EIA

THE SUPPLEMENT SOLUTION

(Nutraceutical Unit)

Mouza Sundar Multan Road Lahore

Consultant:

ECO-IDEAL CONSULTANTS®

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Disclaimer

The data was based on the originality of project site shown by the project proponent / stakeholders / promoters, provided maps, verbal communications and all other related documents. The authenticity of supra-mentioned relies with the proponent / stakeholders / promoters, not with the environmental consultant. The IEE report can't be negotiated in any court of law.

Author: _____

EIA & EIA Team

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EXECUTIVE SUMMARY

The subject proposed project is THE SUPPLEMENT SOLUTION located at Mouza Sundar Lahore. The project mainly is the manufacturing of pharmaceutical products under the name of THE SUPPLEMENT SOLUTION. The total area of the proposed project is 04-Kanal. The total cost of proposed project is approximately 150 million.

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	**:**	*Yumna Tariq w/o Sulahudin Tariq*
NIC No.	**:**	*35202-2297218-2*
Address	**:**	*House No.154 Block Ghouri Sector Bahria Town Lahore*

NAME OF THE ORGANIZATION PREPARING THE REPORT

ECO-IDEAL Consultants, as independent consultants, has been appointed by the proponent to conduct Environmental Impact Assessment (EIA). Company office address is 209-H, Fazaia Housing Society, Phase-I, Lahore, Contact: 0304-9588595.

PROJECT'S SALIENT FEATURES

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

Title	THE SUPPLEMENT SOLUTION
Location	Mouza Sundar Lahore
Google coordinates	31.346222, 74.117836
Total Area	03-Kanal
Total Cost	PKR 150-Million
Production Capacity	100kg/day

BRIEF OUTLINE OF PROJECT

The project is located at Mouza Sundar, Multan Road, Lahore. Establishment of manufacturing unit of pharmaceutical products will enhance the production capacity of

Nutraceutical medicine. It will also increase the employment opportunities for local and overall increase in GDP of the country.

ENERGY AND WATER AVAILABILITY

The electricity supply for the proposed project will be fulfilled through power plant installed by WAPDA. The water requirements of the facility will be fulfilled by a bore well being used for water, for all the construction 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
CONSTRUCTION PHASE		
Dust emissions likely to occur during the excavation of the top soil and loading and transportation of the construction waste.	Minor / Short term	• Watering all active construction areas when necessary. • Cover all trucks hauling soil, sand and other loose materials. Pave, apply water when necessary, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites. • Sweep daily (with water sweepers) all paved and unpaved access roads lead to the construction sites. • Provision of PPEs to workers

Hydrology and water quality degradation.	Minor / Short term	• Installation of the septic tank. • The proponent will prepare hazardous substance control systems and emergency response plans that will include preparations for quick and safe clean-up of accidental spills.
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 have 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	• Install portable barriers to shield compressors and other small stationary equipment where necessary. • 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.
Workers accidents and hazards during construction.	Minor / Long term but reversible	• Provision of appropriate and adequate Personal Protective Equipment (PPE) to employees. • Enforcement and proper use of PPE by all construction workers. • Provision of appropriate tools, equipment, and machinery in

		sound working conditions to employees.
OPERATION PHASE		
Solid waste production during the operational activities.	Major / Long term	There will be no generation of major solid waste. The general waste or waste during cleanliness / maintenance of machinery & equipment will be produced that will be disposed of properly through EPA Approved contractor to avoid any threat to the environment.
Noise will be generated from the machinery and standby generator.	Minor / Long term	• Machinery will be maintained properly, to reduce the noise. • Sound proof or properly tuned generators will be installed. • Noise reduction measures like buffering of noise should be adopted where deemed necessary to reduce the noise level at the project boundary.
Disruption of water quality due to mixing of oils, grease, and lubricants during operations and unhandled disposal of sewage water.	Minor / Short term	• 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.

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

Environmental segment/element	Monitoring parameters	Reference location / monitoring Point	Monitoring frequency
CONSTRUCTION PHASE			
Water Quality	As prescribed by the Punjab environmental Drinking Water Quality Standards	Main Drinking Water Source	Quarterly
Ambient air Emissions	Dust, smoke, PM, SOx, NOx, CO,	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
OPERATIONAL PHASE			
Waste water including Sewage	Ensure that all wastewater is treated to the level set by the PEQS.	Main Disposal Site	Quarterly

Noise	Noise levels	Operation area	Periodic monitoring
Solid Waste Disposal	Ensure that all wastes are disposed of according to legal requirements of the country.	solid waste	Regularly in connection with environmental and safety rounds.

TABLE: Environmental Management Cost

Environmental Component	**Quantity**	**Approximate Cost (PKR)**
(i) Tree Plantation	1000	200,000.0
(ii) Health and Safety Measures and Provision of PPEs	L.S.	100,000.0
(iii) Environmental Monitoring	4	200,000.0
Total Environmental Management and Monitoring Cost		**500,000.0**

STAKEHOLDER CONSULTATIONS

Public discussions were held with the inhabitant of the surrounding area. They are quite positive about the project 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 proposed project of establishment of nutraceutical unit by M/S THE SUPPLEMENT SOLUTION. EIA findings depict that people perceive overall positive social and economic impacts by the project. Their attitude towards the project is highly optimistic. Majority of the people are convinced for industrial development in the area and they correlate this progress with the pace of their social mobility.

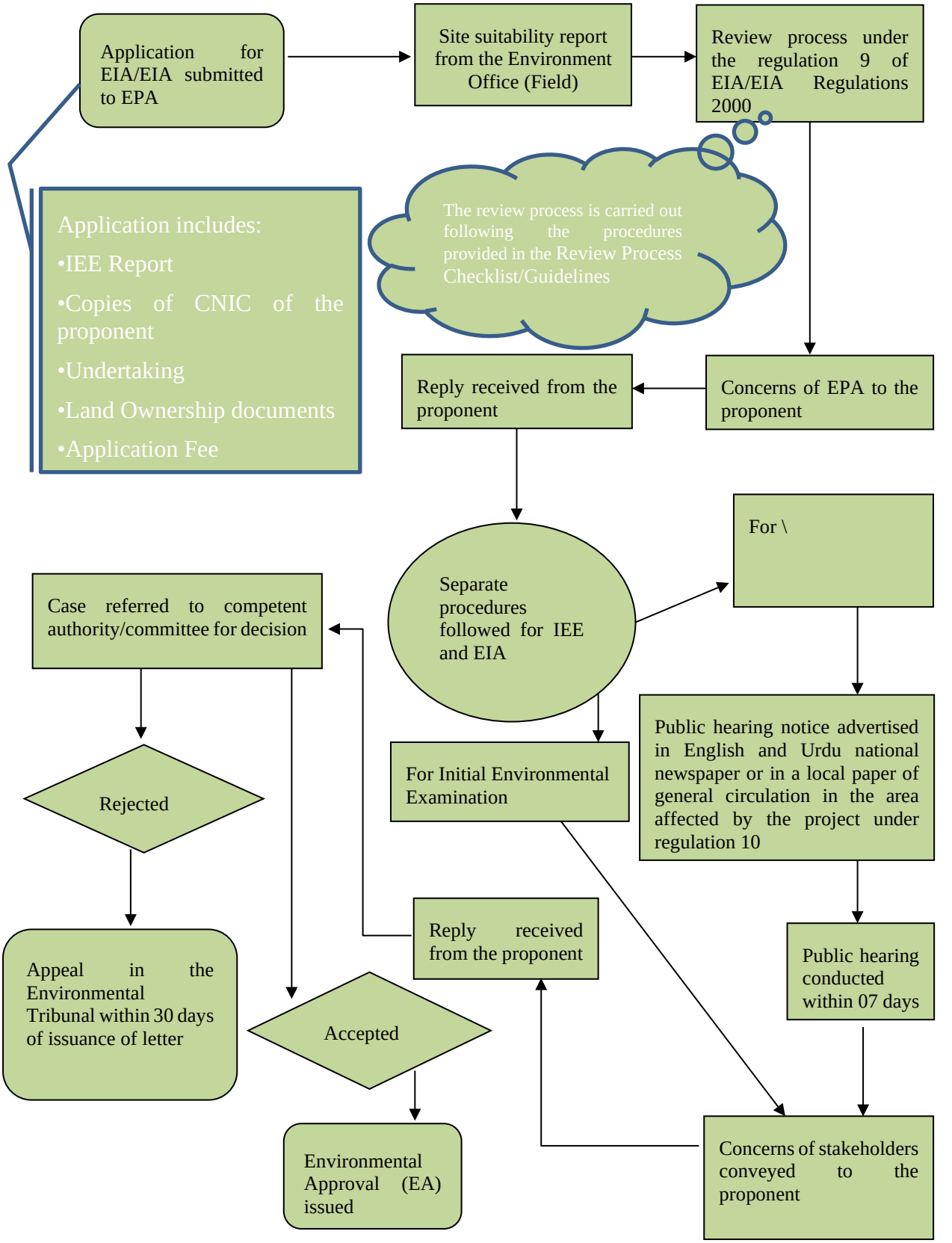
CONCLUSION AND RECOMMENDATION

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 project description then changes should be carried out through amendments in environmental assessment report and EMP of the EIA.

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.

EIA/IEE PROCESS FLOWCHART



SECTION - 1

INTRODUCTION

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

M/s THE SUPPLEMENT SOLUTION is going to commence the manufacturing unit for pharmaceutical products (medicinal drugs). The project is located at Mouza Sundar Lahore.

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

1.1 Purpose of Report

The proposed project is "***Nutraceutical Manufacturing Unit***" by M/s THE SUPPLEMENT SOLUTION. 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

The project falls under Schedule II (List of projects requiring an EIA), Category B (Manufacturing and Processing), Sr. 2 (Chemical manufacturing units, including pharmaceuticals and cosmetic) TORs of the study under clause 5 (f) of policy and procedure for the filing, review and approval of Environmental Impact Assessment are attached as **Appendix.**

1.3 Identification of the Proponent

Name	**:**	*Yumna Tariq w/o Sulahudin Tariq*
NIC No.	**:**	*35202-2297218-2*
Address	**:**	*House No.154 Block Ghouri Sector Bahria Town Lahore*

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 ECO-IDEAL 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 209-H, Fazaia Housing Society, Phase-I, Lahore, Contact: 0304-9588595.

The current study was carried out by the professional team of ECO-IDEAL Consultants. The profile of EIA/EIA Professional Team is attached as **Appendix.**

1.5 Objective of Report

Objectives to conduct this EIA are as following:

1) A legal binding in accordance to 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 requirements, an EIA report has been prepared by M/s ECO-IDEAL Consultants. 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) Review of treatment technology
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

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

1.8 The Report Structure

This EIA document is structured as follow:

Section–1: **Introduction:** Containing general information about the project and process of carrying out the study.

Section-2: **Screening:** Containing the information regarding project in which schedule it falls and cost of the proposed project

Section-3: **Scoping: C**ontaining spatial and temporal boundaries 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: **Health and Safety Plan:** It explains the necessary measures which should be taken for the worker's health and safety.

Section –12: **Conclusion and Recommendation:** Concludes the EIA report with some practical recommendation.

SECTION – 2

SCREENING

The subject proposal is development of manufacturing unit of nutraceutical products namely **THE SUPPLEMENT SOLUTION** to be located at Mouza Sundar Lahore. The daily production capacity of the proposed unit is 100kg/day and estimated total cost 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. Accordingly, the project falls under Schedule II (List of projects requiring an EIA), Category B (Manufacturing and Processing), Sr. 2 (Chemical manufacturing units, including pharmaceuticals and cosmetic) of Review of EIA/EIA Regulations, 2022, made under section 12 of the Punjab Environment Protection Act 1997 under which the Environmental Impact Assessment (EIA) study is mandatory for getting Environmental Approval. The Director General, EPA Punjab is the authority to issue the requisite Environmental Approval after proper review of the project.

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 Initial Environmental Examination (IEE) Study.

SECTION-3

SCOPING

Scoping is the process of identifying the key environmental issues and is perhaps the most important step in an EIA/IEE. 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.

3.0 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 (ECO-IDEAL Consultants) 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.

3.1 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 VECC 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 effect assessment, spanning baseline to a point in the future, within which project effects on VECC are predicted to overlap with effects of other projects or activities.

3.2 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 condemns 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.

3.3 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_x, NO_x and CO emissions can cause health issues to workers	Spray by water trucks to minimize the dust. Maintenance of construction machinery shall be made mandatory. Haul-trucks carrying earth, sand, aggregate and other materials will be kept 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 clearing of vegetation from the site.	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 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.
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. Also, diesel fired generator may cause emissions.	Proper maintenance and tuning of the vehicles will be done by proponent. Proposed Site is in load shedding free zone area, so, generator only use to handle emergency condition. Generators will be maintained well in time to avoid emission of black smoke.

	Plantation will be done along the boundary walls will help protecting the environment.
The movement of transportation vehicles and running of generator can cause slight increase in noise levels. Operation of machinery e.g. cutting, and welding of sheets will cause noise emission.	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. Use of Personal Protective Equipment's will be used to reduce the noise impact on surrounding environment.
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.
Duration of Impact	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.
Geographical Extent		The geographical extent may be local or regional.
Project Phases		Pre-construction Phases (designing), Construction Phases, Operational Phases
Reversibility of Impact	Temporary (T)	The impacts that don't cross ecosystem threshold value of resilience.
	Permanent (P)	The impacts that exceed ecosystem threshold value of resilience.
Likelihood of the Impact	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.
Impact Consequence Severity	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;

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**
Nature	**Direct (D)**	✔					✔	✔

	Indirect (ID)			✔		✔		✔
Duration of Impact	**Short Term (ST)**		✔		✔		✔	
	Medium Term (MT)	✔		✔		✔		✔
	Long Term (LT)				✔			
Geographical Extent Project Phases	**Local**	✔	✔			✔	✔	✔
	Regional			✔	✔			
Reversibility of Impact	**Temporary (T)**	✔	✔		✔	✔	✔	✔
	Permanent (P)			✔				
Likelihood of the Impact	**Likely (L)**	✔					✔	
	Unlikely (UN)							
	Possibly (P)		✔					✔
	Rare (R)			✔	✔	✔		
Impact Consequence Severity	**Major (M)**							
	Moderate (Mo)		✔				✔	
	Minor (Mi)	✔		✔				✔
	Negligible (N)				✔	✔		

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

The project, **THE SUPPLEMENT SOLUTION** is the manufacturing unit of nutraceutical products. The total production capacity is 100kg/day. For this purpose, this requires legal requirement for the "**THE SUPPLEMENT SOLUTION**" for EIA of the proposed project.

4.1 Type and Category of Project

The project is an industrial facility. In accordance with the Environmental Protection Agency, Government of the Punjab, Lahore, List of Projects Requiring an EIA, the project under consideration falls in Schedule II (List of projects requiring an EIA), Category B (Manufacturing and Processing), Sr. 2 (Chemical manufacturing units, including pharmaceuticals and cosmetic) of Review of EIA/EIA Regulations, 2022. 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 project is the industrial facility in nature. The main objective of the project is the manufacturing of pharmaceutical products. It will meet the demand for local markets. It has socioeconomic aspects as well which will contribute to the national economy of the country.

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 03-Kanal. The project has been designed for the manufacturing of pharmaceutical products at **THE SUPPLEMENT SOLUTION**.

4.4 Location of the Project

The project is located at Mouza Sundar Lahore. The project in its vicinity has infrastructure like other machinery & equipment, roads, transport, electricity etc.

Figure: Google map of the Project.

The coordinates of the project are:-

East	----------	Open plot
West	----------	Road

North ---------- Open plot
South ---------- Industrial Unit

4.5 Road Access

The project is accessible through Multan Road. All the access roads are paved and are in good conditions.

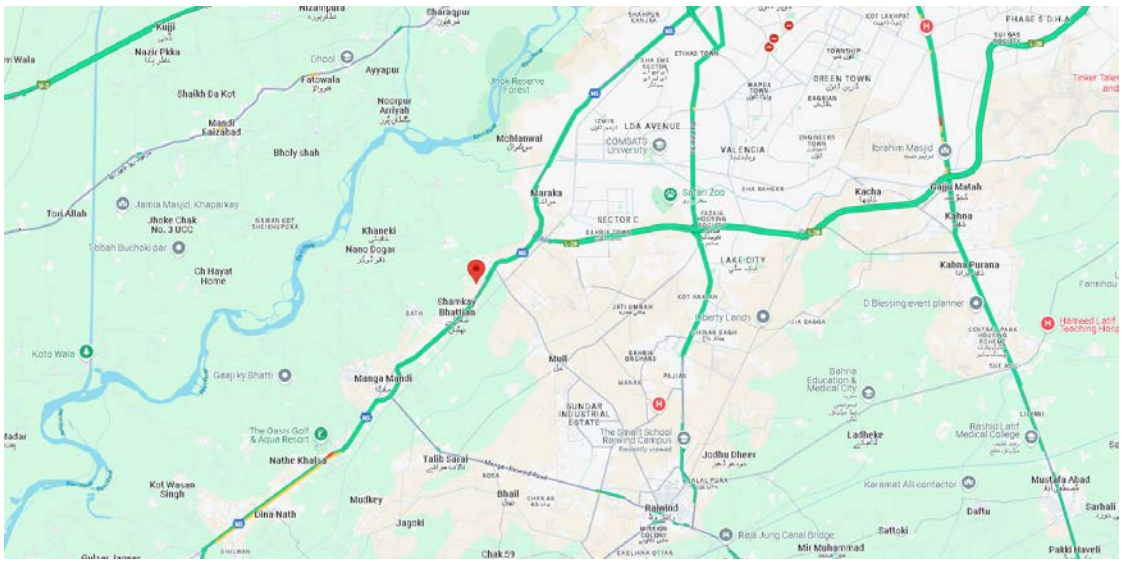


Figure: Road Access of the Project Site

4.6 Project Description

The proposed project, **THE SUPPLEMENT SOLUTION** is the manufacturing unit of pharmaceutical products. Under Punjab Environmental Protection Act-1997, ecofriendly machinery will be installed to enhance the production capacity to meet the needs of local market. The fuel and latest machinery must comply with the Punjab Environmental Quality Standards (PEQS).

4.6.1 Manufacturing Process

The manufacturing of tablet and capsule at THE SUPPLEMENT SOLUTION is as below:

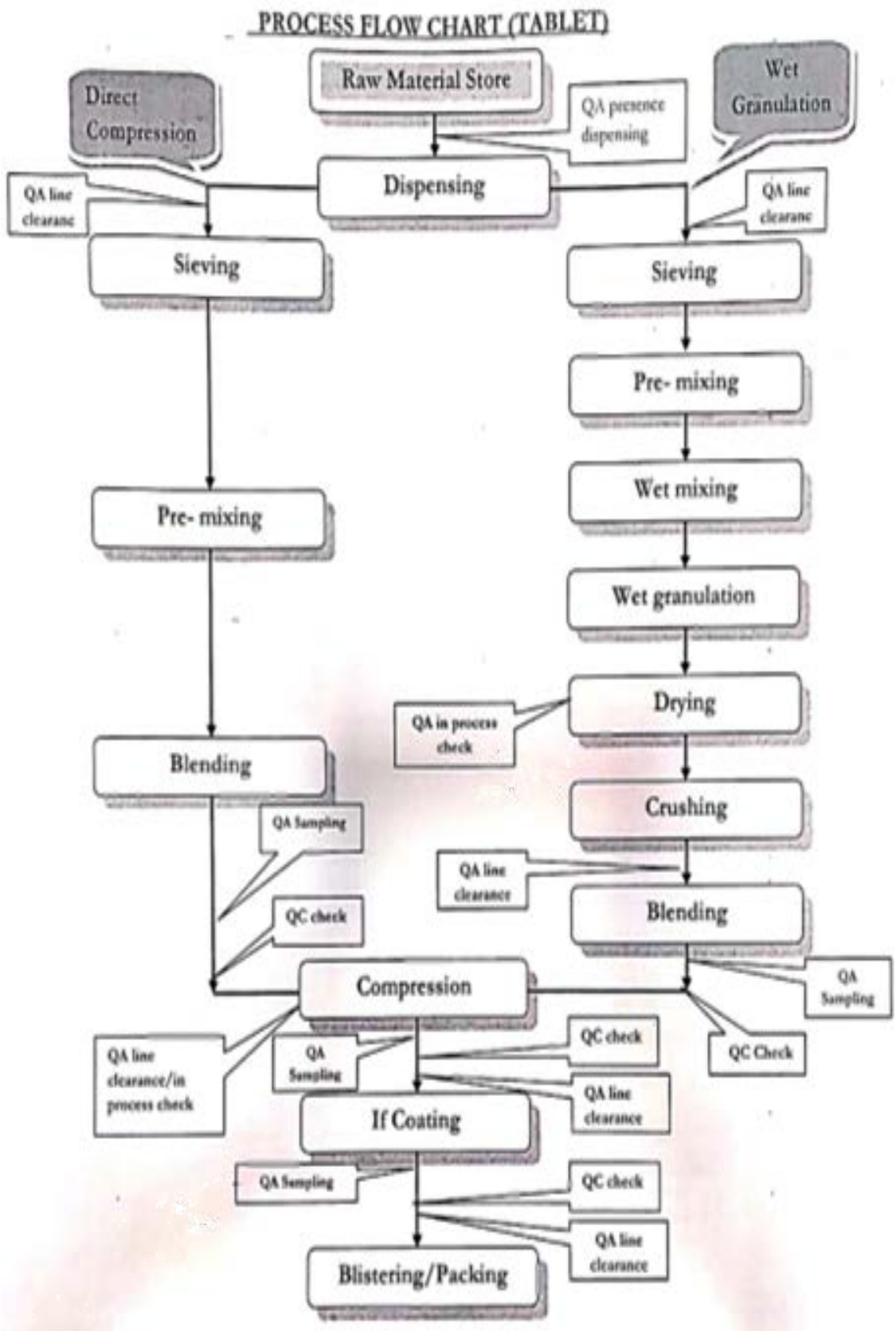


Figure: Process flow diagram (Tablet)

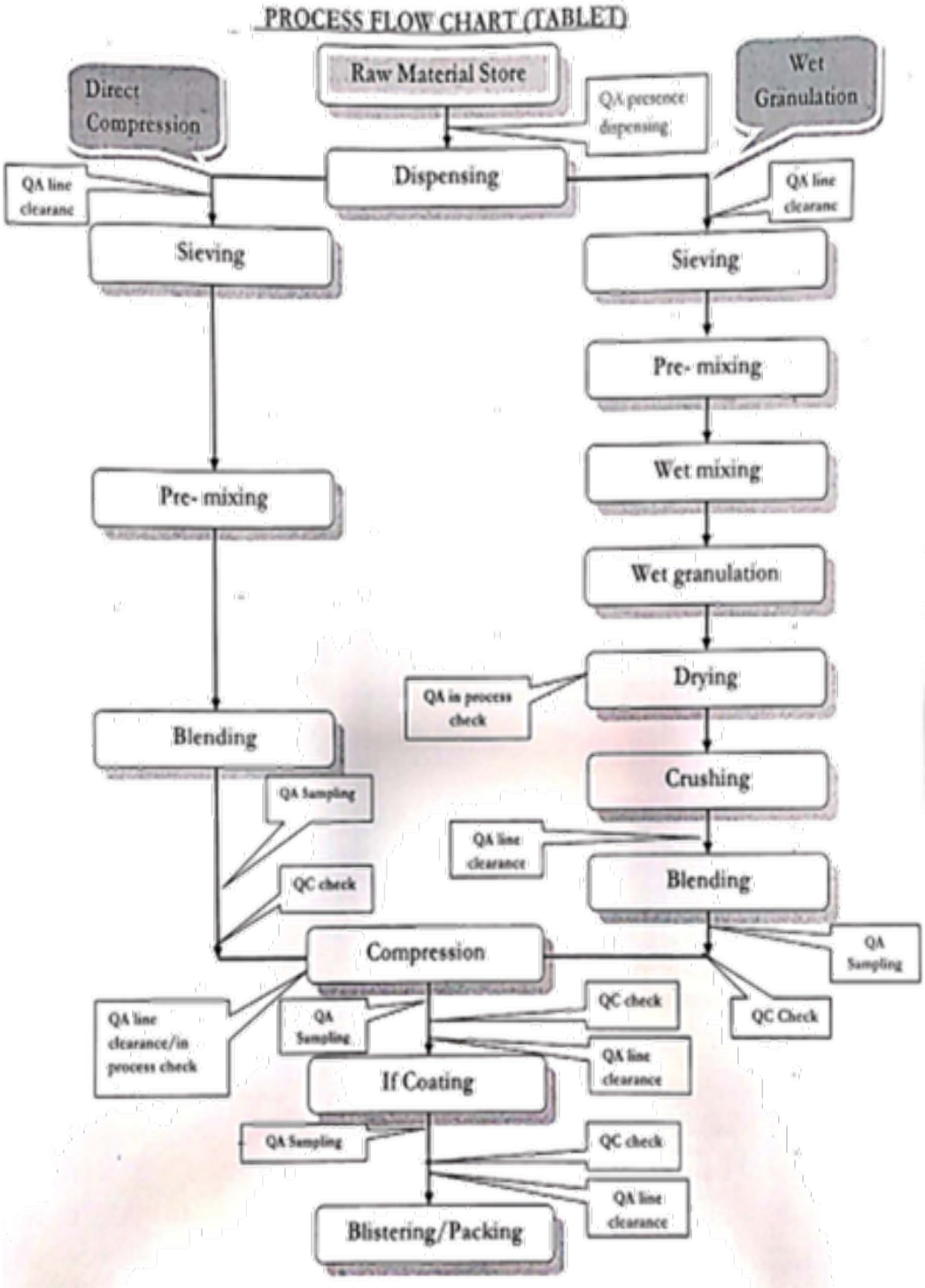


Figure: Process flow diagram (Capsule)

4.7 Construction Period and Cost

The project, cost estimated about **Rs. 150-Million**, will be commissioned expectedly in 2025. The rates for cost estimates are based on construction work, contractor cost, cost of machinery & equipment, 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:

1st Stage

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

2nd 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) Fitting of instrumentation.

3rd Stage

The stage –3 comprises the following task:

1) Civil structure erection completion.
2) Completion of the basic infrastructures, electricity supply etc.

4th Stage

The last stage will be the commencement of regular operation.

4.8 Energy Use

The electricity demand will be fulfilled from power plant already installed by the proponent within industrial unit. Actual absorbed power will be 200 KW. 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.

4.9 Water Consumption and Wastewater Disposal

The water requirements of the facility will be fulfilled by the water extraction system, for all the construction activities. In construction phase, 6000 gallon/day water will be used. During Operation phase, 1,000 gallon/day waster will be consumed. Quantity of wastewater generated in construction phase will be 25.5% and in regular operation of the project will be 42%. The treated wastewater will be disposed off in sewer system of area.

4.10 Solid Waste

In construction phase all waste materials such as landscape and land clearing debris, gravel and aggregate products, concrete, masonry scrap and rubble (brick, concrete masonry, stone), and plastics and paper from cement bags will be recycled during the construction activities as road filling and maintenance purposes. Solid waste by domestic sources will be generated during construction phase which will be placed in separate bins. In operational phase, waste will be produced from offices and production area that will be hand over to EPA Certified vendor.

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 Staff

Sr. No.	Category of Staff	Tentative Number

1	Engineer	1
2	Construction Manager	1
3	Site Engineer	1
4	Supervisor	1
5	Foreman	1
6	Skilled Worker	10
7	Semi-Skilled Worker	20
8	Machinery Operator	1
9	Administration	2

Table: List of Machinery to be used for Construction

Sr. No.	Type of Machinery	Quantity
1	Dumper & Loader	1
2	Tractor & Trolley	1
3	Water Bowser	2
4	Lift/Crane	1
5	Concrete Mixing Plant	1

4.13 Health and Safety

A well-maintained health and safety plan will be established. It will assure the contractor will maintain all the safety measures in construction phase. Mainly ear muffs and helmets will be provided at the time of operation. Operational activity is 98% automated. Beside this safety mats, shoes, gloves all will be part of the work's dress.

Table: Details of PPEs

Protection	Occupational Hazards	PPEs
Head Protection	Falling objects, inadequate height clearance, and overhead power cords	Helmets with or without electrical protection

Hand protection	Hazardous material, cuts or lacerations, vibrations, extreme temperatures	Synthetic or Rubber gloves, leather, insulating material etc.
Eye and face protection	Flying particles, molten metal, liquid chemicals, gases or vapors, light radiation	Glasses, shield protective, etc.
Hearing protection	Noise, ultra sound	Hearing protectors like ear plugs, ear muffs
Respiratory protection	Dust, fogs, fumes, gases, smokes, vapors, oxygen deficiency	Facemasks or air supply
Body protection	Extreme temperatures, hazardous materials, biological agents, cutting and laceration	Aprons, insulating clothing etc. of appropriate materials

4.14 Safety Signs / Safety Boards

At any workplace Safety signs and symbols are very important to avoid many accidents. They must be in easy and understandable language to all the workers. Workers should have the knowledge of sign wordings and they must be trained and aware about them. Safety signs, symbols and boards must be provided by every site to protect the workers and employees from the risks of hazards that has not been controlled by other means. Safety signs and boards give safety message and they must be of different colors that workers could understand their meanings easily. At the subject project, safety signs and boards will be placed to avoid the workers and staff from any risk.

4.15 Restoration or Rehabilitation of the Project

There will not be any matter of rehabilitation as the proposed site is already owned by the project proponent. None of the projects will have any impact on existing safety factors. However, at the end of the life of the installation, 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.

4.16 Government Approval Required by the Project

The concerned authority has been approached for the building plan. 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 section 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 "**THE SUPPLEMENT SOLUTION**" 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 on converted land from agricultural to industrial area. 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 SUPPLEMENT SOLUTION** where all facilities are available.

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 Manga Mandi which was rejected due to residential locality and other operational issues. The site B was selected in Sundar Industrial Estate which was not selected due to financial burden in its operational objectives and facilities provided by the Sundar Industrial Estate.

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 “THE SUPPLEMENT SOLUTION is situated at Mouza Sundar Lahore.

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. The description of physical environment of Lahore and the project site is present in the following sub sections.

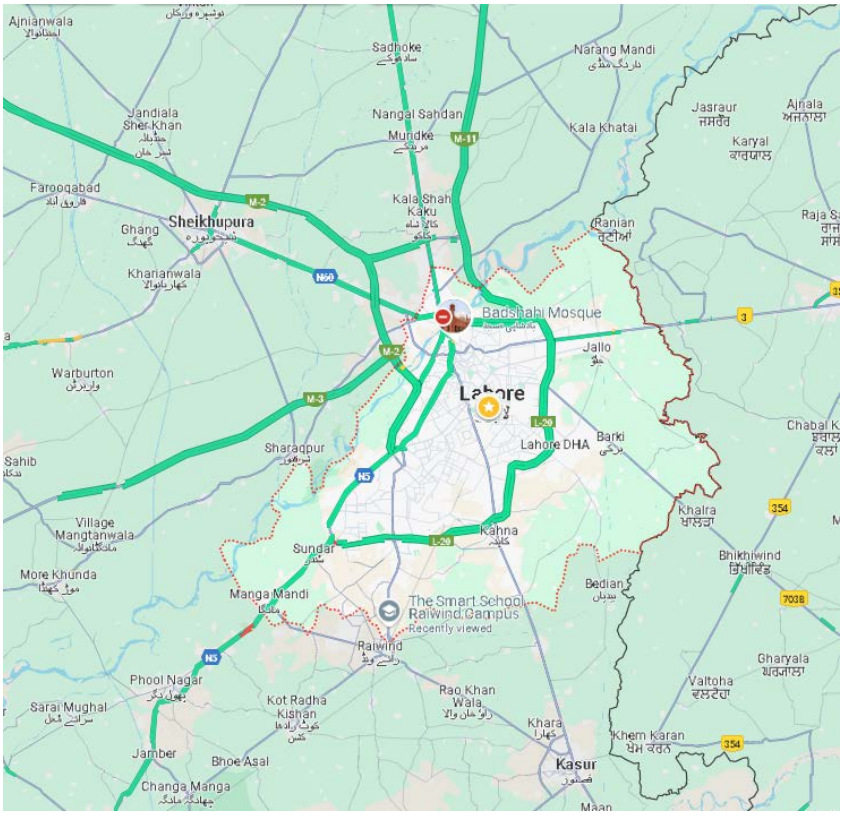


Figure: Map of District Lahore

6.2.1 Topography

The topography of the project area is flat. The General height of the area is approximately 220 meters above the Mean Sea Level (MSL). The district Lahore is divided into two parts. The low-lying alluvial soil is along the Ravi River and the upland in the east. Upland is a plain slope from north-east to south-west. The lowlands are generally inundated during the monsoon season by Ravi River, flowing in the west of district along its boundary with district Sheikhupura.

6.2.2 Geological Formation and Soil

The soil deposits at the project site belong to Chung Fun formation indicating the last glacial cycle. It was followed by the period of melting of glaciers, resulting in deposition of clay, silt and sand deposits in late Pleistocene to recent. With gradual with drawl of the sea during the late territory time, shallow water and possibly deltaic deposits were laid down. It became a vast flood plain on which debris of numerous streams have mingled to load it with huge thickness of alluvial material derived from the Himalaya. Though, there is no evidence of any glaciations in the area, the series of

great climatic changes during the Pleistocene period had impact on the sedimentation in physiography of this region. The presence of old channels of Ravi River indicates conformity of the stream oscillation to terrestrial rotation in the deflection of streams. However, abrupt migration indicates period of excessive flooding during which earlier channels were choked with sediments and the streams were forced to create new channels.

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.

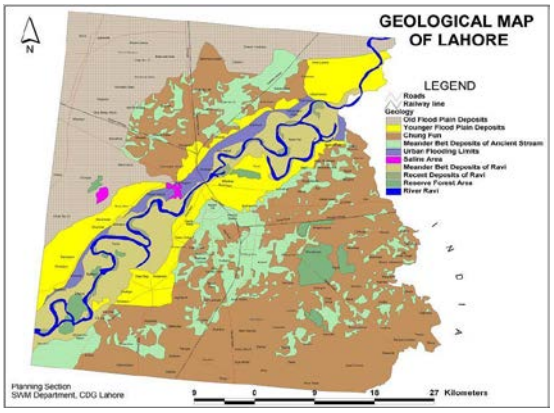


Figure: Geological Map of the Lahore

The Project Area does not have any valuable minerals. Although, scientific/in depth, investigations haven't been carried out, yet the surveys conducted have failed to discover any minerals worth the name till to-date. The only minerals worth to value are kallar and kankar in the district Lahore. Kallar is the grey powdery substance collected and taken out from the old village sites and other deserted abodes in the district. It is used for the manufacture of crude saltpeter and also as manure for the top dressing of young cotton and tobacco plants (no longer in the line of extensive cultivation). With the passage of time the demand for Kallar diminished and its use as a trading commodity is on the decline. Kankar is used for metaling roads and its smaller particulars are burnt for lime. It is a kind of limestone gravel and is found, after being dug out at a depth varying from one to eight feet, in many parts of the district particularly the uplands.

The soil in district is cohesion less and is of alluvial type deposited by Ravi River. Various soil layers below the ground level includes: silt, silty clay, silty sand, poorly graded sand with silt, lean clay etc. Soil Map of the Project Area is given in Figure below.

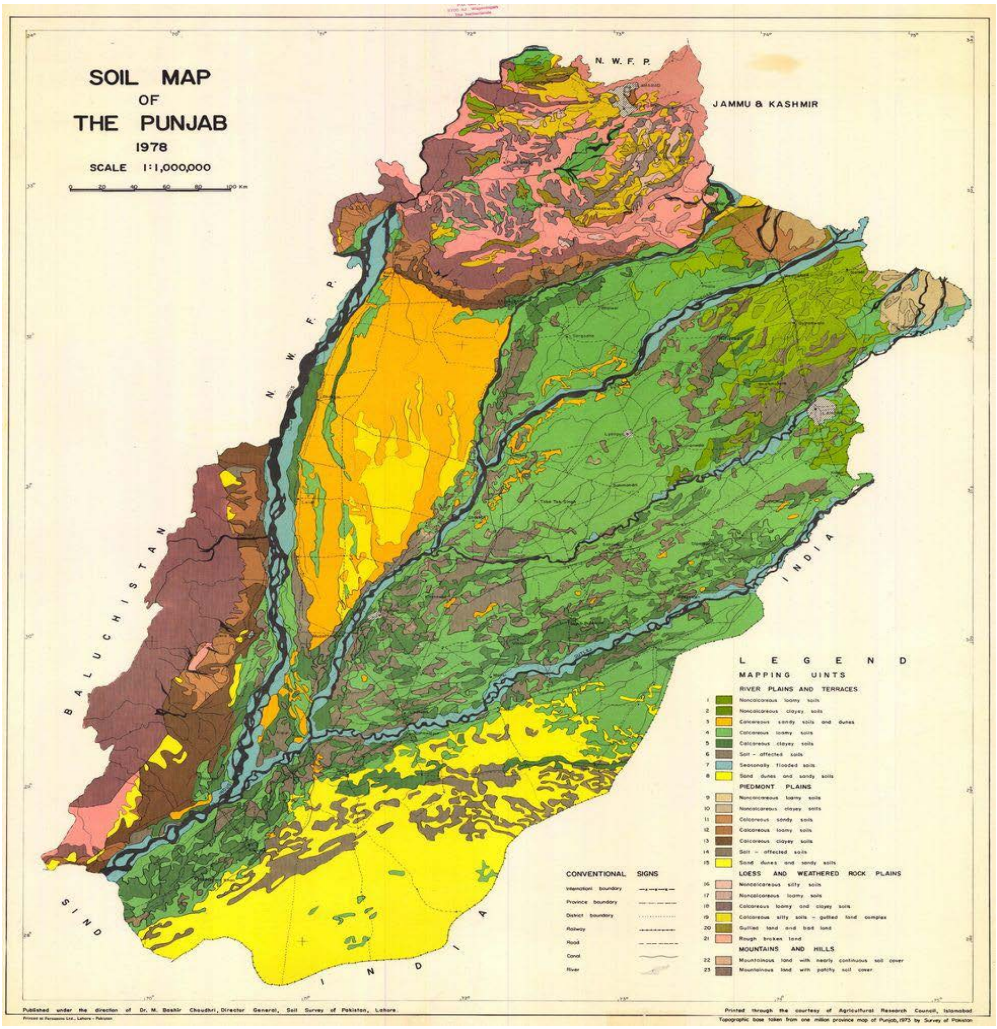


Figure: Soil Map of the Punjab

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.

The chemical quality of groundwater in the district varies with depth. However, the sweet potable water is available in a belt five to twenty miles wide paralleling the Ravi River.

Alluvium is soil or sediments deposited by a river or other running water. Alluvium is typically made up of a variety of materials, including fine particles of silt and clay and larger particles of sand and gravel. A river is continually picking up and dropping solid particles of rock and soil from its bed throughout its length. Where the river flow is fast,

more particles are picked up than dropped. Where the river flow is slow, more particles are dropped than picked up. Areas where more particles are dropped are called alluvial or flood plains and the dropped particles are called alluvium.

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 Project Area has extreme climate: it has hot summer and cold winters. The summer starts from April and lasts till September. May, June, and July are the hottest months. The mean maximum and minimum temperature ranges from 40.4 ºC and 27.3 ºC respectively for these months.

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 ºC to 5.9 ºC in January. Temperatures in the Project Area vary from 5.9 ºC to 40.4 ºC.

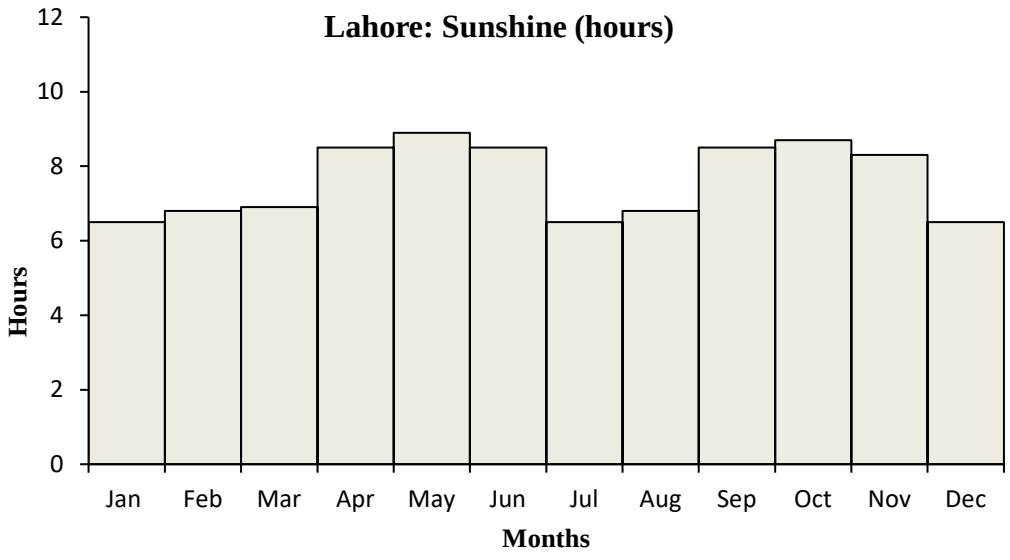


Figure: Average Monthly Sunshine Hours in Lahore

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

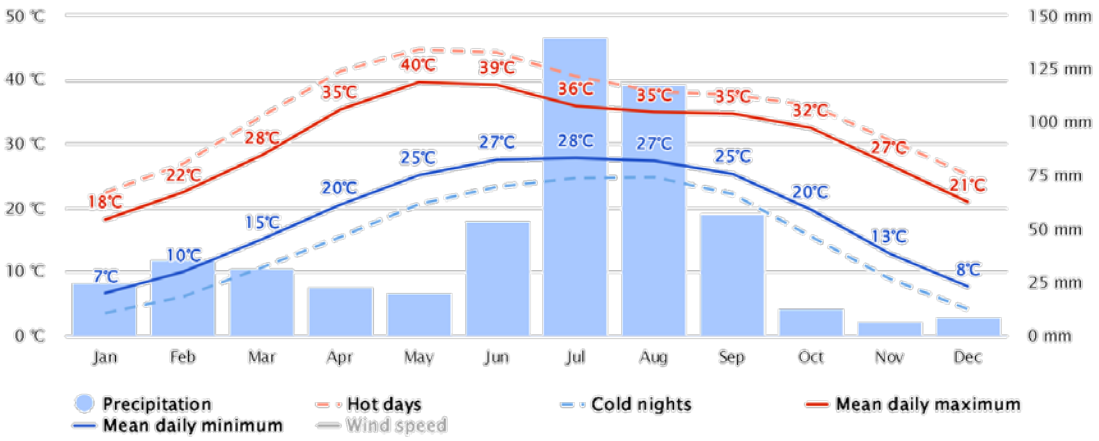


Figure: Average annual temperature and precipitation

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

In Lahore, the average annual temperature is 27°C. The average annual rainfall is 24.76 inches.

6.2.7 Wind Direction

The Lahore region experiences westerly and north westerly winds during the winter and spring seasons, known usually as the dry stable times of year and southerly and south easterly winds during summer and monsoons. Wind speeds are low during winter picking up during spring season and peaking during the summer months.

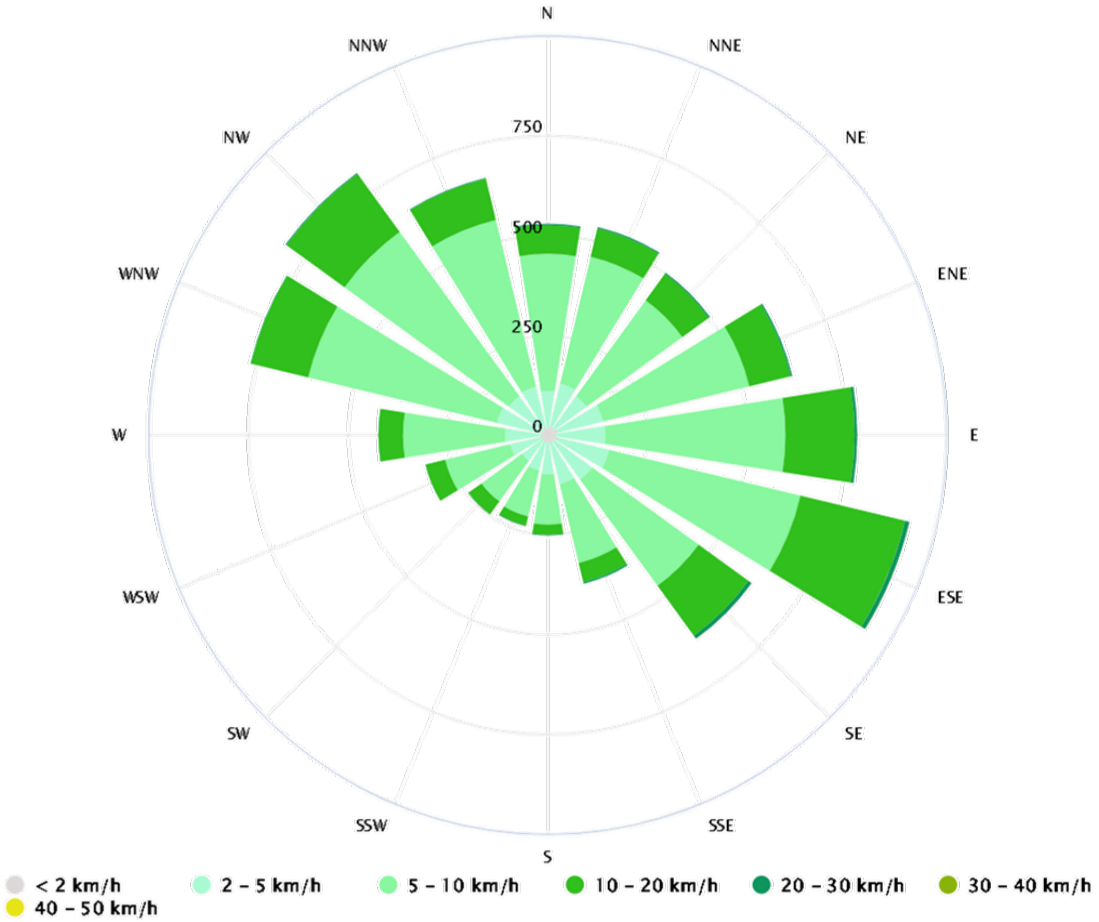


Figure: Wind direction and speed in proposed project site, Lahore

6.2.8 Humidity

Maximum average humidity of district Lahore is in month of July and minimum humidity is observed in April.

6.3 Environmental Monitoring Data

6.3.1 Ambient Air Quality

Atmospheric pollution particularly in urban area has a strong impact upon daily life. Lahore is the second largest city of Pakistan. Its economic growth and rising energy consumption are causing the increase in air pollution. The main sources of the air pollution are motor vehicles and industrial activities. SO_2, NO_2, CO_2, CO, O_3 and Particulate Matter (PM) are investigated as the pollution indicators. The ambient air quality analysis report is given below:-

S. #.	Parameters	PEQS Limits		Result	Remarks
1.	Oxides of Nitrogen as NO ($\mu g/m^3$)	24 (1 Hrs)	40 µg/ m^3	25.6	Complies
2.	Oxides of Nitrogen as NO_2 ($\mu g/m^3$)	24 (1 Hrs)	80 µg/ m^3	36.4	Complies
3.	Suspended Particulate matter (SPM) ($\mu g/m^3$)	24 (1 Hrs)	500 µg/ m^3	83.7	Complies
4.	Carbon monoxide ($\mu g/m^3$)	8 (1Hrs)	5 µg/ m^3	0.27	Complies
5.	Ozone (O_3)	1 Hour	130 µg/ m^3	22.1	Complies
6.	Particulate Matter PM_{10}	24 Hours	150 µg/ m^3	114	Complies
7.	Particulate Matter $PM_{2.5}$	24 Hours	35 µg/ m^3	24	Complies
8.	Sulphur dioxide	24 Hours	120 µg/ m^3	78.3	Complies

6.3.2 Noise Level

Lahore is capital of the Punjab Province having population around ten million. There are many a large, medium and small industries which are still working within city premises. Industrial activity and vehicular emissions are causing excessive noise in the city.

According to a survey it was observed that noise level was an average of 75 dB(A) in Defence Housing Authority, Gulberg and Model Town and average noise level in industrial area was recorded as above 120 dB(A). The affluent areas of Lahore 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.

The noise level measured in the study area is 61 dB(A). The noise report is given below:-

Location Point	Min.dB(A)	Max. dB(A)

East of Boundary	56.3	64.5
West of Boundary	58.2	63.2
North of Boundary	54.8	67.6
South of Boundary	52.6	63.5
Central Boundary	55.1	65.2
Punjab Environmental Quality Standards (PEQS) Day Time Industrial Area 75 dB		

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.

Before the introduction of controlled irrigation system in Punjab, the water table was deep towards the center of Doabs and was shallow along the rivers. After the introduction of controlled irrigation system in the region, water table started rising as a result of leakage/seepage from irrigation canals and infiltration from irrigation applications on crop fields. As a result, the area became water logged until about 1960 when a quasi equilibrium state was reached, controlled in part, by evapotranspiration and drainage.

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. According to Master Plan-2030 for the city of Lahore, the mean average decline in ground water is about 2.03 feet per year.

The city of Lahore is underlain by the deep permeable aquifer formed within the alluvial plane of the Ravi River, which is the part of Greater Indus Plain. Ground water is the principal source of municipal water supply in Lahore. 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.

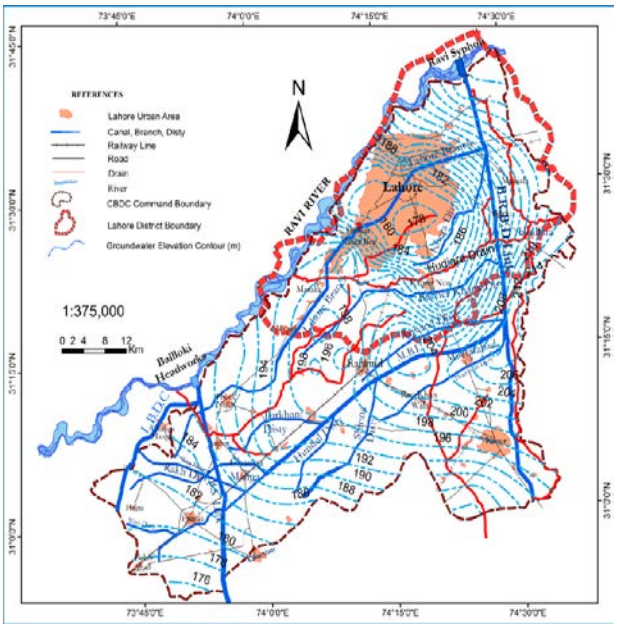


Figure: Groundwater contours of Lahore

6.6 Drainage

All of the Lahore districts drain ultimately to River Ravi which is the major natural surface water resource located in the northern part of the district. River Ravi receives huge amount of wastewater from the city of Lahore and other industrial discharges from different sources especially Hudyara Drain, a natural drain which carries pollution loads from both Pakistan and India. Most wastewater discharge reaches to Ravi in the 60km stretch between Bulloki and Lahore. These wastewater discharges, along with reduction in available water in River Ravi for dilution, has greatly deteriorated the quality of river water. River Ravi runs merely as a sullage carrier near Lahore during low flow season.

Besides, there are 76 minor drains which finally fall in eight (8) major drains namely Satto Kattla drain, Lakshimi Drain, Suk Neher Drain, Upper Chota Ravi Drain, Siddique Pura Drain and Shahdara Drain. Nowadays, all these drains collect wastewater from different areas of Lahore and finally fall into River Ravi.

6.7 Drinking Water Quality

WASA (Water and Sanitation Agency Lahore) is providing drinking water to the residents of Lahore. WASA claims the quality of water conform to the Drinking Water Standards. The detail of the water quality of the project area is given below:

Table: Water Quality Results

Sr.#	Parameters	Units	PEQS	Result	Test Method Used	Remarks
1.	pH	-	6.5-8.5	7.6	APHA 4500H^+ B	Complies
2.	Conductivity	µS/cm	NGVS	846	APHA 2510 B	Complies
3.	Bicarbonate	Mg/l	NGVS	31	APHA2320B	Complies
4.	TDS	mg/l	< 1000	550	APHA 2540 C	Complies
5.	Chloride	mg/l	< 250	72	APHA 4500 Cl-B	Complies
6.	Hardness	mg/l	< 500	126	APHA 2340 C	Complies
7.	Calcium	mg/l	200	21	APHA 3500 Ca-B	Complies

Sr.#	Parameters	Units	PEQS	Result	Test Method Used	Remarks
8.	Magnesium	mg/l	150	12	APHA 3500 Mg B	Complies
9.	Turbidity	NTU	< 5 NTU	2.47	APHA 2130 B	Complies
10.	Fluoride	mg/l	≤ 1.5	0.35	APHA 4500 F D	Complies
11.	Iron	mg/l	0.3	0.03	APHA 3113 B	Complies
12.	Sodium	mg/l	NGVS	21	APHA 4500 Na B	Complies
13.	Potassium	mg/l	N.S	2.4	APHA 3500 K B	Complies
14.	Nitrate (NO_3)	mg/l	≤ 50	0.23	APHA 4500 NO_3-B	Complies
15.	Nitrite (NO_2)	mg/l	≤ 3	0.005	APHA 4500 NO_2 B	Complies

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.

6.8 Seismology

Study area is located in the tectonic zone of down wrap and platform slop in the seismic zone of noticeable earthquake from 3.1 to 4.9 on Richter scale (Atlas for Pakistan). According to building code of Pakistan prepared by NESPAK recently, it is located in Seismic Zone 2A of Pakistan (Lower limit of moderate damage). Zone 2A represents peak ground acceleration (PGA) from 0.08 to 0.16g. Figure 4.6 shows the seismic zoning map of Punjab with the Project Area falling under Seismic Zone-2A.

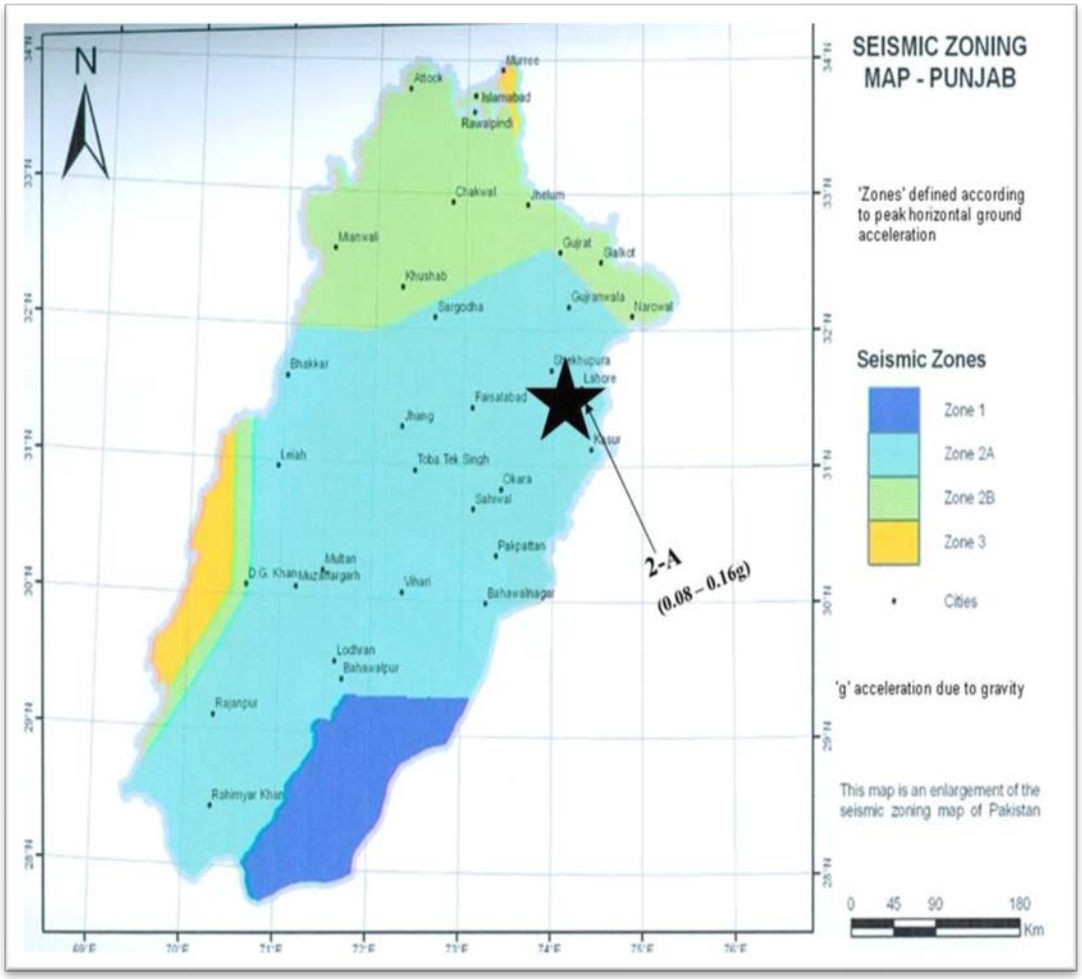


Figure: Seismic Zoning Map of Punjab

6.9 Biological Environment

The climate of the Lahore is semi-arid and sub-tropical, the vegetation of the area falls; scrub dry, tropical thorn forest type as per Phyto-geographical classification of the area. Lahore is enriched with the presence of natural flora and fauna but with the growing population and development activities, it's somewhat effected. Although Lahore has expanded in area, alongside modern additions to the city are the ancient monuments, old gardens, graveyards, traditional bungalows with attached gardens, large expanses of lawn and old roadside trees.

6.9.1 Flora

Lahore, the city of gardens is heart of Pakistan. The city has seen the heydays of the Mughals, Sikhs and the British; all left their footprints on the history and cultural

mosaic of the city. Resultantly Lahore is a treasure-trove of monuments, historical relics and remains which these nations have left in this historical metropolis of Punjab.

Trees, also called the 'lungs' of the earth, are important for the restoration of the eco-system. People can benefit immensely from their survival and existence. Trees have also been a source of medicine for thousands of years and a refuge for various species of birds. Several species of the trees in Lahore are being used in medicines. Some trees of significant medicinal value are grown easily in the city.

Though an ancient city; over the years Lahore has considerably expanded. However, along these modern additions, the ancient monuments, old gardens, trees, graveyards and traditional bungalows having attached gardens, large expanses of lawn and old roadside trees some of them can still be seen, are gradually disappearing. These green areas and old endemic trees of Lahore are home to many resident bird species as well as many summer, winter and transit migrants. So, Lahore is also very important due to its ecological conditions.

Table: Inventory of some Flora of Lahore

SR.NO	COMMON NAME	SCIENTIFIC NAME
1	Indian Lilac	*Azadir achtaindica*L.
2	Ber	*Ziziphus mauritiana* Lamk
3	Yellow	*Terminalia chebula* Retz.
4	Temple plant	*Crataevaadansonii* DC.
5	Bombax	*Bombaxceiba* Linn.
6	Bistula	*Cassia fistula* Linn.
7	India laburnum	*Acacia nilotica*(Linn.)Delile.
8	Indian banyan	*Ficusbenghalensis* Linn.
9	Buddha tree	*Ficusreligiosa* Linn.
10	Benzoil tree	*Moringaoleifera*Lam.
11	Devil tree	*Alstoniascholaris*(L.) R.Br.
12	Rosewood	*DalbergiasissooRoxb.*
13	Mango	*Mangiferaindica* L.
14	Spanish cherry	*Mimusopselengi* L.
15	Jujube	*ZiziphuszizyphusMill.*

Dalbergiasissoo

Salvedora persica

Ficus bengalensis

Ficus religiosa

Ficus infectoria

Ficus glomerata

Albbizia procera

Artocarpus integrifolia

Albizzia lebbek

Artocarpuslakoocha

Azadirachtaindica

Bischofiajavanica

Dilleniaindica

Meringa oleifera

Ziziphusmauritiana

Tecomaundalata

Cassia alata

Prosopis juliflora

Tamyrix articulate

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.	Ficusenfectoria	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	

6.9.2 Fauna

With an increase in the rate of urbanization, the ecology of Lahore has been considerably affected and population of birds in Lahore has reduced to just 85 including the endemic and migratory ones. Lahore Zoo is the main preserver of Lahore's fauna. Other popular wildlife centers are Jallo Park and Wildlife Safari Park. These green areas and old endemic trees of Lahore are home to many resident birds as well as providing to seasonal migrants. 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. The Changa Manga forest near Lahore is a hotspot for wildlife in Punjab.

Table: Inventory of some Fauna of Lahore

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

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

Intermediate Egret

Indian-Pond Heron

House Sparrow

Common Myna

Red-Wattled Lapwing

Common Sandpiper

Bank Myna

Pied Myna

White Wagtail

Yellow Wagtail

House Crow

Nectariniaasiatica

Red-vented Bulbul

Black Drongo

Black Kite

Blue rocky pigeon

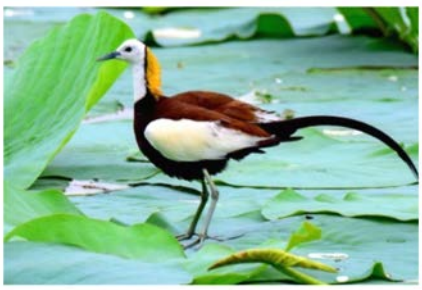
Little brown dove

White-breasted Kingfisher

Little Green Bee eater

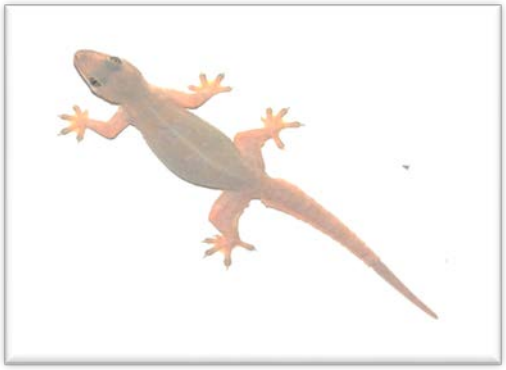
Golden-backed woodpecker

Hoopoe



Pheasant-tailed jacana

Russel's Viper



Lizard

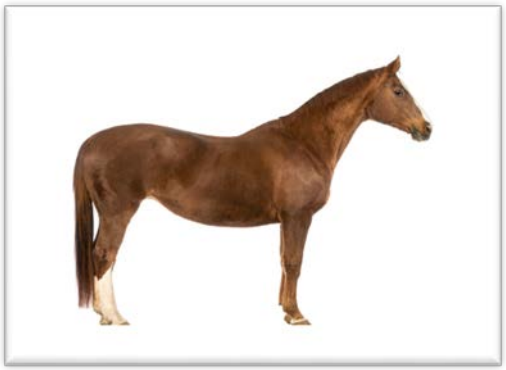
Squirrel

Rat

Softshell Turtle

Frog

Tod



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.

6.9.3 Wildlife Sanctuaries and Game Reserves

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

6.9.4 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.

6.10 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.

6.11 Demographic Profile of Lahore

Lahore comprises a large number of Pakistanis along with some foreign nationals. Lahore, the capital of Pakistan is one of most important cities in the country, which is also known as “The Heart of Pakistan”. Demography of Lahore is spread over an area of 1,014 square kilometers. Average household size in 1998 was recorded as 7.12. In 1998, the total number of male population was estimated to be 48 % and female population to be 52%.

Table: Population and Intercensal Increase and Growth Rates

Description	1951	1961	1972	1981	1998
Population (in 000’s)	1,135	1,626	2,588	3,545	6,319
Intercensal Increase (%)	43.3	59.2	37.0	78.3	-

Average Annual Growth Rate (%)	3.7	4.1	3.8	3.5	-

The total population of Lahore District was 6,318,745 as enumerated in March 1998 with an intercensal percentage increase of 78.3 since March 1981 when it was 3,544,942 souls. The average annual growth rate of population in the district during intercensal period 1981-1998 was 3.5 percent. The total area of the district is 1772 square kilometers, which gives population density of 3,566 persons per square kilometer as against 2000 persons observed in 1981 indicating a fast growth rate of the district.

6.11.1 Rural and Urban Distributions

The urban population was 5,209,088 or 82.4 percent of the total population of the Lahore district, which grew at an average rate of 3.3 percent during 1981-98. The growth decreased from 3.7 percent, which was observed during 1972-81. There are one Metropolitan Corporation, two Town Committees and one Cantonment in the District.

There were 261 Mauzas (a smallest revenue unit) in 1998. Of these 61 had population over 5 thousand, another 61 had 2 to 5 thousand, 64 had one to two thousand, and 74 had under one thousand persons while one was un-inhibited.

According to Census-2017 Punjab, Demographic Profile of district is as follows:

Table: Census-2017 Punjab for District Lahore

Population 2017			**Population 1998**			**Average Annual growth rate**		
Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Average
11,126,285	0	11,126,285	5,209,088	1,131,026	6,340,114	4.07	1.99	3.0

6.11.2 Health Facilities

The city of Lahore 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 Lahore aim to provide the citizens best medical facilities and prevention from contagious and other harmful diseases.

Ample medical and health facilities are available in the Lahore Metropolitan Corporation area and its suburbs. Shaukat Khanam Hospital is the latest addition to the medical care facilities in Lahore for the most dangerous disease in the country. i.e. Cancer. There are also other hospitals of voluntary organizations which provide health coverage to the general public. Among the prominent hospitals are Lady Willington Hospital, Mayo Hospital, Fatima Jinnah Hospital, The Children Hospital, Services Hospital, and Ganga Ram Hospital etc. Besides, a number of private medical practitioners, Hakims, and homeopathic doctors are also practicing in the city. Services Hospital is the nearest health care facility that is present in the vicinity of the project.

Figure: Hospitals in Lahore

6.11.3 Educational Facilities

Lahore is known as Pakistan's education capital, with more colleges and universities than any other city in the country. Lahore is Pakistan's largest producer of professionals in the fields of science, technology, IT, engineering, medicine, nuclear sciences, pharmacology, telecommunication, biotechnology and microelectronics. The current literacy rate of Lahore is 64%.

Lahore is the metropolitan city and a hub of various educational, academic and flourishing government institutes. In the vicinity of the project, there are many educational institutions like Government College University, University of Veterinary and Animal Sciences, University of the Punjab, College for Women University, Forman Christian Collage, National College of Arts, King Edward Medical University,

Kinnaird College for women, Shadbagh Girls College and many more renowned institutions.

Figure: Educational Institutes in Lahore

6.11.4 Transportation and Communication

Lahore is one of the most accessible cities of Pakistan and the only unique city of Pakistan where you can find Public and private Transport, 24 hrs a day and 7 days in a week.

Public transport is not 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 city of Lahore is one of the most accessible cities of the Punjab Province. In addition to the historic Grand Trunk Road (G.T. Road), a motorway (M- 2) was completed in 1997 from Lahore to Islamabad. Recently, Motorway form Lahore-Abdul Hakeem (M-3) and Lahore-Sialkot (M-11) has completed in 2020. The government has built underpasses to ease congestion and prevent traffic jams, and according to official figures, Lahore 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 Lahore.

6.11.5 Railways

The Pakistan Railways headquarters is located in Lahore. Pakistan Railways provides an important mode of transportation for commuters and connects distant parts of the country with Lahore for business, sight-seeing, pilgrimage, and education. The Lahore Central Railway Station, built during the British colonial era, is located in the heart of the city.

6.11.6 Industrial Activities

Lahore trade and industries thrives on certain large-scale industries such as steel, textile, carpet and IT industries. Lahore 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.

6.11.7 Water Supply

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

6.11.8 Electric Supply

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

6.11.9 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.

6.11.10 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.

6.11.11 Mother Tongue

The mother tongue refers to the language used for communication between parents and their children in any household. Punjabi is the predominant language being spoken by majority (86.2 percent) of the population of the district followed by Urdu, Pushto and Siraki being spoken by 10.2, 1.9, and 0.4 percent. Sindhi is spoken by 0.1 percent.

6.11.12 Literacy Rate

Literacy Ratio (10 +) : 64.7 % Male : 69.05 % Female : 59.68 %

6.11.13 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.

6.11.14 Traditional Crafts

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

6.11.15 Ethnic Structure

The main castes and groups of the Lahore district are Arain, Jatt, Rajput, Pathan, Mughal, Sheikh, Komboh and Gujjar. Besides, there are also village artisans, which include Lohars (blacksmiths), Tarkhan (carpenter), Kumhars (potters), Mochis (cobblers), Machhis (water-carries), barbers and weavers etc.

6.11.16 Sites of Historical Significance in Lahore

Although Lahore has expanded in area, alongside modern additions to the city are the ancient monuments, old gardens, graveyards, traditional bungalows with attached gardens, large expanses of lawn and old roadside trees. Prominent among them includes; Minar e Pakistan, Badshahi Mosque, Lahore Fort, Allama Iqbal’s Tomb and Jahangir’s Tomb. However, the proposed project site has no sensitive or historical building in the surrounding.

The most common places of interest in Lahore city are discussed as following:

Royal Fort

Lahore Royal Fort Lahore/Shahi Qila is located at an eminence in the north-west corner of the Walled City. The Citadel is spread over an area of 50 acres. Many visitors from the foreign and local tours of different educational institutions come to see this historical place every year. The front gate of the Fort is called the Alamgiri Gate of the Royal Fort.

Minar-e-Pakistan

About 59.5 meters tall monument, called Minar-e-Pakistan is situated near the Royal Fort in the spacious Iqbal Park (previously known as Minto Park), where the historical resolution for the creation of Pakistan was adopted on the 23rd March, 1940. Around the minar, there are spacious parks with beautiful Cyprus trees and flowers all over. The total area of the minar including the park is 22 acres.

Badshahi Mosque

The imperial or the Badshahi Mosque is across the courtyard from Alamgiri Gate of the Royal Fort. It has beautiful gateway and a courtyard that is said to be the largest mosque courtyard in the world for outdoor prayers.

Shalamar Garden

The Shalamar Garden, also written Shalimar Garden, was built by the great Mughal emperor Shah Jahan. Construction began in 1641 A.D and was completed in a year. It is one of the The Shalimar Gardens are located near Baghbanpura along the Grand Trunk Road some 5 kilometers northeast of the main Lahore city. Shalimar Gardens draws inspiration from Central Asia, Kashmir, Punjab, Persia, and the Delhi Sultanate. Every year a festival of Hazrat Madhu Lal Hussain is also being organized near this Garden and Tourists from all over the country visit it.

6.11.17 Architecture style

Lahore, Pakistan architecture refers to the various structures built during different time periods. Walled city is famous for its gates and architecture. Mostly there are three types of old buildings in Lahore. Victorian Architecture: When British conquered sub-continent they made these buildings during the period 1857 -1947 keeping in mind the

climate conditions. Mughal Architecture: By an architectural point of view, therefore, Lahore is essentially a Mughal city, Made by Mughal emperors during the period of 1504 -1857. Minarets are attached to buildings. Cylindrical construction with internal staircases and balconies leading to the conical roof. All buildings are symmetrical creating a mirror-like effect. British Architecture: Under British rule (1849–1947), colonial architecture in Lahore combined Mughal, Gothic and Victorian styles. Under British rule, Sir Ganga Ram (sometimes referred to as the father of modern Lahore) designed and built the General Post Office, Lahore Museum, Aitchison College, Mayo School of Arts (now the NCA), Ganga Ram Hospital, Lady Mclagan Girls High School, the chemistry department of the Government College University, the Albert Victor wing of Mayo Hospital, Sir Ganga Ram High School (now Lahore College for Women) the Hailey College of Commerce etc. In modern Lahore, Pakistan; the traditions of architecture have been changing. The dome, minaret, the arch, the intricate mirror work and the extravagant use of ornaments which were features of the Mughal style, have now gone out of fashion. Changing patterns of economy, industrialization and increase in population have contributed a great deal in revolutionizing the entire basis of architectural forms.

SECTION - 7

IMPACT 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 / **Components/ Activities**	**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
Construction Phase																									
Construction Camp site	NA	LA	O	O	O	O	NA	NA	O	LA	LA	LA	O	O	O	O	O	O	LA	O	LA	O	LB	O	O
Digging and excavation activities	NA	LA	O	O	O	O	NA	NA	O	O	LA	LA	O	O	O	O	O	O	O	O	O	O	LB	O	O
E&M of Equipments	NA	LA	O	O	O	O	NA	NA	O	O	LA	LA	O	O	O	O	O	O	O	LA	O	O	MB	O	O

Vehicular Movement	NA	LA	O	O	O	O	NA	NA	O	LA	LA	MA		O	O	O	O	O	O	O		LA	LA	O	O	LA	O
Machinery and Equipments work	NA	LA	O	O	O	NA	NA	NA	O	O	LA	MA		O	O	O	O	O	O	O		LA	LA	O	LB LA		O
Operation Phase																												
Solid Waste	NA	LA	O	O	O	NA	NA	NA	O	LA	O	O		O	O	O	O	O	O	O		LA	O	O	O	O	O
Fire Fighting Arrangement	NA	O	O	O	O	NA	NA	NA	O	O	O	O		O	O	O	O	O	O	O		HB	O	LB	LB	MB	O
Health and safety	NA	O	O	O	O	NA	NA	NA	O	O	O	O		O	O	O	O	O	O	O		HB	O	LB	LB	MB	O
Waste water	NA	LA	O	O	O	NA	NA	NA	O	LA	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

SECTION - 8

ANTICIPATED ENVIRONMENTAL IMPACTS & MITIGATION MEASURES

The following section 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 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 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	• Watering all active construction areas when necessary. • 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. • Sweep daily (with water sweepers) all paved access roads, parking areas and

		staging areas at construction sites. • Fast growing trees will be planted around the project area to act as a windbreaker to reduce the particulate matter. • Provision of PPE to workers.
Hydrology and water quality degradation due to Storm-water runoff from the site and excavation.	Minor / Short Term	• Installation of the septic tank. • 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.
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	• Install portable barriers to shield compressors and other small stationary equipment where necessary. • Use quiet equipment (i.e. equipment designed with noise control elements). Install sound barriers for pile driving activity.

		• 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
Workers accidents and hazards during construction.	Minor / Long Term but reversible	• Provision of appropriate and adequate Personal Protective Equipment (PPE) to employees. • Enforcement and proper use of PPE by all construction workers. • Provision of appropriate tools, equipment, and machinery in sound working conditions to employees. • Proper arrangement of lighting to reduce accidents. • Development of clear policies on treatment of injured personnel.

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	• 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.

		• 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.
Noise will be generated by the operation of machinery to be used.	Minor / Long Term	▪ Noise reduction measures like buffering of noise through trees should be adopted where deemed necessary to reduce the noise level at the project boundary.
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	• 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. • On-site storage of fuel, engine oil and lubricants (if any) shall be in locked tanks, sealed and shadow-roofed area.

8.5 Potential Environmental Enhancement Measures

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.

9.2.3 Organogram for implementation EMP

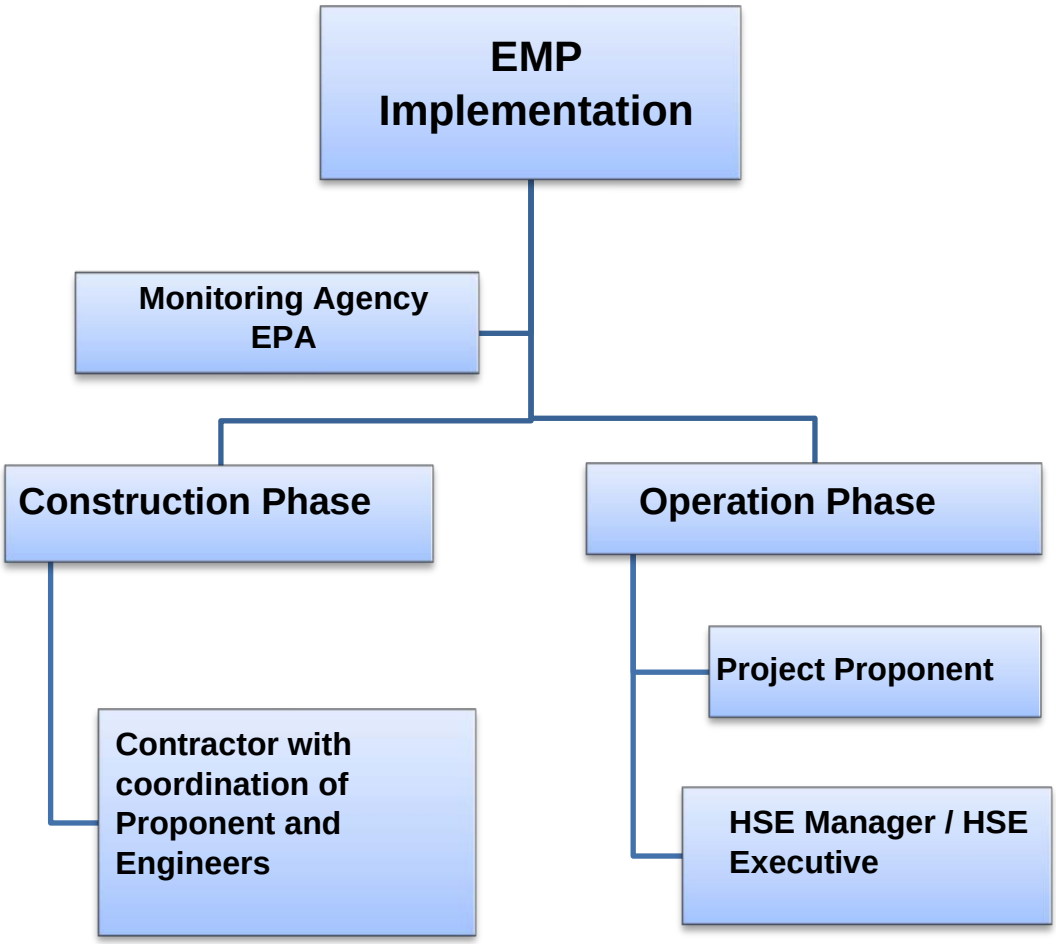


Table: ENVIRONMENTAL MANAGEMENT PLAN (CONSTRUCTION PHASE)

Sr. No.	Project Component/ Impact	Project Activities	Targets to be Achieved	Mitigation/ Preventive Action	RESPONSIBILTIY	
					Implementation	Monitoring
CONSTRUCTION PHASE						
1.	**Air Quality**	Storage, Handling, and Transport of Material	Compliance with prescribed PEQs to control air pollution	• 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. • Periodic maintenance and management of all the construction machinery and vehicles • Waste burning will not be allowed.	During Construction Phase by Contractor with coordination of Proponent staff	Proponent Consultant
2.	**Water Quality**	Sanitation and wastewater disposal at campsite Storage,	Control of groundwater or surface water pollution from construction activities	• Use of spill prevention trays and impermeable sheets to avoid contamination of the groundwater/surface water. • Furthermore, septic tanks will need to be constructed which will be	During Construction Phase by Contractor with coordination of Proponent staff	Proponent Consultant

		Handling and Oil spills due to rough handling of the materials. Stagnant water causes diseases and bad odor problems. Construction work on water body increases the risk to water quality.		cemented to prevent the groundwater contamination. • Proper disposal of waste material on dumping sites to avoid leachate generation and contamination of groundwater/surface water Prohibit illegal dumping of waste. • The contractor will repair/replace / compensate for any damages caused by the Construction activities to the drinking water source/s.		

3.	**Waste**	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 plan	• Ensure prevention of inappropriate disposal of waste material. • Conduct separate collection of construction and office waste to promote recycling and re-use. • Dispose of non-recyclable and hazardous waste material properly according to waste management rules. • Proper disposal of waste on agreed site as per agreed method. The area to be leveled and contoured after disposing of the excess material. • No waste or debris will be thrown into the nearest canal water or other water bodies. • The contractor will prepare waste management plan related to construction activities; get its	During Construction Phase by Contractor with coordination of Proponent staff	Proponent Consultant

				approval from site engineer and ensure its full implementation.		
4.	**Noise**	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	• The contractor will strictly follow the PEQS for ambient noise • Control noise through control of working hours and selection of less noisy equipment. • Prohibit use of pressure horns • Provision of acoustic enclosures (hood and shrouds) on generator • Proper maintenance of vehicles and construction equipment. • Minimize/avoid unnecessary use of pneumatic drills and other noisy machinery. • The personal protective equipment (PPE) will be provided to the construction workers and its usage		Proponent Consultant

				will be made mandatory During Construction Phase by Contractor with coordination of Proponent staff		
5.	**Materials Management**	Transport of Hazardous Material (oils, Oil products). Storage areas for the hazardous material and other construction material.	Safe and secure environment for construction workers	• Stockpiles shall not be situated such that they obstruct natural water pathways. • Stockpiles shall not exceed 2m in height unless permitted by Concerned Engineer on site. • 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. • All substances required for vehicle / machinery maintenance and repair	During Construction Phase by Contractor with coordination of Proponent staff	Proponent Consultant

				must be stored in sealed containers until they can be disposed of / removed from the site. • Hazardous substances / materials are to be transported in sealed containers or bags. • Spraying of insecticide shall not take place under windy conditions		
6.	**Workers Health & Safety**	Risk of damage to worker health Risk of any damage by machine, chemicals, liquid waste etc. can be	Prevention of any possibility of work site accident/impact on worker‘s health	• Provision of Personal Protective Equipment to the workers. • Provision of first aid box at work site to cope with emergency situation. • Safety training to the workers. • Safe driving training to the drivers. • Adequate safety signs on site. • Provide training regarding proper handling and use of chemicals/ paints.	During Construction Phase by Contractor with coordination of Proponent staff	Proponent Consultant

		reduced by using safety signs at construction site and campsite		• Install fire extinguishers at fire handling places. • Inspect and ensure that any lifting devices, such as cranes, are appropriate for expected loads. • Any loss of public/ private property will be compensated by the contractor. • Regular checks should be carried out to ensure a contractor‘s is following safe working procedures and practices.		
7.	**Socioeconomic Impacts**	Conflicts between locals may arise during construction activities	Prevention of conflicts among locals and make the project socially acceptable	• Contractor’s activities and movement of staff to be restricted to designated construction areas. • The conduct of the construction staff when dealing with the public or other	During Construction Phase by Contractor with coordination of Proponent staff	Proponent Consultant

			Empowerment of locals to possible extent Increase in employment and business opportunities for locals	stakeholders shall be in a manner that is polite and courteous all the time. • Lighting on the construction site shall be pointed downwards and away from oncoming traffic. • The site must be kept clean to minimize the visual impact of site. • Machinery and vehicles are to be kept in good working order for the duration of the project to minimize noise nuisance to neighbors. • Noisy activities must be restricted to the times given in the Project Specification or General Conditions of contract. • The Contractor is responsible for ongoing communication with those		

				people that are interested in / affected by the projects. • Employ local residents as much as possible. Promote communication between external workers and local people (e.g. join local events).		
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 and	• Timely removal of waste from the site to avoid congestion at workplace. • Construction waste should be collected and disposed separately of other waste. Care will be taken during handling and disposal of waste. • Contaminated soil (if generated) due to accidental spills will be removed and transported to the suitable site for disposal.	During Construction Phase by Contractor with coordination of Proponent staff	Proponent Consultant

			landscaping of the site	• Safe transportation of construction equipment from the site. • The contractor must ensure that all structure, equipment, materials, and facilities used or created on site for/or during construction activities are removed. • Empty/available space will be covered with grassy lawns. • 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.		

TABLE: ENVIRONMENTAL MANAGEMENT PLAN (OPERATIONAL PHASE)

Sr. No.	Project Component / Impact	Project Activities	Targets to be Achieved	Mitigation / Preventive Action	RESPONSIBILTIY	
					Implementation	Monitoring

OPERATIONAL PHASE						
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	• Noise will be generated from the standby generator. • Proper covering of standby generator, to reduce the noise. • Noise reduction measures like buffering of noise through trees should be adopted where deemed necessary to reduce the noise level at the project boundary. • Mitigation measures during operation for noise impacts on workers will include standard	HSE Executive of Project Proponent	Proponent

				occupational health and safety practices		
3.	Water quality	The proper disposal of the sewage water into the drains	Compliance with Wastewater standards of PEQS	• Installation of ETP so any wastewater produced complies with wastewater standards of PEQS • Runoff water is collected in the pond and after appropriate treatment will be utilized for horticulture	HSE Executive of Project Proponent	Proponent

TABLE: ENVIRONMENTAL MANAGEMENT PLAN (DE-COMMISSIONIMG PHASE)

Project activities	**Type of impact**	**Potential impacts on environment**	**Extent / Magnitude**	**Mitigation Measure**	**Institutional Responsibility**	
					Implementing body	**Supervision**
DE-COMMISSIONING PHASE						
Noise Generation	Physical, Social & Biological	Nuisance to Local community	Less/ adjacent area	• Carrying out the decommissioning works only during the specified time	Contractor	Proponent

				where permissible levels of noise are high and acceptable. • Vehicles should be maintained regularly to reduce noise resulting from friction. • Providing workers with PPEs such as earmuffs		
Demolition waste generation	Physical, Social & Biological	Disturbance to local community	Less	• Removing reusable and recyclable material from the building before demolition to minimize the amount of waste. • Making available suitable facilities for the collection, segregation and safe disposal of the wastes.	Contractor	Proponent
Emission of Air Pollutants	Physical, Social & Biological	Disturbance to surrounding environment	Less/adjacent area	• Using efficient equipment and machines with efficient engines meaning low emission.	Contractor	Proponent

		and local community				
OSH Risks	Physical & Social	Health hazards to workers	Less	• Ensuring all storage parts are labeled. • Raising awareness and educating workers on risks from equipment and ensuring they receive adequate training on the use of the equipment. • Providing the workers with adequate PPEs and monitoring regularly	Contractor	Proponent

9.3 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
CONSTRUCTION PHASE			
Water Quality	As prescribed by the Punjab Environmental Drinking Water Quality Standards	Main Drinking Water Source	Quarterly
Ambient Air Emissions	Dust, smoke, PM, SO_x, NO_x, 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

9.4 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).

9.4.1 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.

9.4.2 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.

9.4.3 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.

9.4.4 Records

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

9.4.5 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.

9.4.6 Management review

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

9.5 Environmental Management Cost

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

Table: Environment Management Cost

Environmental Component	Quantity	Approximate Cost (PKR)
(i) Tree Plantation	1000	200,000.0
(ii) Health and Safety Measures and Provision of PPEs	L.S.	200,000.0
(iii) Environmental Monitoring	4	200,000.0

Total Environmental Management and Monitoring Cost	**600,000.0**

9.6 EMERGENCY RESPONSE PLAN & EVACUATION / EXIT PLAN

9.6.1 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.

9.7 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.

9.8 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 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.

Table: EMERGENCY RESPONSE PLAN

Sr. no.	Potential crisis	Likelihood	Consequences	Initiating and secondary events	Control Measures	RESPONSE
1.	Fire hazard (toxic combustion products, substations, and Transformer)	Possible	Major	An explosion which causes structural damage, the fire to spread and injuries	Training, inspections, maintenance schedules, Detection systems, alarm systems, trained ER personnel, ER Exercises	Arrange for safe removal of employees, contractors and the public from any dangerous situation; Secure the area and do not allow any disturbance to the area Allow only designated personnel into the area
2.	Spills (liquids i.e. oils, chemicals, and solids)	Possible	Minor	A release that causes environmental harm	Meeting design standards, Inspection of facilities, small containers, training	Ensure appropriate PPE, Control the leak/flow; Contain the spillage to the smallest area possible, Environmental Manager to arrange for sampling of any water pollution or potential pollution

3.	Gas leak – Flammable	Possible	Major	A fire or explosion that causes structural damage and injuries	Training, inspections, maintenance schedules	Arrange for safe removal of employees, contractors and/or the public from any dangerous situation, Secure the area and do not allow any disturbance to the area; Allow only designated personnel into the area
4.	Natural hazards	Rare	Major	Earthquakes can cause likely harm and injuries	Training, evacuation plans, alarm systems, trained ER personal	Arrange for safe removal of all employees, contractors and/or the public from any dangerous situation; Conduct a survey of the damage caused; and secure the area and do not allow any disturbance of the area

9.10 Response Measures

- THE SUPPLEMENT SOLUTION maintains a dedicated emergency response department equipped with fire tenders along with all required emergency handling accessories. Fire water network mains coupled with hydrants are 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.

9.11 General Evacuation Procedures during Natural Hazards

- Escape route layout are posted throughout the facility. A layout of the facility clearly marked with escape routes is posted in each department. Copy of the layout is available in all area.
- If the alarm sounds or if a supervisor orders the evacuation of the building or plant, remain calm, walk to the nearest exit and leave the building or plant immediately. After leaving the building or plant, proceed to the nearest muster station/assembly area. Do not leave the area. Do not return into the building or plant. Follow your supervisor's instruction.
- As there are plant processes which would require continued operation during an emergency, all employees are expected to leave the plant immediately when an evacuation order is announced expect those performing the critical plant operations.
- No provisions are made for employees who remain within the plant to perform rescue, medical or firefighting duties unless properly trained to do so.

9.11.1 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.

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, 2000 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 access the impacts on the physical, biological, and socio-economic environment. Stand 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 "**THE SUPPLEMENT SOLUTION**" situated at Mouza Sundar Lahore 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 THE SUPPLEMENT SOLUTION of the proposed project.

10.6 Consultation with Government Departments

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 and pictorial evidences are also attached.

Sr.#	Participant	CNIC/Designation	Concerns/Remarks
Environmental Protection Department			
1.	Ali Ijaz	Deputy Director (Field), EPA	Following comments are summarized about proposed project: Latest technology must be selected for efficient operation of treatment plant Wastewater should be treated effectively & approval should be acquired from concerned agency before disposing off in nearby drain. HSE at the site should be managed effectively. Positive impact is being foreseen due to the selected location and project. Locals should be given job opportunity.
2.	Mumtaz	Environmental Inspector	

			Regular monitoring must be conducted to check efficiency of treatment plant and compliance.
Social Welfare Department			
3.		Deputy Director Officer	Following comments are suggested by the Deputy Director on the behalf Social Welfare Department: Locals must be hired Wages should be given according to the work assign to them. Life insurance of the workers should be given as well as all the facilities should be given as per labor laws. She appreciates installation of proposed project as it is environment friendly and will improve the sanitary condition of surroundings.
Irrigation Department			
4.		Superintendent Engineer	Following comments were suggested: Proper monitoring must be conducted to check compliance. Efficiency of treatment plant must be examined regularly. Beneficial as job opportunities will be available to the local residents.
Forest Department			

5.		Divisional Forest Officer Kasur	Following recommendations were suggested by the forest department: Plantation and landscape activities should be carried out on broader scale. Indigenous species such as, Arjan, Barna, Neem, Suharjna, Amaltas and Jaman should be planted.
**HSE= Health, Safety and Environment*			

Table 20: Consultation with Government Departments

Environmental Practitioners and experts

Consultation with Environmental Practitioners and experts was done and following comments and suggestions were observed.

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.

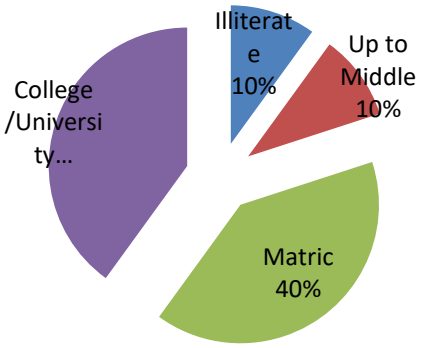


Fig.: Literacy rate of interviewed persons

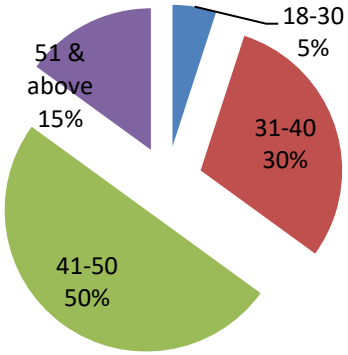


Fig.: Age (Years) of interviewed persons

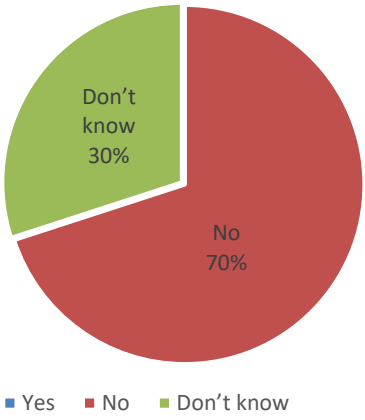


Fig.: Point of view of interviewed persons regarding impact on water quality & quantity due to proposed project.

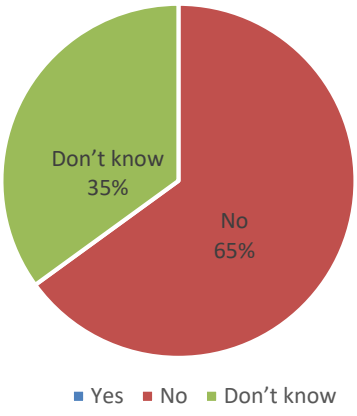


Fig.: **P**oint of view of interviewed persons regarding impact on soil quality due to proposed project.

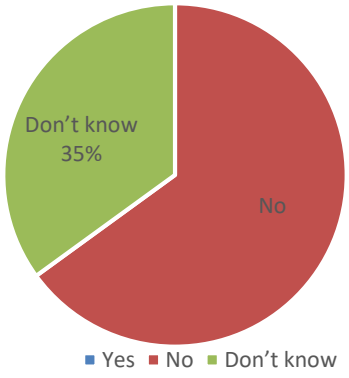


Fig.: Point of view of interviewed persons regarding wastewater issues due to proposed project.

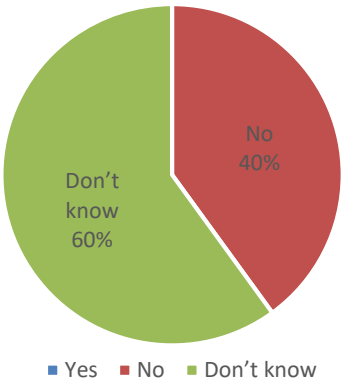


Fig.: Point of view of interviewed persons regarding information of protected area in proposed project site.

Pictorial Evidence of Public Consultations


WORLD'S
GREATEST
PAPA

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	• Development of the Training Strategy, including commitment of allocation of

	opportunities to enhance their trade or professional skills.	budget investment for training infrastructure, delivery and design. • Installation of training facilities in for worker of the company and students will also be accommodate. • The internship program will offer to the students to develop professional skills.
Health & safety	Truck traffic is a main concern because the road used by the Project passes through a number of small communities and different industries and there will be a high volume of trucks transporting concentrate.	• Keep check on the road corridor and safety aspects, including on herder and animal crossings. • Development of Transport Management Plan including traffic safety training. • Traffic advisory signs will be installed along project site and all nearby specific areas.
Local economy and business development	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. Local businesses want to receive support in terms of finance and facilities to diversify their businesses.	• Proponent has main focus that they will all the material regarding construction and plant operation to buy from the local market. • This will help the local and small business and to people who are keen interested to become suppliers.

	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.	
Environmental Issues	Dust and noise impacts, particularly from the construction activities and in operation of mechanically unfit machines, are of concern to herders and other residents. Environmental degradation during road construction and use. Loss and change of vegetation due to soil degradation. Increased waste along project boundary and around economic zone.	• Implementation of controls under the Environmental Management Plans, including on and off-site dust and noise monitoring. • A Participatory Environmental Monitoring Program will be launched to spread awareness on HSE.
Water quantity and quality	Water quality and quantity, and impacts from the wastewater disposal are all key concerns for nearby herders.	• Implementation of consultation in relation to water use and development of the Participatory Environmental Monitoring Program.

SECTION -11

HEALTH AND SAFETY

This Health and Safety Plan (HASP) provides a general description of the levels of personal protection and safe operating guidelines expected of each employee or subcontractor associated with the environmental services being conducted at the site. HASP Supplements will be generated as necessary to address any additional activities or changes in site conditions which may occur during field operations.

11.1 Health and Safety Rules of this Site

All site personnel shall adhere to General Safety Rules, during site operations. In addition, the housekeeping and personal hygiene requirements will also be observed.

11.2 Housekeeping

During site activities, work areas will be continuously regulated for identification of excess trash and unnecessary debris. Excess debris and trash will be collected and stored in an appropriate container (e.g., plastic trash bags, garbage can, roll-off bin) prior to disposal. At no time will debris or trash be intermingled with waste PPE or contaminated materials.

11.3 Smoking, Eating or Drinking

Smoking, eating, and drinking will not be permitted inside any controlled work area at any time. The workers will first wash hands and face immediately after leaving controlled work areas (and always prior to eating or drinking).

11.4 Personal Hygiene

The following personal hygiene requirements will be observed:

11.4.1 Water Supply

A water supply meeting the following requirements will be utilized:

Potable Water- An adequate supply of potable water will be available for personal consumption. Potable water can be provided in the form of water bottles, water coolers, or drinking fountains. Where drinking fountains are not available, individual-use cups will be provided as well as adequate disposal containers. Potable water containers will be properly identified in order to distinguish them from non-potable water sources.

Non-Potable Water- Non-potable water may be used for hand washing and cleaning activities. All containers of non-potable water will be marked with a label stating: -

11.4.2 Toilet Facilities

A minimum of one toilet will be provided, with separate toilets maintained for each sex except where there is less than 8 total personnel on site. For mobile crews where work activities and locations permit transportation to nearby toilet facilities, on-site facilities are not required.

11.4.3 Washing Facilities

Employees will be provided washing facilities (e.g., buckets with water etc.) at each work location. The use of water and hand soap will require by all employees following exit from the Exclusion Zone, prior to breaks, and at the end of daily work activities.

11.4.4 Stop Work Authority

All employees have the right and duty to stop work when conditions are unsafe and to assist in correcting these conditions. Whenever the site person determines that workplace conditions present an uncontrolled risk of injury or illness to employees, immediate resolution with the appropriate supervisor shall be sought. Upon issuing the stop work order, the site person shall implement corrective actions so that operations may be safely resumed. Resumption of safe operations is the primary objective; however, operations shall not resume until the Safety Professional has concurred that workplace conditions meet acceptable safety standards.

11.4.5 Personal Protective Equipment

The purpose of personal protective equipment (PPE) is to provide a barrier, which will shield or isolate individuals from the chemical and/or physical hazards that may be encountered during work activities. The PPEs to be provided are as follow:

Safety Helmets

- Face Masks
- Ear Plugs
- Gloves
- Boots etc.

11.4.6 First Aid Facility

Adequate first aid facility will be available at the site.

SECTION -12

CONCLUSION AND RECOMMENDATIONS

12.1 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

12.2 Recommendations

On the basis of the findings of the EIA, it is concluded that the project of M/S **THE SUPPLEMENT SOLUTION** 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

Words	Dictionary
Air Quality Sensitive Receptors	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.
Air Quality Standard	Air quality limiting values and objectives.
Annual Average Rainfall	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.
Annunciation	A formal public statement
Anticipated Impacts	Expected Impacts
Aspects	A distinct feature or element in a problem
Atm	Standard unit of atmospheric pressure; the pressure exerted by the weight of air in the atmosphere of Earth
Baseline	Existing environmental conditions present on, or near a site, against which future changes can be measured or predicted.
Biodiversity	The variety of life in the world or in a particular habitat or ecosystem.
Climate	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.
Climate Change	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.
Compliance	Acting according to certain accepted standards
Cutting	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.
Decibel(S)	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.
Discharge	Spilling, leaking, pumping, depositing, seeping, releasing, flowing out, pouring, emitting, emptying or dumping

Discrepancies	A difference between conflicting facts, claims or opinions
Dust	All airborne particulate matter.
Earthworks	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.
Ecosystem	A biological community of interacting organisms (e.g. plants and animals) and their environment.
Effluent:	Any material in solid, liquid or gaseous form or combination thereof being discharged from industrial activity or any other source and includes a slurry, suspension or vapour.
Environment	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.
Environment Agency	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.
Environment Budget	Monetary assets reserve for Environmental activity
Evaluated	Estimate or determine the nature, value, quality, ability, extent, or significance of
Excavated Material	Soil, rock and other material that has been removed from the ground during construction.
Fauna	All the animal life in a particular region or period
Flora	Variety of Plants found in an area
Greenhouse Gas	A gas such as carbon dioxide, methane, chlorofluorocarbons, nitrous oxide, ozone, and water vapor that contributes to the greenhouse effect by absorbing infrared radiation.
Groundwater	All water that is below the surface of the ground and within the permanently saturated zone.
Groundwater Body	A distinct volume of groundwater within an aquifer
Heavy Metals	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.
Impact	Used throughout this Environmental Impact Assessment report to refer to the consequence of an impact to the receiving environment.
Environmental Impact Assessment	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
Legislation	Law enacted by a legislative body
Million	10,00,000
Mitigation	The measures put forward to prevent, reduce and where possible, offset any adverse effects on the environment.
Mitigation Measures	Measures aimed to curtail or entirely control an adverse impact or to compensate some loss or cause additional improvements
Punjab Environmental Quality Standards	The permissible standards for emission of air pollutants and noise and for discharge of effluent and waste specifically in Punjab.
Nuisance	Annoyance
Orientation Session	Direction Session
Potential Issue	Problems likely to arise
Proposed Project	Planned activity
Rehabilitation	The conversion of wasteland into land suitable for use of habitation or cultivation
Residual Impacts	Impacts left behind after implementation of the mitigation measures
Risk Assessment	An assessment of the probability of a hazard occurring that could result in an impact.
Sand	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.
Scoping	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.
Screening	The first stage in an Environmental Impact Assessment. It is used to determine if further assessment is necessary and to categorize the project.

Significant	Important
Soil Erosion	The detachment and movement of soil by the action of water and/or wind.
Soil Profile	A vertical cross-section through a soil.
Stakeholders	A person or organization with an interest or concern in Something
Statutory Requirements	Legal Requirements
Substitutions	An event in which one thing is substituted for another
Surface Water	Waters including rivers, lakes, reservoirs, canals, streams, ditches, coastal waters and estuaries.
Sustainability	such developments that meet the needs of the present generation without compromising the ability of future generations to meet their needs.
Topography	The natural or artificial features, level and surface form of the ground surface.
Topsoil	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.
Waste	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
°F	Fahrenheit
BOD	Biochemical Oxygen Demand
CC	Construction Contractor
CDM	Clean Development Mechanism
CO	Carbon Monoxide
CO_2	Carbon dioxide
COD	Chemical Oxygen Demand
dB(A)	A weighted decibel scale
DO	Dissolved Oxygen
IEE	Initial Environmental Examination
EMMP	Environmental Mitigation and Monitoring Plan
EPA	Environmental Protection Agency
EPD	Environmental Protection Department
EPO	Environmental Protection Order
ERP	Emergency Response Plan
GHGs	Green House Gases
GOP	Government of Pakistan
EIA	Environmental Impact Assessment
Km	Kilometer
LAA	Land Acquisition Act
Ltd.	Limited
m^3/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
No.	Number
NOC	No Objection Certificate
NO_x	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
PKR	Pakistani Rupees
PM	Particulate Matter
PPEs	Personal Protective Equipment
Pvt.	Private
SOPs	Standard Operation Procedures
SO_x	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	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. Local businesses want to receive support in terms of facilities to diversify their businesses. 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.	Proponent has the main focus that they will buy all the material regarding construction and plant operation to buy from the local market. This will help the local and small business and to people who are keen interested to become suppliers.
Environmental Issues	Dust and noise impacts, particularly from the construction	Implementation of controls under the Environmental Management

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

Table: List of individuals consulted

Serial No.	Name	Address	ID Card No.
1	Muhammad Thair Javeed	Sundar, Lahore	35202-6816291-7
2	Muhammad Shazad Ali	Sundar, Lahore	35202-4130818-5
3	Naeem Abbas	Sundar, Lahore	35202-3753526-3
4	Liaqat Ali	Sundar, Lahore	35201-9453676-9
5	Riaz Ali	Sundar, Lahore	35102-2318903-1
6	Muhammad Ramzan	Sundar, Lahore	35201-1370481-1
7	Ro Sohib Khan	Sundar, Lahore	35102-9768177-5
8	Ahmed raza	Sundar, Lahore	35202-7874884-5
9	Muhammad Shazad Alam	Sundar, Lahore	35200-5659816-9
10	Muhammad Shaoib mehar	Sundar, Lahore	35200-1150557-7
11	Muhammad intikhab	Sundar, Lahore	35202-1089481-5
12	Nazam Ali	Sundar, Lahore	35202-3544949-5
13	Muhammad Usman Khan	Sundar, Lahore	35102-5263508-9
14	Nasar Mehmood	Sundar, Lahore	35102-8751269-5
15	Usama Saleem	Sundar, Lahore	35102-5167324-7
16	Muhammad Tabraiz	Sundar Lahore	35102-3269610-7
17	Maratab Ali	Sundar Lahore	35202-6817062-3
18	Imran Murtaza	Sundar Lahore	35202-5107486-9
19	Muhammad Asad	Sundar Lahore	35202-4729263-9
20	Sajid Ali	Sundar, Lahore	35204-6723783-8

SOCIO ECONOMIC SURVEY FORM

Project Name: **THE SUPPLEMENT SOLUTION**

GENERAL PROFILE

Name: Muhammad Thair Javeed

CNIC Number: 35202-6816291-7

Home Address: Sundar, Lahore

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	o Single ✓ o Married o 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.)	FATIMA HOSPITAL 05-Km			
11.	Nearest Educational Institute	Govt. High School Sundar			
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: THE SUPPLEMENT SOLUTION

GENERAL PROFILE

Name: Muhammad Shazad Ali

CNIC Number: 35202-4130818-5

Home Address: Sundar, Lahore

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	o Single o Married ✓ o 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.)	Fatima Hospital 05-Km			
11.	Nearest Educational Institute	Govt. High School Sundar			
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: THE SUPPLEMENT SOLUTION

GENERAL PROFILE

Name: Naeem Abbas

CNIC Number: 22401-3541154-5

Home Address: Sundar, Lahore

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	o Single o Married ✓ o 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.)	FATIMA HOSPITAL 05-Km			
11.	Nearest Educational Institute	Govt. High School Sundar			
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: **THE SUPPLEMENT SOLUTION**

GENERAL PROFILE

Name: Tahir Mehmood

CNIC Number: 35502-0292438-5

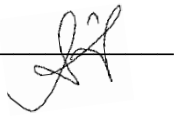
Home Address: Sundar, Lahore

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	o Single✓ o Married o 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.)	FATIMA HOSPITAL 05-Km			
11.	Nearest Educational Institute	Govt. High School Sundar			
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: **THE SUPPLEMENT SOLUTION**

GENERAL PROFILE

Name: Liaqat Ali

CNIC Number: 0307-5643175

Home Address: Sundar, Lahore

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	o Single✓ o Married o 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.)	FATIMA HOSPITAL 05-Km			
11.	Nearest Educational Institute	Govt. High School Sundar			
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: **THE SUPPLEMENT SOLUTION**

GENERAL PROFILE

Name: Riaz Ali

CNIC Number: 82501-0383216-1

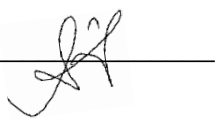
Home Address: Sundar, Lahore

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	o Single✓ o Married o 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.)	FATIMA HOSPITAL 05-Km			
11.	Nearest Educational Institute	Govt. High School Sundar			
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: **THE SUPPLEMENT SOLUTION**

GENERAL PROFILE

Name: M Ramzan

CNIC Number: 35404-4455814-1

Home Address: Sundar, Lahore

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	o Single o Married ✓ o 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.)	FATIMA HOSPITAL 05-Km			
11.	Nearest Educational Institute	Govt. High School Sundar			
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: **THE SUPPLEMENT SOLUTION**

GENERAL PROFILE

Name: Sohaib Khan

CNIC Number: 0348-0551022

Home Address: Sundar, Lahore

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	o Single✓ o Married o 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.)	FATIMA HOSPITAL 02-Km			
11.	Nearest Educational Institute	Govt. High School Sundar			
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: **THE SUPPLEMENT SOLUTION**

GENERAL PROFILE

Name: Ahmed Raza

CNIC Number: 12103-1882219-1

Home Address: Sundar, Lahore

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	o Single o Married ✓ o 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.)	FATIMA HOSPITAL 05-Km			
11.	Nearest Educational Institute	Govt. High School Sundar			
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: **THE SUPPLEMENT SOLUTION**

GENERAL PROFILE

Name: Muhammad Shahzad Alam

CNIC Number: 36304-0980418-7

Home Address: Sundar, Lahore

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	o Single o Married ✓ o 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.)	FATIMA HOSPITAL 05-Km			
11.	Nearest Educational Institute	Govt. High School Sundar			
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: **THE SUPPLEMENT SOLUTION**

GENERAL PROFILE

Name: M Shaoib Mehar

CNIC Number: 35103-8573972-3

Home Address: Sundar Lahore

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	o Single o Married ✓ o 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.)	FATIMA HOSPITAL 05-Km			
11.	Nearest Educational Institute	Govt. High School Sundar			
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: **THE SUPPLEMENT SOLUTION**

GENERAL PROFILE

Name: M Intikhab

CNIC Number: 35103-7762877-3

Home Address: Sundar, Lahore

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	o Single o Married ✓ o 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.)	FATIMA HOSPITAL 05-Km			
11.	Nearest Educational Institute	Govt. High School Sundar			
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: **THE SUPPLEMENT SOLUTION**

GENERAL PROFILE

Name: Nazam Ali

CNIC Number: 35303-4855679-9

Home Address: Sundar, Lahore

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	o Single o Married ✓ o 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.)	FATIMA HOSPITAL 05-Km			
11.	Nearest Educational Institute	Govt. High School Sundar			
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: THE SUPPLEMENT SOLUTION

GENERAL PROFILE

Name: M Usman Khan

CNIC Number: 35103-1277226-6

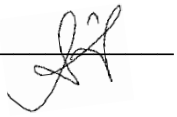
Home Address: Sundar, Lahore

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	o Single o Married ✓ o 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.)	FATIMA HOSPITAL, 05-Km			
11.	Nearest Educational Institute	Govt. High School Sundar,			
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: **THE SUPPLEMENT SOLUTION**

GENERAL PROFILE

Name: Nasar Mehmood

CNIC Number: 36303-6500158-7

Home Address: Sundar, Lahore

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	o Single o Married ✓ o 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.)	FATIMA HOSPITAL 05-Km			
11.	Nearest Educational Institute	Govt. High School Sundar			
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: **THE SUPPLEMENT SOLUTION**

GENERAL PROFILE

Name: Usama Saleem

CNIC Number: 35202-1490904-5

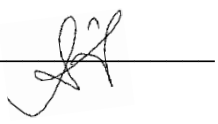
Home Address: Sundar Lahore

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	o Single o Married ✓ o 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.)	FATIMA HOSPITAL 05-Km			
11.	Nearest Educational Institute	Govt. High School Sundar			
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: **THE SUPPLEMENT SOLUTION**

GENERAL PROFILE

Name: M Tabraiz

CNIC Number: 35202-4036952-5

Home Address: Sundar, Lahore

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	o Single o Married ✓ o 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.)	FATIMA HOSPITAL 05-Km			
11.	Nearest Educational Institute	Govt. High School Sundar			
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: THE SUPPLEMENT SOLUTION

GENERAL PROFILE

Name: Maratab Ali

CNIC Number: 35103-1333593-9

Home Address: Sundar Lahore

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	o Single o Married ✓ o 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.)	FATIMA HOSPITAL 05-Km			
11.	Nearest Educational Institute	Govt. High School Sundar			
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: THE SUPPLEMENT SOLUTION

GENERAL PROFILE

Name: Imran Murtaza

CNIC Number: 35103-8251607-5

Home Address: Sundar, Lahore

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	o Single o Married ✓ o 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.)	FATIMA HOSPITAL 05-Km			
11.	Nearest Educational Institute	Govt. High School Sundar			
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: **THE SUPPLEMENT SOLUTION**

GENERAL PROFILE

Name: M Asad

CNIC Number: 35103-768412-6

Home Address: Sundar Lahore

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	o Single o Married ✓ o 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.)	FATIMA HOSPITAL 05-Km			
11.	Nearest Educational Institute	Govt. High School Sundar			
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: _____

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 ECO-IDEAL Consultants in consultation with proponent of the project. Proposal and TORs for the EIA accepted by the M/S **THE SUPPLEMENT SOLUTION**.

1. INTRODUCTION OF PROJECT

Subject project is **THE SUPPLEMENT SOLUTION** located at Mouza Sundar Lahore.

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 03-Kanal.

4. NAME OF PROPONENT

Name	**:**	*Yumna Tariq w/o Sulahudin Tariq*
NIC No.	**:**	*35202-2297218-2*
Address	**:**	*House No.154 Block Ghouri Sector Bahria TownLahore*

5. ENVIRONMENTAL CONSULTANT & CLINT

M/S THE SUPPLEMENT SOLUTION has appointed Eco Ideal Consultants as Consultant for the subject project to conduct the Environmental Impact Assessment. M/S ECO-IDEAL Consultants will be called as “CONSULTANT” and M/S **THE SUPPLEMENT SOLUTION** 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 fulfillment 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

EIA for the subject project "Establishment of Manufacturing Unit" by M/S **THE SUPPLEMENT SOLUTION** located at Mouza Sundar Lahore.

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 ad 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. METHODLOLOGY

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 (04) 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 Eco Ideal Consultants by M/S **THE SUPPLEMENT SOLUTION**. 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. **ECO-IDEAL Consultants** 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) Demand Draft of Rs. 30,000/- in favour of Director General, Environmental Protection Agency Punjab, Lahore

e) Copy of NIC of proponent

f) Signature on Schedule IV (pattern will be provided)

g) Detail Company Profile

h) Details of firefighting Equipment

i) Layout Map of the project

j) 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:	Signature:
CONSULTANT	**CLIENT**
M/S ECO-IDEAL Consultants	M/S The Supplement Solution

Profile of IEE/EIA Professional Team

1. **Dr. Faiz Rabbani**				
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 06 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
2. Saiqa Amjad				
Designation	Environmentalist / Environmental Professional			
Qualification	M.Phill. (Env. Science)			
Institution	University of Lahore			
Sectors	Consultancy Firm			
Experience	4 Years			
Worked With:	Eco Ideal Consultants			
Skills	Report Writing, Social Survey			
Environmental Assessment Experience	Reports Drafted		Field Survey	4
3 Mubeen Shoukat				
Designation	Environmental Associate			
Qualification	BS Environmental Sciences			
Institution	Government College University, Lahore			
Sectors	Consultancy Firm			

Experience	4 Year			
Worked With:	IE Solutions Consultants			
Skills	Social Survey, Lab working			
Environmental Assessment Experience	Reports Review	10	Field Survey	10
4 Noor Bibi				
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
5 Hafiz Abdul Rehman				
Designation	Compliance Officer			
Qualification	Health Safety Environmental Engineering			
Institution	Punjab University			
Sectors	Consultancy Firm			
Experience	6 Years			
Worked With:	ECO-IDEAL Consultants			
Skills	Social Survey, Lab working			