

ENVIRONMENTAL IMPACT ASSESSMENT (EIA) REPORT



**“CONSTRUCTION OF WASTEWATER TREATMENT
PLANT BY M/S LEATHER FIELD (PVT) LIMITED
(TANNERY UNIT)”**

**“LOCATED AT WAZIRABAD ROAD, SAHOWALA,
TEHSIL SAMBRIAL, DISTRICT SIALKOT.”**



ADDRESS : Office No.506,5th Floor, Gold Center, Liberty
Market, Gulberg-Ill,Lahore

**CONSTRUCTION OF WASTEWATER TREATMENT PLANT
BY M/S LEATHER FIELD (PVT) LIMITED**



Executive Summery

This document of Environmental Impact Assessment is formulated for the project Construction of Wastewater Treatment Plant M/S Leather Field (PVT) Limited (Tannery Unit) Located at Wazirabad Road, Sahowala, Tehsil Sambrial, District Sialkot. The proposed project falls under category G of Schedule II of Review of IEE and EIA Regulations, 2000. The Punjab protection Act was enacted in 1997.

- The main objective of the project is to clean the waste water of the industry
- Reuse it again and again so that resources can be conserved.
- Proposed project also increases job opportunity for locals.
- Pollution level will be reduced by the WWTP plant.

Silent Features of Proposed Project is described elaborately as below

SALIENT FEATURES OF PROJECT:

Sr.#	CONSTITUENT	DESCRIPTION
1)	Name of Project	Construction of Wastewater Treatment Plant By M/S Leather Field (PVT) Limited (Tannery Unit) Located at Wazirabad Road, Sahowala, Tehsil Sambrial, District Sialkot.
2)	Project Location:	Located at Wazirabad Road, Sahowala, Tehsil Sambrial, District Sialkot.
3)	Project Overview:	The proposed project is Construction of Wastewater Treatment Plant By M/S Leather Field (PVT)Limited (Tannery Unit) Located at Wazirabad Road, Sahowala, Tehsil Sambrial, District Sialkot. The proposed project falls under category G of Schedule II of Review of IEE and EIA Regulations, 2000. The Punjab protection Act was enacted in 1997. The main objective of the project is to clean the waste water of the industry • Reuse it again and again so that resources can be conserved.

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		Proposed project also increases job opportunity for locals. Pollution level will be reduced by the WWTP plant.
4)	Project Proponent & Contact Person	Mr. Qaiser Mahmood Cheema S/o Choudhry Muhammad Hussain Cheema R/o House No.5, Zafar Ali Road, Sialkot Cantt, Tehsil & Distict Sialkot Mobile: 052-3571901
5)	Total Area:	8 Kanal
6)	Project Cost	40 Millions
7)	Total Inflow and out flow of industrial Waste Water	Average Flow in M3/ Day: Inflow: 800M3 Drain Out: 720 M3
8)	Total Capacity and Load of ETP	1500 M3/ Day
9)	Project Component	Construction of Wastewater Treatment Plant By M/S Leather Field (PVT) Limited (Tannery Unit) Located at Wazirabad Road, Sahowala, Tehsil Sambrial, District Sialkot. Waste Water Treatment Plant Feasibility ↓ Civil, Mechanical and Electrical Designing of WWTP ↓ Civil Works ↓ Mechanical and Electrical Works ↓

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		Commencement of WWTP  Testing of WWTP
Environmental Precise		
1)	Project Environmental Consultant	Lead Enviro Safety Services (Pvt) Ltd Office No 506, 5th Floor, Gold Center, Liberty Market Lahore. Phone: +92 423 5784102, +92 334-9776233, +92 307 4216631 Email: shoaib@envirosustainability.info
2)	Water Requirement	Water Requirement of proposed project is about 08 gallons per capita per day of water will be required for the workers. Domestic Water will be used for the proposed project.
3)	Electricity Requirement	The design criterion for the electrical works will be in compliance with the requirements of WAPDA & by standby Generators in case of emergency situation and during electricity shortfall.
4)	Solid Waste Management	All raw materials will be recycled during the construction activities as road filling and maintenance purposes. During the construction about 150 kg/day of domestic solid waste will be generated which will be placed in solid waste bins within the project boundary wall and will be handed over to contractors. HSE manager will be appointed by the proponent to manage the solid waste on regular basis, to ensure the good housekeeping at site and in production unit, to inspect any discrepancies arise due to improper functioning of the HSE

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		conditions and to adopt the proper solid waste management system.
5)	Tree Plantation	Trees will be planted in all open spaces and boundary of the Project Area. Green belts will also be developed

MAJOR IMPACTS AND RECOMMENDED MITIGATION MEASURES:

The construction of the project can create some adverse impact on the existing environment. The acoustic impacts, dust emission, traffic congestion, safety and sanitation during the construction period would be limited to construction of building and site preparation. Since the new building would be set up in existing project premises, the resettlement won't be an issue here. During construction, the contractor will adopt all necessary measures to reduce the probable environmental impacts from different aspects. There are minimal impacts during operation period and Construction will be responsible to take necessary steps during operation. The significant impacts in different phases i.e. (i) due to project location and preparation, (ii) construction phase and (ii) operation phase have been identified using the checklist process. From this process, the main potential environmental impacts, which may arise due to construction, can be grouped as follows: (i) Atmospheric emissions and Air quality, (ii) Noise generation, (iii) Water pollution and waste water disposal, and (iv) Health and safety However, the magnitude of these impact shall be very low and insignificant.

Environmental Impact and Mitigation Measure during Construction Phase

Activity	Environmental Impact	Mitigation Measure
Construction Phase Construction of WWTP including Site Preparation, Construction of Sum/Equalization Tanks, Construction of Aeration Tank, , Construction of Sedimentation Tanks,	• Change in existing profile and drainage pattern of the land • Generation of solid waste in the form of construction • Impact on the local water source due to use of construction water • Water pollution due to sediment load in construction water and wastewater from construction camps • Dust, noise and gaseous	• Proper drainage facilities will be provided along the roads. • Appropriate measures like green areas plantation would be undertaken. • The quantity of earth generated from cutting shall be used as filling material during site development.

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Construction of Dosing tanks, Fields and landscaping	pollution from construction equipment and traffic • Dust pollution due to excavation, backfilling and concreting, hauling and dumping of earth materials and construction spoils	• The construction activities/erosion would be limited to possible smallest area. • Control of quality of construction wastewater within the construction site through suitable drainage system with traps for arresting the sediment load for its proposed disposal into the main natural drainage system around the site • Proper and prior planning and appropriate sequencing and scheduling of all major construction activities
Operational Phase During operational phase Process Waste water that is generated from the manufacturing line is treated and then dispose off	• Disposal of sewage/treated Waste water • Demand of water for domestic consumption • Noise pollution due to operations • Demand for additional resources like water and electricity	The development shall be mitigated by appropriate measures such that all emissions are in compliance with the Water emission standards (PEQs) promulgated under the Environment Protection Act. The adverse environmental impacts can be reduced significantly by adopting best management and monitoring practices as well as by implementation EMMP with true spirit Proper PPEs including aprons, rubber gloves and shoes should be provided to workers No compromise on public health and environment should be allowed

		Waste minimization practices should be introduced to workers by conducting lectures on spot to aware the workers about the long term benefits of the same in lieu of surrounding environment The generated wastewater and by-products can be used as an organic fertilizer after primary treatment A proper tree plantation plan should also be developed in order to make the process environment friendly
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To oversee the environmental performance of the project through its lifecycle enforcing the PEQS an Environmental Monitoring Program should be formulated which ensures effective surveillance of the environmental parameters at various stages of the project development and compliances with PEQS and legal obligations.

Proposed Monitoring

A comprehensive Environmental Management and Monitoring Plan (EMMP) have been prepared to effectively manage and monitor the environmental and social impacts for the development of the project. However, in the interest of commercial viability of the society, all necessary measures to keep the project and its surroundings environment neat and clean will be adopted. Further recommendations are as following; The adverse environmental impacts can be reduced significantly by adopting best management and monitoring practices as well as by implementation EMMP effectively. It is recommended that the Proponent should obtain an Environmental Approval (NOC) from the Punjab-EPA before proceeding further

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CHAPTER # 01,

INTRODUCTION

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

1.1 Purpose of the report

Environmental Impact Assessment (EIA) report is being submitted to the Environmental Protection Agency (EPA), Government of the Punjab, in compliance with the legal requirement for Pakistan Environment Protection Act-1997 (PEPA-1997), Section 12- for obtaining No Objection Certificate (NOC) before starting and construction activity at the project site. 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

Various aspects like environmental, social, physical and other aspects of the project both during construction 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.

1.2 Scope of the study

The scope of study includes the preparation of Environmental Impact Assessment (EIA) of the proposed project for the compliance of section 12 of PEPA 1997 and to ensure the compliance with the PEQS.

Project proponent has intention to Construction of Wastewater Treatment Plant M/S Leather Field (PVT) Limited (Tannery Unit) Located at Wazirabad Road, Sahowala, Tehsil Sambrial,

District Sialkot. for this purpose, proponent hired the team of Lead Enviro Safety Services to conduct the EIA Report.

1.3 Objective of Study

The overall objective of this EIA is to carry out a detailed environmental assessment of the project area; to assess impacts caused by the different activities of the proposed project and to address measures to mitigate adverse environmental impacts arising from the execution of the proposed project.

The specific objectives of the EIA Study are as follows:

- To determine pre-project state of affairs to assess post-project conditions if they have changed for better or worse
- Documentation of all the resources likely to be affected due to the implementation of the proposed project
- To provide maximum information to the proponent and other stakeholders about the existing environmental conditions and the implications of the proposed project
- Allow the Planners to minimize potential impacts of the proposed project on different environmental conditions such as physical environment, biological environment and socio-economic environment
- To facilitate decision makers to take informed decisions

1.4 Project Proponent

Mr. Qaiser Mahmood Cheema, S/o Choudhry Muhammad Hussain Cheema, R/o House No.5, Zafar Ali Road, Sialkot Cantt, Tehsil & District Sialkot.

1.5 Details of Consultant

The services of Environmental consultant Lead Enviro Safety Services Pvt Ltd have been taken by the proponent for the formulation of Environmental Impact Assessment (EIA) Report. It is an environmental consultancy firm that has an unrivalled reputation for providing high quality tailored services. Lead Enviro Safety Services is a dynamic, responsive and innovative in providing these cost-effective solutions. Integrated Environment Solutions comprising of Environmental Engineers & Consultants, and rendering their services to clients in both industrial and the government sectors.

With the visionary leadership of its veteran management and enthusiasm of its team, it is committed to come up with innovative ways of maintaining and enriching the Environmental Profiles / Portfolios of its prestigious clients with activities having a strong and lasting impact to their corporate image. It has attracted and retained staff with an unrivalled depth and breadth of expertise and experience that they have from working, not just in consultancy but also in commercial, industrial and regulatory environments. With its pool of Environmental Consultants, Environmental Scientists and Environmental Engineers, company offers one stop solutions tailored to its client's needs.

CONTACT DETAILS:

Qualified professionals with relevant experiences of conducting environmental assessment have contributed to the preparation of Environmental Impact Assessment (EIA) Report. The team has been shown in Table below:

Table 1.1: List of Team Members

Sr. #	Name	Highest Qualification
Team Leader		
	Mr. Shoaib Ahmed	M.S Environmental Sciences
Technical Team Member		
	Mr. Shahzad Yaqoob	Mphil in Environmental Sciences
Members		
	Bilawal Zafar	BS(Hons) Environmental Sciences (UOL)
	Abdullah Chisty	M.Sc. (in process), Environmental Engineering
	Bilal Khan	B.Sc. Environmental Engineering
	M. Adnan	M.Sc. Analytical Chemistry & MS Environmental Science

1.6 Nature, Size and Location of the Proposed Project

The proposed project is Construction of Wastewater Treatment Plant By M/S Leather Field (PVT)Limited (Tannery Unit) Located at Wazirabad Road, Sahowala, Tehsil Sambrial, District Sialkot, over an area of 8 Kanal. The proposed project falls under category G of Schedule II of Review of IEE and EIA Regulations, 2000. The Punjab protection Act was enacted in 1997.

1.7 Location

The proposed project is Construction of Wastewater Treatment Plant By M/S Leather Field (PVT) Limited (Tannery Unit) Located at Wazirabad Road, Sahowala, Tehsil Sambrial, District Sialkot. The land co-ordinates of the project site are as follows:



Figure 1: Location of Project

East.....Industrial Unit

West.....Agriculture Land

North..... Industrial Unit

South..... Industrial Unit

1.8 Objective of the Report

Objectives to conduct EIA are as following:

- It is mandatory according to Punjab Environmental Protection Act-PEPA 1997 (Amended 2012).
- To identify the environmental issues pertaining to the operational site.
- To evaluate the ability of the site in view of social acceptance and environmental soundness.
- To provide the maximum information to the proponent and other stakeholders about the existing environmental conditions and the implications of the operational project.
- Collection of available data, reports, drawings and other relevant information about area of operational project.
- Review of applicable existing environmental legislation and national environmental quality standards (PEQS).
- Propose mitigation measures to eliminate or to reduce the negative impacts to an acceptable level.
- Development of well-resourced environmental management and monitoring plans to identify mitigation strategies targeted towards avoidance, minimization and rehabilitation of the impacts.
- The main objective of the project is to clean the waste water of the industry
- Reuse it again and again so that resources can be conserved.
- Proposed project also increases job opportunity for locals.
- Pollution level will be reduced by the WWTP plant.

➤ **Screening:**

The Subject project for which this Environmental Impact Assessment (EIA) Study has been conducted is the Construction of Wastewater Treatment Plant By M/S Leather Field (PVT) Limited (Tannery Unit) Located at Wazirabad Road, Sahowala, Tehsil Sambrial, District Sialkot. The proposed project falls under category G of Schedule II of Review of IEE and EIA Regulations, 2000. The Punjab protection Act was enacted in 1997

➤ ***Spatial and Temporal Boundaries of the Assessment***

Temporal and spatial boundaries for the effects assessment are defined by the characteristics of the project and the VECC being assessed. These boundaries encompass time periods and areas during and within which the VECCs are likely to interact with or be influenced by the project. Spatial boundaries vary according to the nature of the VECC but generally are defined in terms of:

The definition of the RSA may take into consideration factors such as:

- Habitat for sensitive life stages;
- Wildlife migration routes and ranges;
- Areas of potential effects from dispersed or intermittent project activities, such as, air transport, and road haul; and
- Areas within which there is potential for cumulative effects with other projects.

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

- **Baseline** – covers ecological, physical and human-related characteristics of the environment, as characterized in 2006, 2007 and 2008, prior to the initiation of the construction phase;
- **Construction** – includes all activities associated with project construction and before commencement of ore processing (mill start-up) such as:
 - ☐ transportation corridors construction;
 - ☐ mobilization of equipment and supplies to the site by road and air;
 - ☐ construction of mine site facilities, including camp, infrastructure, ore stockpile, mill, waste rock storage dump, TWRMF, water management facilities (diversions, settling ponds, seepage collectors etc.) and mining activities up to the commencement of ore processing;
 - ☐ camp operations and personnel transport during construction;
- **Operations** – includes ongoing mining and processing of ore to produce concentrate, tailings disposal, water treatment plant operations and effluent disposal, operation of water management facilities, camp operations, transport of concentrate, transport of supplies and personnel;
- **Decommissioning** – includes all activities to decommission mine site facilities and remove equipment and materials from the site, recontour the site and restore drainage patterns to stable

long-term conditions, stabilize the mine and wastes (TWRMF and waste rock) for safe long-term maintenance, and implement the final site reclamation procedures to prevent erosion and restore vegetation cover where feasible;

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

Temporal boundaries are also defined for the cumulative effects assessment, spanning baseline to a point in the future, within which project effects on VECCs are predicted to overlap with effects of other projects or activities. Spatial and temporal boundaries for each VECC are detailed in respective report sections.

1.2.6 Important Issues and Concerns raised during consultation

Issue	Aspect/Concern raised by Stakeholders	Project Proponent Commitments
Employment Opportunities	Expectations of employment are very high. Job opportunities are less for herders as they generally have less skills and training.	Employment is the main priority of the industry. Mostly locally skill and unskilled labor will be prioritized and also there will be job in executive level. Around 100 people will be employed by the industry.
Training Opportunities	People are keen to consult with subject industry if the Project offers training and upgrading opportunities to enhance their trade or professional skills.	Development of the Training Strategy, including commitment of allocation of budget investment for training infrastructure, delivery and design. Installation of training facilities in for worker of the company and students will also be accommodating. The internship program will offer to the students to develop professional skills.
Health & safety	Truck traffic is a main concern because the road used by the Project passes through a number of small communities and different industries and there will be a high volume of trucks transporting concentrate.	Development of Transport Management Plan including traffic safety training. Traffic advisory signs will be installed along project site and all nearby specific areas.

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Local economy and business development	Local service providers are keen to participate in providing services to provide raw material and expect to receive in order to adjust their businesses to meet specific needs. Local/regional companies and entrepreneurs have limited understanding about meeting the high volumes required by the Project and the quality standard, but are keen to know these requirements so they can become suppliers.	Proponent has main focus that they will all the material regarding construction and plant operation to buy from the local market. This will help the local and small business and to people who are keen interested to become suppliers.
Environmental Issues	Dust and noise impacts, particularly from the construction activities and in operation of mechanically unfit machines, are of concern to herders and other residents. Environmental degradation during road construction and use. Loss and change of vegetation due to soil degradation.	Implementation of controls under the Environmental Management Plans, including on and off-site dust and noise monitoring. A Participatory Environmental Monitoring Program will be launched to spread awareness.
Water quantity and quality	Water quality and quantity, and impacts from the wastewater disposal are all key concerns for nearby herders.	Implementation of consultation in relation to water use and development of the Participatory Environmental Monitoring Program. Water treatment will be done by the proponent that will help to safe disposal of the water.

➤ ***Significance impacts***

Wastewater contains large solids and grit that can interfere with treatment processes or cause undue mechanical wear and increased maintenance on wastewater treatment equipment. Screening is the first unit operation used at wastewater treatment plants (WWTPs). Screening removes objects such as rags, paper, plastics, and metals to prevent damage and clogging of downstream equipment, piping, and appurtenances. The effluent is first coarsely filtered by Coarse bar screen. For Fine Screen, we are using 6000 micron opening size screen through which >6mm particles size will remove and the removal particles will be collected in waste box. The box will be emptied manually and the removed particle will be sent for safe disposal.

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CHAPTER # 02,

DESCRIPTION OF THE PROJECT

2.1 Type and Category of the Project:

The Subject project for which this Environmental Impact Assessment (EIA) Study has been conducted is the Construction of Wastewater Treatment Plant By M/S Leather Field (PVT) Limited (Tannery Unit) Located at Wazirabad Road, Sahowala, Tehsil Sambrial, District Sialkot. The proposed project falls under category G of Schedule II of Review of IEE and EIA Regulations, 2000. The Punjab protection Act was enacted in 1997

2.2 Objectives of the Project

- The main objective of the project is to clean the waste water of the industry
- Reuse it again and again so that resources can be conserved.
- Proposed project also increases job opportunity for locals.
- Pollution level will be reduced by the WWTP plant.

2.3 Project Benefit

Project will create jobs for the indigenous people, will engage local people with construction of the project, and improve their living standards. Project is environmentally friendly in all aspects.

2.4 Alternative Considerations and Reasons for their Rejection:

To fulfill the commercial aspects of the project under reference of this EIA Report, it is to be sited at a place where commercial/ industrial activity is either already going on or there are bright prospects of the same. Concurrently, it must also meet the legal requirements of the Punjab Environmental Protection Act, 1997 (Amended 2012). Availability of land at the best convenient place is equally important among other considerations for the site selection. Availability of access roads, communication facilities, electricity, basic infrastructure, sewerage etc. is yet the other necessary requirements.

NO alternatives can be considered for this construction of waste water treatment plant as this waste water treatment plan has to be installed in the industry to save the environment from the effects of waste water

2.5 Activity alternative:

The Subject project for which this Environmental Impact Assessment (EIA) Study has been conducted is the proposed Construction of Wastewater Treatment Plant By M/S Leather Field (PVT) Limited (Tannery Unit) Located at Wazirabad Road, Sahowala, Tehsil Sambrial, District Sialkot. No activity alternatives can be considered

2.6 Alternative Site:

NO alternatives sites can be considered for this construction of waste water treatment plant as this waste water treatment plan has to be installed in the industry to save the environment from the effects of waste water.

Selected Site

The proposed Construction of Wastewater Treatment Plant M/S Leather Field (PVT) Limited (Tannery Unit) Located at Wazirabad Road, Sahowala, Tehsil Sambrial, District Sialkot. Site is good enough for the construction of Waste Water treatment plant, other reasons for selecting this site are following

Reason for selection of project site:

The land was selected for the following reasons;

- ✓ Industry Need the treatment facility for Waste Water Disposal
- ✓ Economically feasible
- ✓ Trained or untrained workforce is available
- ✓ Neighboring industries and local public have no objection regarding project activities

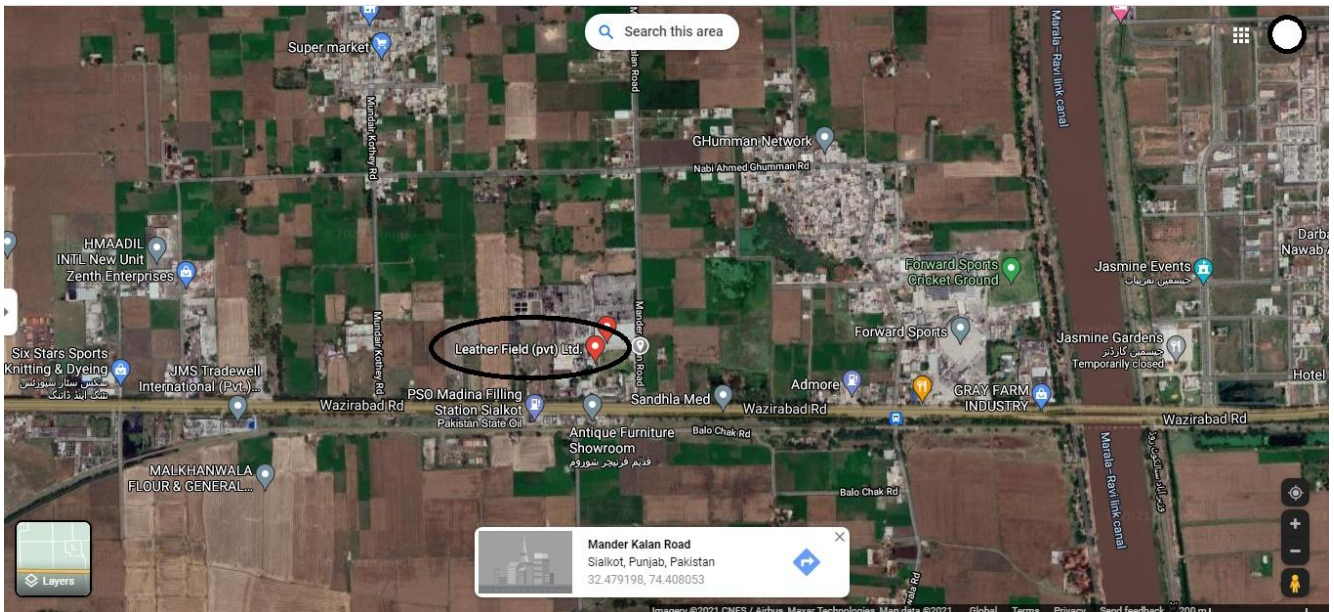
➤ Economic Alternatives, their selection and rejection criteria

The current selected mythology, designing and technique is economically efficient and provides extensive job creation avenues. It refers to the shift of materials used in the proposed project towards environmentally friendly and sustainable materials in present case. All machinery, equipment and materials procured for the said project will be environmentally friendly and sustainable. Hence, there is no material alternative considered in this case.

2.7 Location

The proposed Construction of Wastewater Treatment Plant By M/S Leather Field (PVT) Limited (Tannery Unit) Located at Wazirabad Road, Sahowala, Tehsil Sambrial, District Sialkot.

CONSTRUCTION OF WASTEWATER TREATMENT PLANT BY M/S LEATHER FIELD (PVT) LIMITED



2.8 Existing Land Use

The land available for project is empty plot. There is no tree and vegetation in the land. The project Construction of Wastewater Treatment Plant M/S Leather Field (PVT) Limited (Tannery Unit) Located at Wazirabad Road, Sahowala, Tehsil Sambrial, District Sialkot. All laws and by laws of the government are applicable to any land planning and use as well.

2.9 Road Access

The main roads Wazirabad road it has wide paved and massive roads infrastructure. Subject project is Located at Wazirabad Road, Sahowala, Tehsil Sambrial, District Sialkot. road access is easy and good.

2.10 Vegetation features of the project

The project site has few and scattered number of trees near the project location and within the boundaries of land. During the construction of WWTP about no trees are removed and environment will be restored by the management through tree plantation and proper landscaping after the construction phase.

2.11 Cost and magnitude of the operation

The project is currently the construction of waste Water Treatment Plant. The capital cost of the whole project is about 40 Millions.

2.12 Schedule of Implementation

New job opportunities will arise especially for the locals during construction.

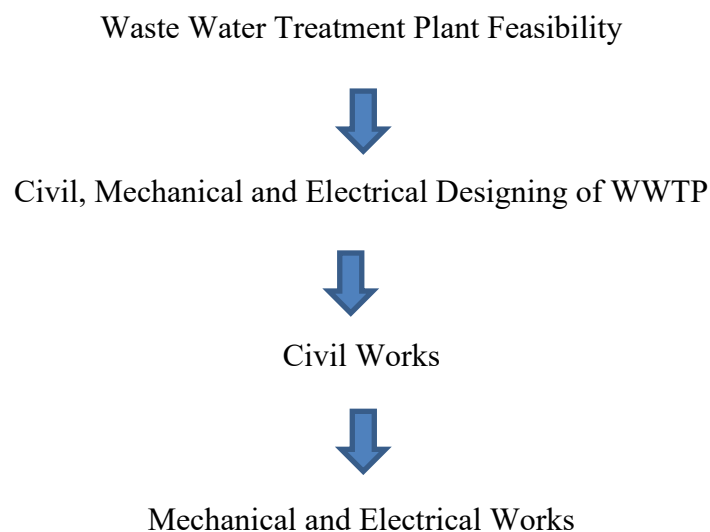
Detailed feasibility studies and designing of the project have been completed. Necessary legal, administrative and financial formalities are being finalized. The project is expected to be completed within 9-10 months from the date of environmental approval. Subsequently the operational and maintenance aspects of the project will be undertaken by the proponent.

2.13 Project Description

The proposed Construction of Wastewater Treatment Plant By M/S Leather Field (PVT) Limited (Tannery Unit) Located at Wazirabad Road, Sahowala, Tehsil Sambrial, District Sialkot, over an area of 8 kanal. The proposed project falls under category H of Schedule I of Review of IEE and EIA Regulations, 2000. The Punjab protection Act was enacted in 1997.

The project will also have proper Health & Safety system comprising of first aid medical facility & firefighting network like fire water distribution system, firefighting equipment's, fire pumps, fire buckets, fire extinguishers and personal protective equipment's etc. in case of any unhealthy condition. As the project is in industry so the functioning of the project would not be the reason of nuisance for the nearby community. Moreover, the project will pose the positive impacts in terms of employment opportunities, will create jobs during construction and operation and will contribute to the nation economy by meeting the demand.

2.14 Description of the project (process flow chart)



**CONSTRUCTION OF WASTEWATER TREATMENT PLANT
BY M/S LEATHER FIELD (PVT) LIMITED**



Commencement of WWTP



Testing and Operations of WWTP

Design Parameter

Type of Factory Effluent	Leather dyeing & finishing	
Design ETP Operation Hours	24 hours	
WATER FLOW:		
Description	Unit	Concentration
Designed Flow	m³/day	250
Average Designed Flow	m³/h	10.42
Peak Flow (Assumed)	m³/h	20
Peak Flow Duration (Assumed)	hrs./day	4
WASTE WATER CHARACTERSTICS: (Assumed)		
Parameters	Unit	Concentration
BOD	mg/l	1500
COD	mg/l	3500
TSS	mg/l	2000
AMMONIA	Mg/l	60
pH	–	8
Temp	°C	32
WASTE WATER DISCHARGE CHARACTERSTICS: (NEQS Standard)		
BOD	mg/l	<80
COD	mg/l	< 150
TSS	mg/l	< 40
AMMONIA	Mg/l	< 10
pH	–	6 to 9

Temp	°C	< 37
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WATER FLOW DIAGRAM:

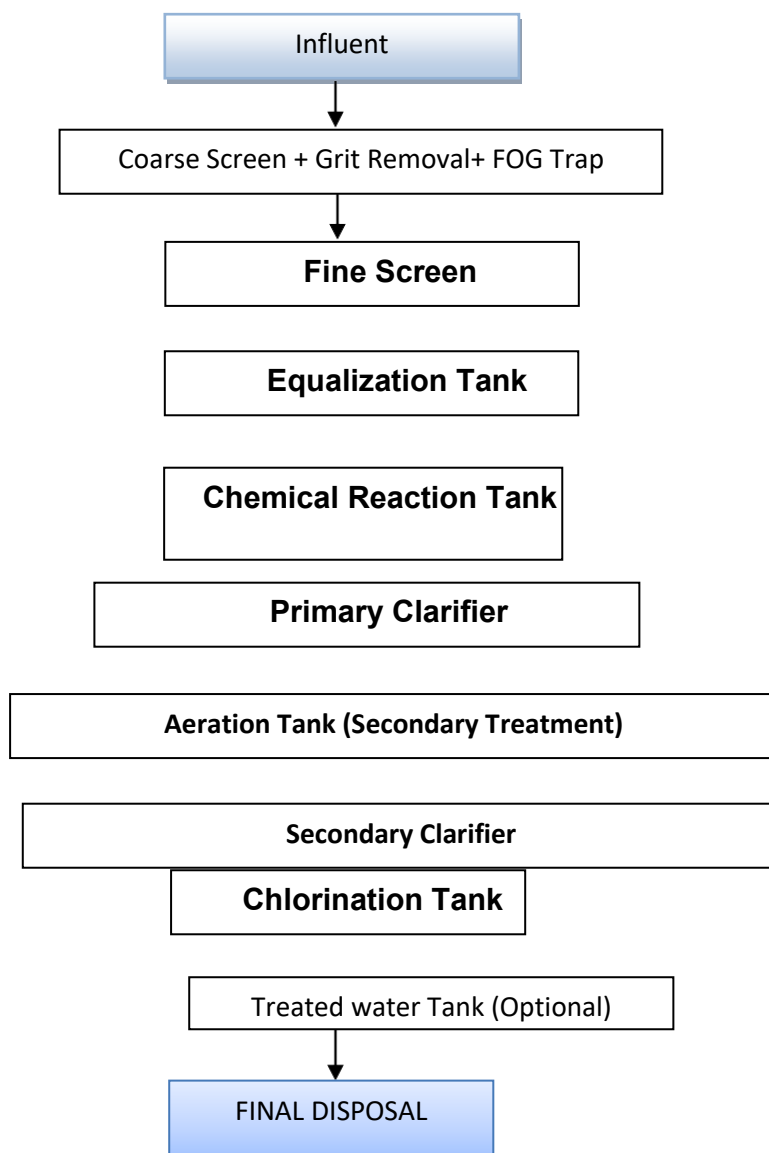


Figure 2 Water Flow Diagram

SCREENING:

Wastewater contains large solids and grit that can interfere with treatment processes or cause undue mechanical wear and increased maintenance on wastewater treatment equipment. Screening is the first unit operation used at wastewater treatment plants (WWTPs). Screening removes objects such as rags, paper, plastics, and metals to prevent damage and clogging of downstream equipment, piping, and appurtenances. The effluent is first coarsely filtered by Coarse bar screen. For Fine Screen, we are using 6000 micron opening size screen through which >6mm particles size will remove and the removal particles will be collected in waste box. The box will be emptied manually and the removed particle will be sent for safe disposal.



EQUALIZATION TANK:

Equalization tank use as a homogenization pond. Thus, the downstream processes can be sized to handle just the average flow rather than the periodical peak flows.

However, the Owner may consider adjusting the volume of this tank to meet the anticipated surge flows. The minimum volume to be provided for equalization tank is of 16 hours retention time of the average per hour daily flow. A minimum 500mm free board shall be provided in this tank. Air will be given by blowers or mixers will be installed for homogenization and mixing by coarse bubble diffusers.

The purposes of equalization for industrial treatment facilities are;

- To provide adequate dampening of organic fluctuations in order to prevent shock loading of biological system.
- To provide adequate pH control or to minimize the chemical requirements necessary for neutralization.

***CONSTRUCTION OF WASTEWATER TREATMENT PLANT
BY M/S LEATHER FIELD (PVT) LIMITED***



- To minimize flow surges to physical chemical treatment system and permits chemical feed rates compatible with feeding equipment.
- To provide continuous feed to biological system over period when the manufacturing plant is not operating.
- To prevent high concentrations of toxic material from entering the biological treatment plan



Neutralization Tank

pH is a priority parameter in waste water treatment plant that have to be controlled in primary treatment. As per given data of factory effluent analysis pH is within limit, but for any verse condition or pH alters due to any process extension etc so neutralization process required to neutral the pH. A neutralization tank of 5 mins retention time and acid or alkali dosing system has been designed to neutralize acidic pH or basic pH

For better coagulation and flocculation, the water pH must be in range of 8 to 8.7 so better results achieved on minimum chemical dose. A pH controller has been added in Equalization tank pump line. As pH sensor sense the increase pH it gives command to acid or alkali feeding pump to start and the dosing starts automatically. After neutralization the water transfers in Coagulation tank.



Chemical Reaction Tank:

Flash tank has been designed for chemical treatment. Here in chemical dosing tank coagulant will be added to remove the color, suspended solid and mixed solids from the water stream through primary treatment.

A 10 mins retention time flash tank has been designed in which agitator will be added to mix the chemicals with water and perform a reaction where the fixed particles will remove from water and then water transfer into primary clarifier. The selection of chemicals and dose rate will be depending on jar test.

Primary Clarifier:

In the primary clarifiers, the clarified water is collected at the top of the clarifiers and then flows by gravity into the aeration tank of the biological treatment. The settleable matters together with the wasted activated sludge that collects at the clarifier hopper bottom is disposed of continuously to the sludge handling system.

***CONSTRUCTION OF WASTEWATER TREATMENT PLANT
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We have offered clarifier of approx 3.0 hours retention time with conservative over flow rate at the clarifier, it guarantees effective solids/liquid separation that is vital for good effluent quality and effective operation of an activated sludge system.



Oxidation Pond:

An activated sludge process is employed to remove the COD and BOD to meet above mentioned discharge requirements. Aim of this phase is the oxidation by aerobic micro-organisms of the organic matter content of the effluent into non-pollutant inorganic matter with the consequent removal of COD and BOD5 from the water, its transformation into cellular substance, so increasing in continuous way the active sludge, the mineralization of the organic matter (surplus sludge) and the reduction at the minimum level of the surplus sludge production.

In the Oxidic activated sludge process, microorganisms are thoroughly mixed with the organics in the wastewater so that they grow by using the organics as food. As the microorganisms grow and are mixed by the agitation of air, the individual organism clumps together to form an active mass of microbes called Mixed Liquor Suspended Solids (MLSS). The mixed liquor flows from the Oxidic tanks to settling tanks, where the MLSS are settled in the hopper bottom.

The settled-out sludge is returned to oxidic reactor to maintain a high population of microbes to permit rapid breakdown of the COD and organics. We shall provide non-clog fine Bubble air diffuser. To make it possible to reduce the power consumption when the actual waste water organic loads are lower than the design values, we have offered a programmable timer for the duty aeration blower to run on auto/manual ON-OFF mode.



Final Clarifier:

We have offered large diameter circular clarifier with mechanical sludge scraper and surface skimmer. With conservative over flow rate at the clarifier, it guarantees effective solids/liquid separation that is vital for good effluent quality and effective operation of an activated sludge system. The mixed liquor, consisting of water and bacterial matter, flows by gravity to the final settling tank through a piping; in this settler, made of concrete, happens the separation between the purified water and the active sludge, which fall down to the bottom where it is collected into the central hopper and then delivered to the head of the biological tank.

The resultant supernatant leaves the clarifier shall meet < 80 mg/l BOD and < 150 mg/l COD. A Chlorination tank is provided for disinfection and color reduction. An effluent flow meter with ultrasonic or electromagnetic sensor will be provided to measure the flow exiting the chlorination tank.



Sludge Holding Tank:

A sludge holding tank has been offered where primary sludge and Waste activated sludge will be hold and transfer in sludge dewatering system after dewatering sludge shift for disposal and water again transfer into equalization tank, it also reduces the odor problem before transferring the raw sludge to a sludge dewatering system.

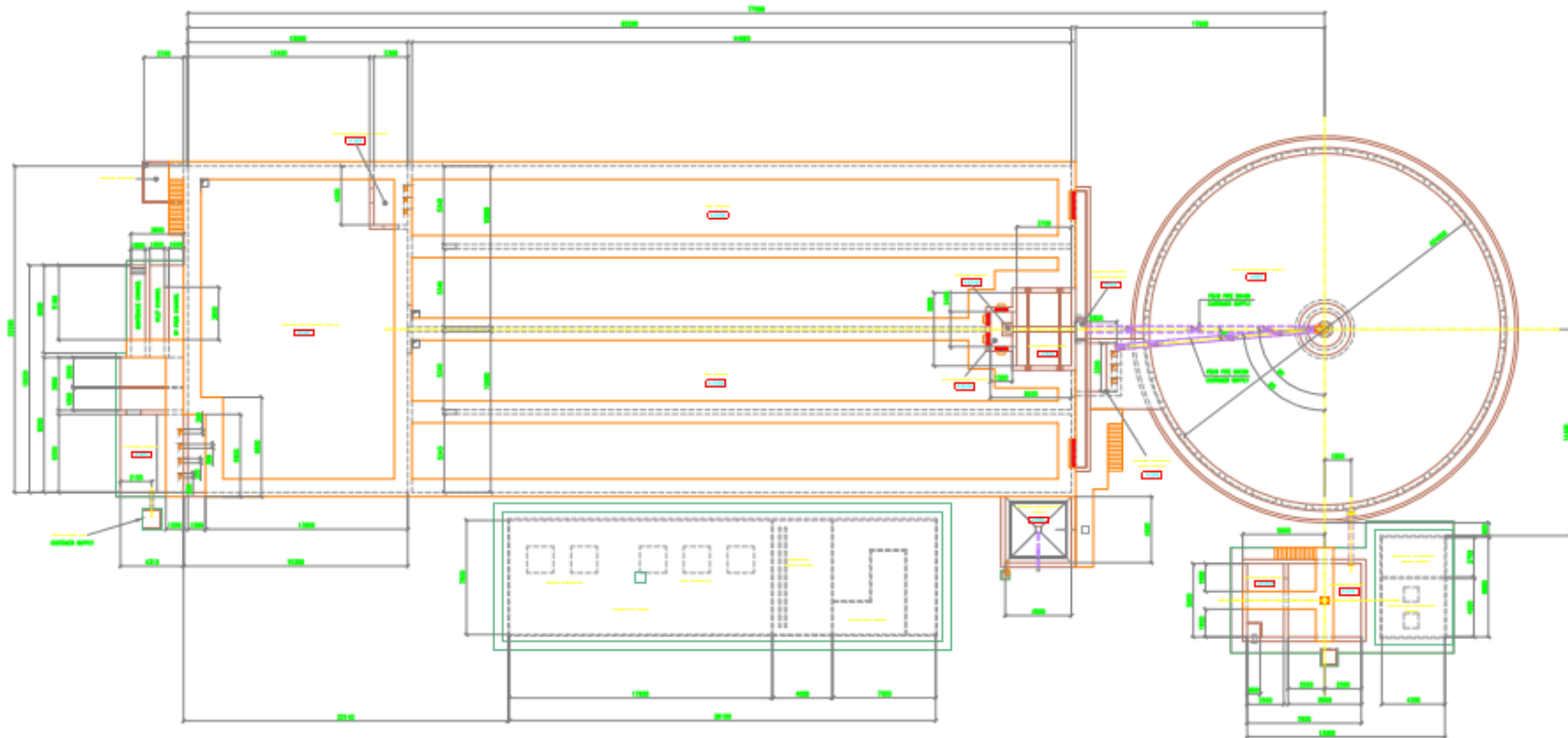


Figure Electrical Design of Waste Water Treatment Pla

**CONSTRUCTION OF WASTEWATER TREATMENT PLANT
BY M/S LEATHER FIELD (PVT) LIMITED**



**LEATHER FIELD
(PVT) LIMITED
(Tanning Unit)**

A Unit of LEATHER FIELD (PVT) LTD.
LARGEST EXPORTER OF LEATHER GARMENTS
FROM PAKISTAN SINCE 1990

12-KM, WAZIRABAD ROAD, P.O. MUNDAIR SYEDAN,
SIALKOT - PAKISTAN.

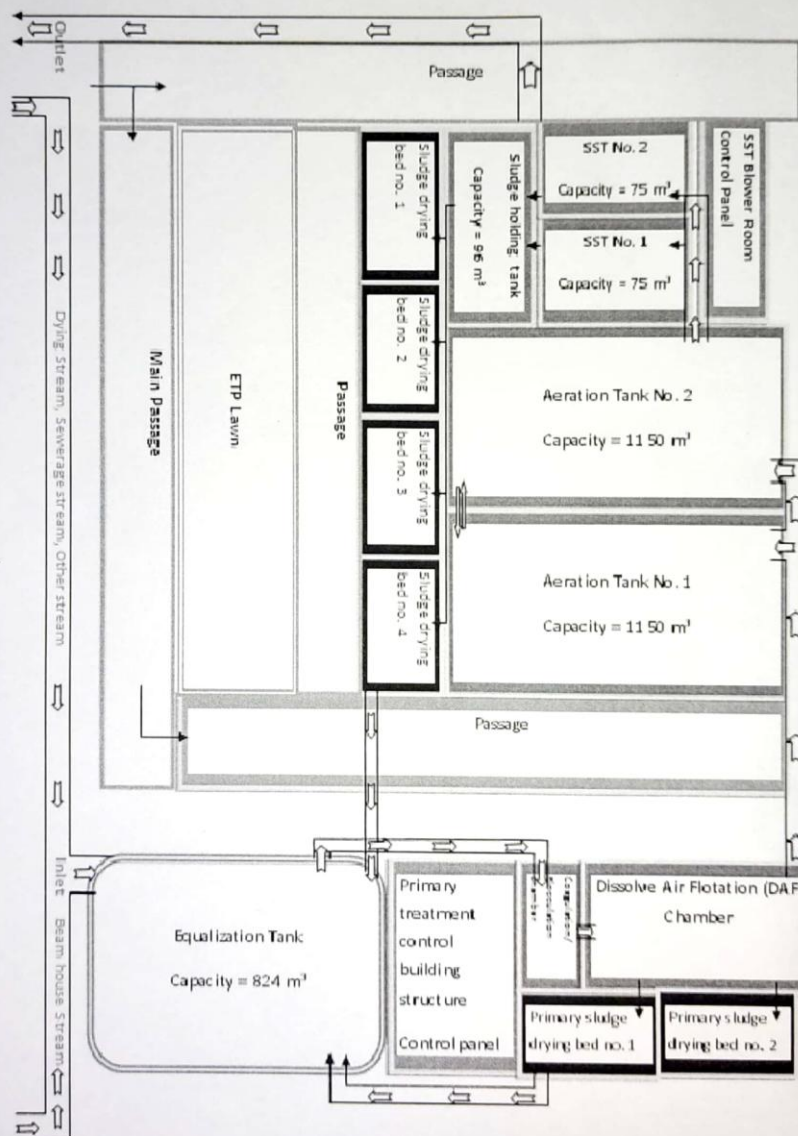
TEL : (92-52) 3571920-26 (7 Lines)

FAX : (92-52) 3571927-3571928

E-Mail: lftppic@brain.net.pk

http://www.leatherfield.com

**Leather Field (Pvt.) Ltd. (Tanning Unit) 12- Km, Wazirabad Road, Sialkot.
Effluent Treatment Plant Flow chart**



LEATHERFIELD (PVT) LTD.
DIRECTOR.



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LEATHER FIELD (PVT) LIMITED (Tanning Unit)

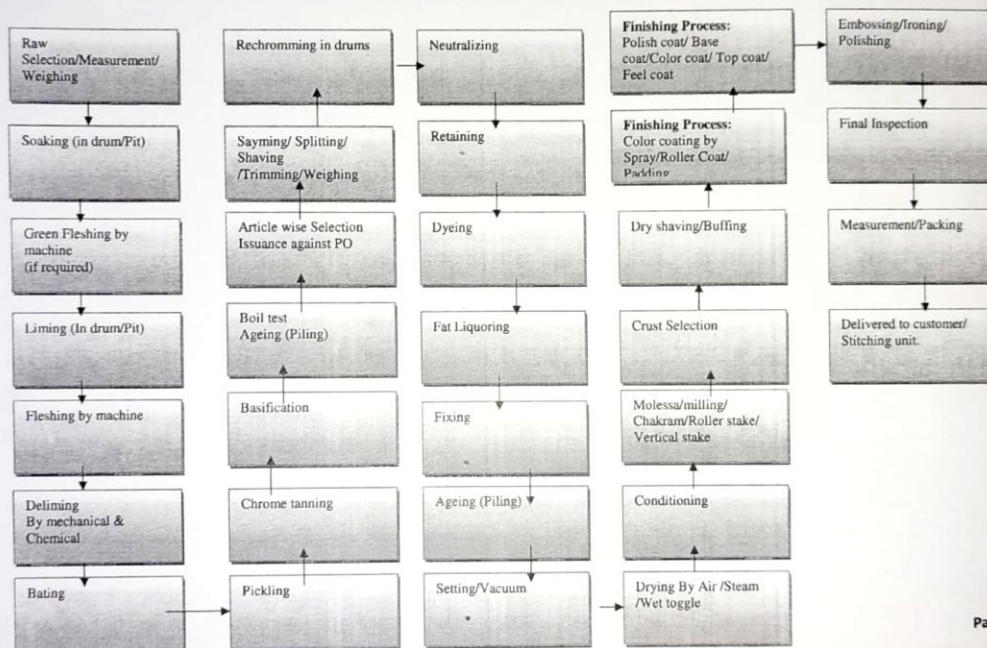
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Leather Field Pvt Ltd. (Tanning Unit)
12-Km Wazirabad Road Sahowala, Sialkot, Pakistan.

PROCESS FLOW CHART



Page 1 of 1

LEATHER FIELD (PVT) LTD.

[Signature]
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2.15 Waste Products of Project Process

2.15.1 Water Requirement

After the construction of about Water Requirement of proposed project is about 08 gallons per capita per day of water will be required for total workers. Domestic Water will be used for the proposed project well will be installed to meet the water requirements.

Design Population	Per Capita Consumption Per day (Inclusive and unaccounted for water)
700-2000	8 glns
2000-5000	10 glns
5000-10000	15 glns
10000-25000	20 glns
1000-25000	30 glns (with sewerage facilities)
25000-1 lac	40 glns (with sewerage facilities)
Above 1 lac	50 glns (with sewerage facilities)

(water supply, sewerage and drainage scheme, Punjab public health and engineering department)

2.17 Sources of Water

Underground water at the project site is available at the depth of 150-200 feet and source of water for the industrial process will be the tube well. According to the chemical analysis report water is fit for the drinking.

Table 2.1 Water Parameter

Parameter	Unit	Value
Design avg flow rate	m ³ /d	109.4
pH	-	7 to 8
TSS	mg/l	220
BOD5	mg/l	220
COD	mg/l	500

2.15.2 Waste water treatment:

50-70 % of the used water will be waste water which will be treated in septic tanks and after treatment some quantity of treated water will be used for sprinkling on grassy lawns and plantation within the premises of the industry and remaining waste water will be drained out into municipal waste water channel. Monitoring of the main drain which receiving the waste water was conducted to water quality at PEQS. (Lab Results are annexed as Annexure-C).

2.15.3 Noise

Noise level monitored at the boundary wall for the proposed project by the Lead Enviro Safety (PVT) Ltd, fall within the prescribed limits of PEQS. It will be the responsibility of project manager to take care of the noise level limits during the construction of Waste Water Treatment Plant through proper maintenance of the generators and construction machinery.

2.15.4 Solid waste:

All raw materials will be recycled during the construction activities as road filling and maintenance purposes. During the construction about 50 kg/day of domestic solid waste will be generated which will be placed in solid waste bins within the project boundary wall and will be handed over to contractors.

HSE manager will be appointed by the proponent to manage the solid waste on regular basis, to ensure the good housekeeping at site and in production unit, to inspect any discrepancies arise due to improper functioning of the HSE conditions and to adopt the proper solid waste management system.

2.15.5 Sludge:

Sludge from tanks will be replaced on regular basis and will be disposed-off in environmentally friendly way through certified contractor; contractor can use it as composite component or incinerate it.

2.15.6 Plantation

Plantation will be done as per recommendation of the EPA within the industry and area for this purpose will be reserved within the boundary walls. Plantation can also be done along the road sides with consultation of EPA.

2.15.7 Parking Area

Parking area will be available within the project boundaries for the heavy loading vehicles, cars and motor bikes.

2.15.8 Fire Protection System

An addressable fire protection system with detection and alarm annunciation and other installations etc. would be provided to protect against any fire hazards. Fire buckets and fire extinguishers will be installed at all sensitive places.

2.15.9 Emergency Exits:

Emergency exit points will be made available for easy evacuation in case of emergency situations.

2.15.10 Security:

The present site is secured by means of boundary wall along with the presence of two security guards round the clock which improves the security of the project site and also in its vicinity.

2.15.11 Power sources and transmission:

Power requirement will be fulfilled by WAPDA& by standby Generators in case of emergency situation and during electricity shortfall.

2.15.12 Available Facilities

Available facilities are given below:

- Solid Waste Management (SWM) implemented
- Line and cellular telephone facilities
- Water supply, sewerage disposal and drainage systems
- Trained staff for operation of the proposed project is available.

2.15.13 Personal protective equipment:

Workers will be provided with Gloves, Masks, safety goggles, safety helmets and other personal protective equipment during the working hours to insure personnel health & safety. Implementation of PPEs will be ensured by the proponent for the proposed project.

2.16 Restoration / Rehabilitation Plan

All possible precaution will be taken to prevent an untoward incident in terms of life and property losses. The demolition materials will possibly be reused and recycled. All excavated surfaces will be restored in environment friendly way.

One completion of the project, the debris will be removed from the site in order to maintain the esthetic of the project. All measures will be undertaken for ensuring occupational safety, security and clean environment in the project area. Local species of trees and flowering plants will be planted within the unit premises, along the road sides and plants can be handed over to PHA with the consultation of Environmental Protection Agency Punjab.

2.17 Government approvals required by the project:

Project proponent will get NOCs from all concerned departments after the environmental approval from EPA. Copy of each NOC will be submitted to EPA prior to operation of the project.

CHAPTER 3:

DESCRIPTION OF THE ENVIRONMENT

This section covenants with the prevailing environmental conditions of the project area. Information that has been collected from different sources, including public literature, reports of other studies conducted in this area, knowledge with the proponent and the concerned government departments and the first-hand surveys and field measurements has been presented in this section. This

encompasses all the important aspects of local environment; such as physical and biological resources, socioeconomic development and quality of living values.

3. PHYSICAL RESOURCES

Geography

The project site has been inspected and necessary reconnaissance conducted for the purposes of IEE study. The site is located in the traffic-busiest spot of the Metropolis, it had been noted. The topography of the site is almost flat and slopes upward gently from north to south i.e. moving upwards when reaching the canal and vice versa. The roadways as well as the structures are present in the location and vicinity of the site.

3.1 Geology and Soils

The agro-ecological zones of the country are presented in Figure 3. The project site falls under Zone-IV (b); the zone generally comprises sandy loam, and clayey loam.



Figure 3: Agro-Ecological Zones of Pakistan

Sialkot plains are most probably underlain by the Potwar stratigraphy, but it would be deeply eroded. Sialkot is located just north of the NW-SE Gujranwala, where the sedimentary rocks may also be truncating against the high. Moreover, very thick alluvial and older fluvial deposits (Recent to Miocene) before older eroded rocks are also encountered.

The geotechnical properties and mineralogical composition of the soil, as established during various studies / boring of tube wells for water supply by WASA confirm that the Sialkot soil is composed of silty clay. The major mineral composition for Sialkot soil is Quartz, Muscovite and

Clinochlore, which shows that the alluvial deposit received sediments from metamorphic origin. In general, subsurface stratigraphy at the site consists of three basic lithological units as given below:

- Lean Clay/Silty Clay
- Sandy Silt/Silt
- Silty fine Sand/fine Sand

These soils are the alluvial deposits of the recent geologic times. The subsurface stratigraphy is as discussed below:

- The first soil unit of brown silty clay/lean clay forms the topsoil cover at the site at all the locations and generally continues to a depth of 1.0 m- 3.5m below top of ground. This stratum contains trace fine sand and trace to little concretions at places. It is present in a soft to a stiff state of consistency and has low to medium plasticity.
- The second soil unit of brownish grey sandy silt/silt underlies the upper silty clay/ lean clay stratum. This layer has a thickness of 1.0 to 3.0m and is present in a firm state.
- The third soil unit of brownish grey non-plastic fine silty sand underlies the silt/silty sand stratum. It is present in a loose to medium-dense state.

The lithological distribution of soils consists of slightly cohesive, generally firm to stiff silty clay lean clay from 1.0 to 3.5m depth, followed by firm to stiff sandy silt/silt of 1.0 to 3.0m thickness in turn followed by medium dense silty fine sand. Groundwater is present at a depth of 4.5 to 5.0m below top of ground. The subsurface generally appears suitable for supporting light to medium loads through spread foundations placed at 1.0 to 2.0m depth. Besides, some isolated weak spots are also expected, which will require special measures to be adopted.

3.2 Climatology

Temperature

i. Mean Maximum Temperature

The mean maximum annual temperatures in the area are exhibited in Table 2. It is noticed that the city of Sialkot falls under 25-30 °C temperature. As such, the location is in a relatively cooler area than southern part of the country.

ii. Mean Minimum Temperature

The situation for minimum annual temperature follows almost the same pattern, Table 4. The minimum annual temperature in the area is in the range of 15-20 degree centigrade.

Table 1: Mean Maximum and Minimum Temperature at Project Site

Month	Maximum Daily	Minimum Daily
January	19.8	5.9
February	22.0	8.9
March	27.1	14.0
April	33.9	19.6
May	38.6	23.7
June	40.0	27.4
July	36.1	26.9
August	35.0	26.4
September	35.0	24.4
October	32.9	18.2
November	27.4	11.6
December	21.6	6.8
Yearly Average	30.8	17.8

June is the hottest month of the year with maximum daily temperature of 40.4° C and extra maximum temperature of 48°C. January is the coldest month with a minimum temperature of 5.9°C.

3.3 Wind Characteristics

It is revealed that 60% days of the year are calm and 33% days have mean speed of 1-3 knots. Only 6% days exhibit speed of 4-6 knots and higher.

Wind directions are from north-west and south-east during summer and winter respectively. Summer winds bring monsoon rains.

Table 2: Wind Speed and Direction

Month	Wind Frequency (%) Speed in Knot Ranges						Predominant Direction From
	Calm	3-Jan	6-Apr	10-Jul	16-Nov	17-21	
January	72	25	3	0.4	-	-	NW
February	60	33	7	1	-	-	NW
March	55	35	7	2	1	0.1	NW
April	48	40	9	3	1	0.1	NW
May	51	39	7	3	1	-	NW
June	40	45	12	4	0.4	-	SE
July	43	46	9	2	0.4	-	SE
August	52	42	5	1	0.4	-	SE
September	65	30	5	0.3	0.1	0.1	SE
October	75	22	1	1	-	1	NW
November	79	19	1	1	0.1	-	NW
December	83	16	1	-	-	-	NW
Yearly Average	60	33	6	1	0.3	0.1	NW

Note: NW = North West, SE = South East, 1 Knot = 1.854 km/hour

Wind storms of moderate intensity occur during summer (April - July). Their occurrence is maximum in June when low pressures are caused due to high temperature.

3.4 Rainfall/Precipitation

In case of Sialkot, the rainy days are relatively more than in southern region; as such surface water infiltration into the soil is higher than in the southern part of the country. Sialkot mainly receives its rainfall during the monsoon season from June till September, and in winter season from December till February. The highest-ever annual rainfall in Sialkot was recorded in 1955 when 1,317.5 millimeters (51.87 in) of rainfall was recorded. Sialkot received below normal rains in 2009, and normal rains in 2007 and 2008.

3.5 Surface Water & Ground Water

a) Surface Water

No surface water body in the form of river, canal or stream exist in the vicinity of the project site.

b) Ground Water

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

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

3.6 Seismology

Pakistan Building Code distributes the country into 4-zones, Figure 4. The project site falls in Moderate damage Zone, as such structural design of buildings and others will follow the applicable criteria for the zone.

Seismic details are very important consideration for any planning activity. As it directly lays impact on the construction of site. The project lies in seismic Zone-2A, seismic zoning map of Pakistan as displayed below. This Zone-2A prone to minor damage, distant earthquake may cause damage to structure with fundamental periods greater than 1.0 second.

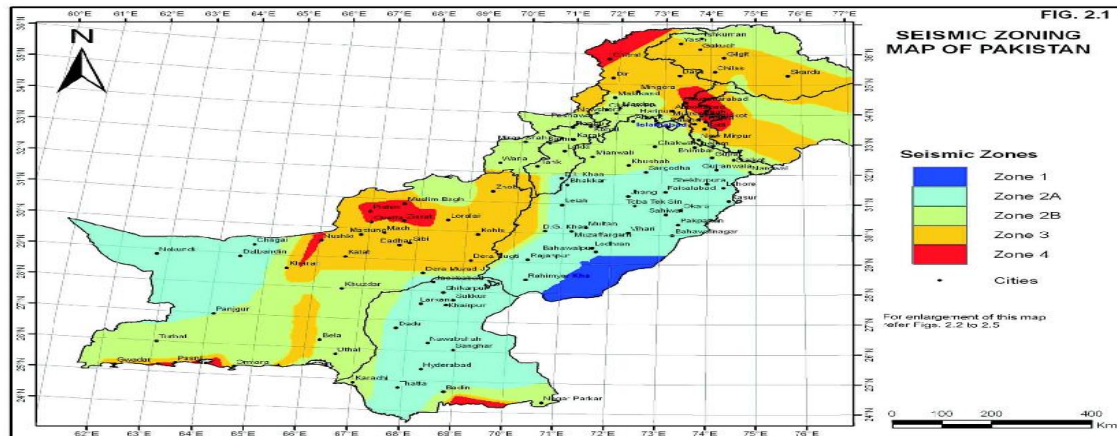


Figure 4: Seismic Zones of Pakistan

3.7 Flooding

No surface drainage problems are foreseen as surface water can be disposed in the existing primary and secondary drainage network including partly moving into the sewerage.

3.8 Water Logging and Salinity

There are no signs of water logging in the project site.

3.8.1 Air Quality

Motor vehicle emissions are composed of the by-products that come out of the exhaust systems or other emissions such as gasoline evaporation. These emissions contribute to air pollution and are a major ingredient in the creation of smog in some large cities. Main source of air pollution in the Project area is traffic congestion that occurs off and on in the Project Area. Traffic load has increased manifold due to rapid growth of the City. Ambient air is being polluted due to emission of fuel gases like Carbon Monoxide (CO), Nitrogen Oxide (NO_x) and Sulphur Oxide (SO_x) due to the vehicle exhaust. Untreated fuel from rickshaws also contain trace amount of Lead (Pb) in it.

3.8.2 Air Quality Determined

The quality of air has been determined through monitoring (24-hour basis) at the project site.

As a result of traffic blockages, vehicular emissions are higher at the junction, however due to the presence of plantation and green areas, air quality is generally satisfactory in the morning but deteriorates during the day. The quality determination has been made.

3.8.3 Noise Level Determined

The existing status of the project area is mostly residential and some road crossings therefore noise is serious issue only at road crossings. The average value of noise along the road crossings close to PEQS and WHO limits and is expected that in the construction and operation phase this will go beyond limits. Roadside noise level was measured from the edge of the road (about 7.5 m from the source).

3.9 Ecological Resources

3.9.1 Marine and Aquatic Ecology

This is not applicable to the Project area.

3.9.2 Flora

The diversity and distribution of plant species within the Sialkot District depends upon the availability of water and the underlying geology. There are significant numbers of trees in Green Belts en-route. Kikar and Beri trees are present in study area.

3.9.3 Fauna

Common birds found in the area are crows and sparrows. Domestic animals are seen grazing in the agricultural land as well as on the project site. Chirping birds are having their nests at the well grown trees that are providing a natural habitat for the birds.

Some squirrels, parrot, rats, weaver, sparrows are also found in the area. Different species of reptile and amphibians such as lizards and frogs are also found. Various bird species known to occur in the area include myna, bulbul, crow and sparrow.

3.9.4 Endangered Species

No endangered species exist in the project area.

3.10 Economic Development

Agriculture, Industries and Tourism

The agrarian profile of Sialkot district has changed altogether. It is now more industrial than before. Cash crops include tobacco; mutter (peas) wheat and sesame. It has been observed that wheat crop is producing more yield with smaller area in the district than in many other districts due to suitable soil conditions.

Vegetables are grown in abundance as the water and soils are suitable for cultivation, and include potato, carrot, lady finger, chili, onion, bitter gourd, cucumbers, coriander and cauliflowers. Fruits grown include; citrus, guava, mango, watermelons, banana and peach.

Sialkot is the 1st biggest trade center in Punjab which exports and imports a sizable quantity of different types of goods. Its major industrial items of trade include electrical fans, motors, transformers and electrical goods, rubber and its products, bicycles and auto cycles, food products, beverages, body buildings, handicrafts, leather shoes, printing and publishing chemicals, photo goods and cinema films, as well as agriculture products and dry fruits. After Karachi, faislabad & Lahore, Sialkot is the biggest industrial area in Pakistan. There has been a steady expansion of industries in and around Sialkot since independence. Industrial consumers are causing the greatest demand for electricity, and are also worst affected by power shut downs. There are thousands of industrial and commercial businesses in the vicinity of the project area. There are also agricultural businesses on the fringes of the urban areas and tourism is also an important business in Sialkot.

There are many places of interest that attract tourists and promote tourism e.g. Iqbal Manzal, Head Marala, Clock tower, holy tirinity cathedral church Sialkot and Sialkot Fort etc.

Agricultural Development

The project site falls under industrial area. Industries are present around project site. So need of agricultural development is not required.

Transportation

Sialkot is linked with the rest of the country by air, rail and road. Many new Motorways have been also completed which are operational from April-2020 due to which routes to each part of the country has become easy..

For air traffic, there is a modern International airport at Sialkot. PIA and other air companies operate regular flights from Sialkot to other parts of the country as well as on international routes.

The number of vehicles, notably private cars, has increased dramatically over the last few years, resulting in all kinds of environmental problems. Traffic load has far exceeded the carrying capacity of roads in Sialkot city, as well as in adjoining smaller towns. Valiant efforts are being made to cope with the situation by widening existing roads, and constructing new roads, with a further series of impacts on the environment, and with little overall result.

Energy Sources

Reserves of fossil fuels the main sources of energy in Pakistan and other sources include hydropower. In the study area there is no major source of electricity generation. In the urban areas, the main sources of energy are electricity, piped and bottled natural gas, and fire wood. The sourcing of fire wood and other biomass (especially in suburban and rural fringe areas) is concentrated on home garden production of fuel wood and the extraction of wood from forests, woodlands, crop plantations and agricultural residues. The other significant energy sources in the area are kerosene and LPG. There are numerous petrol stations, and LPG and CNG dealers in the district.

3.11 Quality of Life Values

Communities Population and Features

Demographics

The demography of the city is as under in Table 4.

Table 3: Demographic Profile of Sialkot City

Population		Growth Rate	House Hold	
1998	1981	1981-1998	Size	Number
2723481	2223481	2.76	6.20	244,723

Projected Population, City of Sialkot

As per Census-1998, the population of Sialkot was 5,77,744 persons and annual growth rate experienced during the period 1981-1998 was 3.14%. The projected population has been established as about 2,90,180 persons towards end of the year-2030, Figure 6.

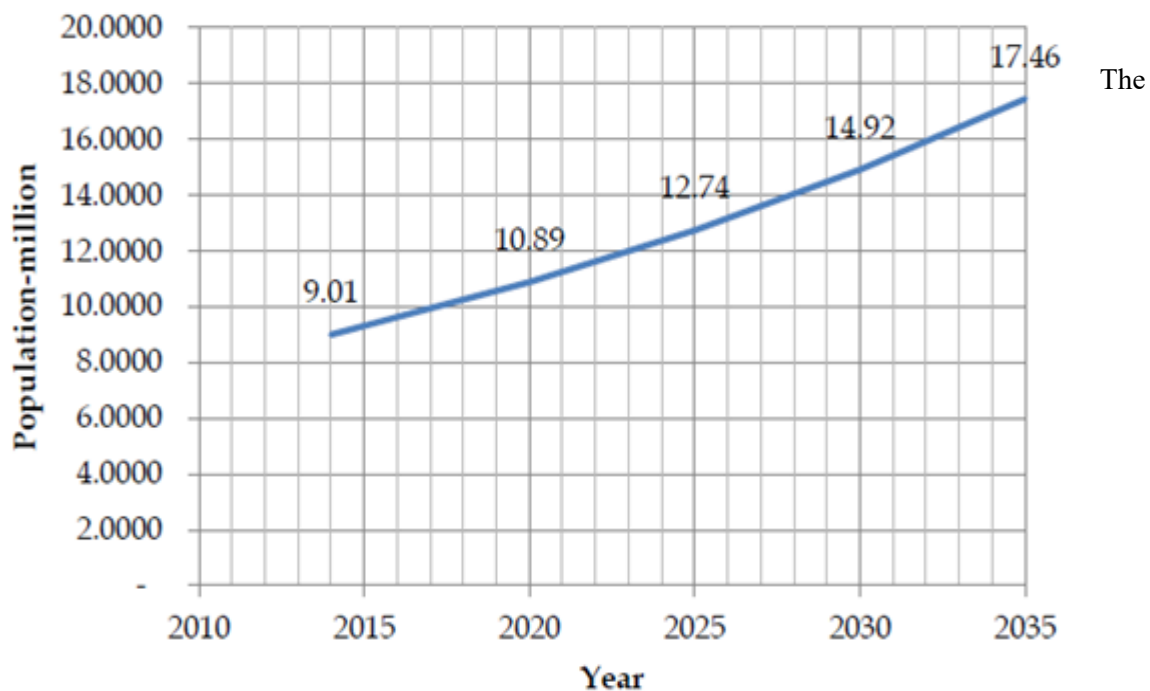


Figure 5: Projected Population of Sialkot

metropolis city of Sialkot is expanding at a rate of about 3.2% per annum and its present population of about 0.7 million is anticipated to be above 1 million by the end of Year-2035, the design period for the proposed roads. With increasing population coupled with socioeconomic level, the more and more vehicles will be on the road and result in congestions if additional capacity– convenient links are not provided.

Socioeconomic Conditions

Socioeconomic status (SES) is often measured as a combination of education, income and occupation. It is commonly conceptualized as the social standing or class of an individual or group. SES is a key factor that influences quality of life for children, youth and families.

Socioeconomic status (SES) is often measured as a combination of education, income and occupation. It is commonly conceptualized as the social standing or class of an individual or group. SES is a key factor that influences quality of life for children, youth and families.

Literacy Rate/Education

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

As regard to the level of Educational attainment, 15% and 18% of respondent were up to primary and middle level, respectively. However, 29% of respondents were matric, while remaining 20% of respondents were had education upto intermediate and 18 % were B.A and above.

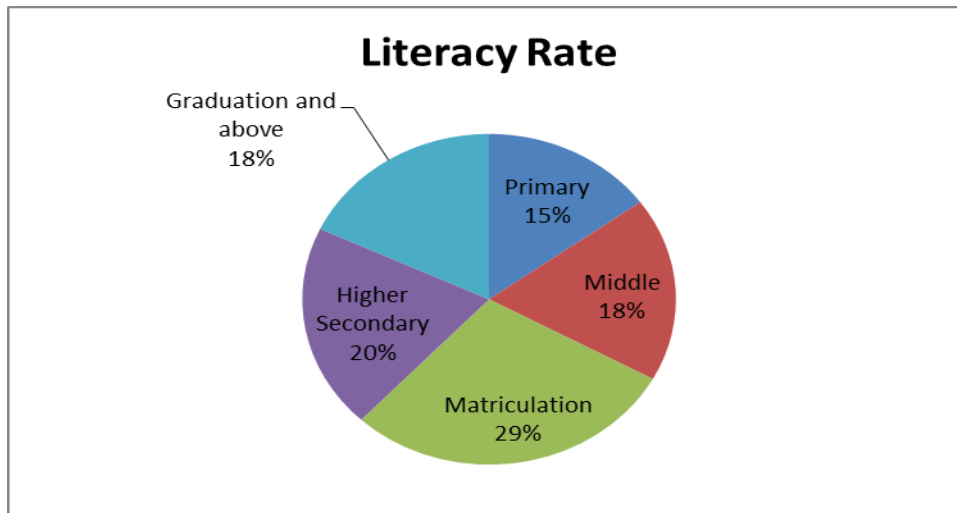


Figure 6: Literacy Rate of Project Area

Income

It is to notify that people living in the vicinity mostly belong to a middle class and upper class. Most of the people work privately and have business. Monthly income of the residents living in the proposed project area is given in Figure 7.

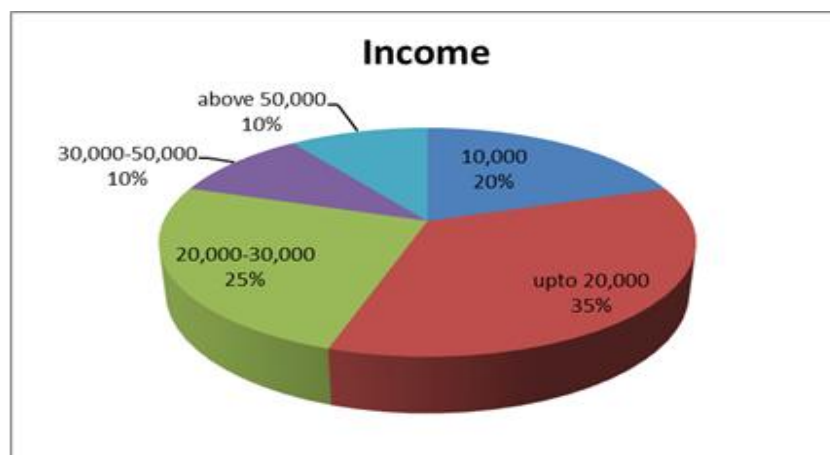


Figure 7: Income Level

Occupation

Majority of the people belong to medium socio-economic level. They are mostly working privately while some had government jobs but the percentage was very low. Mostly people in the area are shops owners, drivers etc. Percentage of the locals having different occupations is given in graph below.



Figure 8: Occupation of the locals

Languages

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

Dress

Majority of the people wear Qamiz and Shalwar. English dress; shirt and trousers are also common.

Health Facilities

Following health facilities are located around project site:

- Social Security Hospital (1 Km)
- Christian Hospital (2.5 Km)
- Fatima Memorial Hospital Hospital (8 Km)

Educational Facilities

Following Educational Facilities present near the project site:

- Classic School System (1.3 Km)
- Superior College, Pacca Garha Campus (0.8 Km)
- Mehbob Public School (0.5 Km)

Cultural, Archeological and Historical Sites

There are no officially protected heritage sites or historic, religious or archaeologically important sites located in the project work area. As the project site is located in the main city so there are a number of

mosques and graveyards within about 500 m of the works but no major historic or archaeological features are present.

➤ **Site Suitability**

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

3.12 Stakeholder Consultation

For ascertaining the perceptions of different stakeholders about the project, meetings were held with them. These meetings were held in an open atmosphere, in which participants expressed their views freely. Informal group discussions were also held as an additional tool for the assessment of the perceptions of the stakeholders.

Methods of Public Consultation

Public Consultation was carried out for a day. Socio-economic survey forms are attached as Annexure with IEE report. The following methods were used for public consultation with project stakeholders in order to ascertain their stakes regarding project implementation.

- Focused Group Discussion
- Scoping Sessions
- Formal Group Meetings
- Informal Group Meetings.

Project Response

93% of the respondents were of the opinion that this project should be implemented. In their opinion, construction of the project will create labor opportunities for locals and it will help to improve economic conditions of area. Construction of the Housing Scheme will also provide better living facilities to the people. The respondents also provided the mitigation measures like certified contractor must be hired, proper plantation should be done, proper procedures should be followed etc. They said, if mitigation measures will be implemented they would have no objection.

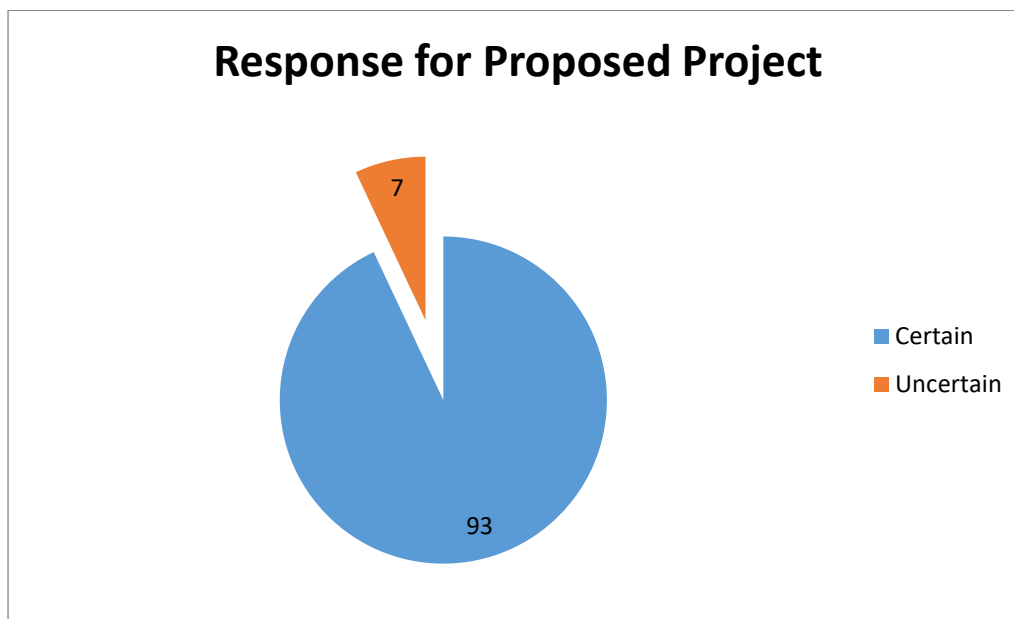


Figure 9: Percentage of people in favour or against the project

Concerns and Solutions

Table 4: Concerns of Stakeholders

COMPONENTS	CONCERNS	SOLUTIONS
Environmental Enhancement	Trees should be planted to avoid any impact	- Trees will be planted along boundary of project - Indigenous trees around the facility should be planted to control air pollution - Removal of shrubs and bushes should be avoided to the extent possible
Socio-Economic Uplift	Workers should be hired from local community	Proponent has considered hiring labor from local community to enhance the socio-economic condition of the area as this aspect is included in the scope of the proposed project.
Noise	As residential and commercial areas nearby	Proponent will ensure to restrict construction activities during night time. Labors will be trained to stop working in any nuisance caused by the activities.
Traffic Congestion	Busy area, commercial and residential settlements	Construction activities will be carried out at a designated place. Working will be slowed down

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		during peak hours. Construction material will be supplied at night time mostly to avoid any nuisance to public.
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CHAPTER # 04,

**SCREENING OF POTENTIAL ENVIRONMENTAL IMPACTS & THEIR
MITIGATION MEASURES**

The following chapter describes the overall possible impacts of said project on the physical, biological and socioeconomic environment due to the location, Design, during construction

phase, during operation phase of the project and mitigation measures to minimize the significance of the possible impacts. The anticipated impacts related to propose under the name of Construction of Wastewater Treatment Plant By M/S Leather Field (PVT) Limited (Tannery Unit) Located at Wazirabad Road, Sahowala, Tehsil Sambrial, District Sialkot. have been assessed and mitigation measures provided accordingly.

4.1 Assessment of Potential Impacts

4.1.1 Assessment Criteria

The impacts were assessed in the light of criteria given as under: -

- ☐ Magnitude or degree of impact
- ☐ Time and duration of impact
- ☐ Likelihood of impact occurrence
- ☐ Sensitivity of impact
- ☐ Risk related to impact

4.2 Environmental impacts due to the project location

4.2.1 Project Location:

The subject proposed Construction of Wastewater Treatment Plant By M/S Leather Field (PVT) Limited (Tannery Unit) Located at Wazirabad Road, Sahowala, Tehsil Sambrial, District Sialkot.

4.3 Impact

Subject project present in the urban area of the District Sialkot According to this area is suitable for the installation of Waste Water Treatment Plant

Nature of impact: indirect

Duration: Long-term

Timing: Construction phase

Reversibility: NA

Likelihood: Low (unlikely),

Consequences: very low or may be positive

4.3.1 Mitigation measures

- ☐ proponent/Developer should build the boundary wall all around the project.
- ☐ Proponent/developers should enhance the road infrastructure within the project and main link road.
- ☐ Proponent/Developers should place all the safety and location signs and maps at the specific indemnified place.
- ☐ Proper parking arrangements should be maintain during the construction and operational phase of the development
- ☐ Location can be considered as positive impact on the community due to the facilities provided to the community.

4.4 Environmental Impacts due to the project design

The subject project is Construction of Wastewater Treatment Plantn By M/S Leather Field (PVT) Limited (Tannery Unit) Located at Wazirabad Road, Sahowala, Tehsil Sambrial, District Sialkot.

The main objective of the project is to clean the waste water of the industry

- Reuse it again and again so that resources can be conserved.
- Proposed project also increases job opportunity for locals.
- Pollution level will be reduced by the WWTP plant

Following are the major Environmental impacts due to the development related to the design:

4.4.1 Impacts

- ☐ Structural stability of the proposed project
- ☐ Soil structure and soil bearing capacity
- ☐ Emergency exit in theproposed area emergency situations
- ☐ Firefighting system
- ☐ Wastewater disposal system design

- ☐ Rain water harvesting capacity of the drainage system
- ☐ Electricity hazardous

Impact significance: moderate to high or may be negative

Nature of impact: direct

Duration: Long-term

Timing: Constructional phase & Operation phase

Reversibility: NA

Likelihood: moderate to high

Consequences: moderate to high or may be negative

Mitigation measures and recommendations

Following are the mitigation measures and recommendation to minimize the anticipated impacts

- ☐ Design of Waste Water Treatment plant is approved
- ☐ Road infrastructure should be according to the laws and regulations
- ☐ Firefighting system should be design for the emergency situations

- ☐ Waste water drainage should be design vast to bear the rain water
- ☐ Electricity system should be design safe and sound, electricity wires should be covered by thick plastic/electricity resistant covers.

4.5 Environmental impacts during the construction phase

The subject project is Construction of Wastewater Treatment Plant By M/S Leather Field (PVT) Limited (Tannery Unit) Located at Wazirabad Road, Sahowala, Tehsil Sambrial, District Sialkot.

- The main objective of the project is to clean the waste water of the industry
- Reuse it again and again so that resources can be conserved.

- Proposed project also increases job opportunity for locals.
- Pollution level will be reduced by the WWTP plant.

Environmental impacts during the constructional phase are following

Construction Stage Impacts

Construction of Wastewater Treatment Plant by M/S Leather Field (PVT) Limited (Tannery Unit) Located at Wazirabad Road, Sahowala, Tehsil Sambrial, District Sialkot. during the construction phase may cause the following anticipated impacts/vulnerabilities on the environment:

Impacts on Physical Environments

- ☐ Grubbing and stripping
- ☐ Leveling and compaction of the land
- ☐ Demarcation of project building and other facilities
- ☐ Generation of dust during loading and unloading of construction materials.
- ☐ Generation of noise on account of vehicular use and construction activities.
- ☐ Gaseous emission due to the vehicles and stand by generator (if any)
- ☐ Local flooding due to over-use of water and leakage of pipes.
- ☐ Safety of construction workers, people in the surroundings and passersby.
- ☐ Any outbreak of fire due to electrical and other failures.
- ☐ Solid waste generation due to domestic and construction activities.
- ☐ Wastewater generation from the domestic and constructional activities
- ☐ Ground water quality affects due to the development

4.6 Impacts on Biological Environments

- ☐ The project site is devoid of any significant vegetative cover. Only few plants are present. Nil impact is envisaged.
- ☐ The fauna including wildlife species do not exist at the project site. The impact will be nil.

4.7 Impacts on Socio-economic Environments

- ☐ Because of presence of security guards round the clock the security at the project site will improve as well as in its vicinity. Impact will be moderate positive.
- ☐ Land value in the surrounding area will increase due to completion of the present project. Impact will be moderate positive.
- ☐ The project does not involve dislocation of the people. There is no requirement of resettling a single person. Impact is nil.
- ☐ No movable or immovable property and infrastructure of public and private sectors will be lost or damaged during construction and operation stages. Impact will be nil.

4.8 Operation Stage

Following points must be implemented during the operation stage.

- ☐ Keep water supply, sewerage disposal and electric supply in working condition.
- ☐ Wastewater will pass through Septic tanks Then it will be disposed in existing nearby sewer drain
- ☐ Solid wastes and sweepings will be stored in properly placed bins and handed over to contractors.
- ☐ Keeps the firefighting arrangements in working condition at all times at oil storage area. Contacts of fire brigades are displayed at prominent places in the project's building.

4.9 Potential Environmental Enhancement Measures

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

- ☐ Sprinkling of water will be done on dusty road and tracks
- ☐ PPEs will be provided during construction activity

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- ☐ Constructional waste and domestic solid waste will be disposed-off or utilized properly
- ☐ Local people will be informed in advance when work is about to start in an area
- ☐ Machinery will never be left unattended
- ☐ Efforts should also be made to discuss traffic conditions so that regular traffic is not disturbed. Transporters engaged for the project would be forced to adhere to the load specifications of the access road. No overloading would be allowed in any case.
- ☐ Safety signs and boards will be placed during construction
- ☐ Air pollution controlling devices will be installed within the project during operation
- ☐ Machinery will be kept maintained
- ☐ Waste water will be treated through waste treatment plant that will be installed within the industry
- ☐ Proper SOPs will be followed with proper schedule along with the HSE conditions
- ☐ Area will be restored with native plants. A proper tree plantation plan will be formulated to save the environment
- ☐ Solid waste will be handed over to contractors and agreement will be made.
- ☐ Noise will be controlled by adopting proper measures
- ☐ PPEs will be provided to workers during working
- ☐ Firefighting equipment's and system will be installed
- ☐ Safety signs will be placed at all locations where required
- ☐ Hygienic conditions will be ensured and proper quality will be maintained by quality control testing.
- ☐ First aid facilities will be made available
- ☐ Any possible measure will be adopted to make the project safe and environmentally friendly.

4.10 Planning, Site Selection and Design Stage

4.10.1 Land Use Planning

The present plot was empty for long time. Construction of the project will provide the optimum use of this resource.

4.10.2 Presence of Hazardous Conditions

The site is free of any natural and man-made hazardous conditions to cause any negative impact.

4.10.3 Environmentally Sensitive Areas

The area is essentially commercial. Therefore, environmentally sensitive localities do not exist.

4.10.4 Disturbance to other Site Users

The site is not used by others as it is the property of Construction of Wastewater Treatment Plant By M/S Leather Field (PVT) Limited (Tannery Unit) Located at Wazirabad Road, Sahowala, Tehsil Sambrial, District Sialkot.

4.10.5 Availability of Essential Services

Water supply, drainage and sewerage disposal systems are present at proposed site.

4.10.6 Water Supply

Water is needed for cleaning, fire protection and for drinking purpose. Minimum one day's reserve will be kept at the project site. Water will be tested for chemical and bacterial contamination.

4.10.7 Storm Water Drainage

Storm water run off will be directed into drains.

4.10.8 Waste Water

Waste water will be treated in septic tanks and then directed to drains.

4.10.9 Communication Infrastructure

The project site is well served by road network.

4.10.10 Availability of Construction Materials

The contractors either provide the construction materials like cement, steel and bricks at the site on as required basis or these are procured by the proponent. All the construction materials are locally available.

4.10.11 Skilled and Unskilled Labor

These workers are available at economical rates all the time. The project provides the jobs to the local residents as well as to those from the suburban areas.

Extensive operational & maintenance training will be imparted to staff through well-defined training program before and during system commissioning.

4.10.12 Extraction of Ground Water

The water requirement will be fulfilled by ware house.

4.10.13 Traffic Issues

Vehicle access is required especially for transportation. The site is well served with the road network. Heavy traffic will be allowed only during tight time during construction phase. The traffic issues at any stage of project life cycle will not arise.

4.11 Operation Stage

- ☐ About 10-15 persons will occupy the project site. The projects' operations will be kept in working condition so that the workers may give their input in environment friendly conditions.
- ☐ Management Committee will supervise the smooth functioning of the project site. All the activities will be managed by the qualified and experienced engineers.

4.11.1 Types of Negative Impacts

4.11.2 Minor Impacts

These are of minor intensity. For mitigation of the minor impacts routine and limited actions are required.

4.11.3 Moderate Impacts

These impacts need specific and additional mitigation measures.

4.11.4 Major Impacts

These impacts have severe adverse impact. These are intolerable. All possible preventive and multiple control measures are adopted to minimize their intensity and duration.

4.11.5 Impacts on Physical Environments

4.11.6 Groundwater Quality and Level

The proposed project would not affect the quality and level of groundwater. Projected impact is nil.

4.11.7 Land Utility

It will increase significantly since the project has been planned to be constructed on the existing unused area.

4.12 Purpose of Mitigation measures

Purpose of mitigation measures should include:

- ☐ **What is the problem i.e. in terms of “major environmental impacts” which may arise by the subject project activity?**
- ☐ **When the problem will occur and when it should be addressed**
- ☐ **Where the problem should be addressed**
- ☐ **And how the problem should be addressed**

The major impacts may arise by the subject project, particulate matter, dust, noise, solid waste, and waste water. Other impacts are of minor importance. These impacts will arise

during construction and operation but precautionary measures will be adopted prior to start the activity, during the activity and post activity.

Any impact that would arise due to the subject project activity will be addressed on site. Trainings will be conducted on site prior to start work while other precautionary measures will also be adopted to make the project safe and environmentally friendly.

HSE manager/environmental manager along with site manager will be appointed to assess any impact that could be arisen during both phases. He would be responsible to address the problem and to mitigate it.

4.13 Ways of achieving mitigation measure

By adopting proper mitigation measures, any anticipated major or minor environmental impacts could be controlled or mitigated. The detail of impacts and mitigation measures have been discussed previous chapters.

Construction of Wastewater Treatment Plant By M/S Leather Field (PVT) Limited (Tannery Unit) Located at Wazirabad Road, Sahowala, Tehsil Sambrial, District Sialkot. shall take appropriate measures to provide pollution free and safe environment during the proposed project activity by implementing improved management practices and monitoring techniques suggested in EMP.

Construction of Wastewater Treatment Plant By M/S Leather Field (PVT) Limited (Tannery Unit) Located at Wazirabad Road, Sahowala, Tehsil Sambrial, District Sialkot. will adopt such plan that will assure the minimum impact on the environment and health by implementing proper mitigation measures. Design of the plant will assure the structure stability and plant life in a long run.

Ware house will develop Restoration/ reclamation or tree plantation plan to restore the project area. Maximum Plantation will be done with native species within the unit, along the boundary wall and along the road side if directed by EPA. Also, in-front of main area, horticulture plan will be formulated and area for this will be kept reserved.

4.14 Undertaking

The proponent has committed to comply with the relevant construction by-laws/ safeguards and the environmental enactments for the environmental preservation. Project proponent has given Undertaking and Affidavit a respectively

CHAPTER # 05,

ENVIRONMENTAL MANAGEMENT PLAN & MONITORING PROGRAM

5.1 Purpose and Objectives of the EMP:

The primary objectives of the EMP are to:

- ☐ Facilitate the implementation of the mitigation measures identified in the IEE
- ☐ Define the responsibilities of the project proponent.
- ☐ Define a monitoring mechanism and identify monitoring parameters in order to:
- ☐ Ensure the complete implementation of all mitigation measures

- ☐ Ensure the effectiveness of the mitigation measures
- ☐ Provide a mechanism for taking timely action in the face of unanticipated
- ☐ Identify training requirements at various levels.

5.2 Management Approach:

The overall responsibility for compliance with the environmental management plan rests with the project proponent.

A certain degree of redundancy is inevitable across all management levels, but this is in order to ensure that compliance with the environmental management plan is crosschecked.

5.3 Institutional capacity

Following functionaries will be involved in the implementation of EMP:

- ☐ Project Proponent
- ☐ HSE/Project Manager
- ☐ In-Charge Administration
- ☐ Supervisor of project
- ☐ Environmental Engineer

Training for the management/contractors/engineers and workers on environmental aspects of the project will be arranged. It will be imparted by a team of experienced trainers.

5.3.1 Training of building contractor

Training of building contractor & workers will be the part of the TORs regarding the construction of the project. The provisions given in EIA Report *Chapter 5 Screening of Potential Environmental Impacts & Their Mitigation Measures* will be followed.

TORs will be including the training and submission of reports in the following area:

1. Handling of Machineries in a safe way
2. Use of PPEs
3. Maintenance of vehicles and submission of Environmental Monitoring Reports
4. Maintenance of Water Consumption records

5. Testing of water and waste water and submission of Environmental Monitoring Reports
6. Placement of safety signs/boards during construction
7. Sprinkling of water on the roads and dusty tracks
8. Monitoring of generator emissions

Training regarding all other aspects of HSE will be ensured by the contractor during the construction phase.

5.4 Responsibility of EMP

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

5.1 Implementation of EMMP

The implementation of EMMP should be carefully coordinated with the design and operational program of the project. This will ensure the implementation of relevant mitigation measures at the appropriate project stages. It will also ensure that adequate resources are properly allocated to achieve the desired results. This EMMP has been prepared to satisfy the requirement of “IEE and EIA Regulations, 2000”.

5.2 Environmental Budget

The environmental budget of the project has been given in Table 5-1

Table 5-1 Environmental Budget Breakdown

Sr. No.	Item/Activity		Quantity (No.s)	Budget (PKR)	Description
1	Plantation Campaign		100	20,000/-	Cost includes plantation and maintenance up to 5 years
2	Cost of EMMP		-	95,000/-	Installation + Operational Phases
3	Environmental	Air Quality Monitoring	01	10,000	01 sample @ 10,000/- per sample
		Noise Level Monitoring	02	15,000	02 samples @ 7,500/- per sample

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	Monitoring	Drinking Water Quality Monitoring	01	10,000/-	01 sample @ 10,000/- per sample
4	Miscellaneous			50,000/-	Lump sum
5	Total Environmental and Social Management Cost			200,000/-	

5.3 Environment Management Team

Following functionaries will be involved in the implementation of EMMP:

- The project Proponent as owners of the EMMP.
- Project contractor(s) as executors of the EMMP during installation and operational phase of the project.
- Operational & Maintenance (O&M) and the Health, Safety and Environment team of the project as an executor of the EMMP during the installation and operational phase of the project.

Table 5-2: List of Individuals and their Responsibilities

Designation	Responsibilities
Manager	• Direct operations at the site. • He will act as team lead. • Interact with other executives, mine staff and community residents. • Effectively motivate staff to follow protocols and to work productively. • Look after the Health and Safety Related issues. • Responsible for scheduling staff and ensuring that supplies are stocked. • He will play a direct role in developing business goals for the mine they run, and he will help to produce a business plan to ensure that those goals are met.

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Accountant	• Proper management of the funds for the CSR. • Development of fund proposal for environment related expenses. • Ensuring the smooth transaction of funds for environmental related projects/activities. • He will prepare the yearly budget. • Taking minutes in meetings and other administrative duties. • During his shift timings, he will be responsible to look into smooth functioning of the process in environmentally sustainable way. • He will be responsible to rectify any problem regarding environmental matter in collaboration with concerned authorities. • Prepare reports on different events and incidents. • He will report all matters regarding E.M. to the manager.
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➤ ***Environmental Practitioners and Experts***

Name	Post	Qualification
Mekaal Zafar	HSE Manager	MPhil Environmental Sciences (NEBOSH)
Usama Iqbal	HSE Officer	MPhil Environmental Sciences
M Abuzar	Senior Environmentalist	BS Environmental Sciences
Iqra Zahid	Senior Environmental Officer	MPhil Environmental Sciences
M Haris	HSE Officer	BS Environmental Sciences
Ramsha Shakeel	Environmentalist	BS Environmental Sciences
Amir Husnain	Environmentalist	BS Environmental Sciences

• **Proponent Environment Management Team**

Mekaal Zafar	HSE Manager
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Usama Iqbal	HSE Officer
M Abuzar	Senior Environmentalist

Table 5.1 Impacts and Mitigation Measures

Serial	Environmental Issues/ Impacts	Mitigation Measures
PLAN NING, SITE SELECTION AND DESIGN STAGE		
1	Observance of administrative and legal formalities	Project proponent has obtained some NOCs like approval for disposal of liquid waste and some are in process
2	Acquisition of land	The proposed land is the property of the project proponent.
3	Loss of environmentally sensitive areas	There is no any sensitive area near the project site however the project proponent will achieve the PEQS at the boundary wall of the subject project to avoid the environmental impacts on the surrounding area
4	Changes in traffic Pattern	Prepare suitable in/out traffic plans
5	Potential conflicts with stakeholders	There is no any conflict at the current stage of the project. It is recommended to Settle the issues through scoping and specific group discussions.

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6	Resettlement issues	No resettlement issues
SITE DEVELOPMENT AGEST		
1	Erosion due to stripping and site clearance	Sprinkling of water on road side
2	Generation of dust	Careful loading and unloading of construction materials is recommended. Sprinkling of water on construction site and surrounding areas is recommended.
3	Generation of noise	☐ Avoid using forbidden horns at the site. ☐ Do not throw heavy equipment and construction materials in haphazard manner.
4	Local flooding/ponding	Immediate repair and maintenance of water supply pipes and sewers in case of any defect will be undertaken.
5	Outbreak of fire	Firefighting equipment must be maintained at the site in good working condition.
6	Safety	Safety of the workers and others must be ensured. Privacy of the neighbors must not be disturbed.

**CONSTRUCTION OF WASTEWATER TREATMENT PLANT
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7	Labor issues	Employ the local labor as far as possible
CONSTRUCTION STAGE		
1	Minor erosion of land	☐ Add more vegetation, restore the land by more plantation ☐ Sprinkling of water on dusty tracks is recommended
2	Contamination of land and water	Essential services like water supply, sewerage disposal and solid waste management must working condition.
3	Impacts of dust, noise and flue gases on neighbors	Schedule construction timings to cause minimum disturbance to neighbors.
OPERATION STAGE		
1	Contamination of land and water sources	Continuous vigilance on maintenance of services Tarpaulin sheets must be placed to avoid leaching of oil into ground
2	Fire breakouts	Firefighting equipment must be kept in working condition at specific area
3	Safety/security concerns	Safety of the workers and others must be ensured

		☐ Privacy of the neighbors will not be disturbed.
4	Malfunction of utilities	It is proposed to appoint maintenance engineer with technicians like plumber and electrician for smooth operation of utility services.
5	Occupational Health, Safety and Environment	☐ Regular medical check-ups are recommended to improve the working condition and efficiency of workers. Safety of management, workers and visitors must be ensured. Observance construction and safety codes must be ensured.
6	Production of Solid Waste	Area for solid waste must be reserved within the subject project. The solid waste must be managed on regular basis. The domestic waste must be disposed off.

5.5 Environmental Technical Assistance and Training Plan

In order to raise the level of professional and managerial staff, there is a need to upgrade their knowledge in the related areas. HSE/Project Manager should play a key role in this respect and arrange the training programs.

HSE/Project Manager will provide training to staff and workers about the best environmental management practices at the construction site and affective implementation of the EMP.

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The training modules will include air, noise and water pollution monitoring, social awareness, Environmental Laws, Punjab Environmental Quality Standards (PEQS),

Usage of personal protection equipment's, and health and safety related issues on the construction site.

The HSE/Project Manager will train all workers & staff in basic sanitation and health care issues (e.g., how to avoid malaria and transmission of Sexually Transmitted Infections (STI) HIV/AIDS and in general health and safety matters, and on the specific hazards of their work. Training should also consist of basic hazard awareness, site specific hazards, safe work practices, and emergency procedures for fire, evacuation.

HSE/Project Manager will arrange Training on monthly or quarterly basis regarding health & safety, hygiene, firefighting and first aid.

Summary of Environmental Impacts and Mitigation measures is present in following table in term of Environmental Management Plan:

Table 5.2 ENVIRONMENTAL MANAGEMENT PLAN

Serial No	Environmental Parameter/Element	Mitigation measure to be taken during:		Responsibility
		Construction	Regular operations	
Physical Environment				
1	Waste water	The sewage to be generated shall be discharged into the WWTF for its treatment and then it will drain into nearby drain Domestic/construction waste water after Treatment in septic tank will be drained into nearby local sewage drain. Periodic cleaning of the WWTF is Recommended	The sewage to be generated shall be discharged into the WWTF for treatment at PEQS levels. As there will be no chemical contamination, therefore, simple oxidation may reduce its pollution load. Road cuttings to lay sewer shall be done after due permission from the concerned authority. Sewage and other waste effluents will be handled to avoid contaminating surface and groundwater. No contaminated effluents will be released into the environment without having been treated. Monitoring will be conducted by EPA certified lab if required	Environmental/Project Manager

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2 -	Health & safety	Local people will be informed in advance when work is about to start in an area. This may result in people keeping young children away from work areas. Safe driving practices will be adopted, particularly while passing through settlements Job opportunity will be provided to local people of the area Basic health facilities will be provided to employees	Fire Fighting Equipment's & system will be installed. Basic health facilities will be provided to Employees Security guards will be present Job opportunity will be provided to local people of the area	Environmental/Project Manager
3 -	Water supply	It shall be ensured that no activity tempers with the water supply system.	It shall be ensured that no activity tempers with the water supply system. Project proponent committed to provide safe drinking water to all workers and staff	Environmental/Project Manager

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4	Solid wastes	Limited solid wastes from the construction activities shall be segregated and duly disposed of. The solid redundant materials will be disposed of away from the city adequately. None of these wastes shall be accumulated on site. It shall be ensured that none of the wastes or materials of construction spread on the public roads or on the foot path or else. Construction Solid waste will be stored in solid waste bins and will be handed over to FDA Solid waste management division, and also, construction waste will be used for road repairing and maintenance purpose.	Solid waste will be handed over to the local Government after collection from houses. Solid waste bins will be placed at suitable places Area for solid waste disposal will be allocated within the subject project Sludge will be replaced on regular basis. Proper solid waste management system will be adopted.	Environmental/Project Manager
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5	Noise	In order to avoid noise in the project area, vehicles to carry raw materials, shall be operated during night time as far as possible. The project construction activities don't involve any activity which may create high noise levels. Ear plugs will be provided & implemented.	In order to avoid noise in the project area, vehicles to carry domestic and commercial materials, shall be operated during night as far as possible. No activity producing extra ordinary levels of noise will be allowed as a policy matter. Generators will be installed in a specially constructed room where its noise will be curtailed within the limiting values of the	Environmental/Project Manager
6	Gaseous emissions and particulate matter/dust emissions	Construction materials i.e. sand, clay and like shall be transported to the project site during night time and will be stored away from the road or foot path. They will be kept under cover to avoid any fugitive dust. Dust may generate during unloading of raw materials.	Diesel fired generator shall cater for emergency situation only. Their exhaust will be emitted through an adequately fabricated stack. Scrubbers/dust collection system will be installed at the stack of generator if required.	Environmental/Project Manager

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		All equipment, generators, and vehicles used during the project will be properly tuned and maintained in good working condition in order to minimize exhaust emissions. All project vehicles will be checked emitting smoke. Ambient air quality has been monitored by EPA certified Lab and results are incorporated within the report.	Monitoring will be conducted as per PEQS if required	
7	Soil erosion	The clearing of vegetation along proposed site will be minimized as far as possible. Minor & scattered vegetation is present that include shrubs and grasses only. Open fires will not be allowed anywhere outside the proposed site.	Maximum plantation is recommended within at outside the land subdivision and for this area is reserved. Tarpaulin sheets will be placed under generator (s), and other leaching substances. Land will be restored by planting indigenous plants	Environmental/Project Manager

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		Fuel-wood and shrubs will not be used as fuel during project activities.		
8	Traffic related Problems	The vehicles number will be regulated in a way that no stampedes occur on the site. As far as possible, large size vehicles in very limited number may visit the project site during night time.	The project site has additional area reserved exclusively for parking cars and motor cycles. No vehicle or motor cycle will be allowed to be parked in the front of the road and project as well.	Environmental/Project Manager
9	Trash burning	No trash burning will be allowed in or out side the unit building.	No trash burning will be allowed on the roads and streets.	Environmental/Project Manager
10	Dust	The open place in front of the building will be duly cleaned after sprinkling of water to avoid any dust to spread around.	Plantation will be ensured in open space to avoid dust.	Environmental/Project Manager
BIOLOGICAL ENVIRONMENT				
11	Fauna and Flora	Proposed site is devoid - off any protected species of both fauna & flora	Awareness programs will be planned regarding the protection of fauna & flora. Species of Indigenous plants will be planted at site.	Environmental/Project Manager

SOCIOECONOMIC IMPACTS				
12	Resettlement Issues	There is no any issue of resettlement due to the construction of the subject project.	There will not be any issue of resettlement due to the operation of the subject project.	Environmental/Project Manager
13	Change in Cultural Language	Maximum employment of Local people is recommended to preserve the local cultural language. It will help in communication with the local people to resolve any emerging issue near the project area	Maximum employment of Local people is recommended to preserve the local cultural language. It will help in communication with the local people to resolve any emerging issue near the project area	proponent
14	Education	School and colleges exist in the area. The project proponent will initiate an educational awareness program.	School and colleges exist in the area. The project proponent is committed to initiate an educational awareness program	proponent
15	Health	Heath facility already exists near the project site at the distance of about 1- km. The project proponent should provide first aid facilities at site and also social security and medical checkups of the workers.	Heath facility already exists near the project site at the distance of about 1- km. The project proponent is committed to provide first aid facilities at site and also social security and medical checkups of the workers.	proponent

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16	Culture, Norms of the area	Maximum local employment should be ensured to preserve the culture of the Area	Maximum local employment should be ensured to preserve the culture of the Area	proponent
17	Gender inequality	Women involvement in decision making process should be ensured.	Women involvement in decision making process should be ensured.	proponent

5.6 Monitoring Plan

Proponent will ensure overall monitoring the project so that all intended activities may take place in accordance with environmental assessment.

5.7 Training Plan

Training for the management/contractors/engineers and workers on environmental aspects of the project will be arranged. It will be imparted by a team of experienced trainers.

5.8 Need for Disaster Management and Emergency Response System

In order to cope up with the possible hazards it is imperative to prepare the Disaster Management Plan and rehearse it frequently. To evaluate effectiveness of the system preparedness exercises and drills should be undertaken frequently. Small courses should be run to train the relevant persons about their actions during emergency. The administration staff need be familiar with the firefighting procedures and equipment.

5.9 Components of Fire Management Plan

5.9.1 Background Information

The likely causes of the breakout of fire are short-circuiting of electricity, throwing of cigarette, combustible materials catching fire and damaged gas pipes.

5.9.2 Immediate / First Line Actions

The occupants must evacuate the building using the stairs, ramps & lobby and emergency exits. Evacuation plan should be hoisted at many places. Evacuation of building should be completed within 2/3 minutes time.

5.9.3 Calling the Fire Brigades

The contacts (telephones, call and fax numbers) of local fire brigades should be boldly written at each floor on the notice boards so that any person may call them for immediate assistance. Information about the firefighting facilities in the nearby urban centers should also be handy all the time.

5.9.4 Medical Aid

Information be immediately passed to the nearby medical hospitals and centers for recovery of the wounded persons. First aid boxes should be kept at suitable places. Some of the employees should obtain formal training about medical first aid

5.9.5 Fire Fighting Procedures

- ☐ To ensure availability of adequate water for firefighting purpose dedicated water tank should be earmarked.
- ☐ It should be ensured that during firefighting operation enough space is available for movement of vehicles and personnel.
- ☐ In addition to the above the firefighting personnel from Fire Brigade Department should be in possession of the required pieces of equipment like fire man suit, fire blankets, Fire torch special for looking in smoke, gloves (rubber & canvas), goggles, helmets plastic, gum boots, gasmasks, Oxygen cylinder/breathing apparatus, fireman axe, shovel, first aid box (complete), ladder, metal detector.
- ☐ Regular monitoring of all the significant environmental issues is essential to check the compliance status of EMP. The main objective of the monitoring will be;
- ☐ To verify the results of the environmental study with respects to the proposed project.
- ☐ To estimate the trends of concentrated values of the issues, which have been identified as critical and then planning the mitigating measures.
- ☐ To assess the efficiency of pollution control mechanism.

To ensure that any additional parameters, other than those identified in the EIA Report, do not turn critical after the commissioning of said project.

5.10 Aim of Monitoring

The aim of monitoring is to oversee the environmental performance of the project through its lifecycle enforcing the PEQS. Timely implementation of mitigation measures leads to sustainable environmental management of the project.

5.10.1 Environmental Monitoring Plan

- ☐ The monitoring will be carried out in accordance with PEQS.
- ☐ Monitoring program will be undertaken for compliance of mitigation measures.
- ☐ Monitoring for various parameters will be done during construction, commissioning and operation stages.

5.11 Performance Indicators

The performance indicators / parameters having significant impact on physical, biological and socio-economic environments will be evaluated. These are given below:

- ☐ **Ambient Air Quality**
PM10, CO, NOx, HC and SO2
- ☐ **Water Quality**
TDS, TSS, COD, oil and grease, chloride, lead, zinc and cadmium
- ☐ **Noise Levels**
- ☐ **Soil Quality**
Lead, chromium, cadmium hydrocarbons
- ☐ Tree plantation

5.12 Environmental Monitoring Cell (EMC)

EMC of the project will undertake monitoring of the Safety, Health and Environmental Aspects. It will ensure implementation of EIA Report and apprise the General management of the project on fortnightly basis.

5.13 Environmental Technical Assistance and Training Plan

In order to raise the level of professional and managerial staff, there is a need to upgrade their knowledge in the related areas. Environment/HSE/Project Manager should play a key role in this respect and arrange the training programs.

Environment/HSE/Project Manager will provide training to staff and workers about the best environmental management practices at the construction site and affective implementation of the EMP.

The training modules will include air, noise and water pollution monitoring, social awareness, Environmental Laws, Punjab Environmental Quality Standards (PEQS), Usage of personal protection equipment's, and health and safety related issues on the construction site.

The Environment/HSE/Project Manager will train all workers & staff in basic sanitation and health care issues (e.g., how to avoid malaria and transmission of Sexually Transmitted Infections (STI) HIV/AIDS and in general health and safety matters, and on the specific hazards of their work. Training should also consist of basic hazard awareness, site specific hazards, safe work practices, and emergency procedures for fire, evacuation.

Environment/HSE/Project Manager will arrange Training on monthly or quarterly basis regarding health & safety, hygiene, firefighting and first aid.

5.14 Monitoring of Quality

The EMC will arrange monitoring of the quality of air, water, noise and waste water on quarterly or monthly basis from any EPA Certified/approved laboratory if required.

5.14.1 Monitoring Stages/Plan

Monitoring Stages

Monitoring of environmental parameters need to be carried out during the following stages in addition to post-project period:

- ☐ Construction Stage
- ☐ Operation Stage

5.15 Monitoring Plan

Following aspects need to be monitored during construction and operation stages:

- ☐ Air quality
- ☐ Water quality
- ☐ Noise level
- ☐ Management of utility services including water supply, sewerage disposal, electric supply and solid wastes.

EPA Certified conducted the monitoring for environmental parameters for Noise level at proposed Waste water Treatment Plant at different locations, and Ambient Air, Waste water and results for those are incorporated within this report.

5.16 Summary of Impacts and their mitigation measures

5.17 Equipment Maintenance Detail

The proponent of the subject project will maintain records for Health Safety & Environment and will hire Environment/HSE manager to check and deal with the HSE issues. The subject project will maintain medical facilities, firefighting Equipment's as fire buckets, fire hydrants and fire extinguishers and records for their periodic fillings or replacement and will ensure proper housekeeping and essentials facilities.

Chapter# 06,

INVOLVEMENT OF STAKEHOLDER/ PUBLICCONSULTATION

6.1 EIA and Public Consultation Process

Consultation with stakeholders is an important tool through which people with interest in the project (stakeholders) influence and share control over development initiatives and decisions and resources that affect them. It is a tool for managing two-way communications between the project sponsors and concerned public. The goal is to improve decision - making and build understanding by actively involving individuals, groups and organizations which have a stake in the project. Their involvement increases project's long-term viability and enhances benefits to locally affected people and stakeholders.

Stakeholder participation in planning and management of the social and environmental issues assists in reducing the concerns of stakeholders and hence increases public acceptance towards development programs. Consultation process entitles the stakeholders with opportunities to participate in key decisions that will affect their lives. Therefore, detailed public consultation meetings were arranged at different levels of the planning process. For this purpose periodic consultation meetings were held with various project stakeholders. Different aspects and impacts of the proposed project were highlighted regarding their impacts on the physical, biological, and socio-economic environment of the project area. Stakeholders' trepidations regarding various aspects like existing environment, and impacts of the project on the surrounding environment were emphasized and have been added to this EIA report.

6.2 Proponent

Mr. Kaiser Mahmood Cheema S/o Choudhry Muhammad Hussain Cheema R/o House No.5,
Zafar Ali Road, Sialkot Cantt, Tehsil & Distict Sialkot

• **Proponent Environment Management Team**

Mr. Mekaal	HSE Manager
Usama Iqbal	HSE Officer
M Abuzar	Senior Environmentalist

6.3 Objectives of the Public/Stakeholders Consultation

Public consultation plays a vital role in studying stakeholders' perspectives regarding the project and henceforth the successful implementation and execution of the proposed project. Public involvement is a compulsory feature of Environmental Impact Assessment, which leads to improved and acceptable decision-making. The primary objective of the stakeholders' consultations was to learn and know the apprehensions, concerns, and opinions of the key stakeholders over environmental implications of the project activities from public perception. The consultation sessions also served as a source of firsthand information about the users and the beneficiaries' expectations from the project. Dialogue with the stakeholders and recording their concerns at appropriate stages of the project would help to tailor the project in line with stakeholders' aspirations and so increases the likelihood for public acceptance of the project and its subcomponents. It also helps to develop and maintain communication links between the project proponents and stakeholders, providing opportunities to the public to influence the project design in a positive manner. This ensures that the views and concerns of the stakeholders are incorporated into the project design and implementation with the objectives of reducing or offsetting negative impacts and enhancing benefits of the proposed project.

6.4 Methodology

6.4.1 Responsible Authority

The consultation process began with the identification of the most pertinent stakeholders. Identification of the stakeholders for the proposed project plays a crucial role in development and also assists in quantifying the role of different stakeholders involved. Impacts identified by the stakeholders are measured through matrix method and mitigation measures are proposed according to the intensity of the identified impacts. Efforts were made to identify the relevant stakeholders through a systematic process based on the nature and degree of their actual and perceived stakes related to the project.

6.4.2 Issues Discussed with the stakeholders

Following issues were discussed during the stakeholder consultation meetings:

- Concerns, apprehensions, and views of the community and the stakeholders over the project activities relating to design, construction and operational aspects.
- Probable adverse impacts of the project activities on various components of the environment i.e., physical, biological, and social components

- Possible remedies for the concerns and apprehensions, how the concerns can be effectively addressed?

Identification of any specific personal or site related concerns

- How the project operations can happen in accordance with user/beneficiaries' expectations?
- Beneficial factors and involvement opportunities of the local people in the set of activities of project during construction and operational phases.
- Material's transport management during construction and operational phase of the project.
- Management of water, wastewater and solid waste during construction and operational phase of the project.
- Natural hazards, associated risks and precautionary measures.
- Traffic issues subjected to activities during different phases of the project.

6.5 Environmental Practitioners and Expert

According to the EIA rules and regulations this report will be compiled and submitted to the Environment Protection Department (EPD) and after the review on the report this report will be disseminated to the public. This dissemination and information sharing exercise will then be followed by public participation through print media in which the public will be requested for their reviews. The copies of the report will be placed in the EPA for comments from the public which will be incorporated in the report. As per rules and regulations, Environment Protection Department will hold a public hearing at the proposed project site.

➤ Environmental Practitioners and Experts

Name	Post	Qualification
Mekaal Zafar	HSE Manager	MPhil Environmental Sciences (NEBOSH)
Usama Iqbal	HSE Officer	MPhil Environmental Sciences
M Abuzar	Senior Environmentalist	BS Environmental Sciences
Iqra Zahid	Senior Environmental Officer	MPhil Environmental Sciences

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M Haris	HSE Officer	BS Environmental Sciences
Ramsha Shakeel	Environmentalist	BS Environmental Sciences
Amir Husnain	Environmentalist	BS Environmental Sciences

6.6 Government approvals required by the project:

Project proponent will get NOCs from all concerned departments after the environmental approval from EPA. Copy of each NOC will be submitted to EPA prior to operation of the project.

6.7 Affected and Wider Community

There is no population present in the safe radius of the site that's why community will not be disturbed due to project operation. Although the opportunity of employment will increase if the project will approve

CHAPTER # 07,

ASSESSING IMPACTS

7.1 General

This section provides the analysis of the potential impacts during preconstruction/design, construction and operational phases of the proposed project on the physical, biological and socio-economic environment of the project area. In addition, it also describes the measures that will mitigate the project's potential environmental impacts. Environmental sensitivity of the project area is described through a sensitivity map and evaluation of significance of impacts is carried out through environmental impact matrices

7.2 Evaluation of Identified Impacts

Methodology adopted for the identification, evaluation and analysis of environmental impacts by the proposed project is "Matrix Method and Significance Rating of Impacts".

7.3 Environmental impact Matrices

The environmental impact matrices have been developed to evaluate magnitude of the impacts of various project activities on different environmental settings for construction and operation phases and are shown in **Tables** respectively.

A Matrix method helps in identifying the potential temporal & spatial impact and screens the project for environmental and social soundness. Each project activity is screened separately with regard to its construction and operation phases according to the various physical, ecological and social parameters. These impacts are characterized on the basis of extent, timing, magnitude, reversibility, probability, nature and duration. Table 7.1 shows the characterization of impacts.

Table 7.1 Environmental impact Evaluation Matrix during Construction Phase

	VEC/ VSE	VEC/ VSE Rating	Establishmen t and Functioning of Construction Camps workshops etc.	Excavation Operation of burrow and quarry Areas.	Transportati on of construction Materials and Equipment's	Open storage of Constructi on materials, fuels etc.	Operati on of Concret e	Functioni ng of Power generators	Land Acquisitio ns	Solid & Liquid waste managem ent	Impact Score
Components	Air Quality and dust	0.10	-3	-3	-2	-2	-3	-2	0	-1	-1.6
	Soil Erosion & contam ination	0.05	-2	-2	-3	-2	-3	-1	0	-3	-0.8

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	Ground water Qualiy	0.10	-3	-2	-2	-2	-2	-1	0	-2	-1.4
	Noise	0.10	-3	-4	-2	0	-3	-3	0	-1	-1.6
	Flora	0.12	-1	-2	-2	-1	-1	0	0	-1	-1.0
Bi physical environmente	Fauna	0.06	-2	-2	-2	-1	-2	-2	-2	-2	-0.9
Socioeconomi c Environment	Traffic manage ment	0.20	-3	-3	-4	-3	-2	-1	0	-2	-3.6
	Social and cultural l conflict	0.07	-3	0	-1	-1	-1	-1	-4	-2	-0.9

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	Health and safety of Workers & community	0.10	-3	-3	-3	-2	-3	-2	0	-3	-1.9
	Employment/Economic activity	0.10	3	3	2	0	1	1	-4	3	0.9
		Legend	+Positive	0	No impact	2	Minim impact	4	Severe impact		
			-Negative	1	Negligible impact	3	Moderate impact				

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Environmental Impact Evaluation Matrix during Operational Phase

	Components	Valued Ecological components	VECs Rating	Activities			Impact Score
				Movement of Vehicles	Vehicles Emission	Dumping of solid waste in drain	
	Biophysical Environment	Flora	0.05	0	-2	0	-0.10
		Fauna	0.05	-3	0	0	-0.15
		Noise and Vibration	0.10	-3	0	0	-0.30
		Drainage	0.20	-2	0	-3	-1.0
	Socio Economic Environment	Road Safety	0.20	-4	0	-4	-1.60
		Economic Activity	0.15	3	0	0	0.45

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		Traffic Management	0.25	4	0	-3	0.25
Legend	+Positive	0	No impact	2	Minor impact	4	Severe impact
	-Negative	1	Negligible impact	3	Moderate impact		

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Environmental Impact Evaluation Matrix during Operational Phase

	Components	Valued Ecological components	VECs Rating	Activities			Impact Score
				Movement of Vehicles	Vehicles Emission	Dumping of solid waste in drain	
	Biophysical Environment	Flora	0.05	0	-2	0	-0.10
		Fauna	0.05	-3	0	0	-0.15
		Noise and Vibration	0.10	-3	0	0	-0.30
		Drainage	0.20	-2	0	-3	-1.0

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	Socio Economic Environment	Road Safety	0.20	-4	0	-4	-1.60
		Economic Activity	0.15	3	0	0	0.45
		Traffic Management	0.25	4	0	-3	0.25
Legend	+Positive	0	No impact	2	Minor impact	4	Severe impact
	-Negative	1	Negligible impact	3	Moderate impact		

Table 7.2 Characterization of Impacts

Extent	Timing	Magnitude	Reversibility	Probability	Nature	Duration
Site Specific	Short Term	Negligible	No Change	Very Unlikely	Indirect	Temporary
Local Impact	Medium Term	Low	Reversible	Unlikely	Direct	Permanent
Area Impact	Long Term	Medium	Slowly Reversible	Likely		
Regional Impact	Multi-year and Permanent Impact	High	Irreversible	Certain		

Table Characterization of Impacts

In addition to assigning the numerical values to each marked box in the Matrix, plus (+) or minus (-) sign are used to show whether an impact is beneficial or adverse. The weighted matrix was applied to the environmental components listed on the y-axis against the activities of the proposed project listed on the x-axis prior to mitigation measures. In this process, numerical values were assigned from 0 to 1 for biophysical environment and socio-economic environment to indicate the significance of the affected environmental and social components. These numerical values were then multiplied with the individual project activity rating/values and all added to get an overall impact score. This impact score gives the relative significance of impacts for a specific component. The highest impact score gives the level of significance of that impact.

7.3.1 Identification of VECs

Biophysical and human environments that, if altered by the project, would be of concern to regulatory agencies, indigenous community, resource managers, scientists, stakeholders, and/or the general public. VECs are typically selected for assessment on

the basis of regulatory issues, guidelines, and requirements; consultation with regulatory agencies, the public, stakeholder groups; field reconnaissance; and the professional judgment of the Study Team.

7.3.2 Significance Rating of Impacts

The overall significance of the impacts was defined based on the result of a combination of the ratings. Each identified impact was analyzed individually according to a number of criteria including descriptions of their extent, timing, magnitude, reversibility, probability, nature and duration. Taking into account these criteria, potential significance was classified as either:

- Low: The impact which has a slight influence on the natural and socio-economic environment;
- Medium: The impact which can be eliminated/ mitigated after applying the appropriate mitigation measures; and
- High: an impact, which, if not mitigated, could stop the project from proceeding

7.4 Delineation of Project Corridor of Impact (COI)

COI is a limit which identifies the area where direct and indirect impacts of the project activities are envisaged like existence of forests, game reserves, wetlands, archaeological sites etc. The limit for COI for the proposed project is taken as 250 meter radius for collection of baseline information, impacts assessment and mitigation measures of physical, ecological as well as social resources. As the location of construction/contractor camps, vehicles, equipment yard, material quarry areas and access tracks have not been defined yet, so impacts evaluated due to these facilities in this section will be of generic nature

CHAPTER NO #8, MITIGATION and IMPACT ASSESSMENT

8.1 Purpose of Mitigation Measure

The basic purpose of mitigation measures is to reduce the impacts of the establishment to proposed Construction of Wastewater Treatment Plant By M/S Leather Field (PVT) Limited (Tannery Unit) Located at Wazirabad Road, Sahowala, Tehsil Sambrial, District Sialkot. On the socio-environment up to the maximum possible extent. The mitigation measures are suggested based on the following parameters:

8.2 What is the problem?

The proposed project is the Construction of Wastewater Treatment Plant By M/S Leather Field (PVT) Limited (Tannery Unit) Located at Wazirabad Road, Sahowala, Tehsil Sambrial, District Sialkot. The nature of the land is industrial land having native vegetation such as Neem, Beri, Kikar and Safeda. The project and study area is fertile, leveled and agricultural land. In addition, to the noise and fugitive dust emissions during the development phase solid waste management and disposal issues may arise along with wastewater disposal issues. The major impact associated with the operation of Waste Water Treatment Plant includes the management of the solid waste and by-products, wastewater, biological hazards, chemical and physical hazards during process.

8.3 When problem will occur and when it should be addressed?

The impacts from the Construction of Wastewater Treatment Plant By M/S Leather Field (PVT) Limited (Tannery Unit) Located at Wazirabad Road, Sahowala, Tehsil Sambrial, District Sialkot. will occur during the development and operation due to the civil work involved and the people residing in the project area. These issues included; noise generation, fugitive dust emissions, solid waste management, wastewater disposal, top-soil removal, Health and Safety issues and change in the geographic features of the area. These all problems should be addressed on-site where they are being generated, to avoid the residual or adverse impacts.

8.4 Where problem should be addressed?

The problem will be generated from site development and operation of the unit. So, it should be addressed on source i.e. at site within the same timeframe.

8.5 How the problem should be addressed?

Proper mitigations measures will be provided according to the nature of the impacts/problems. For example, against dust emissions sprinkling of water may be done on regular basis, for solid waste proper solid waste management and disposal practices may be adopted, to manage liquid waste proper treatment may be made before discharging into the receiving body.

8.6 Ways of Achieving Mitigation Measures?

Following ways will be adopted to reduce the impacts of the quarrying:

8.6.1 Changing in Planning Design

For the process, industrial land is selected. The process selected for construction of Waste Water Treatment Plant. Project is the controlled system where physical, biological and chemical hazards are controlled or managed effectively. The chances of the biological contamination are reduced significantly. There is no endangered and threatened species present in the project area that could be impacted due to the installation of the facility. Moreover, there isn't any human settlement or infra-structure that will be dislocated or dismantled due to the proposed project development. No adverse impact is therefore being envisaged due to the installation of the facility in the proposed location as the process employed is controlled as for the management of the wastewater a septic tank will be installed and for the management of the solid waste and by-products a proper waste management plan will be formulated. Hence, there is no need to change the design of project.

8.6.2 Improved Management and Monitoring Practices

The anticipated impacts had been reduced significantly by adopting better management activities, as it will be carried out for betterment of the society. While environmental monitoring will be conducted on the regular basis to keep the sources of the wastewater generation, solid waste management, by-product management, noise and public nuisances in-check. Following practices that need to be adopted to reduce the impact significantly:

a. Compensation in Money Terms

Due to the construction of the facility, the vegetation present on-site will be removed and the geography/landscape of the area will be slightly changed on the permanent basis, however, there is no protected or environmentally sensitive area present within 10.0 km vicinity of the project

***CONSTRUCTION OF WASTEWATER TREATMENT PLANT
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that could be impacted due to the installation of the Waste Water Treatment Plant project. Hence, no compensation in monetary terms will be required. However, for the removal of the one tree from the leased area, 3-5 trees will be planted as the compensation along the facility boundary.

b. Replacement/Relocation/Rehabilitation

The proposed project is located in an industrial area. There is no sensitive area, population, or natural resource present which could be impacted due to the installation of the facility. No replacement, relocation, and rehabilitation are required because construction and operational phase

CHAPTER NO # 09 CONCLUSION AND RECOMMENDATIONS

9.1 CONCLUSIONS

The EIA study there are many problems related to the management of waste in our world today. Households and industries produce don't care enough yet to reduce this problem. This issue has a dramatic impact on the ecological system. Inefficient or flawed waste management systems can lead to the spread of diseases.

Moreover, burning waste leads to an emission of greenhouse gases which contributes to global warming. In order to mitigate this problem, waste management must be developed further to a place where almost every material can be recycled. Moreover, we have to raise the awareness of people to change their behavior in daily life.

People should be convinced to use things longer than they do in current times. People replace things that are actually working through things that are trendier.

We have to get to a place where reusing stuff is the trendiest thing on earth and buying new stuff is dodgy in order to solve the waste problem.

The impacts of subject unit in area will be insignificant, provided the generic mitigation measures proposed in this report are implemented. In areas where project site may have a significant impact, additional mitigation measures are given to reduce impacts to as low as reasonably possible.

9.2 Recommendations:

The present EIA report is enough to meet the administrative and legal framework. Therefore, the environmental approval may be accorded for the present project.

- In view of the comprehensive screening process and findings of the present study there is no need of conducting further investigations.
- Energy efficient system will be installed.
- Solid waste will be managed properly.
- Enhanced Tree plantation is recommended within and outside the boundary wall.

- The untreated wastewater will not be drained out without having been treated.
- Local Labor should be hired and will be benefited from the subject project
- High standards of bio-security and safety will be enforced during operation stage.
Safety of the workers will be top priority for the management.
- PPEs will be provided and implemented.
- Fire Fighting equipment & system should be installed at appropriate places 2q
- Safety signs & boards will be displayed.
- Smoking will not be allowed during working hours.
- Machinery should never be left abandoned.
- Medical checkups & first aid will be provided.
- Trainings will be provided to workers.
- Proper housekeeping will be ensured.
- The project manager will continue to assist the local communities as a corporate/social responsibility.

The present EIA report is enough to meet the administrative and legal framework. Therefore, the environmental approval may be accorded for the present project.

Hence, all the necessary recommended mitigation measures will be adopted and implemented further to cope with any negative impact generating from the project process in order to protect the environment and health.

ANNEXURES

Terms of Reference for Environmental Impact Analysis

1.0 Introduction

IES Environmental Solutions has been asked to submit the technical proposal for this project to fulfill the legal requirements under Pakistan Environmental Protection Act 1997 (amended 2012).

Part A- Completion of EIA

2. Environmental Impact Analysis

The proponent is required to prepare an environmental assessment study and get approval from EPA prior to commencement of the project.

3. Responsibility of Consultant

The consultant would undertake surveys, conduct studies, consult with the community and compile the EIA report. The EIA should cover all likely construction and operation activities and will include, but not to be limited to, an assessment of the environmental and social impacts relating to the land.

The following tasks shall be conducted for the completion of work.

1) Procedure of Environmental Assessment

After the award of work of Environmental Assessment study, consultant will carry out following activities:

- a. Kick of meeting with client to collect the requisite information regarding project i.e. Design reports, drawings, feasibility study, topographic survey etc. Site topographical surveys and underground reservoir survey reports will be shared by client.
- b. Site survey and environmental monitoring of groundwater, noise, wastewater and ambient air quality.
- c. Socioeconomic survey of the area.

- d. Secondary data collection from district department (Forest, drainage, meteorological)
- e. Assessment of environmental and socioeconomic project and mitigation measures
- f. Preparation of environmental management and monitoring plan.
- g. Environmental assessment report preparation and submission to client for review and comments if any.
- h. Follow up of case in EPA till its final Environmental Approval Responsibilities of the Client

Responsibilities of the Client

- I. Provision of necessary documents and studies about the features and description of the project.
- II. Provision of copy of the geotechnical study including seismic study.
- III. Site topographical surveys and underground reservoir survey reports.
- IV. Basic data for quantification of solid waste, water use, wastewater and its safe disposal.
- V. Detail of each commercial activity and its expected magnitude. VI. Provision of review fee for EPD.
- VI. Health and safety plan. B) Securing NOC and Approval from Govt. Departments.

B) Securing NOC and Approval from Govt. Departments

- a. Consultant will prepare and submit a complete final Environmental Assessment report to the client along with requisite documents provided by the proponent for onward submission to EPA Punjab for securing NOC.
- b. Consultant, as required by environmental law, will submit the report along with bank draft of review fee in the name DG EPA, application, affidavit and undertaking provided by the client.
- c. After the approval of Environmental report, a notice for the commit Pharmaceutical unit of experts for the proposed project will be issued by EPA Punjab to the client.
- d. After commit of experts, NOC is issued to the client.
- e. Consultant will facilitate the client till the issuance of NOC by concerned Government Department from EPA Punjab

Glossary

- ❖ **Ambient:** relating to the immediate surroundings of something
- ❖ **Base line:** Conditions prevailing at the time of study or before initiation of any project
- ❖ **Baseline:** Conditions prevailing at the time of study or before initiation of any project
- ❖ **Discharge:** means spilling, leaking, pumping, depositing, seeping, releasing, flowing out, pouring, emitting, emptying or dumping
- ❖ **Effluent:** means any material in solid, liquid or gaseous form or combination thereof being discharged from industrial activity or any other source and includes a slurry, suspension or vapor
- ❖ **Environment budget:** Monitory assets reserve for environmental activity.
- ❖ **Environment:** means air, water and land; all layers of the atmosphere; all organic and inorganic matter and living organisms; the ecosystem and ecological relationships; buildings, structures, roads, facilities and works; all social and economic conditions affecting community life; and the inter-relationships between any of the factors mentioned
- ❖ **Environmental Impact Assessment:** means an environmental study comprising collection of data, prediction of qualitative and quantitative impacts, comparison of alternatives, evaluation of preventive, migratory and compensatory measures, formulation of environmental management and training plans and monitoring arrangements, and framing of recommendations and such other components as may be prescribed
- ❖ **Fauna:** Animal life occurring in particular region or time.
- ❖ **Flora:** plant life occurring in particular region or time.
- ❖ **Human Settlement:** A cluster of at least 50 houses.
- ❖ **Initial Environmental Examination:** means a preliminary environmental review of the reasonably foreseeable qualitative and quantitative impacts on the environment of a proposed project to determine whether it is likely to cause an environmental effect for requiring preparation of an environmental impact assessment

- ❖ **National Environmental Quality Standards:** means the permissible standards for emission of air pollutants and noise and for discharge of effluent and waste
- ❖ **Nuisance:** A person, thing or circumstances causing inconvenience or annoyance.
- ❖ **pH:** negative log of hydrogen concentration:
- ❖ **Poultry Project:** means poultry related activities like hatcheries, poultry farm, poultry control shed, poultry premises or any other poultry project notified as such.
- ❖ **Poultry:** including the species such as chicken, turkey, quail, and pheasant.
- ❖ **Proponent:** the person who intends to carry-out a proposed project.
- ❖ **Sustainability:** means such developments that meet the needs of the present generation without compromising the ability of future generations to meet their needs
- ❖ **Waste:** means any material, substance, or by-product eliminated or discarded as no longer useful or required after the completion of a process

Abbreviation

❖ EIA	Environmental Impact Assessment
❖ EMP	Environmental Management Plan
❖ EMMP	Environmental Management and Monitoring Plan
❖ EPA	Environmental Protection Agency
❖ EPO	Environmental Protection Ordinance
❖ ESMF	Environmental & Social Management Framework
❖ GOP	Government Of Pakistan
❖ IEE	Initial Environmental Examination
❖ Km	Kilo Meter
❖ Kmp/h	Kilo Meter Per Hour
❖ NEQS	National Environmental Quality Standards
❖ NOC	No Objection Certificate
❖ NWFP	North West Frontier Province
❖ PEPA	Pakistan Environmental Protection Act
❖ EMC	Environmental Monitoring Cell
❖ EMMP	Environmental Mitigation & Monitoring Plan
❖ WAPDA	Water And Power Development Authority
❖ TMA	Tehsil Municipal Administration

References

- ❖ Guidelines for Preparation and Review of Environmental Report
- ❖ Guidelines for Public Consultation
- ❖ Labor Laws
- ❖ Meteorology Department Data (From Website)
- ❖ National Environmental Policy
- ❖ National Environmental Quality Standards (Self- Monitoring And Reporting By Rules, 2001)
- ❖ OSHAS 1800 for Health and Safety
- ❖ Pakistan Environmental Protection Act, 1997
- ❖ Pakistan Environmental Protection Agency (Review of IEE/EIA) Regulations
- ❖ Pakistan Environmental Protection Order (PEPO) 1983
- ❖ Sectoral Guide Lines for Environmental Reports, Industrial States
- ❖ The Land Acquisition Act 1894
- ❖ The Punjab Local Government Ordinance, 2001

**CONSTRUCTION OF WASTEWATER TREATMENT PLANT
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List of Team Members

Sr. #	Name	Highest Qualification
Team Leader		
01	Mr. Shoaib Ahmed	M.S Environmental Sciences
Technical Team Member		
01	Mr. Shahzad Yaqoob	Mphil in Environmental Sciences
Members		
01	Bilawal Zafar	BS(Hons) Environmental Sciences
02	Abdullah Chisty	M.Sc. Environmental Engineering
03	Bilal Khan	B.Sc. Environmental Engineering
04	M. Adnan	M.Sc. Analytical Chemistry & MS Environmental Science

**PAKISTAN ENVIRONMENTAL PROTECTION AGENCY (REVIEW OF IEE
AND EIA) REGULATIONS, 2000**

S.R.O. 339 (1)/2001. - In exercise of the powers referred by section 33 of the Pakistan Environmental Protection Act, 1997 (XXXIV of 1997), Pakistan Environmental Protection Agency, with the approval of the Federal Government is pleased to make the following Rules, namely : -

1. Short title and commencement

(1) These regulations may be called the Pakistan Environmental Protection Agency Review of Initial Environmental Examination and Environmental Impact Assessment Regulations, 2000.

(2) They shall come into force at once.

2. Definitions

(1) In these regulations, unless there is anything repugnant in the subject or context –

(a) “Act” means the Pakistan Environmental Protection Act, 1997 (XXXIV of 1997);

(b) “Director-General” means the Director-General of the Federal Agency;

(c) “EIA” means an environmental impact assessment as defined in section 2(xi);

(d) “IEE” means an initial environmental examination as defined in section 2(xxiv); and

(e) “section” means a section of the Act.

(2) All other words and expressions used in these regulations but not defined shall have the same meanings as are assigned to them in the Act.

3. Projects requiring an IEE

A proponent of a project falling in any category listed in Schedule I shall file an IEE with the Federal Agency, and the provisions of section 12 shall apply to such project.

4. Projects requiring an EIA

A proponent of a project falling in any category listed in Schedule II shall file an EIA with the Federal Agency, and the provisions of section 12 shall apply to such project.

5. Projects not requiring an IEE or EIA

- (1) A proponent of a project not falling in any category listed in Schedules I and II shall not be required to file an IEE or EIA:

Provided that the proponent shall file –

- (a) an EIA, if the project is likely to cause an adverse environmental effect;
 - (b) for projects not listed in Schedules I and II in respect of which the Federal Agency has issued guidelines for construction and operation, an application for approval accompanied by an undertaking and an affidavit that the aforesaid guidelines shall be fully complied with.
- (2) Notwithstanding anything contained in sub-regulation (1), the Federal Agency may direct the proponent of a project, whether or not listed in Schedule I or II, to file an IEE or EIA, for reasons to be recorded in such direction:

Provided that no such direction shall be issued without the recommendation in writing of the Environmental Assessment Advisory Committee constituted under Regulation 23.

- (3) The provisions of section 12 shall apply to a project in respect of which an IEE or EIA is filed under sub-regulation (1) or (2).

6. Preparation of IEE and EIA

- (1) The Federal Agency may issue guidelines for preparation of an IEE or an EIA, including guidelines of general applicability, and sectoral guidelines indicating specific assessment requirements for planning, construction and operation of projects relating to particular sector.
- (2) Where guidelines have been issued under sub-regulation (1), an IEE or EIA shall be prepared, to the extent practicable, in accordance therewith and the proponent shall justify in the IEE or EIA any departure therefrom.

7. Review Fees

The proponent shall pay, at the time of submission of an IEE or EIA, a non-refundable Review Fee to the Federal Agency, as per rates shown in Schedule III.

8. Filing of IEE and EIA

- (1) Ten paper copies and two electronic copies of an IEE or EIA shall be filed with the Federal Agency.

- (2) Every IEE and EIA shall be accompanied by –
 - (a) an application, in the form prescribed in Schedule IV; and
 - (b) copy of receipt showing payment of the Review Fee.

9. Preliminary scrutiny

- (1) Within 10 working days of filing of the IEE or EIA, the Federal Agency shall –
 - (a) confirm that the IEE or EIA is complete for purposes of initiation of the review process; or
 - (b) require the proponent to submit such additional information as may be specified; or
 - (c) return the IEE or EIA to the proponent for revision, clearly listing the points requiring further study and discussion.
- (2) Nothing in sub-regulation (1) shall prohibit the Federal Agency from requiring the proponent to submit additional information at any stage during the review process.

10. Public participation

- (1) In the case of an EIA, the Federal Agency shall, simultaneously with issue of confirmation of completeness under clause (a) of sub-regulation (1) of Regulation 9, cause to be published in any English or Urdu national newspaper and in a local newspaper of general circulation in the area affected by the project, a public notice mentioning the type of project, its exact location, the name and address of the proponent and the places at which the EIA of the project can, subject to the restrictions in sub-section (3) of section 12, be accessed.
- (2) The notice issued under sub-regulation (1) shall fix a date, time and place for public hearing of any comments on the project or its EIA.
- (3) The date fixed under sub-regulation (2) shall not be earlier than 30 days from the date of publication of the notice.
- (4) The Federal Agency shall also ensure the circulation of the EIA to the concerned Government Agencies and solicit their comments thereon.
- (5) All comments received by the Federal Agency from the public or any Government Agency shall be collated, tabulated and duly considered by it before decision on the EIA.

- (6) The Federal Agency may issue guidelines indicating the basic techniques and measures to be adopted to ensure effective public consultation, involvement and participation in EIA assessment.

11. Review

- (1) The Federal Agency shall make every effort to carry out its review of the IEE within 45 days, and of the EIA within 90 days, of issue of confirmation of completeness under Regulation 9.
- (2) In reviewing the IEE or EIA, the Federal Agency shall consult such Committee of Experts as may be constituted for the purpose by the Director-General, and may also solicit views of the sectoral Advisory Committee, if any, constituted by the Federal Government under sub-section (6) of section 5.
- (3) The Director-General may, where he considers it necessary, constitute a committee to inspect the site of the project and submit its report on such matters as may be specified.
- (4) The review of the IEE or EIA by the Federal Agency shall be based on quantitative and qualitative assessment of the documents and data furnished by the proponent, comments from the public and Government Agencies received under Regulation 10, and views of the committees mentioned in sub-regulations (2) and (3) above.

12. Decision

On completion of the review, the decision of the Federal Agency shall be communicated to the proponent in the form prescribed in Schedule V in the case of an IEE, and in the form prescribed in Schedule VI in the case of an EIA.

13. Conditions of approval

- (1) Every approval of an IEE or EIA shall, in addition to such conditions as may be imposed by the Federal Agency, be subject to the condition that the project shall be designed and constructed, and mitigatory and other measures adopted, strictly in accordance with the IEE/EIA, unless any variation thereto have been specified in the approval by the Federal Agency.
- (2) Where the Federal Agency accords its approval subject to certain conditions, the proponent shall –
 - (a) before commencing construction of the project, acknowledge acceptance of the stipulated conditions by executing an undertaking in the form prescribed in Schedule VII;

- (b) before commencing operation of the project, obtain from the Federal Agency written confirmation that the conditions of approval, and the requirements in the IEE/EIA relating to design and construction, adoption of mitigatory and other measures and other relevant matters, have been duly complied with.

14. Confirmation of compliance

(1) The request for confirmation of compliance under clause (b) of sub-regulation (2) of Regulation 13 shall be accompanied by an Environmental Management Plan indicating the measures and procedures proposed to be taken to manage or mitigate the environmental impacts for the life of the project, including provisions for monitoring, reporting and auditing.

(2) Where a request for confirmation of compliance is received from a proponent, the Federal Agency may carry out such inspection of the site and plant and machinery and seek such additional information from the proponent as it may deem fit:

Provided that every effort shall be made by the Federal Agency to provide the requisite confirmation or otherwise within 15 days of receipt of the request, with complete information, from the proponent.

(3) The Federal Agency may, while issuing the requisite confirmation of compliance, impose such other conditions as the Environmental Management Plan, and the operation, maintenance and monitoring of the project as it may deem fit, and such conditions shall be deemed to be included in the conditions to which approval of the project is subject.

15. Deemed approval

The four-month period for communication of decision stipulated in sub-section (4) of section 12 shall commence from the date of filing of an IEE or EIA in respect of which confirmation of completeness is issued by the Federal Agency under clause (a) of sub-regulation (1) of Regulation 9.

16. Extension in review period

Where the Federal Government in a particular case extends the four-month period for communication of approval prescribed in sub-section (5) of section 12, it shall, in consultation with the Federal Agency, indicate the various steps of the review process to be taken during the extended period, and the estimated time required for each step.

17. Validity period of approval

(1) The approval accorded by a Federal Agency under section 12 read with Regulation 12 shall be valid, for commencement of construction, for a period of three years from the date of issue.

(2) If construction is commenced during the initial three year validity period, the validity of the approval shall stand extended for a further period of three years from the date of issue.

(3) After issue of confirmation of compliance, the approval shall be valid for a period of three years from the date thereof.

(4) The proponent may apply to the Federal Agency for extension in the validity periods mentioned in sub-regulations (1), (2) and (3), which may be granted by the Federal Agency in its discretion for such period not exceeding three years at a time, if the conditions of the approval do not require significant change:

Provided that the Federal Agency may require the proponent to submit a fresh IEE or EIA, if in its opinion changes in location, design, construction and operation of the project so warrant.

18. Entry and inspection

(1) For purposes of verification of any matter relating to the review or to the conditions of approval of an IEE or EIA prior to, during or after commencement of construction or operation of a project, duly authorized staff of the Federal Agency shall be entitled to enter and inspect the project site, factory building and plant and equipment installed therein.

(2) The proponent shall ensure full cooperation of the project staff at site to facilitate the inspection, and shall provide such information as may be required by the Federal Agency for this purpose and pursuant thereto.

19. Monitoring

(1) After issue of approval, the proponent shall submit a report to the Federal Agency on completion of construction of the project.

(2) After issue of confirmation of compliance, the proponent shall submit an annual report summarizing operational performance of the project, with reference to the conditions of approval and maintenance and mitigatory measures adopted by the project.

(3) To enable the Federal Agency to effectively monitor compliance with the conditions of approval, the proponent shall furnish such additional information as the Federal Agency may require.

20. Cancellation of approval

(1) Notwithstanding anything contained in these Regulations, if, at any time, on the basis of information or report received or inspection carried out, the Federal Agency is of the opinion that the conditions of an approval have not been complied with, or that the information supplied by a proponent in the approved IEE or EIA is incorrect, it

shall issue notice to the proponent to show cause, within two weeks of receipt thereof, why the approval should not be cancelled.

(2) If no reply is received or if the reply is considered unsatisfactory, the Federal Agency may, after giving the proponent an opportunity of being heard:

- (i) require the proponent to take such measures and to comply with such conditions within such period as it may specify, failing which the approval shall stand cancelled; or
- (ii) cancel the approval.

(3) On cancellation of the approval, the proponent shall cease construction or operation of the project forthwith.

(4) Action taken under this Regulation shall be without prejudice to any other action that may be taken against the proponent under the Act or rules or regulations or any other law for the time being in force.

21. Registers of IEE and EIA projects

Separate Registers to be maintained by the Federal Agency for IEE and EIA projects under sub-section (7) of section 12 shall be in the form prescribed in Schedule VIII.

22. Environmentally sensitive areas

(1) The Federal Agency may, by notification in the official Gazette, designate an area to be an environmentally sensitive area.

(2) Notwithstanding anything contained in Regulations 3, 4 and 5, the proponent of a project situated in an environmentally sensitive area shall be required to file an EIA with the Federal Agency.

(3) The Federal Agency may from time to time issue guidelines to assist proponents and other persons involved in the environmental assessment process to plan and prepare projects located in environmentally sensitive areas.

(4) Where guidelines have been issued under sub-regulation (3), the projects shall be planned and prepared, to the extent practicable, in accordance therewith and any departure therefrom justified in the EIA pertaining to the project.

23. Environmental Assessment Advisory Committee

For purposes of rendering advice on all aspects of environmental assessment, including guidelines, procedures and categorization of projects, the Director-General shall constitute an Environmental Assessment Advisory Committee comprising –

- (a) Director EIA, Federal Agency ... Chairman

- | | | | |
|-----|--|-----|---------|
| (b) | One representative each of the Provincial Agencies | ... | Members |
| (c) | One representative each of the Federal Planning Commission and the Provincial Planning and Development Departments | ... | Members |
| (d) | Representatives of industry and non-Governmental organizations, and legal and other experts | ... | Members |

24. Other approvals

Issue of an approval under section 12 read with Regulation 12 shall not absolve the proponent of the duty to obtain any other approval or consent that may be required under any law for the time being in force.

SCHEDULE I (See Regulation 3)

List of projects requiring an IEE

A. Agriculture, Livestock and Fisheries

1. Poultry, livestock, stud and fish farms with total cost more than Rs.10 million
2. Projects involving repacking, formulation or warehousing of agricultural products

B. Energy

1. Hydroelectric power generation less than 50 MW
2. Thermal power generation less than 200 KW
3. Transmission lines less than 11 KV, and large distribution projects
4. Oil and gas transmission systems
5. Oil and gas extraction projects including exploration, production, gathering systems, separation and storage
6. Waste-to-energy generation projects

C. Manufacturing and processing

1. Ceramics and glass units with total cost more than Rs.50 million
2. Food processing industries including sugar mills, beverages, milk and dairy products, with total cost less than Rs.100 million
3. Man-made fibers and resin projects with total cost less than Rs.100 million
4. Manufacturing of apparel, including dyeing and printing, with total cost more than Rs.25 million
5. Wood products with total cost more than Rs.25 million

D. Mining and mineral processing

1. Commercial extraction of sand, gravel, limestone, clay, sulphur and other minerals not included in Schedule II with total cost less than Rs.100 million
2. Crushing, grinding and separation processes

3. Smelting plants with total cost less than Rs.50 million

E. Transport

1. Federal or Provincial highways (except maintenance, rebuilding or reconstruction of existing metalled roads) with total cost less than Rs.50 million
2. Ports and harbor development for ships less than 500 gross tons

F. Water management, dams, irrigation and flood protection

1. Dams and reservoirs with storage volume less than 50 million cubic meters of surface area less than 8 square kilometers
2. Irrigation and drainage projects serving less than 15,000 hectares
3. Small-scale irrigation systems with total cost less than Rs.50 million

G. Water supply and treatment

Water supply schemes and treatment plants with total cost less than Rs.25 million

H. Waste disposal

Waste disposal facility for domestic or industrial wastes, with annual capacity less than 10,000 cubic meters

I. Urban development and tourism

1. Housing schemes
2. Public facilities with significant off-site impacts (e.g. hospital wastes)
3. Urban development projects

J. Other projects

Any other project for which filing of an IEE is required by the Federal Agency under sub-regulation (2) of Regulation 5

SCHEDULE II

(See Regulation 4)

List of projects requiring an EIA

A. Energy

1. Hydroelectric power generation over 50 MW
2. Thermal power generation over 200 MW
3. Transmission lines (11 KV and above) and grid stations
4. Nuclear power plans
5. Petroleum refineries

B. Manufacturing and processing

1. Cement plants
2. Chemicals projects
3. Fertilizer plants
4. Food processing industries including sugar mills, beverages, milk and dairy products, with total cost of Rs.100 million and above
5. Industrial estates (including export processing zones)
6. Man-made fibers and resin projects with total cost of Rs.100 M and above
7. Pesticides (manufacture or formulation)
8. Petrochemicals complex
9. Synthetic resins, plastics and man-made fibers, paper and paperboard, paper pulping, plastic products, textiles (except apparel), printing and publishing, paints and dyes, oils and fats and vegetable ghee projects, with total cost more than Rs.10 million
10. Tanning and leather finishing projects

C. Mining and mineral processing

1. Mining and processing of coal, gold, copper, sulphur and precious stones
2. Mining and processing of major non-ferrous metals, iron and steel rolling

3. Smelting plants with total cost of Rs.50 million and above

D. Transport

1. Airports
2. Federal or Provincial highways or major roads (except maintenance, rebuilding or reconstruction of existing roads) with total cost of Rs.50 million and above
3. Ports and harbor development for ships of 500 gross tons and above
4. Railway works

E. Water management, dams, irrigation and flood protection

1. Dams and reservoirs with storage volume of 50 million cubic meters and above or surface area of 8 square kilometers and above
2. Irrigation and drainage projects serving 15,000 hectares and above

F. Water supply and treatment

Water supply schemes and treatment plants with total cost of Rs.25 million and above

G. Waste Disposal

1. Waste disposal and/or storage of hazardous or toxic wastes (including landfill sites, incineration of hospital toxic waste)
2. Waste disposal facilities for domestic or industrial wastes, with annual capacity more than 10,000 cubic meters

H. Urban development and tourism

1. Land use studies and urban plans (large cities)
2. Large-scale tourism development projects with total cost more than Rs.50 million

I. Environmentally Sensitive Areas

All projects situated in environmentally sensitive areas

J. Other projects

1. Any other project for which filing of an EIA is required by the Federal Agency under sub-regulation (2) of Regulation 5.
2. Any other project likely to cause an adverse environmental effect

SCHEDULE III
(See Regulation 7)

IEE/EIA Review Fees

Total Project Cost	IEE	EIA
Upto Rs.5,000,000	NIL	NIL
Rs.5,000,001 to 10,000,000	Rs.10,000	Rs.15,000
Greater than Rs.10,000,000	Rs.15,000	Rs.30,000

SCHEDULE IV**[See Regulation 8(2)(a)]****Application Form**

1.	Name and address of proponent		Phone: Fax: Telex:	
2.	Description of project			
3.	Location of project			
4.	Objectives of project			
5.	IEE/EIA attached?	IEE/EIA : Yes/No		
6.	Have alternative sites been considered and reported in IEE/EIA?	Yes/No		
7.	Existing land use		Land requirement	
8.	Is basic site data available, or has it been measured?	(only tick yes if the data is reported in the IEE/EIA) Meteorology (including rainfall) Ambient air quality Ambient water quality Ground water quality	<u>Available</u> Yes/No Yes/No Yes/No Yes/No	<u>Measured</u> Yes/No Yes/No Yes/No Yes/No
9.	Have estimates of the following been reported?	Water balance Solid waste disposal Liquid waste treatment	<u>Estimated</u> Yes/No Yes/No Yes/No	<u>Reported</u> Yes/No Yes/No Yes/No
10.	Source of power		Power requirement	
11.	Labour force (number)	Construction: Operation:		

Verification. I do solemnly affirm and declare that the information given above and contained in the attached IEE/EIA is true and correct to the best of my knowledge and belief.

Date _____

Signature, name and _____
designation of proponent
(with official stamp/seal)

SCHEDULE V
[See Regulation 12]

Decision on IEE

1. Name and address of proponent _____

2. Description of project _____
3. Location of project _____
4. Date of filing of IEE _____
5. After careful review of the IEE, the Federation Agency has decided –
(a) to accord its approval, subject to the following conditions:

- or (b) that the proponent should submit an EIA of the project, for the following reasons –

[Delete (a) or (b), whichever is
inapplicable] Dated _____

Tracking no.____

**Director-
General
Federal
Agency
(with official stamp/seal)**

SCHEDULE VI
[See Regulation 12]

Decision on EIA

1. Name and address of proponent _____

2. Description of project _____
3. Location of project _____
4. Date of filing of EIA _____
5. After careful review of the EIA, and all comments thereon, the Federation Agency has decided –

(a) to accord its approval, subject to the following conditions:

or (b) that the proponent should submit an EIA with the following modifications-

or (c) to reject the project, being contrary to environmental objectives, for the following reasons:

[Delete (a)/(b)/(c), whichever is
inapplicable] Dated _____

Tracking no.____

**Director-
General
Federal
Agency
(with official stamp/seal)**

SCHEDULE VII
[See Regulation 13(2)]

Undertaking

I, (full name and address) as proponent for (name, description and location of project) do hereby solemnly affirm and declare that I fully understand and accept the conditions contained in the approval accorded by the Federal Agency bearing tracking no. dated_____, and undertake to design, construct and operate the project strictly in accordance with the said conditions and the IEE/EIA.

Date _____

**Signature, name and _____
designation of proponent
(with official stamp/seal)**

**Witnesses
(full names and addresses)**

(1) _____

(2) _____

SCHEDULE VIII
(See Regulation 21)

Form of Registers for IEE and EIA projects

S. No.	Description	Relevant
Provisions 1	2	3
1.	Tracking number	
2.	Category type (as per Schedules I and II)	
3.	Name of proponent	
4.	Name and designation of contact person	
5.	Name of consultant	
6.	Description of project	
7.	Location of project	
8.	Project capital cost	
9.	Date of receipt of IEE/EIA	
10.	Date of confirmation of completeness	
11.	Approval granted (Yes/No)	
12.	Date of approval granted or refused	
13.	Conditions of approval/reasons for refusal	
14.	Date of Undertaking	
15.	Date of extension of approval validity	
16.	Period of extension	
17.	Date of commencement of construction	
18.	Date of issue of confirmation of compliance	
19.	Date of commencement of operations	
20.	Dates of filing of monitoring reports	

21. Date of cancellation, if applicable

PAKISTAN ENVIRONMENTAL PROTECTION AGENCY (REVIEW OF IEE AND EIA) REGULATIONS, 2000

S.R.O. 339 (1)/2001. - In exercise of the powers referred by section 33 of the Pakistan Environmental Protection Act, 1997 (XXXIV of 1997), Pakistan Environmental Protection Agency, with the approval of the Federal Government is pleased to make the following Rules, namely : -

25. Short title and commencement

(1) These regulations may be called the Pakistan Environmental Protection Agency Review of Initial Environmental Examination and Environmental Impact Assessment Regulations, 2000.

(2) They shall come into force at once.

26. Definitions

(1) In these regulations, unless there is anything repugnant in the subject or context –

(a) “Act” means the Pakistan Environmental Protection Act, 1997 (XXXIV of 1997);

(b) “Director-General” means the Director-General of the Federal Agency;

(c) “EIA” means an environmental impact assessment as defined in section 2(xi);

(d) “IEE” means an initial environmental examination as defined in section 2(xxiv); and

(e) “section” means a section of the Act.

(2) All other words and expressions used in these regulations but not defined shall have the same meanings as are assigned to them in the Act.

27. Projects requiring an IEE

A proponent of a project falling in any category listed in Schedule I shall file an IEE with the Federal Agency, and the provisions of section 12 shall apply to such project.

28. Projects requiring an EIA

A proponent of a project falling in any category listed in Schedule II shall file an EIA with the Federal Agency, and the provisions of section 12 shall apply to such project.

29. Projects not requiring an IEE or EIA

- (1) A proponent of a project not falling in any category listed in Schedules I and II shall not be required to file an IEE or EIA:

Provided that the proponent shall file –

- (a) an EIA, if the project is likely to cause an adverse environmental effect;
- (b) for projects not listed in Schedules I and II in respect of which the Federal Agency has issued guidelines for construction and operation, an application for approval accompanied by an undertaking and an affidavit that the aforesaid guidelines shall be fully complied with.
- (2) Notwithstanding anything contained in sub-regulation (1), the Federal Agency may direct the proponent of a project, whether or not listed in Schedule I or II, to file an IEE or EIA, for reasons to be recorded in such direction:

Provided that no such direction shall be issued without the recommendation in writing of the Environmental Assessment Advisory Committee constituted under Regulation 23.

- (3) The provisions of section 12 shall apply to a project in respect of which an IEE or EIA is filed under sub-regulation (1) or (2).

30. Preparation of IEE and EIA

- (1) The Federal Agency may issue guidelines for preparation of an IEE or an EIA, including guidelines of general applicability, and sectoral guidelines indicating specific assessment requirements for planning, construction and operation of projects relating to particular sector.
- (2) Where guidelines have been issued under sub-regulation (1), an IEE or EIA shall be prepared, to the extent practicable, in accordance therewith and the proponent shall justify in the IEE or EIA any departure therefrom.

31. Review Fees

The proponent shall pay, at the time of submission of an IEE or EIA, a non-refundable Review Fee to the Federal Agency, as per rates shown in Schedule III.

32. Filing of IEE and EIA

- (1) Ten paper copies and two electronic copies of an IEE or EIA shall be filed with the Federal Agency.
- (2) Every IEE and EIA shall be accompanied by –
 - (a) an application, in the form prescribed in Schedule IV; and
 - (b) copy of receipt showing payment of the Review Fee.

33. Preliminary scrutiny

- (1) Within 10 working days of filing of the IEE or EIA, the Federal Agency shall –
 - (a) confirm that the IEE or EIA is complete for purposes of initiation of the review process; or
 - (b) require the proponent to submit such additional information as may be specified; or
 - (c) return the IEE or EIA to the proponent for revision, clearly listing the points requiring further study and discussion.
- (2) Nothing in sub-regulation (1) shall prohibit the Federal Agency from requiring the proponent to submit additional information at any stage during the review process.

34. Public participation

- (1) In the case of an EIA, the Federal Agency shall, simultaneously with issue of confirmation of completeness under clause (a) of sub-regulation (1) of Regulation 9, cause to be published in any English or Urdu national newspaper and in a local newspaper of general circulation in the area affected by the project, a public notice mentioning the type of project, its exact location, the name and address of the proponent and the places at which the EIA of the project can, subject to the restrictions in sub-section (5) of section 12, be accessed.
- (2) The notice issued under sub-regulation (1) shall fix a date, time and place for public hearing of any comments on the project or its EIA.
- (3) The date fixed under sub-regulation (2) shall not be earlier than 30 days from the date of publication of the notice.
- (4) The Federal Agency shall also ensure the circulation of the EIA to the concerned Government Agencies and solicit their comments thereon.
- (5) All comments received by the Federal Agency from the public or any Government Agency shall be collated, tabulated and duly considered by it

before decision on the EIA.

- (6) The Federal Agency may issue guidelines indicating the basic techniques and measures to be adopted to ensure effective public consultation, involvement and participation in EIA assessment.

35. Review

- (1) The Federal Agency shall make every effort to carry out its review of the IEE within 45 days, and of the EIA within 90 days, of issue of confirmation of completeness under Regulation 9.
- (2) In reviewing the IEE or EIA, the Federal Agency shall consult such Committee of Experts as may be constituted for the purpose by the Director-General, and may also solicit views of the sectoral Advisory Committee, if any, constituted by the Federal Government under sub-section (6) of section 5.
- (3) The Director-General may, where he considers it necessary, constitute a committee to inspect the site of the project and submit its report on such matters as may be specified.
- (4) The review of the IEE or EIA by the Federal Agency shall be based on quantitative and qualitative assessment of the documents and data furnished by the proponent, comments from the public and Government Agencies received under Regulation 10, and views of the committees mentioned in sub-regulations (2) and (3) above.

36. Decision

On completion of the review, the decision of the Federal Agency shall be communicated to the proponent in the form prescribed in Schedule V in the case of an IEE, and in the form prescribed in Schedule VI in the case of an EIA.

37. Conditions of approval

- (1) Every approval of an IEE or EIA shall, in addition to such conditions as may be imposed by the Federal Agency, be subject to the condition that the project shall be designed and constructed, and mitigatory and other measures adopted, strictly in accordance with the IEE/EIA, unless any variation thereto have been specified in the approval by the Federal Agency.
- (2) Where the Federal Agency accords its approval subject to certain conditions, the proponent shall –
 - (a) before commencing construction of the project, acknowledge acceptance of the stipulated conditions by executing an undertaking in the form prescribed in Schedule VII;

- (b) before commencing operation of the project, obtain from the Federal Agency written confirmation that the conditions of approval, and the requirements in the IEE/EIA relating to design and construction, adoption of mitigatory and other measures and other relevant matters, have been duly complied with.

38. Confirmation of compliance

(1) The request for confirmation of compliance under clause (b) of sub-regulation (2) of Regulation 13 shall be accompanied by an Environmental Management Plan indicating the measures and procedures proposed to be taken to manage or mitigate the environmental impacts for the life of the project, including provisions for monitoring, reporting and auditing.

(2) Where a request for confirmation of compliance is received from a proponent, the Federal Agency may carry out such inspection of the site and plant and machinery and seek such additional information from the proponent as it may deem fit:

Provided that every effort shall be made by the Federal Agency to provide the requisite confirmation or otherwise within 15 days of receipt of the request, with complete information, from the proponent.

(3) The Federal Agency may, while issuing the requisite confirmation of compliance, impose such other conditions as the Environmental Management Plan, and the operation, maintenance and monitoring of the project as it may deem fit, and such conditions shall be deemed to be included in the conditions to which approval of the project is subject.

39. Deemed approval

The four-month period for communication of decision stipulated in sub-section (6) of section 12 shall commence from the date of filing of an IEE or EIA in respect of which confirmation of completeness is issued by the Federal Agency under clause (a) of sub-regulation (1) of Regulation 9.

40. Extension in review period

Where the Federal Government in a particular case extends the four-month period for communication of approval prescribed in sub-section (5) of section 12, it shall, in consultation with the Federal Agency, indicate the various steps of the review process to be taken during the extended period, and the estimated time required for each step.

41. Validity period of approval

(1) The approval accorded by a Federal Agency under section 12 read with Regulation 12 shall be valid, for commencement of construction, for a period of three years from the date of issue.

(2) If construction is commenced during the initial three year validity period, the validity of the approval shall stand extended for a further period of three years from the date of issue.

(3) After issue of confirmation of compliance, the approval shall be valid for a period of three years from the date thereof.

(4) The proponent may apply to the Federal Agency for extension in the validity periods mentioned in sub-regulations (1), (2) and (3), which may be granted by the Federal Agency in its discretion for such period not exceeding three years at a time, if the conditions of the approval do not require significant change:

Provided that the Federal Agency may require the proponent to submit a fresh IEE or EIA, if in its opinion changes in location, design, construction and operation of the project so warrant.

42. Entry and inspection

(1) For purposes of verification of any matter relating to the review or to the conditions of approval of an IEE or EIA prior to, during or after commencement of construction or operation of a project, duly authorized staff of the Federal Agency shall be entitled to enter and inspect the project site, factory building and plant and equipment installed therein.

(2) The proponent shall ensure full cooperation of the project staff at site to facilitate the inspection, and shall provide such information as may be required by the Federal Agency for this purpose and pursuant thereto.

43. Monitoring

(1) After issue of approval, the proponent shall submit a report to the Federal Agency on completion of construction of the project.

(2) After issue of confirmation of compliance, the proponent shall submit an annual report summarizing operational performance of the project, with reference to the conditions of approval and maintenance and mitigatory measures adopted by the project.

(3) To enable the Federal Agency to effectively monitor compliance with the conditions of approval, the proponent shall furnish such additional information as the Federal Agency may require.

44. Cancellation of approval

(1) Notwithstanding anything contained in these Regulations, if, at any time, on the basis of information or report received or inspection carried out, the Federal Agency is of the opinion that the conditions of an approval have not been complied with, or that the information supplied by a proponent in the approved IEE or EIA is incorrect, it

shall issue notice to the proponent to show cause, within two weeks of receipt thereof, why the approval should not be cancelled.

(2) If no reply is received or if the reply is considered unsatisfactory, the Federal Agency may, after giving the proponent an opportunity of being heard:

(iii) require the proponent to take such measures and to comply with such conditions within such period as it may specify, failing which the approval shall stand cancelled; or

(iv) cancel the approval.

(3) On cancellation of the approval, the proponent shall cease construction or operation of the project forthwith.

(4) Action taken under this Regulation shall be without prejudice to any other action that may be taken against the proponent under the Act or rules or regulations or any other law for the time being in force.

45. Registers of IEE and EIA projects

Separate Registers to be maintained by the Federal Agency for IEE and EIA projects under sub-section (7) of section 12 shall be in the form prescribed in Schedule VIII.

46. Environmentally sensitive areas

(1) The Federal Agency may, by notification in the official Gazette, designate an area to be an environmentally sensitive area.

(2) Notwithstanding anything contained in Regulations 3, 4 and 5, the proponent of a project situated in an environmentally sensitive area shall be required to file an EIA with the Federal Agency.

(3) The Federal Agency may from time to time issue guidelines to assist proponents and other persons involved in the environmental assessment process to plan and prepare projects located in environmentally sensitive areas.

(4) Where guidelines have been issued under sub-regulation (3), the projects shall be planned and prepared, to the extent practicable, in accordance therewith and any departure therefrom justified in the EIA pertaining to the project.

47. Environmental Assessment Advisory Committee

For purposes of rendering advice on all aspects of environmental assessment, including guidelines, procedures and categorization of projects, the Director-General shall constitute an Environmental Assessment Advisory Committee comprising –

(e) Director EIA, Federal Agency ... Chairman

- | | | |
|-----|--|---------|
| (f) | One representative each of the Provincial Agencies ... | Members |
| (g) | One representative each of the Federal Planning Commission and the Provincial Planning and Development Departments ... | Members |
| (h) | Representatives of industry and non-Governmental organizations, and legal and other experts ... | Members |

48. Other approvals

Issue of an approval under section 12 read with Regulation 12 shall not absolve the proponent of the duty to obtain any other approval or consent that may be required under any law for the time being in force.

SCHEDULE I
(See Regulation 3)

List of projects requiring an IEE

K. Agriculture, Livestock and Fisheries

1. Poultry, livestock, stud and fish farms with total cost more than Rs.10 million
2. Projects involving repacking, formulation or warehousing of agricultural products

L. Energy

1. Hydroelectric power generation less than 50 MW
2. Thermal power generation less than 200 KW
3. Transmission lines less than 11 KV, and large distribution projects
4. Oil and gas transmission systems
5. Oil and gas extraction projects including exploration, production, gathering systems, separation and storage
6. Waste-to-energy generation projects

M. Manufacturing and processing

1. Ceramics and glass units with total cost more than Rs.50 million
2. Food processing industries including sugar mills, beverages, milk and dairy products, with total cost less than Rs.100 million
3. Man-made fibers and resin projects with total cost less than Rs.100 million
4. Manufacturing of apparel, including dyeing and printing, with total cost more than Rs.25 million
5. Wood products with total cost more than Rs.25 million

N. Mining and mineral processing

1. Commercial extraction of sand, gravel, limestone, clay, sulphur and other minerals not included in Schedule II with total cost less than Rs.100 million
2. Crushing, grinding and separation processes

3. Smelting plants with total cost less than Rs.50 million

O. Transport

1. Federal or Provincial highways (except maintenance, rebuilding or reconstruction of existing metalled roads) with total cost less than Rs.50 million
2. Ports and harbor development for ships less than 500 gross tons

P. Water management, dams, irrigation and flood protection

1. Dams and reservoirs with storage volume less than 50 million cubic meters of surface area less than 8 square kilometers
2. Irrigation and drainage projects serving less than 15,000 hectares
3. Small-scale irrigation systems with total cost less than Rs.50 million

Q. Water supply and treatment

Water supply schemes and treatment plants with total cost less than Rs.25 million

R. Waste disposal

Waste disposal facility for domestic or industrial wastes, with annual capacity less than 10,000 cubic meters

S. Urban development and tourism

1. Housing schemes
2. Public facilities with significant off-site impacts (e.g. hospital wastes)
3. Urban development projects

T. Other projects

Any other project for which filing of an IEE is required by the Federal Agency under sub-regulation (2) of Regulation 5

SCHEDULE II

(See Regulation 4)

K. Energy **List of projects requiring an EIA**

1. Hydroelectric power generation over 50 MW
2. Thermal power generation over 200 MW
3. Transmission lines (11 KV and above) and grid stations
4. Nuclear power plans
5. Petroleum refineries

L. Manufacturing and processing

1. Cement plants
2. Chemicals projects
3. Fertilizer plants
4. Food processing industries including sugar mills, beverages, milk and dairy products, with total cost of Rs.100 million and above
5. Industrial estates (including export processing zones)
6. Man-made fibers and resin projects with total cost of Rs.100 M and above
7. Pesticides (manufacture or formulation)
8. Petrochemicals complex
9. Synthetic resins, plastics and man-made fibers, paper and paperboard, paper pulping, plastic products, textiles (except apparel), printing and publishing, paints and dyes, oils and fats and vegetable ghee projects, with total cost more than Rs.10 million
10. Tanning and leather finishing projects

M. Mining and mineral processing

1. Mining and processing of coal, gold, copper, sulphur and precious stones
2. Mining and processing of major non-ferrous metals, iron and steel rolling

3. Smelting plants with total cost of Rs.50 million and above

N. Transport

1. Airports
2. Federal or Provincial highways or major roads (except maintenance, rebuilding or reconstruction of existing roads) with total cost of Rs.50 million and above
3. Ports and harbor development for ships of 500 gross tons and above
4. Railway works

O. Water management, dams, irrigation and flood protection

1. Dams and reservoirs with storage volume of 50 million cubic meters and above or surface area of 8 square kilometers and above
2. Irrigation and drainage projects serving 15,000 hectares and above

P. Water supply and treatment

Water supply schemes and treatment plants with total cost of Rs.25 million and above

Q. Waste Disposal

1. Waste disposal and/or storage of hazardous or toxic wastes (including landfill sites, incineration of hospital toxic waste)
2. Waste disposal facilities for domestic or industrial wastes, with annual capacity more than 10,000 cubic meters

R. Urban development and tourism

1. Land use studies and urban plans (large cities)
2. Large-scale tourism development projects with total cost more than Rs.50 million

S. Environmentally Sensitive Areas

All projects situated in environmentally sensitive areas

T. Other projects

1. Any other project for which filing of an EIA is required by the Federal Agency under sub-regulation (2) of Regulation 5.
2. Any other project likely to cause an adverse environmental effect

SCHEDULE III
(See Regulation 7)

IEE/EIA Review Fees

Total Project Cost	IEE	EIA
Upto Rs.5,000,000	NIL	NIL
Rs.5,000,001 to 10,000,000	Rs.10,000	Rs.15,000
Greater than Rs.10,000,000	Rs.15,000	Rs.30,000

SCHEDULE IV**[See Regulation 8(2)(a)]****Application Form**

1.	Name and address of proponent		Phone: Fax: Telex:	
2.	Description of project			
3.	Location of project			
4.	Objectives of project			
5.	IEE/EIA attached?	IEE/EIA : Yes/No		
6.	Have alternative sites been considered and reported in IEE/EIA?	Yes/No		
7.	Existing land use		Land requirement	
8.	Is basic site data available, or has it been measured?	(only tick yes if the data is reported in the IEE/EIA) Meterology (including rainfall) Ambient air quality Ambient water quality Ground water quality	<u>Available</u> Yes/No Yes/No Yes/No Yes/No	<u>Measured</u> Yes/No Yes/No Yes/No Yes/No
9.	Have estimates of the following been reported?	Water balance Solid waste disposal Liquid waste treatment	<u>Estimated</u> Yes/No Yes/No Yes/No	<u>Reported</u> Yes/No Yes/No Yes/No
10.	Source of power		Power requirement	
11.	Labour force (number)	Construction: Operation:		

Verification. I do solemnly affirm and declare that the information given above and contained in the attached IEE/EIA is true and correct to the best of my knowledge and belief.

Date _____

Signature, name and _____
designation of proponent
(with official stamp/seal)

SCHEDULE V
[See Regulation 12]

Decision on IEE

6. Name and address of proponent _____

7. Description of project _____

8. Location of project _____

9. Date of filing of IEE _____

10. After careful review of the IEE, the Federation Agency has decided –

(a) to accord its approval, subject to the following conditions:

or (b) that the proponent should submit an EIA of the project, for the following reasons –

[Delete (a) or (b), whichever is
inapplicable] Dated _____

Tracking no.____

**Director-
General
Federal
Agency
(with official stamp/seal)**

SCHEDULE VI
[See Regulation 12]

Decision on EIA

6. Name and address of proponent _____

7. Description of project _____
8. Location of project _____
9. Date of filing of EIA _____
10. After careful review of the EIA, and all comments thereon, the Federation Agency has decided –

(a) to accord its approval, subject to the following conditions:

or (b) that the proponent should submit an EIA with the following modifications-

or (c) to reject the project, being contrary to environmental objectives, for the following reasons:

[Delete (a)/(b)/(c), whichever is
inapplicable] Dated _____

Tracking no.____

**Director-
General
Federal
Agency
(with official stamp/seal)**

SCHEDULE VII
[See Regulation 13(2)]

Undertaking

I, (full name and address) as proponent for (name, description and location of project) do hereby solemnly affirm and declare that I fully understand and accept the conditions contained in the approval accorded by the Federal Agency bearing tracking no. dated_____, and undertake to design, construct and operate the project strictly in accordance with the said conditions and the IEE/EIA.

Date _____

**Signature, name and _____
designation of proponent
(with official stamp/seal)**

**Witnesses
(full names and addresses)**

(1) _____

(2) _____

SCHEDULE VIII*(See Regulation 21)***Form of Registers for IEE and EIA projects**

S. No.	Description	Relevant
Provisions 1	2	3
22.	Tracking number	
23.	Category type (as per Schedules I and II)	
24.	Name of proponent	
25.	Name and designation of contact person	
26.	Name of consultant	
27.	Description of project	
28.	Location of project	
29.	Project capital cost	
30.	Date of receipt of IEE/EIA	
31.	Date of confirmation of completeness	
32.	Approval granted (Yes/No)	
33.	Date of approval granted or refused	
34.	Conditions of approval/reasons for refusal	
35.	Date of Undertaking	
36.	Date of extension of approval validity	
37.	Period of extension	
38.	Date of commencement of construction	
39.	Date of issue of confirmation of compliance	
40.	Date of commencement of operations	
41.	Dates of filing of monitoring reports	
42.	Date of cancellation, if applicable	

REVISED NATIONAL ENVIRONMENTAL QUALITY STANDARDS (NEQS)

Background

- PEPC in its first meeting held on 10th May 1993 approved the NEQS
- The approved NEQS were uniform standards applicable to all kind of industrial and municipal effluent.
- There are 32 parameters prescribing permissible levels of pollutants in liquid effluent while 16 parameters for gaseous emission.
- In April 1996, the PEPC set up an Environmental Standards Committee (ESC) headed by Mr. Shams Kasim Lakha to review, inter alia, the NEQS and suggest changes where necessary, based on conditions in Pakistan.
- The committee realized that some of the parameters were more stringent than other
- Countries of the region, so the task of the rationalization of NEQS was referred to an Expert Advisory committee to review and suggest changes, if and where required.
- Before initiating the task, the Expert Committee was expanded to include
- representatives of trade and industry.
- The Expert Committee identified ten parameters – eight (8) liquid effluent viz. BOD;
- COD; TDS; Chloride; Sulphide; Chromium; Ammonia; and Temperature, and two (2) gaseous emissions viz. SO₂ (Sulphur di oxide) and Oxides of Nitrogen for review.
- After consultation with various organizations the NEQS Expert Advisory Committee
- completed its task and proposed it to the ESC.
- Finally after the Environmental Standards Committee endorsed the proposed revised
- NEQS, the Pakistan Environmental Protection Council was recommended to approve the revised draft NEQS.
- In December 28, 1999. PEPC approved the revised NEQS.

National Environmental Quality Standards for Municipal and Liquid Industrial Effluents (mg/L, Unless Otherwise Defined)

S.No	Parameter	Existing Standards	Revised Standards		
			Into Inland Water	Into Sewage Treatment ⁵	Into Sea ⁶
1.	Temperature or Temperature increase	40°C	≤ 3 °C	≤ 3 °C	≤ 3 °C
2.	pH value	6-10 pH	6 - 9	6 - 9	6 - 9
3.	5-days Biochemical Oxygen Demand (BOD ₅) at 20°C ¹	80 mg/l.	80	250	80**
4.	Chemical Oxygen Demand (COD) ¹	150 mg/l.	150	400	400
5.	Total suspended solids	150 mg/l.	200	400	200
6.	Total dissolved solids	3500 mg/l.	3500	3500	3500
7.	Grease and oil	10 mg/l.	10	10	10
8.	Phenolic compounds (as phenol)	0.1 mg/l.	0.1	0.3	0.3
9.	Chloride (as Cl)	1000 mg/l.	1000	1000	SC
10.	Fluoride (as F)	20 mg/l.	10	10	10
11.	Cyanide (as CN) total	2 mg/l.	1.0	1.0	1.0
12.	An-ionic detergents ² (as MBAS)	20 mg/l.	20	20	20
13.	Sulphate (SO ₄)	600 mg/l.	600	1000	SC
14.	Sulphide (S)	1.0 mg/l.	1.0	1.0	1.0
15.	Ammonia (NH ₃)	40 mg/l.	40	40	40
16.	Pesticides, herbicides, fungicides and insecticides ³	0.15 mg/l.	0.15	0.15	0.15

National Environmental Quality Standards for Municipal and Liquid Industrial Effluents (mg/L, Unless Otherwise Defined) (Contd..)

S.No	Parameter	Existing Standards	Revised Standards		
			Into Inland Water	Into Sewage Treatment ⁵	Into Sea ⁶
17.	Cadmium ⁴	0.1 mg/l.	0.1	0.1	0.1
18.	Chromium ⁴ (trivalent and hexavalent).	1.0 mg/l.	1.0	1.0	1.0
19.	Copper ⁴	1.0 mg/l.	1.0	1.0	1.0
20.	Lead ⁴	0.5 mg/l.	0.5	0.5	0.5
21.	Mercury ⁴	0.01 mg/l.	0.01	0.01	0.01
22.	Selenium ⁴	0.5 mg/l.	0.5	0.5	0.5
23.	Nickel ⁴	1.0 mg/l.	1.0	1.0	1.0
24.	Silver ⁴	1.0 mg/l.	1.0	1.0	1.0
25.	Total toxic metals	2.0 mg/l.	2.0	2.0	2.0
26.	Zinc	5.0 mg/l.	5.0	5.0	5.0
27.	Arsenic	1.0 mg/l.	1.0	1.0	1.0
28.	Barium	1.5 mg/l.	1.5	1.5	1.5
29.	Iron	2.0 mg/l.	8.0	8.0	8.0
30.	Manganese	1.5 mg/l.	1.5	1.5	1.5
31.	Boron	6.0 mg/l.	6.0	6.0	6.0
32.	Chlorine	1.0 mg/l.	1.0	1.0	1.0

Explanations :

- Summing minimum dilution 1:10 on discharge, lower ratio would attract progressively stringent standards to be determined by the Federal Environmental Protection Agency. By 1:10 dilution means for example, that for each one cubic meter of treated effluent the recipient water body should have 10 cubic meter of water for dilution of this effluent.
- Modified Benzene Alkyl Sulphate; assuming surfactant as bio-degradable.
- Pesticides herbicides, fungicides, and insecticides.

4. Subject to total toxic metal discharge as at S. No.25
5. Applicable only when and where sewage treatment is operational and BOD₅=80 mg/l. is achieved by the sewer treatment system.
6. Provided discharge is not at shore and not within 10 miles of mangrove or other important estuaries

* The effluent should not result in temperature increase of more than 3°C at the edge of the zone where initial mixing and dilution take place in the receiving water body. In case zone is not defined, use 100 meters from the point of discharge.

**** The value for industry is 200 mg/l.**

Note: Dilution of gaseous emissions and liquid effluents to bring them to the NEQS limiting value is not permissible through excess air mixing blowing in to the gaseous emissions or through fresh water mixing with the effluent before discharge into environment.

National Environmental Quality Standards for

3

Industrial Gaseous Emissions (mg/Nm³ , Unless Otherwise Defined)

S.No.	Parameter	Source of emission	Standards	Revised Standards
1.	Smoke	Smoke opacity not to exceed:-	40% or 2 (Ringlemann Scale).	40% or 2 Ringlemann Scale or equivalent smoke number
2.	Particulate Matter ¹	(a) Boilers and furnaces:		
		(i) Oil fired.	300	300
		(ii) Coal fired.	500	500
		(iii) Cement Kilns.	200	300
		(b) Grinding, crushing, clinker coolers and related processes, metallurgical processes, converters, blast furnaces and cupolas.	500	500
3.	Hydrogen Chloride ²	Any.	400	400
4.	Chlorine ²	Any.	150	150
5.	Hydrogen Fluoride ²	Any.	150	150
6.	Hydrogen Sulphide ²	Any.	10	10
7.	Sulphur Oxides	Sulfuric Acid / Sulfuric Acid Plants.	400	5000
		Others Plants. ³	400	1700
8.	Carbon Monoxide ⁴	Any.	800	800

National Environmental Quality Standards for

Industrial Gaseous Emissions (mg/Nm³ , Unless Otherwise Defined) (Contd..)

S.No.	Parameter	Source of emission	Standards	Revised Standards
9.	Lead ²	Any.	50	50
10.	Mercury ²	Any.	10	10
11.	Cadmium ²	Any.	20	20
12.	Arsenic ²	Any.	20	20
13.	Copper ²	Any.	50	50
14.	Antimony ²	Any.	20	20
15.	Zinc ²	Any.	200	200
16.	Oxides of Nitrogen (NO _x) ⁴	(i) Nitric Acid manufacturing unit.	400	3000
		(ii) Gas fired	400	400
		(iii) Oil fired	-	600
		(iv) Coal fired	-	1200

Explanations:

1. Based on the assumption that the size of the particles is 10 microns or more.
2. Any source.
3. Based on 1% sulphure content in fuel oil. Higher content of sulphure will cause standards to be pro-rated.
4. In respect of emissions of sulphure dioxide and nitrogen oxides, the power plants operating on oil or coal as fuel shall, in addition to National Environmental Quality Standards (NEQS) specified above, comply with the following standards.

Sulphur Dioxide

Sulphur Dioxide Background Levels (ug/m ³)			Standards	
			Criterion I	Criterion II
Background Air Quality (SO ₂ Basis)	Annual Average	Max. 24 hours Interval	Max. SO ₂ Emission (Tons per day per Plant)	Max. allowable ground level Increment to ambient (ug/m ³) (One year average)
Unpolluted	< 50	< 200	500	50
Moderately Polluted *				
Low	50	200	500	50
High	100	400	100	10
Very Polluted **	> 100	> 400	100	10

- For intermediate values between 50 and 100 ug/m³ linear interpolations should be used.
- No project with sulphur dioxide emissions will be recommended.

Nitrogen Oxide

Ambient air concentrations of nitrogen oxides, expressed as NO₂, should not exceed the follow:

Annual Arithmetic Mean	100 ug/m ³ (0.05 ppm)
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Emission levels for stationary sources discharges, before mixing with the atmosphere, should be maintained as follows:-

For fuel fired steam generations, as nanogram (10E-9 gram) per joule of heat input:

Liquid fossil fuel	130
Solid fossil fuel	300
Lignite fossil fuel	260

National Environmental Quality Standards for Motor Vehicle Exhaust and Noise

S.No	Parameter	Standards (maximum permissible limit)	Measuring method
1.	Smoke	40% or 2 on the Ringlemann Scale or equivalent smoke number at end of exhaust pipe during engine acceleration mode.	To be compared with Ringlemann Chart at a distance of 6 meters or more.
2.	Carbon Monoxide.	<u>Emission Standards :</u> New Vehicles. 4.5 % Used Vehicles. 6 %	Under idling conditions. Non dispersive infrared detection through gas analyzer.
3.	Noise.	85 db (A).	Sound-meter at 7.5 meters from the source.