims to promote sustainable practices, regulatory compliance, and efficient resource utilization.
Site Coordinates	**Latitude** 32.14905946778278 **North** and **Longitude** 72.62324322848528 **East**
Area Detail	**Total Area**: 45 Kanal **Covered Area**: 8 Kanal
Raw material	Pigments, Solvents, Binders, Additives
Cost of the Project	100 Million PKR
Environmental Budget	2 million
Proponent Name	Mr. Mubeen Raza Khokhar
Consultant Name	Ecogreen Company (Pvt.) Ltd.
Tree Planation	Trees have been planted in surrounding open spaces, lawns and along the boundary of Project Area.
Water Source	Groundwater,
Water Requirement	Water requirement are being fulfilled through ground water.
Wastewater	**Reuse in Production**: Washing water is collected and stored in a dedicated Washing Water Storage Tank.

	This water is filtered and **reintroduced into the production process**, reducing fresh water consumption. The remaining sludge in washing water storage contains calcium carbonate, trace elements, and in the case of oil-based paints, residual solvents and oils. (Generate sludge is being handed over to EPA Certified Contractor for disposal). Calcium carbonate is beneficial for soil health and is **utilized in the facility's attached farmhouse** to improve soil quality. For wastewater generated from oil based paint manufacturing, the process of solvent recovery is being practiced at instant project. Further the method of Oil-Water Separation can also be practiced to treat generate wastewater.
Power Requirement	500 KWH fulfilled through WAPDA
Project Capacity	Water Based: 800,000 Liters per Annum Oil Based: 400,000 Liters per Annum
Manpower/Staff	10-15 Construction phase, 100-120 approximately Operation Phase

1.5 Major Impacts and Recommended Mitigation Measures

In order to identify all the impacts associated with the project with potential to cause adverse environmental impacts, a thorough review has been conducted. Although, there are no chances of any adverse impacts on the surrounding environment if unit is installed as planned, however, in case of any impacts arises during construction possible necessary mitigation measures will be adopted to control the same. Overall, the project has positive social impacts. The project may also have some adverse environmental impacts of minor to moderate magnitude which will be controlled through mitigation measures, proposed in Environmental Management and Monitoring Plan (EMMP). Moreover, no vegetation clearance during construction phase will be done as said project will be constructed within approved proponent's own land. However, plantation will be done at specified green areas of the unit.

1.6 Proposed Impacts and their Mitigation Measures

Environmental Parameters	Impact Assessment during Different Phases		Mitigation Measures
	Installation	Operational	
Planning and Designing			
Location	**+1p**	**+2p**	Instant project has been established on proponents own land, Generated sewage is being treated before being reused for horticultural purposes on proponent's own land; ❖ The generated solid waste is being disposed of as per area practice. While wastewater generated during project operational activities is being treated before its reuse. ❖ It is envisaged that no land use change, tree cutting or deterioration of soil and environment will take place and no further mitigation measures will require as the project has been established on an open land which is owned by project proponent.
Design	**+1t**	**+2p**	No mitigation measures will berequired as the project has been designed according to the principle of sustainable development; ❖ For instant project good quality raw-material will be used. ❖ Through the modern machinery high quality of paint will be manufactured/ made. ❖ The generated sewage is being treated prior to its reuse for horticultural purposes.

A: Physical			
1. Land Resources			
Soil Erosion and Contamination	**-1t**	**-1p**	Following mitigation measures will be adopted to protect the soil from erosion and contamination: ❖ After civil work mainly herbs and shrubs causing soil exposure has been re-vegetated quickly and compensatory plantation be carried out as soon as possible. ❖ It has been ensured that fast-growing trees will be planted in the designated green areas. ❖ Spill prevention and response plan for storage, usage and transfer of fuel should be prepared (if used on site) and implemented. ❖ Workers should be trained on spill prevention and response plan. ❖ Maintenance and washing of vehicles as well as equipment will be carried out at designated areas within the facility (if any) ❖ Any hard impermeable covering or tarpaulin should be spread on area to prevent soil contamination.
Solid Waste and By Products	**-2t**	**-1p**	General waste management practices has been adopted which includes: ❖ During construction the recyclable and reusable waste were sold to the contractor. ❖ During operation phase Waste bins has been placed in the facility at the strategic positionfor the collection of solid waste,

			from where it is being disposed of as per area practice. ❖ Record of all generated waste during the project activity should be maintained on the regular basis.
Land Use	**NA**	**+1p**	Establishment of Paint Manufacturing Unit has been executed on proponent's own land. Hence, less impact due to the land use change is being envisaged. Following mitigations measures has been adopted to reduce the land use impact: ❖ Unnecessary up-rooting and disturbance to the native vegetation should be avoided up to the extent possible ❖ The designated green area has been vegetated and vegetation present on-site will be preserved as far as practically possible.
2. Air Resources			
	-1t	**-1p**	Following measures will be adopted: ❖ Workers were given PPEs such as ear plugs and muffles. ❖ Proper tuning of the machines was done in order to control the noise. ❖ There is no boiler installation, so there will be no air emission source from instant project.
Dust and Exhaust Emissions	**-2t**	**-1t**	Following mitigation measures will be adopted to mitigate the anticipated impact: ❖ Ensure that the trucks carrying the raw-material should be covered by tarpaulin to reducefugitive dust emissions ❖ Water spraying/sprinkling on tracks shouldbe done on the regular basis.

			❖ Ensure that all equipment and vehicles, used during the construction phase, are properly tuned and maintained in good working condition, in order to minimize the exhaust emissions and it will be regulated by the concerned authority ❖ Ensure that high quality fuelhaving low sulfur contents will be used in the vehicles engaged in the project constructional activity ❖ Ensure that dust emissiongenerated due to vehicular movement is minimized by restricted speed limit and vehicular movement impacts which will be minimized through good traffic management at site ❖ Ensure that dust emission during the project activities will be minimized by implementing best management practices.
3. Water Resources			
Ground Water	**-1p**	**-1p**	Following mitigation measures will be adopted: ❖ Water conservation techniques should be adopted to ensure sustainable consumption. ❖ As per design the instant project included state-of-the-art machinery. ❖ Reuse of treated waste water is being preferred where possible. ❖ Monitoring of sewage shall be carried out as per provision of(SMART) Rules to ensure compliance with the PEQS ❖ It has been ensured that no solid waste will be mixed in the wastewater.

			There is no surface water body present in the project proximity that could be impacted. ❖ Proper monitoring of the wastewater will be carried out on regular basis.
Surface Water	**0**	**NA**	❖ No mitigation measures are required to be discussed as the project does not extract from any surface water body neither is there any surface water body in close proximity of the project site which is vulnerable to be affected by the construction or operation of the instant project.
Wastewater	**-1p**	**-2p**	Following mitigation measures will be adopted: ❖ Water conservation techniques should be adopted to ensure sustainable development. ❖ Washing water is collected and stored in a dedicated Washing Water Storage Tank. ❖ This water is filtered and reintroduced into the production process, reducing fresh water consumption. ❖ Monitoring of sewage shall be carried out as per requirement of Self-Monitoring and Reporting Rules (SMART) to ensure compliance with the PEQS ❖ It has been ensured that no solid waste will be entered in the wastewater ❖ There is no surface water body present in the project proximity that could be impacted ❖ The wastewater will be prior to the reuse.

B : Ecological			
Flora			
Tree Cutting	**NA**	**+1p**	Following mitigation measures will be adopted: ❖ Avoid un-necessary disturbance and removal of the tree at any stage of the project. ❖ The designated green area will be vegetated and native vegetation present on-site will be preserved.
Fauna			
Terrestrial Fauna	**NA**	**NA**	❖ The instant project is present within huge cluster of industries on both sides of and there is no sensitive or protected area in proximity which may be affected. Hence no mitigation measures will be required as no impact on fauna is being envisaged.
C: Socio-Economic			
Employment Opportunities	**+1t**	**+2p**	It has been ensured that preference has been given to the locals during construction and operation of the instant project.
D: Hazards			
Physical Hazards	**NA**	**-1p**	The following mitigation measures are suggested that could be applied to reduce the risk of health and safety: ❖ Spillage prevention plan should be adopted and it should be implemented effectively (if needed) ❖ Floor surfaces shall be maintained and cleaned on regular basis ❖ Floor should be kept clean and free of oil spills, other slippery fluids or materials and obstructions.

			❖ The effective use of hearing- protection devices shall be ensured. ❖ Protective measures and emergency rescue procedures should be followed strictly. ❖ Unloading of the raw-material and flow of the final products should be controlled, supervised, slow and smooth.
Health and Safety	**-1t**	**-1p**	The following mitigation measures are suggested that could be applied to reduce the risk of health and safety: ❖ Floor surfaces shall be maintained and cleaned on regular basis ❖ The effective use of hearing- protection devices shall be ensured. Protective measures and emergency rescue procedures should be followed strictly. ❖ Only authorized persons shall be allowed in the processing areas. ❖ Adequate PPEs shall be provided to the workers during construction and operation ❖ First Aid boxes shall be placed at different locations within the production hall ❖ Proper Firefighting and emergency evacuation plans will be developed ❖ Emergency exits and assembly areas will be clearly marked. ❖ Safety instructions will be displayed at conspicuous locations within the production area.

Legends: 1= Low; 2= Medium; 3= High; 4= Extremely High; NA= Not Applicable; t=Temporary; p= Permanent; A= Applicable; 0= Negligible

1.7 Proposed Monitoring

During construction & operation, monitoring will be carried out to check compliance of PEQS. Moreover, periodic monitoring should also be carried out regarding ambient air monitoring, noise pollution, wastewater & worker safety. A detailed site monitoring plan has been developed and given in **Chapter-09** of this EIA Report.

CHAPTER 1: INTRODUCTION

2.1 Purpose of Report

As per Punjab Environmental Protection Act, 1997 (Amended 2012) and the Punjab Environmental Protection Review of Initial Environmental Examination and Environmental Impact Assessment 2022 it is mandatory for the proponent of any development project to obtain Environmental Approval/NOC before commencing construction from EPA Punjab by filing an IEE or EIA as the case may be, before the Agency. This Study presents the Environmental Impact Assessment (EIA) Study for Paint Manufacturing Unit by M/s Mubeen Paint Industries Pvt. Limited present in industrial area as many other industries are present near the project. For this purpose, the proponent has engaged environmental consultant: M/s Ecogreen Company (Pvt.) Limited.

The purpose of this study is to identify the environmental baseline i.e. physical, biological and socio-economic/cultural conditions and assess all possible impacts arising during the construction and operation of the said project with the aim to find out appropriate measures for their mitigation, to either eliminate those impacts or to bring them to acceptable level and formulate Environmental Management and Monitoring Plan (EMMP) for implementation of the project in environment-friendly manner. This EIA Report provides relevant information, as required under the officially approved format, to facilitate the decision makers i.e. EPA Punjab for the issuance of Environmental Approval/NOC. The main objectives of this EIA Study are:

- To determine and document the state of environment of the project area to establish a baseline environmental condition in order to assess the suitability of said project in respective area.
- To identify the impacts during construction & operation activities
- Provide assistance to the proponent for planning, designing and implementing the project in a way that would strengthen environment, improve ecological resilience, eliminate or minimize the negative impact on the bio-physical and socio-economic environment and maximizing the benefits to all parties in cost effective manner.
- To present Mitigation and Monitoring Plan to smoothly implement the suggested mitigation measures and supervise their efficiency and effectiveness.
- To provide opportunity to the public for understanding the project and its impacts on the community and their environment in the context of sustainable development.

- Prepare an EIA Report for submittal to the Environmental Protection Agency, Punjab for according Environmental Approval.

2.2 The Project

This EIA study represents establishment of Paint Manufacturing Unit under the name of M/s Mubeen Paint Industries Pvt. Limited at 8-Km Khushab Road, Near Dharema, Sargodha.

2.3 The Proponent

The details of the proponent of said project are given below:

Table 1: Details of the Proponent

Proponent Details	
Name	Mubeen Raza Khokhar
Designation	*Proponent*
Company	M/s Mubeen Paint Industries Pvt. Limited
Address	8-Km Khushab Road, Near Dharema, Sargodha

2.4 Details of Consultant

The proponent of said project engaged M/s Ecogreen Company (Pvt.) Limited to carry out the environmental impact assessment study of aforesaid project in accordance with EPA, Punjab guidelines. For this purpose, the company nominated the team of professionals which comprises of Environmental Scientists and Environmental Engineers. The details of the consultant are given below:

Table 2: Consultant Details

Consultant Details	
Consultant	**M/s Ecogreen Company (Pvt) Limited**
Address	Plot#2, A-Block Commercial Area near Gate#1, Canal View Society, Lahore
Contact No.	042-35294297
Focal Person	
Name	Kiran Irshad
Designation	*Lead Environmental Professional*
Contact No.	0320-0800221

To prepare an EIA Report of the respective project the company engaged the following experts. The details of the experts are given below;

Table 3: List of Experts

Sr. #	Name	Qualification
Team Leader		
i.	Miss. Kiran Irshad	M.Phil. Environmental Sciences
Environmental Scientist		
ii.	Dr. Areej Tahir	P.H.D Environmental Sciences

2.5 Project Nature, Size & Location

The instant project is establishment of Paint Manufacturing Unit under the name of **M/s Mubeen Paint Industries Pvt. Limited"**. The estimated cost of project is **PKR 100 Million PKR**. The geographical location of the project is **Latitude** 32.14905946778278 **North** and **Longitude** 72.62324322848528 **East**. The location of the project is shown in **Figure 1**:

Figure 1: Unit Location

Figure 2: Project Location Map

CHAPTER 2: SCREENING

Section 12 of Punjab Environmental Protection Act (PEPA), 1997 (Amended 2012) states:

"No proponent of a project shall commence construction or operation unless he has filed with the Government Agency designated by Federal Environmental Protection Agency or Provincial Environmental Protection Agencies, as the case may be, or, where the project is likely to cause an adverse environmental effect an Environmental Impact Assessment (EIA), and has obtained from the Government Agency approval in respect thereof."

As per Punjab Environmental Protection Review of Initial Environmental Examination (IEE) and Environmental Impact Assessment (EIA) Regulations, 2022 under Section 12 of Punjab Environmental Protection Act, 1997 (Amended 2012), instant project i.e., Paint Manufacturing Unit which falls under **Schedule II** category B Manufacturing and Processing clause 5 Paper and Paperboard, Paper Pulping, **Paints** & Dyes

CHAPTER 3: SCOPING

3.1. Spatial and Temporal Boundaries of Environmental Assessment

Instant project is establishment of Paint Manufacturing Unit on proponent's own land. By the implementation of said project, the gap between demand and supply of water and Oil based has been reduced significantly in the local and international markets. This site is selected because other industries are present, It is also at safe distance from the residential areas as depicted in the google earth map attached below. The raw materials can be easily transported to the site as it is accessible through metaled road network. Moreover, following facilities are available on-site: electricity supply, water supply, sewer collection & disposal system and hence ensuring the smooth operation of the said facility.

The simple and efficient operation of the Paint Manufacturing unit will make sure to not disturb the ecosystem at any level and if there are any impacts, the proper remedial measures will be taken. The operation of said project employment opportunities for the locals has been increased and so will the GDP and exports of the country. The process itself has negligible impact on the environment. Raw materials is being purchased from the local market as per demand/ requirement and Water/Oil based paint is being manufactured as per international standards. The Google Earth Map (**Figure 2**) attached below shows the various residential and industrial facilities within 01-02km aerial distance of project site. Overall, no significant impacts can be seen over the longer run as proper management plan has been devised and will be implemented to cope up with any adverse effect.

3.2.Important issues and concern raised during consultation

During consultation it was observed that majority of the respondents were in favor of said project. The other related issues and concerns raised by general public are discussed in detail in **Chapter 10** (Stakeholder Consultation). However, during the social survey following concerns of the local community were noted:

- Nuisance must be controlled at source.
- Latest/State of the art technology must be installed instead of the used ones.
- Locals should be preferred for the job opportunities.
- Environmental monitoring should be done on regular basis as per SMART Rules.
- Solid waste should be managed effectively by adopting the standard practices of the area.

- Cleanliness of the area should be maintained.
- An effective EMMP should be designed and enforced with true spirit.
- Health and safety of the workers should be ensured.
- Proper disposal of sewage should be ensured.

3.3. Significant Impacts and Factors to be Determined

Main impacts and factors to be determined are;

- Occupational Health and safety
- Site Security
- Traffic Management
- Job opportunities for locals
- Energy efficient techniques must be adopted
- Proper site restoration after Establishment
- Tree plantation at designated green areas
- Emergency preparedness

CHAPTER 4: CONSIDERATION OF ALTERNATIVES

4.1 Site Alternatives, their selection and rejection criteria

Other alternatives were considered by the proponent but were later rejected due to presence of residential areas close by or due to lack of facilities, utilities, road access or other environmental concerns. Management of M/s Mubeen Paint Industries Pvt. Limited has selected his own site present within cluster of Industries. Due to implementation of said project no land use change is being foreseen as the Mubeen Paint Industries Pvt. Limited is present at suitable site. The site is suitable for implementation of said project owning to the following characteristics:

- Proponent has selected his own land to establish instant project.
- The site is accessible through metaled road network
- The site is located at the safe distance from sensitive receptors (residential area & protected area).
- The selected land is owned by M/s Mubeen Paint Industries Pvt. Limited
- No land use change is being foreseen due to implementation of said project.

4.1. Design/technology alternatives, their selection and rejection criteria

For the paint manufacturing unit powder paints and silicon-based paints can be the alternative, but project proponent intend to manufacture Water Based and oil Based paints. State of the art technology/ procedure is being used at M/s Mubeen Paint Industries Pvt. Limited which reduced the usage of resources. The process is pretty much uniform, regardless of production quality. The considerations are made to choose the raw materials that are ecofriendly and efficient as well.

4.2. Environmental Alternatives, their selection and rejection criteria

The selected processes are environmentally friendly and it is selected based on environmental alternatives.

4.3.Economic Alternatives, their Selection and Rejection Criteria

Instant project involves more than one process i.e., Water Based/ Oil Based and it's been ensured by management that process and raw material will be economically more stable.

CHAPTER 5: DESCRIPTION OF PROJECT

5.1 General

This section of the study concentrates on details of the project and its salient features; such as; location, site layout, objectives, cost and magnitude of operation and various phases, inputs and discharges relevant to different phases of the project (groundwater, electricity, materials, etc.) have also been examined as a response to possible environmental concerns.

5.2 Project Objectives

The overall aim of instant project is to manufacture paints i.e., Water Based and Oil Based Following are the objectives of said project implementation:

- Creation of new job opportunities and promoting income prospects for those engaged in the allied activities associated with operation of project is considered as indirect objectives of the project.
- Set up a production facility with efficient processes for high-quality paint manufacturing.
- Develop a range of paints, including water-based, oil-based, and specialty coatings, to meet market demands.
- To Develop various formulations for different market needs

5.3 Location and Site layout of Project

The selected site is located at 8-Km Khushab Road, Near Dharema, Sargodha. The coordinates of the site are; **Latitude** 32.14905946778278 **North** and **Longitude** 72.62324322848528 **East.** The site layout is attached herewith as **Annex-C**. However, the Google Earth Map showing the project location is attached as **Annex-D** and its distance from nearby sensitive receptors is shown in previous chapter.

5.4 Land Use On-Site

The selected site is located along the Khushab Road and has industrial establishments around the selected Site of the project as shown in Google Earth map attached below;

5.5 Road Access

The site is accessible through Khushab Road and said road is present the distance of 0.5km, as shown below;

Figure 3: Road Access Map

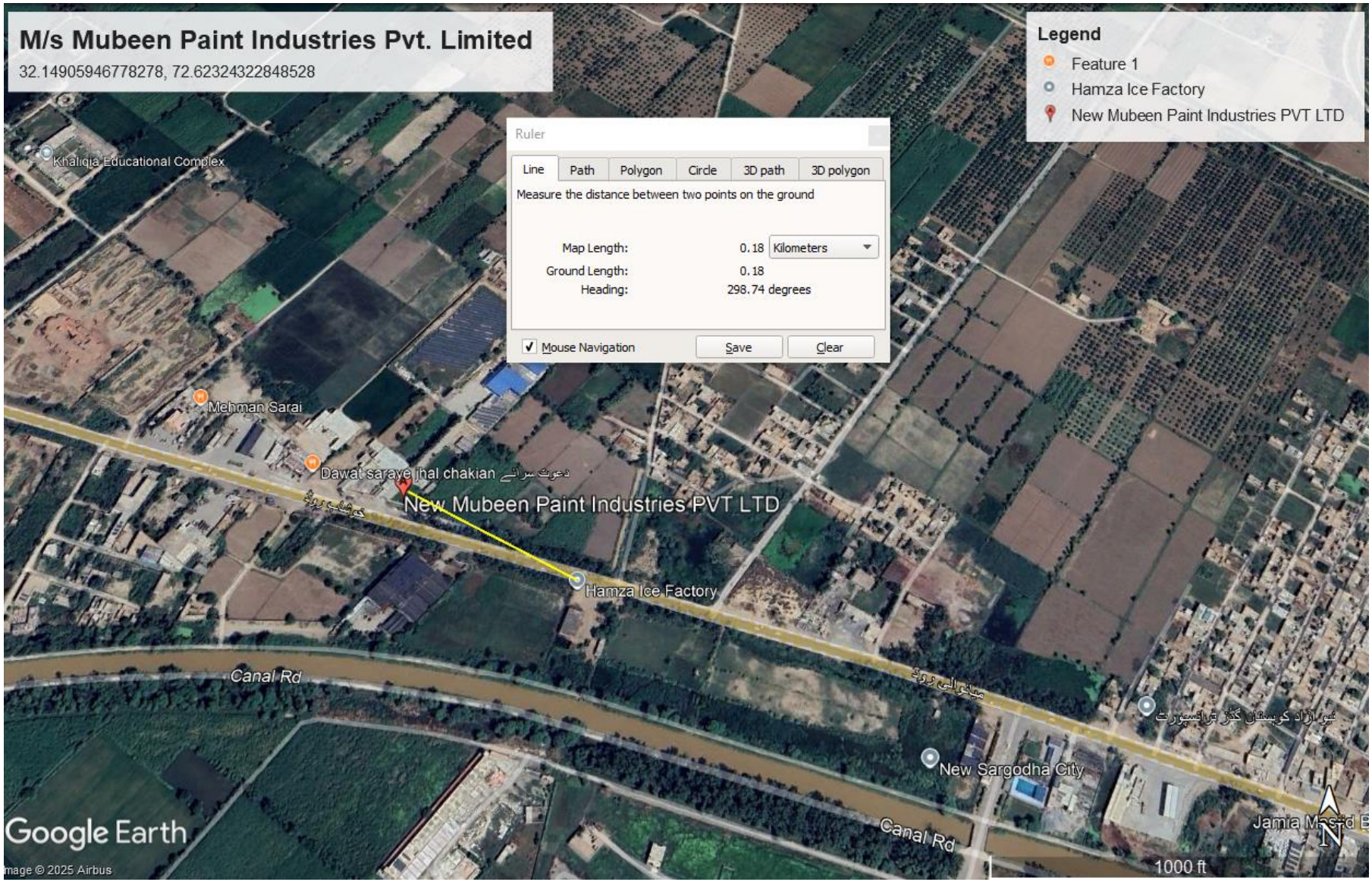


Figure 4: Nearest Industrial Unit

5.6 Vegetation Features

The topography of the project area is flat and it is open land with herbs & shrubs species. Instant project does not involve any herbs, shrubs or tree cutting as selected site was open land and free of Vegetation. (lLand Ownership documents are attached herewith as **Annexure B**) Moreover, tree plantation has been done along boundary & in all open spaces after completion of constructional activities.

5.7 Cost and Magnitude of Operation

The cost of the said project is **PKR 100 Million PKR** it includes; Land Cost, Civil Work, Raw Material, purchase of machinery & installation of machinery. The magnitude of operation includes:

- Civil work
- Purchase of machinery & equipment
- Testing and commissioning of operation
- Plantation of various ecologically important species on the designated green space.

5.8 Schedule of Implementation

The tentative schedule for said project implementation is approximately **06 months** and the detail timeline of the construction period is given in **Table 04:**

Table 4: Timeline for Project Development

Sr#	Activities	6 Month			6Month		
		4W	*6W*	*14W*	*8W*	*10W*	*6W*
1	Detailed Designing						
2	Mobilization of Contractors						
3	Civil Work						
4	Site Restoration & Rehabilitation						
5	Plantation at Site						
6	Commissioning						
W=Weeks							

5.9 Description of Project

The instant project is the establishment of a Paint Manufacturing Unit under the name of M/s Mubeen Paint Industries Pvt. Limited. The facility is equipped with the latest, most efficient, and cost-effective technology available to ensure high-quality production. The manufacturing process includes precise formulation, mixing, and quality control to meet industry standards and customer requirements. The production capacity of the project is **800,000 liters of water-based paint** and **400,000 liters of oil-based paint** annually, catering to a diverse market demand with a wide range of colors and finishes. Its description is given below:

5.9.1 Raw-Material

Raw Material detail is given below:

S/No	Description	PURPOSE
1	Titanium Dioxide	Pigment
2	Red Oxide	Pigment
3	Yellow Oxide	Pigment
4	Calcium Carbonate	Pigment
5	Talcum	Pigment
6	PVA	Binder
7	Acrylic	Binder
8	Alkyd Resin	Binder
9	MTT	Solvent

Water-Based Paint Manufacturing Process Flow

Raw Material Handling → Premixing → Grinding/Dispersion → Let-Down Process → Filtration → Quality Control → Packaging

Details:

- **Raw Material Handling:** Pigments, resins, additives, and water are weighed and prepared.
- **Premixing:** Ingredients are mixed to form a uniform slurry.
- **Grinding/Dispersion:** High-speed dispersers or mills break down pigment particles for smoothness.

- **Let-Down Process:** Binders and other ingredients are added for final consistency.
- **Filtration:** Paint is filtered to remove impurities.
- **Quality Control:** Viscosity, pH, and color checks ensure compliance.
- **Packaging:** The finished paint is packed into containers for distribution.

Oil-Based Paint Manufacturing Process Flow

Raw Material Handling → Mixing → Grinding/Dispersion → Dilution → Quality Control → Packaging

Details:

- **Raw Material Handling:** Solvent, resin, pigments, and additives are prepared.
- **Mixing:** Ingredients are blended with solvents to create a homogeneous mixture.
- **Grinding/Dispersion:** High-speed dispersers refine pigments.
- **Dilution:** Solvents are added to adjust the paint's viscosity.
- **Quality Control:** The paint undergoes color, drying time, and durability testing.
- **Packaging:** The final product is filled into cans and sealed for shipment.

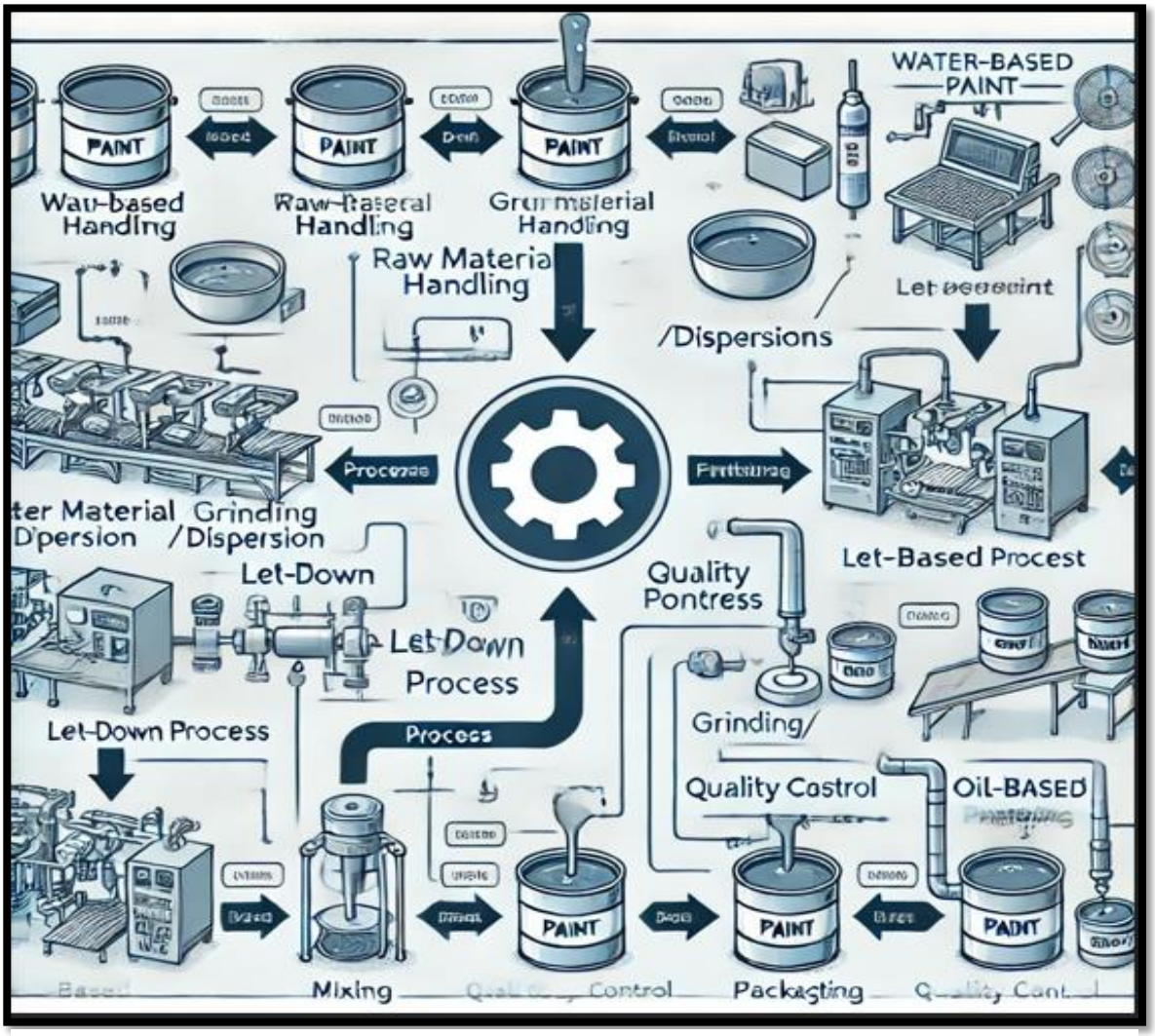


Figure 5: Process Flow Diagram

5. 10 List of Machinery/Equipment

The list of machinery for M/s Mubeen Paint Industries Pvt. Limited is given below:

Table 5: List Of Machinery/Plant/Transport

S/No	ITEM	PRODUCTION PURPOSE	CAPACITY	NUMBER OF UNITS
1	MSD	Pigment Grinding Water Based Paint	22000 Ltr/Day	1
2	HSD	Batch Mixing Water Based Paint	14400 Ltr/Day	4
3	Bead Mill	Pigment Grinding Water Base	13000 Ltr/Day	2
4	Basket Mill	Pigment Grinding Solvent Based	3000 Ltr/Day	2
5	Attritors	Pigment Grinding Solvent Based	2400 Ltr/Day	4
6	HSD	Pigment Grinding & Color Matching Solvent Based	2400 Ltr/Day	1
7	Wall Mixers	Color Matching Solvent Base	26000 Ltr/Day	3
8	Packing Machine	For Finish Goods Packing	6000 Gallon/Day	4

5.11 Supplies

Following supplies will be utilized for the construction and operation of instant project.

5.11.1 Manpower (Direct & Indirect)

During construction phase 10-15 workers will be involved. During the operation phase of the project, the total manpower requirement is estimated to be 100-120 approximately comprises of; administrative, engineers, supervisors, machine operators, shift in charge, computer operators and non-technical persons/workers. All recruited staff will be given appropriate training in order to educate them on the specific job tasks to be performed; safety procedures and monitoring parameters.

5.11.2 Amenities

Following amenities will be used during operation of said project

i. Electricity/ Power Supply

Power requirement for instant project will be 500 KWh and fulfilled by WAPDA.

ii. Wastewater Management

Paint manufacturing generates wastewater mainly from equipment cleaning, spills, filtration residues, and process water discharge, the small amount of residue remaining in the washing water storage drums, which contains calcium carbonate, will be utilized in proponent's farm present adjacent to selected Site, as calcium carbonate is essential for plant growth. It helps neutralize soil acidity and provides calcium, which is vital for plant cell wall structure and overall plant health Generated sewage water is being treated in prior to its reuse for horticultural purposes. No wastewater will be discharge into any drain without treatment.

iii. Noise

Noise may be generated from operation of installed machinery and to control that noise proper mitigation measures has been adopted. Operations is being carried out in properly enclosed production halls with adequate Ventilation and lightning. Proper lubrication of machinery is being done regularly and PPE's has been provided to workers. Residential areas are at safe distance from project site. Moreover, regular monitoring by using digital sound meter will be conducted to comply with PEQS as per SMART Rules.

5.11.3 Emergency Response System

The system covers the emergency response system in case of inefficient working of said facility and to remove any mechanical fault. Emergency response team has been designated the relevant tasks and trained them how to respond in such situation.

5.12 Restoration and Rehabilitation Plan

After completion of construction/ Installation site was restored and leveling was done. Leftover constructional material was removed from site and it was reused in other activities. Renovation/repairing of machines done whenever required however, at the expiration of the useful life of the project; adequate arrangements will be made to remove all movable assets. The materials capable of recycling/reuse will be either sold in the market or to be reused for other suitable purposes.

Safety measures as desired under the code of demolition will be adopted to avoid any harm to humans, property around, or the environment in the project area. Generated dust will be minimized by sprinkling water on regular basis. After completion; all construction matrix, debris and garbage will be removed off immediately from the site within the minimum possible time under safe conditions. Any minor spillover of these materials will be cleared adequately.

CHAPTER 6: DESCRIPTION OF ENVIRONMENT

This section describes the baseline conditions, which shows the clear-cut picture of existing environmental resources; physical, ecological and socio-economic environment of the Project Area. Information on these aspects has been derived from field visits to the project area as well as information obtained through visits to the Government departments and other relevant agencies. The primary data was collected by surveying the project area and its nearby vicinity. The secondary data regarding physical parameters (topography, geology, seismology, hydrology and climatology) was obtained by visiting relevant departments and their official websites. The biological parameters (flora and fauna) were also studied in the project area. The vegetation of project area was studied by preparing a floristic list based on visual observation. The species were recorded with reference to their historical existence in the project area.

Information on wildlife fauna species (mammals, amphibians, reptiles, birds, etc.) in the assessment area was compiled based on opportunistic observation, gathering the existing information and consultation with local experts, community members and government departments. The socio-economic aspects were studied and analyzed by conducting detailed socio-economic surveys.

6.1. Baseline Physical Environment

In this section, physical resources such as; topography, soil, climate, surface as well as ground water resources and its quality, ambient air quality and geology of not only the project site but also the city as a whole to assess whether the project under assessment can or does have any impacts on any of these parameters. The description of physical environment of the project site is present in the following sub sections

6.1.1. Topography & Geology

Sargodha mainly comprises of flat and fertile plains. It is situated in Punjab province. It is located at Northwest of Lahore, between longitude 72.67111 East and latitude 32.08361 North. The City covers an area of approximately 155 km^2, while the district covers more than 5854 km^2. The soil of Sargodha comprises of clay loam. Geologically, it consists of Quaternary alluvial sediments of sand, silt, and clay, underlain by deep Precambrian and Cambrian rock formations. The soils are fertile, with loamy and clayey textures ideal for crops like wheat, rice, and sugarcane. While Sargodha lies in a low to moderate seismic zone, it lacks significant mineral resources, relying instead on its rich agricultural landscape for economic sustenance. The site is located at 8-Km Khushab Road, Near Dharema, Sargodha and the coordinates of the selected site are **Latitude** 32.14905946778278 **North** and **Longitude** 72.62324322848528 **East.**

6.1.2. Seismicity

According to Seismic Zoning of Pakistan, the project area lies in Zone 2A and represents in to moderate damage due to earthquakes. The seismic zoning of Pakistan is given below in Figure:

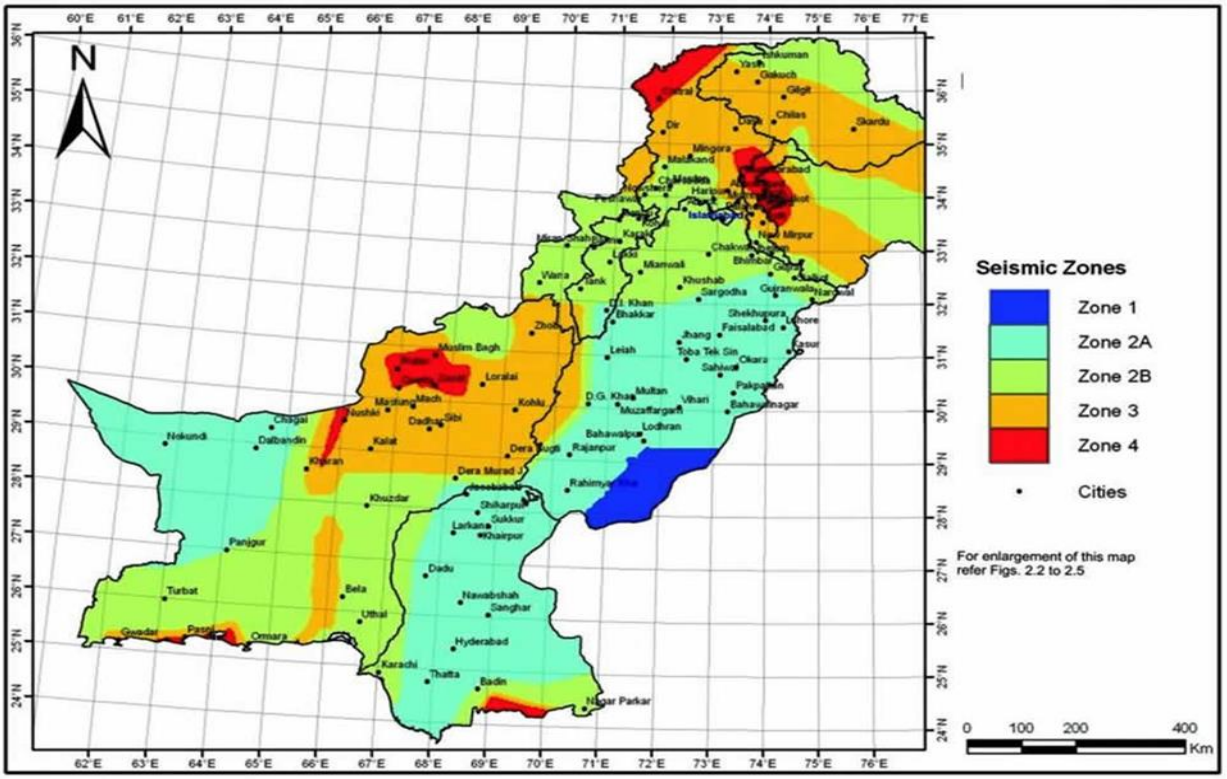


Figure 6: Seismic Zoning of Pakistan

6.1.3. Climate

Sargodha Pakistan, has a semi-arid climate with hot summers, mild winters, and distinct seasonal variations. Summers, from May to September, are intense, with temperatures often exceeding 40°C, while winters, from November to February, are mild, with temperatures ranging between 5°C and 20°C. The region receives most of its annual rainfall, averaging 500-700 mm, during the monsoon season (July to September), while the rest of the year remains predominantly dry. Brief spring and autumn periods bring moderate temperatures, making these transitional seasons the most pleasant. The dust storms occur occasionally during the hot season, June, July and August.)[1].

[1] https://en.climate-data.org/asia/pakistan/punjab/Kasur-1897/

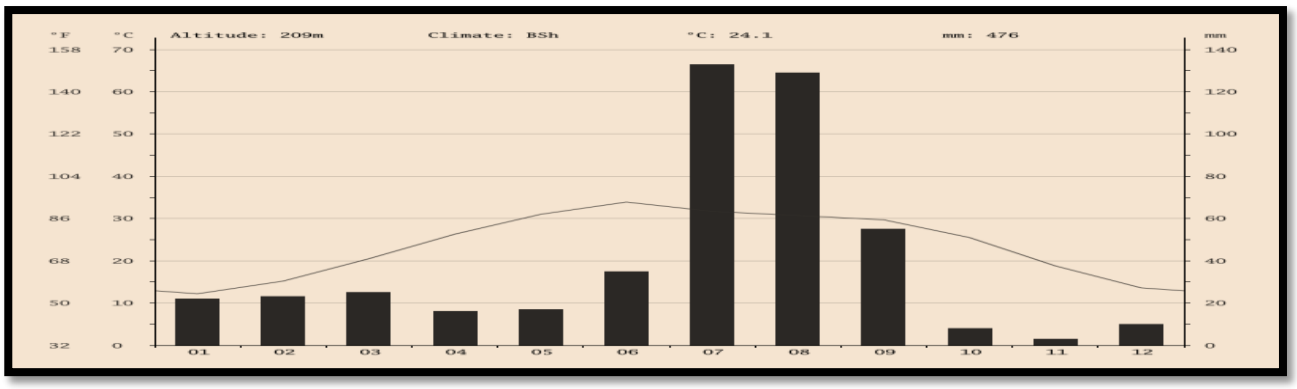


Figure 7: Temperature Graph

Figure 8: Rate of Precipitation

6.1.4. Ambient Air Quality

The primary air pollutants are; carbon monoxide (CO), oxides of nitrogen (NOx), sulfur dioxide (SO_2), and particulate matter (PM). In order to determine the air quality of the area, environmental monitoring was carried out by Green Crescent being EPA certified Laboratory and having the requisite sampling device and expertise for collection of samples. To determine the air quality of the area ambient air monitoring was carried out and following results were obtained:

Table 6: Air Quality Monitoring Results

S#	Monitoring Source	CO	NO	NO_2	SO_2	$PM_{2.5}$	PM_{10}
PEQs		mg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³
		10	40	80	120	35	150
1	Midpoint	2.45	54.60	54.60	56.46	33.50	145.7

6.1.5. Ambient Noise

Noise level measurements had been carried out within the selected site. This analysis showed that values are much below the limit prescribed under the Punjab Environmental Quality Standards (PEQS). Monitoring reports are attached as **Annex E.**

Table 7: Ambient Noise Monitoring Results

S. No.	Monitoring source	Unit	PEQs	Conc.	M. Point
1	Midpoint	dB (A) Leq	75	75	75 Day time 65 Night Time

6.1.6. Groundwater Quality

Groundwater quality results of project area are given below:

Table 8: Ground water Analysis Results

Sr. No.	Parameter	Method	Unit	Result	PEQS
1	pH	APHA 4500-H^+ B	--	7. 25	6.5-8.5
2	Total Dissolved Solids (TDS)	APHA 2540 C	mg/l	920	1000
3	Chloride	4500- APHA Cl^- B	mg/l	266.13	250
4	Fluoride	APHA 4500-F^- D	mg/l	0.08	1.5
5	Taste	APHA 2120 B	Object. /unobj.	Unobject.	Unobject.
6	Odour	APHA 2120 B	Object. /unobj.	Unobject.	Unobject.
7	Colour	APHA 2120 B	TCU	0.78	15
8	Nitrate (as NO_3^-)	APHA 4500-NO^{3-} E	mg/l	0.0	50
9	Nitrite (as NO_2^-)	APHA 4500-NO^{2-} B	mg/l	0.0	3
10	Lead	APHA-Pb B	mg/l	BDL	0.05
11	Total Hardness as $CaCO_3$	APHA 2340 C	mg/l	69.3	500
12	Turbidity	APHA 2130 B	NTU	0.05	5
13	Zinc	APHA 3500-Zn B	mg/l	BDL	5

14	Aluminum	APHA 3111 D	mg/l	0.13	0.2
15	Chromium	APHA 3500-Cr B	mg/l	BDL	0.050
16	Cadmium	APHA 3500-Cd D	mg/l	BDL	0.01
17	Copper	APHA 3500-Cu C	mg/l	BDL	2
18	Boron	APHA 4500-B C	mg/l	0.036	0.300
19	Barium	APHA 3111 B	mg/l	0.044	0.700
20	Antimony	APHA 3114 C	mg/l	0.004	0.020
21	Arsenic	APHA 3114 C	mg/l	0.013	0.050
22	Cyanide	APHA 4500-CN^- D	mg/l	0.012	0.05
23	Mercury	APHA 3112	mg/l	BDL	0.001
24	Nickel	APHA 3111 B	mg/l	0.002	0.020
25	Residual Chlorine	APHA 4500-Cl_2	mg/l	0.20	0.2 – 0.5
26	Total Thermo Coliform	APHA 9222B	Number/100ml	0	0/100ml
27	Total Coloform	APHA 9222B	Number/100ml	0	0/100ml
28	E.coli	APHA 9222C	Number/100ml	0	0/100ml

6.2 Baseline Biological Environment

District Sargodha is not rich with biological and ecological resources. However, the flora and fauna of the district includes; shrubs, herbs, mammals, birds, reptiles, amphibians and insects are found. In sub-sections below biological features are discussed below:

6.2.1 Flora

The flora of Sargodha district is typical of the fertile plains of Punjab, with vegetation largely shaped by its semi-arid climate and extensive agricultural activity. Native trees such as Shisham (Dalbergia sissoo), Kikar (Acacia nilotica), and Beri (Ziziphus mauritiana) are common, especially along roadsides and in rural areas. Cultivated crops dominate the landscape, with wheat, rice, sugarcane, and fodder grasses being the primary vegetation due to the district's fertile soils and irrigation system. Orchards featuring mango, guava, and citrus trees also contribute to the region's flora. Shrubs and grasses adapted to dry conditions grow in less-cultivated areas, while the monsoon season briefly brings a burst of greenery and seasonal flowers.The selected site is present in proponent's own land, So no impact on local flora is being envisaged. After, completion of construction/ Installation trees will be planted in open green spaces.

6.2.2 Fauna

The fauna of Sargodha district reflects its agricultural landscape and semi-arid climate, with a mix of domestic, wild, and migratory species. Common mammals include jackals, mongoose, and small rodents, while livestock like buffaloes, cattle, and goats dominate rural areas. Bird species such as crows, pigeons, sparrows, and parakeets are abundant, with seasonal migratory birds, including ducks and cranes, visiting wetlands during the winter. Reptiles like lizards and snakes are also present, particularly in uncultivated areas. Aquatic life thrives in rivers and canals, with species such as catfish and rohu being common. The fauna is closely tied to the district's agricultural practices and natural habitats, though increasing urbanization poses challenges to wildlife. During site visit near site no such fauna was noticed that could be impacted due to construction of aforementioned project as the selected site is location in industrial area.

6.2.3 Archaeological Sites or Wetlands

It is envisaged that no building of archaeological, cultural and historical importance will not be damaged at the time of construction M/s Mubeen Paint Industries Pvt. Limited. Moreover, there is no wetland or surface water body reported to be affected due to the construction of the aforesaid project.

6.2.4 Endangered Species

There is no floral or faunal species inhabiting the project area that are included in the Red Data Book of IUCN. The populations of birds are reported to be reduced over time due to excessive pesticide sprays in agricultural crops and loss of habitat.

6.3 Baseline Socio-Economic Environment

Socio-economic environment is represented by the human and economic development and quality of life values. For the study of socio-economic environment of the project area, field surveys were conducted and interviews were held with the various stakeholders. The socioeconomic conditions of the project area are as follow:

6.3.1 Industry

Above said Paint Manufacturing Unit will be established at 8-Km Khushab Road, Near Dharema, Sargodha. The project site is also surrounded by various other industrial activities nearby industries are mentioned in below map:

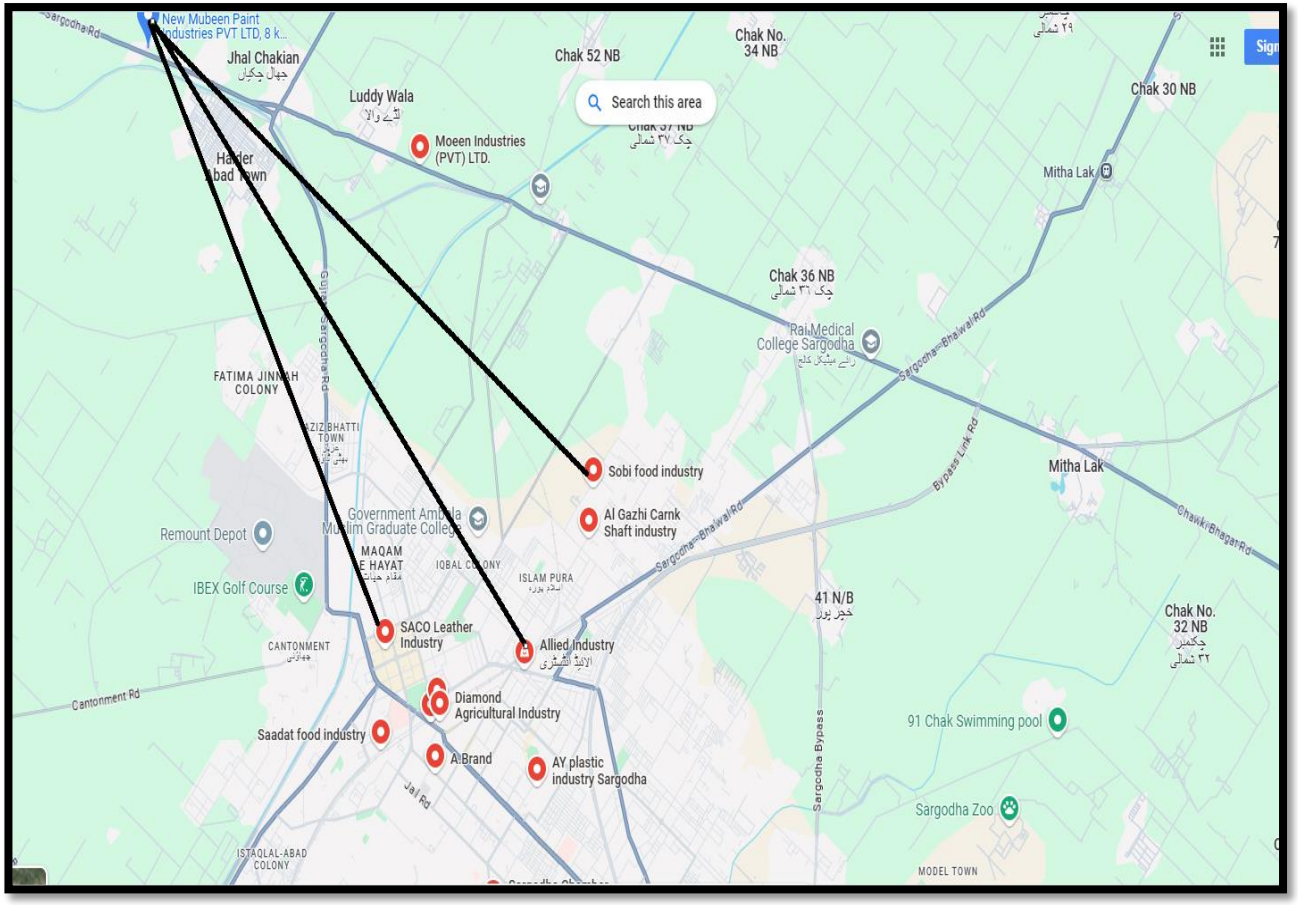


Figure 9: Industries Located in Project Area Vicinity

6.3.2 Health Facilities

Healthcare services are provided to the citizens by both public and private sector hospitals. The nearest hospital is; Rigah Hospital is present at the distance of 4.73k and Al-District Headquarter Hospital is present is present at the distance of 5.43km. Moreover, there are a number of private hospitals, clinics and laboratories in the city.

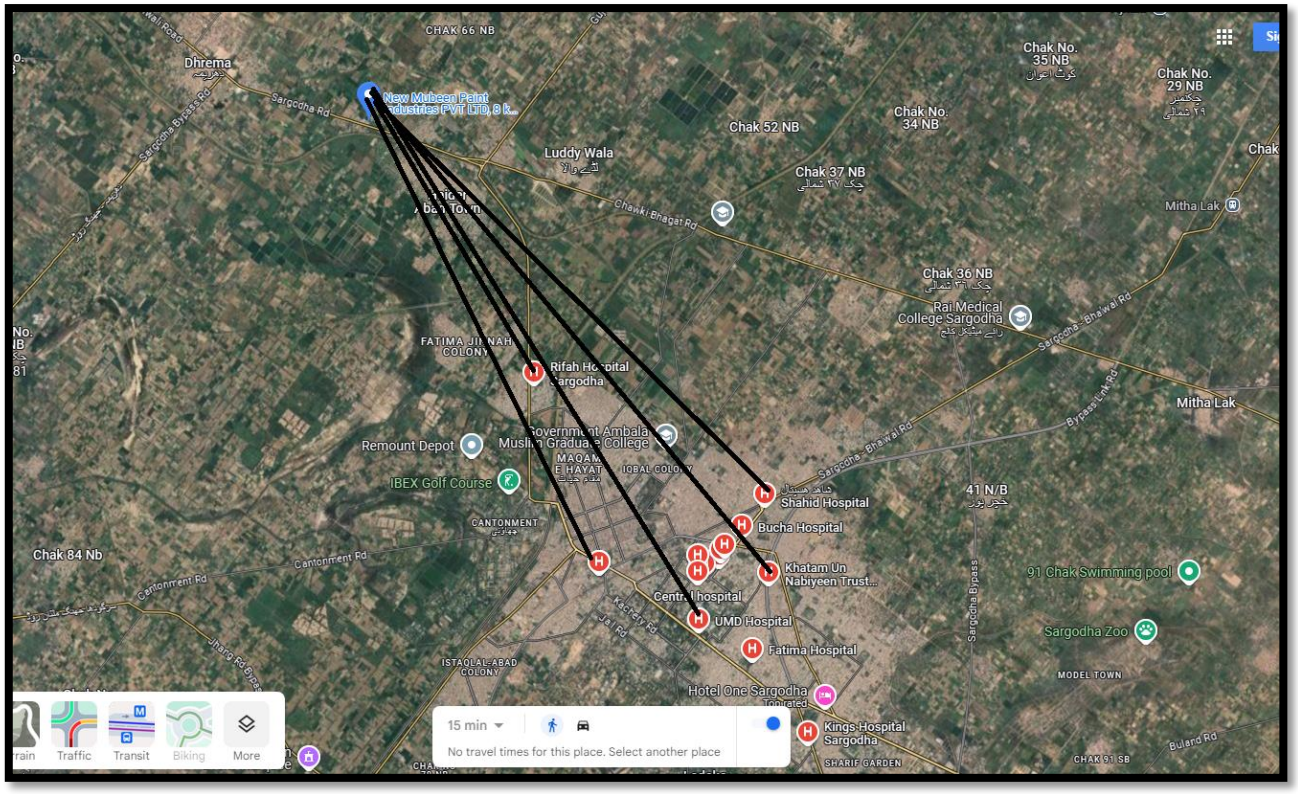


Figure 10: Nearby Health Facilities

6.3.3 Educational Facilities

Education up to higher secondary is present in project area.

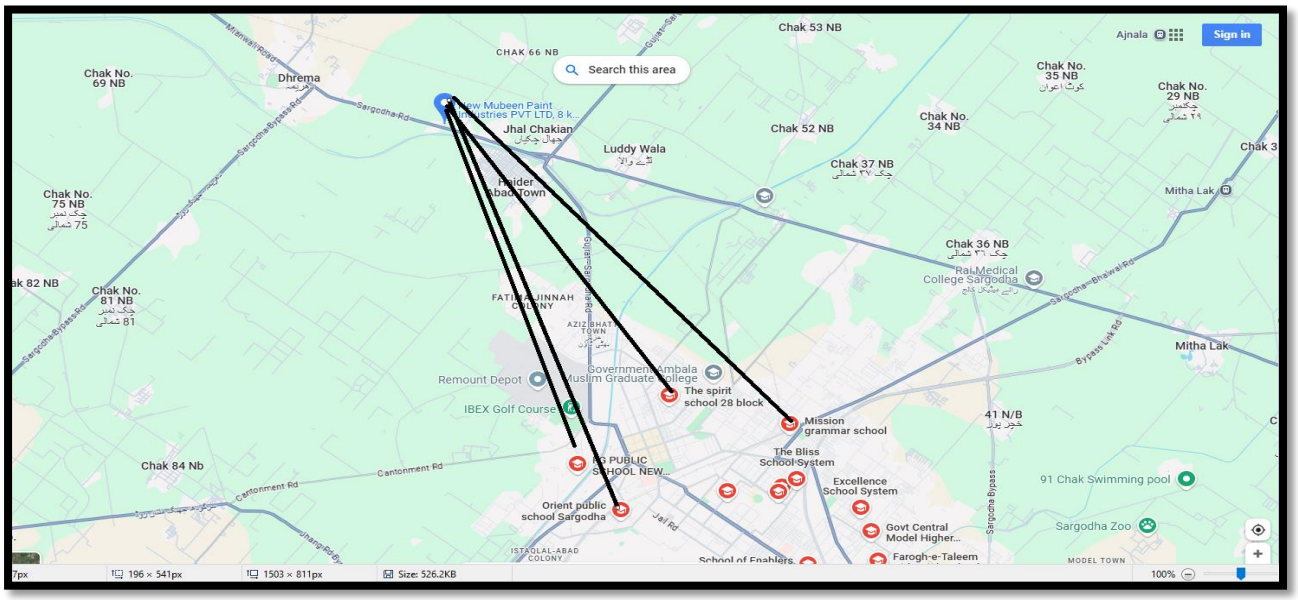


Figure 11: Nearest Educational Facilities

6.4 Lab Reports of Environmental Analysis

Testing of different parameters was carried out from EPA certified laboratory i.e. Green Crescent to check the quality of different environmental parameters. The copy of the lab reports of these parameters (ambient air analysis, ground water quality analysis and noise) are attached herewith as **Annex-E**

6.5 Suitability of the Site

As the project site is located in industrial area. The site does no fall in environmental sensitive area and all commodities are at a suitable distance from project site as they will not impacted by the construction and operational activities even locals will get more benefits and job opportunities. No replacement, relocation and rehabilitation are required for the development of proposed project.

CHAPTER 7: IMPACT ASSESSMENT & SCREENING PROCESS

This section discusses the potential environmental impact of instant project, methodologies for impact identifications and characteristics of impacts including nature, magnitude, extent, location, timing, duration, reversibility and risk. The assessment carried out in this Section is based on potential impacts on overall environmental receptors within the project area.

7.1 Methodologies for Impact Identification

During construction phase, adverse environmental & social impacts were depending on the resources and receptors involved along with other parameters such as; geographical scope (magnitude and extent), temporal scope (duration) and reversibility. But for establishment of instant project it has been anticipated that this project will have beneficial social impacts, it will bridge the gap between supply & demand, and employment opportunity will be increases for which locals will be preferred and socio-economic uplift of the proponent. Having identified and characterized the potential significant impacts during design, construction/ installation and operation phase of project an Environmental Impact Severity Matrix & //checklist to summarize all the identified impacts as mentioned below in tables.

Table 9: Impact Significance Criteria

Impact	Criteria
No Impact	When the said activity will have no impact
Long Term	When the impact is of high intensity with high spread and high duration or of high intensity with medium spread and medium duration
Moderate Term	When the impact is of moderate intensity with high spread and high duration or of high intensity with low/ moderate spread and low
Short Term	When the impact is of low intensity but with moderate spread and moderate duration or of moderate intensity
Insignificant	When the impact is of low intensity, low spread and low duration
Adverse	When the impact is of large intensity, spread easily and long-term
Beneficial	When the impacts are positive and improve the environmental conditions

Table 10: Impact Matrix Checklist for Construction/ Installation Phase

Environmental Sensitivities	Intensity of Impact						Impact Nature		Impact Significance				
	Low Intensity	Moderate Intensity	High Intensity	Local	Moderate	Regional	Beneficial	Adverse	Insignificant	No Impact	Short Term	Moderate	Long Term
Physical Parameters													
Air Quality	✓											✓	
Noise		✓										✓	
Water Quality		✓										✓	
Biological Parameters													
Land Environment													
Flora													
Fauna													
Physical Parameters													
Local Economy	✓												
Social Impacts	✓												
Health & Safety	✓												

Table 11: Impact Matrix Checklist for Operational Phase

Environmental Sensitivities	Intensity of Impact						Impact Nature		Impact Significance				
	Low Intensity	Moderate Intensity	High Intensity	Local	Moderate	Regional	Beneficial	Adverse	Insignificant	No Impact	Short Term	Moderate	Long Term
Physical Parameters													
Noise		✓											
Water Quality		✓											
Air Emissions	✓												
Biological Parameters													
Land Environment													
Flora													
Fauna													
Physical Parameters													
Local Economy													
Social Impacts													
Health & Safety													

7.2 Characteristics of Impacts

The impact characteristics are identified to screen out potentially insignificant environmental and social impacts from potentially significant adverse environmental and social impacts during planning & designing, construction/ installation and operational phases of the project. The objective of impact screening process is to assess the significance of issues related to the air, water, noise, soil,

transportation, civil work, communication, the hazards and external constraints. The beneficial and adverse impacts of project during planning & designing, construction/ installation and operational phases are identified based on their duration, location, frequency, extent, significance and reversibility. The impact of each activity on various environmental parameters is given below:

Table 12: Impacts Characteristics

Sr#	Environmental Component	Impact Characteristics												
		Duration		Location		Frequency		Extent		Significance			Reversibility	
		Long	Short	Direct	Indirect	Cont.	Intermittent	Wide	Local	Large	Moderate	Minor	Rev.	Irrev.
Beneficial Impacts														
1	Employment	◙		◙		◙			◙		◙		◙	
2	Solid Waste Management	◙		◙		◙			◙		◙		◙	
3	Land Value	◙			◙	◙			◙			◙		◙
4	Tree Plantation	◙		◙		◙			◙		◙			◙
Adverse Impacts														
1	Solid Waste	●		●		●			●			●	●	
2	Health and Safety		●		●		●		●			●		●
3	Physical Hazards		●	●			●		●			●		●
4	Security Risks		●	●			●		●			●	●	
5	Wastewater		●	●		●			●			●	●	
6	Air Emissions	●		●		●			●		●			●

CHAPTER 8: SCREENING POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

This Chapter identifies the potential impacts (positive and adverse) on the physical, biological and socio-economic environment of project area due to instant project. It also identifies measures that will help to mitigate the adverse environmental and social impacts (if any) and it will enhance positive impacts of the project. Impacts are assessed by analyzing their magnitude and sensitivity, which is a legal requirement.

8.1 Project Location

The instant project is establishment of Paint Manufacturing Unit under the name of M/s Mubeen Paint Industries Pvt. Limited many other industries are present near the project site. There is no human settlement, heritage building, social structure, grassland or preserved area in the project vicinity that could be damaged, dislocated or dismantled due to the project activity in said area. The selected site is proponent's own land and land ownership documents are attached herewith for reference.

Nature of Impact

The nature of the impact will be direct, low, short-term and hence in-significant.

Mitigation Measures

No mitigation measure will be adopted as selected site has been own by management of M/s Mubeen Paint Industries Pvt. Limited.

8.2 Design

The said project is designed for manufacturing of Water and Oil based paints with capacity of 800,000 liters and 400,000 liters respectively. However, in designing phase a management system should be devised & implemented to control the anticipated environmental impacts. The design of the instant project will adhere to all standard technical requirements in order to avoid adverse impacts on socio-environmental aspect.

Nature of Impact

The nature of impact will be direct, low, short-term and hence in-significant.

Mitigation Measures

Following mitigation measures will be adopted while designing the foresaid project:

- Water and Oil based paint is being made/ manufacture and being sold out to market
- The process employed for the manufacturing is simple & environmentally friendly.
- The project is design to minimize the air & water pollution in-check.
- On-site training safety training has been given to the workers.
- Fire-fighting equipment has been installed on-site.

8.3 Impacts and Mitigation Measures during Construction Phase

During the construction phase following activities was carried out on-site; civil structures work and building services. It would bring in immediate but short-term changes on various components of environment near the project site. This section explains how aforesaid project will affect different environmental aspects and its mitigation measures to manage the impact. The anticipated impacts will be temporary and localized in nature. Even though, the measures are proposed to minimize such impacts.

8.3.1 Soil Contamination

During constructional activities the chances of soil erosion and contamination may be increased. Soil erosion from construction activities might deteriorate the soil quality. There are low chances of land contamination due to release/spill of lubricants, oil and other materials during the construction period. Erosion may also result from movement of heavy vehicle such as; bulldozers, excavators, trucks and pick-ups. The impact will be short term, localized and can be controlled through immediate appropriate management and mitigation measures. This impact is considered negative of minor magnitude. Hence, the impact is in-significant.

Nature of Impact

The nature of said impact will be direct, low, short-term and hence in-significant.

Mitigations

Following mitigation measures will be adopted to protect the soil from erosion and contamination:

- Spill prevention and response plan for storage, usage and transfer of fuel should be prepared (if used on site) and implemented.
- Workers should be trained on spill prevention and response plan (if needed).
- Maintenance of vehicles as well as equipment will be carried out at designated areas within the facility.
- Any hard surface or tarpaulin should be spread on area to prevent soil contamination.
- Regular inspections should be carried out to detect leakages in construction vehicles and equipment.
- Machinery involved should be maintained properly to avoid leakages.
- The proponent will be required to instruct and train their workforce in storage and handling of materials that can potentially cause soil contamination.
- Solid waste generated during construction/installation will be properly and safely disposed of as per practices of area.

8.3.2 Air Emissions

The main source of air emission during said phase is dust. It will be generated due to movement of equipment at the site other constructional activities. Dust emissions are expected to result in increased particulate matter thus affecting baseline air quality, primarily in working area for a short duration.

Nature of Impact

The nature of proposed impact will be direct, low, short-term and hence in-significant.

Mitigations

Following mitigation measures will be adopted:

- In order to reduce concentration of suspended dust particles & transport roads will be sprinkled with water on the regular basis.
- Construction activities causing dust should not be carried out on excessively windy days.
- Workers will be provided with masks for protection against the inhalation of dust and they should be trained for its use.
- Strict speed limit for the vehicle carrying the raw-material should be imposed.
- Emission of exhaust gases from vehicles used for construction should be controlled.

8.3.3 Impact on Water Environment

The construction activities will be associated with mechanical fabrication, assembly and erection. These associated activities do not consume large quantities of water. Constructional Camp's sanitation facility shall be provided by contractors for disposal of sanitary sewage generated by the work force. There shall be no disposal of construction waste outlet. The overall impact on water environment due to aforesaid project activities are considered short-term and in-significant.

Nature of Impact

The nature of said impact will be direct, low, short-term and hence in-significant.

Mitigations

Following mitigation measures will be adopted:

- Water conservation techniques should be adopted to conserve water.
- Labor should be trained to conserve the water.

8.3.4 Impact on Flora & Fauna

No impact on the flora and fauna is being envisaged as said project will be established on proponent's own land under the name of M/s Mubeen Paint Industries Pvt. Limited. No additional disturbance is being envisaged for implementation of said project.

Nature of Impact

The nature of said impact will be direct, low, short-term and hence in-significant.

Mitigations

Following mitigation measures will be adopted:

- After the completion of constructional phase trees will be planted in the designated green areas.
- For the management of landscape, local and native trees will be planted.

- Trees will be planted along the project area boundary.
- Unnecessary up-rooting of the trees and plants must be avoided.

8.3.5 Impact on Noise Environment

The noise produced during construction phase may not have significant impact on the existing ambient noise levels as all sensitive receptors are located at adequate distance. The activities like; foundation, infrastructure and plant are considered as the main source of noise generation. The major civil work will be carried out during the day hours only. The construction equipment may generate high noise which can affect the personnel operating the machines. Use of proper personnel protective equipment will mitigate any adverse impact of noise on the working population.

Nature of Impact

The nature of proposed impact will be direct, low, short-term and hence in-significant.

Mitigations

Following mitigation measures will be adopted:

- Selection of up to date and well-maintained equipment with reduced noise levels ensured by suitable in-built damping techniques or with appropriate muffling devices.
- Limiting noisy activities to the day hours, wherever possible.
- Providing the construction workers with suitable hearing protection like; ear cap, or earmuffs and training them how to use effectively.
- Use of low noise machinery, or machinery with noise shielding and absorption are the mitigation measures suggested for said project.

8.4 Socio-Economic Impacts

In project area, no significant changes are envisaged in traditional life style and occupation of local people residing in the nearby communities as it is being established at adequate distance from various sensitive receptors. The local people are rather benefited due to the provision of job opportunities. No impact is envisaged due to influx of workers as local will be preferred and hired for working. Social issues may arise which will cause minor negative impact on the social life style of people. Moreover, health and safety related issues may arise during the construction / Installation activities. These impacts are in-significant can be further reduced significantly by adopting best management practices.

Nature of Impact

The nature of said impact will be direct, low, short-term and hence in-significant.

Mitigation Measures

Following mitigation measures will be adopted to reduce the socio-economic impact on the community:

- Good relations with local communities will be promoted by encouraging Contractor to provide opportunities for skilled and un-skilled employment to the locals as well as on-job training.
- The contractor should prefer hiring local labor from adjacent community;
- The contractor will keep the copy of National Identity Card (CNIC) of his employees and will warn the workers not to involve in any anti-social activities otherwise they may face dire consequences.
- At the time of hiring the Contractor has to ensure that workers should be of good repute.
- First aid kits having all the necessary first aid stuff will be available at site.
- Routine medical check-ups of all the field staff including unskilled labor needs to be conducted by qualified physician and surgeon.
- Training of workers should be carried out for operating various constructional/ Installation machinery, safety procedures should be adopted, environmental awareness should be carried out, equip all workers with safety boots, helmets, gloves, protective masks and monitoring of their proper and sustained usage will be carried out. In case of accidents, contractor will provide free medical treatment to the community.
- The Contractor will be responsible for sensitivity towards the local customs and traditions.

8.5 Impacts and Mitigation Measures during Operational Phase

The following section describes the potential impacts which are associated with the operation of above stated project.

8.5.1 Noise

Noise pollution is not expected to occur beyond PEQS during the operational phase. The mechanical and electrical components of the proposed technology work within the permissible noise limit levels. Moreover, even if the noise level exceeds the allowable levels during unexpected conditions, this will have no significant impact since the nearby residential areas are found at the safe distance as shown in the Google Earth Maps attached in **Section 3.1** and **Section 5.3**.

Nature of impact

The nature of said impact will be direct, low, short-term and hence in-significant.

Mitigations

In general, the following methods will be adopted to control the noise pollution from the proposed unit:

- Personal protective equipment like; ear plugs and ear muffs should be provided to employees working in the noise prone areas.
- Time to time tuning and maintenance of machineries should be done.
- Ambient noise levels as mentioned in PEQS will be complied.

- Monitoring of the ambient noise level will be carried out on regular basis.
- A greenbelt will be developed all around the plant which will be act as noise barrier.
- Residential area is at safe distance from selected site.
- Proper encasement of noise generating sources will be done to control the noise levels within limits.
- The use of complete or partial enclosures as and if required.
- Attenuation by use of sound absorbents on walls and fixed or suspended ceilings
- All the workers will be provided with ear plugs. All the transporters will be vised to carry out regular maintenance of their vehicles

8.5.2 Ambient Air Quality

During operational phase of said unit there will be no source of air pollution during process activities. Only the dust can be generated from unloading or loading of raw material.

Mitigations

Following mitigation measure will be adopted to keep the ambient air quality of the area intact.

- PPEs along with the face mask will be provided to the workers and their regular usage will be ensured by the In-charge.
- Proper air circulation will be carried out to keep the indoor environment healthy.
- Company owned vehicles will be maintained on regular basis in order to avoid air emissions.
- Monitoring of the ambient air quality will be carried out on regular basis.
- Generators will be provided with proper enclosure, tuning and maintenance to control emissions (if any).

8.5.3 Water Resource

It is estimated that there will be no usage of water during any other project process activities. Wastewater will be generated from domestic activities during operational phase of the project, and generated sewage after treatment in septic tank will be disposed of into industrial drain or can be reused for horticultural purposes.

Nature of Impact

The nature of the impact will be direct, low, short-term and insignificant.

Mitigation

Following mitigation measures will be adopted to reduce the impacts on water resource

- The generated sewage will be treated through septic tank.
- For recharging of the groundwater open green spaces will be left within the premises.
- Close the water tap when not in use to conserve the water resource.
- Provision of safe drinking water to the workers will be ensured.

8.5.4 Solid Waste Management

The solid waste generated from the production process will be disposed of as per area practice. Solid waste is not a prime issue in said case generated solid waste will be disposed of as per area practice. Improper disposal of the domestic solid waste can cause health issues or may cause public nuisances.

Nature of Impact

The nature of impact will be direct, medium, long-term and significant.

Mitigation

Following mitigations should be adopted to reduce the issues related to the solid waste:

- The reusable waste will be sold to the in the open market whereas the rest will be managed as per the municipal work practices being observed in the area.
- Recyclable material should be separated at source and will be sold in the open market or to vendor (if any).
- Domestic solid waste should be stored in the covered bins in order to avoid the growth of vectors and rodents as well as to control the odor and to reduce public nuisance. It should be collected and disposed of as per area practice.
- Appropriate in-housekeeping, sanitary and solid waste management practices should be adopted.
- Regular visual monitoring will be carried out to ensure good house-keeping practices.

8.6 Possible Emergencies and Plant Failure

Operational difficulties may be experienced at start-up or during periods when equipment malfunctions. For this purpose, vendor will train the team and that team will give trainings to the other team members.

Nature of impact

The nature of said impact will be direct, medium, long-term and hence significant.

Mitigations

- Equipment should be kept in good operating conditions to prevent equipment failure.
- Training program for operation and maintenance activities should be included as part of the project's technical assistance program.
- Regular inspection should be carried out.
- Engines and other machines should be maintained on regular basis.

8.7 Emergency Response

Emergency response preparedness committee will be formulated consisted of heads of departments. Project Manager/ HSE Manager will be the head of the team who will chair incident control. In the case of minor emergency, the first aid box will be provided. For incidents and accidents that may take place unexpectedly during project operations no matter how effective, strong and efficient the mitigation measures for all adverse impacts; especially the safety issues may be adopted. These may include; accident and natural disasters.

Nature of Impact

The nature of the said impact will be direct, low, long-term and hence significant.

Mitigation

- Workers should be given adequate training of handling machinery.
- Emergency call service must be made available 24/7.
- The drills to check the response of the workers against any emergency situation will be carried out on regular basis.
- Safety and hazards signs will be displayed within the facility to avoid any unfortunate incident.
- Only authorized persons will be allowed for the handling of the chemicals.

8.8 Potential Environmental Enhancement Measures

Following potential environmental enhancement measures will be adopted:

i. Enhancement in Employment Opportunities

During construction the employment opportunity was enhanced. Workers were hired from local community, include; skilled and un-skilled workers. During construction phase 10-15 workers were hired and in operational phase approximately 100-120 workers are being employed. It includes technical and non-technical staff. Locals also have the opportunity to diversify their income by being employed during various project phases. Hence, there will be an increased employment opportunity for the local people which will have a positive impact on the socio-economic status of the area.

ii. Tree Plantation

At the end of the establishment of paint manufacturing unit landscape of the area has been enhanced by planting native and ornamental plants at the designated green areas. This will enhance the aesthetic beauty of the area.

CHAPTER 9: ENVIRONMENTAL MANAGEMENT AND MONITORING PLAN

9.1 General

This chapter summarizes the various mitigation measures as outlined previously in this EIA Report that will be implemented during the designing, construction operational and decommissioning stages of project. It does not discuss further the mitigation measures which have been adopted within the design and planning of the project, as these are comprehensively covered in previous section of this EIA Report. Outline and key features of the EMMP for operations phase of the aforesaid project is presented in the sub-sections below. As per the environmental legislation in Pakistan, the compliance status of the conditions mentioned in the construction should be submitted along with other documents to the environmental protection agency to obtain confirmation for compliance and Environmental Approval for project operation. Even after implementation of the suggested mitigation measures, the impact may remain significant, and requires regular environmental monitoring.

9.2 Objectives

An Environmental Monitoring Plan (EMP) was outlined alongside Environmental Management Plan to ensure all the corrective actions to counter adverse impacts which gives a detailed EMMP. The EMMP will serve as a principal execution module of the project that would not only mitigate adverse environmental impacts during the construction and the operational phase of the project but also ensures that environmental standards and good in-housekeeping are being practiced. Continuous environmental monitoring is exercised to ensure that preventive measures are in place and effective to sustain environmental integrity. The key objectives of EMMP are:

- To outline functions and responsibilities of persons associated with the commencement of the instant project.
- To state and implement standards and guidelines which are required under environmental legislations particular in context to the proposed project commencement.
- To facilitate the implementation of the mitigation measures by providing the technical details of each Project's impact and proposing implementation schedule of the proposed mitigation measures.
- Define a monitoring mechanism and identify monitoring parameters to ensure that all proposed mitigation measures are completely and effectively implemented.
- Identify the resources required to implement the EMMP and outline corresponding financing arrangements.

9.3 Proposed Mitigation Actions and Monitoring Program

It lists all the mitigation measures identified in the EIA and the associated environmental or social aspect in line during construction/Installation phase and operational phase with the administrative framework involving all the responsible implementing authorities who are required to take the planned actions/measures and monitor it accordingly. It enhances project benefits by reducing its impacts and making it environmentally friendly. The environmental management and monitoring plan is given below in Table 14.

Table 13: Environmental Management Plan

Project Activities	Type of Impact	Potential Impacts on Environment Extent /Magnitude	Mitigation Measure	Monitoring	Responsibility
Construction & Machinery Installation Phase					
Land acquirement and land use	Physical, Social and Aesthetical	Positive use of land but proper planning will be required low/adjacent area	• The site selected to establish said Paint Manufacturing Unit i.e., M/s Mubeen Paint Industries Pvt. Limited proponent's own land and is surrounded by many other industrial units. • The land is being used for some useful purpose • The leftover constructional waste was removed as soon as possible after completion of the constructional activities. • Visual monitoring was carried out to keep in check the in-house keeping practices and other hazards in check.	Visual Monitoring	Proponent* Proponent may give responsibility to contractor
Use of local manpower	Social	Employment Generation low/adjacent area	• Local people was hired for less technical work or non-skilled work. • Locals were preferred and will be involved at various stages of project development. • This will improve the socio-economic status of the people directly linked with the project.	Regular checking & inspection by HR Manager	Proponent*
Civil works	Physical, Social, & Aesthetical	Dust, Noise & Vibration, Employment, Health & Safety of Workers low/ adjacent area	• Water sprinkling were done to reduce dust emissions. • Noise control measures was implemented. • Safety of the workers should be protected where the physical activity is involved. • PEPS was provided to the workers and their usage had been ensured.	Visual Monitoring & Regular Inspection on daily basis	Proponent*

Movement and fueling of vehicles	Physical & Aesthetical	Noise, dust low/on-site	• Maintenance and inspection of vehicles should be carried out on regular basis. • Vehicles with leaks shall not be operated. • All vehicles carrying raw material and equipment's shall be maintained in good working condition.	Regular checking while entering and exit of the vehicles from the facility	Proponent*
Transportation of construction material	Bio-physical	Dust and Particulate, Noise Generation, Safety and Health Effects low/ adjacent area	• Excessive use of horns will be avoided up to the extent possible. • PPE's will be provided to workers and their usage will be ensured. • Covering of raw-material transporting material trucks with tarpaulin. • Night time driving of project vehicles will be limited whenever possible. • Noise will be monitored on regular basis by using Digital Sound Meter.	Regular checking while entering and exit of the vehicles from the facility	Proponent*
OPERATION PHASE					
Manufacturing Process	Air Emissions	Ambient Air Quality of the area low/on-site	• Ambient air monitoring will be carried out as per SMART Rules to comply with PEQS. • PPEs along with the face mask will be provided to the workers and their regular usage will be ensured by the In-charge. • Proper air circulation will be carried out to keep the indoor environment healthy. • Company owned vehicles will be maintained on regular basis in order to avoid air emissions.	Regular monitoring of the ambient air quality by EPA Certified Lab	Supervisor/ HSE Manager

			• After the completion of the construction trees will be planted in open green areas which will improve the aesthetics of the site and improve ambient air quality of the area.		
	Wastewater	Water quality low/on-site	• Close the water tap when not in use to conserve the water resource. • Provision of safe drinking water to the workers will be ensured. • No wastewater will be disposed of without being treated in septic tank. • The final sewage discharged from the unit will be monitored as per SMART Rules to comply with PEQS.	Wastewater will be monitored as per SMART Rules to comply with PEQS	Supervisor/ HSE Manager
	Solid waste	Land pollution & health impacts Low and limited to said site	• Recyclable material should be separated at source and will be sold in the open market or to vendor. • Domestic solid waste should be stored in the covered bins in order to avoid the growth of vectors and rodents as well as to control the odor and to reduce public nuisance. It should be collected and disposed of as per area practice. • Good management practices should be adopted to avoid the spread of diseases among the locals. • Appropriate in-housekeeping, sanitary and solid waste management practices should be adopted. • Regular visual monitoring will be carried out to ensure good house-keeping practices.	Regular visual monitoring will be carried out to ensure good house-keeping practices	Housekeeping staff

9.4 Schedule for Implementation and Environmental Budget

The establishment will be completed within 3-6 months after getting Environmental Approval/NOC. The total cost of the project is **PKR 100 Million PKR approx.** which includes; the cost of civil work (if required) purchase of machinery and its installation, implementation of mitigation measures as suggested in EIA Report, site restoration, etc. Environmental budget of **PKR 2 million** will be allocated to protect the environment which will include; tree plantation, environmental monitoring as per SMART Rules, etc.

9.5 Environmental Management Team

The primary responsibility for implementing different aspects of the EMP within the company lies with the concerned departments of M/s Mubeen Paint Industries Pvt. Limited.

9.6 Proposed Monitoring program

Environmental monitoring is a vital component of the Environmental Management Plan. It is the mechanism through which the effectiveness of the EMP in protecting the environment is measured. The feedback provided by the environmental monitoring is instrumental in identifying any problem or lapse in the system under implementation and planning corrective actions. For domestic activities already constructed facilities will be used. Solid waste disposal will be according to standard practices of area. It should be noted that it is difficult to outline a formal monitoring protocol for specific environmental parameters and key impacts until detailed project design has been completed. A formal monitoring protocol will be included within the revised EMP once the detailed project design has been completed.

Table 14: Proposed Monitoring Program

Components	Parameter to be Monitored	Measurement	Frequency	Location	Responsibility
Land Resource	Soil quality	Regular visual monitoring and soil analysis	Daily	On-site	Project Manager
Noise Levels	Noise level on the site and adjacent area on dB(A) scale	Noise level reading will be measure on regular basis	Regularly	At all noisy locations within the facility	HSE Officer
Workers safety	Injuries and accidents	Recording injuries	Daily	On-site	HSE Officer

Wastewater	As per SMART Rules	Testing by EPA Certified Lab	Monthly	On-site	Environmental Manager, HSE Officer
Air Emissions	As per SMART Rules	Testing by EPA Certified Lab	Monthly	On-site	Environmental Manager, HSE Officer
Ecological Resource	Flora & Fauna of the area	Observation by conducting surveys	During Baseline Survey, once in a year and after the completion of the Project	Around project site	Project Manager/Environmental manager

9.7 Proposed EMP reporting and reviewing procedures

Following protocols will be adopted for reporting & reviewing EMP:

- During construction/ Installation EMP reporting and reviewing will be done by the contractor/HSE department. Regular monitoring will be done and reports will be submitted in EPA, Punjab as per condition of Environmental Approval of construction/Installation phase.
- Monitoring reports will be reviewed by Environmental Management Team and HSE Department of M/s Mubeen Paint Industries Pvt. Limited and then will be shared with EPA, Punjab.
- Photographic records will also be maintained on regular basis.
- Recorded data will be reviewed by supervisory contractor/proponent so that it can be further improved if required.

9.8 Environmental Training

M/s Mubeen Paint Industries Pvt. Limited will ensure in-house training for the project staff, labor and the supervisory staff through the provision of one day basic training and one day advanced training, covering environmental and social aspects of the projects in general and implementation requirements will emphasis on the development project in general, on the roles & responsibilities of the staff and the labor while executing the

environmental monitoring plan in particular. The training protocols will include the following aspects:

- Procedures for monitoring the air quality parameters and measures to be adopted for avoiding/minimizing air pollution, particularly from the transportation of raw material and final goods will be given to the Environmental Management Team.
- Safety measures against hazards for workforce and the local communities arising from the construction and installation activities.
- Emergency response trainings.
- Fire-fighting trainings and drills.
- Use of safety gadgets by the workforce.

CHAPTER 10: STAKEHOLDER CONSULTATION

10.1 General

Public consultation refers to the process by which the concerns of local affected persons and others who have plausible stake in impacts assessement of the project or activity are ascertained with a view to taking into account all the material concerns in the project or activity design as appropriate. According to the IEE and EIA Review Regulations, 2022 public consultation is mandatory for any socio-environmental study. For this purpose, assessment survey and public consultation sessions held with different stakeholder groups that may be impacted. The consultation process was carried out in accordance with the guidelines laid by EPA, Punjab. The objectives of this process were to:

- Share information with stakeholders on project construction and operation.
- To access the impacts on the physical, biological, and socio-economic environment.
- Understand stakeholder concerns regarding various aspects of the project.
- Understand the perceptions, assessment of social impacts and concerns of the communities of the project area.
- Find out the awareness level and situation of acceptability to identify any issues for the implementation of said project.
- To invite people to express their views about the positive/negative impacts on their life styles and environment.

This report includes all the comments, which were taken into account in preparing the definitive development concept for the installation of the purposed plant. Public consultation performas are attached herewith as **Annex-F.**

10.2 Consultation Mechanism

Primary stakeholders were consulted during informal and formal meetings. The consultation process was carried out in the Urdu language. During these meetings a simple, non-technical, description of the project was given, with an overview of the project's likely human and environmental impact. This was followed by an open discussion allowing participants to voice their concerns and opinions. In addition to providing communities with information on the proposed project, their feedback was documented during the primary stakeholder consultation. The issues and suggestions raised were recorded in field notes for analysis and interpretation.

By reaching out to a wider segment of the population and using various communication tools such as participatory needs assessment, community consultation meetings, focus group discussions, in-depth interviews, and participatory rural appraisal EIA involved the community in active decision-making. This process will continue even after this EIA has been submitted, as well as during future EIA in which similar tools will be used to create consensus among stakeholders on specific environmental and social issues.

Secondary stakeholder consultations were more formal as they involved government representatives and local organizations, consulted during face-to-face meetings. They were briefed on the EIA process, the project design, and the potential negative and positive impact of the project on the area's environment and communities. It was important not to raise community expectations unnecessarily or unrealistically during the stakeholder consultation meetings in order to avoid undue conflict with community's leaders or local administrators. The issues recorded in the consultation process were examined, validated, and addressed in the EIA Report.

This section involves communication of possible impacts and concers with

- ✓ Proponents Environmental Management Team
- ✓ The reponsible authority
- ✓ Other departrments and agencies
- ✓ Environmental Practisioners and experts
- ✓ Affected and wider community

10.3 Proponents Environmental Management Team

Consultation regarding M/s Mubeen Paint Industries Pvt. Limited was done with Proponent's Environmental Management Team and anticipated impacts were discussed. Concerns of locals, Environmental Practitioners & experts were discussed and asked to consider them while construction of above-said project. Locals will be preferred for employment after providing proper training. Mitigations measures mentioned in EMP will be truly implemented.

10.3.1 Responsible Authority

Overall responsibility for implementation of EMP will be that of project proponent. An HSE Manager/Asst. Manager of relevant qualification will be appointed. HSE Manager/Asst. Manager will act as Environmental Manager and will manage the all-safety related hazards, environmental issues and ensure the compliance of PEQS.

10.3.2 Other departments and agencies

Different departments were consulted regarding said project within study area of project area.

10.3.3 Consultation with Government Departments

Various 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.

10.3.4 Environmental Practitioners and experts

Consultation with environmental practitioners and experts was noted and their comments and suggestions were observed and mentioned below.

Table 15: Consultation with Environmental Practitioners and Experts

Sr.No	Name	Qualification	Comments/Suggestions
1.	**Narmeen**	B.S Environmental Engineer	She said that: • Environmentally friendly operation of said facility should be ensured. Moreover, it will help to comply with PEQS. • Wastewater should be disposed of properly.
2.	**M. Shafique**	BS Environmental Sciences	Following comments/suggests were noted: • He said that locals should be preferred for employment opportunity. • In case of outsider's residence must be provided within the facility or in its nearby vicinity. • Proper mitigation measures must be adopted during construction and operation of said project.
3.	**Faraheen**	B.S Environmental Engineer	• She said that in case of removal of vegetation trees must be planted after construction at designated green areas. • More water conservation strategies must be adopted.

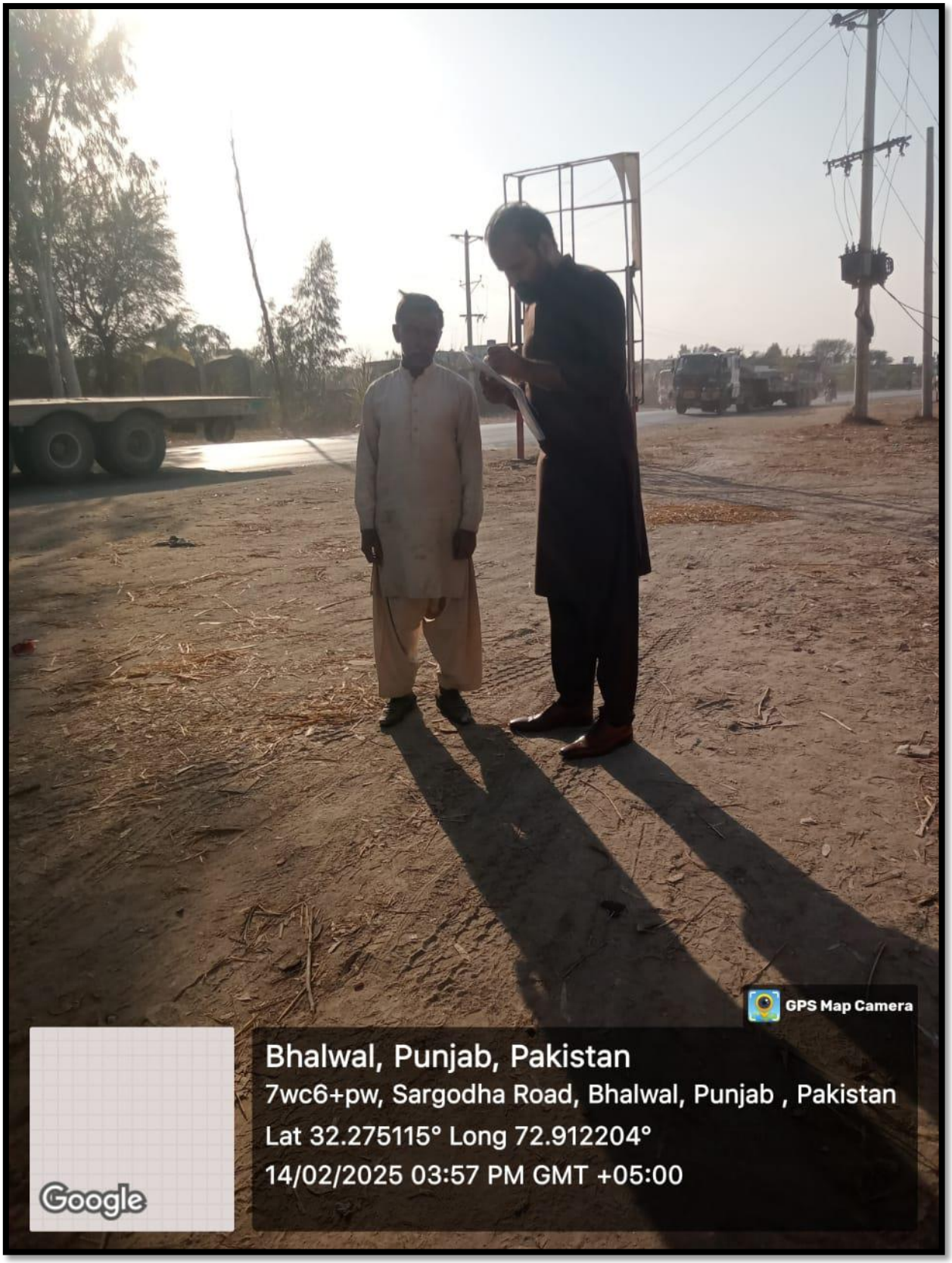
			• Solid waste must be collected and dispose off properly by using standard practices of the area.
4.	**Tania**	B.S Environmental Engineer	• Proper leveling and commissioning must be done at the end of civil work. • Environmental manager must be hired to ensure the compliance of PEQS. • By installation of said project the impact due to the disposal of wastewater should be adopted as per standard practices of the area

10.4 Affected and Wider Community

Social survey was conducted to consult with local community. Their concerns were noticed and discussed with proponent and their team. Majority was in favor of project their details are given below in table

Table 16: Concerns Noted during Community Survey

Sr.#	Respondents	CNIC/Contact No.	Concerns
i.	**Shahbaz Hassan**	35102-2959371-3	During the survey in the study area following concerns of the local community were noted: ➢ During construction and operation locals should be preferred for the job opportunities. ➢ Solid waste should not be collected at site, it should be disposed of properly. ➢ Health and safety of the workers should be ensured. ➢ Workers should be hired from local community. ➢ Indigenous trees around the project area should be planted to control air pollution. ➢ During construction phase dust emission should be controlled. ➢ An effective EMMP should be designed and enforced with true spirit.
ii.	**M. Ismail**	30402-1033553-1	
iii.	**Asad Abbas**	35202-6186717-7	
iv.	**Raza Nazakat**	35101-2509804-5	
v.	**M. Ali**	35102-6733291-6	
vi.	**M. Arslan**	35201-844078-6	
vii.	**Ghulam Abbas**	35404-3622616-7	
viii.	**Adnan Asghar**	35201-3236823-4	
ix.	**M. khawar**	35101-3379008-6	
x.	**Saleem**	35102-9264858-9	
xi.	**Tahir Maqsood**	35301-5814610-9	
xii.	**Rao Abdul Rasheed**	35102-0597328-7	
xiii.	**Asif Mashi**	35102-3522898-9	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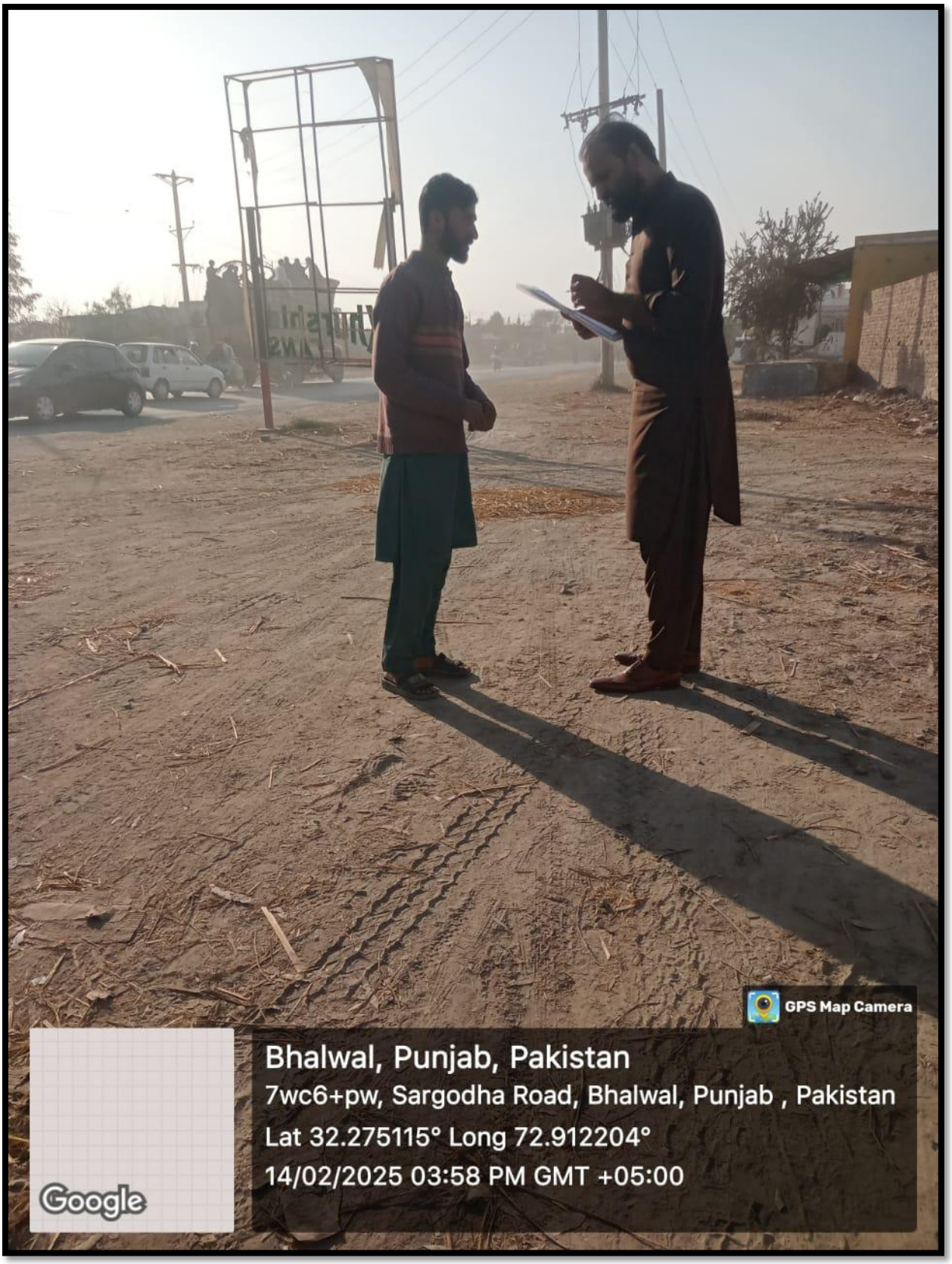
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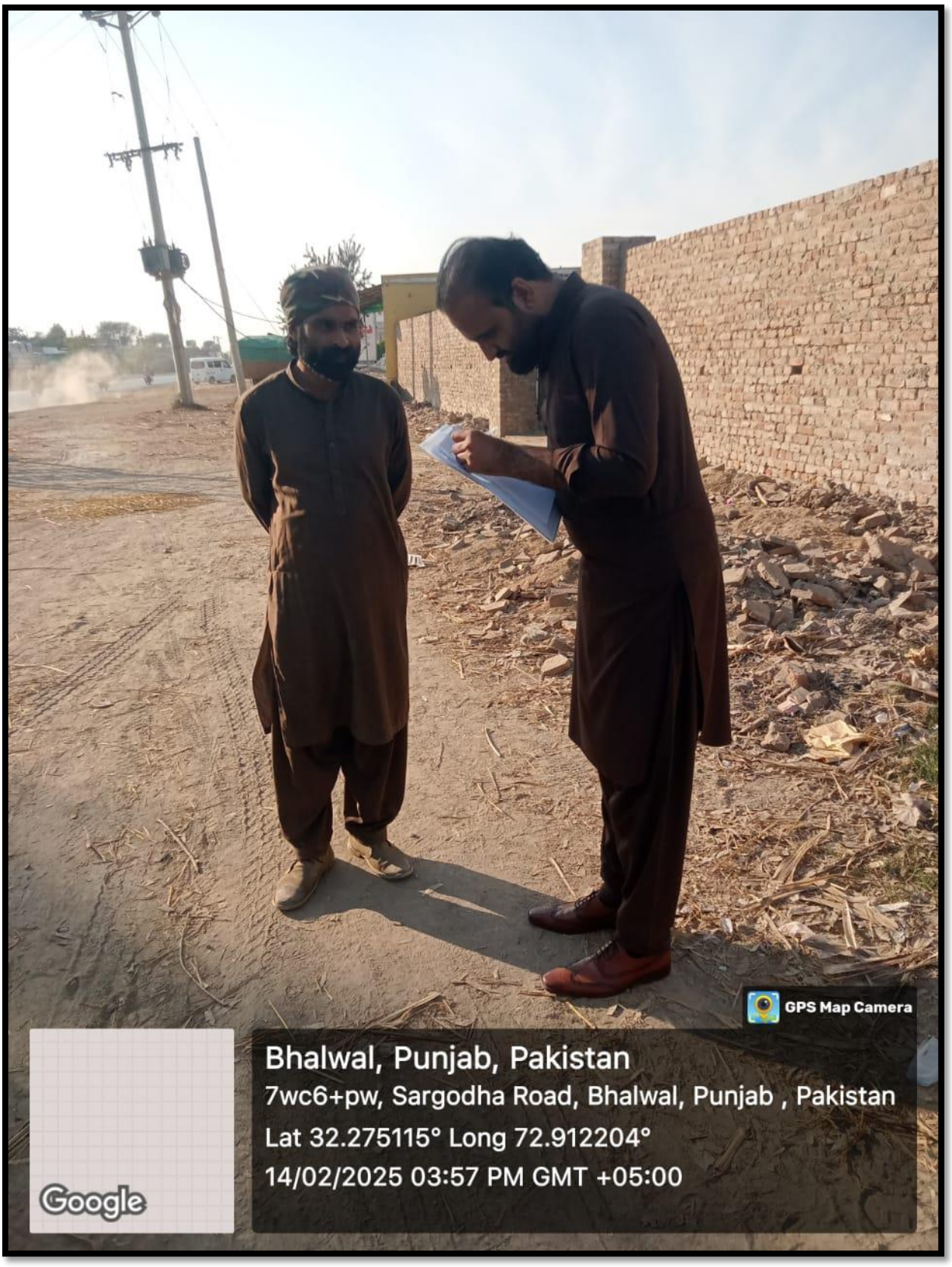
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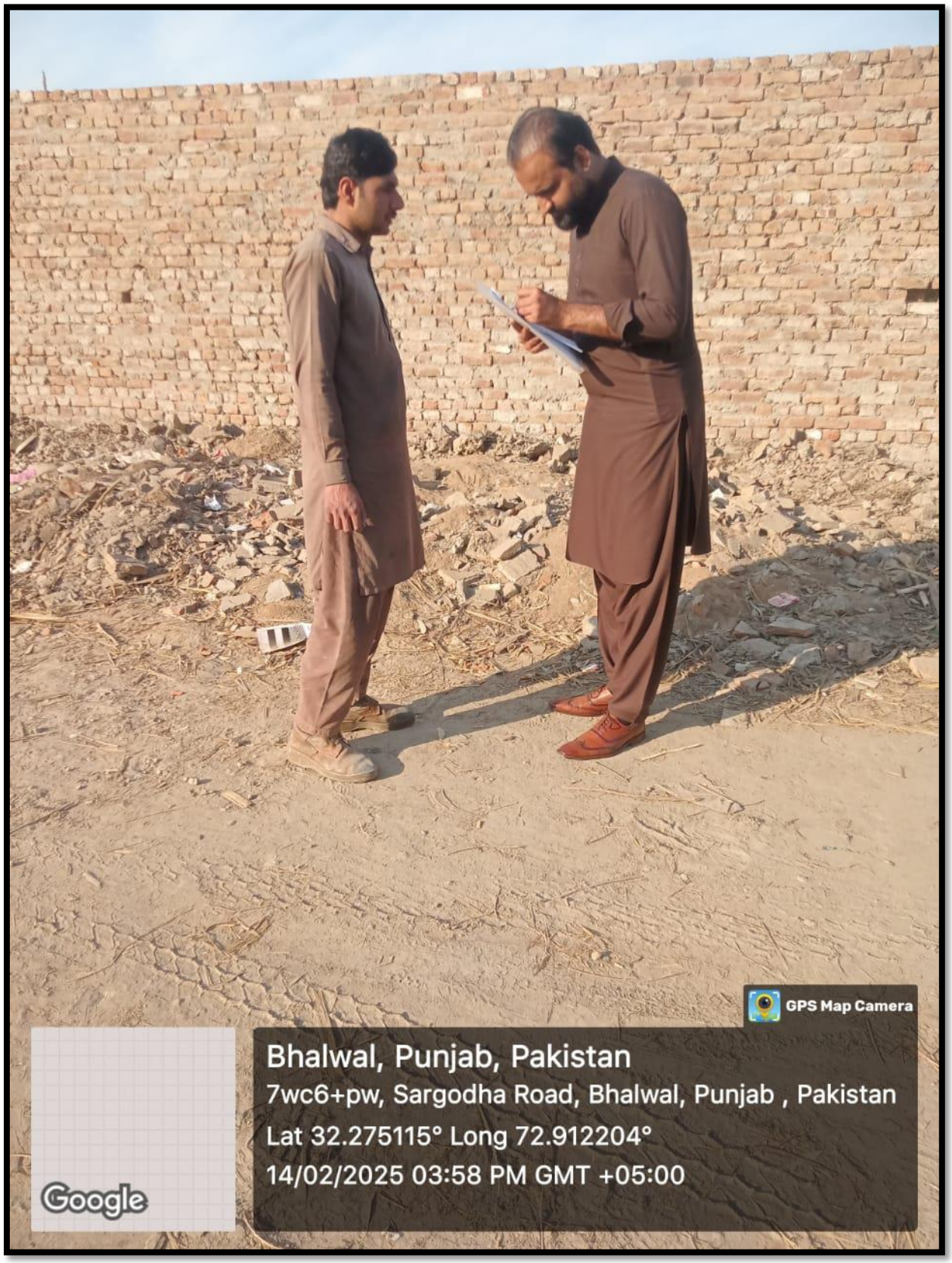
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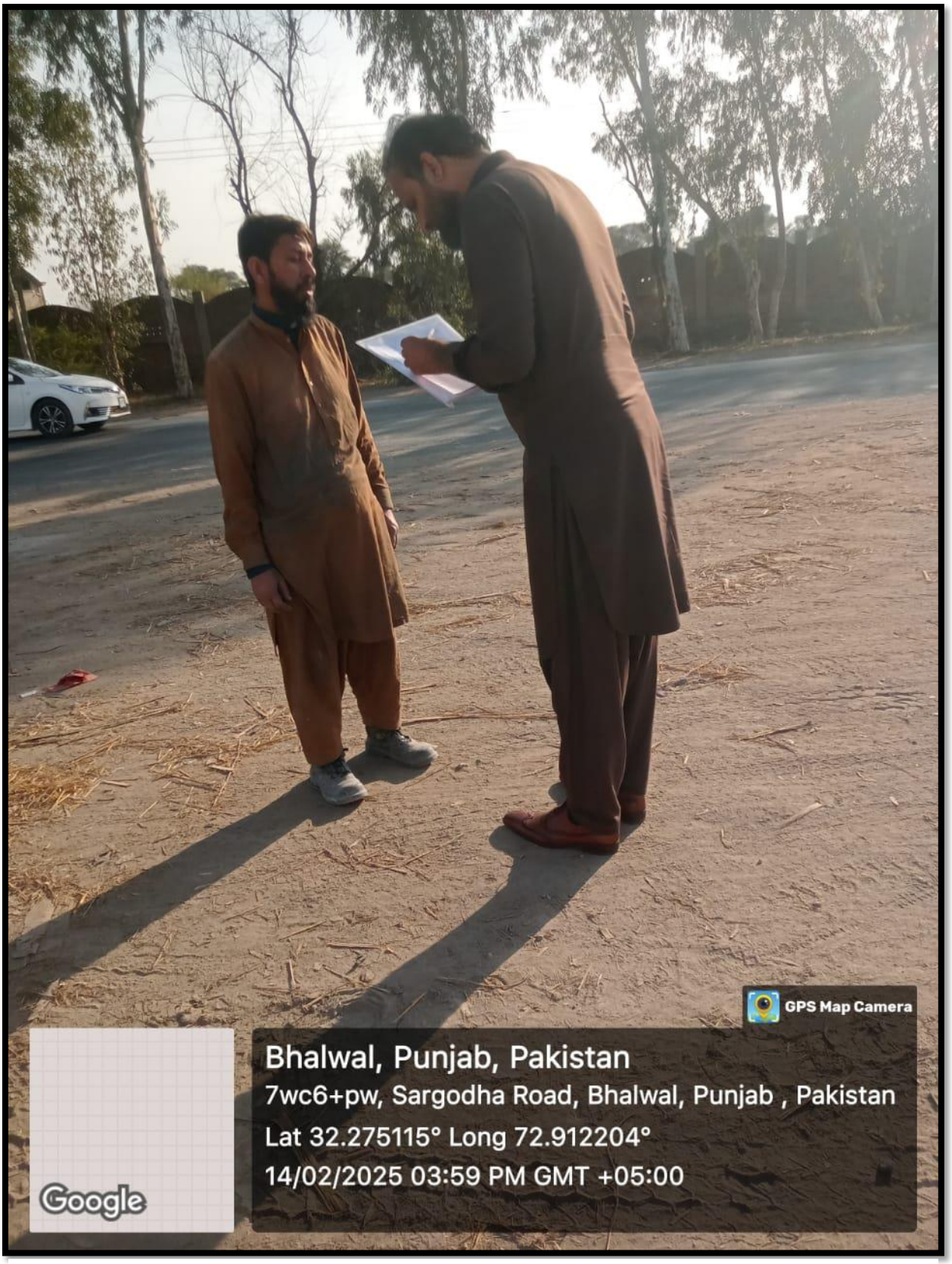

Figure 12: Socioeconomic Survey