

# INSTALLATION OF PESTICIDES MANUFACTURING UNIT

By

M/S PAK PANSY PRIVATE LIMITED, MULTAN

*Plot No. 6-B Industrial Estate Multan*



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## EXECUTIVE SUMMARY

This executive summary presents an overview of the main findings of the Initial Environmental Examination Report for establishing Pesticides Manufacturing Unit by M/S Pak Pansy Private Limited by M/S Pak Pansy Private Limited. Total area of 108,000 SQFT, at Plot no: 6-B Multan Industrial Estate, Multan. The main goal of this project is to provide good quality Agro- Chemicals (Pesticides and Micronutrients/ Crop Stimulator) to the market.

The proposed project for the commissioning of its objective and construction requires fulfilling the legal requirements of the Punjab Environmental Protection Act-1997, Section 12, for which this Environmental Impact Assessment (EIA) report is being submitted.

### NAME OF PROPONENT

Name	: Muhammad Ather S/o Sharif Ahmed
CNIC No.	: NIC No. 42101-4593499-11
Address	: <i>House # 104-D, Block B, Mohalla Nazimabad, Karachi</i>

### THE CONSULTANT

WRITE Consulting Services, as independent consultants, has been appointed by the proponent to conduct Environmental Impact Assessment (EIA). Company office address is SF-28 Empress Tower, Shimla Pahari, Lahore. Contact: +923074034328 email: [writeconsultingservices.pk@hotmail.com](mailto:writeconsultingservices.pk@hotmail.com).

### PROJECT'S SALIENT FEATURES

The title and location of the proposed project is as follow:

<b>TITLE</b>	Installation of (Pesticides Manufacturing Unit)
<b>LOCATION</b>	Plot no: 6-B Multan Industrial Estate, Multan.
<b>GOOGLE COORDINATES</b>	30.13385"N, 71.39751"E
<b>PRODUCTION CAPACITY</b>	Re-Packing = 12,000 units/day Manufacturing = 6,000 Litre /day
<b>TOTAL COST</b>	Rs. 150-Million
<b>PROJECT AREA</b>	108,000-SQFT

### BRIEF OUTLINE OF PROJECT

The project is located at Industrial Estate, Multan. The project in its vicinity has like open land, roads, and nala. There is no residential area near the vicinity of the project site so, the raw materials can be acquired from the nearby vicinity which can help in reducing the cost of transport for raw material therefore the environment is ideal condition for the installation of formulation unit.

### ENERGY AND WATER AVAILABILITY

The electricity supply is the usual from local electricity board that is WAPDA. In order to meet the emergency as well as critical power requirements during WAPDA shut down the project also have a supportive facility for standby power generation. The water requirements of the facility will be 1000 liters per day that would be fulfilled by extracting water from soil by bore wells, for all the construction and operational activities.

## PROJECT IMPACTS AND RECOMMENDATIONS FOR THEIR MITIGATION

The table given below shows the project impacts; related with construction and operation of the Project. Accordingly, mitigation measures have also been proposed to manage the environment and for sustainable development.

**Table:** Project impacts and mitigation measures

Possible Impact	Impact Magnitude	Proposed Mitigation Measures
<b>CONSTRUCTION PHASE</b>		
Dust emissions likely to occur during the excavation of the top soil and loading and transportation of the construction waste.	Minor / Short term	<ul style="list-style-type: none"> <li>• Watering all active construction areas when necessary.</li> <li>• Cover all trucks hauling soil, sand and other loose materials or require all trucks to maintain at least two feet of freeboard. Pave, apply water when necessary, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites.</li> <li>• Sweep daily (with water sweepers) all paved access roads, parking areas and staging areas at construction sites.</li> <li>• Provision of PPEs to workers</li> </ul>
Hydrology and water quality degradation.	Minor / Short term	<ul style="list-style-type: none"> <li>• Installation of the septic tank.</li> <li>• The proponent will prepare a hazardous substance control systems and emergency response plans that will include preparations for quick and safe clean-up of accidental spills.</li> </ul>
Oil spills from machines to be used on site and vehicles.	Minor / Short term	The contractor will control the dangers of oil spills during construction by maintaining the machinery in specific areas designed for this purpose hence will not be a serious impact as a result of the construction.
Noise pollution due to construction machinery, moving machines (mixers, tippers) and incoming vehicles	Minor / Short term	<ul style="list-style-type: none"> <li>• Install portable barriers to shield compressors and other small stationary equipment where necessary.</li> <li>• Ear muffs and ear plugs to be provided to the workers</li> </ul>

		<ul style="list-style-type: none"> <li>Limit pickup trucks and other small equipment, observe a common-sense approach to vehicle use and encourage workers to shut off vehicle engines whenever possible.</li> </ul>
Worker's accidents and hazards during construction.	Minor / Long term but reversible	<ul style="list-style-type: none"> <li>Provision of appropriate and adequate Personal Protective Equipment (PPE) to employees.</li> <li>Enforcement and proper use of PPE by all construction workers.</li> <li>Provision of appropriate tools, equipment, and machinery in sound working conditions to employees.</li> </ul>
<b>OPERATION PHASE</b>		
Municipal Solid Waste production during the operational activities.	Major / Long term	<ul style="list-style-type: none"> <li>Solid Wastes generated from receiving and storing area including packing material, broken pallets, containers, detergents and municipal solid waste will be recycled and minimized and then should be disposed off through EPA approved vendors.</li> <li>The contractors to whom any waste recyclable material is to be sold shall be fully made aware of the environmental impacts and health effects of the waste to be sold to him if there is any.</li> </ul>
Noise will be generated from the standby generator and the formulation unit based on its load	Minor / Long term	<ul style="list-style-type: none"> <li>Proper covering of standby generator, to reduce the noise.</li> <li>Ear muffs and ear plugs should be provided to the workers at the facility.</li> <li>Noise reduction measures like buffering of noise through trees should be adopted where deemed necessary to reduce the noise level at the project boundary.</li> </ul>
Air Emissions will be generated from standby power generator	Major / Long term	Built-in The most troublesome problem is the nuisance odors from the anaerobic biodegradation of protein matter. Any odors generated should be treated by the oxidative action of the chemical solutions in wet scrubbers.

Water waste from plant, wash down and housekeeping practices	Minor / Short term	<ul style="list-style-type: none"> <li>• Water quality monitoring should be carried out at the site.</li> <li>• Parameters to be monitored at all locations should include the same as prescribed by the PEQS.</li> <li>• Installation of septic tanks</li> </ul>
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### **PROPOSED MONITORING**

The monitoring program is designed to ensure that the requirements of the environmental approval awarded by the EPA are met. Monitoring Program (MP) provides important information that allows for more effective planning and an adaptive response based on the assessment of the effectiveness of mitigation measures. The monitoring of various parameters will help to determine the extent to which project construction/operation activities will cause an environmental disturbance.

**Table:** Environmental monitoring plan

<b>Environmental segment/element</b>	<b>Monitoring parameters</b>	<b>Reference location / monitoring Point</b>	<b>Monitoring frequency</b>
<b>CONSTRUCTION PHASE</b>			
Water Quality	As prescribed by the Punjab environmental Drinking Water Quality Standards	Main Drinking Water Source / Water used for construction work	Quarterly
Ambient air emissions	Dust, smoke, PM, SO <sub>x</sub> , NO <sub>x</sub> , CO, O <sub>3</sub>	Use of generators, movement of materials, digging or excavation.	Quarterly
Waste water including Sewage	Ensure that all wastewater is treated to the level set by the PEQS-Pakistan.	The sewage or sanitary wastewater by the campsite and use for other construction activities.	Quarterly
Noise	The Levels prescribed as in Punjab environmental quality standards	The noise produced by the machinery during construction work.	Quarterly
Solid Waste Disposal	Ensure that all wastes are disposed of according to legal requirements of the country.	The waste material, rubble and solid waste produced by the camp site	Quarterly
<b>OPERATIONAL PHASE</b>			
Water Quality	As prescribed by the Punjab Environmental Drinking Water Quality Standards	Main Drinking Water Source	Monthly
Ambient air emissions/ odor	Methane and carbon dioxide, PM, CO, O <sub>3</sub>	Generator Area / unit	Quarterly
Waste water including Sewage	Ensure that all wastewater is treated to the level set by the PEQS-Pakistan.	Main Disposal Site / and waste water from the plant, wash down and housekeeping practices	Monthly
Noise	Noise levels	Generator, running of machinery	Once monthly at all involved places

Solid Waste Disposal	Ensure that all wastes are disposed of according to legal requirements of the country.	Municipal solid waste / Solid Wastes generated from receiving and storing area including packing material	Regularly in connection with environmental And safety rounds.
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**Table:** Environmental management cost

Environmental Component	Quantity	Approximate Cost (PKR)
(i) Tree Plantation	1000	200,000.00
(ii) Health and Safety Measures and Provision of PPEs	L.S.	100,000.00
Environmental Monitoring		200,000.00
<b>Total Environmental Management and Monitoring Cost =</b>		<b>500,000.00</b>

## STAKEHOLDER CONSULTATIONS

Public discussions were held with the inhabitant of the surrounding area. They are quite positive about the project and see the project as growing the business and accomplishing towards the positive development in the area at local and in the country as a whole. The people observe strong positive impacts regarding employment, business and structural development due to this project. EIA findings depict that people perceive overall positive social and economic impacts by the project. Their attitude towards the project installation is highly optimistic. Majority of the people are convinced for development in the area and they correlate this progress with the pace of their social mobility.

## CONCLUSION AND RECOMMENDATION

The report provides a conclusion based on the impacts assessed and mitigation measures suggested. The report recommends that EMP will be made a part of all contract documents. The design of the scheme should meet the PEQS parameters in all aspects. The contractor will be bound to completely implement relevant mitigation measures set out in the EMP during construction phase while during regular operation of the project. The proponent will be responsible to ensure all the compliance of PEQS. If there are any changes in the design/ layout, or any other changes in then changes should be carried out through amendments in environmental assessment report and EMP of the EIA.

## SECTION-1

### INTRODUCTION

This Section of the report provides an overview of the rationale of the Project, objective of project, requirement of the project, purpose of the report and approach adopted to conduct the Environmental Impact Assessment (EIA).

The proponent is going to install formulation unit namely “**Installation of Pesticides Manufacturing Unit**”. The project is located at Plot no: 6-B Multan Industrial Estate, Multan.

The proposed project for the commissioning of its objective and construction requires fulfilling the legal requirements of Section-12 of the Punjab Environmental Protection Act-1997; this Environmental Impact Assessment (EIA) report is being submitted.

#### 1.1 Purpose of Report

This report provides detailed basic information and facts of project; including especially among others environmental, economic, social, etc., enabling its assessment and justification that the project will meet the requirements of environmentally sustainable practices; both during installation and regular operation stages; as desired under the Punjab Environmental Protection Act – 1997, the Punjab Environment Quality Standards and the rules and the regulations thereof. The other relevant regulations and guidelines considered while preparing this EIA report include:

- Policy and procedures for filing, review, and approval of environmental assessments.
- Guidelines for the preparation and review of environmental reports.
- Guidelines for public participation.
- Guidelines for sensitive and critical areas.
- Detailed sectoral guidelines

Different environmental aspects like social, physical and biological etc. and other related features of the project both during installation and its regular occupancy are highlighted in this EIA report. Measures necessary to be adopted to mitigate any environmental impacts on any part of the environment around are also described. All the important information is also provided as described under the format used to help decision-makers, EPA Punjab in the present case, before issuing the desired Environmental Approval (EA).

#### 1.2 Identification of Project

In accordance with the Punjab Environmental Protection Act - 1997, the project falls under Schedule II (List of Projects Requiring an EIA), Category B (Manufacturing and Processing) Serial No. (8) Pesticides and fertilizer manufacturing units of Review of IEE/EIA Regulations, 2022.

#### 1.3 Identification of the Proponent

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Name	: Muhammad Ather S/o Sharif Ahmed
CNIC No.	: NIC No. 42101-4593499-11
Address	: <i>House # 104-D, Block B, Mohalla Nazimabad, Karachi</i>

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## 1.4 Details of Consultant

The Environmental Impact Assessment (EIA) has been carried out by aptly skilled and duly qualified group of professionals working for the environmental consulting Services namely WRITE Consulting Services Consultants. The consultant is authorized to submit and draw the application and any document on behalf of the proponent. The consulting team can be approached through; office address is SF-28 Empress Tower, Shimla Pahari, Lahore, Contact: 0301-5384466 email: [writeconsultingservices.pk@hotmail.com](mailto:writeconsultingservices.pk@hotmail.com).

## 1.5 Objective of report

Objectives to conduct this EIA are as following:

- 1) A legal binding in accordance to the Punjab Environmental Protection Act – 1997.
- 2) To identify the potential environmental issues pertaining to the proposed site.
- 3) To evaluate the ability of the site by keeping in view the social acceptance and environmental soundness.
- 4) Providing maximum information to the proponent and other stakeholders, regarding existing environmental conditions and the implications of the proposed project.
- 5) Collection of available data, reports, drawings and other relevant information about the proposed project.
- 6) Review of applicable existing environmental legislation and Punjab environmental quality standards (PEQS).
- 7) Propose mitigation measures to eliminate or to reduce the negative impacts to an acceptable level.
- 8) Development of well-resourced environmental management and monitoring plans to identify mitigation strategies targeted towards avoidance, minimization, and rehabilitation of the impacts.

## 1.6 Extent of the Study

In compliance with PEPA-2012 (amended act) requirements, an EIA report has been prepared and submitted by the proponent. This document covers all environmental impacts, due to the proposed project, in and around the project area comprising the physical, ecological and socio-economic aspects together with identification of the potential positive and negative impacts. Any developmental activities outside the project area and establishment of the other factories outside the project vicinity have not been covered under this study.

## 1.7 Methodology

The methodology adopted to carry out the EIA study of the proposed project was as follow:

- a) Orientation
- b) Planning of Data Collection
- c) Data Collection
- d) Site Reconnaissance Surveys
- e) Analysis of Maps and Plots

- f) Literature Review
- g) Public Consultations
- h) Field Studies/visits
- i) Laboratory Analysis
- j) Evaluation of Impacts and their analysis
- k) Categorization of impacts based on their potential environmental significance and prescription of preventive / mitigation measures.

In addition to the evaluation and review of the available records, data and the facts for the previous project, detailed discussions were held with the concerned members of the project management as well as other project stakeholders.

Notes and proposals for measures to be taken to mitigate and compensate for any determined/detrimental environmental impacts are contained in the Environmental Management Plan (EMP) as well as a Monitoring Plan, including all parameters that need to be measured, and the frequency of monitoring actions.

A comprehensive qualitative and quantitative methodology was adopted to conduct this study inter-alia in due compliance with the EIA requirements. The study included a collection of both primary and secondary data regarding environmental status and other relevant factors. This EIA report has been accomplished after carrying out thorough visit to the proposed site and detailed investigation to identify the following Environmental areas of concern:

- 1) To achieve the desired environmental compliance standards; as per the national environmental regulatory requirements; as applicable to the project.
- 2) Plans and activities to prevent/mitigate any potential impacts and the gaps that could probably remain after implementation.
- 3) Any other points/steps to be taken which could be beneficial to mitigate environmental adverse impacts that may accrue both during construction and regular operation of the project.

**Table:** Environmental Process Assessment

<b>Phase</b>	<b>Activities</b>	<b>Status</b>	<b>Responsibility</b>
Screening and Scoping	Reconnaissance and initial site visit and consultations, identification of environmental and social issues & applicable safeguard environment policy, categorization and working out an action plan.	Carried out during the present EIA	Proponent

Impact Assessment	Identification of potential environmental and social impacts through site visits, stakeholders' consultations, review of drawings, alternatives etc.	Carried out during the present EIA	Proponent
Impact categorization	The significant potential impacts were tabulated and mitigation/preventive measures were prescribed	Carried out during the present EIA	Proponent
EMP Preparation	Stakeholders/Women consultation	Carried out during/prepared as part of the present EIA	Proponent
	EMP		
	Social Framework Agreement (SFA)		
Final EMP	Final version of EMP produced	Included in the present EIA	Proponent

## 1.8 Report structure

This EIA document is structured as follow:

- Section–1: Screening of the Project:** Either the proposed project requires IEE or EIA
- Section–2 Introduction:** Containing general information about the project and process of carrying out the study.
- Section–3 Scoping:** Containing information about the scoping of the proposed project
- Section–4: Description of the Project:** Describes an overall detail of the works to be done.
- Section–5: Analysis of Alternatives:** This Chapter deals with the analytical overview of different alternatives that have been considered for the project.
- Section–6: Environmental Baseline Profile:** Gives information on Physical, Biological and Social conditions collected through a survey of the Project Area.
- Section-7: Anticipated Environmental Impacts and Mitigation Measures:** Identifies various environmental impacts and their preventive actions. This makes the basis of the Environment Management Plan.
- Section–8: Environmental Management and Monitoring Program:** Contains comprehensive prescriptions regarding environmental impacts and their mitigation measures. This also includes institutional arrangements and Environmental Management & Monitoring Plan.
- Section–9: Stakeholders Consultations:** Explains the process of public consultation and disclosure of the project in related stakeholder. It makes this document a legal public document.
- Section–10: Impact Assessment and Mitigation:** It deals with the major potential impacts which could occur during the operational phase and how amendments could be done in design and monitoring for mitigation.
- Section–11: Conclusion and Recommendation:** Concludes the EIA report with some practical recommendation

## SECTION-2

### SCREENING OF THE PROJECT

The proposed project is mainly being established for the installation of Pesticides Manufacturing Unit. The project namely “**Installation of Pesticides Manufacturing Unit by M/S Pak Pansy Private Limited**” is going to meet the local demand and to play a vital role in fulfilling the daily requirement of locals through providing pesticides and micronutrients to farmers. The project is located at Plot no: 6-B Multan Industrial Estate, Multan. The total cost of the proposed project is **PKR 150-Million**.

Screening was performed at the first stage of the EIA process which resulted in a key EIA decision, namely to either conduct the assessment (based on the likely significant impacts) or not conduct it (in the anticipated absence of such impacts). Screening was done as early as possible in the development of the proposal in order for the proponent and other stakeholders to be aware of possible EIA obligations.

The standardized approach i.e., defined in applicable regulations was applied. The proposed project was assessed based upon a set of criteria determined by Environmental Protection Department (EPD) i.e., Review of IEE/EIA Regulations, 2022 provided by Government of Pakistan, Ministry of Environment (Ministry of Climate Change), Local Government and Rural Development were considered for the purpose of screening mainly.

In accordance with the Environmental Protection Agency, Government of the Punjab, Lahore, the project falls under Schedule II (List of Projects Requiring an EIA), Category B (Manufacturing and Processing) Serial No. (8) Pesticides and fertilizer manufacturing units of Review of IEE/EIA Regulations, 2022, for which Environmental Impact Assessment (EIA) report is required for Environmental Approval to submit the EIA report in the Environmental Protection Agency, Government of the Punjab. Moreover, following factors were also considered at the earlier stage:

- Magnitude of change in environmental conditions
- Diversity of new features with the existing environment
- Potential for trans-boundary or over large area impact
- Number of people effected
- Likelihood of effecting receptors of other types (fauna and flora, businesses, facilities) be affected?
- Probability of affecting valuable or scarce features or resources
- Risk of breached environmental standards
- Risk of affected protected sites, areas, features
- High/low probability of the effect occurring
- Long/short duration of effect

- Either effect is permanent or temporary
- Is the impact continuous rather than intermittent?
- If it is intermittent, will it be frequent rather than rare
- Reversibility of impacts
- The likelihoods to avoid, or reduce or repair or compensate for the effect

After detailed analysis on the basis of these factors; the proposed project was found suitable for Environmental Impact Assessment (EIA) study rather than Environmental Impact Assessment (EIA) study.

## SECTION-3

### SCOPING

Scoping is the process of identifying the key environmental issues and is perhaps the most important step in an IEE/EIA. It occurred early in the project cycle at the same time as outline planning and pre-feasibility studies. Several groups, particularly decision makers, the local population and the scientific community contributed in helping deliberate the issues which should be considered, and scoping is designed to canvass their views. At this stage the option exists for cancelling or drastically revising the project; equally it may be the end of the EIA process if the impacts be found to be insignificant. Once this stage has passed, the opportunity for major changes to the project is restricted.

Scoping for this particular proposal was carried out with two main objectives

- i. To pinpoint the problems early allowing mitigating design changes to be made before expensive detailed work is carried out.
- ii. To ensure that detailed prediction work is carried out for important issues. So that after identifying the key issues, a full-scale EIA is considered and it incorporates terms of reference for further studies.

#### 3.1 Methodology

Before the scoping exercise can be fully started, the remit of the study was defined and agreed by the relevant parties depending on the institutional structure. At a minimum, those who contributed to determining the remit included those who decide whether a policy or project is implemented, those carrying out the EIA (WRITE Consulting Services) and those carrying out parallel engineering studies relating to the proposal. Following is the step-wise methodology adopted for the scoping of subject proposal.

- The key interest groups, both governmental and non-governmental, were identified they include EPA, surrounding community and workers & management of adjacent industries.
- Since, the people who can be affected by the project need to hear about it as soon as possible; so, scoping session was held inviting the representatives from identified groups and briefing them about the proposal while establishing good lines of communication. Their concerns are discussed in the coming sections.
- The main EIA techniques used in scoping were baseline studies, checklists and matrices. These techniques collected and presented knowledge and information in a straightforward way so that logical decisions can be made about which impacts are most significant.
- The concerns of the stakeholders were listened and noted down, if possible, negative ones were resolved at the spot whereas others area incorporated in the EIA study and decisions are made accordingly.

#### 3.2 Spatial and Temporal Boundaries of Environmental Assessment

Temporal and spatial boundaries for the effects assessment are defined by the characteristics of the project and the Valued Environmental and Cultural Components (VECC) being assessed. These

boundaries encompass time periods and areas during and within which the VECCS are likely to interact with or be influenced by the project.

Spatial boundaries vary according to the nature of the VECC but generally are defined in terms of:

- A local study area (LSA), where project effects can be predicted with a reasonable degree of accuracy and confidence and impacts are likely to be most concentrated- most of the subject project impacts are local e.g., air emissions, increased noise levels, wastewater and solid waste management etc.
- A regional study area (RSA) where, depending on conditions (e.g., seasonal conditions, habitat use, more intermittent and dispersed project activities) subject proposal does not impose any regional impacts.

Following table represents the characterization of potential impacts of subject proposal based upon the spatial boundaries;

**Table:** Characterization of potential impacts based upon the spatial boundaries

Sr. No.	Potential Impacts	Spatial Boundaries	
		LSA	RSA
1	Air Quality	✓	✓ (if beyond limits)
2	Increased noise levels	X	
3	Groundwater degradation	X	
4	Surface water deterioration	X	
5	Soil quality	X	
6	Working personnel's Health & Safety	✓	
7	Lowering of groundwater table		✓
8	Flora & fauna	✓	✓

Temporal boundaries for project-related effects are defined in terms of the project phases:

- **Baseline** - covers ecological, physical and human-related characteristics of the environment, prior to the initiation of the construction phase;
- **Construction-** includes all activities associated with project construction and before commencement of operational phase such as:
  - Infrastructure development;
  - mobilization of equipment and supplies to the site by road and air;
  - Construction of site facilities including camp, infrastructure, stockpile, waste rock storage dump, water management facilities (diversions, settling ponds, seepage collectors) etc.
- **Camp operations** and personnel transport during construction
- **Operations** includes ongoing industrial processing, effluent disposal, waste management, noise levels, transport of raw materials, end products and personnel;
- **Decommissioning** includes all activities to decommission industry and remove equipment and materials from the site, re-contour the site and restore drainage patterns to stable long-term

conditions, and implement the final site reclamation procedures to prevent erosion and restore vegetation cover where feasible;

- **Closure**- refers to conditions that will exist on the site after the site is abandoned and re-vegetation is complete.

Temporal boundaries are also defined for the cumulative effects assessment, spanning baseline to a point in the future, within which project effects on VECCs are predicted to overlap with effects of other projects or activities.

### 3.3 Issues and Concerns Raised during Consultation

The representatives from EPA, surrounding industries and community attended the scoping session. They were briefed about the objective of session, the proposal and its type, applicable regulations and potential environmental and socioeconomic impacts that can be anticipated. Following is a list of concerns raised during the session;

What are checks and balances that exist to make sure mitigation is implemented correctly and how will follow-up happen?

- Will the locals be preferred for every sort of employment – skilled or un skilled?
- How health & safety of workers will be ensured throughout the construction and operational phase?
- What arrangements will be made for firefighting?
- How water will be conserved?
- How process solid waste and wastewater will be disposed of to not harm the environment?
- How noise levels will not be let increased?

All of these issues were sorted out during the session and recommendations are incorporated in the EIA study. However, most of the condemnns were positive as the proposed industry is believed to provide employment to a lot of local people thus contributing to national GDP. Also, it will bring industrial development in the country at the time when it is already trying to cope up with economic challenges.

### 3.4 Significant Impacts and Factors to be Determined

Substantial impacts that can be caused by the establishment of subject unit were identified and discussed with the key stakeholders. Recommendations for appropriate mitigation measures were also exchanged to be incorporated well in EIA study. Following is a summary of the determined impacts and recommended mitigations for them.

Impact	Mitigation Measure
Owing to construction activities; generation, suspension and deposition of particulate matter, dust, SO <sub>x</sub> , NO <sub>x</sub> and CO emissions can cause health issues to workers	<p>Spray by water trucks to minimize the dust.</p> <p>Maintenance of construction machinery shall be made mandatory.</p> <p>Haul-trucks carrying earth, sand, aggregate and other materials will be kept</p>

	covered with tarpaulin to reduce dust pollution.
Noise generated during construction and machinery can cause interference with speech, hearing impairment, and sleep disturbance	Engines of vehicles visiting project site will be kept properly tuned-up. Temporary noise barriers will be installed.  The green zone of plants will also help reduce sound levels.
There will always be the possibility regarding hazard to health and safety of workers to occur during construction phase	To handle emergency medical situation, first aid facilities will be made readily available at the site and the contractor will ensure availability of transport to handle any emergency condition. Safety equipment such as belts, gloves, masks and helmet will be provided to working personnel and wearing them will be made mandatory for them. Also, Health & Safety trainings will be conducted time to time.
The construction phase of the project will produce solid waste; disposal of which if not managed properly can have negative impacts on the site and surrounding area	A site waste management plan will be made the responsibility of the contractor. The Construction and Demolition (C & D) waste will be properly segregated to encourage recycling of useful waste materials.  The involved stakeholders will be trained about the importance and means of waste management and its proper handling.
Lack of proper disposal system of solid waste may lead to different disease	Arrangements will be made for regular garbage collection and removal from the construction site.
Ground water quality can be contaminated when the pollutants, such Effective management will as diesel and oil, paint, solvents, cleaners and other harmful chemicals, on construction sites soak into the groundwater	Effective management will be ensured during construction activities and any sort of accidental spillage will be avoided.
No negative impact on ecological environment will take place on account of cutting of trees in the project area and	Currently there is no flora and fauna are present a project site. Landscaping is deemed to be a powerful mitigation activity with a positive impact. Trees and

clearing of vegetation from the site.	ornamental plants will be planted along the project boundary to increase the aesthetic value of the site and combat pollution.
A number of categories of employees will be required during the construction phase which will have positive impact on the local economy and regional unemployment	Socially responsible attitude of the project management towards local people and resources will make project people friendly. Awareness and educational program introduced in the area by project management will reduce the fear among the people regarding non-local people.
<p>There will be slight increase in traffic due to transportation of raw material and final product. As a result, concentrations of emissions of flue gases will increase.</p> <p>Also, diesel fired generator may cause emissions.</p>	<p>Proper maintenance and tuning of the vehicles will be done by proponent.</p> <p>Proposed Site is in load shedding free zone area, so, generator only use to handle emergency condition.</p> <p>Generators will be maintained well in time to avoid emission of black smoke.</p> <p>Plantation will be done along the boundary walls will help protecting the environment.</p>
<p>The movement of transportation vehicles and running of generator can cause slight increase in noise levels.</p> <p>Operation of machinery e.g. cutting, and welding of sheets will cause noise emission.</p>	<p>The machinery to be used in the plant is noise-free. However, the vehicles and generator will be kept well- maintained and Strict rules will be made by the project administration to control speeds of vehicles.</p> <p>Use of Personal Protective Equipment's will be used to reduce the noise impact on surrounding environment.</p>
There will always be the possibility regarding hazard to health and safety of workers to occur during operational phase of the project.	The workers working near operating machines or high noise zone will be made sure to wear personal protection equipment. Irrelevant workers and visitors shall also be directed to wear personal protective equipment. Noise absorbing paint will be used on indoor walls to minimize its impacts on outer environment.

	To handle emergency medical situation, first aid facilities will be made readily available at the site and the contractor will ensure availability of transport to handle any emergency condition.
The improperly managed solid waste may impact the factory surrounding aesthetically, occupationally as well as from health, safety and environment point of view.	BIE approved vendors shall collect the solid waste on daily basis.  Domestic waste will be handled properly by industrial management.
The wastewater of the proposed unit, if disposed of without any treatment, can cause water pollution and soil contamination if seeped through.	The major usage of water during operational phase is for the domestic use only. There is not any water used in during the process. So, there is no wastewater generated during the process. The domestic wastewater produced will be disposed to internal drain after treated by septic tank.
Operational phase impacts are likely to be restricted to maintenance activities within the Site such as vegetation clearing through brush cutting from the internal road network.	The process of plantation should be kept sustainable throughout project life.  Proponent ensure the plantation around the project vicinity and in surrounding of project site.
A number of employees will be required in operational phase and it will have a positive impact on the local economy and regional unemployment.	The management of the project can capitalize positive attitude of people of study area towards this project by offering them maximum employment opportunities.  Measurements and steps should be taken to keep undisturbed the privacy of adjoining workplaces.

Following are the criteria adopted for determining significance of the potential impacts such as acceptability and mitigation measures requirement in relation to Ecological importance, social importance, and Environmental standards;

**Table:** Criteria for Significance of Impacts

Categories	Impact	Characteristics
Nature	Direct (D)	The environmental parameters are directly affected by the project

		construction or operation.
	Indirect (ID)	The environmental factor changes as a result of alteration in another parameter.
<b>Duration of Impact</b>	Short Term (ST)	The impacts that last only during the construction of the Impact proposed Project e.g., noise from the construction activities
	Medium Term (MT)	Lasting for a period of few months to a year; the project before naturally reverting to the original condition such as loss of vegetation due to clearing of campsite, contamination of soil or water by fuels or oil.
	Long Term (LT)	Lasting for period much greater than medium term impact Term before naturally returning to the original condition such as loss of soil due to erosion.
<b>Geographical Extent</b>		The geographical extent may be local or regional.
<b>Project Phases</b>		Pre-construction Phases (designing), Construction Phases, Operational Phases
<b>Reversibility of Impact</b>	Temporary (T)	The impacts that don't cross ecosystem threshold value of resilience.
	Permanent (P)	The impacts that exceed ecosystem threshold value of resilience.
<b>Likelihood of the Impact</b>	Likely (L)	Impact will probably occur under most circumstances.
	Unlikely (UN)	Impact could occur at some time
	Possibly (P)	Impact may possibly occur at some time
	Rare (R)	Impact may occur but only under exceptional circumstances.

<b>Impact Consequence Severity</b>	Major (M)	When an activity causes irreversible damage to a unique Environmental feature; causes a decline in abundance or change in distribution over more than one generation of an entire population of species of flora or fauna; has long-term effects (period of years) on socio-economic activities of significance or regional level.
	Moderate (Mo)	When an activity causes long-term (period of years), reversible damage to a unique environmental feature; causes reversible damage or change in abundance or distribution over one generation of a population of flora or fauna; has short-term effects (period of months) on socio-economic activities of significance on regional level.
	Minor (Mi)	When an activity causes short-term reversible damage to an environmental feature; slight reversible damage to a few species of flora or fauna within a population over a short period; has short term effects on socio-economic activities of local significance.
	Negligible (N)	When no measurable damage to physical, socio economic, or biological environment above the existing level of public concern; and conformance with legislative of statutory requirements.

Following table represents the significance of determined impacts based upon above given criterion;

**Table:** Significance of the Potential Impacts

Category	Impact Significance	Potential Impacts
----------	---------------------	-------------------

		Air Quality Deterioration	Increased noise level	Lowering of Groundwater Table	Surface water deterioration	Soil quality	Health & Safety	Flora & Fauna
<b>Nature</b>	<b>Direct (D)</b>	✓					✓	✓
	<b>Indirect (ID)</b>			✓		✓		✓
<b>Duration of Impact</b>	<b>Short Term (ST)</b>		✓		✓		✓	
	<b>Medium Term (MT)</b>	✓		✓		✓		✓
	<b>Long Term (LT)</b>				✓			
<b>Geographical Extent Project Phases</b>	<b>Local</b>	✓	✓			✓	✓	✓
	<b>Regional</b>			✓	✓			
<b>Reversibility of Impact</b>	<b>Temporary (T)</b>	✓	✓		✓	✓	✓	✓
	<b>Permanent (P)</b>			✓				
<b>Likelihood of the Impact</b>	<b>Likely (L)</b>	✓					✓	
	<b>Unlikely (UN)</b>							
	<b>Possibly (P)</b>		✓					✓
	<b>Rare (R)</b>			✓	✓	✓		
<b>Impact Consequence Severity</b>	<b>Major (M)</b>							
	<b>Moderate (Mo)</b>		✓				✓	
	<b>Minor (Mi)</b>	✓		✓				✓
	<b>Negligible (N)</b>				✓	✓		

Based upon this identification; mitigation measures are proposed in EIA study. Environmental Management and Monitoring Plan is prepared defining the monitoring program as well to effectively implement the recommended measures.



## SECTION-4

### DESCRIPTION OF THE PROJECT

#### 4.1 Type and Category of Project

The project is installation of formulation unit. In accordance with the Punjab Environmental Protection Act - 1997, the project falls under Schedule II (List of Projects Requiring an EIA), Category B (Manufacturing and Processing) Serial No. (8) Pesticides and fertilizer manufacturing units of Review of 7IEE/EIA Regulations, 2022, for which Environmental Impact Assessment (EIA) report is required for Environmental Approval. Therefore, to fulfill the legal requirements of the Section-12 of the Punjab Environment Protection Act-1997, the client is required to submit the EIA report in the Environmental Protection Agency, Government of the Punjab, Lahore to obtain the required Environmental Approval (EA).

#### 4.2 Objectives of Project

The objectives of pesticide/manufacturing unit are to create safe, effective, and stable pesticide products by enhancing the handling, storage, and application of the active ingredient, thereby improving the product's overall pest control efficacy, and reducing hazards to humans and the environment. Re-packing of the pesticides /micronutrients will also be done during the operational phase of the project.

#### 4.3 Cost and magnitude of operation

The total cost that has to be spending on the project is approximately **Rs. 150-Million**. The total area for the proposed project is 108,000- SQFT. The quantities have been worked out from the design drawings and project feasibility.

#### 4.4 Location of the project

The project is located at Plot no: 6-B Multan Industrial Estate, Multan. The project in its vicinity has like open land, roads & same nala. There is no residential area near the vicinity of the project site which can help in reducing the cost of transport for raw material therefore the environment is ideal condition for installation of formulation unit.



Figure: Google map of the Project (Site).

### 4.5 Area statement

The total area for the installation of formulation plant is 108,000-SQFT. Details of area coverage with its total area is given below.

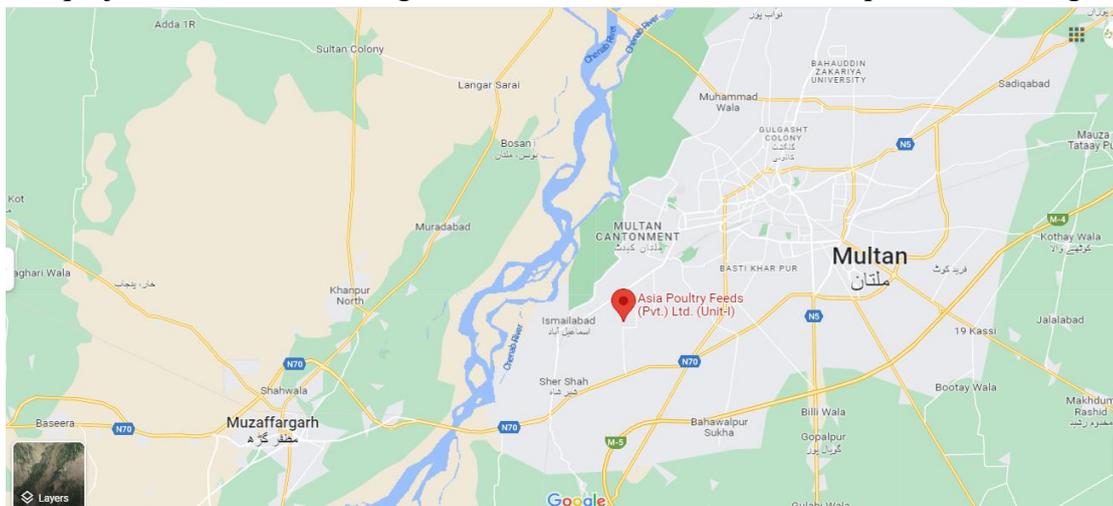
Sr.No.	Name of Area	SQFT	KANAL	%age
1	Covered Area	4505		40
2	Open Area	200		60
3	Total Area	4705		

### 4.6 Land use

The land occupied for the installation of formulation unit is open land which is a proposed project namely “Installation of Pesticides Manufacturing Unit”.

### 4.7 Road Access

The project is accessible through Multan Road. The access road is paved and is in good conditions.



## 4.8 Construction period and cost

The project cost estimated about Rs. 150-Million has to be installed after EIA. The quantities have been worked out from the design drawings. The rates for cost estimates are based on construction work, contractor cost, cost of land, and cost of the raw materials with 10% escalation for the year 2026.

It is planned that the following schedule of project implementation will be adhered to. This is subject to the conditions that everything goes according to planning and no serious bottlenecks are encountered. The implementation stages of the project activity include:

### 1<sup>st</sup> Stage

The stage –1 comprises the onsite contouring studies and soil investigations and the finalization of the project designs.

### 2<sup>nd</sup> Stage

The stage –2 comprises the following task:

- 1) Laying of foundations excavation and commencement of erection work.
- 2) Shoring and piling
- 3) Start of civil, electrical and mechanical work.
- 4) Development of basic infrastructure.
- 5) Installation of machinery.

### 3<sup>rd</sup> Stage

The stage –3 comprises the following task:

- 1) Building structure erection completion.
- 2) Completion of the basic infrastructures water supply system, electricity supply etc.

### 4<sup>th</sup> Stage

The last stage will be the commencement of regular use.

## 4.9 Energy use

The electricity supply is through MEPCO WAPDA. In order to meet the emergency as well as critical power requirements during power shut down the project also have a supportive facility for standby power generator.

## 4.10 Water use

The water requirements of the facility will be fulfilled by the extraction of ground water, for all the construction and operational activities. For the operational phase 1000 liters per day water is estimated to be used.

## 4.11 Operational arrangements

At operation stage, the project proponent will be involved in operation and maintenance of the proposed facility.

## 4.12 Working equipment and utilities

The construction machinery and the utilities or equipment that is required in the operational phase which will be utilized for construction is shown in Tables below

**Table:** List of Construction Machinery to be used for Construction

Sr. No.	Type of Machinery	Quantity
1	Excavator	1
2	Dumper & Loader	1
3	Tractor & Trolley	4
4	Water Bowser	1
5	Lift/Crane	1
6	Generator	1
7	Concrete Pump	1
8	Water Pump	1
9	Welding Plant	1
10	Concrete Mixing Plant	1

## 4.13 General description of project

The project “**Installation of Agro Chemical Formulation Unit**” is located at Plot no: 6-B Multan Industrial Estate, Multan. The project in its vicinity has like open land, roads & same nala. There is no residential area near the vicinity of the project site which can help in reducing the cost of transport for raw material therefore the environment is ideal condition for the installation of formulation unit.

### Project Description

The project includes the formulation of Agro Chemicals products (Pesticides and micronutrients/ Crop Stimulator). List of products is attached along with the EIA Report.

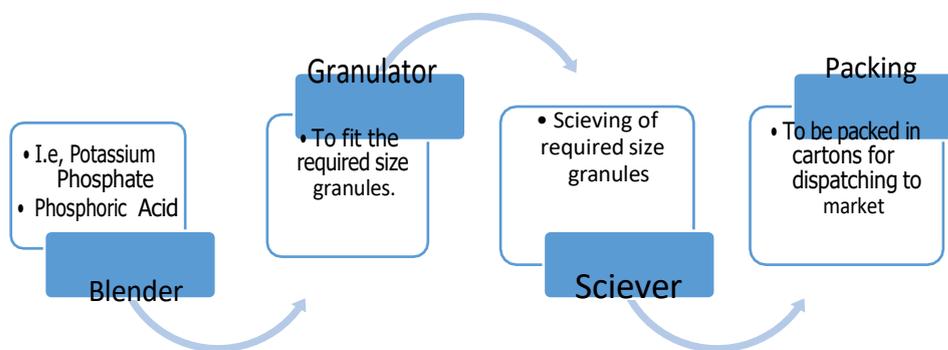
#### A. Formulation Process for Liquid Base Products:

The raw materials (For Pesticides Active ingredients, emulsifier, Xylene and in some products water. For Fertilizer Active Ingredients and other basic raw materials like Zinc, Sulphuric Acid, Humic Acid, Potassium, Major Elements (N, P, K), Micro Elements (Zn, Mn, Fe) etc) will be mixed in a blender according to a certain mixing ratio, until a homogenous mixture is obtained. The final product will be then transferred to filling station. The last step is packing of product in containers of different sizes as required.



## B. Formulation Process for Solid (Granules) Base Products

There will be no such complicated process involved only mixing of raw materials will take place. It will be formulated by mixing raw materials of required product in a blender. After that it will be converted into granules by passing through a granulator. Subsequently the granulated product will be sieved through a sieve to separate the perfectly required size granules from where they will be packaged in bags.



#### **4.14 Restoration or rehabilitation plan of project**

There will be no any matter of rehabilitation as the proposed site is already owned by the project proponent. There will not be any let regarding safety factors as applicable from time to time for such buildings on all accounts. However, at the end of the life of the building, it will be duly dismantled with special precautions to avoid/minimize pollution and at the same time taking all safety precautions to protect human life and property around the project site.

Debris or any other wastes resulting from demolishing will be disposed of in environmentally sustainable fashion. The materials capable of recycling/reuse will be either sold in the market or to be reused for other suitable purposes.

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. The land, if and where pitted will be adequately leveled. On the whole, the project site and the area in its near vicinity will be made neat and clean.

#### **4.15 Government approval and leases required by the project**

As the project lies in the industrial facility so all the pre-requisite connections approval will be done by the industrial estate. The environmental approval according to the Section 12 of Punjab Environmental Protection Act-1997 is the mandatory requirement of the project.

## SECTION – 5

### ANALYSIS OF ALTERNATIVES

This Chapter deals with the analytical overview of different alternatives that have been considered. The analysis has been carried out critically so as to justify the need of the Project and to select the most feasible alternative. Besides the economic viability; environmental sustainability and social soundness of the project has also been considered while analyzing different alternatives.

#### 5.1 The Project Alternative

A detailed study has been conducted regarding the project alternative. The said project “*Installation of Pesticides Manufacturing Unit*” is ecofriendly which will not cause any negative impact to the environment. The proposed project has positive socioeconomic impact as it will provide job opportunities for the locals. The best industrial practices and advanced technological system have been proposed to adopt to enhance the production capacity.

#### 5.2 Location Alternatives

The establishment of the project is within industrial area of **M/S Prime Agro Chemical Fertilizer Industries**. To fulfill the industrial aspects of the project under reference of this EIA Report, it is to be sited at a place having industrial processing activities is already going on, and there are bright prospects of the proposed project. Concurrently, it must also meet the legal requirements of the Punjab Environmental Protection Act, 1997.

Availability of land at the best convenient place is equally important among other considerations for the site selection. Availability of industrial facilities, electricity, basic infrastructure etc. is yet the other necessary requirements. Obviously, environmentally sound, neat and clean environment are the other considerations for site selection. The selected site is the best possible option for the Installation of Pesticides Manufacturing Unit by M/S Pak Pansy Private Limited where all facilities are provided by the local municipality.

#### 5.3 Rejected Sites

Before the consideration of selected project site, the project proponent had considered different sites within the premises of the industrial area, but later it was rejected due to technical requirements and less benefits of project site. The site A was selected at Basti Makhdoom Rasheed, Mian Vehari Road which was rejected due to agricultural land and other operational issues such as there was no disposal point. The site B was selected at Plot no: 6-B Multan Industrial Estate, Multan (current proposed project site) which was selected by considering its operational objectives and facilities.



**Figure:** Rejected site A

#### **5.4 Reasons for Rejection**

The sites were rejected due to the following reasons:

- Area occupation
- High demolishing cost
- Infrastructure

#### **5.5 Modified Construction Technology Alternatives**

The development will be constructed using modern, locally and internationally accepted technology and materials to achieve public health, safety, security and environmental aesthetic requirements. Equipment that saves energy and water will be given first priority without compromising on cost or availability factors. The concrete base will be made using locally sourced stones, cement, sand (washed and clean), metal bars, iron sheets and fittings that meet the quality standards requirements.

Keeping these requirements and their feasibility and other basic infrastructural requirements are also available at the selected site. Accordingly, the selected site is preferable for the project “Installation of Pesticides Manufacturing Unit” which is situated at the proposed site namely, Plot no: 6-B Multan Industrial Estate, Multan.

## SECTION - 6

### ENVIRONMENTAL BASELINE PROFILE

This section describes the baseline conditions, which cover the existing Physical, ecological and socio-economic environment of the project as well as study area. Data was collected by reviewing secondary data and field survey.

#### 6.1 General

Description of the environmental settings (also referred to as "baseline", "existing", "background", or "affected environment") is an integral part of an environmental impact assessment and/or initial environmental examination. There are two major purposes of describing the environmental settings in an environmental study, namely:

- To ascertain and evaluate the existing environmental quality, as well as environmental impacts of the alternatives being studied, including the no-action or no-project alternatives, and
- To identify environmentally significant factors or geographical areas that could preclude the development of a given alternative or alternatives

Additional purposes of describing the baseline settings include, but are not limited provision of sufficient information so that the decision makers and the report reviewers, who might be unfamiliar with the general location, may develop an understanding of the project's needs and environmental characteristics of the area.

One of the significant environmental impacts of a development could be the likely changes in the land use profile. If implementation of a development involves massive conversion of agriculturally useful land into non-agricultural or otherwise less useful lands or leads to deterioration of the ecological environment by substantially altering the land use pattern in a manner, which is less favorable for propagation of agriculture, then the resultant impacts can be labelled as deleterious and harmful for the environment. Conversely, if a developmental scheme envisages very little or negligible changes in the existing land use scenario or the new land usage is of superior nature, then the development is regarded an environment friendly activity to the extent of this parameter.

It would not be out of context to mention here that usually the format of an IEE/EIA is either project specific or area specific or a combination of both. The baseline environmental conditions, therefore, have been described according to this format approach. The text following hereafter contains a description of the baseline characteristics of the project area and the district, wherever relevant.

The Consultant's Professional Team in conjunction with the proponent and other concerned agencies undertook various studies and surveys relating to the project, such as: -

- Studies and investigations into the baseline environmental profile of the project area, where relevant
- Physical, geological, hydrological, and topographic environmental surveys of project area, where relevant
- Surveys about education profile and services in the area, where relevant
- Soil quality surveys and investigations, where relevant
- Socioeconomic surveys of the project area, where relevant
- Water quality investigations and analyses
- Ambient noise profile in the vicinity of the site
- Social surveys
- Surveys and interactive meetings with the neighbouring populations to know their understanding of the project and to solicit their specific concerns over the project, if any

The objectives of the social surveys were:

- Finding out impacts of the project on education, health, hygiene, lifestyle and social value system of the workers and inhabitants within the site's zone of influence
- Any probable dislocation of the persons and property and removal of encroachments, if any from project's construction, expansion or operation
- Assessing the prospects of employment and job opportunities and impacts on the economic portfolio of the beneficiary population of the project area ascertaining likelihood of cropping up of any social conflicts and sources of frictions with the neighbouring community or the locals
- Finding out any sources of social and physical nuisances for the project or the local community

The above-mentioned studies included visits and physical surveys of the site and the nearby populations within a radius of 1 km from the site. The social surveys were carried out through random selection of the beneficiaries and the stakeholders. The nearby residents and the businesspersons, being the important stakeholders, were consulted in particular to solicit their views over various aspects of the project facility. Direct interviewing and soliciting the requisite information by asking short questions was found the best mode of eliciting the requisite information. The collective public gatherings were found another effective mode of procuring the requisite information. By and large, the stakeholders and the persons, who were consulted during the EIA, welcomed construction of the plant as being beneficial for them from all angles and aspects.

## 6.2 Physical Environment

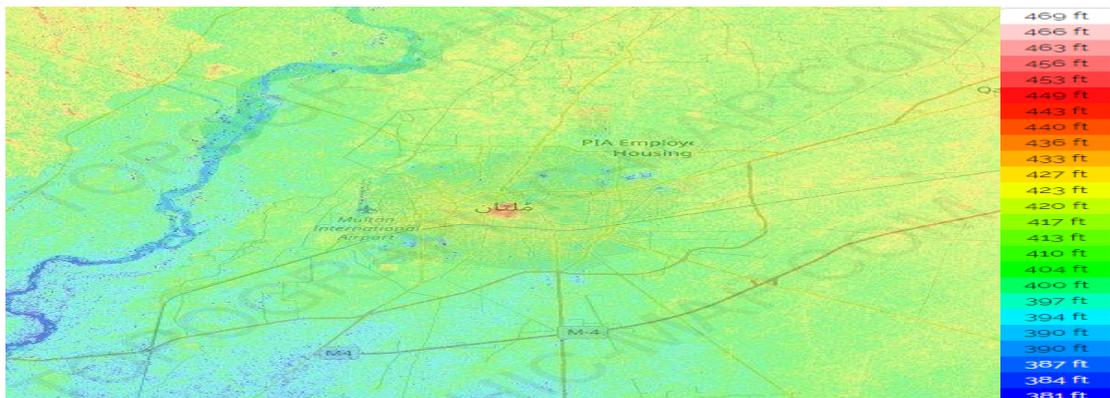
The study examines the physical resources, topography, soil, climate, surface and ground water and geology not only of the project site but also the city as whole to assess whether the project under review can or does impact on any of these parameters.



**Figure:** Map of District Multan

### 6.2.1 Topography and Soil

Multan is located in a bend created by five rivers of central Pakistan. The Sutlej River separates it from Bahawalpur and the Chenab River from Muzaffar Garh. The area around the city is a flat, alluvial plain that is used for citrus and mango farms. Multan is Pakistan's 5th most populous city and is the premier cultural and economic center of southern Punjab. Multan is a commercial and industrial centre, as it is connected with the rest of the country through rail and air. The city occupies expanding area of around 781 square kilometers of the land with an elevation of 122 m. The project area comprised of soil in the surrounding which is fertile thereby supports cultivation. There is no presence of rocks in the vicinity of the project area.

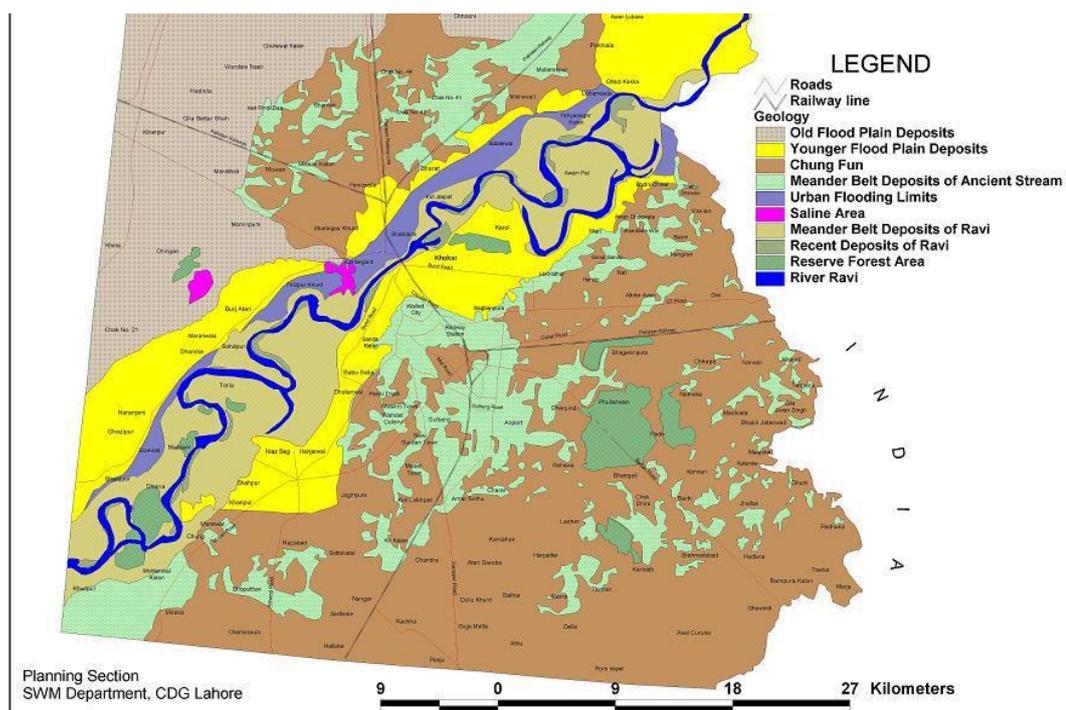


**Figure:** Topography of District Multan

## 6.2.2 Geological Formation and Soil

The soil of the Multan is of alluvial in nature and sand is everywhere met up to a few feet below the surface. District Multan is destitute of mineral wealth. Saltpetre (potassium nitrate) is manufactured on a small scale and a little kankar is found here and there on the surface. Soil of Multan is enriched with Illite, Quartz, Calcite, Vermite, Chamosite, Dolomite and Epidote constituents. No impact on soil envisaged because no excavation or deep ditching activities are under scope of work of this scheme.

These alluvial deposits comprise earthy brown to brown silt, clay and sand. The beds are largely hard, laminated and sandy with interbeds of clay and layers or lenses of sand. Geological map of the Study Area is given in Figure below. Project site is located in meander belt deposits.



**Figure:** Geological Map of the Multan

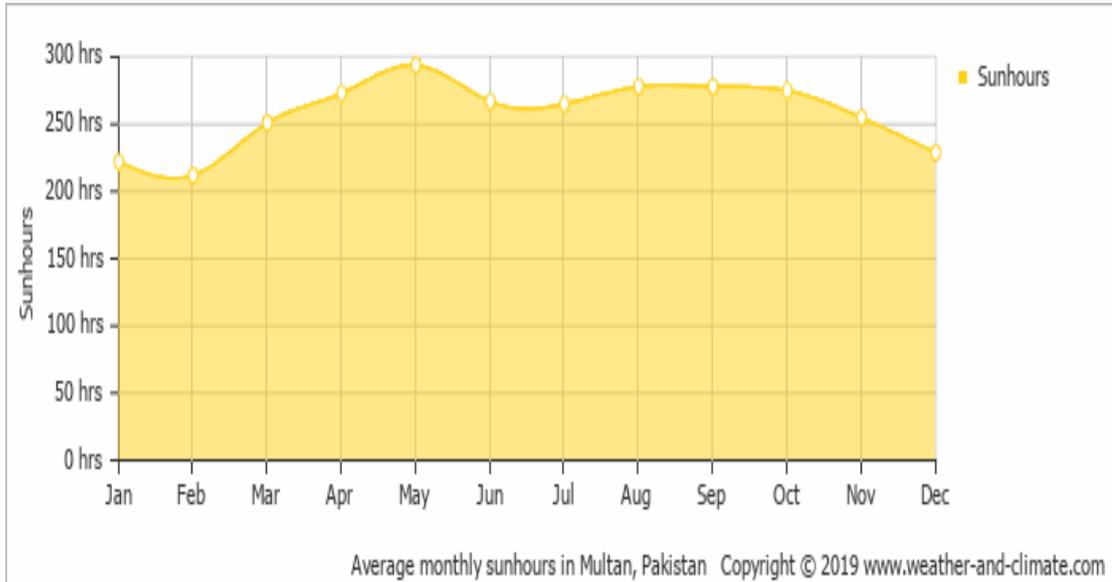
The soil is different in character and generally inclined to be dry. However, it is rich in potential plant nutrients. Rainfall is low and groundwater is saline and brackish at the shallow depth and irrigation is largely dependent on the canals. Tube wells have also been sunk at the greater depths in the Project Area where fresh water is available.

## 6.2.3 Climate

Seasonal climatic conditions must be considered for the design and execution of Project. The climate including air, temperature, precipitation, humidity and evaporation is an influencing factor, affecting the construction of plant and other engineering structures. However, to determine the overall effect of the climatic stresses, daily and seasonal temperature changes, site altitude, direct solar radiation, and precipitation must be considered. The climate of Multan is typical of that of southern Punjab. Multan has one of the most extreme climates in Pakistan. Summers are very hot and arid while

winters can be very cold at night. Dust storms are a common occurrence in the city, and the monsoon rains, from June to September, can be severe.

The winter seasons lasts from November to March. December, January and February are the coldest months. The mean maximum and mean minimum temperature ranges from 19.8 °C to 5.9 °C in January. Temperatures in the Project Area vary from 5.9 °C to 40.4 °C.

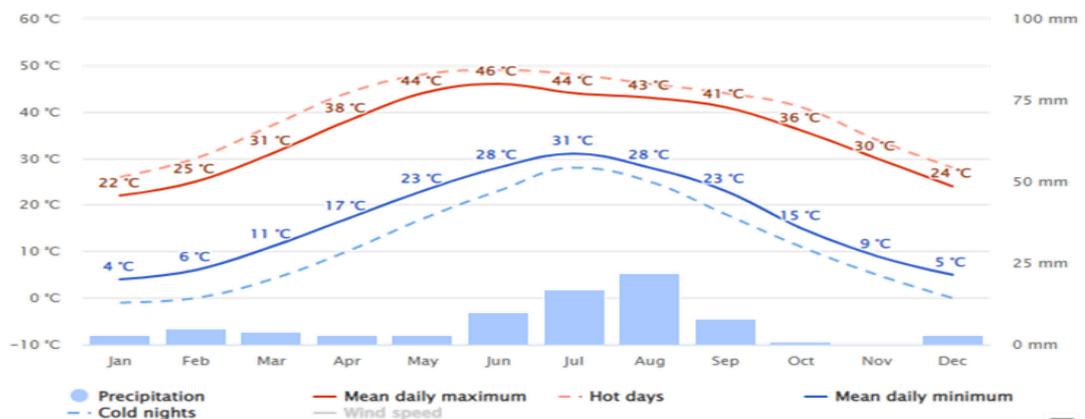


**Figure:** Average Monthly Sunshine Hours in Multan

The people of Multan have to experience extremes of temperature. The summers are really hot and the winters are very cold. There are three main seasons in Multan, namely, summer, winter and rainy season. During the summers Multan experiences heat waves.

**6.2.4 Temperature**

Over the course of a year, the temperature typically varies from 5 °C to 30 °C and is rarely below 5 °C or above 45 °C.



**Figure:** Average annual temperature and precipitation

### 6.2.5 Precipitation

The probability that precipitation will be observed at this location varies throughout the year. Precipitation is most likely around July and September and Precipitation is least likely around May and October.

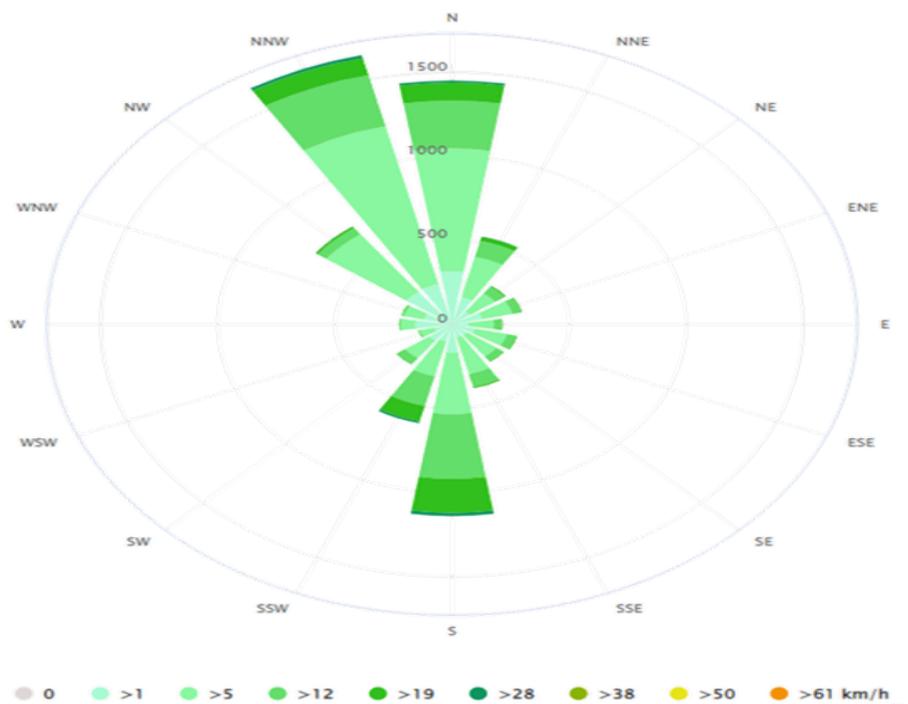
### 6.2.6 Rainfall

The rainy season starts in July and ends in September. Annual rainfall is 398 millimeters. More rains occur in July and August than in any other months. Monthly precipitations above 150mm are mostly wet, below 30mm mostly dry. Most of the winter rains are received in the months of March and April. The climate in Multan is called a desert climate. Following graphs show the average temperature and rainfall in Multan.

### 6.2.7 Wind Direction and Speed

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

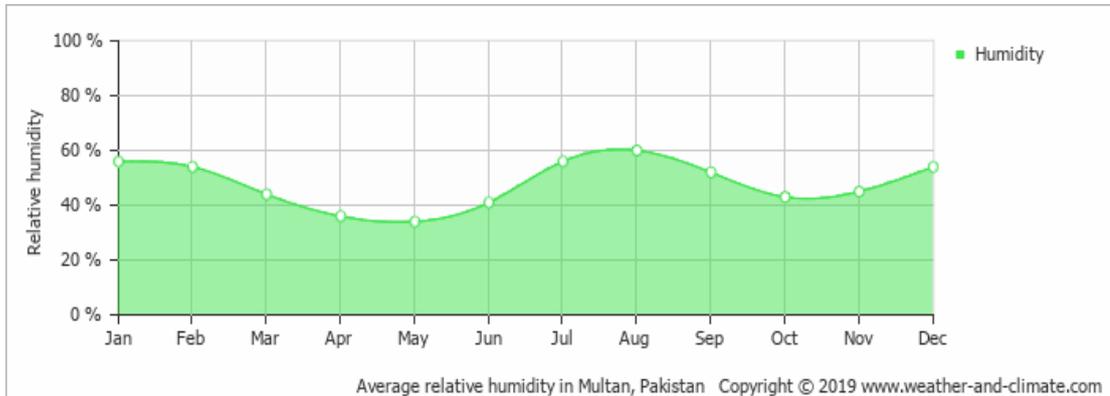
The average hourly wind speed at Multan experiences significant seasonal variation over the course of the year. The windier part of the year lasts for 3.6 months, from May 21 to September 8, with average wind speeds of more than 6.9 miles per hour. The windiest day of the year is June 28, with an average hourly wind speed of 9.1 miles per hour. The calmer time of year lasts for 8.4 months, from September 8 to May 21. The calmest day of the year is October 19, with an average hourly wind speed of 4.7 miles per hour.



**Figure:** Wind direction and speed in proposed project site, Multan

### 6.2.8 Humidity

On average, August is the most humid in Multan, while on average, May is the least humid month. The average annual percentage of humidity is: 48.0%. The mean monthly relative humidity over the year in Multan is given below in the figure.



## 6.3 Environmental Monitoring Data

### 6.3.1 Ambient Air Quality

Air quality in the project area appears good based on observation during the study period. There are no industrial pollution sources present in the vicinity. The other major source of air pollution is dust arising from construction and other ground or soil disturbance. Near the access roads, when vehicles pass, dust levels will increase. The nearby road is paved but dust levels are elevated when vehicles pass intermittently over the roads based on field observations and may be high enough to obscure vision significantly based on observations.

### 6.3.2 Noise Level

Noise from vehicles and other powered mechanical equipment is intermittent. There are also occasional calls to prayer from the local mosques but there are no significant disturbances to the quiet urban setting. However, the construction from the proposed project will use powered mechanical equipment. Subjective observations were made of background noise and also of individual vehicle pass by events.

According to a survey it was observed that noise level was an average of 75 dB(A) and average noise level in industrial area was recorded as above 120 dB(A). The affluent areas of Multan are quieter than rest of the city; the noise level in these areas is still far higher than the standards set by the World Health Organization and the Pak-EPA. Noise pollution in the city is on the rise with most residents complaining that the noise is becoming a public nuisance.

## 6.4 Water Sources

### 6.4.1 Surface Water

There are no surface water resources like canal or ponds, near the project area.

#### **6.4.2 Regional Flow Pattern and Condition of Groundwater**

The regional groundwater flow in the area is from northeast, the Jammu and Kashmir foothills which are at higher elevation, towards the southwest along the general slope of the area.

The previous studies and behavior of existing shallow and deep tube wells in the area have shown that in spite of local variation, aquifer overall behaves as a single homogeneous water body and 73 % of the total consists of sand. This condition is during the monsoon season, when the water table is the high and the annual fluctuation is reported not more than 10 feet.

The chemical quality of ground water in the district varies in different areas and at different depths. The strata near the project site are water bearing and alluvial deposits, giving groundwater potential throughout the project area and the water table is about 550 ft below the surface. There is no surface water body present on or near the project site. Therefore, there should be no impact on these sources of water during the construction. Groundwater sample was taken from the project site and later sent to the Lab for testing.

### **6.5 Ground Water**

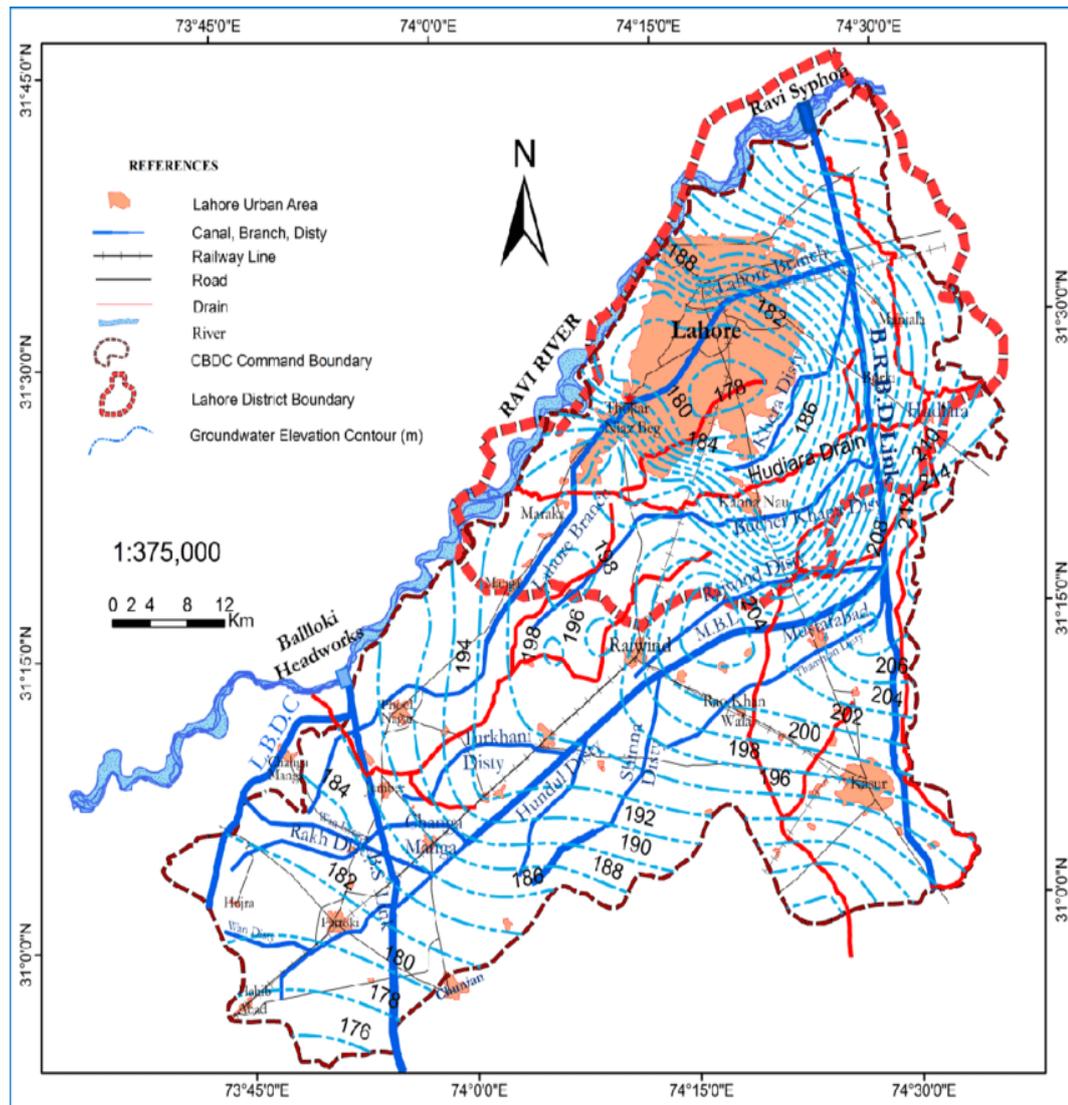
Ground water quality is fresh (defined as acceptable in terms of its salinity). Raw water abstracted from the deep tube wells is believed to be essentially bacteria free.

The water quality in the upper 50 meters zone of subsoil is generally brackish. For city's drinking purposes water is abstracted from groundwater aquifer by means of tube wells located throughout the city. The quality of water is generally adequate for direct consumption. About 83% of city population is consuming groundwater for drinking purposes.

Groundwater is available at a depth ranging between 15 to 23m below the natural surface level. Deep groundwater from a depth of about 210ft in the vicinity of the Project Area is being extracted for meeting the domestic and commercial water demands in nearby areas. Adequate quantity of good quality groundwater is available below a depth of 50m.

Water consumption varies significantly and its variation as of industrial units. Usual water consumption pattern for industrial units and data collected from the prospective industrialist will form basis for total water demand.

Ground water is the principal source of municipal water supply in Multan. This is also the case in the immediate vicinity of the site. The City's drinking water is obtained from groundwater aquifer by means of tube wells located throughout the area. Groundwater is pumped from 400-800 feet and is generally good for direct consumption. About 83% of the city's population is consuming groundwater for drinking purposes.



**Figure:** Groundwater contours of Multan

## 6.6 Drinking Water Quality

WASA (Water and Sanitation Agency Multan) is providing drinking water to the residents of Multan. WASA claims the quality of water conform to the Drinking Water Standards.

The results of the groundwater analysis showed that all the parameters were within the limits as prescribed in WHO guidelines.

The increase in population will have direct impact on the water sector for meeting the domestic, industrial and agricultural needs. Pakistan has now essentially exhausted its available water resources and is on the verge of becoming a water deficit country. The quality of water supplies in many cities of Pakistan is deteriorating fast. Over pumping of groundwater due to extended drought has affected the water quality adversely.

## 6.7 Seismology

According to Seismic Zoning Map of Pakistan the proposed project area falls in Seismic Zone 2A. This map indicates zones according to the Building Code of Pakistan – 2007. Figure presents the WHO Seismic Hazard Map of Pakistan clearly depicting Multan in a category of medium intensity level.

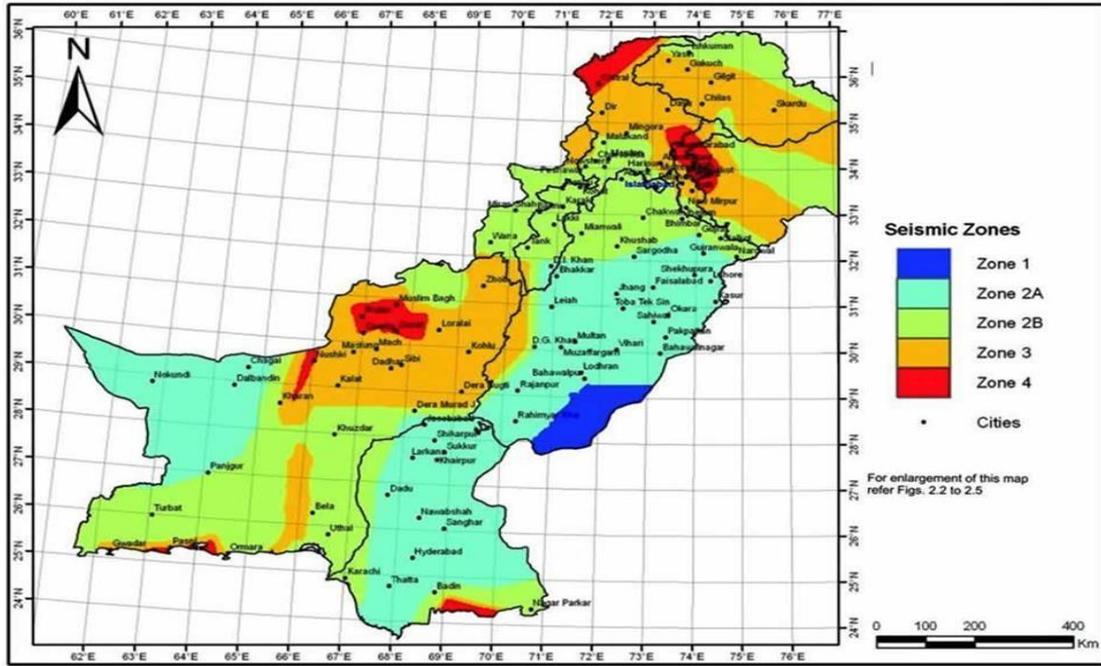


Figure: Seismic Zoning Map of Punjab

## 6.8 Biological Environment

A survey of the local biological environment was conducted which includes the study of flora and fauna of the project area. Section below explains the findings based on the social survey conducted during site visit.

### 6.8.1 Flora

No threatened or endangered species and medicinal plants are present in the project area. No vegetation or plants will be removed due to commencement of project. However proper tree plantation and green belts are planned by the proponent. Greenery and trees are present in surroundings of site too.

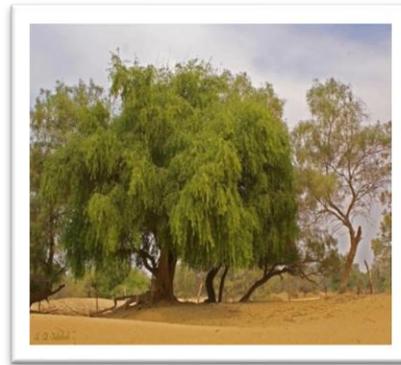
Table: Inventory of some Flora of Multan

SR.NO	COMMON NAME	SCIENTIFIC NAME
1	Indian Lilac	<i>Azadirachta indica</i> L.
2	Ber	<i>Ziziphus mauritiana</i> Lamk
3	Yellow	<i>Terminalia chebula</i> Retz.

4	Temple plant	<i>Crataeva adansonii</i> DC.
5	Bombax	<i>Bombax ceiba</i> Linn.
6	Bistula	<i>Cassia fistula</i> Linn.
7	India laburnum	<i>Acacia nilotica</i> (Linn.)Delile.
8	Indian banyan	<i>Ficus benghalensis</i> Linn.
9	Buddha tree	<i>Ficus religiosa</i> Linn.
10	Benzoil tree	<i>Moringa oleifera</i> Lam.
11	Devil tree	<i>Alstonia scholaris</i> (L.) R.Br.
12	Rosewood	<i>Dalbergia sissoo</i> Roxb.
13	Mango	<i>Mangifera indica</i> L.
14	Spanish cherry	<i>Mimosa pudica</i> L.
15	Jujube	<i>Ziziphus zizyphus</i> Mill.



Dalbergia sissoo



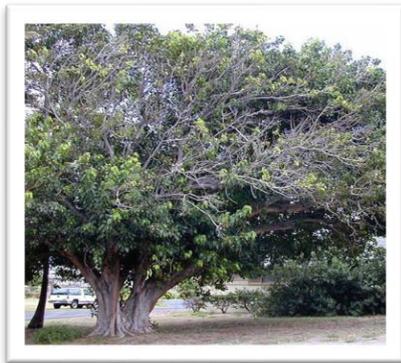
Salvedora persica



Ficus benghalensis



Ficus religiosa



Ficus infectoria



Ficus glomerata



*Albizzia procera*



*Artocarpus integrifolia*



*Albizzia lebbek*



*Artocarpus lakoocha*



*Azadirachta indica*



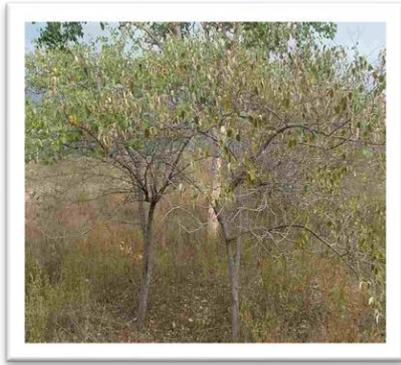
*Bischofia javanica*



*Dillenia indica*



*Meringa oleifera*



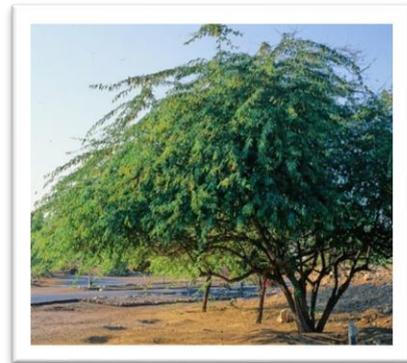
Ziziphus mauritiana



Tecoma undulata



Cassia alata



Prosopis juliflora



Tamarix articulata



Magnolia grandiflora

**Endangered Species of flora**

There are few floral species which are at the risk of extinction. Table below shows the list of endangered and prohibited floral species.

**Table:** Endangered and prohibited floral species

SR. NO.	ENDANGERED SPECIES	PROHIBITED SPECIES
1.	Salvedorapersica	Broussonetiapapyrifera
2.	Ficusbengalensis	Salmaliamalabarica
3.	Ficusreligiosa	Populusnigra/Alba
4.	Ficusenfactoria	Nerium odorum
5.	Ficusglomerata	Thevetianerifolia

6.	Albbiziaprocera	
7.	Albizzia lebbek	
8.	Anogeissusacuminit	
9.	Artocarpusintegrifolia	
10.	Artocarpuslakoocha	
11.	Azadirachtaindica	
12.	Bischofiajavanica	
13.	Berser Serrata	
14.	Dilleniaindica	
15.	Meringa oleifera	
16.	Prosopis spiligera	
17.	Ziziphusmauritiana	
18.	Cassia alata	
19.	Jaguiniaaristata	
20.	Tecomaundalata	
21.	Prosopis juliflora	
22.	Tamyrix articulate	
23.	Magnolia grandiflora	

### 6.8.2 Fauna

With an increase in the rate of urbanization, the ecology of Multan has been considerably affected and population of birds in Multan has reduced to just 85 including the endemic and migratory ones. Three types of migratory birds are regular visitors to Punjab's provincial metropolis. These are winter visitors, summer visitors and transit migrants. Some of Resident species include Indian grey hornbill, yellow-footed green pigeon, parakeets, bulbuls, doves, spotted owlet, Old World babblers, Old World flycatchers, mynas, woodpeckers, crows, black kites, ashy prinia, redstarts, warblers, red-wattled lapwing, kingfishers, and the Oriental white-eye.

**Table:** Inventory of some Fauna of Multan

SR.NO.	COMMON NAME	SCIENTIFIC NAME
1	Intermediate Egret	<i>Egretta intermedia</i>
2	Indian-Pond Heron	<i>Ardeolagravii</i>
3	Red-Wattled Lapwing	<i>Hoplopterusindicus</i>
4	Common Sandpiper	<i>Actitishypoleucos</i>
5	White Wagtail	<i>Motacilla alba</i>
6	Yellow Wagtail	<i>Motacillaflava</i>
7	Red-vented Bulbul	<i>Pycnonotuscafer</i>
8	House Sparrow	<i>Passer domesticus</i>
9	Common Myna	<i>Acridotherestrictis</i>
10	Bank Myna	<i>Acridotheresginginianus</i>
11	Pied Myna	<i>Sturnus contra</i>
12	House Crow	<i>Corvussplendens</i>

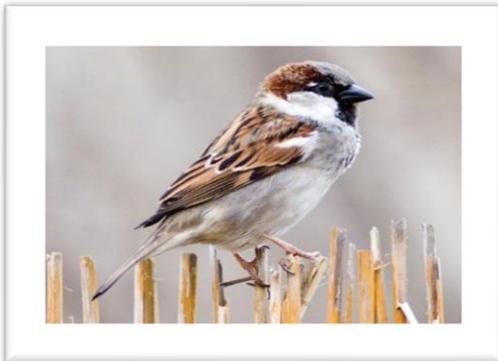
13	Nectariniaasiatica	<i>Purple sunbird</i>
14	Black Drongo	<i>Dicrurusmacrocersusvieillot</i>
15	Black kite	<i>Milvus migransmigrans</i>
16	Blue rocky pigeon	<i>Columba livia</i>
17	Little brown dove	<i>Streptopeliasenegalensis</i>
18	White-breasted Kingfisher	<i>Halcyon smyrnensis</i>
19	Little Green Bee eater	<i>Meropsorientalis</i>
20	Golden-backed woodpecker	<i>Dinopiumbenghalense</i>
21	Hoopoe	<i>Upopaepops</i>
22	Pheasant-tailed jacana	<i>Hydrophasianuschirurgus</i>



Intermediate Egret



Indian-Pond Heron



House Sparrow



Common Myna



Red-Wattled Lapwing



Common Sandpiper



Bank Myna



Pied Myna



White Wagtail



Yellow Wagtail



House Crow



Nectarinia asiatica



Red-vented Bulbul



Black Drongo



Black Kite



Blue rocky pigeon



Little brown dove



White-breasted Kingfisher



Little Green Bee eater



Golden-backed woodpecker



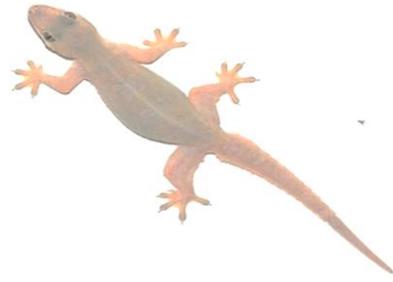
Hoopoe



Pheasant-tailed jacana



Russel's Viper



Lizard



Squirrel



Rat



Softshell Turtle



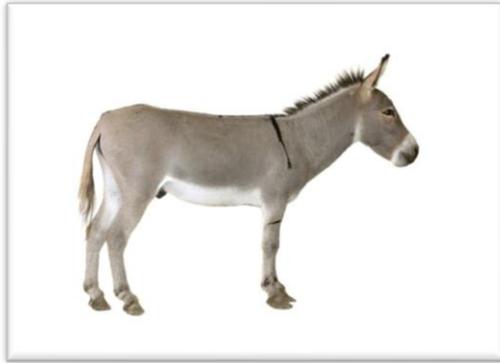
Frog



Toad



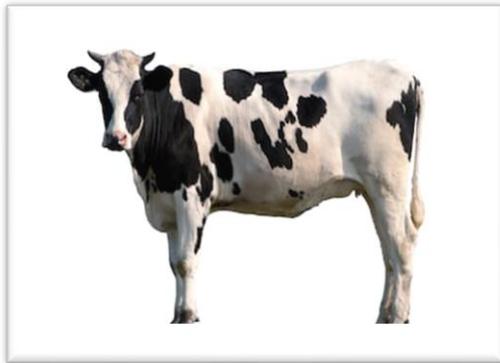
Horse



Donkey



Mule



Cow



Buffalo

Some birds and few animals like Buffaloes, cows, goats, donkeys, hens, rats, cats and dogs are present in the vicinity of proposed site. Some reptiles like lizards are also present. The only amphibian seen the project area is frog. No threatened or endangered species are found in the project site. Similarly, no wildlife is present.

### 6.8.3 Wildlife Sanctuaries and Game Reserves

No wildlife sanctuary or Game Reserve is located in the vicinity of the study area.

### 6.8.4 Critical Habitats

No wild life sanctuary or game reserve (Critical Habitats), exists near the project area or the study area and therefore it can be stated that this project does not affect any critical habitat as, no critical habitat is located close to the project area.

## 6.9 Socio-economic Assessment

Social change is the consequence of almost any intrusion into the community life of any society. The intrusion can be in the form of any developmental projects or nonspecific, less tangible forms such as increased exposure to other cultures, technological changes and so on. The social change that results from intrusion into community life can also be beneficial, but can have undesirable or negative outcomes. Even that change in the long run may have positive effect on the social well-being of a community.

Social Impact Assessment is a methodology used for examining social change due to external sources, especially specific developmental projects, but also government

policies, technological changes and social processes or anything that has a social impact.

The objectives of the given study are outlined as follow:

- To carry out the assessment of social impact.
- Acquire socioeconomic data to evaluate and identify the project interventions.
- Assess needs of community related environmental concerns.
- To assess adverse and beneficial socioeconomic and health impacts of the activity.
- To suggest remedial measures and solutions to improve socio economic conditions.
- To analyze socio economic conditions of community, with special reference to environment and conservation of natural resources.

## **6.10 Demographic Profile of Multan**

The village profile reflects the basic socio-economic conditions of local people. These parameters indicate the needs of society while planning the the aforesaid project. The village profile has been obtained by meeting with community representatives who are well aware about their surroundings. The consultant, with his team, visited project area and study area in order to identify the socio-economic and environmental aspects of project.

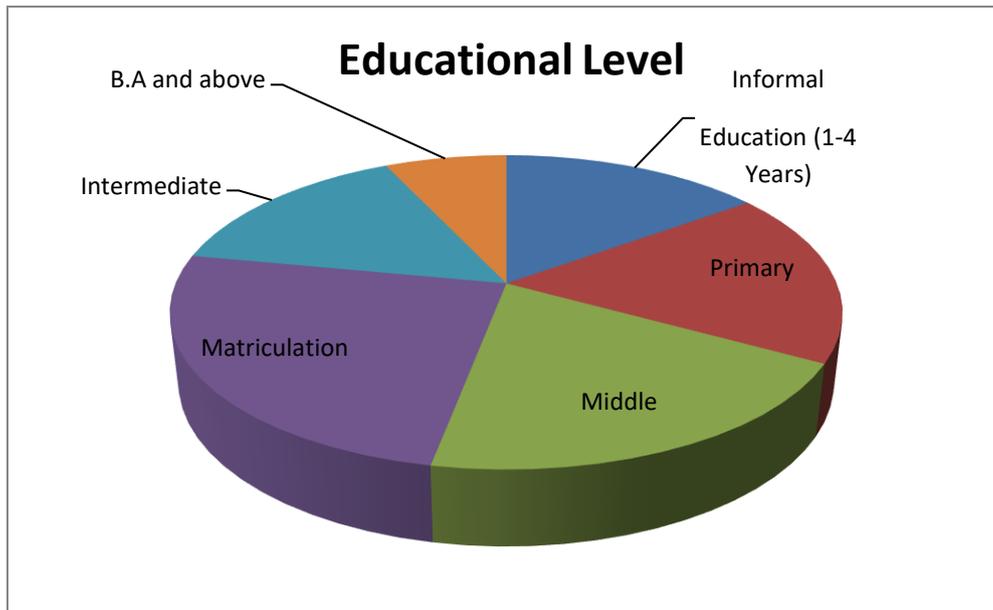
### **6.10.1 Health Facilities**

Multan city in Punjab Province of Pakistan is served by a number of private and government hospitals offering world class medical facilities. The rural and urban areas are served by various other medical centers and dispensaries offering modern medical facilities. The hospitals, dispensaries and medical centers in Multan aim to provide the citizens best medical facilities and prevention from contagious and other harmful diseases.

### **6.10.2 Educational Facilities**

According to the data collected with the help of a questionnaire, education level of the people living there was as follows:

As regard to the level of educational attainment 15% respondents were having informal education (1-4 years). Another 18% and 20% of respondent were up to primary and middle level, respectively. However, 25% of respondents were matric, while remaining 15% of respondents were had education up to intermediate and 7% were B.A and above.



**Figure:** Educational Graph of Multan

### 6.10.3 Transportation and Communication

Public transport is available in the project area. The public transport terminals there are plenty of rickshaws and taxis are available which run on compressed natural gas to reduce pollution in the city and of course the few residents and site owners have their own conveyances.

The government has built underpasses to ease congestion and prevent traffic jams, and according to official figures, Multan transportation services have improved to accommodate the growing number of visitors to the city. It is well connected by air to other countries as well as all major cities of Pakistan. Buses, trains, taxis, and rickshaws are the other means of transport available in Multan. Multan is linked with the rest of the country by rail and roads. It lies on the National Highway, which connects Karachi with rest of the country. The district headquarters Multan is connected with metaled roads to its entire subsidiary headquarters. The eastern and south-eastern belt of the district is comparatively developed with good road transportation.

### 6.10.4 Railways

Pakistan Railways provides an important mode of transportation for commuters and connects distant parts of the country with Multan for business, sight-seeing, pilgrimage, and education.

### 6.10.5 Industrial Activities

Multan is known as the industrial belt of Pakistan contributing the largest share in the GDP of the country. The city is home to 20% of Pakistan's industrial producers; manufactures include textiles, rubber, iron, and steel. Handicrafts, especially gold and silver work, also flourish.

**6.10.6 Water Supply**

An easy access to potable / safe drinking water is one of the basic human rights and needs.

**6.10.7 Electric Supply**

There are 46 grid stations in the district ranging in capacity from 132 KV to 220 KV in the district.

**6.10.8 Telephone Facilities**

There are 69 telephone exchanges operating in the district, ranging in capacities from 1000 lines to 55,752 lines. Cellular phone services are available in the district.

**6.10.9 Quality of Life Values**

Quality of life (QOL) is the general well-being of individuals and societies. QOL has a wide range of contexts, including the fields of international development, healthcare, politics and employment. Quality of life should not be confused with the concept of standard of living, which is based primarily on income.

**6.10.10 Mother Tongue**

Saraki and Punjabi are the predominant languages spoken in the district.

**6.10.11 Religion**

The population of the district is predominantly Muslims i.e. 93.9 percent. The next higher percentage is of Christians with 5.8 points followed by Ahmadis 0.2 percent. While other minorities like Hindu etc. are very small in number.

**6.10.12 Traditional Crafts**

Multan city is well known for a wide variety of arts and crafts namely embroidery work, silver and gold jewelry, brass and ivory inlay, hand knitted carpets, block / screen printing, etc.

## SECTION- 7

### IMPACT ASSESSMENT

This section contains information regarding the risk assessment.

#### 7.1 Problem and its Occurrence

On the basis of the findings of the EIA, it is concluded that the project will not pose any adverse impact on the local population and the environment. A proper management plan shall be prepared in case of an accident like;

- Any health hazard to workers/other persons during construction or operation phase.
- Gaseous emissions to the environment.
- Inappropriate waste handling.

As mention above that, the project will not pose any adverse impacts to the environment. An assessment of impact during construction and operation phase is given in Table below - which indicates the impact and their magnitude.

**Table:** Anticipated Impacts and their magnitude of the Proposed Project

Environmental Components	Physical Environment												Biological Environment							Social Environment						
	Agricultural Lands	Soil (Erosion/Stability)	Housing	Cultural/Religious Properties	Infrastructure	Mineral Resources	Downstream River Flows	Flooding	Surface water quality	Groundwater quality	Air quality	Noise	Aquatic Ecosystem	Wetland Ecosystem	Terrestrial Ecosystem	Endangered Species	Natural Flora	Wildlife	Disease Vectors	Public Health/Safety	Land Use	Communication System	Employment	Community Stability	Cultural and Religious Value	
<b>Construction Phase</b>																										
Construction Camp site	N A	L A	O	O	O	O	N A	N A	O	L A	L A	O	O	O	O	O	O	L A	O	O	L A	O	LB	O	O	
Digging and excavation activities	N A	L A	O	O	O	O	N A	N A	O	O	L A	L A	O	O	O	O	O	O	O	O	O	O	LB	O	O	
E&M of Equipments	N A	L A	O	O	O	O	N A	N A	O	O	L A	L A	O	O	O	O	O	O	O	O	L A	O	O	M B	O	O

Vehicular Movement	N A	L A	O	O	O	O	N A	N A	O	L A	LA	M A	O	O	O	O	O	O	O	LA	L A	O	O	LA	O
Machinery and Equipments work	N A	L A	O	O	O	N A	N A	N A	O	O	LA	M A	O	O	O	O	O	O	O	LA	L A	O	LB LA		O
<b>Operation Phase</b>																									
Solid Waste	N A	L A	O	O	O	N A	N A	N A	O	L A	O	O	O	O	O	O	O	O	O	LA	O	O	O	O	O
Fire Fighting Arrangement	N A	O	O	O	O	N A	N A	N A	O	O	O	O	O	O	O	O	O	O	O	H B	O	L B	LB	M B	O
Health and safety	N A	O	O	O	O	N A	N A	N A	O	O	O	O	O	O	O	O	O	O	O	H B	O	L B	LB	M B	O
Waste water	N A	L A	O	O	O	N A	N A	N A	O	L A	O	O	O	O	O	O	O	O	O	LA	O	O	O	O	O

LA: Low Adverse

MA: Medium Adverse

HA: High Adverse

NA: Not Applicable

O: None or Insignificant

LB: Low Beneficial

MB: Medium Beneficial

HB: High Beneficial

ND: Not Determinable

## 7.2 General

This section identifies the potential impacts; related with design, construction and operation of the project on the physical, ecological and socio-economic domains of the environment. Accordingly, mitigation measures have also been proposed to manage the environment and for sustainable development. Strict environmental management will be observed during the project construction and regular operation phases. Legal requirements of the PEPA and the PEQS will be the rating standard for the activities. Compliance with the EMP and EMTP, as per recommendations in this IEE report will be adhered to with full spirit. The project proponent is filing with the EPA Punjab, written Affidavit, and Undertaking on judicial papers, that the project throughout its life will operate under Environmental Management Order. Under these conditions, the project at its all stages including from construction to the regular operation will go in compliance with the PEQS. The project activities will, therefore, neither adversely affects the population nor the environment around the project site.

## 7.3 Environmental Problems due to the Project Design

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

## 7.4 Environmental Problems due to the Project Location

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

## 7.5 Environmental Problems Associated with Construction and Operation

The construction will also sometimes go round the clock, therefore, during all construction activities the followings will be the major pollutants/wastes or project related pollution aspects:

**Table:** Project Impacts Associated with Construction

Possible Impact	Impact Magnitude	Proposed Mitigation Measures
Dust emissions likely to occur during the excavation of the topsoil and loading and transportation of the construction waste.	Minor / Short Term	<ul style="list-style-type: none"> <li>Watering all active construction areas when necessary.</li> <li>Cover all trucks hauling soil, sand and other loose</li> </ul>

		<p>materials or require all trucks to maintain at least two feet of freeboard. Pave, apply water when necessary, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites.</p> <ul style="list-style-type: none"> <li>• Sweep daily (with water sweepers) all paved access roads, parking areas and staging areas at construction sites.</li> <li>• Fast growing trees will be planted around the project area to act as a windbreaker to reduce the particulate matter.</li> <li>• Provision of PPEs to workers.</li> </ul>
Hydrology and water quality degradation due to Storm-water runoff from the site and excavation.	Minor / Short Term	<ul style="list-style-type: none"> <li>• Installation of the septic tank.</li> <li>• The proponent will prepare a hazardous substance control systems and emergency response plans that will include preparations for quick and safe clean-up of accidental spills.</li> </ul>
Oil spills from machines to be used on site and vehicles.	Minor / Short Term	The contractor will control the dangers of oil spills during construction by maintaining the machinery in specific areas designed for this purpose hence will not be a serious impact as a result of the construction.

<p>Noise pollution due to the moving machines (mixers, tippers, communicating workers) and incoming vehicles</p>	<p>Minor / Short Term</p>	<ul style="list-style-type: none"> <li>• Install portable barriers to shield compressors and other small stationary equipment where necessary.</li> <li>• Use quiet equipment (i.e. equipment designed with noise control elements). Install sound barriers for pile driving activity.</li> <li>• Limit pickup trucks and other small equipment, observe a commonsense approach to vehicle use and encourage workers to shut off vehicle engines whenever possible</li> </ul>
<p>Workers accidents and hazards during construction.</p>	<p>Minor / Long Term but reversible</p>	<ul style="list-style-type: none"> <li>• Provision of appropriate and adequate Personal Protective Equipment (PPE) to employees.</li> <li>• Enforcement and proper use of PPE by all construction workers.</li> <li>• Provision of appropriate tools, equipment, and machinery in sound working conditions to employees.</li> <li>• Proper arrangement of lighting to reduce accidents.</li> <li>• Development of clear policies on treatment of injured personnel.</li> </ul>

**Table:** Project Impacts Associated with Operation

Possible Impact	Impact Magnitude	Proposed Mitigation Measures
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Solid waste production during the operational activities.	Major / Long term	<ul style="list-style-type: none"> <li>• Solid waste generated from the cleaning of the rollers will be handed over to EPA approved contractor for environmentally safe and sound disposal.</li> <li>• Solid wastes generated from offices will be disposed of properly to avoid any threat to the environment.</li> <li>• The contractors to whom any waste recyclable material is to be sold shall be fully made aware of the environmental impacts and health effects of the waste to be sold to him if there is any.</li> </ul>
Gaseous emission	Minor / Short Term	<ul style="list-style-type: none"> <li>• Boiler stack will be equipped with appropriate pollution control devices to control the emissions.</li> </ul>
Noise will be generated from the operation of machinery.	Minor / Short Term	<ul style="list-style-type: none"> <li>▪ Workers will be provides with ear plug and PPEs.</li> <li>▪ Noise reduction measures like buffering of noise through trees should be adopted where deemed necessary to reduce the noise level at the project boundary.</li> </ul>
Disruption of water quality due to mixing of oils, grease, and lubricants during operations	Minor / Short Term	<ul style="list-style-type: none"> <li>• Water quality monitoring should be carried out at the site. Parameters to be monitored at all locations should include the same as prescribed by the PEQS.</li> <li>• On-site storage of fuel, engine oil and lubricants (if any) shall be in locked tanks,</li> </ul>

		sealed and shadow-roofed area.
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**7.6 Potential Environmental Enhancement Measures**

As described above the worth mentioning wastes will be scrap waste, municipal solid waste and sludge. In order to secure and enhance environment, the following measures will be adopted:

**Solid waste & effluent management**

Solid wastes are likely to scrape waste, municipal solid waste and sludge from foodstuffs eaten by employees and from Septic Tank. The proponent will address all waste in the following ways:

- Rainwater disposal will be done through the adequate system to be provided at all levels of the project building.
- Sewage will be discharged to the main sewerage system; after its treatment and also getting the permission from the competent authority.
- Sale of recyclables and reusable materials to minimize waste for disposal.
- Establishing a waste generation and collection register for tracking the disposal of waste.
- All hazardous chemicals will be stored in original containers for ease of identification and handling.
- Appropriate PPE will be provided, and usage at all times ensured, to the workers handling hazardous substances

**7.7 Ways of achieving mitigation measures**

**7.7.1 Changing in Planning and Design**

No such change is required in the planning and design of the project as it does not have any significant impact.

**7.7.2 Improved Monitoring and Management Practices**

There shall be a suitable program of monitoring and maintenance. There will be proper firefighting and health and safety plan. Any improvement in monitoring and management practices shall be addressed to concerned authorities.

**7.7.3 Compensation in Money Terms**

There is no compensation in money terms as the land is already owned by the Project Proponent. Land documents are submitted for the same.

**7.7.4 Replacement, Relocation, and Rehabilitation**

There will be no matter of replacement, relocation, and rehabilitation as the proposed site is already owned by the project proponent. There will not be any let regarding safety factors as applicable from time to time for such buildings on all accounts.

## SECTION - 8

### ANTICIPATED ENVIRONMENTAL IMPACTS & MITIGATION MEASURES

The following chapter will describe the overall possible impacts of said project on the physical, biological and socioeconomic environment due to the location, Design, during construction phase, during operation phase of the project and mitigation measures to minimize the significance of the possible impacts. The anticipated impacts related to this project have been assessed and mitigation measures provided accordingly.

#### 8.1 General

This section identifies the potential impacts; related with design, construction and operation of the project on the physical, ecological and socio-economic domains of the environment. Accordingly, mitigation measures have also been proposed to manage the environment and for sustainable development. Strict environmental management will be observed during the project construction and regular operation phases. Legal requirements of the PEPA and the PEQS will be the rating standard for the activities. Compliance with the EMP and EMTP, as per recommendations in this EIA report will be adhered to with full spirit. The project proponent is filing with the EPA Punjab, written Affidavit, and Undertaking on judicial papers, that the project throughout its life will operate under Environmental Management Order. Under these conditions, the project at its all stages including from construction to the regular operation will go in compliance with the PEQS. The project activities will, therefore, neither adversely affects the population nor the environment around the project site.

#### 8.2 Environmental Problems due to the Project Design

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

#### 8.3 Environmental Problems due to the Project Location

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

## 8.4 Environmental Problems Associated with Construction Phase of Project

The construction will also sometimes go round the clock, therefore, during all construction activities the followings will be the major pollutants/wastes or project related pollution aspects:

**Table:** Project Impacts Associated with Construction

Possible Impact	Impact Magnitude	Proposed Mitigation Measures
Dust emissions likely to occur during the excavation of the topsoil and loading and transportation of the construction waste.	Minor / Short Term	<ul style="list-style-type: none"> <li>• Watering all active construction areas when necessary.</li> <li>• Cover all trucks hauling soil, sand and other loose materials or require all trucks to maintain at least two feet of freeboard. Pave, apply water when necessary, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites.</li> <li>• Sweep daily (with water sweepers) all paved access roads, parking areas and staging areas at construction sites.</li> <li>• Fast growing trees will be planted around the project area to act as a windbreaker to reduce the particulate matter.</li> <li>• Provision of PPE to workers.</li> </ul>

Possible Impact	Impact Magnitude	Proposed Mitigation Measures
Hydrology and water quality degradation due to Storm-water runoff from the site and excavation.	Minor / Short Term	<ul style="list-style-type: none"> <li>• Installation of the septic tank.</li> <li>• The proponent will prepare a hazardous substance control systems and emergency response plans that will include preparations for quick and safe clean-up of accidental spills.</li> </ul>
Oil spills from machines to be used on site and vehicles.	Minor / Short Term	The contractor will control the dangers of oil spills during construction by maintaining the machinery in specific areas designed for this purpose hence will not be a serious impact as a result of the construction.
Noise pollution due to the moving machines (mixers, tippers, communicating workers) and incoming vehicles	Minor / Short Term	<ul style="list-style-type: none"> <li>• Install portable barriers to shield compressors and other small stationary equipment where necessary.</li> <li>• Use quiet equipment (i.e. equipment designed with noise control elements). Install sound barriers for pile driving activity.</li> <li>• Limit pickup trucks and other small equipment, observe a common sense approach to vehicle use and encourage workers to shut off vehicle engines whenever possible</li> </ul>

Possible Impact	Impact Magnitude	Proposed Mitigation Measures
Workers accidents and hazards during construction.	Minor / Long Term but reversible	<ul style="list-style-type: none"> <li>• Provision of appropriate and adequate Personal Protective Equipment (PPE) to employees.</li> <li>• Enforcement and proper use of PPE by all construction workers.</li> <li>• Provision of appropriate tools, equipment, and machinery in sound working conditions to employees.</li> <li>• Proper arrangement of lighting to reduce accidents.</li> <li>• Development of clear policies on treatment of injured personnel.</li> </ul>

## 8.5 Environmental Problems Associated with Operational Phase of Project

During all operational activities the followings will be the major pollutants/wastes or project related pollution aspects:

**Table:** Project Impacts Associated with Operation of the Project

Possible Impact	Impact Magnitude	Proposed Mitigation Measures
Solid waste production during the operational activities.	Major / Long term	<ul style="list-style-type: none"> <li>• There will be no generation of process related solid waste. The only solid waste generated from offices will be disposed of properly to avoid any threat to the environment.</li> <li>• The contractors to whom any waste recyclable material is to be sold shall be fully made aware of the environmental impacts and health effects of</li> </ul>

Possible Impact	Impact Magnitude	Proposed Mitigation Measures
		the waste to be sold to him if there is any.
Noise will be generated by the operation of machinery to be used.	Minor / Long Term	<ul style="list-style-type: none"> <li>▪ Noise reduction measures like buffering of noise through trees should be adopted where deemed necessary to reduce the noise level at the project boundary.</li> </ul>
Air Emissions will be generated from standby generator	Minor / Long Term	HVAC Equipments are used to reduce the emissions and clean the air
Disruption of water quality due to mixing of oils, grease, and lubricants during operations	Minor / Short Term	<ul style="list-style-type: none"> <li>• Water quality monitoring should be carried out at the site. Parameters to be monitored at all locations should include the same as prescribed by the PEQS.</li> <li>• On-site storage of fuel, engine oil and lubricants (if any) shall be in locked tanks, sealed and shadow-roofed area.</li> </ul>

## 8.6 Potential Environmental Enhancement Measures

Protecting the environment is essential for the health of our planet, and there are many potential environmental enhancements measures that individuals, businesses, and governments can take to improve our environment. At the individual level, people can reduce their carbon footprint by taking public transportation, recycling, and using reusable products such as shopping bags and water bottles. Additionally, individuals can reduce their energy consumption by using energy-efficient appliances and using renewable energy sources such as solar and wind power.

As described above the worth mentioning wastes will be scrap waste, municipal solid waste and sludge. In order to enhance environment, the following measures will be adopted:

**Solid waste & effluent management**

Solid wastes are likely to be municipal solid waste and sludge from foodstuffs eaten by employees and from effluent treatment plant (ETP). The proponent will address all waste in the following ways:

- Rainwater disposal will be done through the adequate system to be provided at all levels of the project building.
- Sewage will be discharged to the main sewerage system; after its treatment and also getting the permission from the competent authority.
- Sale of recyclables and reusable materials to minimize waste for disposal.
- Establishing a waste generation and collection register for tracking the disposal of waste.
- All hazardous chemicals will be stored in original containers for ease of identification and handling.
- Appropriate PPE will be provided, and usage at all times ensured, to the workers handling hazardous substances

## SECTION - 9

# ENVIRONMENTAL MANAGEMENT PLAN & MONITORING PROGRAM

### 9.1 Purpose and Objectives of the EMP

The primary objectives of the EMP are to:

- Facilitate the implementation of the mitigation measures identified in the EIA
- Define the responsibilities of the project proponent.
- Define a monitoring mechanism and identify monitoring parameters in order to:
- Ensure the complete implementation of all mitigation measures
- Ensure the effectiveness of the mitigation measures
- Provide a mechanism for taking timely action in the face of unanticipated environmental situations.
- Identify training requirements at various levels.

### 9.2 Environmental Management Plan

The EMP provides mitigation and management measures for the following phases of the project:

#### 9.2.1 Construction Phase

This section of EMP provides management principles for the construction phase of the project. Environmental actions, procedures, and responsibilities as required within the construction phase are specified. These specifications will form part of the contract documentation and therefore, the contractor will be required to comply with the specifications to the satisfaction of the Project Manager and Environmental Control Officer, in terms of the construction contract.

#### 9.2.2 Operation and Mitigation Phase

This section of EMP provides management principles for the operation and maintenance phase of the project. Environmental actions, procedure, and responsibilities are required from proponent within the operation and maintenance phase are satisfied.

### 9.3 Schedule of Implementation and Environmental Budget

The implementation of an EMP will be based on ISO guidelines for continuous improvement environment management.

### 9.4 EMP implementation stages

To implement an EMP, four steps will be taken:

**Stage I. Environmental Planning.** Planning is one of the most important stages in the process of building and implementing EMP. For this the following must be determined:

- The organization's environmental policy;
- Environmental matters;
- Legal procedures and other requirements;
- General objectives and specific targets;
- Environmental management program, including;
  - designation of responsibility for achieving objectives and targets at each relevant function and level of the organization;
  - the means and the time to be achieved.

**Stage II. Implementation and operation.** For an effective implementation of the environmental management plan, the organization will develop resources and support mechanisms necessary to perform environmental policy, objectives and targets in this domain.

For the implementation of an EMP the following must be defined:

- Structure and accountability;
- Training and awareness;
- Documentation of the EMP;
  - Document control;
  - Operational control);
  - Prevention (emergency preparedness and response capacity).

**Stage III. Checking and corrective action.**

This step is a key element of the environmental management, which comes after planning and implementation of the environmental policy. The organization will control and correct, where appropriate, key elements of the environmental management. The organization will monitor and evaluate its environmental performance by;

- Monitoring and measurement;
- Non-conformity, corrective action and preventive action;
- Recordings (reports);
- Environmental management system audit (internal and external).

**Stage IV. Management analysis.** The organization will analyze and continuously improve its environmental management, aimed at improving overall performance. These analyzes can be made with the analyzes quality management system done by the leadership.

To maintain continuous improvement, fitness and effectiveness of the EMP, and through this, its performance, the organization management will review and assess the EMP at defined intervals. The management review will ensure that the necessary information is collected to allow management to continue this assessment.

This review shall be documented. Management review will address the possible need to change the strategy, objectives or other elements of the Environmental Management, in light of the audit systems of environment management results, changing circumstances and the commitment to continuous improvement. Reviewing the strategy, objectives and procedures will be carried out at the managerial level which defined them.

The review shall include:

- the audit results;
- the extent to which they achieved objectives and targets;
- continuous convenience of the EMP related to the changing information and conditions.

The implementation requires the involvement of all staff of the organization, whatever level of seniority and functions involved, and especially the employment of a dynamic and cyclic process of continuous improvement and self-assessment of environmental impacts.

The management cost that has to be spending on the mitigation measures has been estimated and is included in the following table.

**TABLE:** Environmental Management Cost

<b>Sr. No</b>	<b>Component</b>	<b>Particulars</b>	<b>Estimated Cost</b>	<b>Allocation Capital Investment</b>	<b>Allocation Recurring Expenditure</b>
1.	Water Pollution Control	Installation of in-house treatment facility comprising of primary & secondary treatment.	10,00,000	15,00,000	1,00,000
2.	Occupational Health, Safety & Environment	Glares, Breathing Masks, Gloves, Boots, Helmets, Ear Plugs etc. & annual health-medical checkup of workers and water filtration plant	10,00,000	12,00,000	2,00,000

Sr. No	Component	Particulars	Estimated Cost	Allocation Capital Investment	Allocation Recurring Expenditure	
3.	Noise Pollution Control	Installation of anti-vibration pads.	1,00,000	1,50,000	--	
4.	Waste Management	Disposal of hazardous waste.	--	--	1,00,000	
5.	Green Belt	Green belt development & maintenance	1,00,000	1,50,000	1,00,000	
6.	Energy conservation	Installation of solar street lights within project premises	3,00,000	5,00,000	--	
7.	Environment Monitoring	Environment Monitoring Parameters	--	--	4,00,000	
		Emissions from standby generator				All parameters as required by EPA
		Noise of working area				--
		Effluents	All parameters as required by EPA			
<b>Total (Rs.) =</b>			<b>25,00,000</b>	<b>35,00,000</b>	<b>9,00,000</b>	

### 9.5 Environmental Management Team along with their Roles and Responsibilities

The proponent will make sure the implementation of EMP through its qualified team of professionals. The trainings will be arranged as required for the implementation of the Environmental Management and Monitoring Program.

Sr. No	Designation	Responsibility
1	Assistant Manager	To ensure legal requirements are addressed in legal register and implemented. Conduct frequent review of legal requirements and other requirements and record the compliance review. Communicate with senior management and arrange meetings regarding required actions for the legal compliances.
2	SHE Engineer / Assistant Manager	To conduct EHS risk assessment of all activities in plant (routine and non-routine) in liaison with operations. Ensure frequent review of risk assessments and verify implementation of control measures. To implement recommended practices for conservation of natural resources.
3	SHE Engineer	To assist central EHS in conducting all relevant internal and external communication.

## 9.6 Environmental Monitoring Program

The monitoring program is designed to ensure that the requirements of the NOC awarded by the EPA are met. Monitoring Program (MP) provides important information that allows for more effective planning and an adaptive response based on the assessment of the effectiveness of mitigation measures. The monitoring of various parameters will help to determine the extent to which project construction/operation activities will cause an environmental disturbance. Following is a tentative plan for environmental monitoring.

**Table:** Environmental Monitoring Program

Environmental segment / element	Monitoring parameters	Reference location / monitoring point	Monitoring frequency
<b>CONSTRUCTION PHASE</b>			
Water Quality	As prescribed by the Punjab Environmental Drinking Water Quality Standards	Main Drinking Water Source	Quarterly
Ambient Air Emissions	Dust, smoke, PM, SO <sub>x</sub> , NO <sub>x</sub> , CO,	Use of generators, movement of materials, digging or excavation	Quarterly

Wastewater including Sewage	Ensure that all wastewater is treated to the level set by the PEQS-Pakistan.	The sewage or sanitary wastewater by the campsite and use for other construction activities	Quarterly
Noise	The Levels prescribed as in Punjab environmental quality standards	The noise produced by the machinery during construction work.	Quarterly
Solid Waste Disposal	Ensure that all wastes are disposed of according to legal requirements	The waste material, rubble and solid waste produced by the construction activities	Quarterly

## 9.7 EMP Reporting and Reviewing Procedures

The EMP is intended to be a ‘living’ document that will be responsive to changes in construction plans, stakeholder priorities and research results. Notwithstanding the evolution of the document in response to an expanding knowledge base, the logic behind the EMP should remain. Amendments to the EMP may require engagement with relevant stakeholder groups. As a minimum, the EMP will need to be reviewed and, if necessary, revised in conjunction with changes to the construction and operation phase. Changes to the construction and/or operation schedule or methods, and recommendations based on the performance monitoring of the control measures, will necessitate changes to the EMP. The performance of the EMP should be audited periodically (annually).

### 9.7.1 Environmental Monitoring

A schedule of statutory and internal monitoring requirements for the site is to be included. Monitoring is to be carried out in accordance with the Monitoring and Reporting schedule.

### 9.7.2 Reporting

Various statutory and internal reports will need to be prepared and submitted to assist in monitoring and advising on environmental performance. Examples that are applicable to the operation phase include:

#### Monthly internal monitoring report

A quarterly report is required. This is to be included with contract administration documentation. This report will include a summary and an analysis of monitoring results collected following the previous month’s report along with the third-party monitoring reports. Areas of concern are to be reported together with corrective actions (if required). The report will include provision for the following.

- Environmental Incidents and Corrective Actions
- Environmental Monitoring
- Audits and Regulatory Non-conformances
- Land Management (including clearing and rehabilitation)
- Water Management
- Waste Management
- Stakeholder Engagement
- Community and Safety Monitoring
- Community and Safety Incidents and Corrective Actions
- Licenses and Legislation.

### **9.7.3 Annual internal environmental audit report**

An Annual Internal Environmental audit and Social (Sustainability) Report is required. This report will compile information from the quarterly monitoring reports into one document.

### **9.7.4 Records**

All records shall be stored in an electronic format and retained for a period of not less than five years.

### **9.7.5 Auditing**

Periodic audits (internal as well as third party) will be undertaken. The audits will be of the systems and, importantly, of the environmental outcomes.

### **9.7.6 Management review**

A management review of the EMP will be carried out annually with third party assistance.

## **9.8 Need of Training to Implement EMP**

Periodic training will be carried out by the proponent with the help of third-party consultant to ensure the implementation of the EMP. Furthermore, the auditing process will be formulated to check the overall performance of the EMP.

**Table: ENVIRONMENTAL MANAGEMENT PLAN (CONSTRUCTION PHASE)**

Sr. No.	Project Component/ Impact	Project Activities	Targets to be Achieved	Mitigation/ Preventive Action	RESPONSIBILTIIY	
					Implementation	Monitoring
<b>CONSTRUCTION PHASE</b>						
1.	<b>Air Quality</b>	Storage, Handling, and Transport of Material	Compliance with prescribed PEQs to control air pollution	<ul style="list-style-type: none"> <li>Necessary measures like a sprinkling of water on a regular basis, especially during dry climatic conditions, should be taken to limit pollution from dust and other windblown materials.</li> <li>Periodic maintenance and management of all the construction machinery and vehicles</li> <li>Waste burning will not be allowed.</li> </ul>	During Construction Phase by Contractor with coordination of Proponent staff	Proponent Consultant
2.	<b>Water Quality</b>	Sanitation and wastewater disposal at campsite Storage, Handling and Oil spills due to rough handling of the materials.	Control of groundwater or surface water pollution from construction activities	<ul style="list-style-type: none"> <li>Use of spill prevention trays and impermeable sheets to avoid contamination of the groundwater/surface water.</li> <li>Furthermore, septic tanks will need to be constructed which will be cemented to prevent the groundwater contamination.</li> </ul>	During Construction Phase by Contractor with coordination of Proponent staff	Proponent Consultant

		Stagnant water causes diseases and bad odor problems. Construction work on water body increases the risk to water quality.		<ul style="list-style-type: none"> <li>• Proper disposal of waste material on dumping sites to avoid leachate generation and contamination of groundwater/surface water Prohibit illegal dumping of waste.</li> <li>• The contractor will repair/replace / compensate for any damages caused by the Construction activities to the drinking water source/s.</li> </ul>		
3.	<b>Waste</b>	Generation and Disposal of Solid waste near campsite. Dust and particulate matter emissions due to excavation digging and during other construction activities of the project	Proper & safe handling and disposal of Construction related waste Compliance with applicable waste management rules for hazardous and non-hazardous waste disposal Implementation of waste management	<ul style="list-style-type: none"> <li>• Ensure prevention of inappropriate disposal of waste material.</li> <li>• Conduct separate collection of construction and office waste to promote recycling and re-use.</li> <li>• Dispose of non-recyclable and hazardous waste material properly according to waste management rules.</li> <li>• Proper disposal of waste on agreed site as per agreed method. The area to be leveled and contoured after disposing of the excess material.</li> </ul>	During Construction Phase by Contractor with coordination of Proponent staff	Proponent Consultant

			plan	<ul style="list-style-type: none"> <li>No waste or debris will be thrown into the nearest canal water or other water bodies.</li> <li>The contractor will prepare waste management plan related to construction activities; get its approval from site engineer and ensure its full implementation.</li> </ul>		
4.	<b>Noise</b>	Haulage Roots and Movement of Construction Vehicles. The use of heavy machinery and equipment causes noise. Noise generated by generator.	Compliance with prescribed NEQs to control Noise pollution	<ul style="list-style-type: none"> <li>The contractor will strictly follow the PEQS for ambient noise</li> <li>Control noise through control of working hours and selection of less noisy equipment.</li> <li>Prohibit use of pressure horns</li> <li>Provision of acoustic enclosures (hood and shrouds) on generator</li> <li>Proper maintenance of vehicles and construction equipment.</li> <li>Minimize/avoid unnecessary use of pneumatic drills and other noisy machinery.</li> </ul>		Proponent Consultant

				<ul style="list-style-type: none"> <li>The personal protective equipment (PPE) will be provided to the construction workers and its usage will be made mandatory During Construction Phase by Contractor with coordination of Proponent staff</li> </ul>		
5.	<b>Materials Management</b>	Transport of Hazardous Material (oils, Oil products). Storage areas for the hazardous material and other construction material.	Safe and secure environment for construction workers	<ul style="list-style-type: none"> <li>Stockpiles shall not be situated such that they obstruct natural water pathways.</li> <li>Stockpiles shall not exceed 2m in height unless permitted by Concerned Engineer on site.</li> <li>If stockpiles are exposed to windy conditions or heavy rain, they shall be covered either depending on the duration of the project. Stockpiles may further be protected by the construction of low brick walls around their bases.</li> <li>All substances required for vehicle / machinery maintenance and repair must be stored in sealed containers until they can be disposed of / removed from the site.</li> </ul>	During Construction Phase by Contractor with coordination of Proponent staff	Proponent Consultant

				<ul style="list-style-type: none"> <li>• Hazardous substances / materials are to be transported in sealed containers or bags.</li> <li>• Spraying of insecticide shall not take place under windy conditions</li> </ul>		
6.	<b>Workers Health &amp; Safety</b>	Risk of damage to worker health Risk of any damage by machine, chemicals, liquid waste etc. can be reduced by using safety signs at construction site and campsite	Prevention of any possibility of work site accident/impact on worker's health	<ul style="list-style-type: none"> <li>• Provision of Personal Protective Equipment to the workers.</li> <li>• Provision of first aid box at work site to cope with emergency situation.</li> <li>• Safety training to the workers.</li> <li>• Safe driving training to the drivers.</li> <li>• Adequate safety signs on site.</li> <li>• Provide training regarding proper handling and use of chemicals/ paints.</li> <li>• Install fire extinguishers at fire handling places.</li> <li>• Inspect and ensure that any lifting devices, such as cranes, are appropriate for expected loads.</li> </ul>	During Construction Phase by Contractor with coordination of Proponent staff	Proponent Consultant

				<ul style="list-style-type: none"> <li>Any loss of public/ private property will be compensated by the contractor.</li> <li>Regular checks should be carried out to ensure a contractor's is following safe working procedures and practices.</li> </ul>		
7.	<b>Socioeconomic Impacts</b>	Conflicts between locals may arise during construction activities	Prevention of conflicts among locals and make the project socially acceptable Empowerment of locals to possible extent Increase in employment and business opportunities for locals	<ul style="list-style-type: none"> <li>Contractor's activities and movement of staff to be restricted to designated construction areas.</li> <li>The conduct of the construction staff when dealing with the public or other stakeholders shall be in a manner that is polite and courteous all the time.</li> <li>Lighting on the construction site shall be pointed downwards and away from oncoming traffic.</li> <li>The site must be kept clean to minimize the visual impact of site.</li> <li>Machinery and vehicles are to be kept in good working order for the</li> </ul>	During Construction Phase by Contractor with coordination of Proponent staff	Proponent Consultant

				<p>duration of the project to minimize noise nuisance to neighbors.</p> <ul style="list-style-type: none"> <li>Noisy activities must be restricted to the times given in the Project Specification or General Conditions of contract.</li> <li>The Contractor is responsible for ongoing communication with those people that are interested in / affected by the projects.</li> <li>Employ local residents as much as possible.</li> </ul> <p>Promote communication between external workers and local people (e.g. join local events).</p>		
8.	Clearance of site from extra/surplus material and construction equipment	The cutting of trees or flora of the site. Removing extra soil by excavation and digging	Restoration of site to a similar condition prior to the commencement of the work or to a condition agreed with the project management	<ul style="list-style-type: none"> <li>Timely removal of waste from the site to avoid congestion at workplace.</li> <li>Construction waste should be collected and disposed separately of other waste. Care will be taken during handling and disposal of waste.</li> </ul>	During Construction Phase by Contractor with coordination of Proponent staff	Proponent Consultant

			and landscaping of the site	<ul style="list-style-type: none"> <li>• Contaminated soil (if generated) due to accidental spills will be removed and transported to the suitable site for disposal.</li> <li>• Safe transportation of construction equipment from the site.</li> <li>• The contractor must ensure that all structure, equipment, materials, and facilities used or created on site for/or during construction activities are removed.</li> <li>• Empty/available space will be covered with grassy lawns.</li> <li>• Use of native vegetation as a part of the landscape. Ornamental plant species like roses, jasmine, and seasonal flowers can be used in proposed landscaping, which is a common practice in this part.</li> </ul>		
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**TABLE: ENVIRONMENTAL MANAGEMENT PLAN (OPERATIONAL PHASE)**

Sr. No.	Project Component / Impact	Project Activities	Targets to be Achieved	Mitigation / Preventive Action	RESPONSIBILTIIY	
					Implementation	Monitoring
<b>OPERATIONAL PHASE</b>						
1.	Solid waste	The waste produced is specifically the municipal solid waste.	Compliance with waste management rules. Proper Management of waste. Prevention of inappropriate waste disposal	The contractors to whom any waste recyclable material is to be sold shall be fully made aware of the environmental impacts and health effects of the waste to be sold to him if there is any.	HSE Executive of Project / Proponent	Proponent
2.	Noise Impacts	The noise generated by machinery and standby generator	Compliance with prescribed PEQS to control Noise pollution	<ul style="list-style-type: none"> <li>• Noise will be generated from the standby generator.</li> <li>• Proper covering of standby generator, to reduce the noise.</li> <li>• Noise reduction measures like buffering of noise through trees</li> </ul>	HSE Executive of Project / Proponent	Proponent

				<p>should be adopted where deemed necessary to reduce the noise level at the project boundary.</p> <ul style="list-style-type: none"> <li>Mitigation measures during operation for noise impacts on workers will include standard occupational health and safety practices</li> </ul>		
3.	Water quality	The proper disposal of the sewage water into the drains	Compliance with wastewater standards of PEQS	<ul style="list-style-type: none"> <li>Installation of ETP so any wastewater produced complies with wastewater standards of PEQS</li> <li>Runoff water is collected in the pond and after appropriate treatment will be utilized for horticulture</li> </ul>	HSE Executive of Project / Proponent	Proponent

**TABLE: ENVIRONMENTAL MANAGEMENT PLAN (DE-COMMISSIONING PHASE)**

Project activities	Type of impact	Potential impacts on environment	Extent / Magnitude	Mitigation Measure	Institutional Responsibility	
					Implementing body	Supervision
<b>DE-COMMISSIONING PHASE</b>						

Project activities	Type of impact	Potential impacts on environment	Extent / Magnitude	Mitigation Measure	Institutional Responsibility	
					Implementing body	Supervision
Noise Generation	Physical, Social & Biological	Nuisance to Local community	Less/ adjacent area	<ul style="list-style-type: none"> <li>Carrying out the decommissioning works only during the specified time where permissible levels of noise are high and acceptable.</li> <li>Vehicles should be maintained regularly to reduce noise resulting from friction.</li> <li>Providing workers with PPEs such as earmuffs</li> </ul>	Contractor	Proponent
Demolition waste generation	Physical, Social & Biological	Disturbance to local community	Less	<ul style="list-style-type: none"> <li>Removing reusable and recyclable material from the building before demolition to minimize the amount of waste.</li> <li>Making available suitable facilities for the collection, segregation and safe disposal of the wastes.</li> </ul>	Contractor	Proponent
Emission of Air Pollutants	Physical, Social & Biological	Disturbance to surrounding environment and local community	Less/adjacent area	<ul style="list-style-type: none"> <li>Using efficient equipment and machines with efficient engines meaning low emission.</li> </ul>	Contractor	Proponent
OSH Risks	Physical & Social	Health hazards to workers	Less	<ul style="list-style-type: none"> <li>Ensuring all storage parts are labelled.</li> </ul>	Contractor	Proponent

Project activities	Type of impact	Potential impacts on environment	Extent / Magnitude	Mitigation Measure	Institutional Responsibility	
					Implementing body	Supervision
				<ul style="list-style-type: none"> <li>Raising awareness and educating workers on risks from equipment and ensuring they receive adequate training on the use of the equipment.</li> <li>Providing the workers with adequate PPEs and monitoring regularly</li> </ul>		

## **9.9 Emergency Response Plan & Evacuation / Exit Plan**

### **9.9.1 Emergency Response Plan**

The objective of this plan is to prepare the workers at the project site to rescue from various emergencies that may occur at the workplace during the operation or else activities at project site.

#### **9.9.2 Scope**

This plan assesses risks, assign roles and responsibilities, and outlines steps to be followed in any emergency situation. It increases understandings of employees in the handling of different types of emergencies which may occur at the project site.

#### **9.9.3 Types of Emergencies**

Enlisted below are some emergencies which may occur at workplace/dormitories:

- Fire Hazards
- Chemical/Oil/ spillage
- Hazardous / Toxic Gas Release
- Extreme Weather Conditions
- Earthquake
- Flood

#### **9.9.4 Responsibilities**

The overall responsibility lies with EHS Manager supported by Departmental Heads/BUM's/Country Security Manager. Central EHS Team will be overall responsible for implementation of ERP Plan. EHS Manager and Departmental (EHS Rep) will be responsible for emergency preparedness that includes the availability of resources, training of staff and monitoring and maintenance of emergency equipment's and conduction of drills.

#### **9.9.5 Response Measures**

- M/S Prime Agro Chemical Fertilizer Industries will maintain a dedicated emergency response department equipped with fire tenders along with all required emergency handling accessories. Fire water network mains coupled with hydrants will be encircling the whole premises. A pump maintains the network pressure at 100psi (7 Bar) in normal conditions. A fire diesel engine & electric driven pumps are also installed to maintain the fire network pressure at 7 Bar during the firefighting. A fire water reservoir capacity of approx. 100,000 USG firefighting is also located inside facility. Likewise, an overhead tank of capacity 12000 USG and a Chest of capacity 2,64,000 USG is also available.
- Scenario based emergency response drills & evacuation plans.

- Fire Extinguishers, fire alarm system, fire blankets, Hydrants & monitors, Eye washers, Hose reels, are installed in all buildings, plant areas and other offices.

### 9.9.6 Important Records

- HSE Executive / Security Officer / Supervisor must maintain the following updated records at all times:
  - List of staff trained in firefighting procedures.
  - Location of hazardous materials in each section.
  - List of evacuation zones and their assembly points.
  - Location of isolation switches/valves.
  - List of firefighting and first aid equipment available in each section.

### 9.9.7 Support Services

One electrician, one mechanic and four general workers (for salvage operations) will be arranged to ensure the necessary services to the unaffected areas continue and removal of any equipment etc. which may be affected by the incident.

### 9.9.8 Emergency due to Fire Hazards

#### 9.9.8.1 Fire Fighting System

The fire protection systems shall be designed as per NFPA codes:

- NFPA 101 – Life Safety Code,
- NFPA 14 – Stand Pipe and Hose system
- NFPA-22 – Standard for water tanks for fire protection
- NFPA-10 – Standard for portable fire extinguishers

The fire-fighting system shall include the following:

- External Fire Hydrant system
- Portable Fire extinguisher
- Self-triggered standalone type fire extinguisher filled with clean agent shall be provided in the Server room.
- Fire pumps and electrical control panel.

Water will be drawn from fire reserve tanks by electrically driven jockey pumps (independent for fire hydrant), electrical pumps & standby diesel engine driven pump into a common suction header for fire hydrants. Fire water network mains coupled with hydrants are encircling the whole premises. A jockey pump maintains the network pressure at 100psi (7 Bar) in normal conditions. A fire diesel engine & electric driven pumps are also installed to maintain the fire network pressure at 7 Bar during the firefighting.

## 9.10 Trainings

- All the workers and contractors will receive training in the general plan procedures and specific departmental procedures related to the plan. Training will cover evacuation procedures, incident discovery, notifications, basic firefighting, fire extinguishers and first aid.
- All supervisors will receive additional training, for the safety of personnel, visitors, and the protection of facility assets.
- All emergency response team members receive specialized training for the response to and handling of emergency situations that could occur at the facility.

EHS Department will develop the ERP training modules and arrange the trainings for different levels.

## SECTION – 10

### STAKEHOLDERS CONSULTATION

#### 10.1 General

General Public consultation refers to the process by which the concerns of local affected persons and others who have plausible stake in impacts assessment 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 proposed project installation and operation.
- To assess 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 proposed waste water treatment plant. Public consultation Performa's are attached in appendices.

#### 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 potential 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 concerns with

- ✓ Proponents Environmental Management Team
- ✓ The responsible authority
- ✓ Other departments and agencies
- ✓ Environmental practitioners and experts
- ✓ Affected and wider community

### **10.3 Proponents Environmental Management Team**

Consultation regarding “Installation of Pesticides Manufacturing Unit” situated at Plot no: 6-B Multan Industrial Estate, Multan was done with Proponent's Environmental management Team and anticipated impacts were discussed. Concerns of locals, Environmental Practitioners & experts and Government departments 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.

### **10.4 The responsible authority**

Overall responsibility for implementation of EMP will be that of project proponent. He will appoint an HSE / Project Manager of relevant qualification. HSE / Project Manager will act as Environmental Manager and will manage all HSE condition at the PEQS.

### **10.5 Other Departments and Agencies**

Different Government departments were consulted regarding Installation of Pesticides Manufacturing Unit by M/S Pak Pansy Private Limited of the proposed project.

## 10.6 Consultation with Government Departments

Consultation with Environmental Practitioners and experts was done and following comments and suggestions were observed. Following officers of government departments were consulted by the socio-environmental team of the consultants and concerned details about the project were noted down through personal interviews, group meetings, etc. in their offices. Their comments are given below in Table.

**Table:** Consultation with Government Departments

Sr.#	Participant	CNIC / Designation	Concerns / Remarks
<b>Environmental Protection Department</b>			
1.	Misbah ul Haq Lodhi	Deputy Director (Field), EPA	Following comments are summarized about proposed project:
2.	Zafar	Environmental Inspector	<p>Latest technology must be selected for efficient operation of treatment plant</p> <p>Wastewater should be treated effectively &amp; approval should be acquired from concerned agency before disposing off in nearby drain.</p> <p>HSE at the site should be managed effectively.</p> <p>Positive impact is being foreseen due to the selected location and project.</p> <p>Locals should be given job opportunity.</p> <p>Regular monitoring must be conducted to check efficiency of treatment plant and compliance.</p>
<b>Social Welfare Department</b>			
3.		Deputy Director Officer	Following comments are suggested by the Deputy

			<p>Director on the behalf Social Welfare Department:</p> <p>Locals must be hired</p> <p>Wages should be given according to the work assign to them.</p> <p>Life insurance of the workers should be given as well as all the facilities should be given as per labor laws.</p> <p>She appreciates installation of proposed project as it is environment friendly and will improve the sanitary condition of surroundings.</p>
Irrigation Department			
4.		Superintendent Engineer	<p>Following comments were suggested:</p> <p>Proper monitoring must be conducted to check compliance.</p> <p>Efficiency of treatment plant must be examined regularly.</p> <p>Beneficial as job opportunities will be available to the local residents.</p>
Forest Department			
5.		Divisional Forest Officer Multan	<p>Following recommendations were suggested by the forest department:</p> <p>Plantation and landscape activities should be carried out on broader scale.</p>

			Indigenous species such as, Arjan, Barna, Neem, Suharjna, Amaltas and Jaman should be planted.
*HSE= Health, Safety and Environment			

## Analysis of Stakeholder Consultation

### 10.6.1 Sample Size

Sample size was selected by the Team of consultants for conducting the socioeconomic survey. Women were also consulted for the said survey; some of their names are mentioned in the above list of respondents while most of them were not willing to give personal information.

### 10.6.2 Statistical Analysis

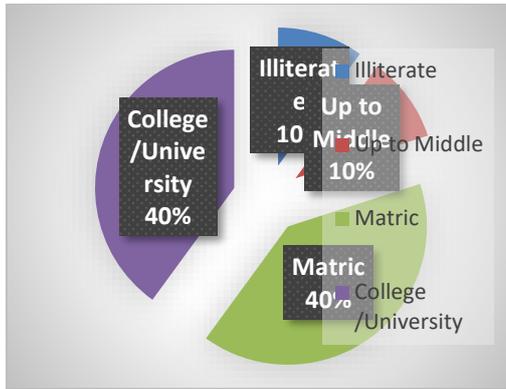
Statistical analysis of the data collected during the visit of study site villages through questionnaires.

### 10.6.3 Result and Discussion

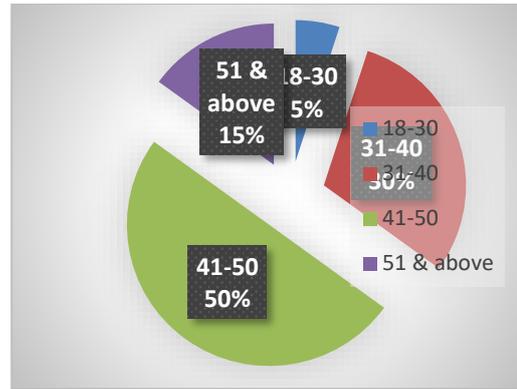
The socio-economic survey of the proposed project was conducted properly following guidelines. During the survey 50 people were interviewed out of which 20 persons were selected for this study. The 90% people are literate and matric and college / university qualified and 50% people are between 41-50 years old. According to the survey, 100 % of respondents were male. So, according to the survey overall education status of the area is good.

As per survey, 78 % people were satisfied with the project and they gave positive remarks regarding the existing unit and project as they got a job over there, their living standard raised over working there. While 13 % respondents were having no opinion regarding the project and 9% respondents were not satisfied with the production unit due to their concern regarding the aesthetic degradation and no preference to local people for jobs. Majority were in favor that no effect will be produced by this project.

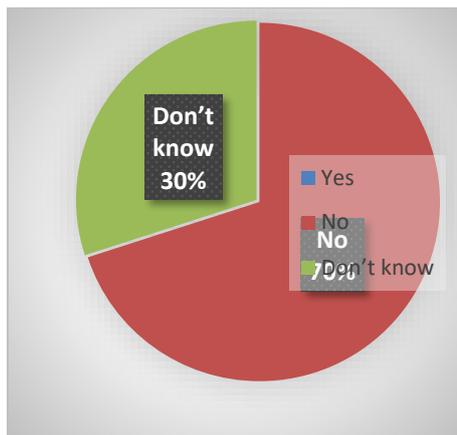
The 100% people interviewed were in favor of the project and heard about this project. The 70% people responded that there is no impact of the project on the water quality & quantity due to construction and operation of the project. Moreover, 65% of people's opinion is that project have no impact on soil quality. The survey analysis reflected that there is no or minor impact on air quality (smoke, rise in temperature, visibility issue etc.) and nearby population problem (irritation, sleeping problems) which will be controlled by the installation of proper pollution control devices and also there will be no problem of traffic congestion.



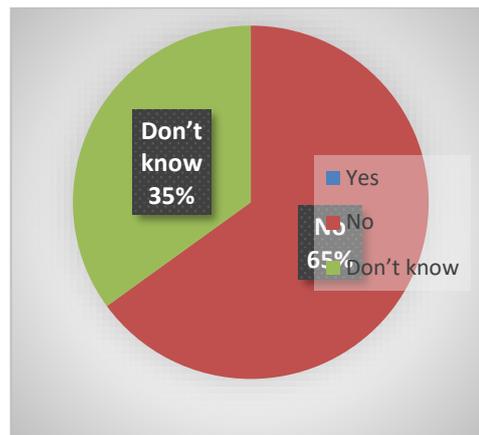
**Fig.:** Literacy rate of interviewed persons



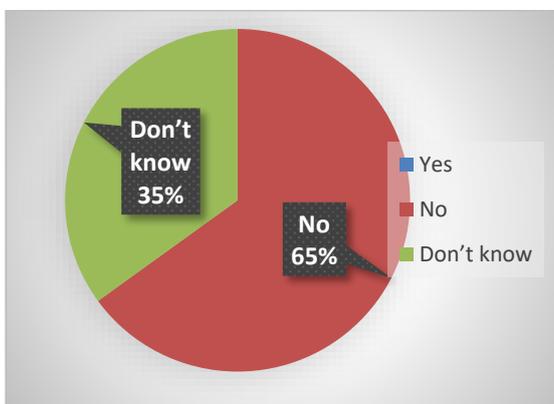
**Fig.:** Age (Years) of interviewed persons



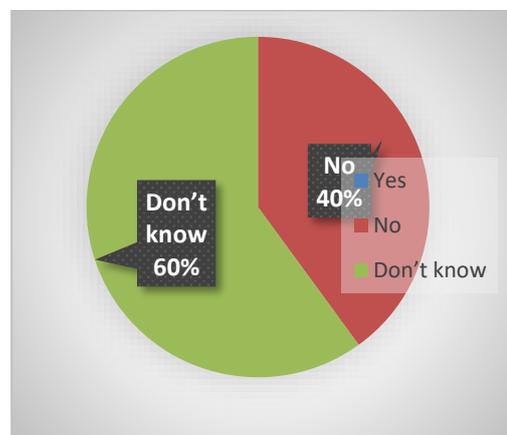
**Fig.:** Point of view of interviewed persons regarding impact on water quality & quantity due to proposed project.



**Fig.:** Point of view of interviewed persons regarding impact on soil quality due to proposed project.



**Fig.:** Point of view of interviewed persons regarding wastewater issues due to proposed project.



**Fig.:** Point of view of interviewed persons regarding information of protected area in proposed project site.





**Figure:** Pictorial Evidence of Public Consultations

### 10.7 Summary of Issues Raised by Stakeholders

A summary of the key issues raised by stakeholders and how these are being addressed by Project Proponent is provided in Table below.

**Table:** Summary of issues and commitments by Proponent

Issue	Aspect / Concern raised by Stakeholders	Project Proponent Commitments
Employment Opportunities	Expectations of employment are very high. Job opportunities are less for herders as they generally have less skills and training.	Employment is the main priority of the industry. Mostly locally skill and unskilled labor will be prioritized and also there will be job in executive level. Max. persons according to the requirement will be employed by the industry.
Training Opportunities	People are keen to consult with subject industry if the Project offers training and upgrading opportunities to enhance their trade or professional skills.	<ul style="list-style-type: none"> <li>• Development of the Training Strategy, including commitment of allocation of budget investment for training infrastructure, delivery and design.</li> <li>• Installation of training facilities in for worker of the company and students will also be accommodate.</li> <li>• The internship program will offer to the students.</li> </ul>
Health & safety	Truck traffic is a main concern because the road used by the Project passes through a number	<ul style="list-style-type: none"> <li>• Keep check on the road corridor and safety aspects,</li> </ul>

	<p>of small communities and different industries and there will be a high volume of trucks transporting concentrate.</p>	<p>including on herder and animal crossings.</p> <ul style="list-style-type: none"> <li>• Development of Transport Management Plan including traffic safety training.</li> <li>• Traffic advisory signs will be installed along project site and all nearby specific areas.</li> </ul>
Local economy and business development	<p>Local service providers are keen to participate in providing services to provide raw material and expect to receive in order to adjust their businesses to meet specific needs.</p> <p>Local businesses want to receive support in terms of finance and facilities to diversify their businesses.</p> <p>Local/regional companies and entrepreneurs have limited understanding about meeting the high volumes required by the Project</p>	<ul style="list-style-type: none"> <li>• Proponent has main focus that they will all the material regarding construction and plant operation to buy from the local market.</li> <li>• This will help the local and small business and to people who are keen interested to become suppliers.</li> </ul>
Environmental Issues	<p>Dust and noise impacts, particularly from the construction activities and in operation of mechanically unfit machines, are of concern to herders and other residents.</p> <p>Environmental degradation during road construction and use. Loss and change of vegetation due to soil degradation.</p>	<ul style="list-style-type: none"> <li>• Implementation of controls under the Environmental Management Plans, including on and off-site dust and noise monitoring.</li> <li>• A Participatory Environmental Monitoring Program will be launched to spread awareness on HSE.</li> </ul>
Water quantity and quality	<p>Water quality and quantity, and impacts from the wastewater disposal are all key concerns for nearby herders.</p>	<ul style="list-style-type: none"> <li>• Implementation of consultation in relation to water use and development of the Participatory Environmental Monitoring Program.</li> <li>• Water treatment facility will be installed by the proponent.</li> </ul>

## SECTION -11

### CONCLUSION AND RECOMMENDATIONS

#### 11.1 Conclusions

Based on the study conducted for Environmental Impact Assessment (EIA) of the project, the following recommendations are made:

- Plantation as far as permissible and within the scope of the project will be carried out.
- Sustainable development approach through conservation of the natural environment will be followed.
- Environmental aspects of the project should be well-taken care through implementation of the Environmental Management Plan as recommended in this report.
- Quarterly monitoring of all-out environmental pollution sources by a third party would be required who will also certify that the project is running in accordance with legal requirements

#### 11.2 Recommendations

On the basis of the findings of the EIA, it is concluded that the proposed project of **M/S Prime Agro Chemical Fertilizer Industries** will not pose any adverse impact on the local population and the environment. Therefore, it is recommended that the competent authority may please be issues Environmental Approval for the construction and operation of this project.

# Appendices

# GLOSSARY

<b>Words</b>	<b>Dictionary</b>
<b>Air Quality Sensitive Receptors</b>	People, property, species or designated sites for nature conservation that may be at risk from exposure to air pollutants potentially arising as a result of a proposed development.
<b>Air Quality Standard</b>	Air quality limiting values and objectives.
<b>Annual Average Rainfall</b>	Average amount of precipitation falling at a specified site recorded by the Meteorological Office. It gives a measure of the overall wetness of the local climate.
<b>Annunciation</b>	A formal public statement
<b>Anticipated Impacts</b>	Expected Impacts
<b>Aspects</b>	A distinct feature or element in a problem
<b>Atm</b>	Standard unit of atmospheric pressure; the pressure exerted by the weight of air in the atmosphere of Earth
<b>Baseline</b>	Existing environmental conditions present on, or near a site, against which future changes can be measured or predicted.
<b>Biodiversity</b>	The variety of life in the world or in a particular habitat or ecosystem.
<b>Climate</b>	The climate can be described simply as the ‘average weather’, typically looked at over a period of 30 years. It can include temperature, rainfall, snow cover, or any other weather characteristic.
<b>Climate Change</b>	A change in the state of the climate, which can be identified by changes in average climate characteristics that persist for an extended period - typically decades or longer.
<b>Compliance</b>	Acting according to certain accepted standards
<b>Cutting</b>	A linear excavation of soil or rock to make way for a new railway or road. Cuttings help reduce the noise and/or visual impact of passing trains or road vehicles.

<b>Decibel(S)</b>	A unit used to express relative differences in sound power or intensity. There is a million to one ratio in sound pressure (measured in Pascal (Pa)) between the quietest audible sound and the loudest tolerable sound. The decibel (dB) scale, based on a logarithmic ratio, is used in sound measurement because of this wide range. Audibility of sound covers a range of approximately 0-140dB.
<b>Discharge</b>	spilling, leaking, pumping, depositing, seeping, releasing, flowing out, pouring, emitting, emptying or dumping
<b>Discrepancies</b>	A difference between conflicting facts, claims or opinions
<b>Dust</b>	All airborne particulate matter.
<b>Earthworks</b>	The removal or placement of soils and rocks such as in cuttings, embankments and environmental mitigation, including the in-situ improvement of soils/rocks to achieve desired properties.
<b>Ecosystem</b>	A biological community of interacting organisms (e.g. plants and animals) and their environment.
<b>Effluent:</b>	Any material in solid, liquid or gaseous form or combination thereof being discharged from industrial activity or any other source and includes a slurry, suspension or vapour.
<b>Environment</b>	air, water and land; all layers of the atmosphere; all organic and inorganic matter and living organisms; the ecosystem and ecological relationships; buildings, structures, roads, facilities and works; all social and economic conditions affecting community life; and the inter-relationships between any of the factors mentioned.
<b>Environment Agency</b>	Government agency established to protect and improve the environment and contribute to sustainable development.  Responsibilities include: water quality and resources, flooding and coastal risk management and contaminated land.
<b>Environment Budget</b>	Monetary assets reserve for Environmental activity
<b>Evaluated</b>	Estimate or determine the nature, value, quality, ability, extent, or significance of

<b>Excavated Material</b>	Soil, rock and other material that has been removed from the ground during construction.
<b>Fauna</b>	All the animal life in a particular region or period
<b>Flora</b>	Variety of Plants found in an area
<b>Greenhouse Gas</b>	A gas such as carbon dioxide, methane, chlorofluorocarbons, nitrous oxide, ozone, and water vapor that contributes to the greenhouse effect by absorbing infrared radiation.
<b>Groundwater</b>	All water that is below the surface of the ground and within the permanently saturated zone.
<b>Groundwater Body</b>	A distinct volume of groundwater within an aquifer
<b>Heavy Metals</b>	A loosely defined term which refers to a group of metal and metalloids, many of which are toxic to some degree. Impact Used throughout this EIA Report to refer to changes to the environment that have the potential to occur as a result of the construction and/or operation of the Proposed Scheme.
<b>Impact</b>	Used throughout this environmental impact assessment report to refer to the consequence of an impact to the receiving environment.
<b>Initial Environmental Examination</b>	a preliminary environmental review of the reasonably foreseeable qualitative and quantitative impacts on the environment of a proposed project to determine whether it is likely to cause an environmental effect for requiring preparation of an environmental impact assessment
<b>Legislation</b>	law enacted by a legislative body
<b>Million</b>	10,00,000
<b>Mitigation</b>	The measures put forward to prevent, reduce and where possible, offset any adverse effects on the environment.
<b>Mitigation Measures</b>	Measures aimed to curtail or entirely control an adverse impact or to compensate some loss or cause additional improvements

<b>Punjab Environmental Quality Standards</b>	the permissible standards for emission of air pollutants and noise and for discharge of effluent and waste specifically in Punjab.
<b>Nuisance</b>	Annoyance
<b>Orientation Session</b>	Direction Session
<b>Potential Issue</b>	Problems likely to arise
<b>Proposed Project</b>	Planned activity
<b>Rehabilitation</b>	The conversion of wasteland into land suitable for use of habitation or cultivation
<b>Residual Impacts</b>	Impacts left behind after implementation of the mitigation measures
<b>Risk Assessment</b>	An assessment of the probability of a hazard occurring that could result in an impact.
<b>Sand</b>	Soil particles from 0.06mm-2.0mm in equivalent diameter. Fine sand particles are from 0.06mm-0.2mm; medium sand from 0.2mm-0.6mm; and coarse sand from 0.6mm-2.0mm.
<b>Scoping</b>	An initial stage in the environmental impact assessment process to determine the nature and potential scale of environmental effects arising as a result of a proposed development, and an assessment of what further studies are required to establish their potential environmental impacts and effects.
<b>Screening</b>	The first stage in an environmental impact assessment. It is used to determine if further assessment is necessary and to categorize the project.
<b>Significant</b>	Important
<b>Soil Erosion</b>	The detachment and movement of soil by the action of water and/or wind.
<b>Soil Profile</b>	A vertical cross-section through a soil.
<b>Stakeholders</b>	A person or organization with an interest or concern in Something

<b>Statutory Requirements</b>	Legal Requirements
<b>Substitutions</b>	An event in which one thing is substituted for another
<b>Surface Water</b>	Waters including rivers, lakes, reservoirs, canals, streams, ditches, coastal waters and estuaries.
<b>Sustainability</b>	such developments that meet the needs of the present generation without compromising the ability of future generations to meet their needs.
<b>Topography</b>	The natural or artificial features, level and surface form of the ground surface.
<b>Topsoil</b>	Upper layer of a soil profile, usually darker in color (because of its higher content of organic matter) and more fertile than subsoil, and which is a product of natural biological and environmental processes.
<b>Waste</b>	any material, substance, or by-product eliminated or discarded as no longer useful or required after the completion of a process

## List of abbreviations

°C	Degree Celsius
BOD	Biochemical Oxygen Demand
CC	Construction Contractor
CDM	Clean Development Mechanism
CO	Carbon Monoxide
CO <sub>2</sub>	Carbon dioxide
COD	Chemical Oxygen Demand
dB(A)	A weighted decibel scale
DO	Dissolved Oxygen
EIA	Environmental Impact Assessment
EMMP	Environmental Mitigation and Monitoring Plan
EPA	Environmental Protection Agency
EPD	Environmental Protection Department
EPO	Environmental Protection Order
GHGs	Green House Gases
GOP	Government of Pakistan
IEE	Initial Environmental Examination
km	Kilometer
LAA	Land Acquisition Act
Ltd.	Limited
m <sup>3</sup> /h	Cubic meter per hour
MW	Megawatt
NA	Not Applicable
NCS	National Conservation Strategy
NEP	National Environmental Policy
NEQS	National Environmental Quality Standards
NGO	Non-Government Organization
NOC	No Objection Certificate
NO <sub>x</sub>	Oxides of Nitrogen
OHSAS	Occupation Health and Safety Assessment Series
PEPA, 1997	Pakistan Environmental Protection Act, 1997
PEPA, 2012	Punjab Environmental Protection Act, 2012
PEPC	Pakistan Environmental Protection Council
PEPO	Pakistan Environmental Protection Ordinance
PHA	Parks and Horticulture Authority
PM	Particulate Matter
PPEs	Personal Protective Equipments
SOPs	Standard Operation Procedures
SO <sub>x</sub>	Oxides of Sulfur
TDS	Total Dissolved Solids
tpd	Tons per day
TSS	Total Suspended Solids

## Lists of individuals and organizations consulted along with their written feedback

**Table:** Summary of issues and commitments by Proponent

Issue	Aspect/Concern raised by Stakeholders	Project Proponent Commitments
Employment Opportunities	Expectations of employment are very high. Job opportunities are less for herders as they generally have less skills and training.	Employment is the main priority of the industry. Mostly locally skill and unskilled labor will be prioritized and also there will be job at executive level. Max. persons according to the requirement will be employed by the Housing Scheme.
Health & safety	Traffic is a main concern because the road used by the Project passes through a number of small communities and commercial business and there will be a high volume of trucks transporting construction materials.	Extensive consultation on the road corridor and safety aspects.  Traffic advisory signs will be installed along the project site and all nearby specific areas.
Local economy and business development	<p>Local service providers are keen to participate in providing services to provide raw material and expect to receive in order to adjust their businesses to meet specific needs.</p> <p>Local businesses want to receive support in terms of facilities to diversify their businesses.</p> <p>Local/regional companies and entrepreneurs have limited understanding about meeting the high volumes required by the Project and the quality standard, but are keen to know these requirements so they can become suppliers.</p>	<p>Proponent has the main focus that they will buy all the material regarding construction and plant operation to buy from the local market.</p> <p>This will help the local and small business and to people who are keen interested to become suppliers.</p>
Environmental Issues	Dust and noise impacts, particularly from the construction activities and in operation of	Implementation of controls under the Environmental Management

	<p>mechanically unfit machines, are of concern to herders and other residents.</p> <p>Environmental degradation during road construction and use. Loss and change of vegetation due to soil degradation.</p> <p>Increased waste along the project boundary and around the economic zone.</p>	<p>Plans, including on and off-site dust and noise monitoring.</p> <p>A seed rehabilitation program has been established and initial work has been completed in the economic zone and along the boundary.</p> <p>A Participatory Environmental Monitoring Program will be launched to spread awareness.</p>
<p>Water quantity and quality</p>	<p>Water quality and quantity, and impacts from the wastewater disposal are all key concerns for nearby herders.</p>	<p>Implementation of consultation in relation to water use and development of the Participatory Environmental Monitoring Program.</p> <p>Water treatment facility will be installed by the proponent that will help to safe disposal of the water.</p>

**Table:** List of individuals consulted

<b>Sr. No.</b>	<b>Name</b>	<b>CNIC/Phone Number</b>	<b>Address</b>
1	Sajjad Hussain	36602-8238524-1	Gopalpur Multan
2	M Ramzan	35104-0397631-9	Gopalpur Multan
3	Ali Raza	22401-3541154-5	Gopalpur Multan
4	Arslan	35502-0292438-5	Gopalpur Multan
5	Haji M Ramzan	0307-5643175	Gopalpur Multan
6	M Tahir	82501-0383216-1	Gopalpur Multan
7	Ashraf Jamal	35404-4455814-1	Gopalpur Multan
8	Atif Hussain	0348-0551022	Gopalpur Multan
9	M Ali	12103-1882219-1	Gopalpur Multan
10	Muhammad Tanveer	36304-0980418-7	Gopalpur Multan
11	M Akram	35103-8573972-3	Gopalpur Multan
12	Muhammad Khalid	35103-7762877-3	Gopalpur Multan
13	Muhammad Abrar	35303-4855679-9	Gopalpur Multan
14	Abdul Mateen	35103-1277226-6	Gopalpur Multan
15	Shahbaz Ahmad	36303-6500158-7	Gopalpur Multan
16	M Tanveer Ashraf	35202-1490904-5	Gopalpur Multan
17	M Daood Khan	35103-1333593-9	Gopalpur Multan
18	Muhammad Bilal	35103-8251607-5	Gopalpur Multan
19	Yasmin Bibi	35103-768412-6	Gopalpur Multan
20	Zaheer Ahmad Bhutta	35202-4036952-5	Gopalpur Multan

## **SOCIO ECONOMIC SURVEY FORM**

### PROJECT NAME: Installation of Pesticides Manufacturing Unit GENERAL PROFILE

Name: Sajjad Hussain

CNIC Number: 36602-8238524-1

Home Address: Gopalpur Multan

Sr.#	Questions	Options			
1.	Age (Years)	18 – 30	31 – 40✓	41- 50	51 & above
2.	Education	Illiterate	Upto Middle	Matric✓	College/ University
3.	Marital Status	<input type="radio"/> Single ✓ <input type="radio"/> Married <input type="radio"/> Divorced			
4.	If Married, Number of kids	None ✓	1-3	4-6	More than 7
5.	Total Family Members	2-4 ✓	5-7	8-12	More than 12
6.	Religion	Muslim ✓	Hindu	Christian	Any other

#### **SOCIO ECONOMIC PROFILE**

Sr.#	Questions	Responses			
7.	Occupation	Businessman			
8.	Total Income	5 – 10 Thousand	11 – 15 Thousand	16 – 25 Thousand	More than 25 ✓ thousand
9.	No. of earning family members	1✓	2	3	More than 3
10.	Nearest Hospital and Distance (approx.)	LAEEQ RAFIQUE HOSPITAL 02-Km			
11.	Nearest Educational Institute	Govt. Girls Primary School Gopalpur			
12.	Any disease in the family?	Yes		No ✓	
If Yes, What kind of disease?					
<b>ANTICIPATED IMPACTS DUE TO PROPOSED PROJECT</b>					
13.	Have you heard about the project?	Yes ✓		No	
14.	Are you in favor of this project?	Yes ✓		No	
15.	Will there be any impact on Water quality & quantity due to project?	Yes	No ✓	I don't know	
If Yes, then How?					

16.	Will there be any impact on Soil quality due to project? (Soil Erosion, Soil Salinity etc.)	Yes	No ✓	I don't know
If Yes, then How?				
17.	Will there be any impact on Air quality due to project? (Smoke, rise in Temperature, Visibility issue etc.)	Yes	No ✓	I don't know
If Yes, then How?				
18.	Will the Noise due to project have impact on nearby population? (Irritation, Sleeping problem etc.)	Yes	No ✓	I don't know
If Yes, then How?				
19.	Are you expecting any wastewater issues due to project activities? (Effecting groundwater, causing waterborne diseases etc.)	Yes	No ✓	I don't know
20.	Will there be traffic congestion due to vehicle movement pertaining to project activities?	Yes	No ✓	I don't know
21.	Is there any Protected area (Forests/botanic gardens, birds/animal sanctuaries etc.) near the project site?	Yes	No ✓	I don't know
22.	Please mention if you have any suggestion / complaints regarding the project.	Promote welfare of the society and local employment		

Interviewed by: \_\_\_\_\_



## **SOCIO ECONOMIC SURVEY FORM**

### PROJECT NAME: Installation of Pesticides Manufacturing Unit

#### GENERAL PROFILE

Name: M Ramzan

CNIC Number: 35104-0397631-9

Home Address: Gopalpur Multan

Sr.#	Questions	Options			
1.	Age (Years)	18 – 30 ✓	31 – 40	41- 50	51 & above
2.	Education	Illiterate	Upto Middle ✓	Matric	College/ University
3.	Marital Status	<input type="radio"/> Single <input checked="" type="radio"/> Married ✓ <input type="radio"/> Divorced			
4.	If Married, Number of kids	None	1-3 ✓	4-6	More than 7
5.	Total Family Members	2-4	5-7	8-12	More than 12 ✓
6.	Religion	Muslim ✓	Hindu	Christian	Any other

#### SOCIO ECONOMIC PROFILE

Sr.#	Questions	Responses			
7.	Occupation	Shopkeeper			
8.	Total Income	5 – 10 Thousand	11 – 15 Thousand	16 – 25 Thousand	More than 25 ✓ thousand
9.	No. of earning family members	1 ✓	2	3	More than 3
10.	Nearest Hospital and Distance (approx.)	LAEEQ RAFIQUE HOSPITAL 02-Km			
11.	Nearest Educational Institute	Govt. Girls Primary School Gopalpur			
12.	Any disease in the family?	Yes		No ✓	
If Yes, What kind of disease?					

#### ANTICIPATED IMPACTS DUE TO PROPOSED PROJECT

13.	Have you heard about the project?	Yes ✓		No	
14.	Are you in favor of this project?	Yes ✓		No	
15.	Will there be any impact on Water quality & quantity due to project?	Yes	No ✓	I don't know	
If Yes, then How?					

16.	Will there be any impact on Soil quality due to project? (Soil Erosion, Soil Salinity etc.)	Yes	No ✓	I don't know
If Yes, then How?				
17.	Will there be any impact on Air quality due to project? (Smoke, rise in Temperature, Visibility issue etc.)	Yes	No	I don't know ✓
If Yes, then How?				
18.	Will the Noise due to project have impact on nearby population? (Irritation, Sleeping problem etc.)	Yes	No ✓	I don't know
If Yes, then How?				
19.	Are you expecting any wastewater issues due to project activities? (Effecting groundwater, causing waterborne diseases etc.)	Yes	No ✓	I don't know
20.	Will there be traffic congestion due to vehicle movement pertaining to project activities?	Yes	No ✓	I don't know
21.	Is there any Protected area (Forests/botanic gardens, birds/animal sanctuaries etc.) near the project site?	Yes	No ✓	I don't know
22.	Please mention if you have any suggestion / complaints regarding the project.	Promote welfare of the society and local employment		

Interviewed by: \_\_\_\_\_



## **SOCIO ECONOMIC SURVEY FORM**

**PROJECT NAME: Installation of Pesticides Manufacturing Unit**

### **GENERAL PROFILE**

**Name:** Ali Raza

**CNIC Number:** 22401-3541154-5

**Home Address:** Gopalpur Multan

Sr.#	Questions	Options			
1.	Age (Years)	18 – 30 ✓	31 – 40	41- 50	51 & above
2.	Education	Illiterate	Upto Middle	Matric	College/ University ✓
3.	Marital Status	<input type="radio"/> Single <input checked="" type="radio"/> Married ✓ <input type="radio"/> Divorced			
4.	If Married, Number of kids	None	1-3	4-6 ✓	More than 7
5.	Total Family Members	2-4	5-7	8-12	More than 12 ✓
6.	Religion ✓	Muslim	Hindu	Christian	Any other

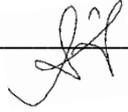
### **SOCIO ECONOMIC PROFILE**

Sr.#	Questions	Responses			
7.	Occupation	School Teacher			
8.	Total Income	5 – 10 Thousand	11 – 15 Thousand	16 – 25 Thousand	More than 25 ✓ thousand
9.	No. of earning family members	1	2 ✓	3	More than 3
10.	Nearest Hospital and Distance (approx.)	LAEEQ RAFIQUE HOSPITAL 02-Km			
11.	Nearest Educational Institute	Govt. Girls Primary School Gopalpur			
12.	Any disease in the family?	Yes		No ✓	
If Yes, What kind of disease?					

### **ANTICIPATED IMPACTS DUE TO PROPOSED PROJECT**

13.	Have you heard about the project?	Yes ✓		No	
14.	Are you in favor of this project?	Yes ✓		No	
15.	Will there be any impact on Water quality & quantity due to project?	Yes	No ✓	I don't know	
If Yes, then How?					

16.	Will there be any impact on Soil quality due to project? (Soil Erosion, Soil Salinity etc.)	Yes	No ✓	I don't know
If Yes, then How?				
17.	Will there be any impact on Air quality due to project? (Smoke, rise in Temperature, Visibility issue etc.)	Yes	No	I don't know ✓
If Yes, then How?				
18.	Will the Noise due to project have impact on nearby population? (Irritation, Sleeping problem etc.)	Yes	No ✓	I don't know
If Yes, then How?				
19.	Are you expecting any wastewater issues due to project activities? (Effecting groundwater, causing waterborne diseases etc.)	Yes	No ✓	I don't know
20.	Will there be traffic congestion due to vehicle movement pertaining to project activities?	Yes	No ✓	I don't know
21.	Is there any Protected area (Forests/botanic gardens, birds/animal sanctuaries etc.) near the project site?	Yes	No ✓	I don't know
22.	Please mention if you have any suggestion / complaints regarding the project.	Promote welfare of the society and local employment		

Interviewed by:  \_\_\_\_\_

## **SOCIO ECONOMIC SURVEY FORM**

**PROJECT NAME: Installation of Pesticides Manufacturing Unit**

### **GENERAL PROFILE**

**Name:** Arslan

**CNIC Number:** 35502-0292438-5

**Home Address:** Gopalpur Multan

Sr.#	Questions	Options			
1.	Age (Years)	18 – 30 ✓	31 – 40	41- 50	51 & above
2.	Education	Illiterate	Upto Middle✓	Matric	College/ University
3.	Marital Status	<input type="radio"/> Single✓ <input type="radio"/> Married <input type="radio"/> Divorced			
4.	If Married, Number of kids	None✓	1-3	4-6	More than 7
5.	Total Family Members	2-4	5-7	8-12✓	More than 12
6.	Religion	Muslim ✓	Hindu	Christian	Any other

### **SOCIO ECONOMIC PROFILE**

Sr.#	Questions	Responses			
7.	Occupation	Govt. Employee			
8.	Total Income	5 – 10 Thousand	11 – 15 Thousand	16 – 25 Thousand	More than 25 ✓ thousand
9.	No. of earning family members	1 ✓	2	3	More than 3
10.	Nearest Hospital and Distance (approx.)	LAEEQ RAFIQUE HOSPITAL 02-Km			
11.	Nearest Educational Institute	Govt. Girls Primary School Gopalpur			
12.	Any disease in the family?	Yes		No ✓	
If Yes, What kind of disease?					

### **ANTICIPATED IMPACTS DUE TO PROPOSED PROJECT**

13.	Have you heard about the project?	Yes ✓		No	
14.	Are you in favor of this project?	Yes ✓		No	
15.	Will there be any impact on Water quality & quantity due to project?	Yes	No ✓	I don't know	
If Yes, then How?					

16.	Will there be any impact on Soil quality due to project? (Soil Erosion, Soil Salinity etc.)	Yes	No	I don't know ✓
If Yes, then How?				
17.	Will there be any impact on Air quality due to project? (Smoke, rise in Temperature, Visibility issue etc.)	Yes	No ✓	I don't know
If Yes, then How?				
18.	Will the Noise due to project have impact on nearby population? (Irritation, Sleeping problem etc.)	Yes	No	I don't know ✓
If Yes, then How?				
19.	Are you expecting any wastewater issues due to project activities? (Effecting groundwater, causing waterborne diseases etc.)	Yes	No ✓	I don't know
20.	Will there be traffic congestion due to vehicle movement pertaining to project activities?	Yes	No ✓	I don't know
21.	Is there any Protected area (Forests/botanic gardens, birds/animal sanctuaries etc.) near the project site?	Yes	No ✓	I don't know
22.	Please mention if you have any suggestion / complaints regarding the project.	Promote welfare of the society and local employment		

Interviewed by: \_\_\_\_\_



## **SOCIO ECONOMIC SURVEY FORM**

### PROJECT NAME: Installation of Pesticides Manufacturing Unit

#### GENERAL PROFILE

Name: Haji Muhammad Ramzan

CNIC Number: 0307-5643175

Home Address: Gopalpur Multan

Sr.#	Questions	Options			
1.	Age (Years)	18 – 30 ✓	31 – 40	41- 50	51 & above
2.	Education	Illiterate	Upto Middle ✓	Matric	College/ University
3.	Marital Status	<input type="radio"/> Single ✓ <input type="radio"/> Married <input type="radio"/> Divorced			
4.	If Married, Number of kids	None ✓	1-3	4-6	More than 7
5.	Total Family Members	2-4	5-7 ✓	8-12	More than 12
6.	Religion	Muslim ✓	Hindu	Christian	Any other

#### SOCIO ECONOMIC PROFILE

Sr.#	Questions	Responses			
7.	Occupation	Govt. Employee			
8.	Total Income	5 – 10 Thousand	11 – 15 Thousand	16 – 25 Thousand	More than 25 ✓ thousand
9.	No. of earning family members	1 ✓	2	3	More than 3
10.	Nearest Hospital and Distance (approx.)	LAEEQ RAFIQUE HOSPITAL 02-Km			
11.	Nearest Educational Institute	Govt. Girls Primary School Gopalpur			
12.	Any disease in the family?	Yes		No ✓	
If Yes, What kind of disease?					

#### ANTICIPATED IMPACTS DUE TO PROPOSED PROJECT

13.	Have you heard about the project?	Yes ✓		No	
14.	Are you in favor of this project?	Yes ✓		No	
15.	Will there be any impact on Water quality & quantity due to project?	Yes	No	I don't know ✓	
If Yes, then How?					

16.	Will there be any impact on Soil quality due to project? (Soil Erosion, Soil Salinity etc.)	Yes	No	I don't know ✓
If Yes, then How?				
17.	Will there be any impact on Air quality due to project? (Smoke, rise in Temperature, Visibility issue etc.)	Yes	No ✓	I don't know
If Yes, then How?				
18.	Will the Noise due to project have impact on nearby population? (Irritation, Sleeping problem etc.)	Yes	No ✓	I don't know
If Yes, then How?				
19.	Are you expecting any wastewater issues due to project activities? (Effecting groundwater, causing waterborne diseases etc.)	Yes	No ✓	I don't know
20.	Will there be traffic congestion due to vehicle movement pertaining to project activities?	Yes	No	I don't know ✓
21.	Is there any Protected area (Forests/botanic gardens, birds/animal sanctuaries etc.) near the project site?	Yes	No ✓	I don't know
22.	Please mention if you have any suggestion / complaints regarding the project.	Promote welfare of the society and local employment		

Interviewed by:  \_\_\_\_\_

## **SOCIO ECONOMIC SURVEY FORM**

### PROJECT NAME: Installation of Pesticides Manufacturing Unit

#### GENERAL PROFILE

Name: Muhammad Tahir

CNIC Number: 82501-0383216-1

Home Address: Gopalpur Multan

Sr.#	Questions	Options			
1.	Age (Years)	18 – 30 ✓	31 – 40	41- 50	51 & above
2.	Education	Illiterate	Upto Middle ✓	Matric	College/ University
3.	Marital Status	<input type="radio"/> Single ✓ <input type="radio"/> Married <input type="radio"/> Divorced			
4.	If Married, Number of kids	None ✓	1-3	4-6	More than 7
5.	Total Family Members	2-4	5-7 ✓	8-12	More than 12
6.	Religion	Muslim ✓	Hindu	Christian	Any other

#### SOCIO ECONOMIC PROFILE

Sr.#	Questions	Responses			
7.	Occupation	Businessman			
8.	Total Income	5 – 10 Thousand	11 – 15 Thousand	16 – 25 Thousand	More than 25 ✓ thousand
9.	No. of earning family members	1 ✓	2	3	More than 3
10.	Nearest Hospital and Distance (approx.)	LAEEQ RAFIQUE HOSPITAL 02-Km			
11.	Nearest Educational Institute	Govt. Girls Primary School Gopalpur			
12.	Any disease in the family?	Yes		No ✓	
If Yes, What kind of disease?					

#### ANTICIPATED IMPACTS DUE TO PROPOSED PROJECT

13.	Have you heard about the project?	Yes ✓		No	
14.	Are you in favor of this project?	Yes ✓		No	
15.	Will there be any impact on Water quality & quantity due to project?	Yes	No ✓	I don't know	
If Yes, then How?					

16.	Will there be any impact on Soil quality due to project? (Soil Erosion, Soil Salinity etc.)	Yes	No ✓	I don't know
If Yes, then How?				
17.	Will there be any impact on Air quality due to project? (Smoke, rise in Temperature, Visibility issue etc.)	Yes	No ✓	I don't know
If Yes, then How?				
18.	Will the Noise due to project have impact on nearby population? (Irritation, Sleeping problem etc.)	Yes	No	I don't know ✓
If Yes, then How?				
19.	Are you expecting any wastewater issues due to project activities? (Effecting groundwater, causing waterborne diseases etc.)	Yes	No ✓	I don't know
20.	Will there be traffic congestion due to vehicle movement pertaining to project activities?	Yes	No	I don't know ✓
21.	Is there any Protected area (Forests/botanic gardens, birds/animal sanctuaries etc.) near the project site?	Yes	No ✓	I don't know
22.	Please mention if you have any suggestion / complaints regarding the project.	Promote welfare of the society and local employment		

Interviewed by: \_\_\_\_\_ 

## **SOCIO ECONOMIC SURVEY FORM**

### PROJECT NAME: Installation of Pesticides Manufacturing Unit

#### GENERAL PROFILE

Name: Ashraf Jamal

CNIC Number: 35404-4455814-1

Home Address: Gopalpur Multan

Sr.#	Questions	Options			
1.	Age (Years)	18 – 30	31 – 40 ✓	41- 50	51 & above
2.	Education	Illiterate	Upto Middle ✓	Matric	College/ University
3.	Marital Status	<input type="radio"/> Single <input checked="" type="radio"/> Married ✓ <input type="radio"/> Divorced			
4.	If Married, Number of kids	None	1-3	4-6 ✓	More than 7
5.	Total Family Members	2-4	5-7	8-12 ✓	More than 12
6.	Religion	Muslim ✓	Hindu	Christian	Any other

#### SOCIO ECONOMIC PROFILE

Sr.#	Questions	Responses			
7.	Occupation	School Teacher			
8.	Total Income	5 – 10 Thousand	11 – 15 Thousand	16 – 25 Thousand	More than 25 ✓ thousand
9.	No. of earning family members	1	2 ✓	3	More than 3
10.	Nearest Hospital and Distance (approx.)	LAEEQ RAFIQUE HOSPITAL 02-Km			
11.	Nearest Educational Institute	Govt. Girls Primary School Gopalpur			
12.	Any disease in the family?	Yes		No ✓	
If Yes, What kind of disease?					

#### ANTICIPATED IMPACTS DUE TO PROPOSED PROJECT

13.	Have you heard about the project?	Yes ✓		No	
14.	Are you in favor of this project?	Yes ✓		No	
15.	Will there be any impact on Water quality & quantity due to project?	Yes	No ✓	I don't know	
If Yes, then How?					

16.	Will there be any impact on Soil quality due to project? (Soil Erosion, Soil Salinity etc.)	Yes	No ✓	I don't know
If Yes, then How?				
17.	Will there be any impact on Air quality due to project? (Smoke, rise in Temperature, Visibility issue etc.)	Yes	No ✓	I don't know
If Yes, then How?				
18.	Will the Noise due to project have impact on nearby population? (Irritation, Sleeping problem etc.)	Yes	No ✓	I don't know
If Yes, then How?				
19.	Are you expecting any wastewater issues due to project activities? (Effecting groundwater, causing waterborne diseases etc.)	Yes	No ✓	I don't know
20.	Will there be traffic congestion due to vehicle movement pertaining to project activities?	Yes	No ✓	I don't know
21.	Is there any Protected area (Forests/botanic gardens, birds/animal sanctuaries etc.) near the project site?	Yes	No ✓	I don't know
22.	Please mention if you have any suggestion / complaints regarding the project.	Promote welfare of the society and local employment		

Interviewed by: \_\_\_\_\_



## **SOCIO ECONOMIC SURVEY FORM**

### PROJECT NAME: **Installation of Pesticides Manufacturing Unit**

#### **GENERAL PROFILE**

**Name:** Atif Hussain

**CNIC Number:** 0348-0551022

**Home Address:** Gopalpur Multan

Sr.#	Questions	Options			
1.	Age (Years)	18 – 30 ✓	31 – 40	41- 50	51 & above
2.	Education	Illiterate ✓	Upto Middle	Matric	College/ University
3.	Marital Status	<input type="radio"/> Single ✓ <input type="radio"/> Married <input type="radio"/> Divorced			
4.	If Married, Number of kids	None ✓	1-3	4-6	More than 7
5.	Total Family Members	2-4	5-7 ✓	8-12	More than 12
6.	Religion	Muslim ✓	Hindu	Christian	Any other

#### **SOCIO ECONOMIC PROFILE**

Sr.#	Questions	Responses			
7.	Occupation	Self Employee			
8.	Total Income	5 – 10 Thousand	11 – 15 Thousand	16 – 25 Thousand	More than 25 ✓ thousand
9.	No. of earning family members	1 ✓	2	3	More than 3
10.	Nearest Hospital and Distance (approx.)	LAEEQ RAFIQUE HOSPITAL 02-Km			
11.	Nearest Educational Institute	Govt. Girls Primary School Gopalpur			
12.	Any disease in the family?	Yes		No ✓	
If Yes, What kind of disease?					

#### **ANTICIPATED IMPACTS DUE TO PROPOSED PROJECT**

13.	Have you heard about the project?	Yes		No ✓	
14.	Are you in favor of this project?	Yes ✓		No	
15.	Will there be any impact on Water quality & quantity due to project?	Yes	No	I don't know ✓	
If Yes, then How?					
16.	Will there be any impact	Yes	No ✓	I don't know	

	on Soil quality due to project? (Soil Erosion, Soil Salinity etc.)			
If Yes, then How?				
17.	Will there be any impact on Air quality due to project? (Smoke, rise in Temperature, Visibility issue etc.)	Yes	No	I don't know ✓
If Yes, then How?				
18.	Will the Noise due to project have impact on nearby population? (Irritation, Sleeping problem etc.)	Yes	No ✓	I don't know
If Yes, then How?				
19.	Are you expecting any wastewater issues due to project activities? (Effecting groundwater, causing waterborne diseases etc.)	Yes	No	I don't know ✓
20.	Will there be traffic congestion due to vehicle movement pertaining to project activities?	Yes	No ✓	I don't know
21.	Is there any Protected area (Forests/botanic gardens, birds/animal sanctuaries etc.) near the project site?	Yes	No ✓	I don't know
22.	Please mention if you have any suggestion / complaints regarding the project.	Promote welfare of the society and local employment		

Interviewed by: \_\_\_\_\_



## **SOCIO ECONOMIC SURVEY FORM**

### PROJECT NAME: **Installation of Pesticides Manufacturing Unit**

#### **GENERAL PROFILE**

**Name:** Muhammad Ali

**CNIC Number:** 12103-1882219-1

**Home Address:** Gopalpur Multan

Sr.#	Questions	Options			
1.	Age (Years)	18 – 30	31 – 40 ✓	41- 50	51 & above
2.	Education	Illiterate	Upto Middle	Matric ✓	College/ University
3.	Marital Status	<input type="radio"/> Single <input checked="" type="radio"/> Married ✓ <input type="radio"/> Divorced			
4.	If Married, Number of kids	None	1-3 ✓	4-6	More than 7
5.	Total Family Members	2-4	5-7	8-12 ✓	More than 12
6.	Religion	Muslim ✓	Hindu	Christian	Any other

#### **SOCIO ECONOMIC PROFILE**

Sr.#	Questions	Responses			
7.	Occupation	Self Employee			
8.	Total Income	5 – 10 Thousand	11 – 15 Thousand	16 – 25 Thousand	More than 25 ✓ thousand
9.	No. of earning family members	1 ✓	2	3	More than 3
10.	Nearest Hospital and Distance (approx.)	LAEEQ RAFIQUE HOSPITAL 02-Km			
11.	Nearest Educational Institute	Govt. Girls Primary School Gopalpur			
12.	Any disease in the family?	Yes		No ✓	
If Yes, What kind of disease?					

#### **ANTICIPATED IMPACTS DUE TO PROPOSED PROJECT**

13.	Have you heard about the project?	Yes		No ✓	
14.	Are you in favor of this project?	Yes ✓		No	
15.	Will there be any impact on Water quality & quantity due to project?	Yes	No ✓	I don't know	
If Yes, then How?					
16.	Will there be any impact	Yes	No	I don't know ✓	

	on Soil quality due to project? (Soil Erosion, Soil Salinity etc.)			
If Yes, then How?				
17.	Will there be any impact on Air quality due to project? (Smoke, rise in Temperature, Visibility issue etc.)	Yes	No	I don't know ✓
If Yes, then How?				
18.	Will the Noise due to project have impact on nearby population? (Irritation, Sleeping problem etc.)	Yes	No	I don't know ✓
If Yes, then How?				
19.	Are you expecting any wastewater issues due to project activities? (Effecting groundwater, causing waterborne diseases etc.)	Yes	No	I don't know ✓
20.	Will there be traffic congestion due to vehicle movement pertaining to project activities?	Yes	No ✓	I don't know
21.	Is there any Protected area (Forests/botanic gardens, birds/animal sanctuaries etc.) near the project site?	Yes	No ✓	I don't know
22.	Please mention if you have any suggestion / complaints regarding the project.	Promote welfare of the society and local employment		

Interviewed by: \_\_\_\_\_



## **SOCIO ECONOMIC SURVEY FORM**

### PROJECT NAME: Installation of Pesticides Manufacturing Unit

#### GENERAL PROFILE

Name: Muhammad Tanveer

CNIC Number: 36304-0980418-7

Home Address: Gopalpur Multan

Sr.#	Questions	Options			
1.	Age (Years)	18 – 30 ✓	31 – 40	41- 50	51 & above
2.	Education	Illiterate	Upto Middle ✓	Matric	College/ University
3.	Marital Status	<input type="radio"/> Single <input checked="" type="radio"/> Married ✓ <input type="radio"/> Divorced			
4.	If Married, Number of kids	None	1-3 ✓	4-6	More than 7
5.	Total Family Members	2-4	5-7 ✓	8-12	More than 12
6.	Religion	Muslim ✓	Hindu	Christian	Any other

#### SOCIO ECONOMIC PROFILE

Sr.#	Questions	Responses			
7.	Occupation	Shopkeeper			
8.	Total Income	5 – 10 Thousand	11 – 15 Thousand	16 – 25 Thousand	More than 25 ✓ thousand
9.	No. of earning family members	1 ✓	2	3	More than 3
10.	Nearest Hospital and Distance (approx.)	LAEEQ RAFIQUE HOSPITAL 02-Km			
11.	Nearest Educational Institute	Govt. Girls Primary School Gopalpur			
12.	Any disease in the family?	Yes		No ✓	
If Yes, What kind of disease?					

#### ANTICIPATED IMPACTS DUE TO PROPOSED PROJECT

13.	Have you heard about the project?	Yes		No ✓	
14.	Are you in favor of this project?	Yes ✓		No	
15.	Will there be any impact on Water quality & quantity due to project?	Yes	No	I don't know ✓	
If Yes, then How?					

16.	Will there be any impact on Soil quality due to project? (Soil Erosion, Soil Salinity etc.)	Yes	No ✓	I don't know
If Yes, then How?				
17.	Will there be any impact on Air quality due to project? (Smoke, rise in Temperature, Visibility issue etc.)	Yes	No ✓	I don't know
If Yes, then How?				
18.	Will the Noise due to project have impact on nearby population? (Irritation, Sleeping problem etc.)	Yes	No ✓	I don't know
If Yes, then How?				
19.	Are you expecting any wastewater issues due to project activities? (Effecting groundwater, causing waterborne diseases etc.)	Yes	No ✓	I don't know
20.	Will there be traffic congestion due to vehicle movement pertaining to project activities?	Yes	No ✓	I don't know
21.	Is there any Protected area (Forests/botanic gardens, birds/animal sanctuaries etc.) near the project site?	Yes	No ✓	I don't know
22.	Please mention if you have any suggestion / complaints regarding the project.	Promote welfare of the society and local employment		

Interviewed by: \_\_\_\_\_ 

## **SOCIO ECONOMIC SURVEY FORM**

**PROJECT NAME: Installation of Pesticides Manufacturing Unit**

### **GENERAL PROFILE**

**Name:** Muhammad Akram

**CNIC Number:** 35103-8573972-3

**Home Address:** Gopalpur Multan

Sr.#	Questions	Options			
1.	Age (Years)	18 – 30 ✓	31 – 40	41- 50	51 & above
2.	Education	Illiterate	Upto Middle	Matric	College/ University ✓
3.	Marital Status	<input type="radio"/> Single <input checked="" type="radio"/> Married ✓ <input type="radio"/> Divorced			
4.	If Married, Number of kids	None ✓	1-3	4-6	More than 7
5.	Total Family Members	2-4 ✓	5-7	8-12	More than 12
6.	Religion	Muslim ✓	Hindu	Christian	Any other

### **SOCIO ECONOMIC PROFILE**

Sr.#	Questions	Responses			
7.	Occupation	Businessman			
8.	Total Income	5 – 10 Thousand	11 – 15 Thousand	16 – 25 Thousand	More than 25 ✓ thousand
9.	No. of earning family members	1	2 ✓	3	More than 3
10.	Nearest Hospital and Distance (approx.)	LAEEQ RAFIQUE HOSPITAL 05-Km			
11.	Nearest Educational Institute	Govt. Girls Primary School Gopalpur			
12.	Any disease in the family?	Yes		No ✓	
If Yes, What kind of disease?					

### **ANTICIPATED IMPACTS DUE TO PROPOSED PROJECT**

13.	Have you heard about the project?	Yes ✓		No	
14.	Are you in favor of this project?	Yes ✓		No	
15.	Will there be any impact on Water quality & quantity due to project?	Yes	No ✓	I don't know	
If Yes, then How?					

16.	Will there be any impact on Soil quality due to project? (Soil Erosion, Soil Salinity etc.)	Yes	No ✓	I don't know
If Yes, then How?				
17.	Will there be any impact on Air quality due to project? (Smoke, rise in Temperature, Visibility issue etc.)	Yes	No ✓	I don't know
If Yes, then How?				
18.	Will the Noise due to project have impact on nearby population? (Irritation, Sleeping problem etc.)	Yes	No ✓	I don't know
If Yes, then How?				
19.	Are you expecting any wastewater issues due to project activities? (Effecting groundwater, causing waterborne diseases etc.)	Yes	No ✓	I don't know
20.	Will there be traffic congestion due to vehicle movement pertaining to project activities?	Yes	No ✓	I don't know
21.	Is there any Protected area (Forests/botanic gardens, birds/animal sanctuaries etc.) near the project site?	Yes	No ✓	I don't know
22.	Please mention if you have any suggestion / complaints regarding the project.	Promote welfare of the society and local employment		

Interviewed by: \_\_\_\_\_



## **SOCIO ECONOMIC SURVEY FORM**

### PROJECT NAME: Installation of Pesticides Manufacturing Unit

#### GENERAL PROFILE

Name: Muhammad Khalid

CNIC Number: 35103-7762877-3

Home Address: Gopalpur Multan

Sr.#	Questions	Options			
1.	Age (Years)	18 – 30 ✓	31 – 40	41- 50	51 & above
2.	Education	Illiterate	Upto Middle	Matric	College/ University ✓
3.	Marital Status	<input type="radio"/> Single <input checked="" type="radio"/> Married ✓ <input type="radio"/> Divorced			
4.	If Married, Number of kids	None ✓	1-3	4-6	More than 7
5.	Total Family Members	2-4	5-7 ✓	8-12	More than 12
6.	Religion	Muslim ✓	Hindu	Christian	Any other

#### SOCIO ECONOMIC PROFILE

Sr.#	Questions	Responses			
7.	Occupation	Shopkeeper			
8.	Total Income	5 – 10 Thousand	11 – 15 Thousand	16 – 25 Thousand	More than 25 ✓ thousand
9.	No. of earning family members	1 ✓	2	3	More than 3
10.	Nearest Hospital and Distance (approx.)	LAEEQ RAFIQUE HOSPITAL 05-Km			
11.	Nearest Educational Institute	Govt. Girls Primary School Gopalpur			
12.	Any disease in the family?	Yes		No ✓	
If Yes, What kind of disease?					

#### ANTICIPATED IMPACTS DUE TO PROPOSED PROJECT

13.	Have you heard about the project?	Yes ✓		No	
14.	Are you in favor of this project?	Yes ✓		No	
15.	Will there be any impact on Water quality & quantity due to project?	Yes	No ✓	I don't know	
If Yes, then How?					

16.	Will there be any impact on Soil quality due to project? (Soil Erosion, Soil Salinity etc.)	Yes	No ✓	I don't know
If Yes, then How?				
17.	Will there be any impact on Air quality due to project? (Smoke, rise in Temperature, Visibility issue etc.)	Yes	No	I don't know ✓
If Yes, then How?				
18.	Will the Noise due to project have impact on nearby population? (Irritation, Sleeping problem etc.)	Yes	No ✓	I don't know
If Yes, then How?				
19.	Are you expecting any wastewater issues due to project activities? (Effecting groundwater, causing waterborne diseases etc.)	Yes	No ✓	I don't know
20.	Will there be traffic congestion due to vehicle movement pertaining to project activities?	Yes	No ✓	I don't know
21.	Is there any Protected area (Forests/botanic gardens, birds/animal sanctuaries etc.) near the project site?	Yes	No ✓	I don't know
22.	Please mention if you have any suggestion / complaints regarding the project.	Promote welfare of the society and local employment		

Interviewed by: \_\_\_\_\_



## **SOCIO ECONOMIC SURVEY FORM**

### PROJECT NAME: **Installation of Pesticides Manufacturing Unit**

#### **GENERAL PROFILE**

**Name:** Muhammad Abrar

**CNIC Number:** 35303-4855679-9

**Home Address:** Gopalpur Multan

Sr.#	Questions	Options			
1.	Age (Years)	18 – 30	31 – 40 ✓	41- 50	51 & above
2.	Education	Illiterate	Upto Middle	Matric	College/ University ✓
3.	Marital Status	<input type="radio"/> Single <input checked="" type="radio"/> Married ✓ <input type="radio"/> Divorced			
4.	If Married, Number of kids	None ✓	1-3	4-6	More than 7
5.	Total Family Members	2-4 ✓	5-7	8-12	More than 12
6.	Religion	Muslim ✓	Hindu	Christian	Any other

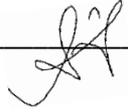
#### **SOCIO ECONOMIC PROFILE**

Sr.#	Questions	Responses			
7.	Occupation	School Teacher			
8.	Total Income	5 – 10 Thousand	11 – 15 Thousand	16 – 25 Thousand	More than 25 ✓ thousand
9.	No. of earning family members	1 ✓	2	3	More than 3
10.	Nearest Hospital and Distance (approx.)	LAEEQ RAFIQUE HOSPITAL 05-Km			
11.	Nearest Educational Institute	Govt. Girls Primary School Gopalpur			
12.	Any disease in the family?	Yes		No ✓	
If Yes, What kind of disease?					

#### **ANTICIPATED IMPACTS DUE TO PROPOSED PROJECT**

13.	Have you heard about the project?	Yes ✓		No	
14.	Are you in favor of this project?	Yes ✓		No	
15.	Will there be any impact on Water quality & quantity due to project?	Yes	No ✓	I don't know	
If Yes, then How?					

16.	Will there be any impact on Soil quality due to project? (Soil Erosion, Soil Salinity etc.)	Yes	No ✓	I don't know
If Yes, then How?				
17.	Will there be any impact on Air quality due to project? (Smoke, rise in Temperature, Visibility issue etc.)	Yes	No	I don't know ✓
If Yes, then How?				
18.	Will the Noise due to project have impact on nearby population? (Irritation, Sleeping problem etc.)	Yes	No ✓	I don't know
If Yes, then How?				
19.	Are you expecting any wastewater issues due to project activities? (Effecting groundwater, causing waterborne diseases etc.)	Yes	No ✓	I don't know
20.	Will there be traffic congestion due to vehicle movement pertaining to project activities?	Yes	No ✓	I don't know
21.	Is there any Protected area (Forests/botanic gardens, birds/animal sanctuaries etc.) near the project site?	Yes	No ✓	I don't know
22.	Please mention if you have any suggestion / complaints regarding the project.	Promote welfare of the society and local employment		

Interviewed by:  \_\_\_\_\_

## **SOCIO ECONOMIC SURVEY FORM**

**PROJECT NAME: Installation of Pesticides Manufacturing Unit**

### **GENERAL PROFILE**

**Name:** Abdul Mateen

**CNIC Number:** 35103-1277226-6

**Home Address:** Gopalpur Multan

Sr.#	Questions	Options			
1.	Age (Years)	18 – 30	31 – 40 ✓	41- 50	51 & above
2.	Education	Illiterate	Upto Middle	Matric	College/ University ✓
3.	Marital Status	<input type="radio"/> Single <input checked="" type="radio"/> Married ✓ <input type="radio"/> Divorced			
4.	If Married, Number of kids	None	1-3 ✓	4-6	More than 7
5.	Total Family Members	2-4 ✓	5-7	8-12	More than 12
6.	Religion	Muslim ✓	Hindu	Christian	Any other

### **SOCIO ECONOMIC PROFILE**

Sr.#	Questions	Responses			
7.	Occupation	Govt. Employee			
8.	Total Income	5 – 10 Thousand	11 – 15 Thousand	16 – 25 Thousand	More than 25 ✓ thousand
9.	No. of earning family members	1 ✓	2	3	More than 3
10.	Nearest Hospital and Distance (approx.)	LAEEQ RAFIQUE HOSPITAL 05-Km			
11.	Nearest Educational Institute	Govt. Girls Primary School Gopalpur			
12.	Any disease in the family?	Yes		No ✓	
If Yes, What kind of disease?					

### **ANTICIPATED IMPACTS DUE TO PROPOSED PROJECT**

13.	Have you heard about the project?	Yes ✓		No	
14.	Are you in favor of this project?	Yes ✓		No	
15.	Will there be any impact on Water quality & quantity due to project?	Yes	No ✓	I don't know	
If Yes, then How?					

16.	Will there be any impact on Soil quality due to project? (Soil Erosion, Soil Salinity etc.)	Yes	No	I don't know ✓
If Yes, then How?				
17.	Will there be any impact on Air quality due to project? (Smoke, rise in Temperature, Visibility issue etc.)	Yes	No ✓	I don't know
If Yes, then How?				
18.	Will the Noise due to project have impact on nearby population? (Irritation, Sleeping problem etc.)	Yes	No	I don't know ✓
If Yes, then How?				
19.	Are you expecting any wastewater issues due to project activities? (Effecting groundwater, causing waterborne diseases etc.)	Yes	No ✓	I don't know
20.	Will there be traffic congestion due to vehicle movement pertaining to project activities?	Yes	No ✓	I don't know
21.	Is there any Protected area (Forests/botanic gardens, birds/animal sanctuaries etc.) near the project site?	Yes	No ✓	I don't know
22.	Please mention if you have any suggestion / complaints regarding the project.	Promote welfare of the society and local employment		

Interviewed by: \_\_\_\_\_



## **SOCIO ECONOMIC SURVEY FORM**

### PROJECT NAME: Installation of Pesticides Manufacturing Unit

#### GENERAL PROFILE

Name: Shahbaz Ahmad s/o Muhammad Saleem

CNIC Number: 36303-6500158-7

Home Address: Gopalpur Multan

Sr.#	Questions	Options			
1.	Age (Years)	18 – 30	31 – 40 ✓	41- 50	51 & above
2.	Education	Illiterate	Upto Middle	Matric	College/ University ✓
3.	Marital Status	<input type="radio"/> Single <input checked="" type="radio"/> Married ✓ <input type="radio"/> Divorced			
4.	If Married, Number of kids	None	1-3 ✓	4-6	More than 7
5.	Total Family Members	2-4 ✓	5-7	8-12	More than 12
6.	Religion	Muslim ✓	Hindu	Christian	Any other

#### SOCIO ECONOMIC PROFILE

Sr.#	Questions	Responses			
7.	Occupation	Govt. Employee			
8.	Total Income	5 – 10 Thousand	11 – 15 Thousand	16 – 25 Thousand	More than 25 ✓ thousand
9.	No. of earning family members	1 ✓	2	3	More than 3
10.	Nearest Hospital and Distance (approx.)	LAEEQ RAFIQUE HOSPITAL 05-Km			
11.	Nearest Educational Institute	Govt. Girls Primary School Gopalpur			
12.	Any disease in the family?	Yes		No ✓	
If Yes, What kind of disease?					

#### ANTICIPATED IMPACTS DUE TO PROPOSED PROJECT

13.	Have you heard about the project?	Yes ✓		No	
14.	Are you in favor of this project?	Yes ✓		No	
15.	Will there be any impact on Water quality & quantity due to project?	Yes	No	I don't know ✓	
If Yes, then How?					

16.	Will there be any impact on Soil quality due to project? (Soil Erosion, Soil Salinity etc.)	Yes	No	I don't know ✓
If Yes, then How?				
17.	Will there be any impact on Air quality due to project? (Smoke, rise in Temperature, Visibility issue etc.)	Yes	No ✓	I don't know
If Yes, then How?				
18.	Will the Noise due to project have impact on nearby population? (Irritation, Sleeping problem etc.)	Yes	No ✓	I don't know
If Yes, then How?				
19.	Are you expecting any wastewater issues due to project activities? (Effecting groundwater, causing waterborne diseases etc.)	Yes	No ✓	I don't know
20.	Will there be traffic congestion due to vehicle movement pertaining to project activities?	Yes	No	I don't know ✓
21.	Is there any Protected area (Forests/botanic gardens, birds/animal sanctuaries etc.) near the project site?	Yes	No ✓	I don't know
22.	Please mention if you have any suggestion / complaints regarding the project.	Promote welfare of the society and local employment		

Interviewed by:  \_\_\_\_\_

## **SOCIO ECONOMIC SURVEY FORM**

### PROJECT NAME: Installation of Pesticides Manufacturing Unit

#### GENERAL PROFILE

**Name:** Muhammad Tanveer Ashraf s/o Muhammad Ashraf

**CNIC Number:** 35202-1490904-5

**Home Address:** Gopalpur Multan

Sr.#	Questions	Options			
1.	Age (Years)	18 – 30	31 – 40 ✓	41- 50	51 & above
2.	Education	Illiterate	Upto Middle	Matric	College/ University ✓
3.	Marital Status	<input type="radio"/> Single <input checked="" type="radio"/> Married ✓ <input type="radio"/> Divorced			
4.	If Married, Number of kids	None	1-3 ✓	4-6	More than 7
5.	Total Family Members	2-4	5-7 ✓	8-12	More than 12
6.	Religion	Muslim ✓	Hindu	Christian	Any other

#### SOCIO ECONOMIC PROFILE

Sr.#	Questions	Responses			
7.	Occupation	Businessman			
8.	Total Income	5 – 10 Thousand	11 – 15 Thousand	16 – 25 Thousand	More than 25 ✓ thousand
9.	No. of earning family members	1 ✓	2	3	More than 3
10.	Nearest Hospital and Distance (approx.)	LAEEQ RAFIQUE HOSPITAL 05-Km			
11.	Nearest Educational Institute	Govt. Girls Primary School Gopalpur			
12.	Any disease in the family?	Yes		No ✓	
If Yes, What kind of disease?					

#### ANTICIPATED IMPACTS DUE TO PROPOSED PROJECT

13.	Have you heard about the project?	Yes ✓		No	
14.	Are you in favor of this project?	Yes ✓		No	
15.	Will there be any impact on Water quality & quantity due to project?	Yes	No ✓	I don't know	
If Yes, then How?					

16.	Will there be any impact on Soil quality due to project? (Soil Erosion, Soil Salinity etc.)	Yes	No ✓	I don't know
If Yes, then How?				
17.	Will there be any impact on Air quality due to project? (Smoke, rise in Temperature, Visibility issue etc.)	Yes	No ✓	I don't know
If Yes, then How?				
18.	Will the Noise due to project have impact on nearby population? (Irritation, Sleeping problem etc.)	Yes	No	I don't know ✓
If Yes, then How?				
19.	Are you expecting any wastewater issues due to project activities? (Effecting groundwater, causing waterborne diseases etc.)	Yes	No ✓	I don't know
20.	Will there be traffic congestion due to vehicle movement pertaining to project activities?	Yes	No	I don't know ✓
21.	Is there any Protected area (Forests/botanic gardens, birds/animal sanctuaries etc.) near the project site?	Yes	No ✓	I don't know
22.	Please mention if you have any suggestion / complaints regarding the project.	Promote welfare of the society and local employment		

Interviewed by: \_\_\_\_\_ 

## **SOCIO ECONOMIC SURVEY FORM**

### PROJECT NAME: Installation of Pesticides Manufacturing Unit

#### GENERAL PROFILE

**Name:** Zaheer Ahmad Bhutta s/o Chaudhry Abdul Haq

**CNIC Number:** 35202-4036952-5

**Home Address:** Gopalpur Multan

Sr.#	Questions	Options			
1.	Age (Years)	18 – 30 ✓	31 – 40	41- 50	51 & above
2.	Education	Illiterate	Upto Middle	Matric	College/ University ✓
3.	Marital Status	<input type="radio"/> Single <input checked="" type="radio"/> Married ✓ <input type="radio"/> Divorced			
4.	If Married, Number of kids	None	1-3 ✓	4-6	More than 7
5.	Total Family Members	2-4	5-7	8-12 ✓	More than 12
6.	Religion	Muslim ✓	Hindu	Christian	Any other

#### SOCIO ECONOMIC PROFILE

Sr.#	Questions	Responses			
7.	Occupation	School Teacher			
8.	Total Income	5 – 10 Thousand	11 – 15 Thousand	16 – 25 Thousand	More than 25 ✓ thousand
9.	No. of earning family members	1 ✓	2	3	More than 3
10.	Nearest Hospital and Distance (approx.)	LAEEQ RAFIQUE HOSPITAL 05-Km			
11.	Nearest Educational Institute	Govt. Girls Primary School Gopalpur			
12.	Any disease in the family?	Yes		No ✓	
If Yes, What kind of disease?					

#### ANTICIPATED IMPACTS DUE TO PROPOSED PROJECT

13.	Have you heard about the project?	Yes ✓		No	
14.	Are you in favor of this project?	Yes ✓		No	
15.	Will there be any impact on Water quality & quantity due to project?	Yes	No ✓	I don't know	
If Yes, then How?					

16.	Will there be any impact on Soil quality due to project? (Soil Erosion, Soil Salinity etc.)	Yes	No ✓	I don't know
If Yes, then How?				
17.	Will there be any impact on Air quality due to project? (Smoke, rise in Temperature, Visibility issue etc.)	Yes	No ✓	I don't know
If Yes, then How?				
18.	Will the Noise due to project have impact on nearby population? (Irritation, Sleeping problem etc.)	Yes	No ✓	I don't know
If Yes, then How?				
19.	Are you expecting any wastewater issues due to project activities? (Effecting groundwater, causing waterborne diseases etc.)	Yes	No ✓	I don't know
20.	Will there be traffic congestion due to vehicle movement pertaining to project activities?	Yes	No ✓	I don't know
21.	Is there any Protected area (Forests/botanic gardens, birds/animal sanctuaries etc.) near the project site?	Yes	No ✓	I don't know
22.	Please mention if you have any suggestion / complaints regarding the project.	Promote welfare of the society and local employment		

Interviewed by: \_\_\_\_\_



## **SOCIO ECONOMIC SURVEY FORM**

### PROJECT NAME: Installation of Pesticides Manufacturing Unit

#### GENERAL PROFILE

**Name:** Muhammad Daood Khan s/o Muhammad Shareef

**CNIC Number:** 35103-1333593-9

**Home Address:** Gopalpur Multan

Sr.#	Questions	Options			
1.	Age (Years)	18 – 30 ✓	31 – 40	41- 50	51 & above
2.	Education	Illiterate	Upto Middle	Matric	College/ University ✓
3.	Marital Status	<input type="radio"/> Single <input checked="" type="radio"/> Married ✓ <input type="radio"/> Divorced			
4.	If Married, Number of kids	None	1-3	4-6 ✓	More than 7
5.	Total Family Members	2-4	5-7	8-12 ✓	More than 12
6.	Religion	Muslim ✓	Hindu	Christian	Any other

#### SOCIO ECONOMIC PROFILE

Sr.#	Questions	Responses			
7.	Occupation	Self Employee			
8.	Total Income	5 – 10 Thousand	11 – 15 Thousand	16 – 25 Thousand	More than 25 ✓ thousand
9.	No. of earning family members	1 ✓	2	3	More than 3
10.	Nearest Hospital and Distance (approx.)	LAEEQ RAFIQUE HOSPITAL 05-Km			
11.	Nearest Educational Institute	Govt. Girls Primary School Gopalpur			
12.	Any disease in the family?	Yes		No ✓	
If Yes, What kind of disease?					

#### ANTICIPATED IMPACTS DUE TO PROPOSED PROJECT

13.	Have you heard about the project?	Yes		No ✓	
14.	Are you in favor of this project?	Yes ✓		No	
15.	Will there be any impact on Water quality & quantity due to project?	Yes	No	I don't know ✓	
If Yes, then How?					

16.	Will there be any impact on Soil quality due to project? (Soil Erosion, Soil Salinity etc.)	Yes	No ✓	I don't know
If Yes, then How?				
17.	Will there be any impact on Air quality due to project? (Smoke, rise in Temperature, Visibility issue etc.)	Yes	No	I don't know ✓
If Yes, then How?				
18.	Will the Noise due to project have impact on nearby population? (Irritation, Sleeping problem etc.)	Yes	No ✓	I don't know
If Yes, then How?				
19.	Are you expecting any wastewater issues due to project activities? (Effecting groundwater, causing waterborne diseases etc.)	Yes	No	I don't know ✓
20.	Will there be traffic congestion due to vehicle movement pertaining to project activities?	Yes	No ✓	I don't know
21.	Is there any Protected area (Forests/botanic gardens, birds/animal sanctuaries etc.) near the project site?	Yes	No ✓	I don't know
22.	Please mention if you have any suggestion / complaints regarding the project.	Promote welfare of the society and local employment		

Interviewed by: \_\_\_\_\_ 

## **SOCIO ECONOMIC SURVEY FORM**

### PROJECT NAME: Installation of Pesticides Manufacturing Unit

#### GENERAL PROFILE

Name: Muhammad Bilal s/o Muhammad Iqbal

CNIC Number: 35103-8251607-5

Home Address: Gopalpur Multan

Sr.#	Questions	Options			
1.	Age (Years)	18 – 30	31 – 40	41- 50 ✓	51 & above
2.	Education	Illiterate	Upto Middle	Matric	College/ University ✓
3.	Marital Status	<input type="radio"/> Single <input checked="" type="radio"/> Married ✓ <input type="radio"/> Divorced			
4.	If Married, Number of kids	None	1-3 ✓	4-6	More than 7
5.	Total Family Members	2-4 ✓	5-7	8-12	More than 12
6.	Religion	Muslim ✓	Hindu	Christian	Any other

#### SOCIO ECONOMIC PROFILE

Sr.#	Questions	Responses			
7.	Occupation	Self Employee			
8.	Total Income	5 – 10 Thousand	11 – 15 Thousand	16 – 25 Thousand	More than 25 ✓ thousand
9.	No. of earning family members	1 ✓	2	3	More than 3
10.	Nearest Hospital and Distance (approx.)	LAEEQ RAFIQUE HOSPITAL 05-Km			
11.	Nearest Educational Institute	Govt. Girls Primary School Gopalpur			
12.	Any disease in the family?	Yes		No ✓	
If Yes, What kind of disease?					

#### ANTICIPATED IMPACTS DUE TO PROPOSED PROJECT

13.	Have you heard about the project?	Yes		No ✓	
14.	Are you in favor of this project?	Yes ✓		No	
15.	Will there be any impact on Water quality & quantity due to project?	Yes	No ✓	I don't know	
If Yes, then How?					

16.	Will there be any impact on Soil quality due to project? (Soil Erosion, Soil Salinity etc.)	Yes	No	I don't know ✓
If Yes, then How?				
17.	Will there be any impact on Air quality due to project? (Smoke, rise in Temperature, Visibility issue etc.)	Yes	No	I don't know ✓
If Yes, then How?				
18.	Will the Noise due to project have impact on nearby population? (Irritation, Sleeping problem etc.)	Yes	No	I don't know ✓
If Yes, then How?				
19.	Are you expecting any wastewater issues due to project activities? (Effecting groundwater, causing waterborne diseases etc.)	Yes	No	I don't know ✓
20.	Will there be traffic congestion due to vehicle movement pertaining to project activities?	Yes	No ✓	I don't know
21.	Is there any Protected area (Forests/botanic gardens, birds/animal sanctuaries etc.) near the project site?	Yes	No ✓	I don't know
22.	Please mention if you have any suggestion / complaints regarding the project.	Promote welfare of the society and local employment		

Interviewed by: \_\_\_\_\_



## **SOCIO ECONOMIC SURVEY FORM**

### PROJECT NAME: Installation of Pesticides Manufacturing Unit

#### GENERAL PROFILE

Name: Yasmin Bibi d/o Muhammad Iqbal

CNIC Number: 35103-768412-6

Home Address: Gopalpur Multan

Sr.#	Questions	Options			
1.	Age (Years)	18 – 30 ✓	31 – 40	41- 50	51 & above
2.	Education	Illiterate	Upto Middle	Matric	College/ University ✓
3.	Marital Status	<input type="radio"/> Single <input checked="" type="radio"/> Married ✓ <input type="radio"/> Divorced			
4.	If Married, Number of kids	None	1-3 ✓	4-6	More than 7
5.	Total Family Members	2-4 ✓	5-7	8-12	More than 12
6.	Religion	Muslim ✓	Hindu	Christian	Any other

#### SOCIO ECONOMIC PROFILE

Sr.#	Questions	Responses			
7.	Occupation	Shopkeeper			
8.	Total Income	5 – 10 Thousand	11 – 15 Thousand	16 – 25 Thousand	More than 25 ✓ thousand
9.	No. of earning family members	1 ✓	2	3	More than 3
10.	Nearest Hospital and Distance (approx.)	LAEEQ RAFIQUE HOSPITAL 05-Km			
11.	Nearest Educational Institute	Govt. Girls Primary School Gopalpur			
12.	Any disease in the family?	Yes		No ✓	
If Yes, What kind of disease?					

#### ANTICIPATED IMPACTS DUE TO PROPOSED PROJECT

13.	Have you heard about the project?	Yes		No ✓	
14.	Are you in favor of this project?	Yes ✓		No	
15.	Will there be any impact on Water quality & quantity due to project?	Yes	No	I don't know ✓	
If Yes, then How?					

16.	Will there be any impact on Soil quality due to project? (Soil Erosion, Soil Salinity etc.)	Yes	No ✓	I don't know
If Yes, then How?				
17.	Will there be any impact on Air quality due to project? (Smoke, rise in Temperature, Visibility issue etc.)	Yes	No ✓	I don't know
If Yes, then How?				
18.	Will the Noise due to project have impact on nearby population? (Irritation, Sleeping problem etc.)	Yes	No ✓	I don't know
If Yes, then How?				
19.	Are you expecting any wastewater issues due to project activities? (Effecting groundwater, causing waterborne diseases etc.)	Yes	No ✓	I don't know
20.	Will there be traffic congestion due to vehicle movement pertaining to project activities?	Yes	No ✓	I don't know
21.	Is there any Protected area (Forests/botanic gardens, birds/animal sanctuaries etc.) near the project site?	Yes	No ✓	I don't know
22.	Please mention if you have any suggestion / complaints regarding the project.	Promote welfare of the society and local employment		

Interviewed by: \_\_\_\_\_



## REFERENCES

- 1 Environment related Laws in Pakistan and the Province of Punjab;
- 2 Google earth, maps.
- 3 Guidelines for Preparation and Review of Environmental Report
- 4 Guidelines for Public Consultation
- 5 Information and data provided by project proponents;
- 6 Information collected from the Technical documents of various suppliers of machinery/equipment.
- 7 Information gathered through discussions with the project related persons of the project proponent;
- 8 Labor Laws
- 9 Meteorological data from meteorological department and website
- 10 National Environmental Policy 2005
- 11 National Environmental Quality Standards (Self-Monitoring and Reporting by Industries) Rules, 2001
- 12 Pakistan Environmental protection act 1997
- 13 Pakistan Environmental Protection Agency (Review of IEE/EIA) Regulations, 2000.
- 14 Pakistan Environmental Protection Order (PEPO) 1983
- 15 Pakistan Penal Code, 1860
- 16 Provincial Wildlife Act, 1974
- 17 Punjab Environmental Protection Act 1997
- 18 The Land Acquisition Act, 1894
- 19 workplace safety and health act 2011

# TERMS OF REFERNCES

These terms and references are being submitted for the subject EIA study under clause 5(f) of policy and procedure for the filing, review and approval of environmental assessment. These TORs of EIA been prepared by WRITE Consulting Services in consultation with proponent of the project. Proposal and TORs for the EIA accepted by the M/s Pak Pansy Private Limited.

## 1. INTRODUCTION OF PROJECT

Subject project is the Installation of Pesticides Manufacturing Unit by M/S Pak Pansy Private Limited to deal with the need of pesticides and micronutrients provide them with basic facilities under the name “**Installation of Pesticides Manufacturing Unit**” located at Plot no: 6-B Multan Industrial Estate, Multan.

## 2. COST OF PROJECT

The total cost of subject project is about **Rs. 150-Million**.

## 3. AREA OF THE PROJECT

Total area of the proposed project is 108,000- SQFT.

## 4. NAME OF PROPONENT

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Name	:	Muhammad Ather S/o Sharif Ahmed
CNIC	:	NIC No. 42101-4593499-11
No.	:	House # 104-D, Block B, Mohalla
Address	:	Nazimabad, Karachi

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## 5. ENVIRONMENTAL CONSULTANT & CLINT

M/s Installation of Agro Chemicals Formulation Unit has appointed WRITE Consulting Services as Consultant for the subject project to conduct the Environmental Impact Assessment. M/s WRITE Consulting Services will be called as “CONSULTANT” and M/s Pak Pansy Private Limited” will be called as “CLIENT”.

## 6. OBJECTIVE OF THE EIA STUDY

The objective of the study includes the compliance of Section 12 of Punjab Environmental Protection Act-1997, Punjab Environmental Quality Standards and fulfilment of HSE conditions.

## 7. PURPOSE OF EIA STUDY

The key objectives of the EIA are to:

1. Document the ecological and socioeconomic baseline conditions of the study area and the affected communities.
2. Inform and obtain input from stakeholders (e.g. government authorities, public and indigenous communities) and capture their relevant issues and concerns.

3. Assess in detail the environmental, social and health impacts that would result from the Project.
4. Identify environmental and social mitigation measures to address the impacts identified.
5. Develop the EMPs as discussed above, based on the mitigation measures developed in the EIA.
6. Meet the requirements or recommendations of the applicable National Environmental Laws and Guidelines.

### **7.1. Scope of Services**

Subject project is the Installation of Pesticides Manufacturing Unit by M/S Pak Pansy Private Limited to deal with the need of pesticides and micronutrients and provide them with basic facilities under the name “**Installation of Pesticides Manufacturing Unit**” located at Plot no: 6-B Multan Industrial Estate, Multan.

In accordance with:

- 1.0 The Punjab Environmental Protection Act 1997 and the
  - 1.1 Various guidelines developed by the Punjab Environmental Protection Agency
  - 1.2 Pakistan Environmental Protection Agency Guidelines
  - 1.3 Guidelines of Labor & Human Resource Department
  - 1.4 Punjab Local Government Guidelines
- 2.0 Review of existing regulatory framework
  - 2.1 Laws and Regulations
  - 2.2 National and International Guidelines and policy
  - 2.3 Guidelines of Labor & Human Department
  - 2.4 Punjab Local Government Guidelines
- 3.0 Methodology for carrying out this study
  - 3.1 Project Description
  - 3.2 Site selection
  - 3.3 Project alternatives
- 4.0 Process Description
  - 4.1 Detailed review of the process
  - 4.2 Design Parameters
  - 4.3 Details related to plant and equipment
- 5.0 Environmental profile of the study area
  - 5.1 Climatology
  - 5.2 Geographical features
  - 5.3 Geological and Hydrological features
  - 5.4 Historical review
  - 5.5 Land use
  - 5.6 Ecology of the area (Flora & Fauna)
- 6.0 Analysis Reports of EPA required parameters
  - 6.1 Sampling of Air, Water and Noise Level

- 6.2 Ambient Air Quality of the project site
- 6.3 Ground Water Quality of the project area
- 6.4 Landscaping
- 7.0 Investigate Socio-Economic and Socio-Environmental aspects and cultural values within and around the operating facility
  - 7.1 Administrative Setup
  - 7.2 Cultural and social values
  - 7.3 Social Cohesion
  - 7.4 Interviews of different groups
- 8.0 Development activities and Waste Management
- 9.0 Identify and evaluate major environmental impacts
- 10.0 Identify mitigation measures and develop Environmental Management and Monitoring Plan
- 11.0 Conclusion based on the study conducted for this EIA.
- 12.0 All other requirements, as set forth by
  - 12.1 The Punjab Environmental Protection Act 1997.
  - 12.2 Various guidelines developed by Environmental Protection Agency Punjab
  - 12.3 Any other legal requirement existing within Pakistan
- 13.0 Site visits for Data Acquisition
- 14.0 Environmental monitoring
- 15.0 Provision of Lab Analysis Reports (Baseline Environmental Reports)
- 16.0 Preparation of Environmental Management Plan
- 17.0 Submission of application for obtaining Environmental Approval/NOC in the office of Director General, EPA, Punjab, Lahore.
- 18.0 Briefing & presentation at the site to Deputy Director/Inspector for Environmental Management
- 19.0 Reply to technical Environmental Objections/Review
- 20.0 Presentation to the expert committee in the office EPA, Punjab
- 21.0 Presentation in the office of Director General, EPA, Punjab

## **8. METHODOLOGY**

### **8.1. Development of Data acquisition plan**

A detailed Data Acquisition Plan (DAP) will be developed immediately after the award of the contract for the internal use of the consulting team. A literature review shall be carried out and a detailed methodology and Work Plan will be developed. The plan will identify specific requirements of primary and secondary data and their sources; determine time schedules and responsibilities for their collection; and indicate the logistics and facilitation needs.

### **8.2. Data Collection**

In this step, physical, technical and environmental parameters of the environmental study shall be collected from the Client and other agencies. Field visits shall be made

to carryout socio-economic survey. An extensive feedback/cross examination of all the stake holder in the neighborhood will also be carried out in this step.

Following types of information are likely to be collected for this assignment:

***Physical Surveys:***

Proposed environmental study area

- Climatology
- Topography, Geology
- Geomorphology
- Demography
- Hydrology, Hydrogeology
- Ecology, flora and fauna
- Socio-Economic conditions
- Sensitive Areas

***Environmental Surveys:***

Environmental survey will be conducted to find out various environmental associated with effluent and solid waste handling as well as air emissions.

**8.3. WORK PLAN**

The work plan and description of activities has been formulated with reference to the scope of included herein. The activities will span over the period of four (02) weeks for the draft report preparation. This period will start from the date on which authorization to start the EIA, environmental audit study is given to WRITE Consulting Services by M/s Installation of Agro Chemicals Formulation Unit. The final draft of EIA report will be share with the client for comments before submission of report in the office of Director General, EPA, Punjab, Lahore.

**8.4. SAMPLE COLLECTION & LABORATORY ANALYSIS**

During the site visits, the significant areas will be identified and the samples of underground/surface water and waste water will be collected for laboratory analysis, air monitoring and noise levels measurement will also be carried out. The water samples will be tested in certified environmental laboratory, and will then be forwarded to our concerned departments for analysis with respect to the preparation of the EIA.

**8.5. DATA ANALYSIS**

The data collected in the steps above will be analyzed. A sensitivity analysis shall be carried out by using the statistical software.

**8.6. IDENTIFICATION AND SCREENING**

Based on the data analysis, impacts shall be identified and any significant impacts shall be screened.

**8.7. DRAFT AND FINAL REPORT**

A copy of the Draft report shall be submitted to the Client for comments within one month after the modifications will be incorporated. Final report will be submitted to the Client and in the Office of Director General, EPA, Punjab, Lahore on behalf of the proponent.

## **8.8. CLIENT RESPONSIBILITY**

We expect the following inputs from the clients:

- I. As soon as the Proposal is accepted, the Consultants will request for the nomination of senior officer to be nominated as Coordinator who will be responsible for all coordination activities as required by the Consultants and to whom the Consultants will refer for information and assistance. All correspondence between the Consultants and the CLIENT will be routed through the coordinator.
- II. WRITE Consulting Services require free access to all relevant information available with the Client.
- III. Assess and identify major potential issues and impacts particularly those which may have influence on design, construction and operation at any stage.
- IV. The report developed for the CLIENT shall be the property of the CLIENT and the Consultant shall adhere to confidentiality morality as well as legally.
- V. Client will provide relevant documents as,
  - a) Signed application on company letter head (pattern will be provided).
  - b) Affidavit on Rs 100- Stamp Paper (pattern will be provided)
  - c) Undertaking on Rs. 100/- Stamp Paper (pattern will be provided)
  - d) Copy of NIC of proponent
  - e) Signature on Schedule IV (pattern will be provided)
  - f) Detail Company Profile
  - g) Details of firefighting Equipment
  - h) Layout Map of the project
  - i) Other NOCS/Certificates form other concerned departments (if any)
- VI. If any legal litigation arises from stockholders during the proceeding of EIA. The consultants will not be responsible for the delay in the approval process.

Signature:

**CONSULTANT**

M/s WRITE Consulting Services



Signature:

**CLIENT**

M/s Pak Pansy Private Limited

## Profile of IEE/EIA Professional Team

<b>1. Dr. Faiz Rabbani</b>				
Designation	Chief Chemist / Subject Matter Specialist (SMS)			
Qualification	Ph.D. Chemistry			
Institution	University of Engineering & Technology, Lahore, Punjab, Pakistan.			
Sectors	Government Agency, Industries, Environmental Monitoring, Autonomous Bodies (Education Sector), Entrepreneur (Environmental Consultancy)			
Experience	10 Years			
Worked With:	1. COMSIT Abbotabad. 2. COMSIT Vehari. 3. ECO-IDEAL Consultants for 02 years as Chief Chemist/ Subject Matter Specialist (SMS)			
Skills	Research & Development, Chemist, Environmental Assessment, Conservation Strategies and Policies, Project Management			
Environmental Assessment Experience	Reports drafted	30	Reports reviewed	Nearly 50
<b>2. Dr. Naveed Anwar</b>				
Designation	Sr. Environmentalist / Environmental Professional			
Qualification	Ph.D. (Environmental Sciences) HSE Specialist			
Institution	Beijing University of Chemical Technology, CHINA.			
Sectors	Research & Development, Environmental Law and Regulations, Environmental Policy and Standards, Applied Sciences in Environmental Management, Environmental Chemistry, Solid Waste Management, Global Environmental Changes, Water Pollution and Control, Air & Noise Pollution and Control, Environmental Toxicology, Environmental Microbiology, Environmental Ecology, Environmental Impact and Risk Analysis, Resources & environment, Plant nutrition and safety of agriculture, Autonomous Bodies (Education Sector), Entrepreneur (Environmental Consultancy)			
Experience	5 Years			
Worked With:	Government College University Lahore, ECO-IDEAL Consultants			
Skills	Research & Development and Planning, Environmental Assessment, Environmental Audit, Wastewater Treatment Technologies, Pollution Abatement			

	Technologies, Industrial/Hospital Waste Management, Environmental Monitoring, Conservation Strategies and Policies, Project Management, Import/Export of material under Basel Convention, Networking and PR			
Research and Publications	<ol style="list-style-type: none"> <li>1. Temporal changes in trace elements in brown soil and soybean after long term fertilization, Arabian Journal of Geosciences, 10:289, 1-13, 2017.</li> <li>2. Integrated treatment of pharmaceutical effluents by chemical coagulation and ozonation Separation and Purification Technology, 158, 383-386, 2016.</li> <li>3. Study on characteristics of ammonium nitrogen adsorption by biochar prepared in different temperature Advanced Materials Research (Trans Tech Publications, Switzerland), 724-725, 452-456, 2013.</li> </ol>			
Academic Scholarships/Awards	July, 2012 Doctoral Scholarship funded by the Liaoning Government, China in the College of Land and Environment, Shenyang Agricultural University, Shenyang, Liaoning, China.			
Projects	Monitoring of project under “Sustainable Livelihoods in Barani Areas Project (Abad) in District Narowal.			
Environmental Assessment Experience	Reports drafted	50	Reports reviewed	Nearly 300
<b>3. Mubeen Shoukat</b>				
Designation	Environmental Associate			
Qualification	BS Environmental Sciences MS Total Quality Management			
Institution	Government College University, Lahore University of the Punjab			
Sectors	Consultancy Firm			
Experience	2 Year			
Worked With:	IE Solutions Consultants Eco-IDEAL Consultants Quality Management Systems 9000 Pak Elektron Limited (PEL) Head Office			
Skills	Environmental Auditing (Lead Auditor ISO 14001:2015), Social Survey, Lab working			

Environmental Assessment Experience	Reports Review	40	Field Survey	70
<b>4. Noor Bibi</b>				
Designation	Environmental Associate			
Qualification	BS Environmental Sciences			
Institution	Government College University, Lahore			
Sectors	Consultancy Firm			
Experience	1 Year			
Worked With:	ECO-IDEAL Consultants			
Skills	Social Survey, Lab working			
Environmental Assessment Experience	Reports Review	5	Field Survey	5
<b>5. Amna Ali</b>				
Designation	Environmental Associate			
Qualification	BS Environmental Sciences			
Institution	Government College University, Lahore			
Sectors	Consultancy Firm			
Experience	Fresh			
Worked With:	ECO-IDEAL Consultants			
Skills	Environmentalist, Social Survey, Lab working			
Environmental Assessment Experience	Reports Drafted	3	Field Survey	2
<b>6. Muhammad Mausab Khan</b>				
Designation	Compliance Officer			
Qualification	BS Environmental Sciences			
Institution	Government College University Lahore			
Sectors	Consultancy Firm			
Experience	1 Years			
Worked With:	ECO-IDEAL Consultants			
Skills	Social Survey, Lab working			