

MEHRIA ENCLAVE Extension II

**A Project of
MEHRIA TOWN (PVT) LTD**

**Mouza chak jassian & Mirza tehsil &
District Attock.**

Environmental Impact Assessment (EIA) Report



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LIST OF ACRONYMS

EA	Environmental Approval
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EPA	Environmental Protection Agency –Punjab
EPC	Environmental Protection Council
GOP	Government of Pakistan
HSE	Health Safety & Environment
LAA	Land Acquisition Act
MSW	Municipal Solid Wastes
NOC	No Objection Certificate
O&M	Operation and Maintenance
OHS	Occupational Health and Safety
Pak–EPA	Pakistan Environment Protection Agency
PEPA	Punjab Environmental Protection Amendment Act
PEPC	Pakistan Environment Protection Council
PEQS	Punjab Environmental Quality Standards
PIU	Program Implementation Unit
PKR	Pak Rupees
PPE	Personal Protective Equipment
RNR	Renewable Natural Resources
SFA	Social Framework Agreement
HSE	Health Safety Equipment

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

Land subdivision precedes any building activity and may create residential lots, commercial tracts or industrial parks. More formally, a subdivision could be defined as the division of any improved or unimproved land for the purposes of sale, lease, or financing. Servicing of land may include land clearing and excavation work for the installation of roads and utility lines. The extent of the work may vary from project to project and establishments may perform all the work themselves or subcontract it out.

The proposed project is the Mehria Enclave Extension II a project of Mehria Town Housing Scheme (Pvt) Limited. For this purpose, the project is proposed by the proponent, which is extension of housing scheme . The project is located at Mouza chak jassian & mirza tehsil & District Attock .

The proposed project for the commissioning of its objective and construction requires fulfilling the legal requirements of the Punjab Environmental Protection Act (amended act 2012), Section 12, for which Environmental Impact Assessment (EIA) report should be submitted.

i- PROJECT PROPONENT

Mr. Malik Rehan Khan

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ii- PROJECT CONSULTANTS



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iii- BRIEF OUTLINE OF PROJECT

The project is located at Mouza chak jassian & mirza tehsil & District Attock . The project in its vicinity has infrastructure like roads, transport, electricity, telephone, land and even the environment is of ideal condition for the extension of a housing scheme. The total area of the plot is **1280 Kanal 14 Marla and 50 sqft.**

iv- ENERGY AND WATER AVAILABILITY:

The electricity supply will be the usual 400KVA supply from local electricity board that is WAPDA. The water requirements of the facility will be fulfilled by the Municipal supply, to be backed up by bore well, for all the construction and operational activities

v- 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 A: 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 or require all trucks to maintain at least two feet of freeboard. Pave,

Possible Impact	Impact Magnitude	Proposed Mitigation Measures
		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. • Provision of PPEs to workers
Hydrology and water quality degradation.	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

Possible Impact	Impact Magnitude	Proposed Mitigation Measures
		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. • 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.

Possible Impact	Impact Magnitude	Proposed Mitigation Measures
		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	- Solid wastes resulting from the house 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 from the standby generator.	Minor/ Long Term	- 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

Possible Impact	Impact Magnitude	Proposed Mitigation Measures
		reduce the noise level at the project boundary.
Air Emissions will be generated from standby generator	Minor/Long Term	HVAC equipments will help cleaning the air that can be potential source of air emissions.
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. - Installation of waste water treatment plant

vi- 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 B: 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, VOCs, SO _x , NO _x , CO, O ₃	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

Environmental segment/element	Monitoring parameters	Reference location/monitoring point	Monitoring frequency
OPERATIONAL PHASE			
Water Quality	As prescribed by the Punjab environmental Drinking Water Quality Standards	Main Drinking Water Source	Monthly
Ambient air emissions	Methane and carbon dioxide, PM, VOCs, CO, O ₃	Generator Area	Quarterly
Waste water including Sewage	Ensure that all wastewater is treated to the level set by the PEQS-Pakistan.	Main Disposal Site	Monthly
Noise	Noise levels	Generator and hotel parking area	Once monthly at all involved places
Solid Waste Disposal	Ensure that all wastes are disposed of according to legal requirements of the country.	Hotel and apartments solid waste/ storage area	Regularly in connection with environmental and safety rounds.

TABLE C: ENVIRONMENTAL MANAGEMENT COST

Environmental Component	Amount PKR	Details	Remarks
A. Environmental Management Cost			
Health and Safety Measures and Provision of PPEs	300,000	The workers are required to provide the PPEs for work site safety precaution and to avoid any safety hazard.	Amount to be included in the Project Budget.
B. Environmental Monitoring Cost			
Air, Water and Noise Monitoring	400,000	Monitoring will be performed as per EPA Standards	Amount to be Included in Project Budget
Tree Plantation Tree Plantations of Endemic / Local Species	2,500,000	Landscaping around the project site.	Required for implementation of true spirit of EMP
Total Environmental Management and Monitoring Cost in PKR (A+B+C)	12,000,000	Summing up A,B, C	Amount to be included in the Project Budget.

vii- STAKEHOLDER CONSULTATIONS

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

viii- 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.

SECTION-1

INTRODUCTION

1 INTRODUCTION:

Commercialization is basically the initiation of such projects or process which leads to the monetary gains. It is an important factor for the economic growth of any country as it enhances the economy by the gains it provides. As Pakistan is a developing country the need of commercialization is increasing for gaining the stability of the economy, there are various commercial projects that are being proposed and initiated already and the number is increasing as well.

Land subdivision precedes any building activity and may create residential lots, commercial tracts or industrial parks. More formally, a subdivision could be defined as the division of any improved or unimproved land for the purposes of sale, lease, or financing. Servicing of land may include land clearing and excavation work for the installation of roads and utility lines. The extent of the work may vary from project to project and establishments may perform all the work themselves or subcontract it out. Establishments that perform only the legal subdivision of land are not included.

For this purpose, the project is proposed by the proponent, which serves the same aim. The project is located at Mouza chak jassian & mirza tehsil & District Attock . Which is designed for land subdivision compressed of **1280 Kanal 14 Marla and 50 sqft**.

The proposed project for the commissioning of its objective and construction requires to fulfill the legal requirements of the Punjab Environmental Protection Act (amended act 2012), Section 12, this Environmental Impact Assessment (EIA) report is being submitted.

1.1 PURPOSE OF THE REPORT

The proposed project envisages the establishment of the **Mehria Enclave Extension - II** a Project of Mehria Town Housing Scheme.

In accordance with the Pakistan Environmental Protection Agency Review of Environmental Impact Assessment (EIA) Regulations, 2000, SRO # 339 (1)/2000, the project for construction of the Mehria Enclave Extension-II . Extension of housing scheme falls in Schedule-II, Category H for which Environmental Impact Assessment (EIA) report is required for Environmental Approval.

According to the Punjab Environmental Protection Act (PEPA), Section 12 - Initial environmental examination, and environmental impact assessment: "No proponent of

a project shall commence construction or operation unless he has filed with the Government Agency designated by Provincial Environmental Protection Agencies, as the case may be, or, where the project is likely to cause an adverse environmental effects an environmental impact assessment, and has obtained from the Government Agency approval in respect thereof.” It is this legal requirement from the Government of Punjab that this Initial Environmental Examination report has been prepared to get Environmental Approval (EA) from the Environmental Protection Agency, Government of Punjab, Lahore.

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 (amended 2012), the National 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 AND PROPONENT

Govt. of the Punjab has entrusted Mehria Town (Private) Limited, for design, construction, and operation of proposed at the designated site. The proposed project is

the extension of a housing scheme named Mehria Enclave Extension -II a project of Mehria Town Housing Scheme.

Proponent: Mr. Malik Rehan Khan

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DETAILS OF CONSULTANTS



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1.3 PERSONS PERFORMING THE IEE STUDY (TEAM MEMBERS)

The proponent has assigned the task of preparing EIA report to M/S Integrated Environment Consultants, Lahore. The study of the proposed project has been conducted according to Environmental Assessment Procedures, 1997, Review of IEE and EIA Regulation 2000 as prescribed by the Federal Environmental Protection Agency (Pak EPA), Government of Pakistan.

NAME	QUALIFICATION	STATUS IN PROJECT
Mr. Ahtasham Raza	Ph.D. Scholar, (Environmental Sciences) University of the Punjab, Pakistan	Project In-charge
Mr. Adnan Sharif	Postgraduate Diploma (Environmental Law)	Team Leader
Mr. Mehmood Amjad	B.S (Environmental Sciences)	Monitoring In-charge
Iris Earnest	PhD Scholar, (Environmental Sciences) GC University, Lahore	Senior Environmentalist

NAME	QUALIFICATION	STATUS IN PROJECT
Nimra Shehzadi	M.Phil. (Environmental sciences)	Environmentalism
Mohsin Majeed	B.S (Environmental Sciences)	Environmentalism
Muhammad Irshad	B.S (Environmental sciences)	Environmentalism

1.4 BRIEF DESCRIPTION OF NATURE, SIZE AND LOCATION OF PROJECT

The project envisages with the extension of a housing scheme at Mouza chak jassian & mirza tehsil & District Attock . The total area of the plot is **1280 Kanal 14 Marla and 50 sqft**. While the estimated project cost is 5 Billions rupees Pak rupees. To plan and build housing scheme having all types of relevant facilities, services, activities, accessories, this project is open for sale for employees, businessman, and government servant and has been considered as commercial in nature. The proposed area development scheme will facilitate the local population in provision of the standard living place with all luxuries in that selected region and beautiful area. The land is already owned by the project proponent. In accordance with the Punjab Environmental Protection Act 2012 (amended act 2012), the project falls in Schedule–II, Category H , which requires the Environmental Impact Assessment (EIA) report to submit in Environment Protection and Climate Change Department (EPCCD), Government of the Punjab, Lahore.

1.5 OBJECTIVE OF THE REPORT

Objectives to conduct this EIA are as following:

- 1) A legal binding in accordance to Punjab Environmental Protection Act-2012 (amended Act).
- 2) To identify the potential environmental issues pertaining to the proposed site.
- 3) To evaluate the ability of the site by keeping in view the social acceptance and environmental soundness.

- 4) Providing maximum information to the proponent and other stakeholders, regarding existing environmental conditions and the implications of the proposed project.
- 5) Collection of available data, reports, drawings and other relevant information about the proposed project.
- 6) Review of applicable existing environmental legislation and Punjab environmental quality standards (PEQS).
- 7) Propose mitigation measures to eliminate or to reduce the negative impacts to an acceptable level.
- 8) Development of well-resourced environmental management and monitoring plans to identify mitigation strategies targeted towards avoidance, minimization, and rehabilitation of the impacts.

1.6 EXTENT OF THE STUDY

In compliance with PEPA-2012 (amended act) requirements, an EIA report has been prepared by Integrated Environment Consultants, Lahore. 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.

SECTION-2

SCREENING OF PROJECT

2 Screening of the Project

In accordance with the Pakistan Environmental Protection Agency Review of Environmental Impact Assessment (EIA) Regulations, 2000, SRO # 339 (1)/2000, the project for construction of the Mehria Enclave Extension -II. Extension of housing scheme falls in Schedule–II, Category H. for which Environmental Impact Assessment (EIA) report is required for Environmental Approval. Following list shows the projects included in Category H.

H. Urban Development and tourism

1. Housing Schemes more than 300 Kanals
2. Large -scale tourism development projects
3. Hospitals having more than 50 Beds
4. Hotel with more than 100 rooms
5. Industrial estates (including export processing zones)

The EIA is required because of the considerable environmental impacts these plants may have, the extensive regulations, and the need for a comprehensive assessment involving public participation, considering potential risks, mitigation term measures, and consequences.

SECTION-3

SCOPPING OF PROJECT

3 Scoping of the project

The scoping process outlines the essential concerns and impacts requiring detailed investigation. It establishes the spatial and temporal limits, crucial concerns raised during consultations, and significant impacting factors impacting the project.

3.1 Spatial and Temporal Boundaries of Environmental Assessment

Considering spatial and temporal boundaries in environmental assessments is vital to comprehensively evaluate the impact of a project. Spatial boundaries define the area affected, aiding in recognizing the extent of impact on ecosystems and nearby communities. Temporal boundaries assess short and long-term effects, enabling an understanding of how impacts evolve over time and helping in planning mitigation measures and long-term sustainability strategies. This approach ensures accurate, detailed assessments and effective addressing of potential environmental consequences related to the project. The proposed project is located at Mouza chak jassian & mirza tehsil & District Attock.

3.2 Important issues and concerns raised during consultation

The EIA for the proposed project incorporated a two-stage consultation process, primarily focused on one-on-one meetings. In the initial stage, the consultation was specifically directed towards engaging local government authorities, affected individuals, and local communities. The primary goal of this stage was to evaluate both the short-term and long-term impacts that might result from the new development proposed for the project. The intent was to gather insights and perspectives from key stakeholders in the immediate vicinity to better understand potential environmental, social, and economic implications of the project.

The second stage of consultations, as indicated, will be conducted through a more extensive process of public participation if deemed necessary. This broader involvement will allow for a wider outreach to the public, enabling a more comprehensive engagement to gather additional feedback, concerns, and insights from a larger cross-section of the community. This will ensure a more inclusive approach, providing an opportunity for a wider range of stakeholders to contribute their perspectives, concerns, and suggestions, which can be valuable in shaping and refining the EIA for the proposed project.

SIGNIFICANT IMPACTS AND FACTORS TO BE DETERMINED

The determination of significant impacts for a housing scheme requires careful consideration of environmental, social, and economic factors to ensure sustainable development and regulatory compliance. Environmental concerns include the conversion of land, which can lead to vegetation loss, habitat destruction, and reduced biodiversity. Water resource management is critical, as increased demand and improper drainage systems could strain supplies and contaminate nearby water bodies. Construction activities may generate dust and vehicular emissions, impacting air quality, while soil erosion and degradation can result from excavation. Solid and liquid waste generated during construction and occupancy must be managed effectively to prevent environmental contamination.

Social impacts involve potential displacement of existing communities or disruption to local livelihoods. Increased population density can place pressure on infrastructure and public services, including roads, schools, and healthcare facilities. Development near cultural or historical sites may require measures to preserve these areas. Health and

safety risks include noise, dust, and vibrations during construction, along with occupational hazards for workers. Poor sanitation or stagnant water can lead to health issues for residents.

DEVELOPMENT OF AN ENVIRONMENTAL MANAGEMENT PLAN

The EMP in an EIA is crucial as it outlines strategies to mitigate environmental impacts, ensures regulatory compliance, guides project operations, promotes sustainability, reduces risks, assures stakeholders, and allows for ongoing improvement and adaptation to address environmental concerns throughout the project's life cycle.

These key parts of EMP include a clear description of the project, an outline of potential environmental impacts and risks, specific mitigation measures tailored to address these impacts, a comprehensive monitoring and reporting system to track environmental indicators, protocols for emergency response and contingency planning, details on stakeholder engagement and communication strategies, and a framework for ongoing review and updates to ensure the plan's adaptability and effectiveness over the course of the project. Together, these components form a comprehensive EMP designed to guide environmental practices, minimize adverse impacts, and maintain compliance with regulations and best practices in environmental management.

SECTION-4

ALTERNATIVES OF THE PROJECT

4 ALTERNATIVES CONSIDERED, AND REASONS FOR THEIR REJECTION

The alternatives for the proposed project and their relative potential impacts on the environment were considered to evaluate the best project option. The following alternatives were considered for the project.

Project Alternatives

- No project option
- Site Alternative
- Design Alternative

NO PROJECT OPTION

Analysis

❖ Strengths and Opportunities

If the extension of the housing scheme is not undertaken, significant strengths and opportunities can be identified. The funds, efforts, and resources allocated for the project can be redirected to other priority initiatives of the proponent. The existing land will remain untouched, preventing any displacement of local communities or disruption to their livelihoods. Additionally, the inconvenience caused by construction activities, such as noise, dust, and traffic, will be avoided. Recurring maintenance and operational costs associated with the extended housing scheme will be saved. The current environmental conditions, including physical, biological, and social aspects, will remain unaffected, preserving local ecosystems and community dynamics. Moreover, those currently benefiting from the surroundings such as nearby residents or businesses, will continue to enjoy their existing environment without any changes or disturbances.

Conclusion

The “No project option” reveals that the absence of project impacts economic development in the area. Therefore, this option is not recommended.

LOCATION ALTERNATIVES

Construction on Proponent's Land

The proponent's land has been carefully chosen due to its proximity to existing infrastructure and logistical convenience. The site has already undergone thorough assessments and is deemed suitable in terms of safety, environmental impact, and compliance with regulations. The proponent's land is already owned, eliminating the need for additional land acquisition and streamlining the construction process. This option provides more control and flexibility to the proponent over the project's development and operation. Additionally, it aligns with the proponent's strategic goals and minimizes potential delays associated with utilizing government land, making it the preferred choice for the project.

Conclusion

The construction on proponent's land was preferred because it provides more control and flexibility to the proponent over the project's development and operation.

Design Alternatives

Design alternatives assess different layout and infrastructure approaches for the housing scheme extension. This includes eco-friendly designs with green spaces, choosing between low-density and high-density housing to optimize land use, and integrating smart infrastructure for energy efficiency, water conservation, and waste management.

In housing scheme plant design, an Effluent Treatment Plant (ETP) offers significant advantages over septic tanks. The higher treatment standards and allows for water reuse in landscaping or other non-potable applications, making ETPs ideal for high-density housing. In contrast, septic tanks are simpler, rely on passive treatment methods, and are less effective for large-scale developments. They require frequent maintenance, have limited capacity, and are not suitable for handling large wastewater volumes or meeting strict environmental regulations. While septic tanks are cheaper to install, their long-term sustainability is questionable, especially in growing housing schemes.

ETPs, with their scalability, automation, and advanced treatment technologies, are a more reliable, efficient, and sustainable solution for wastewater management in housing schemes, ensuring compliance with regulations and reducing environmental impacts.

SECTION-5

DESCRIPTION OF THE PROJECT

5 DESCRIPTION OF THE PROJECT

5.1 GENERAL

This section deals with project components, which are the part of the utility and its related activities. It also describes the category of the project, availability of construction materials, construction time and cost of the project, construction and operational equipment etc. The information presented in this section is based on project site survey, preliminary design report, and other related details provided by the provided by the client.

5.2 TYPE AND CATEGORY OF THE PROJECT

The project is commercial in nature. In accordance with the Environmental Protection Agency, Government of the Punjab, Lahore, “List of Projects Requiring an EIA”, the project under consideration falls into the Schedule II Category H, that is the category of the projects requiring Environmental Impact Assessment (EIA). Therefore, to fulfill the legal requirements of the Section-12 of the Punjab Environment Protection Act (amended 2012), 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).

5.3 OBJECTIVES OF PROJECT

The principle objectives of the project are as under:

- ✓ Develop the project's land in accordance with the best engineering standards and provisions of the Controlling Authority.
- ✓ Provide pollution free hygienic environments to the people
- ✓ Propose design / plans of the proposed land subdivision for better social environment

5.4 COST AND MAGNITUDE OF OPERATION

The total cost that has to be spending on the project is approximately 5 Billion rupees. The total area for the proposed project is 1280 Kanal 14 Marla and 50 sqft. The quantities have been worked out from the design drawings and project feasibility.

5.5 LOCATION OF THE PROJECT:

The project is located at Mouza chak jassian & mirza tehsil & District Attock. The project in its vicinity has infrastructure like roads, transport, electricity telephone, land and even the environment is ideal condition for the construction of a housing scheme. The total area of the plot is 1280 Kanal 14 Marla and 50 sqft.

Figure: Location of proposed project



5.6 LAND USE:

The land occupied for the construction of the M/S Mehria Enclave Extension II ,a project of Mehria Town Scheme, is owned by proponent and the land is agriculture.

5.7 VEGETATION FEATURES OF PROJECT

Currently, no specific vegetation or specie is present at the site.

5.8 ROAD ACCESS

The project is accessible through Attock Sanjwal Road. The access roads are paved and are in good conditions.

5.9 CONSTRUCTION PERIOD AND COST

The project cost estimate has been prepared. The quantities have been worked out from the design drawings. The rates for cost estimates are based on construction work, contractor cost, cost of land, and cost of the raw materials. The Project cost as initially estimated will be Rs 5 Billion.

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) Lying 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) Commercial building civil structure erection completion.
- 2) Completion of the basic infrastructures water supply system, electricity supply etc.

4th Stage

The last stage will be the commencement of regular use.

5.10 ENERGY USE:

The electricity supply is the 400 KVA transformers.

5.11 WATER USE:

The water requirements of the facility will be fulfilled by the underground water source for all the construction and operational activities.

5.12 OPERATIONAL ARRANGEMENTS

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

5.13 NUMBER OF STAFF & HOUR OF OPERATION:

Number of staff & hour of operation are 20 Persons & 08Hours / day

5.14 GENERAL DESCRIPTION OF PROJECT:

The project is located at Mouza chak jassian & mirza tehsil & District Attock. The project in its vicinity has infrastructure like roads, transport, electricity, telephone, land and even the environment is ideal condition for the construction of a housing scheme. The total area of the plot is 1280 Kanal 14 Marla and 50 sqft.

RESTORATION AND REHABILITATION PLAN

To restore and rehabilitation the project site, a recommendation for tree plantation has been proposed. This strategic initiative aims to rejuvenate and enhance the site's ecological balance following the completion of the project. Tree plantation offers a

means to restore the natural environment, promote biodiversity, mitigate potential environmental impacts, and contribute to the overall sustainability of the site. By introducing tree plantation, the project area can experience ecological restoration, afforestation, and the development of a more environmentally friendly landscape, aligning with the commitment to environmental stewardship and sustainability.

SECTION-6

DESCRIPTION OF

ENVIRONMNET

6 DESCRIPTIONS OF ENVIRONMENT

6.1 GENERAL

This chapter describes the baseline conditions, which cover the existing physical, ecological and socio-economic environment of the Study Area. Information on these aspects has been derived from the desk study of available data, field visits to the project area as well as information obtained through visits to the Government departments and other agencies namely Irrigation Department, Meteorological Department, Forest offices and prevailing environmental laws and environmental quality standards etc.

6.2 HISTORY:

Attock district derives its name from the famous Attock Fort. The fort was accorded this name by Mughal Emperor Akbar, The Great. It is situated on the left bank of the Indus River. Name of the district was changed to Campbellpur in 1908 when Sir Campbell laid the foundation of Campbellpur city a few kilometres away on the south-east of Attock Khurd town. The district re-gained its old name Attock in 1978. Attock was raised to the administrative status of a district in 1904. At that time it comprised four Tehsils namely Talagang, Pindigheb, FatehJang and Attock.

6.3 LOCATION

The district has Swabi and Haripur districts of N.W.F.P. on the north, Chakwal district on the south, Rawalpindi on the east, Mianwali district on the south-west, Kohat district on the west and Nowshera district of N.W.F.P on the north-west. The Indus flows along the western boundary of the district for about 130 km and divides the district from the three bordering districts of N.W.F.P.

6.4 TOPOGRAPHY AND GEOLOGY

The project site is situated in District Attock which in turn lies in Potohar upland. The Potohar upland is 250 km long and 100 km wide with an average elevation of around 457 meters. Safely, about 60% of Potohar land is highly eroded with gullies while the remainder consists of slightly sloping land. This gully formation is primarily due to geological erosion. Steep vertical slopes are common throughout the gullied area.



Figure 3.1: Location of District Attock

The whole District of Attock is a combination of plains and hills. In the middle of the District Attock and Pindigheb Tehsil are the famous Kala Chitta Hills (KCH) which are also Game Reserve Area. The project site is at a distance of about 30 km by road from KCH. The Kala Chitta Hills in the West near the Indus River attain maximum height of 1000 meters. The Kala Chitta Range (KCR) is rugged but covered with forest in the form of mostly shrubs. There are some other isolated ranges in the district Attock. In the southern part are found the lower slopes of the famous salt range namely Sakesar Hills. The salient feature of district Attock topography is its general slope which is from north-east to south-west. At some distance from the hills, the land is comparatively flat and quite fertile from agriculture point of view. With in time adequate rain the entire agricultural land provides excellent crop yield especially crops like wheat as the main and pulses, maize, oil seed crops, lentils, ground nut, sorghum, millet, potatoes and vegetables as secondary crops. There are no canals in district Attock. Underground water and rain water are used for irrigation. Underground water is sweet and fit for irrigation and drinking.

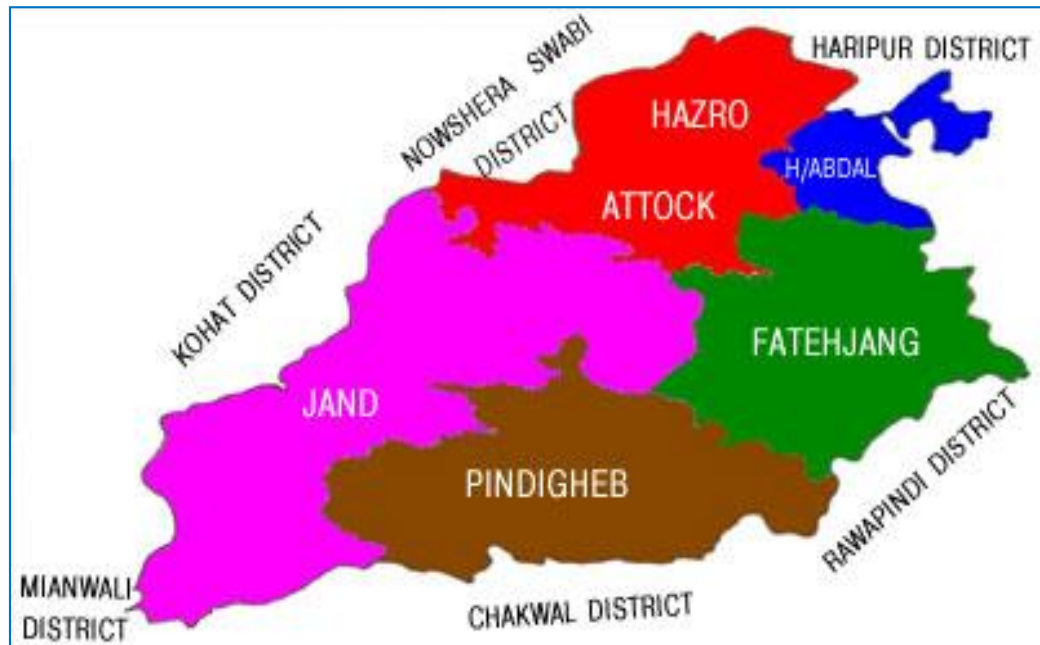


Figure 3.2: Different Tehsils in District Attock

6.5 SOILS

The project site comprises mainly silty eroded loess and shallow residual soils with some gullied land. Deposits of Lacustrine clay are found near the project site. The clay thickness in the project area is estimated to be around 25 meters. The project site does not fall across the natural drainage pattern and accordingly during heavy rainfalls there is no danger of flooding at the site. The soils of the project area consist of loess, old alluvial deposits, mountain outwash and recent stream valley deposits. The soils consist of mainly medium textured with considerable percentage of clayey material. Most of the soils are deep, except those formed in situ from underlying rocks. The soils, like in the entire country are sodaic in nature.

6.6 CLIMATE

The climate of the Potohar area, where the project site is situated, can be classified as semi in the southwest to sub-humid sub-tropical in the east and north east. The general features are high June-July temperatures with occasional hot, dry winds and dust storms, cold nights in winter and two rainy seasons. Rainfall is erratic and occurs from mid June to mid September and from December to March. Mean annual maximum and minimum temperatures for Attock District are 29.4 to 15.9 OC. The project area is characterized by extreme conditions, being very hot in summer and

cold in winter. The climate of the region is sub-humid, sub-tropical with summers, including the monsoon of July to August and short winters. The winter extends from December through February, with the months of November and March being mild and pleasant. Minimum temperature so often touches zero with the lowest recorded being -4°C. During winter the area is subjected to early morning frost. The weather starts warming from March and reaches peak in May and June, with the maximum recorded temperature being 46°C. This is followed by the monsoon season when the temperatures drop down a little but due to high humidity the weather sometimes becomes quite stuffy. Relative humidity in the area is usually high during nights while during other months, humidity remains in the range of 70 to 80 %. Midday readings are usually low with its mean minimum value ranging from 23 to 26 % for May and June and mean maximum being 50 to 59 % for July and August respectively.

During October through March, usually high pressures are prevalent ranging from a mean of 952.3 mb at around 1200 hrs during October to 959.2 mb at 0300 hrs for December. Low pressures are generally prevalent during May through August with mean minimum being 940.2 mb at 1200 hrs for June and July. Low pressures are associated with stronger winds, clouds and precipitation. Wind storms are quite common during May-June, whereas monsoon become dominant during July- August. High pressure systems are associated with calm weather and may cause inversions.

Average Temperature in Attock City

The hot season lasts for 4.6 months, from May 6 to September 24, with an average daily high temperature above 96°F. The hottest month of the year in Attock City is June, with an average high of 104°F and low of 78°F.

The cool season lasts for 2.9 months, from December 3 to February 27, with an average daily high temperature below 72°F. The coldest month of the year in Attock City is January, with an average low of 39°F and high of 65°F.

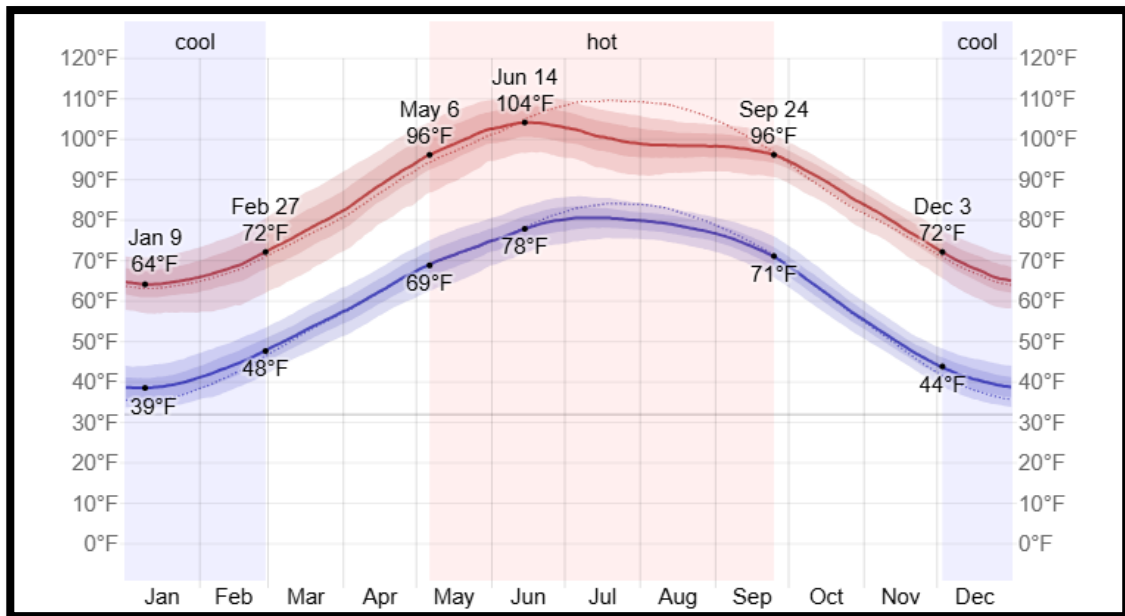


Figure : Average High and Low Temperature in Attock City

Rainfall

To show variation within the months and not just the monthly totals, we show the rainfall accumulated over a sliding 31-day period centered around each day of the year. Attock City experiences extreme seasonal variation in monthly rainfall.

Rain falls throughout the year in Attock City. The month with the most rain in Attock City is July, with an average rainfall of 3.9 inches. The month with the least rain in Attock City is November, with an average rainfall of 0.5 inches.

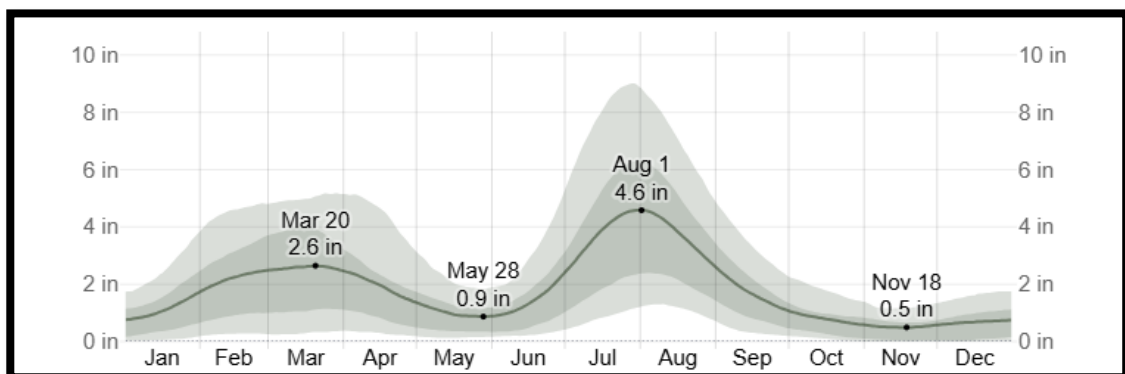


Figure: Average Monthly Rainfall in Attock City

Humidity

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

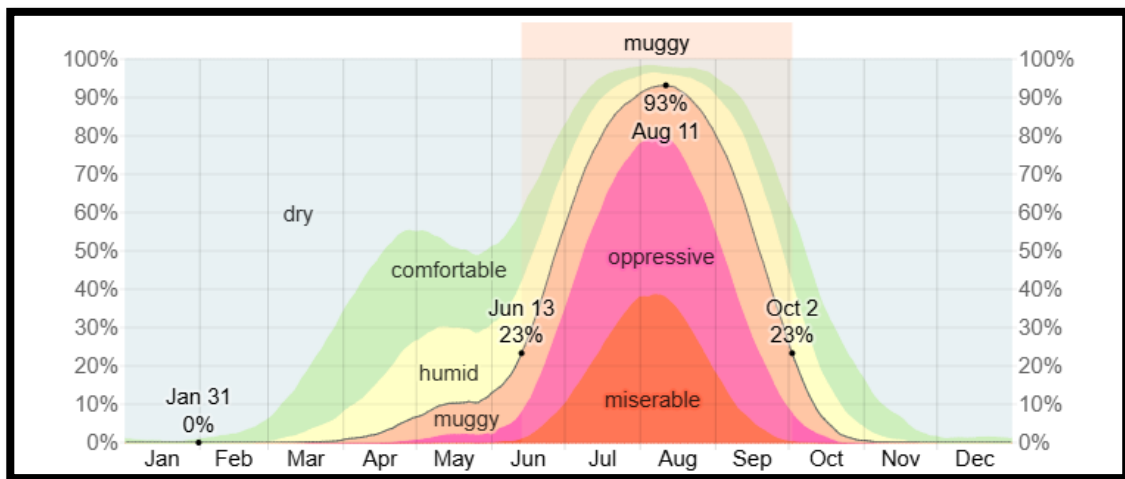


Figure : Humidity Comfort Levels in Attock City

6.6.1 Seismicity

Zone category: III, Moderate Hazard

Seismic factor ground acceleration: $g/15 - g/20$

Possible damage: Minor

6.7 HYDROLOGICAL STUDY

Hydrological study of the project site area indicated that the sub-surface litho logy comprises of clay/shale, silty-sandy clay, sandstone, limestone, gravel, cobble, pebble and minor boulder and their admixture. Different tributaries exist in the area, which recharge the aquifer on regular basis. Generally the aquifer exists in the sub-surface sandwiched by thick clay/shale band. There are a number of tube wells installed by the agriculturists in the vicinity of the project area. All these tube wells have been functioning over a long period. During site survey, special investigations were carried

out to ascertain likely shortage/draw down of the water in the tube wells. It was revealed that there was no depletion or dearth of water in these tube wells.

Tehsil Attock is gifted with abundance of water. Though construction of Ghazi Barotha dam has led to a fall in water level but water is still easily available. Contamination of water due to mix up with sewerage lines is an alarming problem these days. Daily sampling of water from different areas of city and subsequent testing reveals contamination. Source of this contamination cannot be traced without a comprehensive survey of all the water and sewerage lines of Attock Tehsil. The Nazim opined that there exists a dire need to replace all the lines. He along with the District Nazim has taken up the matter with the provincial government.

Underground Water

Underground water, rain water and water canal are the sources of irrigation. For drinking purposes underground water is being used. Underground water is used for potable purpose by the people of the project area. The underground water is available in ample amount.

Public Health Department, Government of the Punjab has installed many tube wells in the project area. These tube wells supply potable water to the residents of the area. The water quality is fit for drinking purpose as revealed from the collected water sample.

Table 3.1: Drinking Water Monitoring Report

Sr. No.	Parameters	Units	PEQS	Results
1	pH	--	6.5-8.5	7.5
2	Taste & Odor	--	Non Objectionable	Non Objectionable
3	Color	TCU	<15	1
4	Turbidity	NTU	<5	1

Sr. No.	Parameters	Units	PEQS	Results
5	Total Coliform	Number/100mL	0 Number/100mL	0
6	E-Coli	Number/100mL	0 Number/100mL	0
7	Total Dissolved Solids (TDS)	mg/L	<1000	221
8	Total Hardness	mg/L	<500	57
9	Nitrate	mg/L	≤ 50	1.0
10	Nitrite	mg/L	≤ 3	0.001
11	Ammonia	mg/L	---	0.01
12	Arsenic	mg/L	<0.05	N.D.
13	Antimony	mg/L	<0.005	N.D.
14	Barium	mg/L	0.7	N.D.
15	Chloride	mg/L	250	33
16	Fluoride	mg/L	<1.5	0.4
17	Aluminum	mg/L	≤ 0.2	N.D.
18	Manganese	mg/L	≤ 0.5	N.D.
19	Mercury	mg/L	0.001	N.D.
20	Iodine	mg/L	N.D.	0.06
21	Zinc	mg/L	5	0.15
22	Boron	mg/L	0.7	N.D.

Sr. No.	Parameters	Units	PEQS	Results
23	Chromium	mg/L	≤ 0.05	N.D.
24	Selenium	mg/L	≤ 0.5	N.D.

SOURCE = Drinking Water from the Project Area

6.8 BIOLOGICAL RESOURCE

6.8.1 Fishery and Aquatic Biology

The only worth mentioning water body in the project district is the Ghazi brotha power project which also has a huge water reserve. Its site is situated at a distance of about 34 Km from the project site. There is a variety of fish in this dam. The fish is sold on annual basis by the administration of the dam. Mori, Silver and Mahasher are the famous varieties of the fish available in this river. The names of the fish are of local origin.

At the down foot hills of the Kala Chitta Range two very small natural water drains namely Nanna Drain and Babudra Drain flow. Very small number of fish of no significance (from economic point of view) is available in these drains. Besides fish there is no worth mentioning aquatic life.

6.8.2 Biodiversity

Natural capital of a country mainly includes all of a country's wilderness areas and scenic landscapes, including the associated flora and fauna.

Pakistan has a total of nine major ecological zones. The contribution of the "Natural capital" is recognized at three distinct levels: species, genera, and communities (habitat and ecosystem). Both collectively and within each level, the range or variety of the resources is referred to as the "Biological Diversity". The term has relevance for each of Pakistan's administrative units-district, province, and particularly country. The more the number of species, genera and habitats and ecosystems present within these units, the greater is said to be the Biodiversity. The biodiversity of the area, with this background, is discussed as under:

6.8.3 Forestry

The Kala Chitta Reserve Forest spreading over 15,664 acres and is situated at a distance of about 10 km from the project site. Shrubs, grass, Phulahi, Kau, Kandair and Sanathha (local names) are among the major vegetation of this forest. Ureal, pigs, foxes, snakes, wild rats, lizards, quales, sparrows, pigeons and hare are found in this forest. Phamra Jageer is another natural forest. It spreads over an area of 1789 acres. The forest is situated at a distance of 60-65 km from the project site. Phulahi, grasses, Kau, wild grass and shrubs are the vegetation of this forest. Snakes, wild rats, hare and lizards are among the wild life of some mention.

6.8.4 Wildlife

Forest is an adequate habitat for wild life. Among the main species of wildlife found in the area include: wild rat, lizards, quail, urial, pig, fox, snake, sparrow, pigeon, hare, snake, goh, pig, jackal, sparrow, crow, owl, and dove are among the important wild life.

6.8.5 Flora

The land in the project area is quite fertile. Rain water and underground water are the major sources of irrigation. Wheat is the major cash crop. Other crops include oil seed crops, pulses, lentils, sorghum, maize, millet, groundnut, potatoes and vegetables. There are some orchards of citrus fruit. Trees, grasses and shrubs are found both in the irrigated areas and the two forests Kala Chitta Forest and Phamra Jageer. A list of the flora of the area is as below:

- Albizzia procera (White siris),
- Acacia Arabia (Kikar),
- Salvadora oleodes (Jal or Wan)
- Acacia modesta (Phulahi),
- Eucliptus, Capparis aphylla (Bakain),
- Grasses like Khowi, Khabbal, Dhaman, Sinn ghorkhs, Dabb etc.



Albizzia procera (White siris),



Acacia Arabia (Kikar),



Acacia modesta (Phulahi)



Eucliptus, Capparis aphylla (Bakain),

6.8.6 Fauna

The major wild life of the project area is listed as below:

Table 3.2: List of Major Wild Life of the Project Area

Serial #	Name	Serial #	Name
1	Partridge	8	Lizards
2	Jackal	9	Wild rats
3	Pig	10	Fox
4	Snake	11	Sparrow
5	Quail	12	Pigeons
6	Hare	13	Owl
7	Crow	14	Dove

Sheep's are also reared . Donkeys are also reared for transport of goods and especially in villages for carriage of fodder from fields to “dairas (farm houses)”.



Hare



Jackle



Snake



Sparrow

6.9 SOCIO-ECONOMIC DEVELOPMENT & QUALITY OF LIFE VALUES

The land around the project area is semi-arid. Underground and rain water are the sources of water. Wheat, maize and sorghum are main cash crops. Vegetables are grown for commercial purposes. Citrus fruits are also grown in the area. Because of small land holdings the people are generally poor. Since the area is not industrialized employment opportunities are low. The trend for migration to Middle East, Europe, USA, Canada is being increased. The remittances of Pakistanis settled abroad have become a sizeable source of the earnings of the people of the area. A very small segment of the society is prosperous. Their living standard is comparable to those of the western world. They provide leadership role for the development of other classes of the society. They contribute towards betterment of the area with their influence in politics, business and administrations. The masses generally follow traditional practices in family matters due to strong commitments in family relations. Although

women are encouraged to seek education, they prefer to look after their families and avoid employment. Arranged marriages are more successful. The awareness about education is increasing and the younger generation is striving for obtaining technical and vocational education in the developed countries.

6.10 CULTURAL AND OTHER HERITAGE

People are religious minded. The society on the whole is well knit in traditional Islamic culture. The villages, without any exception are under developed. The living style in the villages is traditional, conservative and simple. Culturally, they have primitive traditions and customs. Solidarity and social cohesiveness is prevailing among them. Political and religious harmony is also a major character of these communities. The industrial set up in the area may have a diversified impact on the socio-economic environment of the area. The perceived changes may cause far reaching impacts on the indigenous communities due to the location of the plant. Major topographic characteristics, socio-economic indicators, socio-cultural practices and environmental conditions of the villages are almost similar except for some very minor variations. An overwhelming majority of the people belongs to “Awan Baradari (cast)” and thereafter comes Khatter Baradari. Overwhelming majority is Muslim.

The people are basically conservative. Social cohesiveness, solidarity, political and religious harmony are the dominant characteristics of the villages. Bigger landlords dominate the people with small land holdings and the poor with special reference to politics. A large majority of the people practice agriculture. Livestock rearing and Government and private service are the other professions adopted by the people to supplement their income. Because of small land holdings and low income, the people have to adopt more than one profession. On the overall basis the people of the villages are poor. Unemployment, low quality of life, illiteracy and poor health care are the salient features of the area. Educational facilities up to primary levels are available in some villages for both boys and girls. Basic necessities of life like electricity, potable water and roads are available to satisfactory level. Private transport is available to a large number of the masses. Medical facilities are not satisfactory. Ox race, dog fight and kabaddi (a local game) and maila (annual or biannual gatherings) are the major recreations among the people. A fairly large number of the people migrate to the urban areas from the villages for reasons like employment, education and marriage.

Chances of getting higher education are remote for want of money for most of the people. There are very limited job opportunities in the area.

6.11 EXISTING-SOCIO-ECONOMIC BASELINE CONDITIONS

According to the socio-economic survey findings, this section describes analysis of the existing status of the various socio-economic indicators/parameters such as income and employment, basic facilities, education, health and recreational facilities.

6.11.1 Employment and Sources of Income in Project Area

Although there are big landlords, yet most of the people have small land holdings. Therefore, majority of them adopt multiple sources of income to sustain their lives. Agriculture being the major profession, livestock holdings and Government and private services, petty business and transport are the other sources of income of the people. A considerable number of the people also adopt other occupations like labor.

6.11.2 Basic Facilities Available in the Study Area

Basic facilities including electricity, water, telephone, roads and transport are available to an adequate degree in most of the villages surveyed. Cellular telephones are available with a large number of the villagers. However, sewage facilities are lacking in the entire lot of the villages surveyed.

Similarly, bazaar or market facilities are available only in villages. Of course, some individual shops are available in small number. These shops cater for the ordinary day to day shopping needs of routine nature. For most of other shopping the people travel to Fateh Jhang taxila and Burhan city.

6.11.3 Educational Facilities Available in the Study Area

Primary level educational facilities are available in nearest villages and town. Middle level educational facilities are available in these villages and town. High school level educational facilities are also available in these villages and town. This level of education is available to only 50 % of the surveyed villages and town. Madrassa level education is available in town near to the project site. On the overall basis, education facilities at all levels are lacking much behind the requirement.



Figure : Road Structure of District Attock

6.11.4 Medical Facilities Available in the Study Area

Health care facilities in the form of basic health units, dispensaries, hospitals, clinics, private medical practitioners, quacks are available to some extent. These facilities are far too less than the requirement.

6.11.5 Recreational Facilities

Recreational facilities are virtually non-existent. However, the people have their own type of recreational facilities including Ox race, dog fight, Kabaddi and Quail fight. People also enjoy fanfare in the form of Maila. Open and level fields of villages are used as a playground for various games.

6.11.6 Types of Family in the Study Area

Joint family system is generally prevailing among the people of the whole of the Study Area. This tendency also shows that the people are change resistant in their attitude.

6.11.7 Ethnic Configuration

An overwhelming majority of the people belongs to Awan and Khattar castes. The second important caste is Kashmiries. A few other Biradris were also present but in very small number. A small number of the people possess land beyond 50 acres. These people dominate in politics and other important walks of life. However, large portions of the people have small land holdings. These people live on the marginalized status of life. This shows that the people do not have enough income from agriculture. Low income and insufficient resources indicate the poverty condition of the people.

6.11.8 Scientific Institutions

The project site is situated in rural setting and agriculture land around. Accordingly, there is no question of any scientific institution around the project site.

SECTION-7

IMPACT

ASSESSMENT

7 IMPACT ASSESSMENT AND MITIGATION

This chapter contains the purpose of mitigation measures that include what, when, where and the problem should addressed. Also contain Environmental Management Plan related to project.

7.1 IMPACT ASSESSMENT

Impact assessment refers to the detailed evaluation of the environmental and social impacts of the planned project and identified alternatives, compared to the baseline conditions. This includes qualitative descriptions such as measuring high, medium and low impacts, and quantitative descriptions, such as indicating the cubic meters of water withdrawn, sewage produced, and pollutants released. This is done for the planned project as well as the identified alternatives, allowing for comparisons. Once the detailed assessment is complete, mitigation measures to reduce or avoid impacts are identified.

7.2 MITIGATION

Mitigation refers to minimizing or avoiding the described impacts. Overall, mitigation measures are a response to the findings of impact assessment; they need to cover all the areas identified. The key focus of mitigation actions should be on:

- Preventive measures that avoid the occurrence of impacts and thus avoid harm or even produce positive outcomes.
- Measures that focus on limiting the severity and the duration of the impacts.
- Compensation mechanisms for those impacts that are unavoidable and cannot be reduced further.

There are four major guidelines for devising mitigation actions:

- Identify the mitigation actions that most reduce the impacts, and that are practical and feasible to integrate into the planned alternatives.
- Identify mitigation actions that reduce the severity of the impacts to the lowest possible level over the lifetime of the project, to avoid irreversibly and cumulative effects.

- Include activities designed to monitor compliance with agreements established in the assessment, and provide specific and timely information on the environmental conditions and social variables in the area under study.
- Identify potential risks of accidents, malfunctions and other emergencies that may occur during all the project phases.

7.3 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 7.1** - which indicates the impact and their magnitude.

Table - 7.1: Anticipated Impacts and their magnitude of the Proposed Project

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

Environmental Components	Physical Environment												Biological Environment								Social Environment					
	Agricultural Lands	Soil (Erosion/Stability)	Housing	Cultural/Religious Properties	Infrastructure	Mineral Resources	Downstream River Flows	Flooding	Surface water quality	Groundwater quality	Air quality	Noise	Aquatic Ecosystem	Wetland Ecosystem	Terrestrial Ecosystem	Endangered Species	Natural Flora	Wildlife	Disease Vectors	Public Health/Safety	Land Use	Communication System	Employment	Community Stability	Cultural and Religious Value	
Vehicular Movement	N A	L A	O	O	O	O	N A	N A	O	L A	LA	M A	O	O	O	O	O	O	O	LA	L A	O	O	LA	O	
Machinery and Equipments work	N A	L A	O	O	O	N A	N A	N A	O	O	LA	M A	O	O	O	O	O	O	O	LA	L A	O	LB LA		O	
Operation Phase																										
Solid Waste	N A	L A	O	O	O	N A	N A	N A	O	L A	O	O	O	O	O	O	O	O	O	LA	O	O	O	O	O	

Environmental Components	Physical Environment												Biological Environment								Social Environment					
	Agricultural Lands	Soil (Erosion/Stability)	Housing	Cultural/Religious Properties	Infrastructure	Mineral Resources	Downstream River Flows	Flooding	Surface water quality	Groundwater quality	Air quality	Noise	Aquatic Ecosystem	Wetland Ecosystem	Terrestrial Ecosystem	Endangered Species	Natural Flora	Wildlife	Disease Vectors	Public Health/Safety	Land Use	Communication System	Employment	Community Stability	Cultural and Religious Value	
Air Emissions	N A	O	O	O	O	N A	N A	N A	O	O	O	O	O	O	O	O	O	O	O	H B	O	L B	LB	M B	O	
Waste water	N A	L A	O	O	O	N A	N A	N A	O	L A	O	O	O	O	O	O	O	O	O	LA	O	O	O	O	O	

LA: Low Adverse

MA: Medium Adverse

HA: High Adverse

NA: Not Applicable

O: None or Insignificant

LB: Low Beneficial

MB: Medium Beneficial

HB: High Beneficial

ND: Not Determinable

7.4 WAYS OF ACHIEVING MITIGATION MEASURES

7.4.1 Changing in Planning and Design

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

7.4.2 Improved Monitoring and Management Practices

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

7.4.3 Compensation in Money Terms

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

7.4.4 Replacement, Relocation, and Rehabilitation

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

SECTION-8

SCREENING OF

ENVIRONMENTAL IMPACTS &

MITIGATION MEASURES

8 SCREENING OF ENVIRONMENTAL IMPACTS & MITIGATION MEASURES

8.1 GENERAL

This section identifies the potential impacts; related with design, construction and operation of the project on the physical, ecological and socio-economic domains of the environment.

Accordingly, mitigation measures have also been proposed to manage the environment and for sustainable development.

Strict environmental management will be observed during the project construction and regular operation phases. Legal requirements of the PEPA and the PEQS will be the rating standard for the activities. Compliance with the EMP and EMTP, as per recommendations in this EIA report will be adhered to with full spirit.

The project proponent is filing with the EPA Punjab, written Affidavit, and Undertaking on judicial papers, that the project throughout its life will operate under Environmental Management Order. Under these conditions, the project at its all stages including from construction to the regular operation will go in compliance with the PEQS. The project activities will, therefore, neither adversely affects the population nor the environment around the project site.

8.2 ENVIRONMENTAL PROBLEMS ASSOCIATED WITH DESIGN:

The design building 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 LOCATION OF PROJECT

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 OPERATIONS

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 4.1: 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 Stormwater runoff from the site and excavation.	Minor/Short Term	▪ Installation of the waste water treatment plant. ▪ The proponent will prepare a hazardous substance

Possible Impact	Impact Magnitude	Proposed Mitigation Measures
		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.

Possible Impact	Impact Magnitude	Proposed Mitigation Measures
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 4.2: Project Impacts Associated With Operation

Possible Impact	Impact Magnitude	Proposed Mitigation Measures
Solid waste production during the operational activities of residents.	Major/ Long term	▪ Solid wastes resulting from the houses 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 from the standby generator.	Minor/ Long Term	▪ 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.
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.
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8.5 POTENTIAL ENVIRONMENTAL ENHANCEMENT MEASURES

As described above the worth mentioning wastes will be sewage and solid waste in the plant in the form of ashes. In order to enhance environment, the following measures will be adopted:

8.5.1 SOLID WASTE & EFFLUENT MANAGEMENT

As described above the worth mentioning wastes will be sewage and solid waste in the housing scheme in the form of waste paper/bottles etc of the project. In order to enhance environment, the following measures will be adopted:

Table 4.3 Solid Waste & Effluent Management

S.No.	Detail	Residential	Commercial
1.	Water Consumption/day	24,505 Gallons/day	5,898 Gallons/day
2.	Wastewater Generation/day`	8,577 Gallons/day	1,475 Gallons/day
3.	Reusable Treated Water/day	3002 Gallons/day	517 Gallons/day
4.	Solid Waste Generation/day	2,549 Kg/day	1086 Kg/day
5.	Reusable/Recyclable Waste	1,019 Kg/day	434 Kg/day
6.	Total Disposable Solid Waste	1,530 Kg/day	652 Kg/day

Sources: www.unsod.org; www.waterinfo.net.pk

- Rain water disposal will be done through adequate system to be provided at all levels of the building.

- Sewage will be discharged to the main sewerage system; after its treatment as recommended in this EIA report. Package wastewater treatment plant will use to treat waste water. Its specification is as following.

PACKAGE WASTEWATER TREATMENT PLANT SPECIFICATIONS

Package plants are pre-manufactured treatment facilities used to treat wastewater in small communities or on individual properties. According to manufacturers, package plants can be designed to treat flows as low as 0.002 MGD or as high as 0.5 MGD, although they more commonly treat flows between 0.01 and 0.25 MGD

- **Materials of Construction**

All tank vessels will be fabricated of 1/4" structural grade ASTM designation A-36 steel plates joined by arc welding with fillets of adequate section for the joint involved. All walls will be continuous and watertight and will be supported by structural reinforcing members where required. Connections will conform to the requirements of the American Welding Society's Code and will develop the full strength of the member.

- **Inlet Bar Screen**

A bar screen will be provided at the influent port to remove any unusually large solids from the incoming raw sewage. The bar screen will be fabricated from 1/2" diameter bars spaced 1" apart and arranged as shown on the drawings. The bars shall be sloped to permit easy cleaning of accumulating debris. A deck will be furnished for drying this debris. The bar screen shall have the same protective coating as specified for the plant.

- **Flow Equalization Chamber**

A flow equalization chamber will be supplied with a volume designed to handle 25% to 100% of the daily design flow. The flow equalization chamber allows for a constant flow through the plant by equalizing flow surges that may be incurred during peak flow times. Diameter of Flow Equalization chamber will be 10'-0".

- **Sludge Holding Chamber**

The chamber will be of the aerated type. The volume of the sludge holding chamber is based on 3 cu. ft. per capita. Diffused air will be supplied by the plant blower system supplying 30 CFM of air per 1000 cubic feet of volume. The diffusers will be located parallel to and near the bottom of the tank. All piping and valves within the chamber will be factory installed. A fixed supernatant decant pipe will be provided within this chamber. Diameter of Sludge holding chamber will be 2'-0".

➤ **Aeration Chamber**

The aeration chamber will be of sufficient capacity to provide a minimum of 24 hours retention of the average daily flow, and/or maximum loading of 15 pounds of BOD₅ per 1,000 cubic feet of aeration tank volume. To insure maximum retention, enhance spiral rotation and eliminate short-circuiting of raw sewage, the aeration chamber will be constructed with fillets top and bottom, air diffusers will be placed longitudinally along one side of the chamber, and flow control baffles will be provided. To insure adequate circulation velocity, the proportion of chamber width to depth, in the direction of rotation will not exceed 1.33 to 1. The velocity of rotation will be sufficient to scour the chamber bottom and prevent sludge filleting as well as to prevent the escape to the surface of minuscule air diffusion bubbles, causing their entrapment to provide maximum oxygenation efficiency. Diameter of Aeration chamber will be 11'-9".

➤ **Clarifier Chamber**

The clarifier chamber will be sized to provide a minimum of 4 hours retention, based upon the same design flow rates governing the aeration chamber, and will have proper baffling to prevent short circuiting and to provide maximum uniform retention. Diameter of Aeration chamber will be 6'-0".

➤ **Air Diffusion System**

An air distribution manifold constructed of rectangular hollow steel tubing with diffuser drop assemblies will be installed longitudinally on one side along the entire length of the plant. Each diffuser drop assembly will be equipped with an air regulation and/or shut-off cock valve, a disconnecting union and a diffuser bar with air diffuser nozzles mounted thereon. The diffusers will be parallel to and near the base of the vessel sidewall and at the proper elevation providing optimum diffusion and mixing of the vessel contents.

Total Diameter of waste water tank will be 15'×10'.

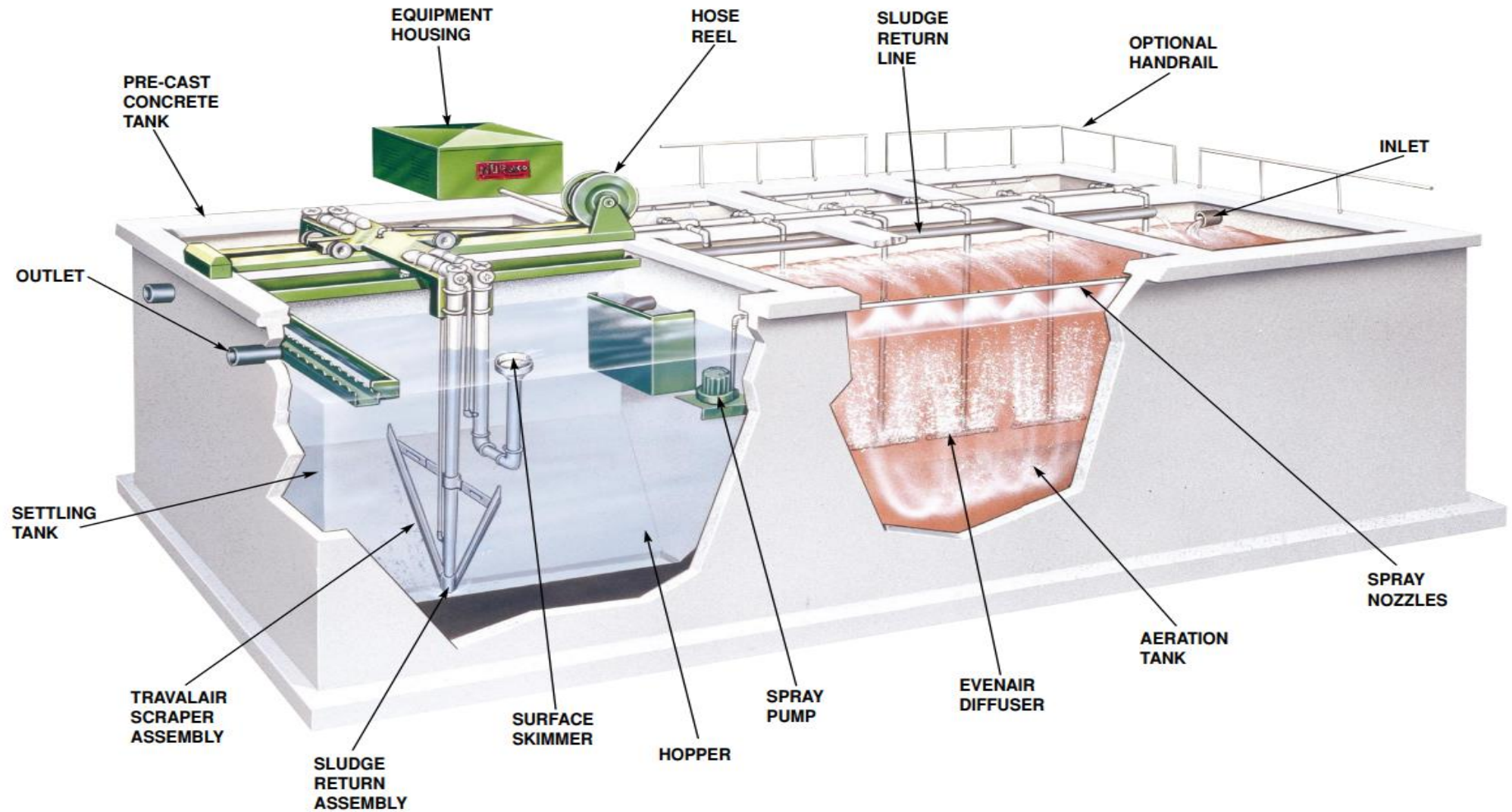


Figure 4.1: Packaged Type Effluent Treatment Plant Design

Electric substation/transformer installation will be done at the premises of the each building.

- Adequate fire fighting system will be maintained at all times and the required quantity of water will always be kept in storage.
- Visual impact of the housing scheme and its surroundings has also been taken into consideration.
- The land use will be done in an away that it will not create any threat to the privacy of the adjoining buildings.
- Electricity will be used from WAPDA; however, available stand by generator will also be used whenever there is casual power shut down. In the first place the generator is to be housed in double built containment/ housing, therefore, its noise will be curtailed well within the limits of the Punjab Environmental Quality Standards (PEQS). Secondly, due to short durations of its running will produce gaseous emissions or PM in negligible amount.

In order to assess the existing environmental status of the project area, on site environmental monitoring for the ambient air quality regarding gaseous emissions including Sulphur Dioxide (SO₂), Nitrogen Oxides (NO_x) and Carbon Monoxide (CO), Particulate Matter and noise pollution was carried out. So also quality of the civil water supply was determined through laboratory testing of the water sample collected from underground water supply system.

SECTION-9

ENVIRONMENTAL

MANAGEMENT AND

MONITORING PROGRAM

9 ENVIRONMENTAL MANAGEMENT AND MONITORING PROGRAM

This EMP describes the mitigation and management measures to address the environmental issues during construction and regular operation and decommissioning phases of the proposed project.

9.1 OBJECTIVES OF ENVIRONMENTAL MANAGEMENT PLAN

The objectives of the EMP are as follow:

- To outline functions and responsibilities of responsible persons.
- To state standards and guidelines which are required to be achieved in the term.
- To outline mitigation measures and environmental specifications which are required to be an implementation for all phase of the project in order to minimize the extent of environmental impacts and to manage environmental impact associated with the proposed project.
- To prevent long-term or permanent environmental degradation
- To identify training requirement 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 Environmental Management Plan (EMP)

TABLE 5.1: ENVIRONMENTAL MANAGEMENT PLAN (CONSTRUCTION PHASE)

Sr. No.	Project Component/ Impact	Project Activities	Targets to be Achieved	Mitigation/ Preventive Action	RESPONSIBILITY	
					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

Sr. No.	Project Component/ Impact	Project Activities	Targets to be Achieved	Mitigation/ Preventive Action	RESPONSIBILITY	
					Implementation	Monitoring
2.	Water Quality	Sanitation and wastewater disposal at campsite Storage, Handling and Oil spills due to rough handling of the materials. Stagnant water causes diseases and bad odor problems. Construction work on water	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, waste water treatment plant will need to be installed which will be 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	During Construction Phase by Contractor with coordination of Proponent staff	Proponent

Sr. No.	Project Component/ Impact	Project Activities	Targets to be Achieved	Mitigation/ Preventive Action	RESPONSIBILITY	
					Implementation	Monitoring
		body increases the risk to water quality.		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	Proper & safe handling and disposal of construction-related waste Compliance with applicable waste management rules for hazardous and	Ensure prevention of inappropriate disposal of waste material. Conduct separate collection of construction and domestic waste to promote recycling and re-use. Dispose of non-recyclable and hazardous waste material properly according to waste management rules	During Construction Phase by Contractor with coordination of Proponent staff	Proponent

Sr. No.	Project Component/ Impact	Project Activities	Targets to be Achieved	Mitigation/ Preventive Action	RESPONSIBILITY	
					Implementation	Monitoring
		activities of building	non-hazardous waste disposal Implementation of waste management plan	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 approval from site engineer and ensure its full implementation. During Construction Phase by Contractor with coordination of Proponent staff		

Sr. No.	Project Component/ Impact	Project Activities	Targets to be Achieved	Mitigation/ Preventive Action	RESPONSIBILITY	
					Implementation	Monitoring
4.	Noise	Haulage Roads and Movement of Construction Vehicles. The use of heavy machinery and equipment causes noise. Noise generated by generator.	Compliance with prescribed PEQs 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 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	During Construction Phase by Contractor with coordination of Proponent staff	Proponent

Sr. No.	Project Component/ Impact	Project Activities	Targets to be Achieved	Mitigation/ Preventive Action	RESPONSIBILITY	
					Implementation	Monitoring
				workers and its usage will be made mandatory		
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 2meter 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	During Construction Phase by Contractor with coordination of Proponent staff	Proponent

Sr. No.	Project Component/ Impact	Project Activities	Targets to be Achieved	Mitigation/ Preventive Action	RESPONSIBILITY	
					Implementation	Monitoring
				of low brick walls around their bases All substances required for vehicle/ machinery maintenance and repair must be stored in sealed containers until they can be disposed of / removed from the site Hazardous substances/materials are to be transported in sealed containers or bags Spraying of insecticide shall not take place under windy conditions		

Sr. No.	Project Component/ Impact	Project Activities	Targets to be Achieved	Mitigation/ Preventive Action	RESPONSIBILITY	
					Implementation	Monitoring
6.	Workers Health & Safety	Risk of damage to worker health Risk of any damage by machine, chemicals, liquid waste etc. can be reduced by using safety signs at construction site and campsite	Prevention of any possibility of work site accident /impact on worker's health	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 Install fire extinguishers at fire handling places Inspect and ensure that any lifting devices, such as cranes,	During Construction Phase by Contractor with coordination of Proponent staff	Proponent

Sr. No.	Project Component/ Impact	Project Activities	Targets to be Achieved	Mitigation/ Preventive Action	RESPONSIBILITY	
					Implementation	Monitoring
				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.	Socio-economic 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 stakeholders shall	During Construction Phase by Contractor with coordination of Proponent staff	Proponent

Sr. No.	Project Component/ Impact	Project Activities	Targets to be Achieved	Mitigation/ Preventive Action	RESPONSIBILITY	
					Implementation	Monitoring
			Empowerment of locals to possible extent Increase in employment and business opportunities for locals.	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		

Sr. No.	Project Component/ Impact	Project Activities	Targets to be Achieved	Mitigation/ Preventive Action	RESPONSIBILITY	
					Implementation	Monitoring
				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	The cutting of trees or flora of the site. Removing extra soil by	Restoration of site to a similar condition prior to the commencement	Timely removal of waste from the site to avoid congestion at workplace.	During Construction Phase by Contractor with	Proponent

Sr. No.	Project Component/ Impact	Project Activities	Targets to be Achieved	Mitigation/ Preventive Action	RESPONSIBILITY	
					Implementation	Monitoring
	construction equipment	excavation and digging	of the work or to a condition agreed with the project management and landscaping of the site	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. 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	coordination of Proponent staff	

Sr. No.	Project Component/ Impact	Project Activities	Targets to be Achieved	Mitigation/ Preventive Action	RESPONSIBILITY	
					Implementation	Monitoring
				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 5.2: ENVIRONMENTAL MANAGEMENT PLAN (OPERATIONAL PHASE)

Sr. No.	Project Component/ Impact	Project activities	Targets to be Achieved	Mitigation/ Preventive Action	RESPONSIBILITY	
					Implementation	Monitoring
OPERATIONAL PHASE						
1.	Solid waste	The waste produced by the residents when in use. The waste produced is specifically the solid waste.	Compliance with waste management rules Proper Management of waste. Prevention of inappropriate waste disposal	• Solid wastes resulting from the houses 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.	EHS officer of Project Proponent	Proponent
2.	Noise Impacts	The noise generated due to the parking of vehicles, and	Compliance with prescribed PEQs to control Noise pollution	• Noise will be generated from the standby generator.	EHS officer of Project Proponent	Proponent

Sr. No.	Project Component/ Impact	Project activities	Targets to be Achieved	Mitigation/ Preventive Action	RESPONSIBILITY	
					Implementation	Monitoring
		standby generators in the areas.		• 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 occupational health and safety practices.		
3.	Air Emissions	The generator in use can cause the small	Ambient air quality (PEQs) standards,	• Emissions will be generated from a standby generator. Scrubber system will be	EHS officer of Project Proponent	Proponent

Sr. No.	Project Component/ Impact	Project activities	Targets to be Achieved	Mitigation/ Preventive Action	RESPONSIBILITY	
					Implementation	Monitoring
		contribution to the air emissions.	Prevention of air pollution in surrounding area	installed on generators to reduce the emissions.		
4.	Water quality	The proper disposal of the sewage water into the drains.	Compliance with Wastewater standards of PEQS	• Installation of waste water treatment plant 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	EHS officer of Project Proponent	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 5.3: 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, VOCs, SO _x , NO _x , CO, O ₃	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

Environmental segment/element	Monitoring parameters	Reference location/monitoring point	Monitoring frequency
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 campsite	Quarterly
OPERATION PHASE			
Water Quality	As prescribed by the Punjab environmental Drinking Water Quality Standards	Main Drinking Water Source	Monthly
Ambient air emissions	Methane and carbon dioxide, PM, VOCs, CO, O ₃	Generator Area and exhausts of utilities	Quarterly
Wastewater including Sewage	Ensure that all wastewater is treated to the level set by the PEQS-Pakistan.	Main Disposal Site, drains	Monthly
Solid Waste Disposal	Ensure that all wastes are disposed of according to legal requirements of the country.	Hotel and residential solid waste, building disposal site	Regularly in connection with environmental and safety grounds
Noise	Noise levels	Generator and parking area	Once monthly at all involved places

9.4 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 5.4: Environment Management Cost

Environmental Component	Amount PKR	Details	Remarks
A. Environmental Management Cost			
Health and Safety Measures and Provision of PPEs	300,000	The workers are required to provide the PPEs for work site safety precaution and to avoid any safety hazard.	Amount to be included in the Project Budget.
B. Environmental Monitoring Cost			
Air, Water and Noise Monitoring	400,000	Monitoring will be performed as per EPA Standards	Amount to be Included in Project Budget
Tree Plantation Tree Plantations of Endemic / Local Species	2,500,000	Landscaping around the project site.	Required for implementation of true spirit of EMP
Total Environmental Management and Monitoring Cost in PKR (A+B+C)	12,000,000	Summing up A,B, C	Amount to be included in the Project Budget.

SECTION-10

TREE PLANTATION PLAN

TREE PLANTATION PLAN

The incorporation of a tree plantation plan within an EIA is of paramount importance for several compelling reasons. Trees play a pivotal role in environmental sustainability, acting as natural carbon sinks, enhancing biodiversity, and mitigating the impacts of climate change. A well-designed tree plantation plan contributes significantly to offsetting carbon emissions associated with a project, thereby fostering a more balanced and ecologically friendly footprint. Beyond their role in carbon sequestration, trees contribute to soil stabilization, preventing erosion and promoting water retention. They also provide habitat for diverse wildlife, supporting biodiversity conservation. Moreover, trees contribute to the improvement of air quality by filtering pollutants and releasing oxygen, thereby enhancing the overall health and well-being of surrounding communities. Integrating a tree plantation plan into the EIA showcases a commitment to ecological stewardship and reflects a proactive approach toward environmental sustainability, aligning the project with broader conservation goals and community well-being.

OBJECTIVES OF TREE PLANTATION

The following objectives of tree plantation helps to clarify its basic purpose.

- ✓ Trees in urban areas provide shade and heat reduce heat, mitigation the urban heat island heat.
- ✓ Trees store carbon in their biomass, helping and reduce the atmospheric carbon dioxide levels.
- ✓ Trees contribute to visual appeal of urban and rural landscapes, making areas more attractive.
- ✓ Trees yield valuable resource such as timber, fruits, nuts, and medicinal plants.
- ✓ Trees plantations create employment opportunities for the people living in the vicinity of the project area.

- ✓ Trees act as a natural air filters by trapping airborne pollutants and particulate matter.
- ✓ Trees release oxygen during photosynthesis, improving air quality.
- ✓ Trees help maintain healthy watersheds, reducing the risk of floods and ensuring a consistent water supply.
- ✓ Trees help prevent soil erosion by anchoring soil with roots.
- ✓ Trees planted strategically can safeguard against landslides and protect roads and buildings.
- ✓ Trees absorb carbon dioxide and release oxygen, helping reduce greenhouse gas level and circumvent climate change.
- ✓ Trees can efficiently serve as windbreaks.

BENEFITS OF TREE PLANTATION

A well-executed tree plantation plan offers numerous advantages, covering all the environmental, economic and soil aspects. Some of the key benefits of tree plantation are enlisted below;

- ☉ Plants absorb carbon dioxide (CO₂) from the atmosphere and store this carbon in the biomass helping to circumvent climate change by reducing greenhouse gas emissions.
- ☉ Roots of the trees help to stabilize soil and prevent soil erosion.
- ☉ Trees act as a natural air filter, by trapping particulate matter which leads to healthier living environments.
- ☉ Trees can provide habitat and food residues to birds contributing to local biodiversity.
- ☉ Trees act as a natural buffer that helps to control and purify water entering into the streams and rivers reducing the risks for the contamination of water.
- ☉ Well-maintained tree plantation enhances the visual appeal of the landscapes, making area more attractive.
- ☉ Tree roots can improve soil quality by increasing its organic matter content and nutrient availability.
- ☉ Tree plantation contribute to climate resilience by moderating temperature extremes, reducing the risk of heatwaves, and providing shelter from extreme weather events.

- ☞ Trees can help to enhance the mental and physical well-being of the people living around the project area.
- ☞ A well-designed tree plantation plan serves as a long-term investment in the environment and the future, as they continue to provide benefits for generations to come.

AREA ENHANCEMENT PLAN

Tree plantation plan of the area has been prepared keeping in view the project area and length. The plan is based on best possible estimations and can be modified accordingly at the execution stage.

TREES RECOMMENDED

Tree species are recommended for the plantation are the indigenous species of District Attock.

Table 9-1 Trees to be planted

Sr. No.	Local Name	Scientific Name
1.	Shisham	<i>Dalbergia sissoo</i>
2.	Keekar	<i>Acacia arabica</i>
3.	Khair	<i>Albizzia lebbeck</i>
4.	Dhak,	<i>Butea monosperma</i>
5.	Phulai	<i>Senegalia modesta</i>

COST OF TREE PLANTATION

The cost for the plantation and maintenance of trees at the project site is estimated as 2,500,000 PKR. The budget has been calculated for the procurement of manure, continued supply of water throughout the year. The proponent will make a proper record of the current number and conditions of the planted trees.

SECTION-11

FIRE SAFETY PLAN

FIRE SAFETY PLAN

A fire safety plan is a structured and comprehensive document that details procedures, protocols, and strategies aimed at preventing, preparing for, and responding to fire emergencies at the project site. This essential plan outlines preventive measures, emergency procedures, evacuation protocols, fire detection and suppression systems, training requirements and communication strategies. It assigns specific roles and responsibilities to individuals and provides clear instructions for evacuations, ensuring occupants, or employees understand what to do in case of a fire. Regular reviews and updates to the plan maintain its relevance, ensuring compliance with fire safety regulations and fostering a safe and prepared environment in the event of a fire emergency.

OBJECTIVES OF A FIRE SAFETY PLAN

Following objectives collectively aim to create a safe and prepared environment in the face of a fire emergency, ensuring the protection of lives, property, and assets.

- ✓ The primary goal is to prevent fires from occurring by implementing measures that reduce fire hazards, ensuring that all the safety systems, equipment, and protocols are up to standard, and that fire risks are minimized.
- ✓ Protecting the lives and well-being of occupants and employees by ensuring a quick and safe evacuation during a fire emergency. This involves establishing and regularly practicing efficient evacuation routes and procedures.
- ✓ Minimizing damage to property and assets by having effective fire detection and suppression systems in place. This includes regular maintenance of fire safety equipment such as fire alarms, sprinkler systems, and fire extinguishers.
- ✓ Outlining procedures to respond effectively and efficiently in the event of a fire. This involves establishing clear roles and responsibilities for personnel during a fire emergency.
- ✓ Ensuring compliance with local fire safety regulations and standards.
- ✓ Conducting regular training sessions, and fire drills to educate occupants and employees about fire safety procedures, evacuation routes, and the use of fire equipment.

- ✓ Regularly reviewing and updating the fire safety plan to incorporate any necessary changes in equipment, procedures, or regulations. This ensures the plan remains current and effective.

FIRE SAFETY SYMBOLS

Hazard identification symbols play a crucial role in communicating potential hazards to employees, emergency responders, and the public. Some common symbols and their meanings in such a facility include:

Flammable Symbol

It warns about the potential for fire explosion.



Figure 11-1 Symbol for Flammable Material

Gas Cylinder Symbol

It highlights the presence of compressed gas cylinder, signifying the potential pressure and hazards associated with gas containment.



Figure 11-2 Symbol for Gas Cylinder

Toxic Symbol

It warns about the toxicity of certain chemicals or gases, emphasizing the need for caution and proper handling to avoid health and hazard.



Figure 11-3 Symbol for Toxic Material

Explosive Symbol

It indicates the potential for an explosion due to certain conditions .



Figure 11-4 Symbol for Explosive Material

Electrical Hazard Symbol

It warns about electrical hazards present in the facility, highlighting the risk of electrical shock or short circuits.



Figure 11-5 Symbol for Electrical Hazard

PPE (Personal Protective Equipment) Symbol

It emphasizes the necessity of wearing appropriate personal protective equipment while working in the facility.



Figure 11-6 Symbols of PPEs

Environmental Hazard Symbol

It signifies potential hazards to the environment, like contamination or pollution risks.



Figure 11-7 Environmental Hazard Symbol

These symbols are commonly used in combination with written warnings, color codes, and other safety measures to ensure a comprehensive and easily understandable identification system for the hazards present. It's crucial for all personnel to be familiar with these symbols and their meanings to ensure a safe working environment.

FIRE SAFETY MEASURES

Fire safety measures prevent fires and explosions, safeguard personnel, protect property and equipment, ensure compliance with regulations, maintain emergency preparedness, and mitigate environmental risks associated with potential fire incidents. Following safety measures are proposed at project site.

FIRE EXTINGUISHERS

Fire extinguishers are necessary as they provide a means to quickly suppress small fires, prevent their escalation, comply with safety regulations, and protect lives, and the environment. These extinguishers ensure emergency preparedness and the rapid containment of fires, offering immediate response and safety for individuals working in in the project area.

Dry Chemical Powder Fire Extinguishers

Dry Chemical Powder (DCP) fire extinguishers are due to their versatility in combating different types of fires . These extinguishers work by interrupting the chemical reaction of the fire, making them effective for a wide range of fire classes, such as Class B (flammable liquids) and Class C (electrical fires). Their adaptability, quick response, and effectiveness against various fire types make them an essential safety measure, ensuring preparedness for diverse fire emergencies in related settings.



Figure 11-8 DCP Fire Extinguisher

Fire Extinguishers Foam Type

Fire extinguishers of the foam type play a critical role in ensuring the safety being a highly flammable and combustible substance, poses inherent risks, and a potential fire can escalate rapidly. The foam forms a blanket over the liquid surface, suppressing the release of flammable vapors and preventing the fire from spreading. This targeted approach helps control the situation swiftly and effectively, minimizing the risk of catastrophic incidents. Regular maintenance, training in proper usage, and adherence to safety protocols will further enhance the efficacy of foam-type fire extinguishers in safeguarding the facilities.



Figure 11-9 Fire Extinguisher Foam Type

Fire Hydrants

Fire Hydrants provide immediate access to water for firefighting in emergencies, supporting fire suppression efforts, ensuring site safety by cooling structures, and complying with safety regulations.



Figure 11-10 Fire Hydrant

Fire Alarm

Fire alarms are crucial for early fire detection, timely warnings, evacuation, facilitation, prevention of fire escalation, and compliance with safety regulations. They play a vital role in ensuring the safety of personnel and protecting the facility and its surroundings. Fire alarm is supposed to be installed at the storage plant.



Figure 11-11 Fire Alarm

Sand Buckets

Sand buckets hold significant importance in the safety measures . In the event of a small fire or a minor leak that may lead to a fire, sand buckets provide a crucial first line of defense. Sand is a non-combustible material, and when swiftly applied to a small flame, it can smother the fire by cutting off its oxygen supply. Moreover, in cases where liquid chemicals are involved, sand can be used to absorb and neutralize spills. These buckets are strategically placed throughout the facility, easily accessible for immediate use, and serve as an additional safety measure to contain and control potential fire hazards effectively. Regular training and awareness regarding the proper use of sand buckets will further enhance their role in maintaining a secure environment. Fire Sand Bucket will be placed to cater any minor fire accident.



Figure 11-12 Sand Bucket

Fire Pump

A fire pump holds paramount importance in the safety infrastructure. A fire pump serves as a critical component of the plant's firefighting system by ensuring a pressurized and reliable water supply. In the event of a fire outbreak, the pump is activated to deliver water at high pressure to firefighting hoses and nozzles. This allows responders to quickly and efficiently extinguish or control the fire, preventing its escalation. Regular maintenance and testing of the fire pump will be crucial to ensure its operational readiness when needed most.



Figure 11-13 Fire Pump

Jockey Pump

The jockey pump plays a crucial role in maintaining the operational efficiency and safety in fire protection system. This small but vital pump ensures that the fire suppression system's main piping remains pressurized within an optimal range. By doing so, the jockey pump helps prevent unnecessary cycling of the main fire pump and ensures that it only activates when there's an actual fire emergency. This not only conserves energy but also extends the lifespan of the main pump, reducing wear and tear. Regular monitoring and maintenance of the jockey pump will be essential to ensure its reliability.



Figure 11-14 Jockey Pump

Standby Pump

The standby pump is a critical component in ensuring the reliability and continuous functionality of the fire protection system . In the event that the primary fire pump faces mechanical failure or requires maintenance, the standby pump serves as a backup, ready to seamlessly take over the crucial task of maintaining water pressure for fire suppression. The standby pump ensures that there is no compromise in the fire protection system's effectiveness, providing a constant and reliable water supply even during unexpected failures. Regular testing and maintenance of the standby pump will be imperative to guarantee its operational readiness when called upon.

SECTION 12

OCCUPATIONAL HEALTH AND SAFETY PLAN

OCCUPATIONAL HEALTH AND SAFETY PLAN

The Occupational Health and Safety (OHS) plan holds paramount importance within the framework of an EIA. This plan is a comprehensive document that outlines strategies and protocols to safeguard the well-being of workers involved in the project. Beyond the ethical imperative of ensuring a safe working environment, the OHS plan is integral to regulatory compliance and risk management. It identifies potential occupational hazards associated with the project, establishes preventive measures, and details emergency response procedures. By incorporating an OHS plan into the EIA, not only is the health and safety of the workforce prioritized, but it also contributes to the overall success and sustainability of the project. A well-executed OHS plan minimizes the likelihood of accidents, injuries, and occupational health issues, fostering a workplace culture that values the welfare of its personnel. In essence, the OHS plan, as part of the EIA process, aligns with responsible and ethical project management, ensuring that occupational health and safety considerations are seamlessly integrated into the project's design, implementation, and ongoing operations.

OBJECTIVES OF OCCUPATIONAL HEALTH AND SAFETY

The objectives of Health and Safety plan are given below

- ✓ Protect the health and safety of employees, contractors, visitors, and the surrounding community.
- ✓ Minimize the environmental impact caused by construction activities.
- ✓ Comply with all applicable health, safety, and environmental regulations.

SCOPE OF OCCUPATIONAL HEALTH AND SAFETY PLAN

Following scope of occupational health and safety will be followed;

- Detailed guidelines on the use, maintenance, and adequacy of personal protective equipment required for various tasks, such as flame-resistant clothing, safety goggles, gloves, respirators, and other specialized gear will be provided.
- Comprehensive training programs for workers, ensuring they are well-informed about the risks involved in working and handling emergency situations, and the correct usage of safety equipment will be ensured.

- Compliance with relevant occupational health and safety regulations and conducting regular audits to review and update safety protocols based on changing circumstances or regulations.
- Implementation of the regular maintenance schedules and inspections of equipment, machinery, and facilities to ensure safe working conditions and prevent potential hazards.
- Involving workers in safety decisions, creating a culture of safety awareness, and encouraging reporting of safety concerns or incidents will be implemented.

PERSONAL PROTECTIVE EQUIPMENT

The use of Personal Protective Equipment in a paper manufacturing plant is vital for safeguarding workers, ensuring regulatory compliance, mitigating risks, and promoting a culture of safety that is conducive to both employee well-being and operational excellence. The importance of Personal Protective Equipment (PPE) at a paper manufacturing plant cannot be overstated. Here are several key reasons highlighting the significance of PPE in this industrial setting:

- PPE provides a crucial line of defense against various occupational hazards prevalent in a paper manufacturing environment. It includes items such as safety helmets, gloves, safety glasses, and respiratory protection, which shield workers from potential injuries, chemical exposures, and airborne particles.
- Utilizing PPE is often a legal requirement and is mandated by occupational health and safety regulations. Adhering to these regulations not only ensures the safety of workers but also prevents regulatory penalties and legal issues for the manufacturing unit.
- Paper manufacturing involves machinery, chemicals, and processes that pose inherent risks. PPE serves as a risk mitigation strategy by minimizing the likelihood and severity of injuries or illnesses, contributing to a safer working environment.
- In the paper manufacturing process, workers may come into contact with various chemicals used in pulping, bleaching, and other stages. PPE, such as chemical-resistant gloves and protective clothing, safeguards workers from direct skin contact and potential harm.

- Dust and other airborne particles are common in paper mills. Respiratory protection, such as masks or respirators, is vital in preventing inhalation of harmful substances, promoting respiratory health, and minimizing the risk of respiratory-related illnesses.
- PPE not only prioritizes safety but also contributes to the overall comfort of workers. Comfortable and well-fitted PPE encourages adherence to safety protocols, fostering a positive work culture and enhancing overall productivity.
- In the event of unexpected incidents or emergencies, PPE can be crucial for protecting workers and mitigating the impact of accidents. Items like hard hats and steel-toed boots provide added protection during emergencies.
- Providing PPE demonstrates the employer's commitment to the health and safety of its workforce, instilling confidence and trust among employees. This, in turn, contributes to a positive work environment and employee morale.

PPE REQUIRED FOR CONSTRUCTION PHASE

During the construction of a project, including a paper manufacturing unit, a comprehensive set of Personal Protective Equipment (PPE) is necessary to safeguard the health and safety of workers involved in various tasks. The specific PPE requirements may vary based on the nature of construction activities, potential hazards, and regulatory standards. Here is a general list of PPE commonly required during construction:

Head Protection: Hard hats to protect against falling objects, impact, or head injuries.

Eye and Face Protection: Safety glasses or goggles to shield the eyes from dust, debris, or other airborne particles. Face shields for additional protection during tasks with a higher risk of facial exposure.

Hearing Protection: Earplugs or earmuffs to reduce exposure to loud noises, especially in areas with heavy machinery or construction equipment.

Respiratory Protection: Dust masks or respirators to protect against inhalation of dust, particulates, or hazardous substances.

Hand Protection: Safety gloves appropriate for the specific tasks, such as cut-resistant gloves, leather gloves, or chemical-resistant gloves.

Body Protection: High-visibility vests or clothing to enhance visibility, especially in areas with moving equipment. Reflective clothing for nighttime or low-visibility construction activities. Protective clothing, such as coveralls, for tasks involving exposure to hazardous substances.

Foot Protection: Steel-toed safety boots or shoes to protect against crushing injuries, falling objects, or punctures.

Fall Protection: Safety harnesses, lanyards, and other fall protection systems for workers operating at heights or in elevated areas.

Hand and Arm Protection: Elbow and knee pads for tasks that involve kneeling or crawling. Wrist support or braces for tasks with repetitive motions.

Weather Protection: Weather-appropriate clothing, such as rain gear, insulated clothing, or sunscreen, depending on the climate and weather conditions.

First Aid Kit: Access to a well-equipped first aid kit to provide immediate care for minor injuries.

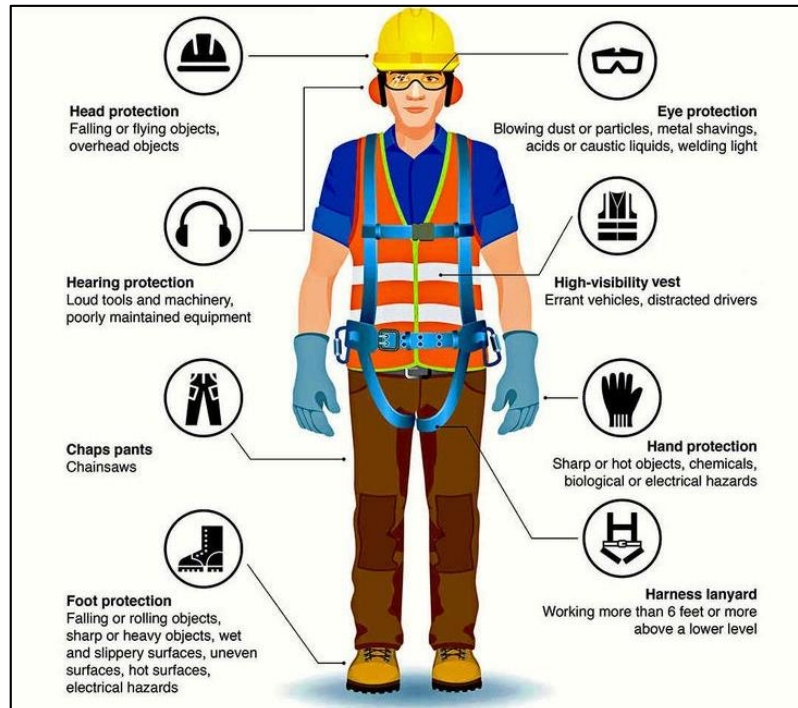


Figure 9-15 PPEs for Construction Phase

It is essential for the construction project management to conduct a thorough hazard assessment to identify the specific risks associated with each construction activity and

determine the appropriate PPE for the workers involved. Regular training, monitoring, and enforcement of PPE usage contribute to a safer construction environment.

SAFETY SIGNS DURING CONSTRUCTION PHASE

Safety signs serve as critical elements in maintaining a secure and hazard-free environment at construction sites. Their importance lies in their ability to effectively communicate potential risks and hazards to workers, visitors, and contractors. By providing clear information about safety procedures, required personal protective equipment, and safe work practices, these signs play a pivotal role in preventing accidents and injuries. Moreover, safety signs contribute to regulatory compliance, ensuring adherence to local regulations and occupational health and safety standards. They also serve as essential tools for emergency response by indicating the location of emergency exits, first aid stations, fire extinguishers, and other emergency equipment. In addition to their role in risk reduction, safety signs assist in site navigation, guiding individuals to specific areas and enhancing overall organization. Beyond practical benefits, safety signs contribute to fostering a culture of safety awareness among the workforce. They communicate important safety policies, promote compliance with site-specific regulations, and reduce the project's liability by showcasing a commitment to responsible construction practices. Ultimately, safety signs are integral components in creating a safe, compliant, and organized construction site conducive to the well-being of all involved parties.



Figure 9-16 Safety signs for Constructional Phase

PERSONAL PROTECTIVE EQUIPMENT DURING OPERATIONLAL PHASE

Personal protective equipment (PPE) is an important part of any health and safety plan. PPE can help to protect employees from a variety of hazards, including:

- PPE can help to protect employees from burns and from exposure to smoke and toxic gases.
- PPE can also help to protect employees from other hazards, such as slips, trips, and falls.

Employees working in these areas should be trained in the correct usage of PPE and ensure a safe working environment.

SECTION-13
STAKEHOLDERS
CONSULTATION

10 STAKEHOLDERS CONSULTATION

The following chapter includes the detailed information of the process and parties that depicts the involvement and consultation of the important stakeholders that is conducted by the Integrated Environment Consultations. The consultation is carried out to resolve any kind of issues that involved and can be potentially affected by the proposed project. The activity plays an important role in the decision making and the keeps in view the concerns of stakeholders. The parties that are involved in the process are as follows:

- Local government
- Local community
- Affected community (directly and indirectly)
- General public
- Service providers
- Proponents

10.1 RELEVANT LEGISLATION

10.1.1 Punjab Environmental Protection Act 2012 (Amended Act)

Public consultation is mandated under Punjab's environmental law. The Provincial Agency, under Regulation 6 of the IEE-EIA Regulations 2000, has issued a set of guidelines of general applicability and sectoral guidelines indicating specific assessment requirements. This includes Guidelines for Public Consultation, 1997 (the 'Guidelines'), that are summarized below

Table 6.1: Framework of Consultation:

Objectives of public involvement	The main aim is to inform the public regarding the proposed project.
Stakeholders	The important stakeholders involve the local or affected community, proponents and local government
Mechanism	Gathering of the relevant information, listening and reviewing the complaints of stakeholders that leads to the decision making.

Timing and frequency	Should be started during screening of the project
Consultation tools	The important tools involved focus group meetings, workshops or formal and informal interviews.
Important consideration	Objectives of the study, to seek alternatives through consultation, and identification of stakeholders and the required mechanisms.

10.2 CONSULTATION PROCESS

The regular survey and background studies were conducted to identify the stakeholders. People residing nearby was gathered which are likely to be affected, focus group meetings were conducted by the representatives of the villages. They were all briefed about the project whereabouts in the nontechnical and understandable way. Certain issues and suggestion about the project that is included and raised by the locals were filed and recorded.

The consultation with the government officials, welfare organizations, was conducted in the formal way which includes the technical approaches to the project and the verdict of the affected or local community was also kept in view.

10.3 STAKE HOLDERS CONSULTATION TECHNIQUE

The purpose of the consultation is to inform the affected parties about the proposed project and to analyze the knowledge, skills, and resources of the local community. It is important to be aware of how different power relations can distort participation. Following are the certain techniques that are used for consultation.

- Focus group meetings
- Formal and informal interviews with locals

10.4 STAKE HOLDERS INVOLVED AND THEIR ROLES

The stakeholders or parties involved and the roles played by them are listed in the table below.

Table : Stakeholders and their Roles

Stakeholders	Roles
Proponent/Responsible Authority	The discussion with the proponent proposed the mitigation measures and alternatives to control any disparity in the project.
Environmental Expert	The consultants from the Integrated Environment Consultants survey the project site to gather relevant information and to record the local community stance and behaviors regarding the project. And also the evaluation of socio-economic impacts of the project has been done.
Government Departments	The consulted government department includes Environmental protection agency, wildlife, planning, and development. The departments overviewed the proposed projects and its socio-economic impacts.
Local affected communities	The surveys determined the extent of community that could be affected and their verdict about the proposed project.

10.5 DISCUSSED POINTS

The points that have been kept in view while consulting stakeholders are as follows:

- Activities of the project and their consequences.
- Requirements of the people likely to be affected.
- Mitigation measures or compensation strategies.
- Role of the affected people in the implementation and development of the project.

10.6 AFFECTED AND WIDER COMMUNITY

There is no affected community present in the area of the proposed project. Consultant's team has consulted with the inhabitants or neighboring areas. The remarks of people are

positive regarding the project and people foresee positive impacts like employment opportunities, business, development of the area etc.

10.7 GRIEVANCE REDRESS MECHANISM

A project-specific grievance redress mechanism (GRM) will be established to receive, evaluate and facilitate the resolution of affected person/s concerns, complaints and grievances about the social and environmental performance at the level of the subproject. The GRM will aim to provide a time-bound and transparent mechanism to voice and resolve social and environmental concerns linked to the project. A common GRM will be in place for social, environmental, or any other grievances related to the project.

A well-defined grievance redress and resolution mechanism will be established to resolve grievances and complaints in a timely and satisfactory manner. The objective of the grievance redress mechanism is to resolve complaints as quickly as possible and at the local level through a process of conciliation; and if that is not possible, to provide clear and transparent procedures for appeal. All affected persons will be made fully aware of their rights, and the detailed grievance redress procedures will be publicized through an effective public information campaign.

10.7.1 Procedure for Redress of Grievances

Project management unit and project implementation unit will ensure that the GRM is fully disclosed prior to construction: (a) in public consultations and information, education and communication, or social/community preparations, (b) through posters displayed in the offices of the PMU, PIU, township and ward as well as at strategic places within the main subproject areas (posters to include names and contact details). The following procedures for grievance redress are proposed:

- Affected person/s (AP/s) will address complaints to the arbitration unit or other designated grievance officers. The unit will organize a meeting with the AP/s to resolve the issue using its traditional methods of conciliation and negotiation; the meeting will be held in a public place and will be open to other members of the public to ensure transparency.
- If within 5 days of lodging the complaint, no understanding or amicable solution can be reached or no response is received from the arbitration unit, the affected person can bring the complaint to the PIU. The PIU will meet with the AP/s to discuss the complaint, and provide a decision within 10 days of receiving the appeal.

- If the AP/s is not satisfied with the decision of the PIU or in the absence of any response, the AP/s can appeal to the PMU. The PMU will provide a decision on the appeal within 10 days.

Safeguard monitoring reports will include the following aspects pertaining to progress on grievances: (a) number of cases registered with the Grievance Redress Committee, level of jurisdiction (first, second, and third tiers), number of hearings held, decisions made, and the status of pending cases; and (b) lists of cases in process and already decided upon may be prepared with details such as name, ID with unique serial number, date of notice, date of application, date of hearing, decisions, remarks, actions taken to resolve issues, and status of grievance (i.e. open ,closed, pending)

10.7.2 Procedure of Filing and Resolving Grievances

Grievances will be logged and resolved in the following steps:

Step 1: Receive and Acknowledge Complaint

Once the PIU receives a complaint, which could be the complainant giving it in person, via letter or email, or through a GFP, an acknowledgment of receipt of the complaint has to be sent to the complainant. PIU will work to understand the cause of the grievance for which the PIU may need to contact the complainant again and obtain details.

Step 2: Investigation

The PIU will be required to complete preliminary investigations within five working days of receiving the complaint and send a response to the complainant documenting the results of their investigations and what the PIU plans to go ahead.

Step 3: Resolution through PIU

PIU have investigated a grievance, it will share with the complainant the proposed course of action to resolve the complaint, should PIU believe any to be necessary. If the complainant considers the grievance to be satisfactorily resolved, the PIU will log the complaint as resolved in their records. In case the grievance remains unresolved it will be reassessed and GRC will have further dialogue with the complainant to discuss if there are any further steps, which may be taken to reach a mutually agreed resolution to the problem

SECTION-8

CONCLUSION AND RECOMMENDATIONS

11 CONCLUSION AND RECOMMENDATIONS

11.1 CONCLUSION

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

11.2 RECOMMENDATION

On the basis of the findings of the EIA, it is concluded that the construction of the construction building 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.

REFERENCES

REFERENCES

Listed below are some of the documents, reports and other references consulted during the preparation of this report:

1. Information and data provided by project proponents;
2. Project Pre-feasibility Study Report;
3. Technical Design Data related to the project.
4. Information gathered through discussions with the project related persons of the project proponent;
5. Information collected from the Technical documents of various suppliers of machinery/equipment.
6. Punjab Environment Quality Standards for Ambient Air November 2010;
7. Punjab Environment Quality Standards Noise Levels November 2010;
8. Punjab Environment Quality Standards for Drinking Water November 2010;
9. Pakistan Environmental Protection Act, 1997;
10. The Punjab Environmental Protection (Amendment) Act 2012 covers aspects related to:
 - The protection, conservation, rehabilitation and improvement of the environment and the prevention, control of pollution and promotion of sustainable development;
 - Establishing complete regulatory and monitoring bodies, policies, rules, regulations and national environmental quality standards; and
 - To ensure enforcement, the act establishes regulating bodies i.e. Punjab Environmental Protection Council (PEPC) and responsible bodies i.e. Punjab Environmental Protection Agency (Punjab EPA) at Provincial level.
11. Environment-related Laws in Pakistan and the Province of Punjab;
12. Government of Pakistan, Pakistan Environmental Protection Agency, Policy and Procedures for Filing, Review, and Approval of Environmental Assessment, 2000;
13. Guidelines for Public Consultations –
These guidelines cover:
 - Consultation, involvement, and participation of Stakeholders

- Techniques for public consultation (principles, levels of involvements, tools, building trust)
 - Effective public consultation (planning, stages of IEE where consultation is appropriate)
14. Workplace safety and health act 2011
 15. Land Acquisition Act (LAA) of 1894
 16. Pakistan Penal Code, 1860

TERM OF REFERENCES

TERM OF REFERENCES

1. The Consultant is required to carry out an Environment Assessment Study of the Project as required under section 12 of Pakistan Environmental Protection Act 1997/ Punjab Environmental Protection (Amendment) Act 2012.
2. The Study should be comprehensive and should cover all aspects which are envisaged under the relevant national and provincials laws & regulations including but not limited to:
 - Identification and recommendation for suitable solution/treatment/mitigation measures of emissions and effluents such as wastewater and sludge etc in accordance with Punjab Environmental Quality Standards (PEQS).
 - Identification and recommendation for suitable solution/treatment/mitigation measures of solvents, oils (tar), hazardous waste, organic compounds, steam, flue gases, particulate matter and chemical compounds harmful for the environment and other substances leading to air, noise, water and soil pollution in accordance with PEQS.
3. The Study should be acceptable to the relevant national and/or provincial authorities (relevant authorities) in Punjab.

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GLOSSARY

GLOSSARY

Air Quality	Measurement of the pollutants in the air; a description of healthiness and safety of the atmosphere.
Area	Area is the quantity that expresses the extent of a two-dimensional figure or shape, or planar lamina, in the plane.
Building	Building is a usually roofed and walled structure built for permanent use.
Compensation	Includes cash payment, deferred payment, a bond, an insurance policy, stipend, payment in kind, rendition of services, grant of privileges and disturbance money, entitlement to special treatment by government and semi government entities, grant of alternative land, grant of import licenses and business, trade and commercial facilities in addition to the rehabilitation and resettlement of an affected person.
Commercial Building	Commercial buildings are buildings that are used for commercial purposes, and include office buildings, warehouses, and retail buildings
Consultation	Consultation refers to two-way transfer of information or joint discussion between project staff and the affected population. Systematic consultation implies a sustained and rigorous sharing of ideas. Bank experience shows that consultation often yields the best resettlement alternatives, fruitful procedures for continued participation, and independent information on actual conditions for implementation.
Coordinates Contaminate	Each of a group of numbers used to indicate the position of a point, line, or plane to make impure, pollute
Disclosure	The action of making new or secret information known

Disruption	Disturbance or problems which interrupt an event, activity, or process.
Environmental Management	Attempt to control human impact on and interaction with the environment in order to preserve natural resources
Evaluation	The making of a judgment about the amount, number, or value of something; assessment.
Geology	A science that studies rocks, layers of soil, etc., in order to learn about the history of the Earth and its life
Ground Water	Aquifers currently being used as a source of drinking water or those capable of supplying a public water system. They have a total dissolved solid content of 10,000 milligrams per liter or less, and are not "exempted aquifers.
Hazardous	Substance or material, which could adversely affect the safety of the public, handlers or carriers during transportation
Household	People residing under one roof, using the same hearth and operating as a single economic unit.
Impact	Effect on someone or something
Land Acquisition	The process whereby a person is compelled by a public agency to cede all or part of the land a person owns or possesses, to the ownership and possession of that agency, for public purpose in return for compensation.
Lobby	Lobby is a room providing a space out of which one or more other rooms or corridors lead, typically one near the entrance of a public building.
Mitigation	The action of reducing the severity, seriousness, or painfulness of something

Occupational Health	Maintenance of the highest degree of physical, mental and social well-being of workers in all occupations by preventing departures from health, controlling risks and the adaptation of work to people, and people to their jobs
Parking	A parking garage is a building, or an area under a building, where cars can be parked.
Project Area	The area specified by the funding and/or implementing agency according to the Official Gazette Notification and includes the areas within the administrative limits of the Federal or a Provincial Government.
Proponent	A person who advocates a theory, proposal, or course of action.
Rehabilitation	Include all compensatory measures to re-establish; at least lost incomes, livelihoods, living and social systems. It does not include the payment of compensation for required assets.
Resettlement	Means all measures taken to mitigate any and all adverse impacts, resulting due to execution of a project on the livelihood of the project affected persons, their property, and includes compensation, relocation and rehabilitation.
Restaurant	A restaurant or an eatery, is a business which prepares and serves food and drinks to customers in exchange for money.
Social Environment	It includes the culture that the individual was educated or lives in, and the people and institutions with whom they interact.
Scope	The extent of the area or subject matter that something deals with or to which it is relevant
Stakeholders	Include affected persons and communities, proponents, private and public businesses, NGOs, host communities and EPA.

Topography	Details of the surface features of land. It includes the mountains, hills, creeks, and other bumps and lumps on a particular hunk of earth.
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