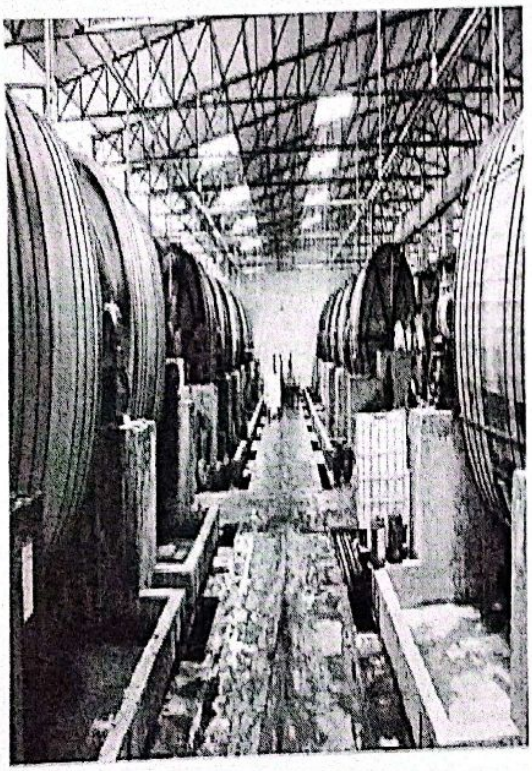
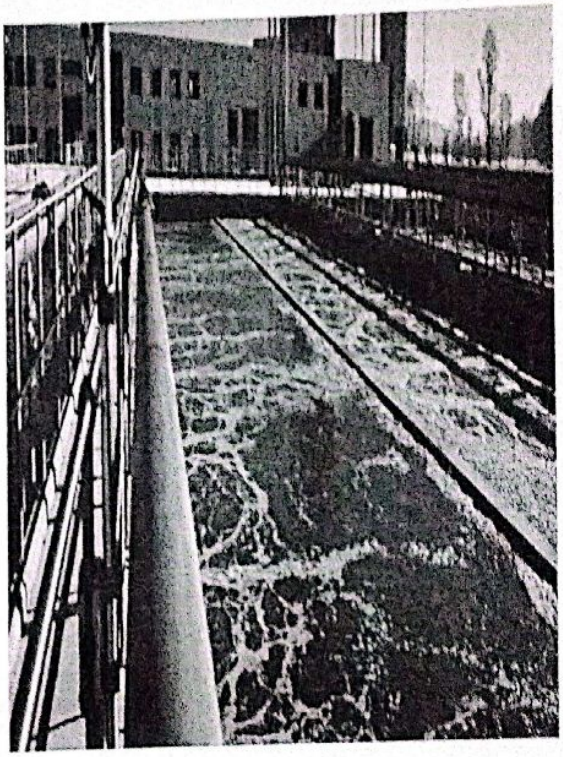
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ENVIRONMENTAL IMPACT ASSESSMENT

EXTENSION IN EXISTING FACILITY AND INSTALLATION OF EFFLUENT TREATMENT PLANT BY M/S GULSHAN TANNERY LOCATED AT LOCATED AT NAWA PIND GOHAD PUR SIALKOT PAKISTAN





PREPARED BY

Asian Verification Pvt Ltd
19-km ferozepur road, 1-km kalamkar road, Lahore, Punjab, Pakistan

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EXECUTIVE SUMMARY

Title & Location of the project

Subject project for which this Environmental Impact Assessment (EIA) Study is conducted is an extension of leather tannery unit by installing 2-3 drums (machinery in the existing unit) and efficiency enhancement & installation of waste water treatment plant with capacity of $2m^3$/day under the name of **M/S Gulshan Tannery**. The unit is located at Nawa Pind Gohad Pur Sialkot Pakistan. The proponent is voluntarily filing an Environmental Impact assessment for its operational unit and keen to obtain NOC from EPA because of his commitment to environment, for the regularization of the operations and to fulfill the requirement of international clientage.

The subject project falls under Clue 10 of category B of Schedule II of Review of IEE and EIA Regulations, 2022. TORs of the study under clause 5 (f) of policy and procedure for the filing, review and approval of environmental assessment.

Location

Subject established project is located at Nawa Pind Gohad Pur Sialkot Pakistan.

Name of the proponent

- Name: Mr. Hafiz Faraz Khalid Dar S/of Khalid Javed Dar
- Designation: Proponent
- CNIC: 34603-3299781-7
- Mailing Address: house # 119/35, Muhalla Kashmeri Sialkot

For further details CNIC of the proponent and other relevant documents are attached with this report.

Name of Organization preparing the report

Asian Verification (Pvt) Ltd
Address: 19-km ferozepur road, 1-km kalamkar road, Lahore, Punjab, Pakistan
+924235925425

For detail company profile see the Chapter # 1 "Introduction"

A brief outline of the proposal

Name of the project:	M/S GULSHAN TANNERY
Location of the project:	Nawa Pind Gohad Pur Sialkot Pakistan.

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Area:	Total area of the subject project is 4 kanal 7 marla Extension area of the subject project is 11 marla and this is the extension in the premises of existing unit.
Nature of Project:	Subject project is extension of leather tannery unit by installing 2-3 drums (machinery in the existing unit) and efficiency enhancement & installation of waste water treatment plant with capacity of $2m^3$/day
Cost of the project:	Total cost of the project is approx. 20 million Rupees.
Project process:	Project process is the production of leather from raw hides of animals with chrome tanning method. Details of the process are provided in Project Process.
Raw materials	Hides are the raw material of the project process.
Final Product	Split suede Leather
Quantity of raw materials	110 lbs. per month animal hides will be used as raw material.
Production capacity	1200 kg/day is produced in the unit.
Power Requirement:	50 KVA transformer is installed by WAPDA to fulfill the power requirement of the unit. One diesel fired standby generators of 100 KVA are also present to cope up with any emergency situations
Labor/ Workforce:	20-25
Water Requirement:	During the operations of the project approx. 1000 gallons/day water is required for project process and domestic purposes.
Solid waste:	Approx. 1500 kg/day process and domestic waste is produced.

THE MAJOR IMPACT

In order to identify all the activities associated with the project during construction and operation phase with potential to cause adverse environmental impacts and harm a thorough review has been conducted. Project will not have any significant adverse impacts on the nearby community and on environment. Overall, the project will have positive impacts on the local population and country as a whole. Moreover, area for plantation is also reserved for air purification within the project vicinity.

EXISTING ENVIRONMENTAL CONDITIONS

For the purpose of this report, environmental and social baseline data and conditions at/around the project site has been studied. The data has been gathered from sources of

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information included consultation with project proponent, private visits, field surveys, desktop studies, existing information sources. Interviews with people near the project area has been conducted to collect their opinion regarding the proposed project and after finding it has been concluded that the project will not have any major adverse impacts on the socio-economic environment of the existing community. As the project is outside the main city, in barren fields so the functioning of the project will not be the reason of nuisance for the nearby community. Moreover, the project will pose the positive impacts in terms of employment opportunities as it will create jobs during construction and operation and will contribute to the nation economy by meeting the demand.

MAJOR IMPACTS AND RECOMMENDED MITIGATION MEASURES

Keeping in view, all the findings of the baseline study, and through general observation and desktop study, and understanding of the activities and processes involved in the project, environmental impacts have been anticipated. Following impact assessment methodology; i.e. defining the criteria for evaluation of the impacts, identification of mitigation measures (all possible options), evaluation of the residual impacts and identification of the monitoring requirements, adequate and effective mitigation measures have been proposed for all construction and operation related likely environmental impacts of the project. These mitigation measures have

The criteria of classification of the impacts as being important, middle or weak are according to:

1. Size and geographical extent
2. Duration and Frequency
3. Irreversibility
4. Ecological context

The major impacts foreseen during construction and operation phase of the proposed extension project are as following:

Table: Summary of Environmental impacts of the project during the operation phase and their mitigation measures:

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Gaseous Emissions- Gaseous emissions from site generators, machinery, and transportation vehicles can result in deterioration of ambient air quality of the outdoor environment.	PEQS for Ambient Air	PPEs i.e. masks will be provided to workers during the working hours. Proper ventilation should be ensured in the working area. Vehicles to use for the transportation of materials should be properly tuned. Generators are tuned regularly and their PEQS compliance is ensured. Venturi and wet scrubber will be installed at the stack of boiler to control the air emissions from the boiler. Monitoring should be conducted on Monthly basis as per EPA PEQS Rules.
Machinery Noise- Working of machinery can be a nuisance for the workers in the production area.	OSHA Standards	PPEs i.e. ear muffs should are provided to the workers in production halls.
Health & Safety Issues- Health and Safety issues e.g. Cuts and Injuries may be caused during the machinery handling.	OSHA Standards	Proper training of the staff should be conducted to avoid the accidents. First aid measures should be provided at the workplace.
Discharge of wastewater- The discharge of untreated wastewater can be a negative impact.	PEQS for Municipal and Liquid Industrial Effluents (mg/l, unless otherwise defined)	Effluent treatment plant should be installed for the treatment of wastewater.
		Compliance of PEQS for Municipal and Liquid Industrial Effluents will be ensured. Monitoring will be conducted as per PEQS and reports will be submitted to EPA.

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Solid waste management- Improper solid waste management may cause health problems and aesthetic issues	Exposure to potentially hazardous waste; Generation of excessive waste; Recyclable waste and reusable waste is discarded; Littering; Improper disposal.	Waste bins should be placed at suitable places. Domestic and process related waste should be handed over to contractors.
Groundwater—The increased withdrawal of groundwater for the project will affect the groundwater resources of the project area	Water extracted for the project has directly affected the ability of the community to meet their water needs	No impact on th community groundwater needs is envisaged as a result of the project.

Environmental Monitoring Program

To oversee the environmental performance of the project through its lifecycle enforcing the PEQS an Environmental Monitoring Program formulated which ensures effective surveillance of the environmental parameters at various stages of the project operation and compliances with PEQS and legal obligations. Monitoring for following Environmental Parameters is recommended:

- **Ambient Air**
  Monitoring for ambient air should be conducted on quarterly basis during constructional phase of the project and report should be submitted to EPA Punjab.
- **Noise**
  Regular monitoring for noise level should be maintained periodically during construction and operation phases of the project and report should be submitted to EPA Punjab.
- **Water quality**
  Regular monitoring of water quality should be conducted on monthly basis during construction and operation phases of the project and report should be submitted to EPA Punjab. Record should be maintained regarding the underground water pump and consumption. Recommendation: Environmental Monitoring data log book should be maintained by the project proponent.

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PROPOSED MONITORING

Monitoring at the proposed sites has been conducted for ambient air, Noise level and water and the reports demonstrated that results are within the limits prescribed by PEQs (2016). The values of these parameters are present in baseline study of project.

ENVIRONMENTAL MANAGEMENT & MONITORING PLANS

For the effective implementation and management of the mitigation measures, an environmental management plan has been prepared. The EMP satisfies the requirement of Pakistan Environmental Protection Act. The EMP outlines the aims and objectives, defines the responsibilities of the project owners and contractors and lays down the required communication, reporting procedures and mechanism through which the proposed measures will be monitored.

Environmental impact of a project is worked out using various factors and parameters ,so that an Environmental Management Plan can be evolved to take mitigation measures, wherever these might be considered necessary in order of appropriateness of elimination, reduction and compensation as the goals. The development of the EMP is to make some person responsible for implementing the mitigation measures as identified so that smooth implementation of the mitigation measures can be assured. Monitoring plans have also been included to ensure the compliance of the EMP by contractors and other responsible authorities. These plans have been included in

Proposed Management and Monitoring Plan

Sr. No.	Impact	Project activity	Monitoring Mechanism	Frequency	Monitoring Authority
Construction and Operational Phase					
1.	Air emission s and dust	Air quality will deteriorate due to transportation and construction activities	Monitoring for the air quality as per PEQS, 2016	Quarterly	Proponent/ Contractor

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2.	Water pollution	Water quality will deteriorate due to construction and operational activities	Monitoring for waste water & drinking water quality as per EPA PEQS,2016.	Quarterly	Proponent/ Contractor
3.	Noise pollution	Construction activities, utilities and transportation activities	Monitoring for noise level as per PEQS,2016	Quarterly	Proponent/ Contractor

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CHAPTER # 1 INTRODUCTION

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

1.1 Purpose of the report

Environmental Impact Assessment (EIA) report is being submitted to the Environmental Protection Agency (EPA), Government of the Punjab, and Lahore for the compliance of Section 12 of Punjab Environment Protection Act-1997 (Amended 2017) for obtaining No Objection Certificate (NOC) for its operations. 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 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 Identification of the project and proponent

The proposed project falls under Clause 9 of category B of Schedule II of Review of IEE and EIA Regulations, 2022.

1.3 Name of Organization preparing the report

The Environmental impact Assessment (EIA) has been carried out by aptly skilled and duly qualified group of professionals working for the environmental consulting firm namely Asian Verification Pvt. Ltd. The consulting team can be approached through the following contact details:

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Asian Verification (Pvt) Ltd
Address: 19-km ferozepur road, 1-km kalamkar road, Lahore, Punjab, Pakistan
+924235925425

1.3.1 Proponent:

- Name: Mr. Hafiz Faraz Khalid Dar S/of Khalid Javed Dar
- Designation: Proponent
- CNIC: 34603-3299781-7
- Mailing Address: house # 119/35, Muhalla Kashmeri Sialkot

For further details CNIC of the proponent and other relevant documents are attached as with this report.

1.4 The team carrying out the research project

No.	Name	Qualifications and Brief Experience	Roles Assigned
1	Engr. Waqar Ahmad	Environmental Engineer B.Sc. Environment Engineering	• Preparation of Baseline Conditions of the Project Area • Assessment of Environmental Impacts and Proposing their Mitigation Measures. • Preparation of Environmental Management and Monitoring Plan. • Author of EIA Report
2	Dr. Usama Zafar	PhD Environmental Science	• Author of EIA Report
4	M. Abdul Razzaq	Master of Science-GIS	• Development of Maps
5	Aqsaa Rasheed	M. Phil Environmental Science	• Report Writing
6	Zahra Afzal	BS Chemistry	• Laboratory Analysis

1.5 Brief description of Nature, Size and Location of Project

Subject project is extension of tannery unit by installing machinery in the existing building, 4-5 drums will be installed in the existing building and waste water treatment plant installation with capacity of 2m3/day under the name of M/S GULSHAN TANNERY located at Nawa Pind Gohad Pur Sialkot Pakistan . Many other industrial units are already in process of operation in the surroundings. Total area of the subject proposed project is 4 kanal & 7 Marla. Animal hides are the raw material of the project

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process and product will be the leather. Project process includes the chrome tanning of raw hides obtained from animals to produce leather sheets. Production capacity of the project is 1200 kg/day of wet-blue. Total cost of the project is approx. 20 million.

1.5.1 Location

Subject proposed project is located at Nawa Pind Gohad Pur Sialkot Pakistan

For further details, layout map of the unit is attached as **Annexure** and Google map is attached as **Annexure** with the report.

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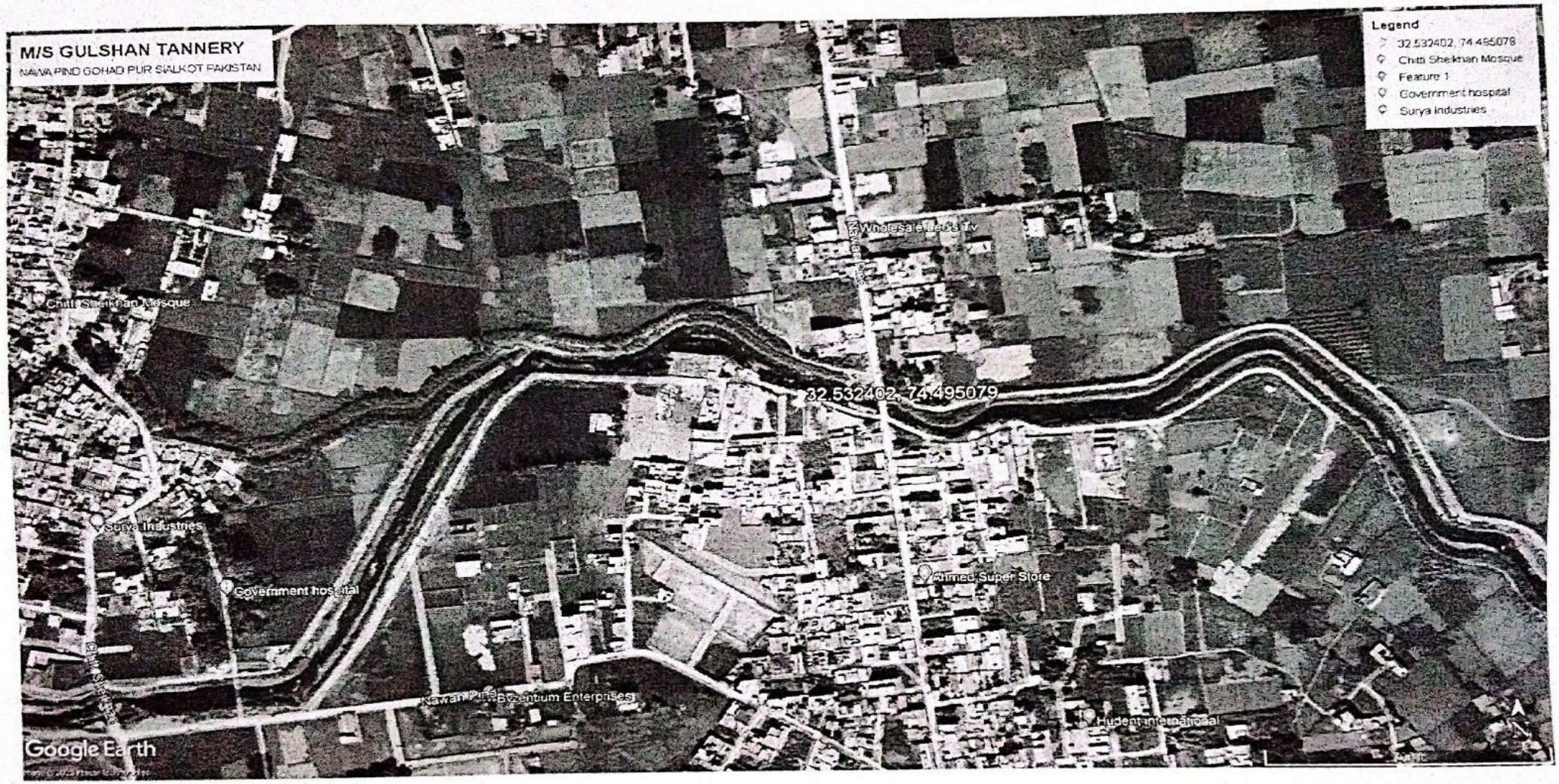


Figure 4: Google Earth Location of the Unit

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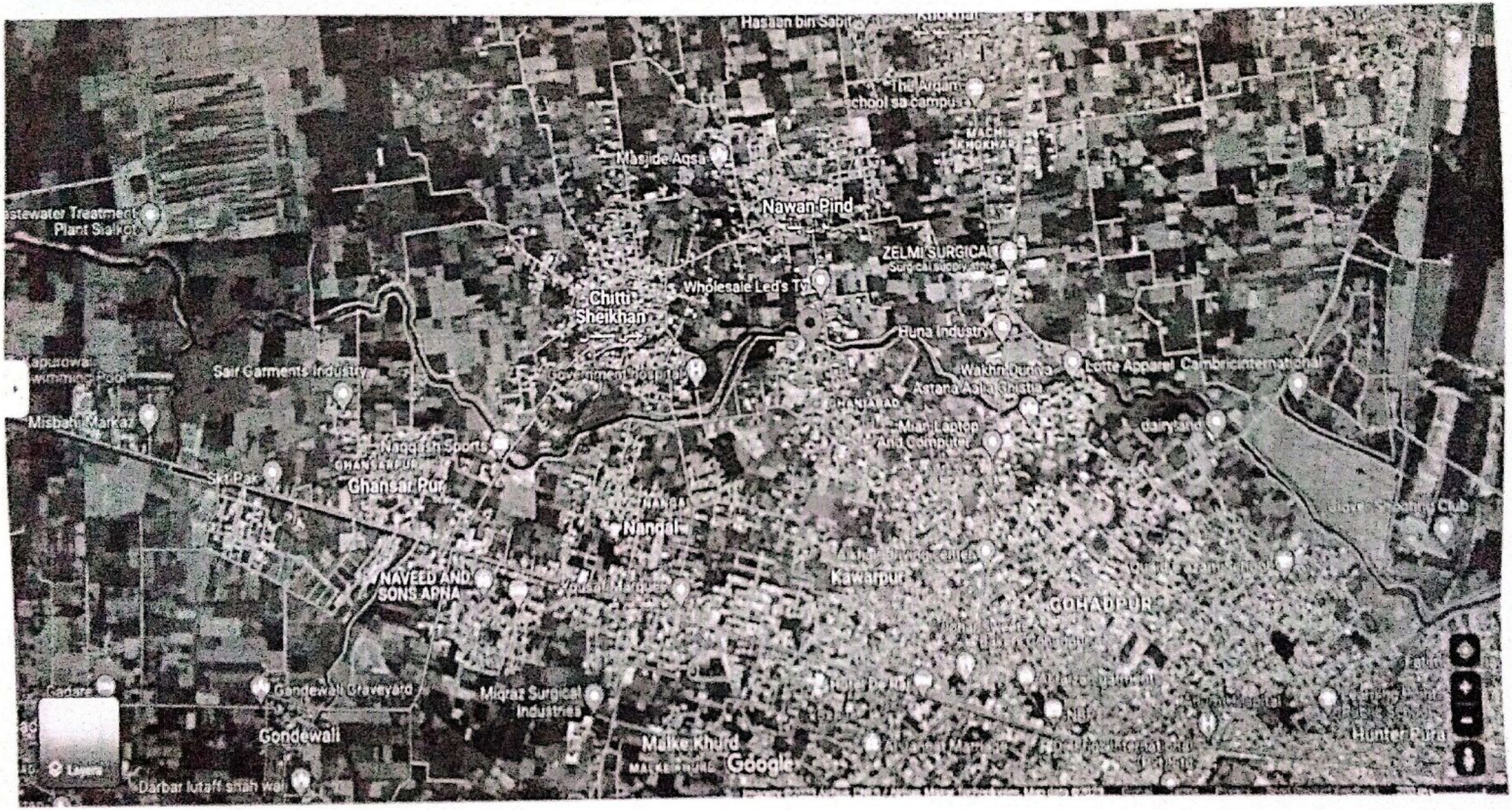


Figure 3: Google Map View of the Unit

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.6 METHODOLOGY FOR ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

This Environmental Impact Assessment is based on methodology provided in the EPA notified guidelines for preparation of EIA report. Initially the baseline of the project area was developed by gathering secondary data, records and information on existing physical and social, and ecological environment. The primary data for the purpose of this EIA report was generated through monitoring and laboratory testing of environmental parameters. The changes expected in the critical environmental aspects e.g. in the parameters like ambient air, noise, socioeconomic indicators that may be significant with a positive or negative attribution were identified. Subsequent mitigation, management and monitoring measures have been drafted accordingly. This EIA report presents the existing baseline situation and the environmental aspects involving Eco environmental waste management's baseline information with reference to environmental and social aspects. Site visits have been done with respect to current infrastructure for the proposed venture. The EIA study has adopted the following methodology for report compilation perform reconnaissance survey and to gather primary

.7 LITERATURE REVIEW/BASELINE

Exiting publications and previous IEE/EIA reports with relevance to the proposed project were studied. In addition, the legislative framework governing the process of EIA and environmental approval were reviewed to ensure that all the parameters are met.

PROJECT SPECIFIC DATA

The information related to the project and its infrastructure has been provided by the proponent.

IMPACT IDENTIFICATION AND ASSESSMENT

A categorical assessment of environmental impacts associated with the proposed project with respect to environment and socioeconomic and ecological aspects has been conducted.

MITIGATION MEASURES AND EMMP

Impact assessment has been supplemented by the incorporating mitigation measures to lessen severity of impacts and to manage different activities within the outline of environmental management and monitoring plan. The EMMP is provided to facilitate the proponent in establishing an environmental conscious system that supports conservation at all levels of its construction and operation.

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CHAPTER # 2 SCREENING & SCOPING

Screening is an essential part of an EIA process. Screening often results in a categorization of the project and from this a decision is made on whether or not a full EIA is to be carried out. The EPA Punjab has provided a layout for the screening process. Under the Regulations for Review of IEE/EIA, 2022, the EPA Punjab has provided Schedule I and II which categorize projects into IEE and EIA. For this project of construction unit of Lion Waste Management Pvt. Ltd. the same Schedules were consulted. According to the Schedules the proposed project falls under SCHEDULE II (List of projects requiring an EIA).

Scoping is the stage in EIA at which issues, impacts and preliminary alternatives are determined that should be addressed at subsequent stages. It directly follows the screening stage and is a systematic exercise that establishes the boundaries and Terms of Reference (TOR's) for the EIA. A quality scoping study reduces the risk of including inappropriate components or excluding components which should be addressed. While scoping has been defined by many different terms, the definition adopted in recent guidance on project EIA, developed for the European Commission, sets out its meaning in its broadest sense as follows: "Scoping is the process of determining the content and extent of the matters which should be covered in the environmental information to be submitted to a competent authority for projects which are subject to EIA/IEE.

2.1 GUIDING PRINCIPLES FOR CARRYING OUT THE SCOPING STAGE

The guiding principle for the proposed scoping stage is the emphasis on anticipated environmental impacts and affected people. The scoping session was initiated at the EIA planning stage to include all relevant stakeholders in the study. This helped in defining the boundaries for field assessment of environmental and social parameters.

2.2 OBJECTIVES

The key objectives of this scoping are to:

- Inform the public about the proposed project
- Identify main stakeholders and their concerns and values
- Define reasonable and practical alternatives to be addressed
- Focus the important issues and significant impacts to be addressed in the EIA report
- Define the boundaries in time, space and subject matter
- Set requirements for the collection of baseline and other information
- Establish the Terms of Reference (TOR's) for the EIA study

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2.3 EIA REPORT CONTENT

The content of the EIA report for the proposed project will be as according:

1. Introduction
2. Consideration of alternatives
3. Consideration of project
4. Description of the Environment
5. Involvement of Stakeholder/ Public Consultation
6. Screening of Potential Environmental Impacts and Mitigation Measures
7. Environmental Management and Monitoring Plan
8. Conclusions and recommendations

BASELINE ENVIRONMENTAL INFORMATIONTHAT WOULD BE INCLUDED IN THE EIA/IEE REPORT

Physical Resources:

1. atmosphere (e.g. air quality and climate)
2. topography and soils
3. surface water
4. groundwater
5. geology / seismology

Ecological Resources

1. fisheries
2. aquatic biology
3. wildlife
4. forests
5. rare or endangered species
6. protected areas

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Economic Development

1. industries
2. infrastructure facilities (e.g. water supply, sewerage, flood control)
3. transportation (e.g. roads, harbors, airports, and navigation)
4. land use (e.g. dedicated area uses)
5. power sources and transmission
6. agricultural development
7. mineral development
8. tourism facilities

Social and Cultural Resources

1. population and communities (e.g. numbers, locations, composition, employment)
2. health facilities
3. education facilities
4. socio-economic conditions (e.g. community structure, family structure, social wellbeing)
5. physical or cultural heritage
6. current use of lands and resources for traditional purposes by Indigenous Peoples
7. Structures or sites that are of historical, archaeological, paleontological, or architectural significance.

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Chapter 3 Alternatives of consideration

To fulfill all aspects of the project under reference of this EIA Report, it is to be sited at a place where industrial processing 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 2017). 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.

Obviously, environmentally sound, neat and clean environment are the other considerations for site selection. The project will also facilitate the people of the area with increasing the opportunity of employment, and other related facilities

3.1 Site alternatives:

To fulfill all the aspects of the project under reference of this EIA Report, it is to be sited at a place where industrial processing 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 2017). 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.

3.2 Alternative Considerations and Reasons for their Rejection:

3.2.1 Location/Site alternatives:

Concurrently, it must also meet the legal requirements of the Punjab Environmental Protection Act, 1997 (Amended 2017). 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.

Obviously, environmentally sound, neat and clean environment are the other considerations for site selection. Keeping these requirements and their feasibility and other basic infrastructural requirements, the selected site is ideally suited for the subject Tanning manufacturing unit.

The concerned project for which this EIA has been conducted is an already constructed building and present in an industrial area. Other rice mills and leather industries are also in operation in the area so there is no need to consider alternative sites for the project. The project is also facilitating the people of the area with increasing the

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3.2.2 Reason of selecting existing site:

The reasons of selection of this site are:

- Availability of access roads
- Nearby Drain
- Compatible land use
- Sufficient distance from major population centers
- Communication facilities
- Willing land host communities
- Availability of electricity
- Basic infrastructure
- Limited sensitive ecological issues;
- Less/few vegetation/plantation
- Less fauna species at site
- Convenient plot layout

3.3 Technology alternatives:

Chrome tanning remains the most favorite technology in the leather industry worldwide due to its ability to produce leather with attributes desirable for high-quality leather such as excellent hydrothermal stability, better dyeing characteristics and softness. Nevertheless, the technology has been censured globally for its severe environmental detriments and adverse effects on human health and other organisms. Developing alternative eco-friendly tanning technologies capable of producing leather of high quality has remained a challenging scientific inquiry. This review article provides an assessment of various eco-friendly tanning attempts geared towards improving or replacing the chrome technology without compromising the quality of the produced leather

3.4 Environmental alternative

Construction of this project this area will have minimal impact on the daily life people living in housing scheme. The project proponent is recommended to make sure that there is no any environmental impact is caused during the project construction and operations. The Proponent will make sure all the operations will be according to EMP recommendations.

3.5 Economic Alternatives

It is extension unit of installing machinery and efficiency enhancement of waste water treatment plant .It will be a source of job opportunities to local population. To establish the business for the proponent. To contribute to the national economy of the country. Compensate to help eradicating poverty by providing employment.

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Chapter-4 National Environmental Policy, Legal and Administrative Framework

4.1 General

This section deals with the policy and legal framework which apply for protection, conservation, restoration, rehabilitation and also related to sustainable development in context of project implementation and its operation. The project is expected to comply with all the legislation related to the environmental aspects as regards of Pakistan.

4.2 National Policy Framework

Following elements of national policy framework are considered the most relevant to this project

National Conservation Strategy

The Pakistan National Conservation Strategy (NCS), which was approved by the federal cabinet in March 1992, is the principle policy document on environmental issues in the country (EUAD/IUCN, 1992). The NCS outlines the country's primary approach towards encouraging sustainable development, conserving natural resources, and improving efficiency in the use and management of resources.

The NCS has 68 specific programs in 14 core areas in which policies intervention is considered crucial for the preservation of Pakistan's natural and physical environment. The core areas that are relevant in the context of the proposed project are:

- Pollution prevention and abatement,
- Restoration of rangelands,
- Increasing energy efficiency,
- Conserving biodiversity,
- Supporting forestry and plantations, and
- The preservation of natural heritage.

National Environmental Policy, 2005

The national environmental policy act 2005 aims to protect, conserve, and restore the environment in order to improve quality of the life of citizens through sustainable development and resource conservation.
The main objectives of the policy are:

- Conservation, restoration and efficient management of natural resources.
- Integration of the environmental considerations in policy making and planning process.
- Capacity building of government agencies and other stakeholders at all levels for the better environmental management
- Meeting international obligations effectively in line with the national aspirations.
- Creation of a demand for environment through mass awareness and community mobilization.

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The National Forest Policy 2001 of Pakistan

This policy covers the Renewable Natural Resources (RNR) of Pakistan i.e. forests, rangelands, watersheds, wildlife, biodiversity and their habitats. The policy seeks to launch a process for eliminating the fundamental causes of the depletion of RNR through the active participation of all the concerned agencies and stakeholders, to realize the sustainable development of natural resources. It is an umbrella policy providing guidelines to the federal government, provincial governments and territories for the management of their RNR. In consonance with it, the provincial and district governments may devise their own policies in accordance with their circumstances.

The goal of this policy is to foster the sustainable development of RNR of Pakistan, for the maintenance and rehabilitation of its environment and the enhancement of sustainable livelihoods of its rural masses especially women, children and other deprived groups.

The elements of the policy are as follow:

- Population planning in critical eco system
- Providing substitutes to firewood in the wooded mountains
- Reducing the impact of socio-economic causes
- Reducing poverty, poverty of opportunity, and powerlessness
- Renovating and invigorating the institutions of RNR
- Supporting local government in the sustainable development of their res
- Policies for fragile natural ecosystem
- River rain forests
- Integrated plantations
- Preservation of relict and unique ecosystem
- Wildlife
- Rangelands and desert ecosystem
- Planting of trees and fodders on farmlands

4.3 Pakistan Environmental Protection Act (PEPA), 2017 and administrative framework

General

PEPA 2017 is a fairly comprehensive legislation and provides legislative framework for protection, conservation, rehabilitation and improvement of the environment. It contains concrete action plans and programs for the preservation of pollution and promotes sustainable development.

The silent features of this law are:

- No proponent of a project shall commence construction or operation unless he has filed with the government agency designed by federal environment protection agency (EPA) provincial EPAS an EIA, and has obtained a no objection certificate (NOC) environmental approval (ea).

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- Establishment and formation of the Pakistan environmental protection council.
- Powers and functions of the federal and provincial environmental protection agencies.
- Prohibition of certain discharges or emissions.
- Punjab environmental quality standards (PEQS) for wastewater, air emissions and noise.
- This act also empowers federal government to issue notices and to enforce them for the protection of the environment and resource conservation.

For the effective implementation of the provisions of PEPA 1997, Pak-EPA headed by a director general has been constituted. On the same pattern, EPAS/EPDS have been created in all provinces. The capability of regulatory institutions for environmental management largely achieves the success of environmental assessment for ensuring that development projects are environmentally sound and sustainable. For decision-making and policy formulation in the environmental and conservation issues, the institutional framework is described in following paragraphs.

Federal Government Institutions

With the approval of the 18th amendment in the constitution of 1973 of the Islamic republic of Pakistan, the subject of environment has largely been delegated to the provinces. The federal ministry of environment has been abolished and instead the ministry of national disaster management has been shaped under which Pakistan environmental protection council; Pakistan environmental protection agency; Pakistan environmental planning and architectural consultants limited; global environmental impact study center, Islamabad policy, legislation plans, strategies and programs with regard to disaster management including environmental protection and preservation, coordination, monitoring and implementation of environmental agreements with other countries, international agencies and forums have been put. Now the new ministry namely climate change division has been established.

The Pakistan environmental protection agency (PEPA) looks after the environment related issues for the federally controlled areas territories. Lacking laws at the provincial levels; the laws, rules, regulations those already available at the federal level and operational at the provincial levels will continue as such.

Hereunder, the major legal framework is given:

Two organizations, the Pakistan protection council (PEPC) and the EPA, are primarily responsible for administrating the provisions of PEPA 1997. The PEPC oversees the functioning of the EPA. Its members include representatives of the government, industry and non-governmental organizations. The EPA is required to ensure compliance with the PEQS, established monitoring and evaluation system, and both identify the need as well as initiate legislation whenever necessary. It is thus the primary implementing agency in the hierarchy. The provincial EPAS/EPDS are the provincial arms of federal EPA.

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4.4 Pakistan Environmental Protection Agency Regulations, 2000 for Review of Environmental impact Assessment(IEE)/Environmental Impact Assessment (EIA)

Under section 12 of the 1997 act, a proposed falling under any category specified in schedule 1 and 2 requires the proponent to file an IEE or EIA, as the case may be, with the federal agency. Within ten working days of the EIA or IEE having been submitted, the federal agency will conform that the documents submitted are complete for the purpose of review. During this time should the federal agency requires the proponent to submit any additional information; the IEE or EIA will be returned to the proponent for revision, clearly listing those aspects that need further discussion. Subsequently, the federal agency shall make every effort to complete an IEE review within 45 days and EIA review within 90 days of filling of the complete information of report. After the successful review, the EPA will issue the NOC/EA according to the rules and regulations as prescribed in regulation 2000.

During the project execution the proponents are required to comply with the recommendations of the IEE/EIA and also the conditions of the NOC/EA set forth by the relevant EPA, in present case, EPA, Lahore, Punjab. During the construction or post IEE monitoring and reporting is mandatory according to clause 19 of regulation -2000. These regulations require proponent of all projects to submit environment monitoring reports during and on completion of construction, and regular operation of the project. Any additional requirements of the report as desired by the EPA are also necessary for the proponent, however, the format and contents of such reports are not specified in the laws.

Pakistan Environmental Impact Assessment Procedures

These guidelines are descriptive documents describing the format and content of IEE/EIA reports to be submitted to federal and provincial EPA/EPD for obtaining NOC. Following are the major areas, which are covered by these guidelines:

- The environmental assessment report formation (scoping, type and category of project, description of project, alternatives, site selection, baseline data).
- Assessing impacts (identification, analysis and significance).
- Mitigation and impact management and preparing an environmental management plan.
- Reporting (format, main features, shortcomings, other forms of presentation).
- Review and decision making (role, steps, remedial options, checks and balances).
- Monitoring and auditing (systematic follow up, effective data management).
- Project management (inter-disciplinary teams, programming and budgeting).

Guidelines for Public Consultation

The federal EPA provides these guidelines to deal with possible approaches to public consultation and techniques for designing an effective program of consultation that reaches out to all major stakeholders and ensures the incorporation of their concerns in any impact assessment study. These guidelines cover:

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- Consultation, involvement and participation of stakeholders
- Effective public consultation (planning, stages of EIA where consultation is appropriate)
- Facilitation involvement (including the poor, women and non-governmental organizations (NGOs)

Punjab Environmental Quality Standards (PEQs), 2000

The PEQs 2000 specify the following standards:

- Maximum allowable concentration of pollutants (32 parameters) in municipal and liquid industrial effluents discharged to inland waters, sewage treatment facilities, and the sea (three separate sets of numbers)
- Maximum allowable concentration of pollutants (16 parameters) in gaseous emissions from industrial sources
- Maximum allowable concentration of pollutants (two pollutants) in gaseous emissions from vehicle exhaust
- Maximum allowable noise levels from vehicles
- These standards apply to the gaseous emissions and liquid effluents. Standards for ambient air quality have not been prescribed as yet.

Punjab Ambient Air Quality Standards (PAAQSS)

The ministry of environment, government of Pakistan vide its notification, Islamabad, the 18th October, 2010 under S.R.O. 102 (1)/2010 established standards which provide the maximum allowable limits, in the ambient air, of Sulphur dioxide (SO2), oxides of nitrogen, Suspended Particulate Matter-(spm), Respirable particulate matter-pm10, Respirable particulate matter-pm25, lead and Carbon monoxide (co).

Table 1: Punjab Environmental Quality Standards Ambient Air

Pollutants	Time-weighted Average	Concentration in Effective from 1st July 2010	Ambient air Effective from 1st January 2013	Method of Measurement
Sulphur dioxide (so2)	Annual average	80 g/m3	80 g/m3	Ultraviolet fluorescence
	24 hours	120 g/m3	120 g/m3	
Oxides of nitrogen as (no)	Annual average	40 g/m3	40 g/m3	Gas phase Chemilumine scence
	24 hours	40 g/m3	40 g/m3	
Oxides of nitrogen as (no2)	Annual average	40 g/m3	40 g/m3	Gas phase Chemilumine scence
	24 hours	80 g/m3	80 g/m3	
Suspended particulate matter	Annual average	400 g/m3	360 g/m3	High volume sampling (average flow

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(spm)	24 hours	550 g/m3	500 g/m3	rate not less than 1.1 m3/minute
Respirable particulate matter pm10	Annual average	200 g/m3	120 g/m3	Beta ray absorption
	24 hours	250 g/m3	150 g/m3	
Respirable particulate matter pm 2.5	Annual average	25 g/m3	15 g/m3	Beta ray absorption
	24 hours	40 g/m3	35 g/m3	
		25 g/m3	15 g/m3	
Lead (pb)	Annual average	1.5 g/m3	1.0 g/m3	Ass method after sampling using epm 2000 or equivalent filter paper
	24 hours	2.0 g/m3	1.5 g/m3	

*annual arithmetic means of minimum 104 measurements in a year taken twice a week 24 hourly at uniform interval.

*** 24 hourly/8 hourly values should be met 98% of the in a year, 2% of the time, it may exceed but not on two consecutive days.

Punjab Standards for Drinking water Quality (PDWS)

The ministry of climate change, government of Pakistan vide its notification, Islamabad, the 18th October, 2010 under S.R.O, 102(1)/2010 established standards for drinking water quality. The major quality parameters fixed depend upon bacteria, chemical and physical ones.

Punjab Environmental Quality Standards-Noise

The ministry of climate change, government of Pakistan vides its notification, Islamabad, and the 18th October, 2010 under S.R.O 102 (1) / 2010 established standards for noise. These standards are based on category/zone i.e. residential area, commercial area, industrial area and silence zone. The limiting values for day and night have also been fixed for all categories/zones.

National Resettlement Policy and Ordinance

As referred above, at present the only legislation relating to land acquisition and compensation in the land acquisition act (LAA) of 1894. Experience with large-scale infrastructure development projects implemented by institutions such as WAPDA has demonstrated the need for a cohesive national policy resettlement for resettlement. Following a national consultative process, a national resettlement policy and a related ordinance were drafted known as draft resettlement policy, 2002 which still has to be approved by the government.

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The salient applicable features of the draft resettlement policy are given below:

- The Pak-EPA will be responsible for both environment- related as well as resettlement-related matters.
- The responsibilities for implementation at a provincial level are to be delegated to the concerned provincial EPAS with overall control of the provincial planning and development (P & D) departments.
- All categories of 'loss' arising from development projects that entail resettlement, need to be addressed; these include not only loss of land, built-up property, other infrastructure, and crops and trees, but also loss of income, job opportunities, and access to natural resources etc.
- Vulnerable groups whose issues need to be addressed in particular include: women, children, destitute persons, tribal communities, squatters, those with usurper rights, and landless groups.
- There should be a special emphasis on consultation with affected groups when preparing a resettlement action plan.

4.5Other Environment Related Statues

This section outlines the other statues apart from Pakistan protection act, 1997, which are relevant to project.

The Land Acquisition Act (LAA) -1894

At this point, the only legislation relating to land acquisition and compensation is the LAA of 1894. The LAA is however, limited to a cash compensation policy for the acquisition of land and built up property, and damage to other assets, such as crops, trees, and infrastructure. The LAA does not consider there habitation and resettlement of disrupted populations and the restoration of their livelihoods. The project will involve acquisition of propriety land. The land will be acquired under the LAA 1894. In the act there are provisions for normal acquisition of land under section 6 (4) or emergency acquisition under section 17 (4).

Pakistan Explosives Act, 1884

Under the explosives act, the project contractors are bound by regulations on handling, transportation and using explosives during quarrying, blasting, and other purposes.

The Forest Act, 1927

The forest act empowers provincial governments to prohibit the clearing of forest for cultivation, grazing, hunting, removing forest produce; quarrying and felling, lopping and toping of trees, branches in reserved or protected areas.

Pakistan Penal Code, 1860

The Pakistan penal code deals with offences where public or private property and/or human lives are affected due to the intentional or accidental misconduct of an individual or body of people. In the context of environment, the penal code empowers the local authorities to control noise, noxious, emissions and disposal of effluents. The PEQS

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enforced by the EPAS supersede the application of this legislation on industries and municipalities.

Provincial Wildlife Act, 1974

In addition to empowering the provincial wildlife departments to establish game reserves, parks, and wildlife sanctuaries, this act regulates the hunting and disturbance of wildlife.

4.6International and National Non-Governmental Organizations.

International and national non-government organization (NGOs), such as the international union for conservation of nature and natural resources (IUCN) and the world wide fund for nature (WWF), have been active in Pakistan for some time. Both of these NGOs have worked closely /with the governments at the federal as well provincial levels and have positively contributed to the cause of environment. They have played significant role with regard to the formulation of environment and conservation policies and last but not least, another most prominent NGO namely "Sustainable Development Policy Institute (SDPI)" has also played very significant role in upholding the cause of environmental protection in Pakistan. Environmental NGOs have been particularly active in the governments environmental and conservation policies, even at the provincial and federal levels, have been formulated in consultation with leading NGOs, who have also been involved in drafting new legislation on conservation.

Explosive Act, 1884

This act deals with explosives in prohibiting either absolutely of subject to conditions, the manufacture, possession or importation of any explosive which is so dangerous in character that, in the opinion of the appropriate government, it is expedient for public safety to issue the notification.

Punjab Local Government Ordinance, 2001

Schedules 4 and 8 of this ordinance pertain to environmental pollution. Under the ordinance, the local councils are authorized to restrict projects causing pollution to air, water or land. They may also initiate schemes for improving the environment.

Pakistan Penal Code, 1860

This defines the penalties for violations concerning pollution of air, water bodies and land. Sections 268 to 291 are about offences affecting public health. The offences relating to public health safety and environment are as under;

- Sec 268: public nuisance
- Sec 269: negligent act likely to spread infection of disease dangerous to life:
- Sec 270: malignant act likely to spread infection of disease dangerous to life:
- Sec 278: making atmosphere noxious to health:
- Sec 284: negligent conduct with respect to poisonous substance:
- Sec. 290. Punishment for public nuisance in cases not otherwise provided for:

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- Sec. 291. Continuance of nuisance after injunction to discontinue.

Punjab Land Use Rules 2009

In January 2009 the Punjab government notified "Punjab land use rules 2009" for the clarification of Lahore master plan. In these rules permissible land use according to area type is define2.18 antiquities act 1975

The law relates to protection of antiquities / monuments / national / international heritage. The compliance of this act is mandatory for the installation of generators. Under section 22 of the act no development plan or scheme or new construction can be done within distance of 200ft from the boundary of the monuments/ national heritage. There is no historical site / monuments in the proximity of the project.

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CHAPTER # 5 DESCRIPTION OF THE PROJECT

5.1 Type and Category of the Project:

Subject project is a proposed project of extension of Tanning unit and efficiency enhancement of waste water treatment plant manufacturing unit under the name of **M/S GULSHAN TANNERY** Project falls under Clue 10 of category B of Schedule II of Review of IEE and EIA Regulations, 2000. TORs of the study under clause 5 (f) of policy and procedure for the filing, review and approval of environmental assessment are annexed as **Annexure.**

5.2 Cost and magnitude of the operation

Project is the proposed tannery unit under the name of M/s Gulshan Tannery Total area of the subject unit is 4 kanal & 7 Marla. Total cost of the project will be approx. 20 million rupees. There are no other associated activities with regard to the subject project.

5.3 Schedule of Implementation

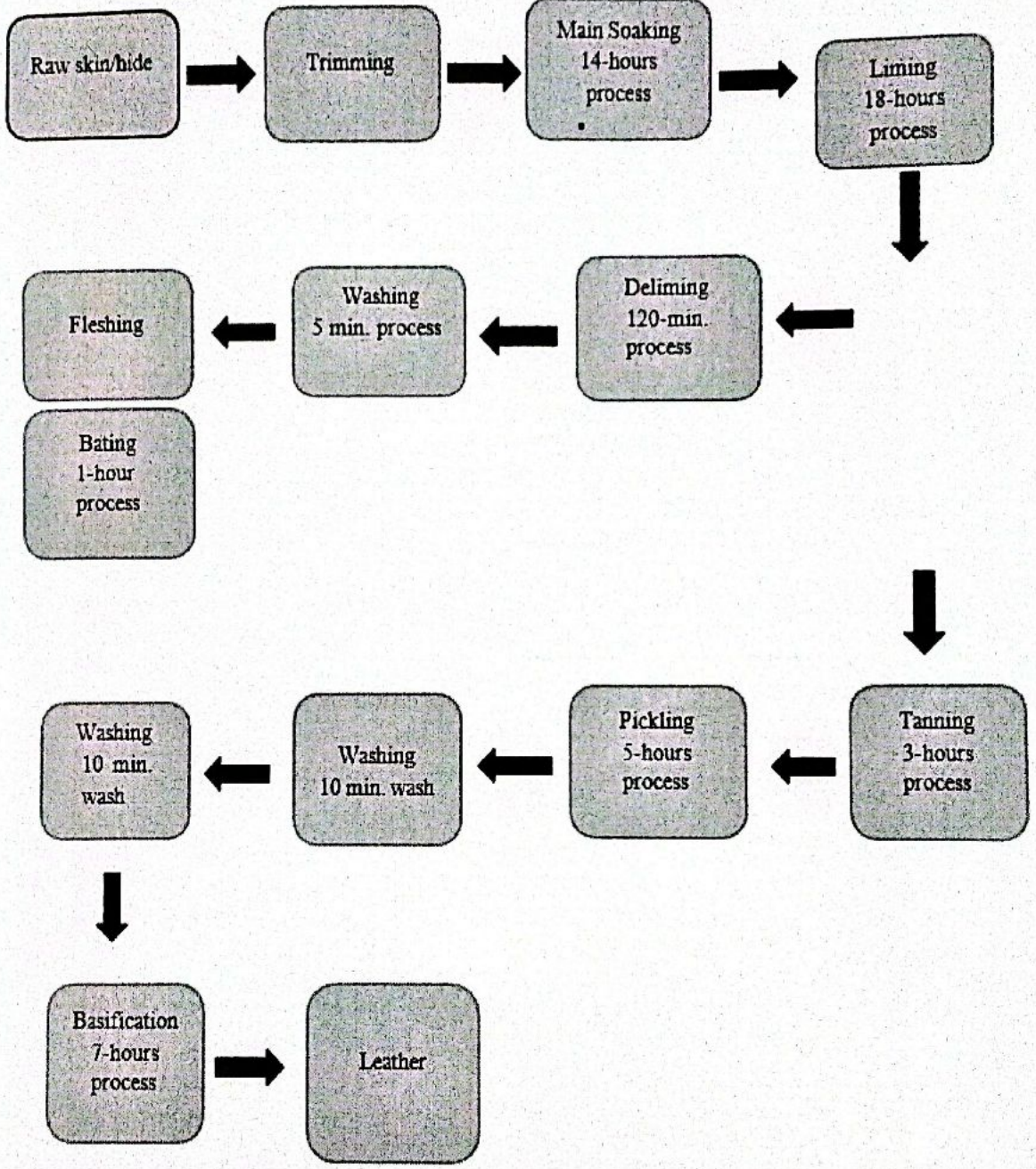
Proposed extension of tannery unit for efficiency enhancement and installation of waste water treatment plant. Under the name of M/s Gulshan Tannery for the production of leather.

5.4 Description of the project:

The project is aa proposed extension of leather unit and efficiency enhancement of waste water treatment plant. Under the name of M/s Gulshan Tannery Raw hides of animals are being used as raw material of the project process. 110 lbs. per month yarn will be used as raw material. Chrome tanning method is being used for the production of leather. Leather is the final product of the concerned project process. 1200 kg leather /day is produced form the unit. Suspended particles cannot be removed completely by plain settling. Large, heavy particles settle out readily, but smaller and lighter particles settle very slowly or in some cases do not settle at all. Because of this, chemical treatment is usually preceded by a chemical process known as coagulation. Chemicals (coagulants) are added to the water to bring the non-settling particles together into larger, heavier masses of solids called floc. Other chemicals, such as ferric sulphate or sodium aluminate, may also be used and purposed design layout map is attached

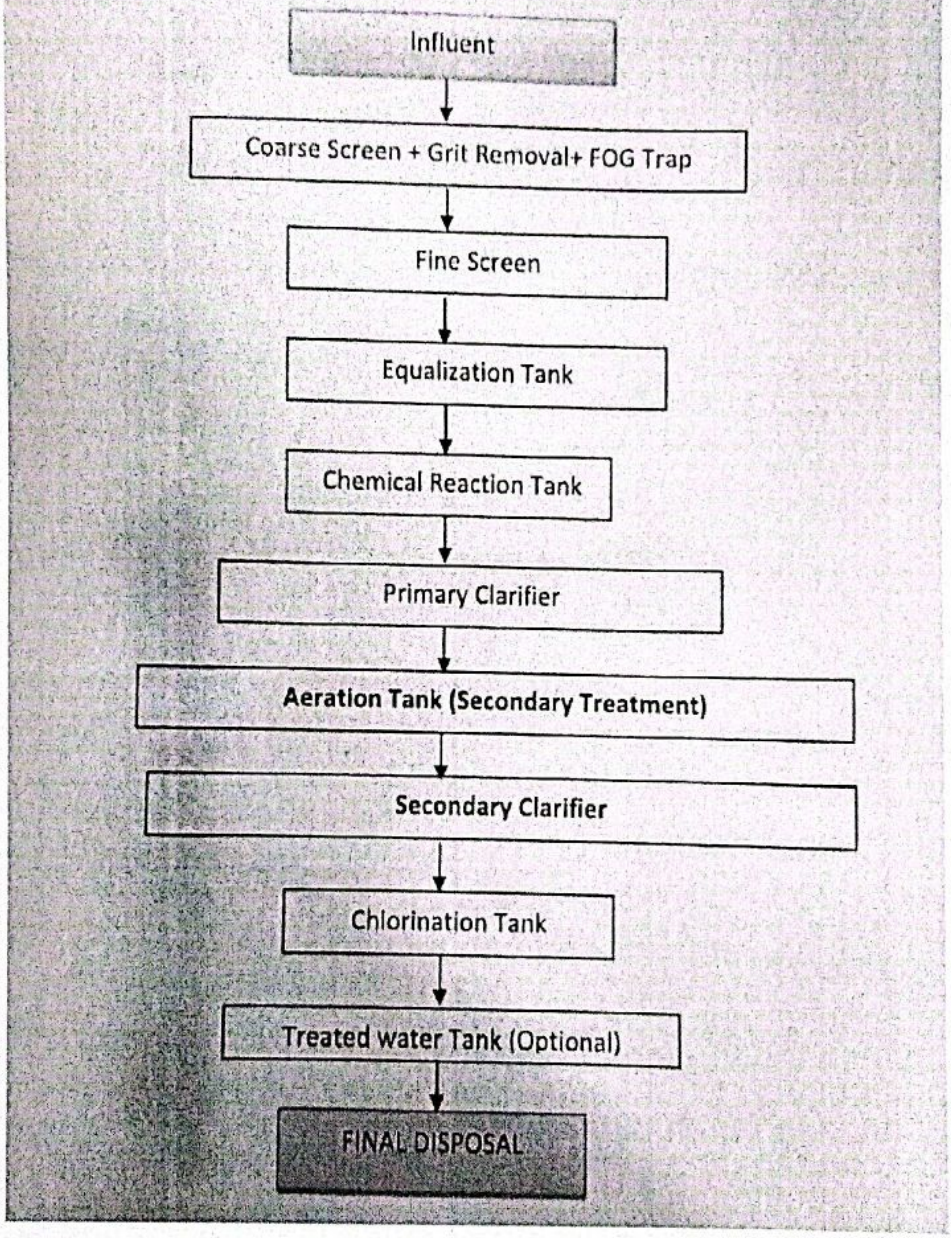
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Project process flow chart:

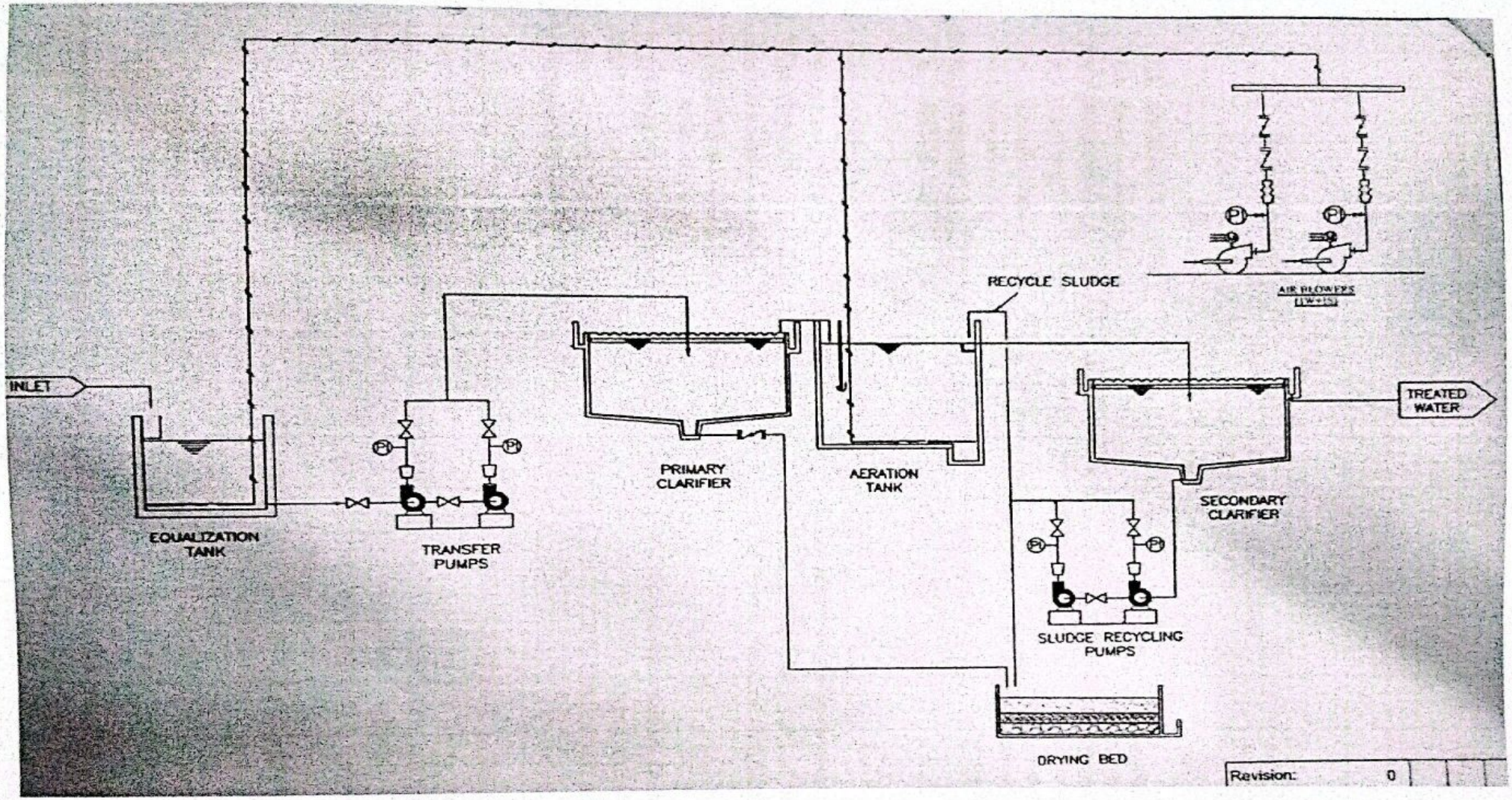


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WATER FLOW DIAGRAM:

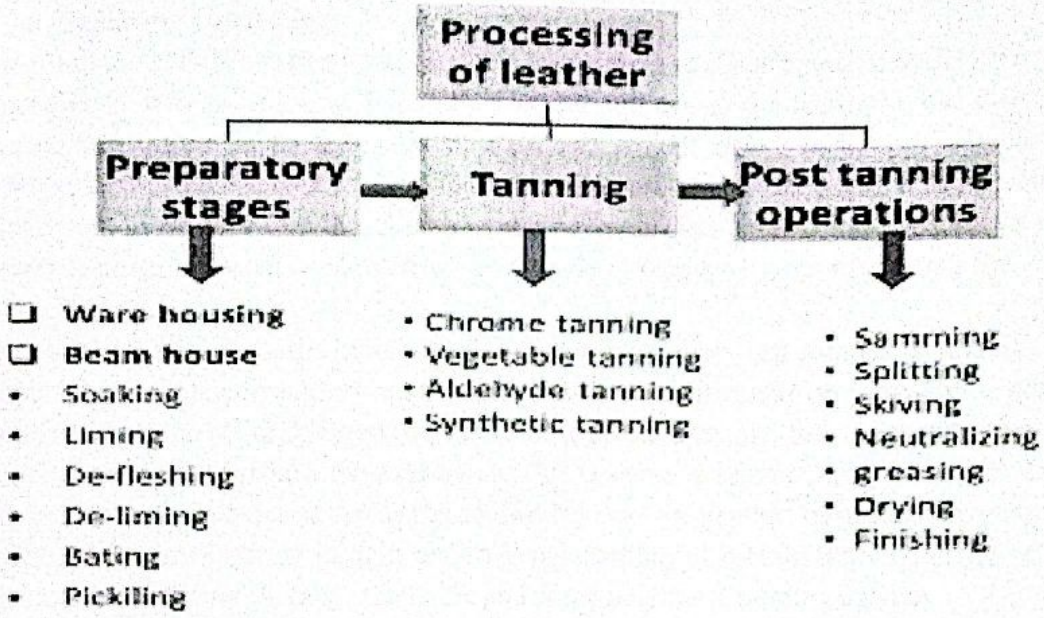


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5.5 Process description:



- **Trimming**

At first raw hides/skins are selected and the putrefied stock put aside to treat separately. Trimming process is a manual operation. In trimming unnecessary part of the hides or skins are trimmed. After then weight of the hide is measured because chemicals are used till fleshing on the basis of the weight of hide.

- **Main-Soaking:**

In soaking water for purposes of washing or rehydration is reintroduced. In soaking, the hides are soaked in clean water to remove the salt left over from curing and increase the moisture so that the hide or skin can be further treated. 150% float of salt and water is used in soaking.

- **Liming:**

Liming is the treatment of soaked hides with milk of lime (CaO) with addition of H_2S to remove the hair from the grain surface of the hide. After soaking, the hides and skins are taken for liming: treatment with milk of lime CaO (a basic agent) that may involve the addition of "sharpening agents" (disulfide reducing agents) such as sodium sulfide, cyanides, amines, etc. The objectives of this operation are mainly to:

- Remove the hair and other keratinous matter
- Remove some of the interfibrillary soluble proteins such as mucins
- Swell up and split up the fibers to the desired extent
- Remove the natural grease and fats to some extent
- Bring the collagen in the hide to a proper condition for satisfactory tannage.

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- **Fleshing:**

In subcutaneous material is removed from the hides. The process of fleshing is manual. After fleshing the hides are washed in 200% float.

- **Deliming and Bating:**

The pH of the collagen is brought down to a lower level so the enzymes may act on it, in a process known as deliming. Depending on the end use of the leather, hides may be treated with enzymes to soften them, a process called bating. In bating proteolytic proteins are introduced to the skin to remove further proteins and to assist with softening of the pelt. In modern tanning, these enzymes are purified agents, and the process no longer requires bacterial fermentation (as from dung-water soaking) to produce the

- **Pickling:**

Once bating is complete, the hides and skins are treated first with common salt (sodium chloride) and then with sulfuric acid, in case a mineral tanning is to be done. This is done to bring down the pH of collagen to a very low level so as to facilitate the penetration of mineral tanning agent into the substance. This process is known as pickling. The salt penetrates the hide twice as fast as the acid and checks the ill effect of sudden drop of pH. Pickling is normally done to help with the penetration of certain tanning agents, e.g., chromium (and other metals), aldehydic and some polymeric tanning agents

- **Tanning:**

The tanning is the process performed in a drum which makes the skin rot-proof, wear-resistant, water proof and permeable to air and steam. This last feature makes the leather breathable thanks to its porosity, making it a hygienic and precious material. The result of this process is wet skins with a light blue color called Wet Blue. The pH must be very acidic when the chromium is introduced to ensure that the chromium complexes are small enough to fit in between the fibers and residues of the collagen.

- **Basification:**

Once the desired level of penetration of chrome into the substance is achieved, the pH of the material is raised again to facilitate the process. This step is known as basification. In the raw state, chrome-tanned skins are greyish-blue, so are referred to as wet blue.

- Wet-blue storage:

The wet-blue hides are then packed and stored in the unit for sale to other leather processing and leather products manufacturing companies. The unit under consideration of this EIA study is meant for wet-blue production only further processing of the leather is not done in the unit.

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5.6 De-dusted Salt Recovery System:

Raw Hide Salt(de-dusted) via manual/machine
↓ Added Water
Salt solution vessel(Capacity 14 ton)
↓
Storage Vessel
↓
Resued in leather process

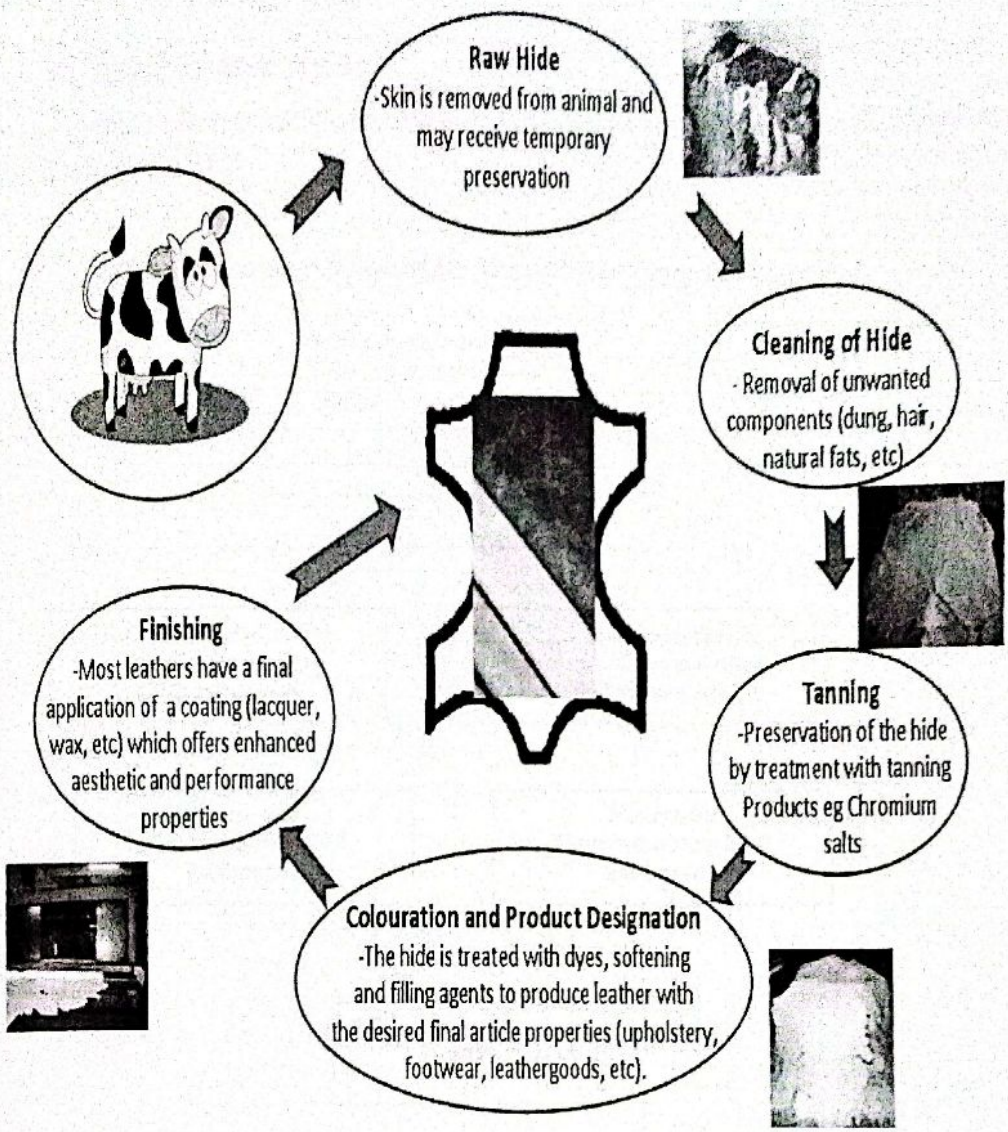
.7 Chrome Recovery System:

pH Adjustment Vessel
↓ ← Sulphuric Acid to adjust pH
Chrome Storage Vessel
↓
Reused in leather process
One Day Statistics of chrome
Input (Added) 1752 kg Output(Final Float, Recovered) 48.6 kg

8 Lime and Sulfide Recovery System:

One Day Statistics of Lime	
Input (Added)	Output(Final Float, Recovered)
1000 kg	20 kg
One Day Statistics of Sulfide	
Input (Added)	Output(Final Float, Recovered)
850 kg	17 g

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5.9 Water requirements:

In operational phase approximately 1000 gallons of water is used per day for production of wet-blue and domestic uses.

5.10 Waste water treatment:

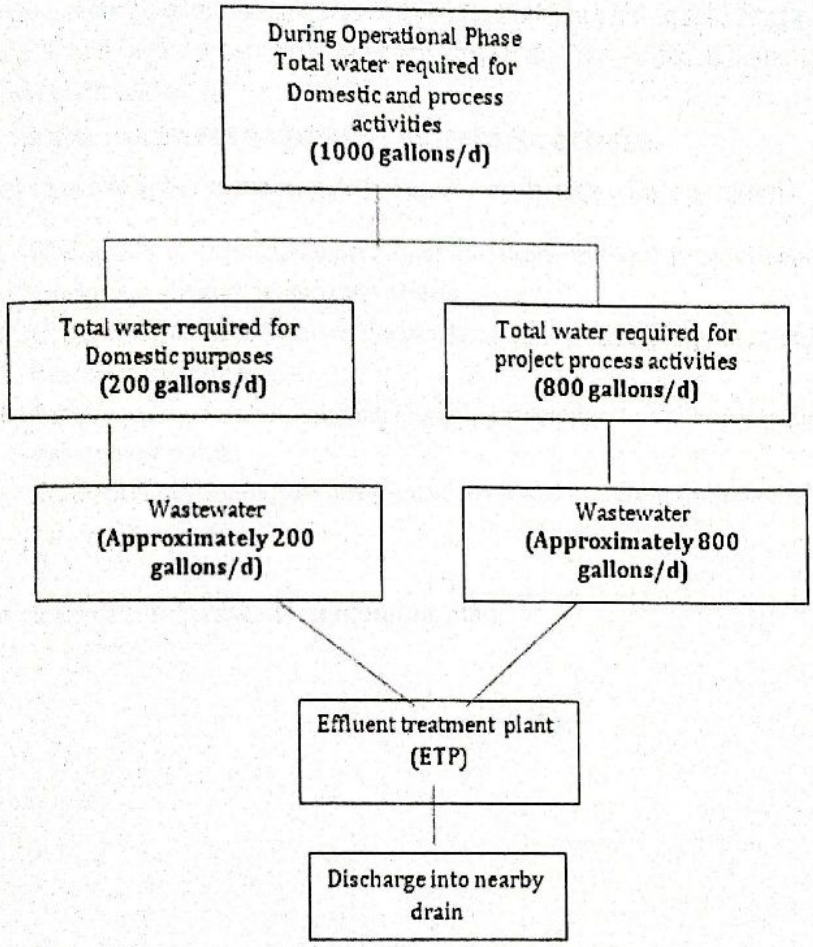
70-80% of the used water will be the waste water of which 70-75% is being treated in the Effluent treatment plant. Effluent treatment plant having capacity of 2 m^3/day will installed inside the unit for the treatment of process wastewater.

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5.11 Wastewater Drain:

A nearby Nala Aik is present near the unit, in which wastewater is being disposed of after treatment in the ETP.

Estimated water Balance for the subject proposed project:



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5.12 Solid waste:

According to an estimate, approx. 1500 kg/day domestic and project related solid waste will be produced during the operation phase of the project (based on solid waste generation rates of 0.20 kg/capita/day urban waste generation). Process related waste includes flashings, trimmings, splits and shavings etc. are being sold soap producing factories while ETP and boiler waste including ash and sludge etc. which is being handed over to the certified contractors.

5.13 Solid waste management system/practices

The Solid waste is being managed in proper way by following operations:

1. Placement of separate waste bins for domestic and project related waste in all working halls and designated points.
2. Collection of waste from all the working halls at one designated point by the sanitary workers on daily basis.
3. Careful collection of ash and sludge on regular basis and temporary storage at designated point.
4. Collection of waste from designated area and handling to the solid waste contractors for its final disposal.

Flow chart of solid waste management plan:

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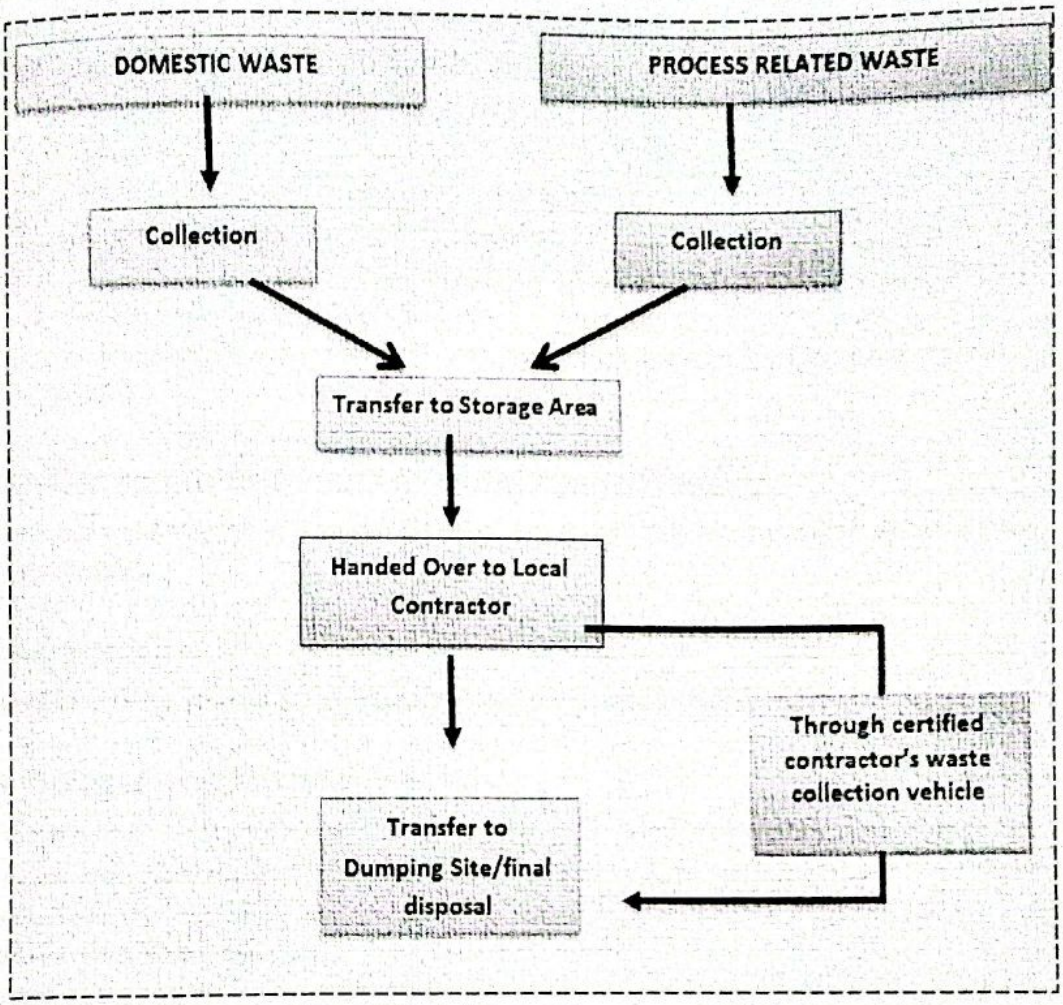


Figure 6: Solid Waste Management Plan

5.14 Ventilation system for maintenance of indoor air quality:

Roof overhangs, window size and placement, and overall building are designed and built in a way to ensure good ventilation. Further the direction of prevailing winds has been considered and maximum solar gain is ensured in the building design. Porches and garages are present for parking of cars and bikes.

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Mitigation measures to control the emissions of generators:

i) The generators made up of latest and environmentally friendly technology are being used.
ii) Standard fuel is being used in the generator.
iii) Proper and regular tuning of the generator is done.
iv) Double glazed glass and thick walls canopy of the generators is installed which will limit the emissions of the noise.

All these measures will ensure the PEQS compliance of generators and emissions will not exceed the limits.

Mitigation measures to control the emissions of boiler:

Venturi and wet scrubber will be installed at the stack of boiler to control the air emissions from the boiler.

Parking Area

Parking area is made available within the unit for cars, motorcycles, trucks etc.

5.15 Occupational Health and Safety:

All the methods and procedures for machinery and chemical handling and storage are displayed and implemented in the unit. Proper SOPs (Standard operating Procedures) have been placed in each working unit. Health and safety rules for chemical handling and storage are maintained policy is attached as **Annexure-I**

Personal Protective Equipment:

Following PPEs will be available for the workers in the proposed unit:

- Face masks
- Ear Plugs
- Ear muffs
- Safety Boots
- Safety Gloves
- Goggles

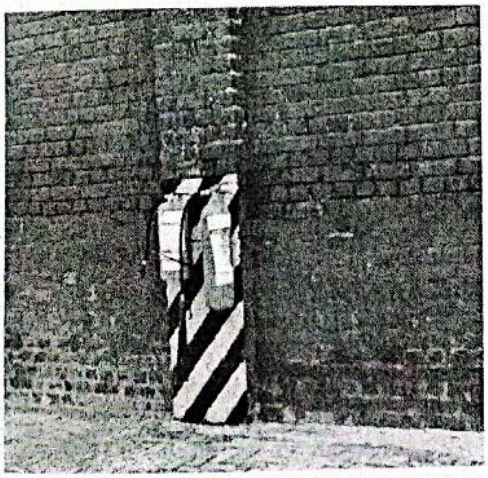
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Types of PPEs used during construction and Operational activities

Protection	Occupational Hazards	PPEs
Hand protection	Biological Contamination through contact, Hazardous material, cuts or lacerations	Synthetic or Rubber gloves, leather, insulating material etc
face protection	Biological contamination	Glasses, shield protective, etc
Hearing protection	Noise from machinery	Hearing protectors like ear plugs, ear muffs
Respiratory protection	Dust, Odor, fumes, gases, smokes, vapors, oxygen deficiency	Facemasks or air supply
Body protection	Extreme temperatures, hazardous materials, biological agents, cutting and laceration	Aprons, insulating clothing etc of

Fire Protection System

An addressable fire protection system with detection and alarm annunciation and other installations etc. is present in the unit to protect against any fire hazards. Fire extinguishers are installed at all sensitive places within the unit.



Emergency Exits and Assembly area:

Emergency exit points are available for easy evacuation in case of any emergency. Assembly area is also designated for assembling and head count in case of emergency.

Personal protective equipment:

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Workers are provided with face mask, ear plug, ear muffs, safety boots, safety gloves, safety belt, helmet and goggles etc. during the working hours to ensure personnel health & safety. Implementation of PPEs will be ensured by the proponent for the proposed project also.

Industries:

Unit is located in the industrial area and many industries are present and operational around the unit.

5.16 Power sources and transmission:

A transformer of 50 KVA by WAPDA is available at the unit site for its power requirement and two standby power generators of 100 KVA will also installed to cope with any emergency situations.

Available Facilities

Available facilities at the project site include:

- Electric supply from WAPDA
- Solid Management (SWM)
- Line and cellular telephone facilities
- Water supply, sewerage disposal and drainage systems

5.17 Restoration / Rehabilitation Plan

All possible precautions 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 termite proofed. On completion of the project, the debris will be removed from the site in order to maintain aesthetics of the project. All measures will be undertaken for ensuring occupational safety, security and clean environment in the project area. Ornamental trees and flower plants will be planted on inside peripheral of the unit premises to restore the land.

5.18 Government approvals required by the project:

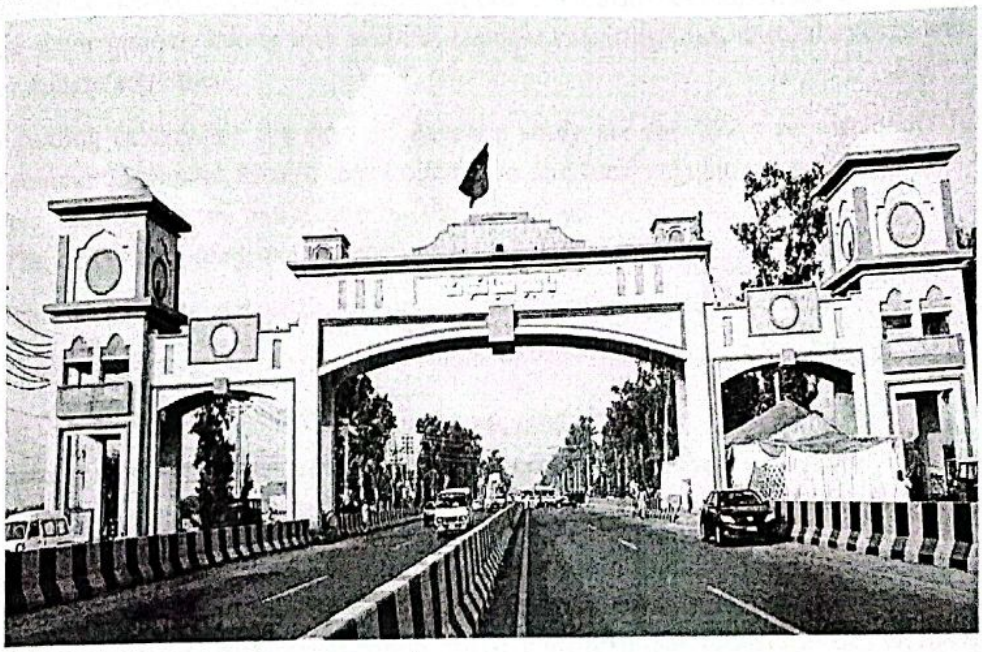
All the approvals will be obtained by the project proponent and will be submitted to EPA at the time of operation.

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CHAPTER # 6 DESCRIPTION OF ENVIRONMENT

6.1 General

This section describes the baseline conditions, which cover the existing physical, ecological, and socio-economic environment of said Project Area. Information on these aspects has been derived from the desk study of available data, field visits to the project area as well as information obtained through visits to the Government departments and other relevant agencies.



Prior to identifying the existing environmental settings of a proposed project site, it is essential to define the impact zone for the proposed project zone. Impact zones are essentially defined to substantiate the impact significance in terms of its severity and frequency on the environmental settings of the described area. The impact zone of this particular project is a radius that comes under the direct impacts in case of any accidents. In addition, depending upon the availability of the information, a generalized overview of the environmental settings is also presented where necessary. The existing environment in and around the Project Site has been studied with respect to physical, ecological and socio-economic conditions. Information regarding physical environment is collected within project area as well as the study area. While in case of biological and social environment, efforts were made to collect the information in one km around the project area for detailed

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Land cover classes and even up to 10 km buffer data in-case of any direct or indirect impacts were envisaged.

A Social survey in the Project Area was also carried out through consultation with the various communities. Local residents living in the Project Area were interviewed to obtain their feedback regarding the construction of the Project and its impacts on their daily life/future in the short and long term.

Methodology of Conducting Baseline Study

Establishing the environmental baseline includes both the present and likely further state of the environment, taking into account changes resulting from natural events and from other human activities.

The guiding factors for the present baseline study are the EPA's requirements for the Environmental impact Assessment notification and local regulations and directives. The studies were conducted by considering the following:

- The various environmental attributes were divided into primary and secondary studies.
- Primary attributes such as air environment, water, soil noise, flora and fauna.
- Micro-meteorology were assesses by conducting field studies, on-site monitoring
- Review of the past studies conducted.
- Secondary attributes such as land use studies, geology, physiological characteristics.
- Socio-economic environment have been assessed by literature review of previous studies conducted by various Government publications etc.

A reconnaissance survey was conducted to identify the sampling locations on the basis of:

- Locations of villages / towns / sensitive areas for noise, air, socio economics
- Accessibility of power connection and security for monitoring equipment, pollution
- Pockets in the area; and
- Areas that best represent the baseline conditions.
- The scoping and the extent of data generation were formulated with interdisciplinary team discussions, criteria questions and professional judgment.

The field data generated has been used to:

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- Identify extent of impacts on natural resources and nearby communities
- Identify mitigation measures and monitoring equipment.

These data can be used to prognosticate possible future impacts on environment and lead to suggesting suitable measures to stem or minimize the adverse impact (if any) as far as possible.

6.2 Physical Environment

This part comprises of the study which examines the physical resources such as topography, soil, climate, water resources (surface and ground water), ambient air quality and geology of not only the project site but also the city as whole to assess whether the project under review can or does impact on any of these parameters. The description of physical environment of Sialkot and the project site is present in the following sub sections.

Geological formation

Lying between 32 30'north latitude and 74 30'east longitudes at 256 meters above Sea level, Sialkot is bounded on the north by Jammu, on the northwest by Gujrat, on the west by Gujranwala and on the south by Narowal. The city is located in a fertile Agricultural basin with a few low hills, including the hilly area called the Fort, now Occupied by the TMA administration.

Climate

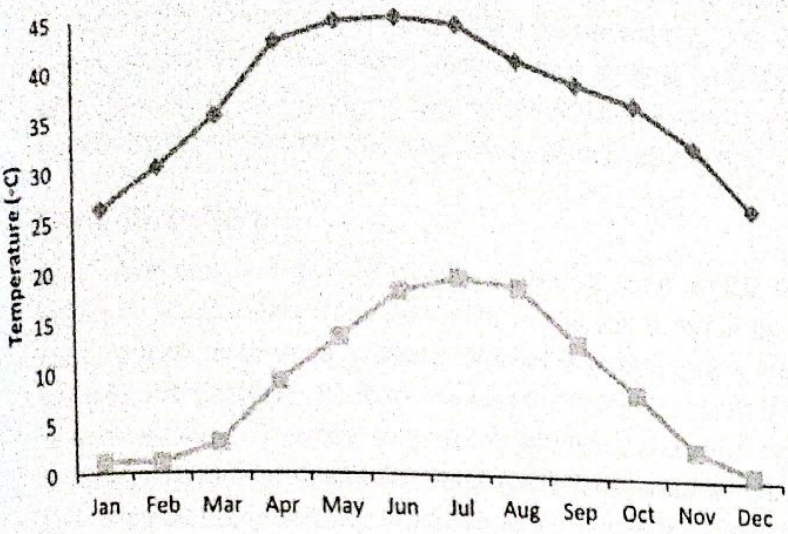
Sialkot features a humid subtropical climate (Cwa) under the Köppen climate classification, with four seasons. The post-monsoon season from mid-September to mid-November remains hot during the daytime but nights cool down substantially and the low humidity makes the heat more bearable. In the winter from mid-November to March, days are pleasantly mild to warm and occasionally heavy rainfalls occur from the passage of frontal cloud bands.

Temperature

The temperature during winter may drop to 0 °C or 32 °F, but maxima are very rarely less than 15 °C or 59 °F.

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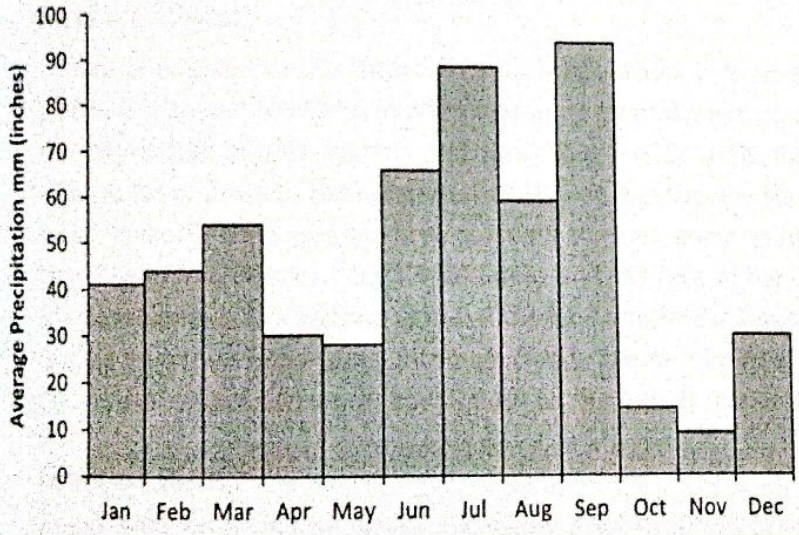
Figure 3: Maximum and Minimum Temperature of Sialkot



Rainfall

The mean annual rainfall is 957mm, over half of which falls in the summer monsoon Months of July and August this often results in flooding.

igure 4: Annual Precipitations (mm) in Sialkot



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Topography

Sialkot lies between North latitude 3 1 .42 and 32.52 and coast longitude 74`.14`` and 75`.03``. River Chenab separates it from Gujrat district. It is situated at an altitude of 829 feet above sea level. The district spreads over an area of 5,354 sq. kilometers and stretches from Ravi valley on the South East to the Chenab River on the North West. The Northern portion is very fertile and the Southern portion is less fertile.

Wind Direction

Wind direction is reported by the direction from which it originates. For example, a northerly wind blows from the north to the south. Wind direction is usually reported in cardinal directions or in azimuth degrees. For example, a wind coming from the south is given as 180 degrees; one from the east is 90 degrees. A variety of instruments can be used to measure wind direction, such as the windsock and wind vane. Modern instruments used to measure wind speed and direction are called anemometers and wind vanes, respectively. Following table shows the 15 day wind direction of the District Sialkot.

Ambient Air Quality

The primary source of air pollution at the project sites is the vehicular emissions, and the key pollutants likely to be found at project locations are carbon monoxide (CO), oxides of nitrogen (NOX), sulfur dioxide (SO2), and particulate matter (PM). Other source of air pollution is dust arising from construction activities.

Water Resources

Surface Water

Sialkot is situated in the Upper Rachna Doab, which is bounded by the Ravi and Chenab rivers. It sits over abundant shallow and deep groundwater aquifers which are used by both the city water supply system and inhabitants with wells for their water supplies. The Chenab River flows to the northwest of Sialkot, and the Marala-Ravi Link Canals flow to the west. Sialkot is traversed by three seasonal streams, comprising AikNala, to the south of the city, BhaidNala, between the Cantonment and the rest of the city, and PahluNala, north of the Cantonment. The general slope of the land within the Doab is to the south-west and the area is an active flood plain, although floods are to a large extent controlled by irrigation and power generation works carried out on the Indian side of the border.

Ground Water

About 50% of all the underground water used in urban areas of developing countries is

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derived from wells, springs and bore holes and more than 1000 million inhabitants in Asia and 150 million in Latin America rely on such resources. The dependence on groundwater is increasing in most of the arid and semi-arid regions of the world as a result of vagaries of Mon-soon and scarcity of surface water. This is particularly true for Pakistan which is one of the world's most arid countries and has been viewed as water stressed and is likely to be water scared in near future. The combination of lower precipitation and higher evaporation is also diminishing water quantities of its rivers, lakes and groundwater.

Drinking Water Quality

The drinking water in the area contains highly volumes of arsenic, sulphate and chromium and by any standard this is not fit for drinking for human beings and animals. Despite being fatal in its essential characteristics it is being used for irrigation to become a part of the food chain for human beings and even for the livestock to eventually play havoc with the life and health of the voiceless souls living here .Drinking and bathing in polluted water and the sanitation problems are the most common routes for the spread of diseases with symptoms like abdominal pain, hair loss, numbness in hands, loss of appetite, eye infections, and irritation of skin, fever, cholera, typhoid, dysentery, hepatitis, cryptosporidiosis and guinea worm infections.

Sr No.	Water Quality Parameter	Unit	WHO Standard for Drinking Water
1	PH	(ms/cm)	6.5-8.5
2	Conductivity	(mg/l)	NG
3	Total dissolved salts TDS	(mg/l)	1000(WHO)
4	Hardness	(mg/l)	500(WHO)
5	Alkalinity	(mg/l)	NG
6	Chromium	(mg/l)	0.05
7	Lead	(mg/l)	0.01
8	Turbidity	*FAU	NG
9	Total Coliform	cfu/100ml	NIL(WHO)

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Drinking Quality measures by WHO

Noise Level

As per PEQS for noise (effective from 1st July, 2012), permissible noise level is up to 75dBA at day time duration of 6.00 a.m. to 10.00 p.m. and 65dBA at Night time duration of 10.00 p.m. to 6.00 a.m. It is measured with a sound meter at a distance of 7.5m from the source.

6.3 Biological Environment

Biological environment is the environment where life forms (such as wild animals and plants or bacteria) can exist, that affects human life (as in a particular place or period). The sum of environments where life forms exist is called the biosphere, these includes a portion of land, water, and air. In Pakistan there are several areas of land devoted to the preservation of biodiversity through the dedication of national parks and wildlife sanctuaries. There are no protected areas near project sites.

Flora

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

Tolerance Index of Flora present at the site

In order to evaluate the susceptibility level of plants to air pollutants, four parameters, namely ascorbic acid, chlorophyll, relative water content, and leaf-extract pH, were determined and computed together in a formulation signifying the air pollution tolerance index (APTI) of plants. APTI values of plant species, including herbs shrubs and trees, growing in the project site were estimated. Plants with a high index value were tolerant to air pollutants and vice-versa. On the basis of their indices, different plant groups were categorized into sensitive, intermediate, moderately tolerant plant groups. Plants with high APTI are preferred to grow in the project site.

FLORA OF PROJECT AREA

The agriculture is by far the main economic activity in the central/ southern Punjab. The main crops during Rabi are wheat, gram, rape, mustard, barley and oil seeds. In Kharif, cotton, jawar, sugarcane, bajra, maize and rice are grown. In addition, there are subsidiary

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crops known as Zaid Rabi like Kharbooza, tobacco and potatoes and ZaidKharif like potatoes and chilies.

Fruits grown are Mangoes, Date, Malta, Orange, Water and Musk melon, Guava, Citrus, Falsa, Jaman and Pomegranate. In the beginning of the cultivation era the inhabitants used to eat Pilu and Bair, the only wild fruits that grows intermittently. With the introduction of canal irrigation mango and other fruits are being grown on commercial basis. Wheat, cotton, sugarcane and rice are the major crops, whereas mango and citrus are the major fruits of the area. As per cropping pattern, wheat and sugarcane are the highest grown crops in the area.

Fauna

There is no wildlife except jackals, dogs and snakes etc. Common species of birds found in the project area are Sparrows, Crows, Pigeon, Dove, Tiliar (starling), Parrot, Quail, Pintail and Humming bird etc.

6.4 Socio Economic Assessment

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

Social Impact Assessment is a methodology used for examining social change due to external sources, especially specific developmental projects, but also government policies, technological changes and social processes or anything that has a social impact.

The objectives of the given study are outlined as follow:

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

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- To analyze socio economic conditions of community, with special reference to environment and conservation of natural resources.

Demographic Profile of Sialkot

Sialkot District is one of the districts of the Punjab province of Pakistan. It is located in the north-east of the province. The city of Sialkot is the capital of the district. It is the third richest city in Pakistan. The district is administratively divided into the following four tehsils (subdivisions), which contain a total of 122 Union Councils;

- Daska
- Pasrur
- Sambrial
- Sialkot

The Sialkot is an export oriented city of Pakistan, the per capita income of Sialkot is more than US$ 1200, which is the highest in Pakistan. The population of Sialkot is more than three million. 2830 government schools and a large quantity of private schools are trying to enhance academic education among the people of Sialkot. About 3,00,000 people are working directly or indirectly in industrial sector of Sialkot.Sialkot has also attracted many laborers and other entrepreneurs many of whom hail from Pakistan's Federally Administered Tribal Areas (FATA), notably from Bajaur and Mohmand who have set up vibrant business throughout the area and the literacy rate is among the highest in Pakistan at 73% in urban areas and 54% in rural areas and employment in agriculture is only 19.5% and 32% in elementary occupations.

Language

The population mainly consists of Punjabis, Kashmiris and Pashtuns and Punjabi is the main language of people.

Health facilities

The table shows the numbers of health facilities, the district headquarter hospital (DHQH), tehsil/taluka headquarters hospitals (THQHs), and rural health centers (RHCs) and 20% of the basic health units (BHUs) within the district.

Table 1: Number of health institution in Sialkot

District Sialkot	Number of health facilities by type

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	DHQH	THQH	RHC	BHU	Sub Health Center (SHC)
Number of facilities	2	2	8	88	15

Educational Facilities

Sialkot has a fairly well-developed educational infrastructure that comprises a sub-campus of the Fatima Jinnah Women University, a sub-campus of the Virtual University of Pakistan, 8 Degree Colleges for Women, 5 Degree Colleges for Men, 2 Cadet Colleges, 6 Commerce Colleges, one Law College, one Medical College, one Homeopathic Medical College, one Nursing School, one Para-Medical School, one Poly-Technic Institute, with numerous Inter Colleges, Higher Secondary Schoolsand over 250 High Schools. The University of Engineering Sciences and Technology (UEST) was recently established in collaboration with the Royal Institute of Technology, Sweden on the Sialkot Lahore Motorway and will also incorporate the development of a Technology Park.

Table 5: Number of educational Institutions in Sialkot

Name of Institute	Total Number of Institutes
Primary/ Middle/ Higher Secondary	Over 250
Colleges	Over 24
Overall Educational institutions	3,321

Transportation and Communication

Road Links

Sialkot is about two hours from Lahore and four hours from Islamabad. Sialkot is linked with the National Highway N-5 through Gujranwala and Wazirabad. A dual carriage-way is available between Sialkot and Wazirabad. A new bridge on the Chenab River, called the Shahbazpur Bridge, is under construction these days which is located to the north-east of Gujrat. Once completed, it will connect Sialkot to N-5 at Gujrat. The Sialkot Lahore Motorway (M-11) is also under construction. All the bus and commuter coach stations are located on the Jail Road. A bus service operated by Daewoo Express is available from Sialkot to Rawalpindi, Lahore, Gujranwala and Multan

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Rail Links

Sialkot is served by Pakistan Railways through the Sialkot Junction. Sialkot used to be a junction in the British era with trains leaving for Jammu and Gurdaspur. Plans are under consideration to open the border for an international train between Sialkot and Jammu. Express trains to and from Narowal, Lahore, Rawalpindi, Faisalabad, Multan, Bahawalpur and Karachi are available daily. The Railway station is situated in the center of the city. Other suburban train stations are Ugoki and Sambrial.

Public transport

Recently, public transport has been launched in Sialkot on one route which circle around the city. SCCI Sialkot Chamber of Commerce & Industry has signed an MOU with American bus company FOTON to provide air-conditioned local transport to the citizens with CNG fuel. However main mode of transport within the city at present is the auto rickshaw. Although no proper taxi service exists in the city, there are many rent-a-car service outlets.

Traffic management

Although the road network in the city is well developed and recently executed road improvements carried through joint efforts of Sialkot Chambers of Commerce and Industry (SCCI) and the Government has resulted in improved road surface conditions in most of city areas, the main problems lies in traffic management. Road junction layouts, utilization of road space, absence of pedestrian facilities, uncontrolled road side parking and absence of enforcement of traffic regulatory control measures result in congestion and . Additionally, irrespective of the public transit initiative referenced above, public transport overall is inadequately developed with only two formal bus routes operating in the city.

Air transport

Sialkot International Airport is the first-ever private-sector airport of Pakistan managed by the SIAL consortium. It is located near Sambrial and is noted for having the longest runway in Pakistan. Direct flights are available from Sialkot International Airport to Karachi, Islamabad, Abu Dhabi Sharjah& London, Muscat Kuwait, Dubai& Jeddah. Pakistan International Airlines has plans to start non-stop flights from Sialkot to Manchester, London &Barcellona& Hajj flights have started from the Sialkot International Airport last year in 2009. Emirates are also expected to start flights in mid-2010 to Dubai. Airblue will operate on domestic routes to Islamabad, Multan and Karachi in mid-2010. A small Sialkot Cantonment Airport, located in the Sialkot Cantonment, is in use of the aviation wing of the Pakistan Army. This airport has also been used as a public airport by PIA for operating a Helicopter service from Sialkot to Islamabad in 1995-1996.

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Industrial Activities

Currently, the firms registered with the Sialkot Chamber of Commerce & Industry in key disciplines are 6800. There are at least 264 tanneries, 244 leather garment producing units, 900 leathersports goods producing units, 57 rice husking mills and 14 flour mills in the city. These industries produce significant quantities of highly polluted wastewater.

Sports Goods Industry

The city of Sialkot has been a center of excellence for the production of sports goods for more than 100 years. Some of the world renowned brands who are sourcing a large portion of their supplies of sports goods from Sialkot are; Adidas, Nike, Puma, Select, Lotto, Umbro, Mitre, Micassa, Diadora,Wilsons and Decathlon. More than 200,000 people are directly employed in the sports goods sector exporting sports goods worth US$ 450 million annually from around 2,400 companies. Articles of sportswear exported include; track suits, football, boxing, cycling, shorts, t-shirts, wind breakers, judo/karate kits, casual wear and stockings. Skilled workforce of more than 10,000 employees is directly engaged in the production of sportswear and its exports value reaches to US$ 100 million per annum.

Leather Garments

Leather garments sector is an important foreign exchange earner for the country. This sector is mainly scattered in two cities namely Sialkot and Karachi. As per the survey conducted by LIDO in 1997, there were a total of 355 units in the country out of which 186 are in Sialkot. In Sialkot approximately 12,000 people are directly employed by the sector.

Surgical Instruments

The Surgical Instruments Industry of Pakistan holds a history of more than 100 years, when some British doctors got their surgical instruments repaired from the skilled workers of Sialkot and that was the foundation of Sialkot Surgical Industry. The success in surgical instruments sector lies due to the technical expertise and skills of the people of Sialkot in mechanical engineering. The Surgical instruments Industry is also amongst the seven priority sectors (under light engineering head). The annual exports of Sialkot's Surgical Instruments Industry are around US $ 180 Million out of its world market of over US$ 30 (B).

Exports from Sialkot

Almost every product of Sialkot is being exported to international markets due to which Sialkot is earning more than US$ 900 Million per annum and its share reaches to 6% of the

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total exports of Pakistan. Sialkot is the second largest exporting city of Pakistan. Almost 60% of total exports of Sialkot are done via Sialkot Dry Port Trust and 40% is exported from other ports like Lahore, Islamabad, Karachi, etc.

Water Supply

Sialkot's water supply is good by Pakistan standards. There are about 42,000 connections in the town (39,000 domestic), which serve about 65% of the population within the old Municipal Corporation limits but only about 35% of the urban population, excluding the Cantonment. There are approximately 5,500 connectionsin the Cantonment, covering an estimated 38,500 people or about 47.5% of the civilian .population of the Cantonment. The TMA estimates that the existing distribution system covers about 70% of thearea within the pre-2001 municipal limits. The available information on the extent of distribution mains suggests that the potential coverage within the pre-2001 municipal limits is close to 100%. The difference between the area and population coverage in this area suggests that there is scope to make new connections within it. There are currently no connections outside the pre-2001 municipal limits so there is greater scope for providing new connections in this area.

Telephone Facilities

Landline and Cellular telephone facilities are present in the area. Landline and Cellular telephone facilities are present in the area.

Sites of Historical Significance in Sialkot

The old city of Sialkot is a great center of Punjabi culture with many important historical and religious sites and buildings amongst the fascinating labyrinth of narrow streets and crowded bazaars.

Quality of Life

The overall quality of life is good in Sialkot. Comparison of potential adverse and beneficial impacts of the project shows that project is beneficial for the inhabitants of the area. The project provides job opportunities for the local inhabitants. Hence improve their socio economic status. Employment opportunities generated by the project include workers, helpers and guards. The overall socio economic impact of the project is interpreted in relation to the existing environmental conditions.

The project, overall, does not have major adverse impacts on the existing environment and people with due implantation of the mitigation measures, there is very insignificant adverse

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impacts on the socio economic environment. The project has more beneficial impacts on the socia economic environment than adverse impacts. In conclusion, it can be said that overall the project would have positive impacts on the socio economic status of the neighboring community inhabitants.

6.5 Suitability of the Site

The site does not fall in environmental sensitive area and all commodities are at a suitable distance from project site as they will not have 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.

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CHAPTER # 7 SCREENING OF POTENTIAL ENVIRONMENTAL IMPACTS & THEIR MITIGATION MEASURES

The following chapter describes the overall possible impacts of project on the physical, biological and socioeconomic environment because of construction and operation phases and mitigation measures to minimize the significance of the possible impacts up to an acceptable level.

7.1 Methodology of Impact Evaluation:

The methodology adopted for impact evaluation includes the Project Impact Evaluation Matrix.

7.2 Project Impacts evaluation Matrix:

The impact Evaluation matrix was developed by placing project activities on x-axis and different environmental parameters likely to be affected by the proposed project actions grouped into categories i.e. Physical, Biological and Socio Economic Environment. For the impact assessment, project impact assessment matrix is used for the construction and operation phase. A project impact evaluation matrix is attached in next section of this chapter.

Checklist has been used to identify the impacts during construction and operation phase while the evaluation of impacts has been carried out on the basis of developing matrix, in which impacts have been rated on the basis of their significance. For rating impacts significance following criterion has been developed;

NA – Not Available
LA – Low Adverse (Short term, reversible or less damage to environment)
MA- Medium Adverse (Long term reversible damage to environment)
HA – High Adverse (severe irreversible adverse damage to the environment)
LB – Low Beneficial (Short term benefits or less beneficial to the environment)
MB – Medium Beneficial (Long term benefits to environment)
HB – High Beneficial (Continuous benefits to environment)

IMPACT ASSESSMENT

his section discusses the potential environmental impact of proposed project, methodologies for

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pact identifications and characteristics of impacts including nature, magnitude, extent and :ation, timing, duration, reversibility, risk The assessment carried out in this Section is based on tential impacts on overall environmental receptors within the project area.

Methodologies for Impact Identification

The potential impacts due to installation of effluent treatment plant are mostly beneficial. During construction phase, adverse environmental & social impacts are depending on the resources and receptors involved along with other parameters such as; geographical scope (magnitude and extent), temporal scope (duration) and reversibility. It is anticipated that this project will have maximum positive impacts as it is environmentally friendly project to reduce pollution load. Moreover, the project is expected to result in negative impacts of short-term duration and transient in nature. Having identified and characterized the potential significant impacts during design, construction and operation phase of project an Environmental Impact Severity Matrix & checklist to summarize all the identified impacts as mentioned below in tables.

Impact Significance Criteria

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

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	Physical Environment							Biological Environment		Socio-Economic Environment							
Environmental Component / Project Activities	topography	Soil Quality	Landscape	Surface	Ground water	Air quality	Noise	Flora	Fauna	Agricultural Land	Health & Safety	Disruption of Public	Employme	Population Disturbanc	Social Disorder	Cultural Values	Traffic Manageme
Placement	LA	LA	MA	LA	O	O	O	MA	LA	MA	LA	O	O	MA	LA	LA	HA
Parking of heavy vehicles	LA	O	LA	O	LA	O	O	LA	O	LA	LA	O	O	MA	MA	MA	HA
Transportation of raw construction material	LA	MA	MA	LA	O	HA	HA	MA	HA	LA	HA	O	MB	HA	HA	LA	HA
Temporary storage of raw material	LA	LA	LA	MA	LA	MA	O	LA	O	LA	LA	O	LB	LA	O	O	HA
Loading and unloading of raw material	LA	LA	MA	MA	O	HA	MA	LA	LA	LA	MA	LA	MB	HA	LA	O	MA
Labour camping on site	O	O	LA	LA	O	O	LA	LA	O	LA	LA	HA	O	HA	MA	MA	O
Storage of oil and fuel	LA	MA	LA	LA	O	LA	O	LA	LA	LA	MA	O	LB	O	O	O	O

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Extraction of ground water	O	O	O	O	MA	O	O	MA	O	MA	LA	HA	O	O	LA	O	O
Construction material mixing/ preparation	LA	MA	LA	LA	LA	LA	HA	O	O	O	HA	HA	HB	MA	LA	MA	O
Welding/ cutting and steel fix ring process	O	O	O	O	O	MA	HA	O	O	O	HA	O	HB	MA	LA	LA	O
Shuttering/ beams	O	O	O	O	O	MA	HA	O	O	O	HA	LA	HB	MA	MA	MA	O
Building roofing	O	O	O	O	LA	MA	MA	O	O	O	HA	LA	HB	MA	LA	LA	O
Operation of generators	O	O	O	O	O	HA	HA	O	O	O	HA	LA	HB	LA	LA	O	O
Excavation	HA	MA	MA	LA	LA	HA	HA	MA	LA	O	HA	O	HB	LA	O	O	O
Water tank/ pond on site for temporary storage	O	O	O	LA	LA	O	O	O	B	O	LA	LA	B	LA	O	O	O

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Environmental Component / Project Activities	Physical Environment							Biological Environment		Socio-Economic Environment							
	Topography &	Soil Quality	Landscape	Surface water	Ground water	Air quality	Noise	Flora	Fauna	Agricultural Land	Health & Safety	Disruption of Public Utilities	Employme	Population Disturbanc	Social Disorder	Cultural Values	Traffic Manageme
Transportation Activities	LA	LA	LA	MA	O	MA	MA	LA	MA	O	LA	LA	HB	MA	LA	LA	LA
Earth Work	LA	LA	MA	LA	LA	MA	MA	LA	LA	O	HA	HA	HB	LA	O	O	LA
Construction Activities	LA	LA	MA	LA	LA	MA	MA	LA	LA	O	HA	HA	B	LA	O	O	LA
Operation of generators	O	O	O	O	LA	HA	MA	O	O	O	HA	LA	HB	O	O	O	O
Operation Phase	O	O	O	O	O	O	MA	O	O	O	LA	O	HB	LA	O	O	O
Water consumption	LA	O	LA	MA	MA	O	O	LA	LA	LA	LA	HA	B	LA	O	O	O
Wastewater generation	MA	LA	MA	MA	MA	MA	O	MA	MA	MA	LA	LA	B	LA	LA	O	O
Storage of Waste materials	LA	LA	O	LA	MA	LA	O	O	O	LA	HA	LA	B	O	O	O	LA
Public welfare	O	O	B	B	B	B	O	B	B	HB	HB	HB	HB	HB	HB	HB	LB
Economic activities	LB	O	B	B	B	B	B	B	B	B	HB	B	B	B	B	B	LB

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Employment	O	O	O	O	O	O	O	O	O	O	B	B	HB	B	B	B	LB
Infrastructure improvement	LB	MB	HB	B	B	B	B	HB	LB	HB	HB	B	HB	B	B	B	B

Legend:

O=Negligible/No impacts B=Beneficial LA=Low Adverse MA=Medium Adverse

HA=High The following chapter describes the overall possible impacts of project on the physical, biological and socioeconomic environment because of operation phases and mitigation measures to minimize the significance of the possible impacts up to an acceptable level. The anticipated impacts related to location, design, construction and operation of the proposed project have been assessed and mitigation measures have been suggested in this report.

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Mitigation measures to reduce the impacts on geology, topography, water resources and soil are as follow:

7.3 Impacts Analysis and prediction:

In order to give correct categorization to the present project Rapid Environmental Assessment Procedure was followed. It revealed that there are no major adverse impacts of the project although it has many positive impacts on local public and economy. Only a few and moderate/minor impacts are projected.

7.4 Screening:

It is the first step of the environmental study. It identifies the factors that may influence the project environments. Level of the assessment is also determined.

7.5 Characterization:

Categorization of the project is done as per Pak EPA, Review of IEE and EIA Regulations, 2022. Accordingly the project falls in Schedule-II for which an EIA level study is needed.

7.6 Meetings:

For the impact analysis and predictions detailed meetings were held with local government officials, management of M/s Gulshan Tannery and Local peoples. Issues were discussed that may affect the environment at any stage. All possible mitigation measures were considered and incorporated in the Environmental Management Plan.

7.7 Consultation

Scoping sessions, focused group discussion and way side consultations were held with the relevant stakeholders, shopkeepers and workers in the area. These included local government departments, NGOs, public representatives and local residents.

7.8 Concerns of stakeholder:

During these discussions the participants gave their candid views about the environmental issues and their potential impacts. There was unanimous positive view about the project. However, they opinioned that mitigating measures can be minimized the environmental degradation and ward off an untoward incident/accident. Some of their main concerns are given below:

- The locals should be consulted during every phase of the project.

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- Maximum employment should be provided to local area/
- Health facilities would be provided to the workers of the project.
- The project would not cause environmental degradation in any shape
- Workers would have job security during operational phase.

7.9 Mitigation and Impact Assessment Criteria:

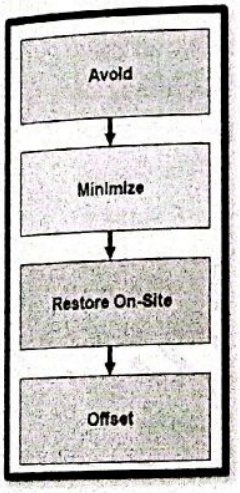
Impact assessment criteria:

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

Mitigation assessment criteria:

The Mitigation Hierarchy establishes a structure to guide development and application of measures to mitigate impacts on environmental values and associated components. The term "mitigation" applies to four steps, or levels, in the mitigation hierarchy.



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General principles

1. Maintaining the integrity and natural functions and processes of ecosystems, and the resilience of ecosystems, is prerequisite to sustainable use of natural resources, and essential to maintaining ecosystem goods and services over time.
2. The mitigation hierarchy is applied in order of priority as follows:
    a. Avoid
    b. Minimize
    c. Restore On-Site
    d. Offset (Off-Site or On-Site)
3. Generally, the "higher" the priority of the environmental value and associated component, the more protective the mitigation measures.
4. For an action or measure to be considered "mitigation", a party must accept responsibility for implementation of appropriate mitigation measures, and there must be certainty that the mitigation measures will be carried out.
5. Implementing mitigation measures can help resolve issues that may delay or prevent a proposed project or activity.

General considerations

1. Which environmental values and associated components will be impacted by the proposed project or activity? (This will be determined from the output of the environmental impact assessment, i.e., the Environmental Impact Assessment and Mitigation Plan)
2. Have mitigation measures for impacts on environmental values and associated components, at all scales, been considered?
3. What is the current condition of each environmental value and associated component actually present within the footprint and area of influence of the proposed project or activity?
4. Can impacts on one or more environmental values or associated components be more fully mitigated than impacts on other environmental values and associated components?

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5. Are there multiple environmental values and associated components with conflicting management needs and potential conflicts that need to be considered?
6. Is sound guidance available and being used, e.g., are best management practices (BMPs) and guidelines available for affected environmental values and associated components?
7. Is there opportunity to collaborate with other proponents that may have interest in overlapping mitigation measures?

The environmental issues have been identified during literature review, consultation with stakeholders, relevant reports and visits to project site. Various types of environmental issues likely to crop up during the life cycle of project are grouped in the following stages:

- Project location
- Project design
- Construction stage
- Operation stage

7.10 Environmental Parameters:

7.11 Environmental Impacts due to project location:

Project is present in the cum agriculture area of the Sialkot region. Many other industrial units are also present near by the project area. The project is extension of tannery unit and efficiency enhancement of waste water treatment plant ; the site does not fall in the category of sensitive area and no environmentally sensitive localities exist within radius network is available at the project site. If the project proponent maintains HSE conditions and comply with the PEQS limits than, there will not be any significant impacts of the project on the environment.

If the mitigation measures are effectively implemented, the residual impact of the Subject project activities on the area's geophysical environment is expected to be insignificant.

Impact significance: Low to moderate
Nature of impact: Direct
Duration: Long-term
Timing: Construction & Operation phase
Reversibility: NA

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Likelihood: Low
Consequences: Mild or may be positive

Mitigation Measures

- Project site will have good and efficient road infrastructure that already exists there at the project site.
- Location can be considered as the positive impacts due to enhanced infrastructure.
- The project will also have positive socioeconomic impacts because of provision of jobs to the local residents of the area.
- No human settlement within the radius of the study area
- There would be no issue of congestion of traffic due to presence of good road network in the area.

Consequences: moderate to high

Mitigation measures and recommendations

Following are the mitigation measures and recommendations to minimize the anticipated impacts:

- Each industrial unit will incorporate all HSE measures regarding the design of project.
- Structure stability of the building should be ensured.
- Emergency exist points should be marked within the project building.
- Firefighting system should be designed for the emergency situations.
- Electricity system should be design safe and sound.
- Electricity wires should be covered by thick plastic/electricity resistant covers.

7.12 Environmental Impacts during construction:

Impacts related to the construction phase of the subject project are discussed below:

Impacts on the Physical Environment

- **Grubbing and stripping**

Grubbing and stripping may be a minor and short-term impact on the physical environment during the construction phase. It may also be a health and safety hazard for the people at or near the project site.

- **Leveling and compaction of the land**

Leveling and compaction of the land is also a short term and minor impact on the physical environment and it may also be a health and safety hazard for the workers.

- **Demarcation of project building and other facilities**

It may also be a minor impact on the physical environment due to the subject project.

- **Generation of dust during loading and unloading of construction materials**

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It is also a minor and short-term impact on the physical environment and also for health and safety, which may arise during the construction phase.

- **Generation of noise on account of vehicular use and construction activities**

It is also a minor and short-term impact on the physical environment and also for health and safety, which may arise during the construction phase.

- **Gaseous emission due to the vehicles**

It may also be a minor impact on the physical environment during the construction phase, if vehicles are not properly tuned.

- **Safety of construction workers, people in the surroundings and passersby**

Health and safety issues may arise during the construction phase if proper precautionary measures will not be taken.

- **Any outbreak of fire due to electrical and other failures**

This issue may arise due to carelessness or improper management, and it may be a serious hazard which may affect the environment or may also cause the loss of property or life.

- **Solid waste generation due to domestic and construction activities**

Solid waste generation due to domestic and construction activities may be a negative impact on environment if not managed properly.

- **Wastewater generation from the domestic and constructional activities**

Wastewater generation due to domestic and construction activities may be a negative impact on environment because waste water will be treated before discharge into nearby drain.

- **Ground water quality**

Ground water quality may be affected by the development if proper mitigation measures will not be implemented.

- **Impacts on Fauna and Flora**

Construction will impact the flora/ vegetative cover and fauna present at the project site.

- **Security threat**

Security issue is a major socioeconomic impact which may arose during the construction phase.

- **Impact on land value**

Construction of the subject project may cause positive or negative impact on the land value.

- **Dislocation of the people**

Construction of the subject project may cause the dislocation of the local people if any, which is a negative impact on the socioeconomic environment.

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- **Loss of public and private infrastructure**

Construction of the subject project may cause loss of public and private infrastructure if any, which is also a negative impact on the socioeconomic environment.

7.13 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 roads and tracks.
- PPEs will be provided during construction activity.
- Constructional waste and domestic solid waste will be disposed-off, recycle 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.
- Machinery will be kept maintained.
- Mark the boundary around the working area.
- Waste water will be treated through waste treatment system that will be installed within the premises of the subject project.
- 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.

What is the problem i.e. in terms of "major environmental impacts" which may arise by the subject project activity?

The major impacts may arise by the subject project are, dust, noise, solid waste, and waste

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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.

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

Any impact that would arise due to the subject project activity will be addressed through proper channel and on site. Trainings will be conducted regarding HSE, firefighting, best work practices etc. while other precautionary measures are also adopted to make the project safe and environmental friendly.

Where and how the problem should be addressed?

Project proponent will be responsible for the implementation of EMP and if required he will appoint a HSE manager/environmental manager along with site manager to assess any impact that could be arisen during construction and operation of the project. He is responsible to address the problem and to mitigate it.

Ways of achieving mitigation measures

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.

Changing in planning and design:

Project proponent of M/s Gulshan Tannery will take appropriate measures to provide pollution free and safe environment during the project activity by implementing improved management practices and monitoring techniques suggested in EMP. Management will further take necessary actions to mitigate any residual impacts.

Improved monitoring and management practices:

Project proponent of M/s Gulshan Tannery will adopt such plan that will assure the minimum impact on the environment and health by implementing proper mitigation measures. Design of the building will assure the structure stability in a long run.

Compensation in money terms:

Project site is the property of M/s Gulshan Tannery and there are not any land ownership disputes. If in future any issue would arise regarding environmental degradation, the project proponent will compensate in money terms as he has assured to achieve PEQS/ PEQS and compliance to other regulations made under PEPA 2017 (Amended).

Replacement, relocation and rehabilitation:

Plantation will be done within the unit and for this area will be reserved. Project proponent will further develop Restoration/ reclamation or tree plantation plan to restore the project area. Plantation will be enhanced with native species within the unit, along the boundary wall and along the road side as per direction by EPA Punjab.

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Chapter # 8 ENVIRONMENTAL MANAGEMENT & MONITORING PROGRAM

8.1 ENVIRONMENTAL MANAGEMENT PLAN

An Environmental Management Plan (EMP) is a framework for the implementation and execution of mitigation measures and alternatives. It usually covers all phases of the project, right from per-construction to the operation and maintenance phases of the transmission line project. The plan outlines mitigation measures that will be undertaken to ensure compliance with environmental laws and regulations and to eliminate adverse impacts. The objectives of an EMP, thus, are:

- To ensure that mitigation measures are implemented;
- To establish systems and procedures for this purpose;
- To monitor the effectiveness of mitigation measures;
- To ensure compliance with environmental laws and regulations

8.2 Purpose and Objectives of the EMP:

The primary objectives of the EMP are to:

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

8.3 Environmental Monitoring Plan

- The monitoring is carried out in accordance with PEQS.
- Monitoring program is undertaken for compliance of mitigation measures.
- Monitoring for various parameters is done before the construction phase as per direction from EPA.

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8.4 Performance Indicators

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

Ambient Air Quality

Dioxins and Furans, HCl, Hg and its components, PM_{10}, CO, NO_x, and SO_2

Water Quality

TDS, TSS, COD, oil and grease, chloride, lead, zinc and cadmium

Noise Levels

8.5 Environmental Monitoring Cell (EMC)

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

Training of Monitoring Staff

Training of the monitoring staff will be arranged at site and off site Special cadres will be run about functioning of the project and apparatus including the firefighting and first medical aid.

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.

Monitoring Stages

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

Monitoring Plan

Following aspects need to be monitored regarding the subject project during pre-construction, during construction and post construction.

- Air quality
- Water quality

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

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.

8.6 Institutional Capacity, Environmental Technical Assistance and Training Plan

Following functionaries will be involved in the implementation of EMP:

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

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.

The training modules will include air, noise and water pollution monitoring, social awareness, Environmental Laws, Punjab Environmental Quality Standards (PEQS), Usage of personal protection equipments, 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.

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8.7 Training of Workers and contractor

Training of building contractor & workers will be the part of the TORs regarding the construction of the scheme. The provisions given in EIA Report Chapter 4 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:

8.7.1 Handling of Machineries in a safe way
8.7.2 Handling of hazardous waste in a safe way
8.7.3 Proper handling of Ash disposal
8.7.4 Use of PPEs
8.7.5 Maintenance of vehicles and submission of Environmental Monitoring Reports
8.7.6 Maintenance of Water Consumption records
8.7.7 Testing of water and waste water and submission of Environmental Monitoring Reports
8.7.8 Placement of safety signs/boards during construction
8.7.9 Sprinkling of water on the roads and dusty tracks
8.7.10 Monitoring of generator emissions

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

8.8 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.

Summary of impacts and their mitigation measures

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Serial	Environmental Issues/ Impacts	Mitigation Measures
	PLANNING, SITE SELECTION AND DESIGN STAGE	
1	Observance of administrative and legal formalities	It is recommended for obtaining of approval from other relevant departments.
2	Acquisition of land	The proposed land is the property of the project proponent.
3	Loss of environmentally sensitive areas	There is not 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 nearby industrial unit.
4	Changes in traffic pattern	There is no need to change the traffic pattern due the development of the subject project because no. of industries have been developed at the same link road only few vehicles will visit the project on daily basis.
5	Potential conflicts with stakeholders	There is not any conflict at the current stage of the project. Neighboring industries were visited regarding their concerns. They have no objection regarding development of the subject project as per proposed design. It is recommended to Settle the issues through scoping and specific group discussions.

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6	Resettlement issues	No resettlement issues
7	Project Design	Provision of Emergency Exits, Assembly Points, firefighting arrangements, water storage for firefighting should be incorporated in the design. Installation of Dust/flue gases/odor controlling devices should be incorporated in the design. Project proponent is committed to provide all these provision in the design of the project.
	SITE DEVELOPMENT STAGE	
1	Erosion due to stripping and site clearance	Sprinkling of water on road sides or dusty tracks
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 suing 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.

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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.
7	Labor issues	Employ the local labor as far as possible Wages of the labor should be as per Government policy
	CONSTRUCTION STAGE	
1	Minor erosion of land	There are two types of erosions: 1. Wind Erosion 2. Water erosion • It is recommended to construct the boundary wall first that will reduce the soil erosion due to wind and chances of water erosion due to water flow from the adjacent will be reduced also. 3. Clearing of land should be step wise; vegetation should be removed only from the area where main building will be developed. 4. Add more vegetation, restore the land by more plantation • Sprinkle water on dusty tracks is recommended

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2	Contamination of land and water	Hazardous substances like oil, fuel, etc. should be kept on concreted surface. Essential services like water supply, sewerage disposal and solid waste management must be in working condition.
3	Impacts of dust, noise and flue gases on neighbors	Sprinkling of water on dusty tracks is recommended. Avoid suing forbidden horns at the site. Do not throw heavy equipment and construction materials in haphazard manner. Proper tunings of vehicles and machinery must be ensured. Schedule construction timings should be implemented for minimum disturbance to neighbors. Continuous Environmental monitoring must be ensured as per proposed monitoring plan
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.

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2	Fire breakouts	Training of workers regarding flammable substances will be ensured. SOPs of fire prevention will be adopted like forbidden of smoking, regular testing of electricity infrastructures and regular testing of gas supply system to the industry. Firefighting equipment must be kept in working condition at site.
3	Safety/security concerns	Safety of the workers and others will 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.
Occupational	• Regular medical check-ups must be ensured to improve the working condition and efficiency of workers. • Safety of management, workers and visitors must be	Occupational Health, Safety and Environment

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	ensured. • Observance construction and safety codes must be ensured. • Provision of emergency exits must be ensured. • It will be ensure that presence of health and safety officer for routine checkup and identify hazard. • It will be ensure that workers daily use personal environmental equipment's (Gloves, safety shoes, mask and lab coat.	
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.

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		The domestic waste will be disposed-off in environment friendly way. It will be ensure that there is separate collection and recycling system for salts. Waste from fleshing and splitting activities will be carried out for fat extraction that can be further reuse. Solid waste during hide process will be minimized by hide preservation process (Chilling hide). Ensure that Solid waste of chrome tanning process will be properly disposed of at landfill site.
7	Air Pollution	It will be ensure that scrubbers are installed within system to reduce soot particle emission. Exhaust gases Ensure that generators/engines and any other machines should be channeled through a pipe to allow dispersal. It will ensure that training will be provided for correct operation in order to minimize the pollution.
8	Waste water generation	Install flow meters to measure the use of water in every step, and record the daily use of water. This will help monitor whether there is over-use of water. Ensuring that water treatment plant will be installed for treatment of waste water in order to decrease water pollution. It will be ensure that chemicals used in dying process are properly measured and controlled

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		through management system. Ensure there will be installation of recycling process in order to reduce water consumption.
10	Sulphide in dehairing process	Ensure that conventional treatment will be carried out for sulphide removal. There will be installation of enzymatic dehairing process in order to minimize sulphide usage.
11	Chromium and other tanning agents	It will be ensure that consider usage of alternative agents having less toxicity. Install recycling process for chromium float to minimize its effect. Avoid the use of chromium type (III).
12	Noise pollution	Presence of silencers will be ensure on machineries to avoid noise level at project area. It will be ensure that proper control measures will be carried out for noise reduction. Ensuring that well maintained equipment will be used on site. Ensure "Hearing protection required "Signs will be posted on entrances.

Equipment Maintenance Detail

The subject project is an established Tanning unit under the name of M/s Gulshan Tannery The company will maintain the records for Health Safety & Environment and will hire HSE manager to check and deal with the HSE issues. The company shall maintain PPEs, medical facilities, firefighting Equipment's as fire buckets, fire hydrants and fire extinguishers and records for their periodic fillings or replacement.

Environmental Budget

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The cost which is required to effectively implement the mitigation measures is important for the sustainability of the Project in operation stage of the Project.

Company will allocate the Environmental Budget of 8,000,000/- annually for the Training, maintenance and management of Environment that will include filling and maintenance of equipment's, restoration, plantation, and availability of PPEs, strategic planning to cope with any emergency situation and formulate the disaster management plan to cope with natural disaster. Any equipment or devices failure or replacement will not be included in this budget.

HSE training	On regular basis
Maintenance and management of environment	On regular basis
Maintenance of equipment	On regular basis
Availability of PPEs	During production hours
Strategic planning to cope with any emergency	As per policy
Formulate the disaster management plan to cope with natural disaster	As per policy

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ENVIRONMENTAL MANAGEMENT PLAN

Serial No.	Environmental Parameter/ Element	Mitigation measure/Enhancement Measures to be taken during:		
		Construction	Regular operations	Responsibilities
1.	Gaseous/ Dust emissions	1- Control speed of construction vehicles 2- To minimize dust generation water should be sprinkled on the construction site and on drive ways as frequently as possible. 3- Regular maintenance of equipment. 4- People who are working and exposed to severe dust and exhaust fumes should be provided with PPEs. 5- The use of low sulphur fuels in construction equipment and ensuring proper vehicle and equipment maintenance.	1- Air emissions boiler stack will be controlled by installing wet scrubbers. Detailed drawing are provided. 2- Management of Gulshan Tannery will ensure that PPEs i.e. masks will be provided to workers during the working hours. 3- Vehicles to be used for the transportation of raw materials at the project site should be properly tuned. 4- Generator shall cater for emergency situation	HSE/Environment Manager

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		6- Construction vehicles and machinery shall be equipped with standard pollution-control devices to minimize emissions. 7- Civil debris, if generated during construction phase, shall be disposed in low-lying areas for land filling. 8- Construction materials i.e. sand, clay should be transported to the project site in covered trucks. 9- All project vehicles should be checked regularly to ensure that engines are in sound working condition and are not emitting smoke. 10- 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.	only. Their exhaust will be emitted through an adequately fabricated stack. It will also be ensured that the generators will only function during emergency condition for limited period. 5- Monitoring should be conducted on Monthly basis as per EPA PEQS Rules.	

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		11- The site proposed for the construction of M/s Gulshan Tannery is located away from human settlements. 12- All equipment, generators, and vehicles used during the project construction will be properly tuned and maintained in good working condition in order to minimize exhaust emissions.		
2.	Noise	1. Ensure Noise level compliance according to Rules and Regulation 2. Ensure all construction machinery are maintained and serviced in accordance with the contractor's specifications 3. Ensure exhaust mufflers and engine enclosures are in place and in good working order for all construction equipment and industrial trucks.	1- All activities will be under PEQS level of noise during operation phase. 2- PPEs i.e. ear muffs should be provided to workers in case of high noise. 3- Ensure all production machinery are	**HSE/Environment Manager**

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		4. Ensure Noise generation activities to be relegated during daytime. 5. Ensure that vehicles undergo routine maintenance 6. Notifying the neighbour in case there would be some noisy events. 7. Ear plugs will be provided & implemented in case of heavy noise.	maintained and serviced in accordance with its specifications.	
3.	Health & safety	1- Workers/people will be informed in advance when work is about to start at the project site. 2- Machinery will never be left unattended. 3- Safe driving practices will be adopted, particularly while passing through human settlements. 4- Basic health facilities will be provided to workers.	1. The EMP guidelines will be followed strictly (committed by the management of ARIF). 2. Training of workers will be conducted regarding health and safety. 3. PPEs will be provided and implemented. 4. First aid measures will be provided to workers.	***HSE/Environment Manager***

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		5- Construction worker safety shall be in accordance with site specific health and safety plan that identifies site specific risks, safety equipment, action plans, and hospital locations. 6- Daily site inspections should be done to ensure safe work practices. 7- All workmen should be provided with personal protective equipment.	5. Shift Rotation, proper ventilation will be provided to workers in case of thermal stress. 6. Safety signs, safety boards, exit arrows etc. will be placed on site. 7. An Assembling point will be kept to gather in case of emergency situation such as fire hazards. 8. Floors will be kept clean without slippery to avoid any hazard. 9. Firefighting system will be installed to avoid any health hazards. 10. Electrical wires, D.Bs will be kept covered to avoid electrical hazards. 11. Machinery will never be left in running condition.	

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4.	Soil and water pollution	5. Prevention of accidental oil or chemical spillage, solid matters, contaminants, debris and other pollutants and wastes from entering into surface and ground water. 6. Awareness on environmental protection. 7. Avoid deposition of stockpiling materials near or on stream banks or other watercourse perimeter. 8. No grey water runoff or uncontrolled discharges from the site/working areas (including wash down areas) without treatment shall be permitted. 9. Water containing pollutants such as cement, concrete, lime, chemicals and fuels shall be discharged into a conservancy tanks for removal from site. 10. Spills during construction or operations shall be absorbed with absorbent blankets, socks, or absorbent material and disposed	1- Water pollution will not be created by this proposed unit. 2- Process water generated from production units will be treated in Effluent treatment Plant (ETP). After treatment it will dispose off into nearby Main drain. NOC from Faisalabad Drainage Division is attached as Annexure-K of this report. 3- Detailed specifications of ETP have been attached.	**HSE/Environment Manager**

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		of in accordance with applicable laws and regulations. 11. Contractor must dispose solid wastes away from the site to an approved disposal site. 12. Potential pollutants (If any) of any kind and in any form shall be kept Stored and used in such a manner that any escape can be contained and the water table not endangered. 13. Equipment Storage or wash areas shall be placed and constructed in such a manner so as to ensure that the surrounding areas (including groundwater) are not polluted. 14. During construction, standard engineering practices such as silt fencing, erosion control material, and construction tracking pads should be implemented to control runoff, erosion, and sedimentation that could affect watersheds.		

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		15. Proper handling and storage procedures for hazardous wastes e.g. fuel oil should be stored in areas with hard standing and containment to handle spills. 16. Minimize waste production by utilizing best available techniques for site preparation.		
5.	Generation of domestic & project process related solid waste	1. Waste management on site shall be strictly controlled and monitored. Only approved waste disposal methods shall be allowed. 2. Ensure that all site personnel are instructed in the proper disposal of all waste. 3. Ensure that all facilities are maintained in a neat and tidy condition. Measures shall be taken to reduce the potential for waste and negligent behavior with regard to the disposal of all refuse.	1. Domestic, process related solid waste and sludge will be stored in solid waste bins and will be handed over to certified contractors. 2. A copy to	**HSE/Environment Manager**

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		4. At all places of work provide bins, containers and refuse collection facilities for later disposal. 5. Solid waste may be temporarily stored on site in a designated area prior to collection and disposal. Waste storage containers shall be covered, tip-proof, weatherproof and scavenger proof. 6. No burning, on-site burying or dumping of waste shall occur. 7. All solid waste shall be disposed of offsite at an approved landfill site. 8. The HSE Officer shall provide metal refuse bins or equivalent plastic refuse bins, all with lids, for domestic waste. Refuse shall be collected and removed from all facilities at least twice per week. 9. Construction waste will be utilized for landscaping, road repairing and maintenance purposes.		

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6.	Waste effluents	1- The waste water to be generated from domestic/constructional sources should be treated in site camp septic tank and then it should be disposed off.	1. The sewage to be generated shall be treated in the Effluent treatment plant and then will be drained out in the nearby drain or used for irrigation purposes.	**HSE/Environment Manager**
7.	Water supply	1- It shall be ensured that no activity tempers with the water supply system and water availability	1. It shall be ensured that no activity tempers with the water supply system and water availability	**HSE/Environment Manager**
8.	Soil erosion/Land Degradation	1. The project site has few and scattered amount of vegetation which will not be removed. 2. The land is almost clear and free of dense vegetation. 3. Every care shall be taken to check soil erosion 4. Landscaping 5. Ensure management of excavation activities	1. Plants will be planted during operation phase of the subject Tanning Division.	**HSE/Environment Manager**

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		6. Provide soil erosion control and conservation structures where necessary 7. In areas where construction activities have been completed and where no further disturbance would take place, rehabilitation and re-vegetation should commence as soon as possible. 8. Ground clearance should be minimized and if possible concentrated only to the specific building foundation areas, and only when it is necessary. 9. Prompt reclamation of exposed soils should be done. 10. Construction during long rains period should be done with caution to avoid soil from being washed away. 11. Topsoil excavated from buildings foundations should be stored for re use on other areas for rehabilitation		

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9.	Enhancement of aesthetic beauty of the building and the area.	------	Flower pots containing flowers and plants will be provided in front of the building to add to the improvement of the environment around. All other necessary measures will be taken to maintain standards of cleanliness so that the building may add to the scenic/aesthetic beauty of the area around.	HSE/Environment Manager
10.	Staff for catering the Environmental Management Plan	---	Special staff will be recruited to implement this Environmental Management Plan on regular basis.	HSE/Environment Manager

Serial. No	Aspects	Impact & Mitigations to be taken			
		Impacts	Mitigation measures Construction/Operation	Responsibility	Monitoring
Land acquisition for the proposed project					

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1	Land acquired for the lease for the proposed subject project	Nil	• The site for proposed project is property of proponent	Proponent	Environmental Consultant/ EPA Punjab
Land use & soil erosion					
2	Land Use &Soil	Particulate Matters (PM) pollution, Clearing of the vegetation Scarring of the landscape and aesthetic beauty. Clearing of native plants will disturb the complexity of the ecosystem of the proposed area. Dust emissions will generate during the construction	• Measures will be taken to avoid soil erosion and dust pollution. • Restoration and reclamation plan will be developed to restore the natural landscape of the area. • Plant nursery, garden will be developed to rehabilitate the native plants of the area. • Project proponent will make any possible efforts to limit the impact on flora and fauna. • The management of proponent has serious concern to preserve the environment and natural elevation beauty of the site	*HSE Department*	*Environmental Consultant/ EPA Punjab*

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		Flue gases will be generated due to the involvement of generators and other machinery.			
Ambient Air Quality					
3	Air Quality	**Particulate Matter, NOx, Sox, Dioxins and Furans and other gasses will release from stacks.** • Dust emission due to vehicles on un-metaled roads. • Dust due to Construction • Dust raised on dirt tracks by project-related vehicles. • Dust emission during earthwork	• Air emissions controlled devices (Cyclone, Bag houses, Scrubbers) must be installed to control the air pollution • Water the construction site periodically to minimize fugitive dust generation while laying foundation • Store all earthwork and construction materials in a manner to minimize generation of dust and spillage on roads. • During excavation works drop heights will be minimized to control the fall of materials reducing dust escape: Temporary cover may be provide for earthwork if necessary • Sprinkling of water must be done to control the dust or PM • Vehicle emissions inspection should be done on regular basis	HSE Department	Environmental Consultant/EPA Punjab

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		• Gases emissions from the vehicles Air pollution due to site visiting vehicles/ transported trucks, hauled trucks , machinery & generator (if any)	• Sprinkling should be done on the unpaved area to avoid dust pollution/ particulate matter. • Vehicles/ trucks should be serviced regularly • All project vehicles will be checked regularly to ensure that engines are in sound working condition and are not emitting smoke. • Quarterly or monthly monitoring is recommended by EPA certified labs to check the compliance with NEQS as per EPA NEQS Rules 2021 Air quality was conducted by EPA certified lab and results are incorporated within this report		
Noise & Vibration					
1	Noise	The major sources of the noise at site are project related machinery High noise level cause hearing loss, deafness	• Personal Protective Equipment PPEs including Ear muffs, Ear plugs and other noise abating equipment will be provided to the	HSE department	Environmental Consultant, EPA Punjab

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		high blood pressure, headache, depression and mentally disturbance. Noise level will not exceed 75 dB (A) at the distance of 2 km radius, activity site is located at a safe distance from the nearest human settlement. Noise from construction activities from site preparation, earth works, foundation and plant equipment installation.	workers and other staff of the subject project. • Proper maintenance and tuning of the vehicles should be done. • Sound proof room should be built for generator (if any) to control the noise. • A speed restriction of 40 km/h will be imposed on all construction vehicles. • Quarterly or monthly monitoring is recommended by EPA certified labs to check the compliance with PEQS as per EPA PEQS Rules 2001. • Noise level monitoring was conducted at different location and results are incorporated within the report.		

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Soil Contamination					
5	Soil contamination	Contamination of soil due to oil and other chemicals storage, transportation Soil contamination due to waste water generated from the project activities	• Industrial waste will be stored in a storage area having impermeable floor, which would not allow to leaching of anything. • SOPs will be developed for the storage of oil and other chemicals handling and transportations • Soil contamination must be controlled by adopting mitigation measures such as storage of oil, fuels etc. under paved area, by maintaining leakage record of construction vehicles, and by regular inspection (admitted by proponent). • Septic tanks will be used for treatment of water. Treated water will be drained into nearby Industrial drain. • Tarpaulin sheets should be placed under generators and other leaching substances • Treated water will be used for plantation	HSE Department	Environmental Consultant/ EPA Punjab

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			Proper storage of oil, fuel etc. is recommended under paved area		
Health and safety					
6	Health and safety	Health & safety issues of workers and nearby community	• Trainings of the workers is recommended for health & safety, first aid and firefighting. • Proponent must provide First aid facilities to workers in case of any injury or accident. • Safe drinking water must be provided to workers, staff, and poor people of the area. • Water consumption records should be maintained • Provision of Proper PPEs must be ensured at workplace • Assembly point and exit points must be available at workplace	HSE Department	Environmental Consultant/ EPA

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			• Electric wires, D.Bs must be kept covered & closed to avoid any electric hazards • smoking or any drugs should be prohibited during working hours or performing work • Safety signs & boards will be placed at the time of construction activity • Security guards will be appointed at the construction site • At the time of construction and earthwork, fencing will be ensured for the area under the exploration Further proper housekeeping and safety arrangements must be ensured at the subject project		
Waste Water					
7	Waste water	Minor generation of waste water from construction activity. Water Contamination due to improper storage of construction material,	• Waste water generated from the constructional activity will be used as sprinkling on the dusty tracks or for restoration of the land. • Waste water monitoring is recommended on monthly or quarterly basis by EPA certified lab	HSE department	Environmental Consultant

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		Water contamination due to improper debris disposal, Waste water pollution, Spread of diseases, underground water contamination	to check the compliance with PEQS and as per EPA PEQS Rules 2001 • Domestic waste water will be treated in septic tanks and treated water will drain into nearby industrial drain.		
Solid waste generation					
8	Solid Waste/Ash Generation	Land & soil contamination, aesthetic degradation, foul smell etc. Solid waste generation from the construction activity, domestic and project process sources	• *A solid waste management division will be formulated to deal with the proper disposal of generated Ash supervised by HSE Manager, SW Manager, and other related personnel.* • *A nearby landfill will be used to dispose of all type of generated ash.* • *Constructional waste must be utilized for road filling or maintenance purposes* • *Sludge from the septic tank must be replaced on regular basis*	*HSE Department*	*Environmental Consultant/ EPA Punjab*

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			• It is recommended to ensure Proper housekeeping. • It is recommended to adopt proper waste management system		
Odor					
9	Odor	There will generate odor while moving and storage of collected industrial waste.	While transferring the industrial waste, it will be properly covered to minimize its odor. *Collected industrial waste will not be stored for long time in storage area. per day collected waste will be ensured to minimize the its scavenging and odor.*	HSE Manger	
Energy requirement					
10	Energy requirement	Resource depletion	• *Do not waste the energy/electricity when there is no need of it.* • *Use energy efficient machinery and equipment* • *Use energy saving products* • Conduct and maintain records for energy audits	*HSE Department*	*Environmental Consultant/ EPA Punjab*

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			• Do not leave the machinery in running form when there is no working being done • Machinery must never be left unattended • It is recommended to save and conserve the energy and adopt energy efficient technologies during the construction phase		
Socio economic impacts					
11a	Resettlement	Resettlement issues	• The proposed area under the investigation is devoid-off any human settlement	NA	NA
11b	Language	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	Proponent	NA
11d	Health	Social performance of the individuals in the area	• The project proponent will assist the local impacted community for the improvement of health services	Proponent	proponent

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11e	Culture and norms of the area	Change in culture by the influx of nomadic people	• Maximum local employment should be ensured to preserve the culture of the area	Proponent	NGO survey/Environment Consultant

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MP once the detailed project design has been completed.

roposed Monitoring Program

Components	Parameter to be Monitored	Measurement	Frequency	Location	Responsibility
Land Resource	Soil quality	Visual Monitoring and soil analysis	Daily	On-site	Project Manager
Noise Levels	Noise level on the site and adjacent area on dB(A) scale	Noise level reading will be Taken	Regularly	At least four locations on the unit boundary	HSE Officer
Worker's safety	Injuries and accidents	Recording injuries	Daily	Onsite	HSE Officer
Wastewater	Wastewater parameters	Readings will be taken	Monthly	On site	Environmental manager, HSE Officer
Ecological Resource	Flora & Fauna of the area	Observation by conducting surveys	During Baseline Survey, once in a year and after the completion of the Project	Around project site	Project Manager/Environmental manager

Proposed EMP reporting and reviewing procedures

During construction, EMP reporting and reviewing will be done by the contractor/HSE department. Regular monitoring will be done and reports will be submitted in EPA as per condition of Environmental Approval of construction phase. Monitoring reports will be reviewed by EMP team and HSE department of **M/S GULSHAN TANNERY** and then will be shared with EPA. Photographic records will also be maintained Recorded data will be reviewed by supervisory contractor/proponent so that it can be further improved if required.

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Risk Management

Definition of Risk

Risk may be minor, serious or fatal. It may be rare, often or frequent.

Risk = Damage X Rate of Occurrence.

Risks are broadly acceptable, tolerable, unacceptable and residual.

Elements of Occupational Health and Safety Management System (OHMS)

For an effective OHMS, the management of the project will implement the following elements:

- Formulation of OHS Policy
- Identification of risks, hazards and countermeasures
- Adoption of OHS targets based on OHS policy
- Formulation of OHS plans.
- Incorporation of opinions of stakeholders in OHS measures
- Implementation and operation of OHS plans
- Establishing an organization
- Documentation
- Emergency situation
- Routine inspections and improvements
- System audits
- Revision of OSHMS
- OHS education

Post Disaster Rehabilitation

On close of the disaster the management will immediately undertake activities for restoring the normalcy at the site. Efforts will be made to carry on with the operations.

Environmental Management Cost:

The total cost of the project is Rs. 20 million, which includes 1 million Pak rupees for the environmental management. The estimations are as followings:

Environmental Management Cost

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Environmental Component	Quantity	Amount (Pkr)
Tree plantation	500	100,000
Health & safety measures and provision of PPE's	L.s.	100,000
Air and water quality & noise monitoring	L.s.	100,000
ETP maintenance	L.s.	500,000
Environment, Health and Safety Specialist/third-party environmental consultant visit /Environmental trainings	L.s.	200,00
Total Environmental Management & Monitoring Cost.		**10,000.00**

Environmental Technical Assistance and Training Plan

An Environmental and Social Training and Technical Assistance (TA) program will be carried out to implement the EMP, as well as to facilitate the improved environmental management of future projects by increasing the environmental and social awareness of staff in general. The objective of the TA will be to help establish appropriate systems, and to train senior staff responsible for managing environment, operations, and planning, who can then impart training at a broader level within and outside the project site (i.e., the training of trainers). The TA consultant will organize training courses for the staff, train the staff in specialized areas such as air and noise pollution monitoring; develop environment operation manuals in consultation with the EPA.

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Chapter # 9 PUBLIC CONSULTATION & STAKEHOLDER PARTICIPATION

9.1 SOCIAL IMPACT ASSESSMENT

Social Impact Assessment is a methodology used for examining social change due to external sources, especially specific developmental projects, but also government policies, technological changes and social processes or anything that has a social impact. We define social impact assessment in terms of efforts to assess or estimate, in advance the social consequences that are likely to follow from specific proposed project. The social change that results from intrusion into community life can also be beneficial but can have undesirable or negative outcomes. Even that change in the long run may have positive effect on the social well-being of a community.

9.2 Objectives of Consultation

Public consultation plays a vital role in studying the effects of the project on the stakeholders and in the successful implementation and execution of the subject project. Public involvement is a compulsory feature of environmental assessment, which leads to better and more acceptable decision making. The objective of the consultation with stakeholders is to help verify the environmental and social issues that have been presumed to arise and to identify those which are not known or are unique to the construction of the proposed unit. The important general objectives of the consultation process are:

- Information dissemination, education and liaison;
- Informing the stakeholders about the subject project
- Providing an opportunity to local public to raise their views and helping in more sensitive considerations for the formation of mitigation measures for the subject project
- Providing those involved in the planning stage with an opportunity to ensure that the benefits of the proposal are maximized and that no major impacts have been overlooked
- It provides an opportunity to local public to influence the design of project in a positive manner
- Increasing public confidence in front of proponent, reviewers and decision makers

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- Identification of problems and needs of the stakeholders and public
- Providing better transparency and accountability in decision making stage;
- Reducing conflicts through early identification of contentious issues and working on them to find acceptable solutions
- Reaction, comment and feedback of stakeholders on project;
- Developing proposal which are truly sustainable;

9.3 Methodology of consultation:

The EIA team carried out public consultations at various locations around the Project Site. The stakeholder's consultation during this phase of the work targeted the project area, administrative and private offices, Govt. offices, shops, etc. near the Project area:

- Selection of the stakeholders for consultation, reconnaissance of the project site and initial discussions with the neighboring factory workers, residents, shopkeepers, drivers etc.
- Environmental consultants and social specialists and documenting the opinions of the stakeholders expressed during the meetings etc.

9.4 Stakeholder identification:

Stakeholders considered at all levels according to the importance of the project. They are at provincial, district and village level. The process of consultation is an ongoing process which continues during the project life cycle and even after the submission of this environmental assessment report and so on. Therefore, three-tier approach was adopted. Stakeholders were identified, categorized and consulted at provincial (EPD Punjab, Irrigation department, Agriculture department, Wildlife department etc.), district level (EPD, Irrigation department, Agriculture department, Wildlife department etc.) & village level (Direct & indirect affects and Locals)

Consultations with government, provincial and district level departments were carried out through meetings and visits while consultations with locals, villagers, neighbors and directly affected peoples were under taken during baseline study of the area.

Consultations were held with the followings;

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District Level:

1. Environmental protection department, Lahore
2. Agriculture department, Lahore
3. Forest Department, Lahore
4. Wildlife department, Lahore
5. Irrigation Department, Lahore

Village Level:

1. Neighboring workers
2. Shopkeepers
3. Traders
4. Drivers

Consultations:

A series of public consultations were required to get the feedback/ concerns of the different departments, Industries, local public, PAPs, and general public residing near the subject area.

Proponent

Possible impacts and mitigation measures related to the proposed project were discussed with the project proponent and management. They assured to take all suggested mitigation measures to control any discrepancy arose by the project and to make the project environmental friendly.

9.5 Responsible Authority

Management of M/s Gulshan Tannery is the responsible authority to take all measures throughout the life cycle of the project.

9.6 Other departments and agencies

For the impact analysis detailed meetings were held with the management of M/s Gulshan Tannery local community, education institutes, health institutes, hospital and NGOs. Issues were discussed that may affect the environment and also the implementation of proposed project. All possible mitigation measures were considered and incorporated in the Environmental Management Plan.

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Scoping sessions, focused group discussion and way side consultations were held with the relevant stakeholders in the area. The purpose of such consultations is to obtain the feedback from the relevant persons.

9.7 Environmental Practitioners and Experts

Project site, had discussions with stakeholders and consulted with the local people of nearby and other villages to evaluate the project socio- economic impacts. People of the area belong to different professions like mostly belong to employment, own businesses, doctors, some in abroad, in Army, teaching, in agriculture, etc. Women were also consulted for their point of view regarding the betterment of the area by this project, some of them communicated but according to social value of the area they mostly hesitate to communicate comfortably and get pictured. People provide the massive information about the project and have positive remarks regarding the project development.

9.8 Affected & Wider Community

There is no affected community present in the radius of our study area. PGEE team has consulted with the inhabitants of the Faisalabad area. They provided positive remarks regarding the proposed project. Stakeholders' participation Performa's and socioeconomic questionnaire were get filled by the inhabitants to evaluate the project socio-economic impacts. List of the respondents/participants can be seen in bellow table.

Questionnaire filled during the public consultation/interview are attached.

STUDY INSTRUMENT

Data collection tool used was questionnaire; attached as The questionnaire was designed to address education, employment and population issues. Their responses were duly recorded. Some of the questions were asked not only to get the information but also to get the impression of an interviewee.

RESULTS OF SOCIO-ECONOMIC DATA COLLECTION

The questions were designed in order to know that what inhabitants think about the proposed project and it was amazing to note that majority of the population think in the positive manner about the extension and efficiency enhancement. The people foresee

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strong impacts regarding employment, business and structural development due to this project. The management of M/S Gulshan Tannery environmental quality of the area, land reclamation and providing job opportunities subject to relevant skills assessment of the local community during construction and operation of the project.

Sample size

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

Statistical Analysis

SPSS 19.0 has been used for the statistical analysis of the data collected during the visit of study site villages through questionnaires

Statistical Analysis

SPSS 19.0 has been used for the statistical analysis of the data collected during the visit of study site villages through questionnaires

Result and discussion

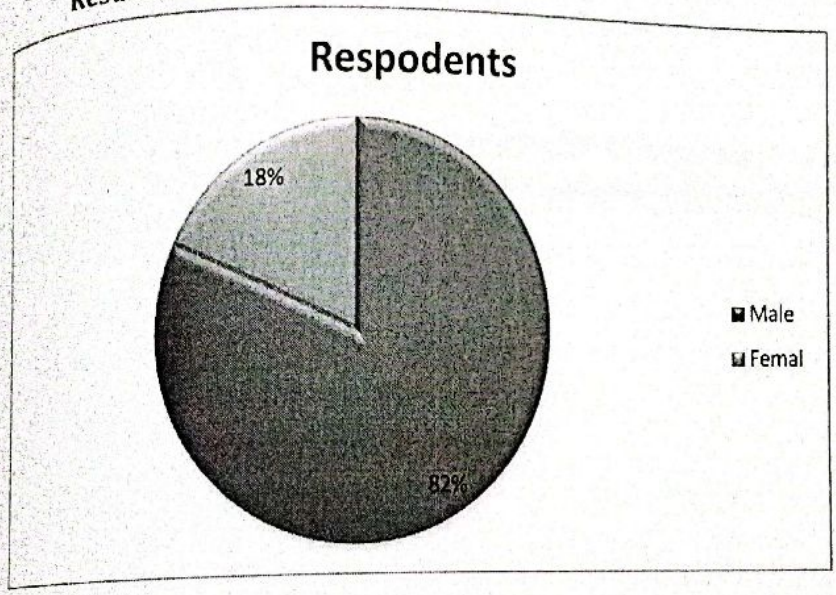


Figure 8: Gender ratio of respondent

Discussion

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According to graphical representation, 82 respondents were male while 18 % respondents were female. The number of female respondents is less as compared to male respondents because according to the social binding female hesitates to respond or communicate comfortably.

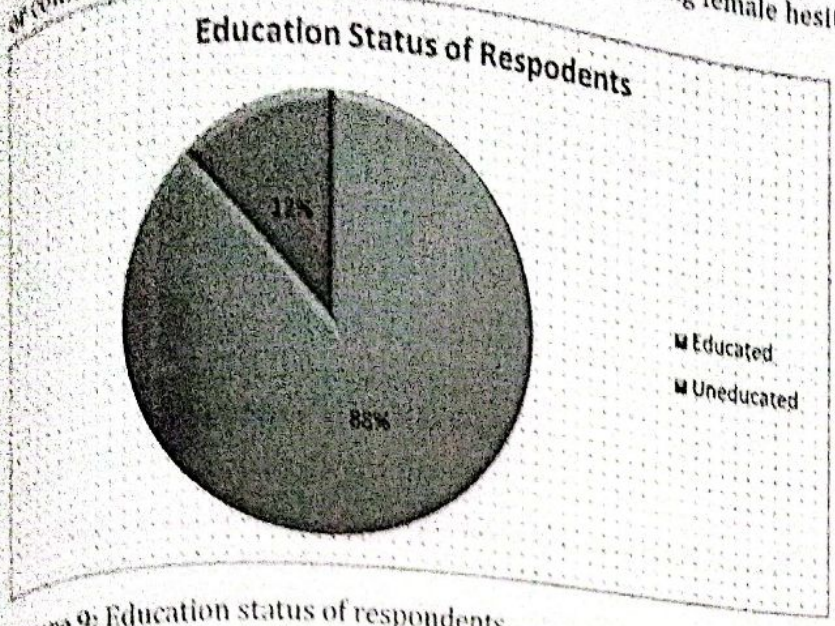


Figure 9: Education status of respondents

Discussion:

According to above graphical representation, 88 % respondents were educated while 12% were uneducated. So, according to the survey overall education status of the area is good.

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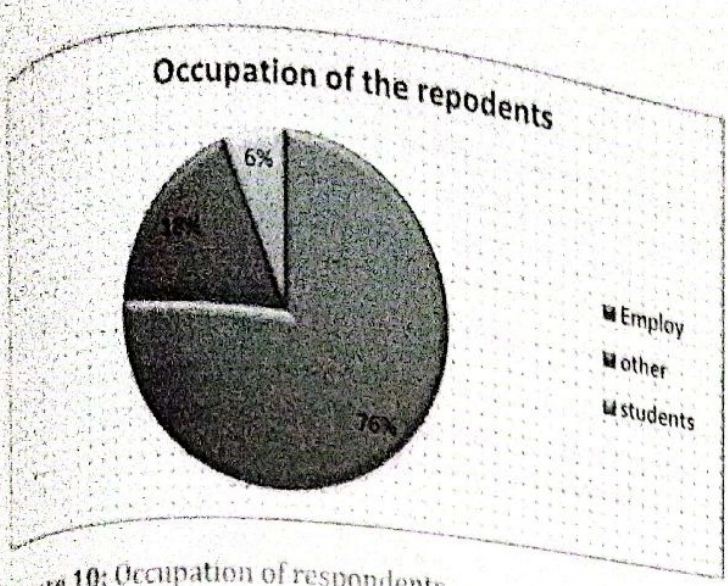


Figure 10: Occupation of respondents

Discussion

According to above graphical representation, source of income of majority of the respondents in the area was mainly employee in the private and government sectors. According to the survey 6% were students while all other respondents' source of income was business man, farmers, doctors and teachers.

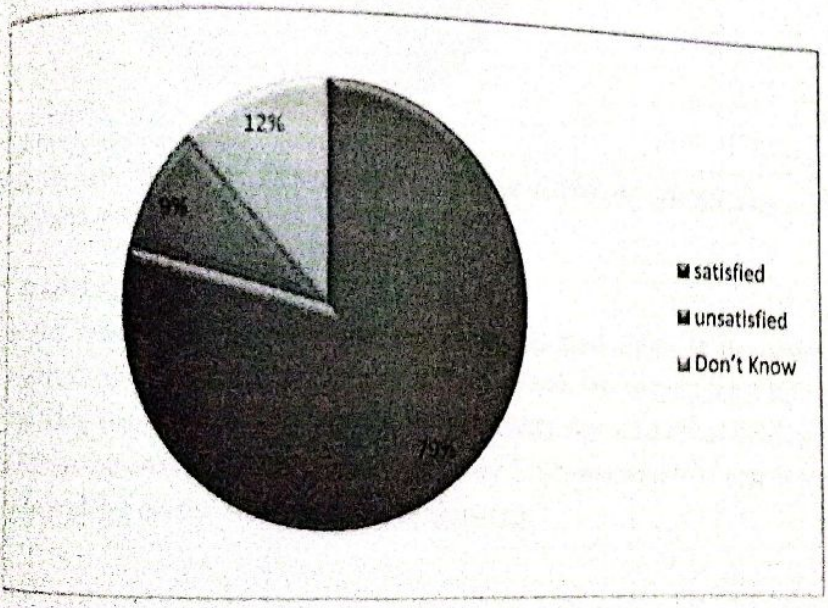


Figure 11: Ratio of people satisfied with the proposed project

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Discussion:

As per survey, 79% people were satisfied with the proposed project of M/s Gulshan tannerypvt ltd and they gave positive remarks regarding the existing unit and proposed project as they got job over there, their living standard raise over working there. While 12% respondents were have no opinion regarding the project and 9% respondents were not satisfied with the production unit due to their concern regarding the aesthetic degradation and no preference to local people for jobs.

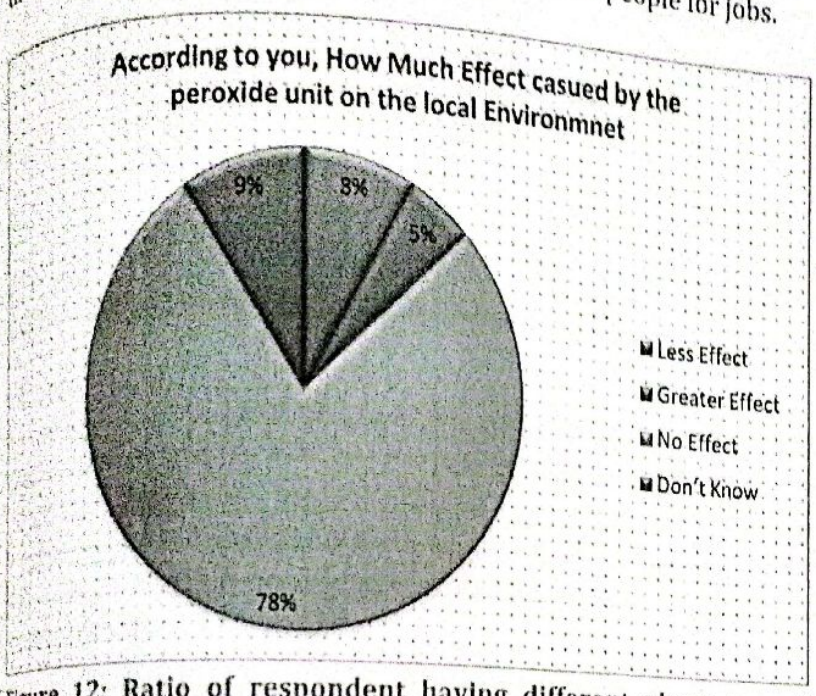


Figure 12: Ratio of respondent having different views regarding impact on environment

Discussion:

As per survey, 78 % respondents remarked that there is no effect caused by the proposed project on the area environment while 9% respondents had no point of view regarding the project activity, 8% respondents remarked that subject activity has less effect on the environment of area and only 5% remarked that construction activity has greater effect on the environment of the area.

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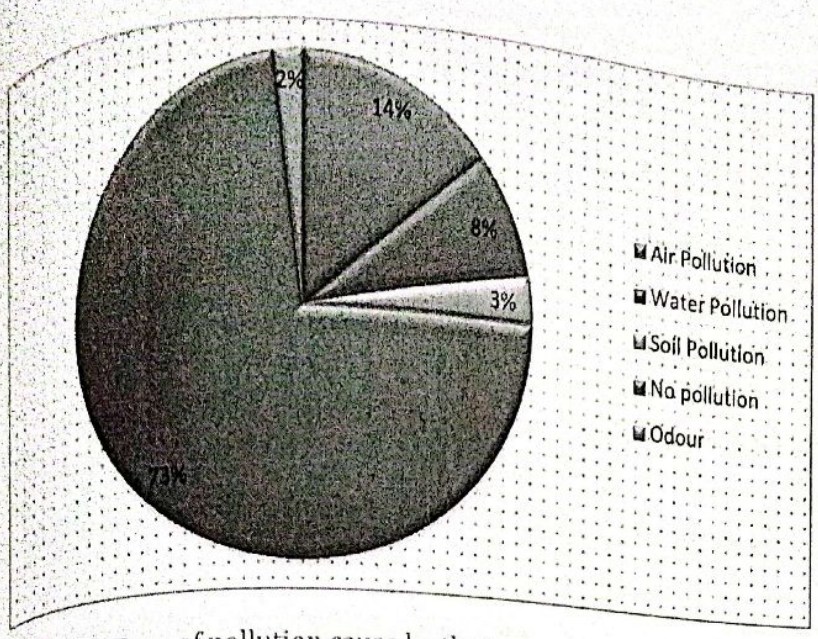


Figure 13: Type of pollution cause by the proposed project

Discussion:

As per survey of the area and graph indicates, some people gave remarks that there are higher air pollution (i.e. 14%) by the subject project, some people said that there is soil pollution caused by the proposed project (i.e. 3%) by the subject activity. Maximum/ number of people said that there is no pollution caused by the subject project while some people said that water pollution (i.e.8%) and little bit odor (i.e.2%) caused by the subject activity.

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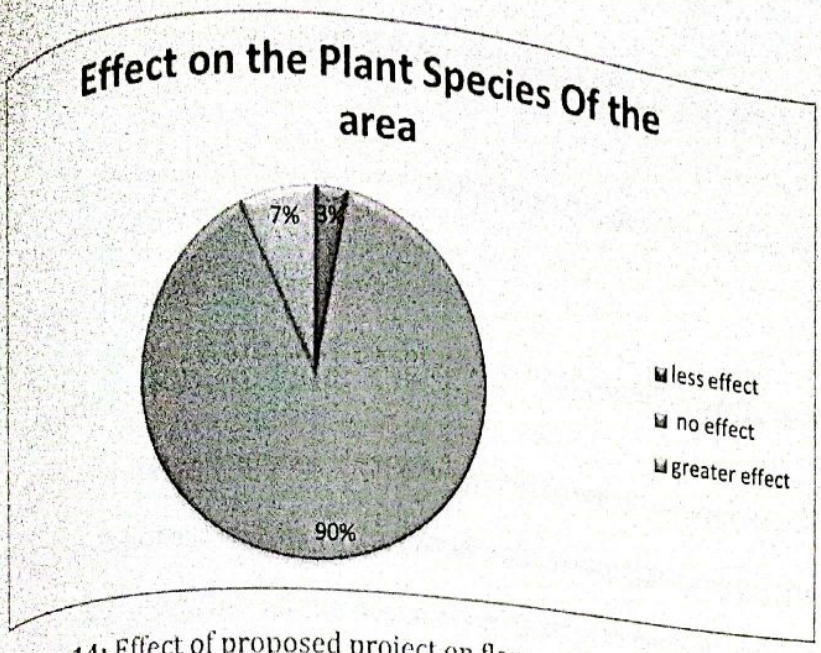


Figure 14: Effect of proposed project on flora

Discussion:

As above graph indicates, 90% of the respondents remarked that there is no effect caused on the plants species by the construction and operation of the proposed project, 7% said that there is greater effect can cause on the plants species by the subject activity by clearing the plants at the time of construction and 3% said that less impact will be cause by the subject project on the plants species.

9.9 STAKEHOLDER CONCERNS AND RECOMMENDATIONS

The community consultations demonstrated that goodwill towards the project proponent indeed exists. Approval for project activities by communities was evident. The consultations were considered a good gesture and were appreciated. Number of earning hands is such that communities are looking forward to any project proponent to improve their financial well-being to a great extent

During interviews with different inhabitants of the community, it was found that some of the people were aware and most of them were in favor the project only because they believed that such projects might provide job opportunities for people of the area. For them earning at any level is equally important. It is the most effective and attractive source of income for them.

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Chapter # 10 CONCLUSIONS & RECOMMENDATIONS

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

10.1 CONCLUSIONS

- The EIA study reveals that the project is economically viable, socially acceptable and environment friendly.
- The proponent will implement the project in the environment friendly manner.
- Project proponent will adopt the proper solid waste management system.
- Proponent will adopt all the necessary measures to control any impact if resulting from the project.
- Project proponent will provide the safe drinking water to all workers and staff.
- It will generate additional jobs during construction and operation phases.
- **M/S GULSHAN TANNERY** intends to register the project with local Government.
- Project proponent of **M/S GULSHAN TANNERY** has prepared and implemented very comprehensive Emergency Preparedness and Response Standard Operating Procedures.
- The proponent has committed to adopt proper waste management system and implement the project in the environment friendly manner and adopt every possible measure to control any impacts resulting from the subject project.
- Project proponent has prepared and implemented very comprehensive Security and Fire Fighting Standards Operating Procedures.
- The impacts of tannery unit in area will be insignificant, provided the generic mitigation measures proposed in this report are implemented. In areas where proposed site may have a significant impact, additional mitigation measures are given to reduce impacts to as low as reasonably possible.

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10.2 RECOMMENDATIONS

- In view of the comprehensive screening process and findings of the present study there is no need of conducting further investigations.
- Tree plantation inside and near the project area is recommended.
- Devices will be installed for reduction of Stack emissions.
- Handling and storage of solid waste will be in sound manner.
- The management of M/s Gulshan Tannery will continue to assist the local communities as a corporate/social responsibility (CSR).
- Any seepage and leakage will be control through proper mitigation measures
- Sound proof room should be constructed for generator to control the sound of it.
- Use of narcotics and smoking must be prohibited during working, filling or handling of fuel.
- PPEs must be provided to workers such as gloves, masks, etc.
- Proper solid waste management system must be adopted
- Safety signs, safety board's etc. must be placed on site during various developmental stages.
- Machinery will be never is left in running condition.
- First Aid measures, health & safety Equipment (PPEs) will be provided to workers.
- Fire Fighting station & system will be installed.
- The management of subject project will assist the local communities as a corporate/social responsibility.

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APPENDICES

GLOSSARY

Alternatives: A possible course of action in place of another that would meet the same purpose and need. An alternative can include other locations/sites, routes, layouts, processes, designs, schedules and/or inputs. The 'without project' alternative provides a benchmark against which to evaluate changes; development should result in net benefit to society and should avoid negative impacts.

Ecosystem approach: As advocated by the Convention on Biological Diversity (CBD), the ecosystem approach recognizes that people and their environment are part of the broader ecosystems on which they depend. Environmental management should therefore be implemented in an integrated way. Environment: Includes all components of the environment, namely humans, flora, fauna, soil, climate, air, water, landscape, natural sites, material assets, cultural heritage and the interaction among these components.

Environmental assessment: A process that is used to identify, predict and assess the potential positive and negative impacts of a proposed development on the environment and to propose appropriate management actions that will enable the avoidance or minimization of impacts.

Strategic Environmental Assessment (SEA): The application of impact assessment to policies, plans, and programmers. Impact assessments at strategic level encourage an 'opportunities and constraints' type approach to development, where such things as natural resources and ecosystem services at landscape scale define the 'framework' within which development can take place and the types of development that could be sustained.

Environmental Quality Objective: An EQO specifies a target for environmental quality. If EQOs are set by enforceable regulations, they are usually referred to as Environmental Quality Standards.

Impacts are effects on the environment: Direct impacts take place at the same time and in the same space as the activity. Indirect impacts occur later in time or at a different place from the activity. Cumulative impacts are the combined or additive effects on the environment of individual projects over time or of several projects in one geographical area. They may seem to be insignificant when seen in isolation, but collectively they may have a significant effect.

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Irreversible impact: An impact that cannot be reversed in time, it results in the irreplaceable loss of a resource. Issue: A context-specific question that asks 'what, or how severe, will the impact of some activity/ aspect of the development be on some element of the environment?'

Monitoring: Actions taken to observe, take samples or measure specific variables in order to track changes, measure performance of compliance, and/or detect problems. The objective of monitoring should always be to improve management. Notification: Notification is the formal process whereby States officially inform other States when they are planning to carry out activities that may cause significant adverse effects upon other

States Offset: An offset replaces or provides 'like for like or better' substitutes for residual negative impacts on the environment. Such offsets could include formal commitment to managing substitute areas of comparable or greater value for conservation, entering into a secure and permanent conservation agreement with the conservation authority, setting aside protected natural areas, establishing a trust fund for conservation, thereby enabling land acquisition and/or management, etc. Offsets focus on areas of recognized value to conservation and on ensuring the persistence of landscape-scale processes.

Opportunity Cost: The lost opportunities that might result from the implementation of a certain alternative. For example, a pipeline in a national park will likely reduce the tourism potential of the area.

Significance: Determination of severity of an impact taking into account objective or scientific data as well as societal values. Uncertainty: The inherent unpredictability of response of the environment to an impact, the lack of knowledge and/or understanding of cause-effect-impact relationships between the development activity and the environment, and/or gaps in information that do not allow confidence in predictions of impacts.

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TERMS OF REFERENCE FOR IEE / EIA

Name of Project	M/S Gulshan Tannery
Title of Assignment	Preparation of Environmental Impact Assessment(EIA) Report
Proponent	Mr. Hafiz Faraz Khalid Dar S/of Khalid Javed Dar
Location of Project	Nawa Pind Gohad Pur Sialkot Pakistan

Objectives of Study:

- To assess and establish the existing environmental and socio-economic conditions of the area.
- To assess and establish the potential environmental and socio-economic impacts of the project activities and identify the issue of concern.
- To propose mitigation measures and monitoring arrangements that can be incorporated into the operation of the project to remove or reduce any damaging effects as far as possible.
- Categorization of the significant impacts requiring further consideration.
- To devise the Environmental Management Plan for the project.
- To prepare an IEE Report as per the relevant guidelines for submittal to EPA, Punjab

Scope of Work for Consultants:

- Secondary Data Collection
- Field Survey and Primary Data Collection
- Baseline Monitoring
- Traffic Counts
- Socio-economic surveys (Interviews + Questionnaires)
- Compilation of Data
- Preparation of IEE Report according to Regulation (6) or Review of IEE / EIA regulations, 2000 and Guidelines for Preparation and Review of Environmental Reports, 1997.
- Responding to any queries by EPA Punjab

Key Deliverables:

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- Hard Copies of IEE/EIA Report shall be filed as per Regulation (8) of Review of IEE / EIA Regulations, 2000
- Soft Copies of IEE/EIA Report shall be submitted along with report as per Regulation (8) of Review of IEE / EIA Regulations, 2000
- IEE/EIA Report shall be accompanied by;
- An application, in the form set out in Schedule IV of Review of IEE / EIA Regulations, 2000
- An undertaking as per Schedule VII of Review of IEE / EIA Regulations, 2000
- Copy of receipt showing payment of the review fee
- Reply of Query Letter (will be submitted if EPA require additional information)

Time Line:

- According to clause (a) of sub-regulation(1) of regulation 9, within ten working days of filing of IEE, EPA shall be responsible to confirm IEE is complete for purpose of initiation of review process
- According to clause (b) of sub-regulation(1) of regulation 9, EPA require such additional information as may be specified
- According to clause (c) of sub-regulation (1) of regulation 9, return IEE to proponent for revision, clearly listing the points requiring further study and discussion.
- According to sub-regulation (1) of regulation 11 of Review of IEE/EIA Regulations, 2000, EPA shall review IEE within forty five (45) days and EIA within ninety (90) days, of issue of conformation of completeness under clause (a) of sub-regulation (1) of regulation 9.
- According to Section 12 (4) of Punjab Environment Protection (Amendment) Act 2012, "The Government Agency shall communicate its approval or otherwise within a period of four months from the date the Environmental impact Assessment of environmental impact assessment is filed complete in all respects in accordance with the prescribed procedure, failing which the Environmental impact Assessment or, as the case may be, the environmental impact assessment shall be deemed to have been approved to the extent to which it does not contravene the provisions of this Act and the rules and regulations."

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...ifications:
...onnel involved in the survey and preparation of IEE Report of the said project will have the ...lowing qualifications

No.	Name	Qualifications and Brief Experience	Roles Assigned
1	Engr. Waqar Ahmad	Environmental Engineer B.Sc. Environment Engineering	• Preparation of Baseline Conditions of the Project Area. • Assessment of Environmental Impacts and Proposing their Mitigation Measures. • Preparation of Environmental Management and Monitoring Plan. • Author of EIA Report
2	Dr. Usama Zafar	PhD Environmental Science	• Author of EIA Report
4	M. Abdul Razzaq	Master of Science-GIS	• Development of Maps
5	Aqsaa Rasheed	M. Phil Environmental Science	• Report Writing
6	Zahra Afzal	BS Chemistry	• Laboratory Analysis

Responsibilities of proponent:

- Responsible to pay all the dues of the consultants as per the agreed terms and conditions.

- According to regulation 7 of Review of IEE and EIA Regulations, 2000, proponent shall pay, at the time of submission of IEE/EIA, a non-refundable review fee to EPA, in accordance with rates specified in schedule III.
- Provide all documents / details required for completion of IEE Report
- Proponent shall be responsible for paying any fines / penalties levied by the EPA Punjab or Environment Tribunal
- Proponent shall be responsible for the validity and correctness of the information provided to the consultants

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