Contents

EXECUTIVE SUMMARY

Project Title and Location

Subject project for which this Environmental Impact Assessment study has been conducted for the proposed upgradation of a wastewater treatment plant under the name of M/s Sheikhoo Sugar Mills Limited located at Sanawan, Kot Addu, District Muzaffargarh. Subject project will be proposed upgradation of the wastewater treatment plant. The capacity of proposed effluent treatment plant is 150m3/hr. The proposed area will be 7,654.8805sq. meter. Overall cost of the project will be approx. 8.5 million rupees.

The building was established prior to the promulgation of the Punjab environmental protection act 1997 (amended 2012). In the eye of Environmental laws i.e. Pakistan Environmental Protection Act 1997 and Punjab Environmental Protection Act 1997 (amended 2012) has no retrospective effect upon already established industrial units. In spite, of that as a law abiding citizen the Project proponent is voluntarily going to submit Environmental Impact Assessment report to EPA Punjab for the Compliance of Punjab Environmental Protection Act 1997 (amended 2012). It is worth mentioning that not a single complaint has been lodged against the said unit up till now. It is therefore most respectfully submitted that kindly issue the NOC to the Proponent so that he may be able to carry on its industrial activities as per requirements of Environmental Laws. The relevant evidences are attached as **Annexure-A**

The proposed project falls under Schedule II, Category F, Clause I 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 are annexed as **Annexure-B**.

Location

Subject treatment plant will be installed within the premises of the existing unit located at Sanawan, Kot Addu, District Muzaffargarh. Land co-ordinates of the subject project are as follows:

Front …….... Access Road

Back……. Open land

Left……... Industrial Unit

Right …… Open land

For further detail please consult the google earth map of the project attached with EIA in **Annexure-C**.

Figure 1: Google Map of Sheikhoo Sugar Mills Limited

Figure 2: Proposed Area for the Wastewater Treatment Plant

Name of the Proponent

Zahid Mehmood Qureshi S/o Ahmed Ali is authorized to perform as proponent during the proceedings of environmental approval.

Proponent: Zahid Mehmood Qureshi

Address: Plaza no.104, Raya Fairways, DHA, Lahore

CNIC and other documents are attached as **Annexure-D.**

Name of the organization preparing the report

Pak Green Enviro-Engineering (Pvt.) Ltd, as independent consultants, has been appointed by the proponent to conduct Environmental Impact Assessment (EIA). Company office address is Head Office: 46-M, Gulberg III, Lahore and contact numbers are Tel: +92-3004462976, +92-333-4041262, +092- 042354411444

Brief outline of the proposal

Subject project for which this Environmental Impact Assessment study has been conducted for the proposed upgradation of a wastewater treatment plant under the name of M/s Sheikhoo Sugar Mills Limited located at Sanawan, Kot Addu, District Muzaffargarh. Subject project will be proposed upgradation of the wastewater treatment plant. The capacity of proposed effluent treatment plant is 150m3/hr. The proposed area will be 7,654.8805sq. meter. Overall cost of the project will be approx. 8.5 million rupees.

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Water after treatment will be disposed of into the nearby industrial channel or can be used in the agriculture purposes. Treated water disposal agreement shall be provided by the Management of M/s Sheikhoo Sugar Mills Limited after issuance of NOC from EPA Punjab

Major Impacts

Subject project for which this Environmental Impact Assessment study has been conducted for the proposed upgradation of a wastewater treatment plant project, which will be installed after the approval from the EPA Punjab under section 12 of PEPA 1997 (Amended 2012). Environmental Impacts during the constructional/Installation phase of the project will be minor

and in the operational subject effluent treatment plant will minimize the adverse environmental impacts by treating the contaminated wastewater. In order to identify all the activities associated with the project during the Construction and operation phase with the potential to cause adverse environmental impacts and harm, a thorough review has been conducted. Project does not have any major adverse impacts on the nearby community and on environment. Overall the project has 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.

. Potential Impact	Criteria for determining Significance	Key Mitigation Measures
Impact due to Location	Seismic Region and flood Zone Specification	There are no significant negative impacts on the environment due to the project location/ selected site, because project is present within facility of M/s Sheikhoo Sugar Mills Limited having no significant impacts on the surrounding industrial unit and community.
Gaseous Emissions- During the operational phase of the project, gaseous emissions from project site generator may affect the air quality of the project area.	PEQS for Ambient Air	Industry should ensure the PEQS compliance and should not be allowed to emit hazardous pollutants. Proper tuning of generator should be done to avoid the excessive gaseous emission from the generator during construction phase of the project. Vehicle emissions inspection should be done on regular basis. Sprinkling should be done on the unpaved area to avoid dust pollution/ particulate matter.
Noise- Noise due to industrial activity, machinery and generators can be a nuisance for the workers	OSHA Standards	Activities generating high levels of noise should be minimized at the project site. Personal Protective Equipment PPEs including Ear muffs, Ear plugs and other noise abating equipment will be provided to

in the working area.		the workers and other staff in case of noise at the project site. Generator should be covered with canopy. Proper maintenance and tuning of the vehicles should be done. Sound proof rooms should be built for generators to be installed at the project site to control the noise.
Discharge of wastewater- The discharge of untreated municipal wastewater may be a negative impact of the subject project.	PEQS for Municipal Effluents (mg/l, unless otherwise defined)	Wastewater released during construction must be treated before its discharge. Compliance of PEQS for effluents should be ensured. Monitoring should be conducted as per PEQS and reports should be submitted to EPA.
Health & Safety Issues- different constructional and operational activities at the project site may cause health and safety issues for workers if precautionary measures will not be adopted.	OSHA Standards	Proper training of workers and staff should be conducted to avoid the accidents. Use of PPEs should be implemented at workplace. First aid measures/medical facility should be provided at the project site. Safe drinking water must be provided to workers, staff, and poor people of the area. Safety signs & boards should be placed
Solid waste management- If solid waste will not be managed properly, it may cause negative impacts.	Exposure to potentially hazardous waste; Generation of excessive waste; Recyclable waste and reusable waste is discarded; Littering; Improper disposal.	A solid waste management division should be formulated to deal with the proper disposal of solid waste, supervised by HSE Manager, SW Manager, and other related personnel.

Recommendation for Mitigation measures
Proposed Environmental Monitoring

To oversee the environmental performance of the project through its lifecycle enforcing the PEQS an Environmental Monitoring Program should be formulated which ensures effective

surveillance of the environmental parameters at various stages of the project development and compliances with PEQS and legal obligations. Monitoring for Environmental Parameters is recommended:

- **Particulate Matter/Dust**

  Regular monitoring for particulate matter should be conducted during construction/Installation and report should be submitted to EPA Punjab.

- **Flue Gases**

  Regular monitoring for vehicular emissions should be conducted during construction/Installation as per PEQ's Rules and report should be submitted to EPA Punjab.

  Noise

  Regular monitoring for noise level should be maintained periodically during construction/Installation and report should be submitted to EPA Punjab.

- **Water quality**

  Regular monitoring for waste water should be conducted during construction/Installation and report should be submitted to EPA Punjab. Record should be maintained regarding the underground water pump and consumption.

Proposed Monitoring Schedule during the project operation

Sr. No.	Parameter	Monitoring Schedule according the PEQS
1	Treated wastewater	Monthly
2	Ambient air	Quarterly
3	Noise Level	Quarterly
4	Ground water	Quarterly
5	Stack Emissions	Quarterly

Recommendation: Environmental Monitoring data log book should be maintained by the project proponent.

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 (EIA).

The Subject project for which this Environmental Impact Assessment study has been conducted for the proposed upgradation of a wastewater treatment plant, which will treat the waste effluent and help out communities by creating employment and governments to integrate the environmental, economic and social aspects of development from site, up to regional scales. It covers land-use planning, urban design, infrastructure planning, heritage and conservation, resource management, environmental monitoring, planning law and practice, commercial and industrial development, and policy making and implementation. Planning of this project deals with strategic work (long-range planning) as well as structural and statutory components. The latter include the current development of the built and natural environments and the legislative framework controlling land use. Accordingly, planning is closely allied with commerce, economics, government, sociology and the ecology disciplines.

Purpose of the report

Environmental Impact Assessment (EIA) is being submitted to the Environmental Protection Agency (EPA), Government of the Punjab, Lahore in compliance with the legal requirement for Punjab Environment Protection Act-1997 (Amended 2012), Section 12- for obtaining No Objection Certificate (NOC) for the subject Effluent treatment plant project. 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 sectorial guidelines

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

Scope of the study

The scope of study includes baseline survey of the proposed project, collect relevant data from primary and secondary sources, assess the impacts related to the subject project, suggest the mitigation measures to control the anticipated impacts, formulate the environmental monitoring program to check the environmental parameters at PEQS, prepare an Environmental Management plan to implement the recommended mitigation measures, consultation with the stakeholder or nearby community to know their concerns regarding the subject project

Screening

The proposed project falls under Schedule II, Category F, Clause I of Review of IEE and EIA Regulations, 2022.

Identification of Project and Project Proponent

The project is the proposed upgradation of wastewater treatment plant at M/S Sheikhoo Sugar Mills Limited to shift towards new technology with biological treatment.

Zahid Mehmood Qureshi S/o Ahmed Ali is authorized to perform as proponent during the proceedings of environmental approval.

Proponent: Zahid Mehmood Qureshi

Address: Plaza no.104, Raya Fairways, DHA, Lahore

CNIC and other documents are attached as **Annexure-D.**

Details of Consultant

Pak Green Enviro-Engineering (Pvt.) Ltd is an independent company, who conducts EIA, EIA, EMP and other environmental investigations through its panel of environmental consultants, public participation practitioners and experienced environmental managers. The company has its own recommended instruments to check the baseline environmental data/PEQS and lab analysis facility for water, waste water priority parameters.

Contact: Pak Green Enviro-Engineering (Pvt.) Ltd.

Head Office: 46-M, Gulberg III, Lahore

Tel: +92-303-4442334, +92-3044452189

The current study will be carried out by the following professionals:

Name of the EIA/IEE Team	Qualification and Brief Experience
Abdul Hafeez Nasir Chief Environmentalist/Ecologist/	**Qualifications** **Ph.D Scholar** (Environmental Management)

CEO of Pak Green Enviro-Engineering (Pvt.) Ltd.	**Experience** 14 years' experience as Environmentalist
Mian Iftikhar Ahmed Environment Professional	**Qualifications** **M. Phil** (Environmental Science) GCU Lahore **Experience** 8 years' experience as Environmentalist
Hassan Afzal Khan Environment Professional	**Qualifications** **M. Phil** (Environmental Science) University of the Punjab **Experience** 5 years' experience as Environmentalist
Sabeera Tauheed Environmentalist	**Qualifications** **M. Phil** (Environmental Science) University of the Punjab **Experience** 3 years' experience as Environmentalist

Brief Description of Nature, Size and Location of the Proposed Project

Subject project for which this Environmental Impact Assessment study has been conducted for the proposed upgradation of a wastewater treatment plant under the name of M/s Sheikhoo Sugar Mills Limited located at Sanawan, Kot Addu, District Muzaffargarh. Subject project will be proposed upgradation of the wastewater treatment plant. The capacity of proposed effluent treatment plant is 150m3/hr. The proposed area will be 7,654.8805sq. meter. Overall cost of the project will be approx. 8.5 million rupees.

Location

Project site is located at Sanawan, Kot Addu, District Muzaffargarh

Front …….... Access Road

Back……. Open Land

Left……... Industrial Unit

Right …… Open land

For further detail please consult the layout map of the project attached in **Annexure-C.**

Fig: Aerial View of M/S Sheikhoo Sugar Mills Limited

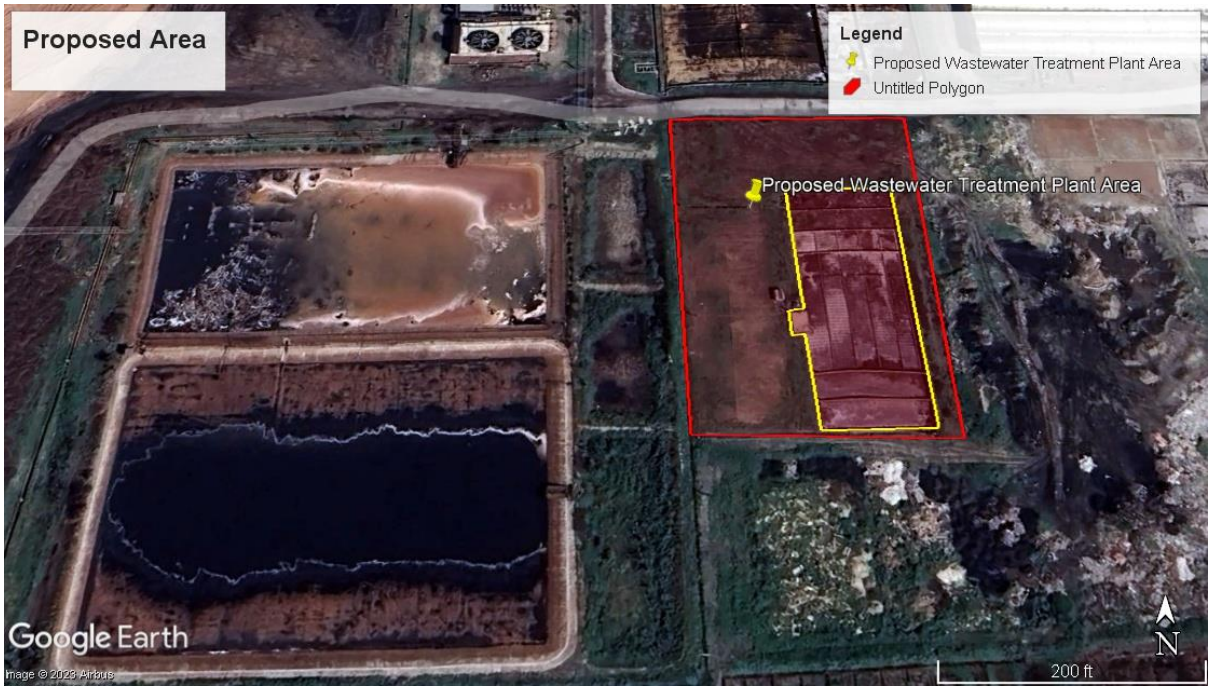


Fig: Proposed area for WWTP

Methodology for EIA Report

For the purpose of this report, environmental and social baseline data and conditions at/around the project site has been undertaken. The methodology adopted to conduct the EIA & environmental Audit Study includes Review of Layout Plan, detail meetings with the client, orientation session, development of data acquisition plan, Analysis of Data, review of existing data, primary & secondary data collection survey, Screening of Potential Environmental

Impacts and Mitigation Measures and also interviews with people near the project area has been conducted to collect their opinion regarding the proposed project and after findings it has been concluded that the project will not have any major adverse impacts on the socio-economic environment of the existing community.

The present EIA reports contain the following chapters and Annexure as:

Executive Summary

Chapter 1: *Introduction of the Project*

Chapter 2: *deals with the project Description*

Chapter 3: *covers the Description of the Environment*

Chapter 4: *Deals with the Environmental impacts and Mitigation measures*

Chapter 5: *describes the Environmental Management Plan & Monitoring Program*

Chapter 6*: covers the stakeholders participation*

Chapter 7: *involves the conclusion & Recommendation*

Scoping

Spatial and Temporal Boundaries of Environmental Assessment

The project falls in Industrial area of district Muzafargarh. This project spans at the area of 7,654.8805sq. meter, within the premises of existing unit of Sheikhoo Sugar Mills Limited. Various Industrial Units are already present around the vicinity of the project corridor. The main road along with the project site is Sanawan Sultan Road. The following map shows the spatial and temporal boundaries of the project. For further details, Google earth map of the project on A3 page is attached as Annexure-C with the report.

Aerial View of M/S Sheikhoo Sugar Mills Limited

Important issues and concerns raised during consultation

Important issue and concerns raised by the community during consultation include the impact of waste water released from the treatment plant that may impact the nearby community. The Proponent ensured that treated effluent from the treatment plant will be within limits of the PEQS and then disposed off into the Ghazighat Branch Drain. Hence will not cause any issues to the community The community was also concerned about employment for local people. The proponent made sure that maximum job opportunities for plant management and warehouse operation will be provided to the residents.

Significant Impacts to be determined

There can be impacts related to release of waste water containing dyes and other toxic chemicals into the nearby area. The proponent ensured the installation of effluent treatment plant to treat the wastewater and then the safe disposal into Ghazighat Branch Drain. Sludge produced if not disposed off properly can become a nuisance for nearby community especially due to its odor generation

CHAPTER # 2

CONSIDERATION OF ALTERNATIVES

Alternative Considerations and Reasons for their Rejection

Location/Site alternatives:

Subject upgradation of wastewater treatment plant project is being upgraded to treat the wastewater of the M/S Sheikhoo Sugar Mills Limited within the premises. Therefore, location alternatives are not applicable in this case.

Technology Alternatives

Technology is already being changed for capacity enhancement of already installed Wastewater Treatment plant within facility of M/s Sheikhoo Sugar Mills Limited.

Environmental alternative

The project is located in the outskirt of Muzafargarh District. The site is located at Sanawan Sultan Colony. Various industries have already been constructed on the industrial area that are complying with the PEQS standards by installing various pollution controls devices Construction of this industry in this area will have minimal impact on the daily life people living in Muzafargarh. The project proponent is recommended to make sure that emission produced during the project operations are within the PEQS limits. The Proponent has ensured that air pollution control devices and septic tanks will be installed within the project site to manage air and water pollution impact.

Economic Alternatives

Project Treat the wastewater and that can be used for the irrigation purposes create jobs for the indigenous people, improve the business, and improve their living standards. Project is environmentally friendly in all aspects.

CHAPTER # 3

DESCRIPTION OF THE PROJECT

Type and Category of the Project:

Subject project for which this Environmental Impact Assessment study has been conducted for the proposed upgradation of a wastewater treatment plant under the name of M/s Sheikhoo Sugar Mills Limited located at Sanawan, Kot Addu, District Muzaffargarh. Subject project will be proposed upgradation of the wastewater treatment plant. The capacity of proposed effluent treatment plant is 150m3/hr. The proposed area will be 7,654.8805sq. meter. Overall cost of the project will be approx. 8.5 million rupees. The proposed project falls under Schedule II, Category F, Clause I of Review of IEE and EIA Regulations, 2022.

Objectives of the Project

The primary objective of replacement of old technology of waste water treatment plant to enhance the efficiency of already installed WWTP within facility of M/S Sheikhoo Sugar Mills Limited. This ETP Project not only treats the wastewater but also develops the employment opportunity in the area.

Location

Subject treatment plant will be installed within the premises of the existing unit located at Sanawan, Kot Addu, District Muzaffargarh. Land co-ordinates of the subject project are as follows:

Front …….... Access Road

Back……. Open Land

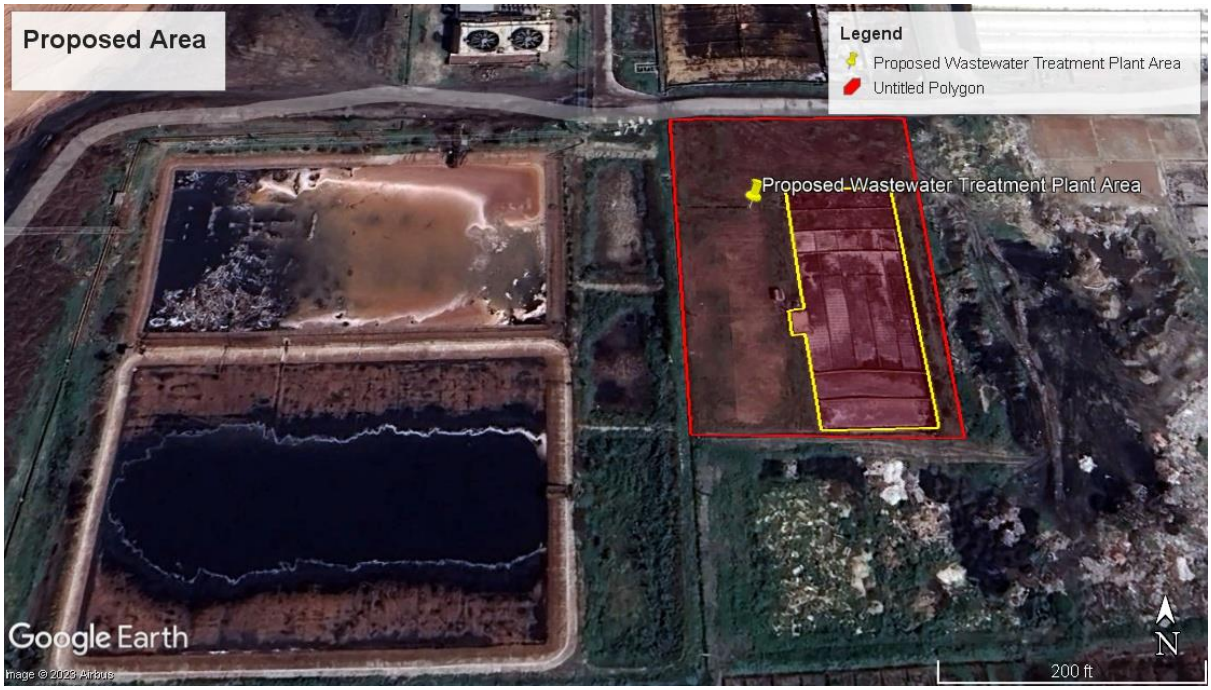
Left……... Industrial Unit

Right …… Open land

For further detail please consult the google earth map of the project attached with EIA in **Annexure-C**.

Land Acquisition

Wastewater treatment plant project will be installed within the premises of the M/S Sheikhoo Sugar Mills Limited Area of the proposed ETP present on the map of the Industrial unit. Land ownership documents are attached in **Annexure- C.**



Land use

The project site is situated in the industrial area of District Muzaffargarh. All laws and by laws of the government are applicable to any land planning and use as well.

Road Access

M/S Sheikhoo Sugar Mills Limited located at Sanawan, Kot Addu, District Muzaffargarh. Sanawana Sultan Road is the access Road to the subject industrial unit. ETP Project will be installed within the premises of Existing unit.

Vegetation features of the project

Subject ETP Project will be installed within the premises of the existing unit. M/S Sheikhoo Sugar Mills Limited Management have reserved place for the ETP Installation within the premises of the unit. Currently Reserve area is an open plot and has not any vegetation or tree. So, there is no tree cutting or vegetation removal involve in the installation of subject Effluent Treatment plant

Cost and Magnitude of the operation

Effluent treatment plant installation according to the Drawings and Pilot scale study to treat the water to achieve the PEQs will be less than 8.5 million Pakistani Rupees. Total area for installation of wastewater treatment plant is 7,654.8805sq. meter.

Schedule of Implementation

Subject treatment plant will be installed within 4-5 month after the approval from the EPA Punjab. Necessary legal, administrative and financial formalities are being finalized.

Description of Project

The subject proposed project is the proposed upgradation of wastewater treatment plant for the treatment of wastewater generated from operational activates of M/S Sheikhoo Sugar Mills Limited. Capacity of the wastewater treatment plant will be $150m^3$ /hr which is enough to treat M/S Sheikhoo Sugar Mills Limited located waste water. Subject Effluent Treatment Plant will be installed in the premises of the existing unit total while the total Area of the unit is 7,654.8805sq. meter Waste sludge will be disposed of properly through certified contactor, contractor agreement copy for the safe disposal is attached as annexure-F.

Silent Features of the project:

The silent features of the project are as following:

Total Area of industry……. …….1501Kanal

Total area of WWTP……...7,654.8805sq. meter

Capacity of ETP…… ….$150m^3$/hr

Design parameters

Parameters	Unit	Outlet ZDHC (Foundational Parameter)	Inlet parameters
Average Flow rate	m^3/day	3600 m^3/day	3600 m^3/day
Average Flow rate	m^3/hr	150 m^3/hr	150 m^3/hr
PH Value	-	7-9	6-9
T - Suspended Solid	mg/l	≤200	400
COD (Total)	mg/l	≤150	3200
BOD_5 (Total)	mg/l	≤80	1000

For detail Treatment plant study please consult the layout attached with this report

Project Process

Subject proposed upgradation of wastewater treatment plant will be installed by the Management of M/S Sheikhoo Sugar Mills Limited. The installation of ETP will be start after the approval from EPA Punjab for the wastewater treatment plant. So, it is requested to DG EPA Punjab to release NOC to M/S Sheikhoo Sugar Mills Limited. Project process flow is attached at the end of this project.

UPGRADED ETP DETAILED PROCESS DESCRIPTION DETAILED PROCESS DESCRIPTION OF PROJECT (NEW TECHNOLOGIES)

We propose the following process:

The upgraded wastewater treatment system will be comprised of two lagoons with Effective retention time of around 24 hours to homogenize and lower the temperature of wastewater to < 40 °C. For this purpose, water sprinklers will be installed in the Lagoons to lower the temperature. From these Lagoons; wastewater will flow by gravity through drain channel into the Effluent Collection Pit. Pumps will be installed to feed the effluent into ETP.

The main purpose of the upgraded ETP design is to treated the wastewater such that the pollutants concentration is reduced to meet their respective concentration limits set forth in the PEQS (Environmental Quality Standards). This will be achieved by Physiochemical Treatment and Recycling the activated Sludge into the wastewater.

The wastewater from the Collection Pit will pass through Oil and Grease Traps with the help of already installed wastewater transfer pumps. These Oil & Grease Traps will remove traces of Oil & Grease from wastewater. The wastewater will then flow into the Neutralization Tank by gravity flow where, to maintain the required pH, a controlled dose of acid/base will be added into it accordingly by operating acid/base Posing Pumps.

The next process of wastewater treatment is to clarify the effluent so the water outflowing from the neutralization tank will proceed to the Mixing Tank where Coagulant and Flocculent will be dosed in it prior its collection into the Primary Clarifier.

To further enhance the clarification, the wastewater, PAC & Anion Polymer will be added in the primary clarifier. Through these aids suspended load will be settled down and sludge generated will be directed by gravity to Sludge Holding Tank, from where it will be pumped to Sludge Drying Beds.

Clarified wastewater having reduced load of contaminants will flow through gravity into the Aeration Tank. The Aeration Tank will be equipped with air distribution grids on which Fine Bubble Diffusers will be installed for uniform distribution / mixing of air into the clarified wastewater. 04 Nos. of Air Blowers, each having capacity of 2100 Nm^3/hr. @ 0.5 bar, will be provided (3W & 1S) which will maintain DO concentrations in the Aeration Tank.

To achieve desired MLSS concentration, Returned Activated Sludge (RAS) from Anoxic Chamber of Secondary Clarifier will be added & mixed in the clarified wastewater. In Aeration Tank, MLSS concentration with the range of 3000 - 3500 ppm will be maintained. Suitable Nutrients will also be dosed (manually) in the Aeration Tank for the healthy growth of microorganisms. Biomass concentration (Activated sludge) will gradually increase in the Aeration Tank. Aerated wastewater and biomass from Aeration Tank will divert to the Secondary Clarifier Wherein Solid/liquid separation will take place and Sludge will be recycled back to Anoxic Chamber through Sludge Recirculation Pumps (RAS), which one will be working & one will remain standby.

The extra sludge generated from the Secondary Clarifier will be directed to Sludge Holding Tank. From here 'n it will be pumped to Sludge Drying Bed for dewatering & the filtrate from the Sludge Drying Bed will be directed to Lagoons through drain channel. Dried sludge will be manually collected and disposed periodically.

Overflow from Secondary Clarifier will drain into the Supernatant Sump.

At startup of the plant RAS will be 100%. Once the desired concentration of MLSS is achieved in the aeration Tank, recirculation of RAS will be adjusted to maintain MLSS.

For conducting tests to determine critical parameters of the wastewater treatment such as: pH, temperature, TSS, COD, SV, MLSS & TDS etc., A fully equipped and functioning Lab will be established in the wastewater treatment plant area.

Wastewater Disposal:

Wastewater after treatment in wastewater treatment plant will be drained out into nearest drains i.e., Ghazighat Branch Drain.

Solid Waste (Sludge) Management

Solid waste generated from the wastewater treatment plant called sludge. Sludge shall be handed over to EPA Approved contractor. Agreement for the safe sludge disposal is attached as **annexure-F.** Domestic solid waste should be kept separate and solid out to the contractor. For domestic solid waste, a system of Dust bin garbage collection already installed by the proponent within the existing unit. The garbage collected from each production dustbin and handed over to the contractor on the daily basis.

Atmospheric Emissions:

Generator and vehicles will be the main source of Atmospheric emission during the installation and operation of the ETP. Proponent should tune all the generators and vehicles regularly

Electrical Works

The design criterion for the electrical works in compliance with the requirements of WAPDA.

Telecommunication

Telephone facility provided by the M/S Sheikhoo Sugar Mills Limitedto the operator of ETP.

Parking

Parking area for the visiting vehicles and product carriage vehicles present within the vicinity of the M/S Sheikhoo Sugar Mills Limited. Parking on the map can also be seen.

Emergency Exit

Emergency exit provided in the building of the M/S Sheikhoo Sugar Mills Limited. Current project will be installed under the open Steel Sheds so there is no need of emergency exists for the ETP Installation.

Fire Protection System

An addressable fire protection system with detection and alarm annunciation and other installations etc. would be provided to protect against any fire hazards. Fire extinguishers should be placed at all sensitive places within the vicinity of ETP project. M/S Sheikhoo Sugar Mills Limited currently installed well equipped and maintain Firefighting system.

Security

Treatment plant will be installed within the vicinity of M/S Sheikhoo Sugar Mills Limited, and project site is secured by all means.

Project Cost

The approximate cost of Effluent Treatment Plant (ETP) will be less than 8.5 million.

Industries

Different types of industries are present in the vicinity of the project site.

Infrastructure

Infrastructure of the roads network is good. Project present on the Sanawana Sultan Road in the Industrial area of the District Muzaffargarh.

Electricity

Electricity is fed by the Water and Power Development Authority (WAPDA). Roads network is available to the entire community and all roads are metallic.

Institutions

The project area has the well government and private institutes at the distance of 2 to 3 km from the site.

Transportation:

Subject site is well provided with roads networks. Public transportation is also available for the community

Restoration / Rehabilitation Plan

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

One 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.

Government approvals required by the project

Project proponent gets all the other approval prior to the NOC from the EPA Punjab

CHAPTER # 4

DESCRIPTION OF ENVIRONMENT

Physical Environment:

Topography & Geography

The proposed site is situated at Qasba Gujrat Kot Addu, District Muzaffargarh. The district and town of Muzaffargarh are in central Pakistan at the south-western edge of the Punjab. The district lies upon the Thal Doab, an area that lies between the Indus River (to the west) and the Chenab River (to the east), which join some 100 km south of Muzaffargarh town. The area around the project site is a flat, alluvial plain.

Soil

The project area is located in Qasba Gujrat of Mehmood Kot, District Muzaffargarh. Topography of the area is almost flat with no noticeable variation in the surface. There are no mountains or hills in the project area. Indus alluvium constitutes the main soil groups in the area, which have a loamy and clayey texture. The alluvium has been laid down by the Indus River and consists largely of relatively permeable silt loams, loams, and silty, clayey loams.

Lab reports of soil sample of site are attached in Annexure-G

Pictures for sampling of soil are being attached below.

Fig(a)

Climate

The city of Muzaffargarh is located in southern Punjab province at almost the exact center of Pakistan. The closest major city is Multan. The area around the city is a flat, alluvial plain and is ideal for agriculture, with many citrus and mango farms. There are many canals that cut across the Muzaffargarh District, providing water from nearby farms. This makes the land very fertile. However usually land close to the Chenab are usually flooded in the monsoon season.

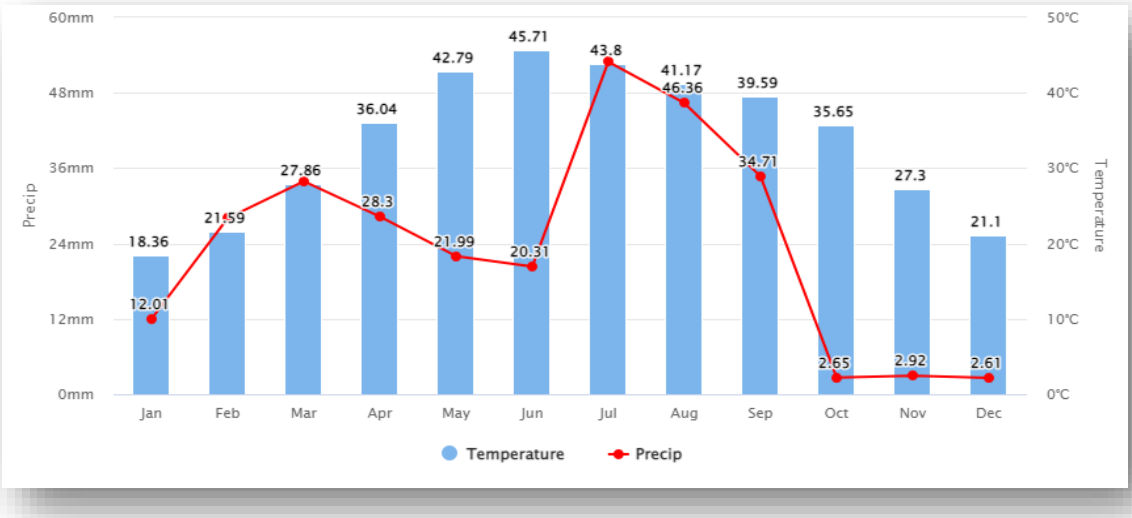
Muzaffargarh features an arid climate with very hot summers and mild winters. The city witnesses some of the most extreme weather in the country. The highest recorded temperature is approximately 54 °C (129 °F), and the lowest recorded temperature is approximately −1 °C (30 °F). The average rainfall is roughly 127 millimeters (5.0 in). Dust storms are a common occurrence within the city.

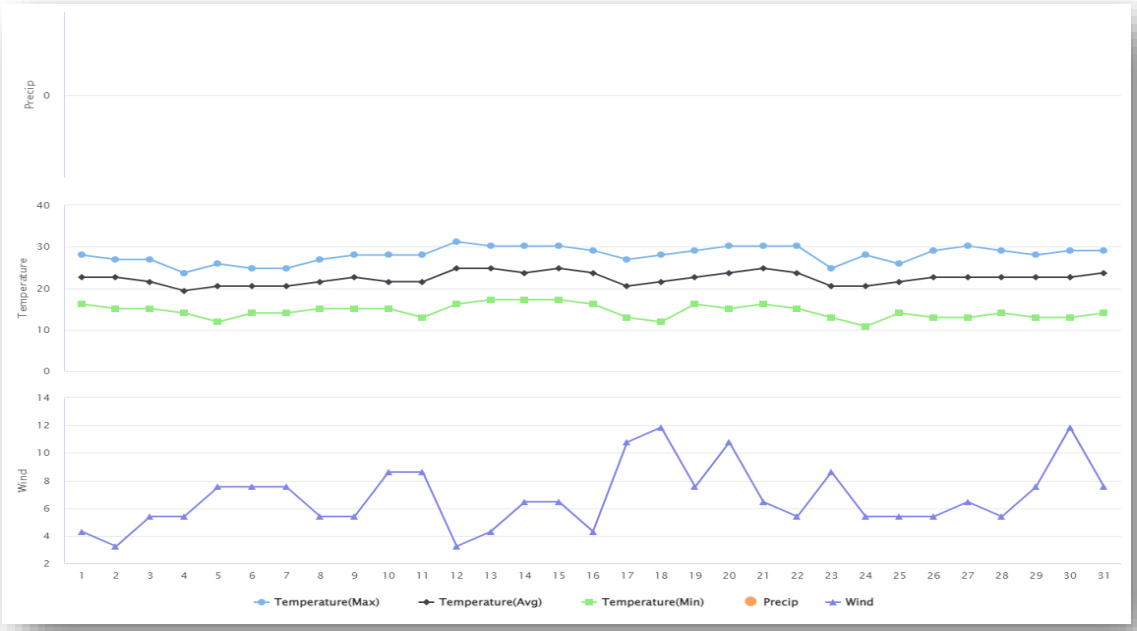
Temperature & Precipitation

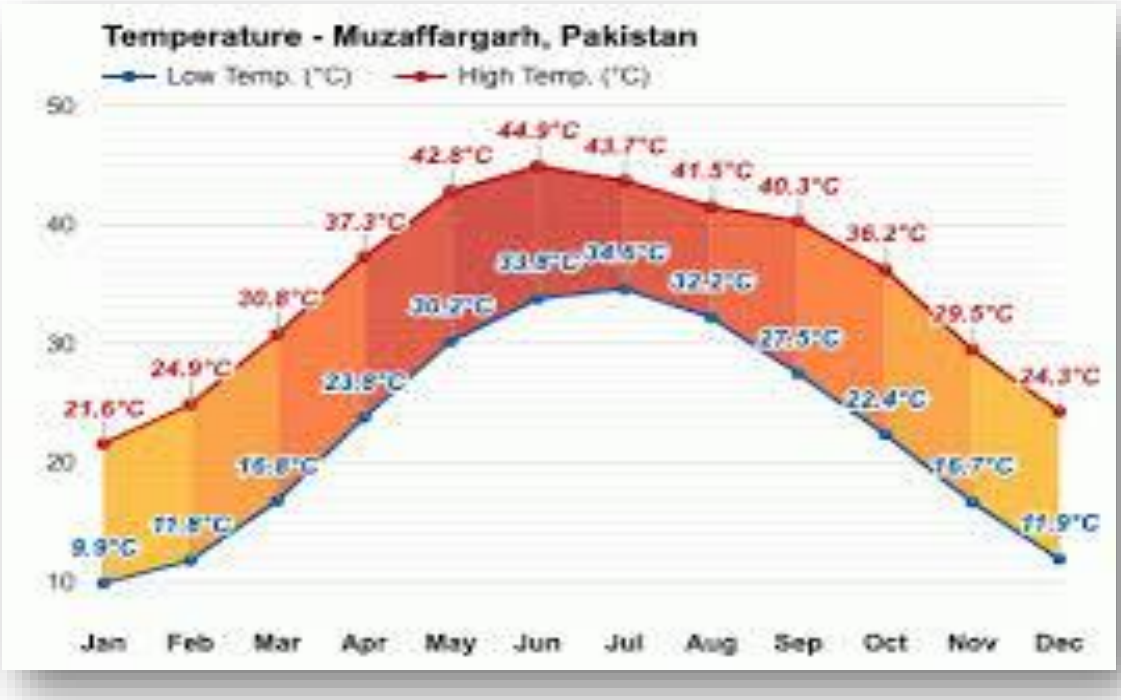
Temperature & precipitation pattern can be estimated from the below figure simulated on simulated weather data have a spatial resolution of approximately 30 km and may not reproduce all local weather effects, such as thunderstorms, local winds, or tornadoes.

The given below Figure shows the precipitation diagram for District Muzaffargarh on how many days per month, certain precipitation amount is reached. The hot season lasts for 3.6 months, from April 24 to August 12, with an average daily high temperature above 37°C. The hottest day of the year is May 31, with an average high of 42°C and low of 28°C.

The cool season lasts for 2.7 months, from December 3 to February 23, with an average daily high temperature below 24°C. The coldest day of the year is January 9, with an average low of 7°C and high of 20°C.




Precip
Temperature
Wind
Temperature(Max)
Temperature(Avg)
Temperature(Min)
Precip
Wind


Temperature - Muzaffargarh, Pakistan
Low Temp. (°C)
High Temp. (°C)
21.6°C
24.9°C
30.8°C
37.3°C
42.8°C
44.9°C
43.7°C
41.5°C
40.3°C
36.2°C
29.5°C
24.3°C
22.4°C
16.7°C
11.9°C
9.9°C
11.8°C
16.8°C
23.8°C
30.7°C
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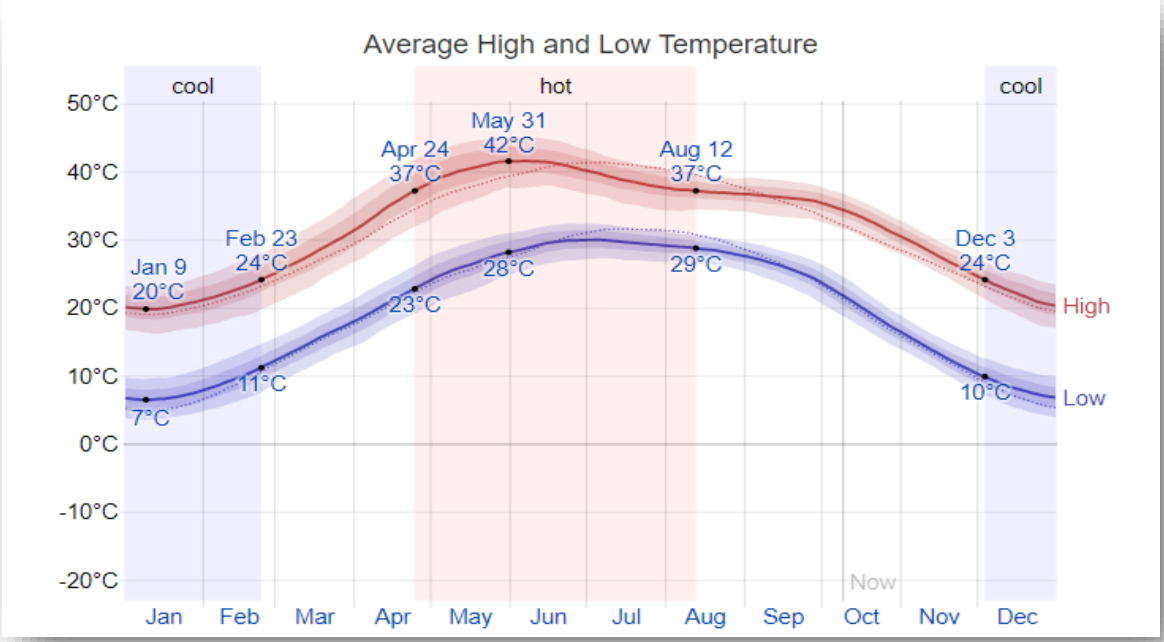
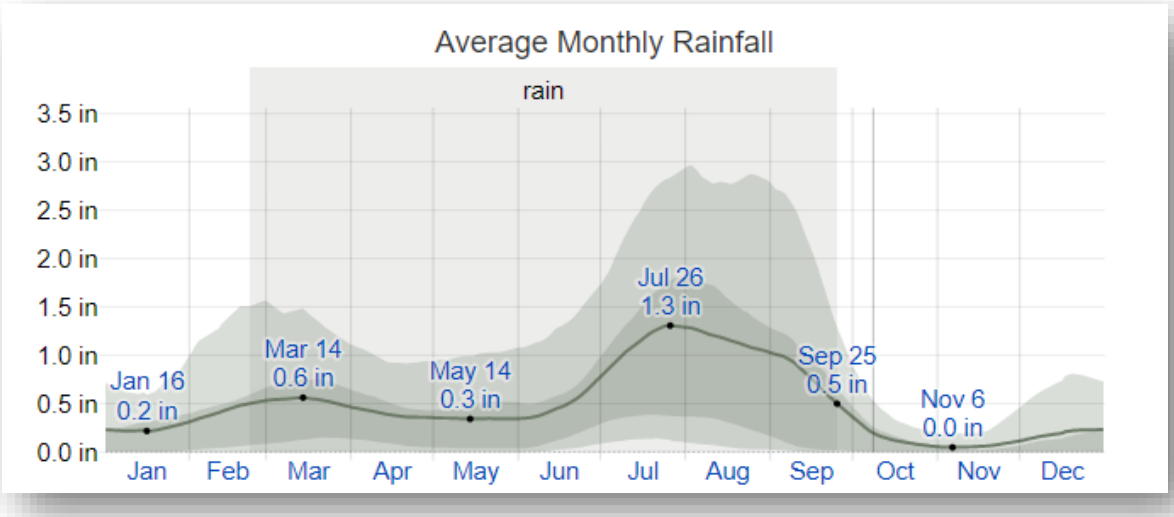


Average Temperature for proposed study area in District Muzaffargarh

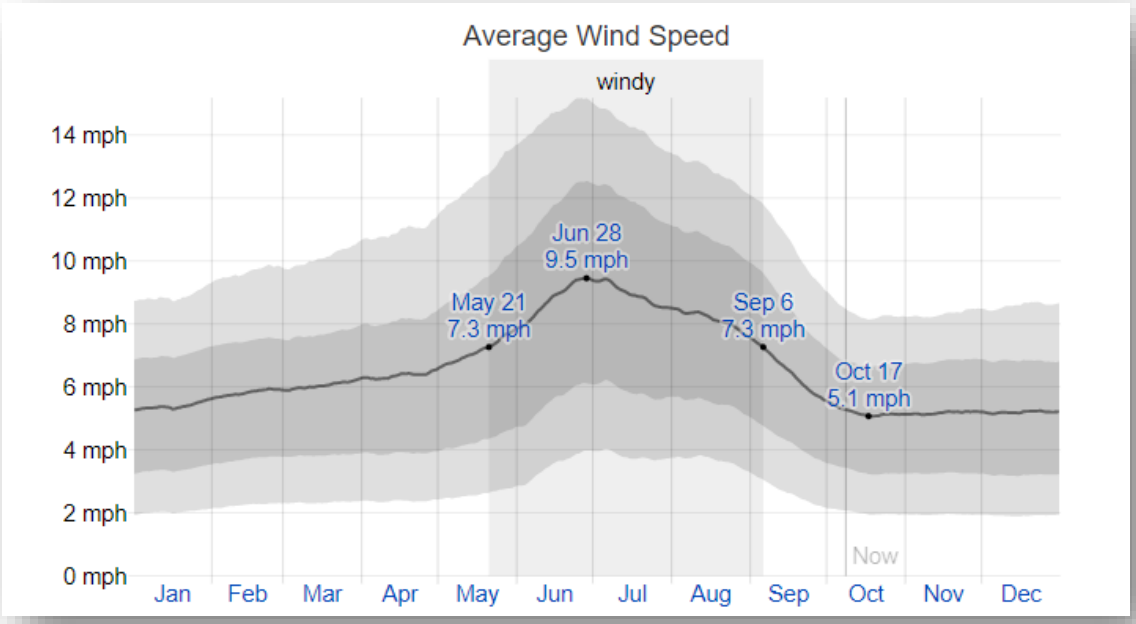
The *rainy* period of the year lasts for *7.1 months*, from *February 23* to *September 25*, with a sliding 31-day rainfall of at least *0.5 inches*. The *most rain* falls during the 31 days centered around *July 26*, with an average total accumulation of *1.3 inches*. The *rainless* period of the year lasts for *4.9 months*, from *September 25* to *February 23*. The *least rain* falls around *November 6*, with an average total accumulation of *0.0 inches*.

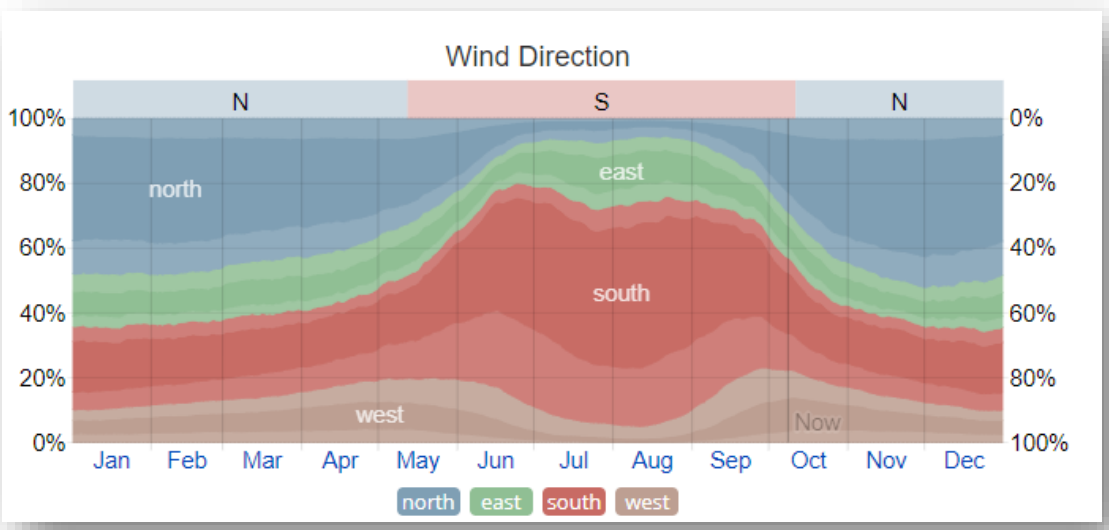


Average Rainfall for proposed study area in District Muzaffargarh

Wind Speed & Direction

Wind speed and its direction can be estimated from the figure given below. The average hourly wind speed in Muzaffargarh experiences significant seasonal variation over the course of the year. The windier part of the year lasts for *3.5* months with average wind speeds of more than 7.3 miles per hour. The calmer time of year lasts for 8.5 months, from September 6 to May 21. The calmest day of the year is October 17, with an average hourly wind speed of 5.1 miles per hour. The predominant average hourly wind direction in Muzaffargarh varies throughout the year. The wind is most often from the south for 5.0 months, with a peak percentage of 70% on July 7. The wind is most often from the north for 7.0 months, with a peak percentage of *48%*.





Wind Roses of proposed project site in District Muzaffargarh

Hydrology

Surface Water

The Muzaffargarh canal and Indus River are the principal surface water resources in the project area. The Muzaffargarh canal is located about 5 km in the south of the project site which is major source of irrigation. The Indus River flows at distance of about 15 Km on west side of project area. The canal is seasonal one and supply irrigation water during summer and for very short period during winter.

Underground Water

Well water will be used in the establishment of project because there is no civi water supply present in the area. Groundwater can be found at the depth of 25-30 meters. Groundwater quality at depths >30 m deteriorates away from the Thal Doab margins. The underground water is clear and can be used for drinking purpose also. Water Quality test report is given in **Annexure-G.**

Ambient Air

To record the baseline ambient air quality of the project area, monitoring was conducted at advised locations to assess the concentration of priority pollutants (Carbon monoxide, Nitrogen dioxide, Sulphur dioxide and PM_{10}) in the air. Ambient Air Quality test report is given in **Annexure-G.**

Noise Level Monitoring

Basic Environmental conditions:

During the measurement following conditions were prevailed on workplace.

Metrological Conditions:

During the noise level monitoring weather was dry and sky was clear. Air was blowing at normal speed. Lab reports of environmental analysis are attached as **Annexure-G** with the report. Pictures of noise monitoring are being attached.

Monitoring Instrument:

The description of the instrument used for the noise level monitoring is given below:

- Name: Digital sound level meter
- Model: AR824
- Company: Intel Instruments plus
- Calibration: Self-calibration time: 10 secs (every turn on)
- Specification

  i. Resolution: 0.1 dB

  ii. Overall Range: 30 to 130 dB "A", 35 to 130 dB "C"

  iii. Sound Level Ranges: 30-80 dB, 50-100 dB, 60-110 dB, 80-130 dB

  iv. Basic Accuracy: +/-1.5 dB

  v. Sampling Frequency: 2/sec

Ecological Environment:

Fisheries

The area where site is proposed for project, don't have any lake, river or pound. Therefore, this aspect of environment is out of question for this project.

Fauna:

There are number of locally available birds, reptiles and mammals are present in the project area but there is no protected species.

List of Fauna of proposed project site

Sr. No.	Name of Specie	Local Name	Figure
1	Bubalus bubalis	Buffalos	
2	Bos taurus	Cows	
3	Canis lupus	Dog	
4	Passer domesticus	House Sparrow	

5	Corvus	Crow	
6	Columbidae	Pigeon	
7	Thanasimus formicarius	Beetle ant	
8	Sympetrum flaveolum	Dragon fly	

Flora

The proposed project site is almost clear only few herbs and shrubs are present at the site. However, trees grown in the area are kikar, shisham, millbury, eucalyptus, and coconut.

Socioeconomic Environment:

Demographics:

Major ethnic group is Saraiki speaking Jatt people forming the majority with Saraiki speaking Gujjar, baloch, Rajput and Pathans in minority. Human Development Index (HDI) for Muzaffargarh district is 0.53 for year 2013 which lies in category of Low human development. Muzaffargarh (MZFR) lies on the banks of Chenab River on its east side. The district is home to 4,322,009 people. The district is divided into four tehsils namely Alipur, Jatoi, Kot Addu and Muzaffargarh and 93 Union councils. Rural population comprises of almost 87% of the total population. District is spread over an area of 8345 km2 and the area is diverse in its terrain with plain/fertile area, riverine belts and sandy terrains. Due to presence of deserted area, almost half of the land is uncultivated (364,000 Hectares).

At the time of the 2017 census the district had a population of 4,328,549, of which 2,223,085 were males and 2,105,145 females. Rural population is 3,630,138 while the urban population is 698,411. The literacy rate was 47.11%. Muslims made up almost the entire population with 99.78%. At the time of the 2017 census, 88.23% of the population spoke Saraiki, 5.66% Punjabi, 4.51% Urdu and 1.07% Pashto as their first language.

Population	**4,322,009 (Census 2017)**
Households	667,515 (Census 2017)
Population Average Annual Growth Rate (1998-2017)	2.63
Total area	8,435 square kilometers
Administrative units	Four Tehsils, 93 union councils
Geography	Riverine, canal irrigated and desert
Land use (Thousand Hectares)	466 cultivated and 364 uncultivated
Key economic activities	Industries (cotton ginning and pressing, flour mills, oil, paper/paperboard articles, petroleum products, power generation, solvent extraction, sugar, textile composite) and Agriculture
HDI ranking national	0.53 (2013)

Demographics of Muzaffargarh (MZFR)

Education

The major ethnic group are the Saraiki-speaking Jatt forming the majority, with Saraiki-speaking Gujjar, Baloch, Rajput and Pathans groups in minority Education:

Although Muzaffargarh is one of the oldest and largest districts of Pakistan by area and population, it still has only a single campus of Virtual University of Pakistan. The literacy rate is one of the lowest in the country. District Muzaffargarh has a total of 1,072 male and 1,009 female public sector schools. According to the School Education Department's data, a total of 5,023 male and 4,130 female teachers are employed in public school education sector of the district. But in the last few years, the city has observed a surge in the number of educational institutions. Colleges include private commerce and science colleges, schools, academies like Punjab Inter Science Academy, and a cadet college. Government degrees are provided for both men and women. Several colleges are affiliated with the Bahuddin Zakrya University, B.Z.U. Multan Pakistan, and Punjab University Lahore Pakistan. The names of some private institutions are, Kot Addu School of Economics and Management Sciences (Mr. Fiaz Hussain Malik, director), Punjab Higher Secondary School, Bismillah. Inter Science Academy, Punjab Group of Colleges, My School System, Dar-E-Arqam School, Oxford Grammar School, Professor Academy etc. A Government Technical College is also under construction.

Agriculture

The district has an agricultural land famous for its cotton, wheat and sugarcane production. Other crops such as jawar, moong masoor, Bajra, Moosh, oils seeds, groundnut and maize are also cultivated in the district at minor quantity.

Main fruits of the region are citrus, mangoes, pomegranates and dates. Other fruits of the region are bananas, pears, Jaman and phalsa are also grown in the district in minor quantity.

Forests

Forest covers an area of 100,864 acres of the district. Significant trees grown in the region are coconut, kikar, Millbury, bamboo and Shisham.

Industry

Besides agriculture as major economic activity the district is home to several industries like cotton ginning and pressing, flour mills, oil, paper/paperboard articles, petroleum products, power generation, solvent extraction, sugar and textile composite among various others. According to Agriculture census 2010, average landholding in district is 5 acres with small farmers at almost 93% of total farmers. Major crops grown in district are wheat, cotton, sugarcane, lentils, mango, pomegranate and dates. The

production of cotton and pomegranate has decreased over the past 3-4 years while production has been increased for other crops, including Wheat and Sugar Cane in Muzaffargarh.

Resources and Development:

The project area has not any private recreational facilities.

Archaeological and Historical Treasures:

There are many places of attraction in the district. People from all over the country love to visit and see different historical sites of Muzaffargarh. Some of the places of attraction are as follow:

- United Mall
- Tomb of Shah Ali Akbar
- Shrine of Khwaja Awais Kagha
- Multan Arts Council
- Fort Kohna
- Shrine of Mian Maharban
- Tomb of Shah Rukne Alam
- Clock Plaza
- Fort

Suitability of site

The proposed site for the construction of the Project currently comprises of empty, unutilized land plots. The Project site lies within this zone earmarked for industrial activity of Sheikhoo Sugar Mills Limited. The project does not fall in any environmentally sensitive area

CHAPTER # 5

SCREENING OF POTENTIAL ENVIRONMENTAL IMPACTS & THEIR MITIGATION MEASURES

The following chapter describes the overall possible impacts of said project on the physical, biological, and socioeconomic environment due to the location, Design, during the construction phase, during the operation phase of the project and mitigation measures to minimize the significance of the possible impacts. The anticipated impacts related to proposed upgradation of Wastewater Treatment Plant (WWTP) under the name of M/S Sheikhoo Sugar Mills Limited have been assessed and mitigation measures provided accordingly.

Identification of all impacts

All the impacts related to the subject project due to the project location, design, during the construction phase and operational phase have been identified and their mitigation measures have been suggested in *Chapter, Screening of potential environmental impacts and mitigation measures.*

Methodologies for impact identification

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

Project Impact 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 by dividing the project action into different phases (Construction phase and operation phase). A project impact evaluation matrix is attached in next section of this chapter.

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
O – Insignificant (No or minimal impact)
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)

	Physical Environment							Biological Environment		Socio-Economic Environment							
Environmental Component / Project Activities	Topography & Drainage	Soil Quality	Landscape	Surface water quality	Ground water quality	Air quality	Noise	Flora	Fauna	Agricultural Land	Health & Safety	Disruption of Public Utilities	Employment	Population Disturbance	Social Disorder	Cultural Values	Traffic Management
Placement of construction machinery on site	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
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

Legend:

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

	Physical Environment							Biological Environment		Socio-Economic Environment							
Environmental Component / Project Activities	Topography & Drainage	Soil Quality	Landscape	Surface water quality	Ground water quality	Air quality	Noise	Flora	Fauna	Agricultural Land	Health & Safety	Disruption of Public Utilities	Employment	Population Disturbance	Social Disorder	Cultural Values	Traffic Management
Transportation of raw material/ products	MA	MA	MA	MA	O	MA	HA	LA	MA	O	HA	LA	B	MA	LA	O	HA
Production process	O	O	O	HA	MA	MA	MA	O	O	O	HA	HA	HB	O	O	LA	O
Washing process	O	O	O	LA	HA	O	O	LA	LA	LA	LA	HA	B	O	O	O	O
Operation of boilers	O	O	O	LA	HA	MA	MA	O	O	O	HA	HA	HB	O	O	O	O
Operation of generators	O	O	O	O	LA	HA	MA	O	O	O	HA	LA	HB	O	O	O	O
Water consumption	LA	O	LA	HA	HA	O	O	LA	LA	LA	LA	HA	B	LA	O	O	O
Wastewater generation	HA	MA	MA	MA	MA	LA	O	MA	MA	MA	HA	LA	B	LA	LA	O	O
Storage of raw materials/ dyes	O	O	O	O	O	O	O	O	O	O	LA	O	B	O	O	O	O
Social activities	O	O	LB	B	B	B	B	B	B	HB	HB	B	HB	HB	HB	HB	O

Public welfare	O	O	B	B	B	B	B	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
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 Adverse

Impact analysis and prediction:

In order to evaluate the socioeconomic and environmental impacts, filed surveys are extremely essential. In addition to the surveys at the preliminary stage, consultation with the community and their active participation plays a vital role in successful implementation of the project. For the impact analysis and predictions following methods were adopted:

Consultations/ case studies:
To study the impacts of the project on physical and biological environment, site visits were conducted by the environmental practitioners and experts and possible physical and biological impacts which may arise due to the subject project were identified through consultations and case studies and their mitigation measures were suggested accordingly.

Meetings:
For the identification of the social impacts of the project, meetings and group discussions were held with the local people, stakeholders, nearby residents and passerby because social acceptability of the project and the area is a key to success. Consultation with the stakeholders is a tool for managing two-way communication between the project proponent and the affected public. Its goal is to improve decision making and built understanding by actively involving individuals, groups and organizations, which have stake in the project. This involvement increases project's long-term viability and enhances its benefits to locally affected people and other stakeholders.

To identity the different types of stakeholders and as certain their perceptions about the project, an Environmental Impact Assessment study was conducted. Informal group discussions were also held as an additional tool for obtaining feedback from the stakeholders that are being discussed in the following.

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 proposed project site and initial discussions with the neighboring factory workers, villagers, shopkeepers, drivers etc.

- Environmental consultants and social specialists and documenting the opinions of the stakeholders expressed during the meetings etc.

Characteristics of impacts:

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

Assessment of Potential Impacts

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

Environmental impacts due to the project location

Project Location:

Location

M/S Sheikhoo Sugar Mills Limited is located Sanawan, Kot Addu, District Muzaffargarh. Subject proposed upgradation of wastewater Treatment plant will be installed within the premises of the subject mentioned unit. At the front of the unit local link Road is present. In the back side open land is present, while open plot is present at both left and right side of the industrial unit. So, project will be installed within the premises of the subject unit. Due to location Subject ETP project have Positive impacts on the local and Environment.

Impact

Subject project located within the existing industrial unit so, only waste water boozers and Sludge carriage vehicles can have negative impact during the operational phase on the environment due to the traffic and emissions release from the vehicle. There is no other negative impact associated with the installation of Effluent Treatment plant on the location of project. Instead of that a positive impact will safe Environment and Local Population health.

Impact significance: very Low or may be positive

Nature of impact: indirect

Duration: Short-term

Timing: Installation/Operation phase

Reversibility: NA

Likelihood: Low (unlikely),

Consequences: very low or may be positive

Mitigation measures

- Already parking for the cars and motor cycle and Large visiting vehicles is present in front of unit. Parking area on the map can be seen.
- For proper parking a Security guard should be there.
- Location can be considered as positive impact on the community due to treatment of hazardous wastewater.

Environmental Impacts due to the project design

Subject Treatment plant project under the name of M/S Sheikhoo Sugar Mills Limited have been Design environmentally friendly. Sludge production will be handed over to the EPA Certified contractor for the safe disposal. During Designing all the impacts have been reviewed and design accordingly.

Following are the major Environmental impacts due to the installation of ETP related to the design:

Impacts

- Structural stability of the proposed ETP Installation.
- Road infrastructure design
- Firefighting system
- Wastewater disposal Drain
- Electricity hazardous

Impact significance: moderate to high or may be negative

Nature of impact: direct

Duration: Long-term

Timing: Constructional phase & Operation phase

Reversibility: NA

Likelihood: moderate to high

Consequences: moderate to high or may be negative

Mitigation measures and recommendations

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

- Geotechnical investigation should be conducted by the proponent
- Firefighting system should be design for the emergency situations
- Electricity system should be Design safe and sound
- Electricity wires should be covered by thick plastic/electricity resistant covers.

Environmental Impacts during Constructional Phase

The construction stage may involve the following vulnerabilities:

- Generation of dust during loading and unloading of construction materials.
- Generation of noise on account of vehicular use and construction activities. It will be noted that background noise level will be less than PEQs limits.
- Local flooding due to over-use of water and leakage of pipes.
- Safety of construction workers, people in the surroundings and passersby. Occupational Health & Safety means to provide and maintain a working environment in which employees are not exposed to hazards.
- There must be no release of noxious or offensive odors or contaminants beyond the project site to cause any harm at any odor sensitive place. These places include schools, hospitals, park, shops and residences.
- Any outbreak of fire due to electrical and other failures.

  Impact significance: Moderate to high or may be negative

  Nature of impact: direct

  Duration: Short-term

  Timing: Constructional phase

  Reversibility: NA

  Likelihood: moderate to high

  Consequences: moderate to high or may be negative

Mitigation measures and recommendations

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

- Sprinkling of water recommended
- A Class Mask should be provided to the labor
- Ear Plugs should be provided to the workers
- Local flooding should be stopped to save the soil erosion.
- Fire extinguishers should be placed at the construction site

Environmental Impacts Operation Stage

Main environmental issues associated with ETP Installation are as follow.

- Treated Waste water disposal problem.
- Fire due to short circuits and other activities.
- Solid waste generation due to operation of Effluent treatment plant activities.
- Noise pollution from generator and other machinery.
- Health hazards including the electricity hazardous
- Vehicle access is required especially for transportation. The site is well served with the road network. Heavy traffic will be allowed only during tight time during operational phase. The traffic issues at any stage of project life cycle will not arise.
- **Impact significance:** moderate to high or may be negative
- **Nature of impact**: direct
- **Duration:** Long-term
- **Timing:** operational phase
- **Reversibility:** NA
- **Likelihood:** moderate to high
- **Consequences:** moderate to high or may be negative

Recommendations

- Treated wastewater can be used for the irrigation purposes
- A well design firefighting system shall be installed to cope with fire situations in the treatment plant designing area.
- Installed Solid waste bins should regularly clean and solid waste must be handed over to the EPA Approved contractor.
- Sludge will be disposed off properly through the EPA Certified Contractor

- A watchman will control the traffic at M/S Sheikhoo Sugar Mills Limited during the operational phase
- Electricity monitoring/Thermography should be conducted by the proponent quarterly for the safe supply to Treatment plant.
- Proponent should submit all the monitoring report in the EPA Punjab Office for the compliance of the PEQS

Impacts on Physical Environments

Groundwater Quality and Level

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

Land Utility

It will increase significantly since the project has been planned to be constructed on the existing reserved land for the Effluent Treatment plant in the existing industry.

Impacts on Biological Environments

Flora

The project site is devoid of any significant vegetative cover. There is no tree cutting involved as shown in the below fig. Nil impact is envisaged.

Fauna

The fauna including wildlife species do not exist at the project site. The impact will be nil.

Impacts on Socio-economic Environments

Security

Because of presence of security guards round the clock the security at the ETP project site will improve as well as in its vicinity. Impact will be moderate positive.

Land Value

Land value in the surrounding area will increase due to completion of the present ETP project. Impact will be moderate positive.

Resettlement Issues

Dislocation of Population

The project does not involve dislocation of the people. There is no requirement of resettling a single person. Impact is nil.

Loss of Property/Infrastructure

No movable or immovable property and infrastructure of public and private sectors will be lost or damaged during construction and operation stages. Impact will be nil.

Potential Environmental Enhancement measures

M/S Sheikhoo Sugar Mills Limited proponent should take following steps to enhance the environmental measures.

- Plants will be planted by the proponent with the consultation of DG EPA Punjab.
- Firefighting arrangements should be maintaining by the proponent for emergency situations
- Proper cleanness of the ETP on the daily basis will be the responsibility of the proponent
- Solid waste collection system should be maintained and regular collection of the solid waste will be the responsibility of the proponent
- A specific budget should be reserved for the environmental enhancement by proponent

Corporate Social Responsibility (CSR)

CSR means "the continuing commitment by business to behave ethically and contribute to economic development while improving quality of life of the workforce and their families as well as of the local community and society at large. CSR Committee of M/S Sheikhoo Sugar Mills Limited entrusted with task of identifying areas where the Management of M/S Sheikhoo Sugar Mills Limited could participate positively to the development and improvement of better society in the project area. The Committee's mandate is to initiate, facilitate, coordinate and monitor CSR projects of the Company.

Structural Stability

While carrying out the detailed designing of the project building structural, engineering, safety and seismic considerations have been taken into account to make it structurally viable and environment friendly. Project proponent has obtained structural stability certificate for the project's structures.

Undertaking

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

CHAPTER # 6

ENVIRONMENTAL MONITORING & MANAGEMENT PLAN

Purpose and Objectives of the EMP:

Environmental management plan is designed to improve the environmental conditions, health and safety and provide the mitigation measures for further improvements.

The primary objectives of the EMP are to:

- Facilitate the implementation of the mitigation measures identified in the EMP.
- Define the responsibilities of the project proponent/HSE manager.
- Define a monitoring mechanism and identify monitoring parameters in order to:
    a) Ensure the complete implementation of all mitigation measures
    b) 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.

Management Approach regarding EMP:

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.

Institutional Responsibilities

Following functionaries will be involved in the implementation of EMP:

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

Training Schedules

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

Training of building contractor

Training of building contractor& workers will be the part of the TORs regarding the construction of the building. The provisions given in EIA Report Chapter 6Screening of Potential Environmental Impacts & Their Mitigation Measures will be followed.

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

1. Handling of Machineries in a safe way
2. Use of PPEs
3. Maintenance of vehicles and submission of Environmental Monitoring Reports
4. Maintenance of Water Consumption records
5. Testing of water and waste water and submission of Environmental Monitoring Reports
6. Placement of safety signs/boards during construction
7. Sprinkling of water on the roads and dusty tracks
8. Monitoring of generator emissions

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

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 PEQ'S .

Environmental Technical Assistance and Training Plan

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

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

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

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

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

Aim of Monitoring

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

Objectives of Monitoring

Salient objectives of the environmental monitoring program are as under:

- To ensure effective surveillance of the environmental parameters at various stages of the project development
- To enable the management, undertake the required mitigation measures when needed
- To ensure compliance with the PEQ'S and legal obligations

Environmental Monitoring Plan

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

Performance Indicators

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

- **Ambient Air Quality**

  PM_{10}, CO, NO_x, and SO_2
- **Water Quality**

  TDS, TSS, COD, oil and grease, chloride, lead, zinc and cadmium
- **Noise Levels**
- **Soil Quality**

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

M/s Pak Green Laboratories has conducted the monitoring for ambient air quality, water quality, soil analysis and noise on the proposed project site prior to start the project. Following methodology was used to conduct the monitoring. Also, monthly monitoring will be done at the time of functioning of the project and report will be submitted to EPA.

Summary of Impacts and their mitigation measures

Serial No.	Environmental Issues/ Impacts	Mitigation Measures	Responsibility
PLANNING, SITE SELECTION AND DESIGN STAGE			
1	Observance of administrative and legal formalities	NOCs to be obtained from relevant departments.	proponent
2	Acquisition of land	Ownership of the M/S Sheikhoo Sugar Mills Limited	proponent
3	Loss of environmentally sensitive areas	There is no any sensitive area near the project site however the project proponent will achieve the PEQ'S at the boundary wall of the subject project to avoid the environmental impacts on the nearby industrial unit	proponent
4	Changes in traffic pattern	Prepare suitable in/out traffic plans	proponent
5	Potential conflicts with stakeholders	Settle the issues through scoping and specific group discussions.	proponent
6	Resettlement issues	No resettlement issues	proponent
7	Project Design	• Structure Stability Assessment of soil should be done, as per building design i.e. total area of building, No. of stories, etc. • 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.	proponent
SITE DEVELOPMENT STAGE			
1	Erosion due to stripping and site clearance	Sprinkling of water on road side or dusty tracks	Project manager/ contractor/HSE Manager
2	Generation of dust	• Careful loading and unloading of construction materials. • Sprinkling of water and construction site and surrounding areas.	Project manager/ contractor/HSE Manager
3	Generation of noise	• Avoid suing forbidden horns at the site. • Do not throw heavy equipment and construction materials in haphazard manner.	Project manager/ contractor/HSE Manager

4	Local flooding/ponding	Immediate repair and maintenance of water supply pipes and sewers in case of any defect will be undertaken.	Project manager/ contractor/HSE Manager
5	Outbreak of fire	Keeps the firefighting equipment at the site in good working condition.	Project manager/ contractor/HSE Manager
6	Safety	• Safety of the workers and others will be ensured. • Privacy of the neighbors will not be disturbed.	Project manager/ contractor/HSE Manager
7	Labor issues	Employ the local labor as far as possible	HR department
		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. • Clearing of land should be step wise; vegetation should be removed only from the area where main building will be developed. • Add more vegetation, restore the land by more plantation • Sprinkle water on dusty tracks is recommended	Project manager/ contractor/HSE Manager
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 will in working condition.	Project manager/ contractor/HSE Manager
3	Impacts of dust, noise and smoke on neighbors	• Sprinkle water on dusty tracks is recommended • Avoid suing forbidden horns at the site. • Do not throw heavy equipment and construction materials in haphazard manner.	Project manager/ contractor/HSE Manager

		• 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 will be placed to avoid leaching of oil into ground • Waste water treatment facility will be installed to treat the water prior to discharge into local drain or use for irrigation	Project manager/ contractor/HSE Manager
2	Impacts of dust, noise and smoke	• Pollution controlling devices will be installed. • PEQ'S compliance Generator will be used but in case of emissions from generator, scrubbing system will be installed. • Noise will be controlled through proper checking and maintenance of vehicles and machinery • PPEs will be provided and implemented • Monitoring will be conducted as per PEQ's Rules	Project manager/ contractor/HSE Manager
3	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 will be in working condition • Firefighting plan will be formulated	Project manager/ contractor/HSE Manager
4	Safety/security concerns	Safety of the workers and others will be ensured. Privacy of the neighbors will not be disturbed.	Project manager/ contractor/HSE Manager
5	Malfunction of utilities	It is proposed to appoint maintenance engineer with technicians like plumber and electrician for smooth operation of utility services.	Project manager/ contractor/HSE Manager

6	Occupational Health, Safety and Environment	• Regular medical check-ups will improve the working condition and efficiency of workers. • Relevant safety devices like belts, gloves and testers will be strictly used by the operators at the work site. • Safety of management, workers and visitors must be ensured. • Observance construction and safety codes. • Provision of emergency exits. At least two exits points will be available at each workplace. • Hygienic conditions will be ensured at production hall • Quality of products will be maintained • PPEs will be implemented • Drugs or smoking will be prohibited during working hours	Project manager/ contractor/HSE Manager
6	Production of Sludge and Solid Waste	The sludge and solid waste will be Sold out through a certified contractor to dispose it in environmental friendly manner	Project manager/ contractor/HSE Manager

Equipment Maintenance Detail

Subject project is the replacement of old technology to newer one the Effluent Treatment Plant for the treatment of wastewater of Knit wear unit under the name of M/S Sheikhoo Sugar Mills Limited. The company will maintain the records for monthly Environmental monitoring, Health Safety & Environment and will hire HSE manager to check and deal with the HSE issues. The company shall have maintained PPEs, pollution controlling devices, medical facilities, firefighting equipment's, SOPs, conduct trainings, and records for their periodic fillings or replacement.

Environmental Budget

The cost required to effectively implement the mitigation measures is important for the sustainability of the Project. Company should allocate the Environmental Budget of 2% of the total project cost annually for the Operational of ETP and Safe Sludge Disposal. This amount includes 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, health and safety measures 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.

ENVIRONMENTAL MANAGEMENT PLAN FOR EFFLUENT TREATMENT PLANT FOR M/S SHEIKHOO SUGAR MILLS LIMITEDPRIVATE LIMITED

Sr. No.	***Impacts from the project Activities***	***Project Stage***	***Impacts***	***Mitigation Measures***	***Responsibility***
1	Disturbance to the people	Construction/ Operation	Disturbance to everyday life and working of people	• Inform residents of the area, stockholders and shop keepers about detail of work, likely disturbances, and their duration and to whom they should address their complaints. • Establishing good community relationship so that any disruption can be resolved with due consideration of community.	Project manager/ contractor /HSE Manager
2	Surface and ground water contamination	Construction/ Operation	Surface and ground water contamination from oil leakage of construction	• Proper arrangement for collection of oil base products.	Project manager/ contractor/HSE Manager

			machinery & generators contamination of surface water because of transportation and temporary storage of sludge	• Proper maintenance of route plan and timings for the removal of waste material from working site	
3	Soil Erosion	Construction/ Operation	Soil erosion may result from the project construction activities. It may harm natural vegetation of the area Or deteriorate soil quality	• Maximum plantation is recommended within at outside the unit and for this area is reserved. • Land will be restored by planting indigenous plants	Project manager/ contractor/HSE Manager
4	Solid Waste	Construction/ Operation		• Limited solid wastes from the construction activities shall be segregated and duly disposed off. The solid redundant materials will be disposed off away from the city	Project manager/ contractor

				adequately. None of these wastes shall be accumulated on site. It shall be ensured that none of the wastes or materials of construction spread on the public roads or on the foot path or else. • Construction Solid waste will be stored in solid waste bins and will be handed over to contractor and also construction waste will be used for road repairing and maintenance purpose	
5	Waste water	Construction/ Operation	The waste water to be generated shall be discharged into the waste water wastewater treatment tanks for its treatment and then it will drain into nearby drain or used as irrigation purposes.	• The waste water to be generated shall be discharged into the waste water wastewater treatment tanks/WWTP for treatment at PEQ'S levels. • While laying sewage pipes, measures will be adopted to ensure that other pipes, wires or systems already existing in the rout of the sewage pipes are not damaged.	Project manager/ contractor/HSE Manager

			Domestic/construction waste water after Treatment in wastewater treatment tank will be sprinkled or irrigated to the plants or drained into nearby local sewage drain.	• Tarpaulin sheets will be placed under generator (s), (if any) at any stage of the project) underground tanks and other leaching substances. • Sewage and other waste effluents will be handled to avoid contaminating surface and groundwater. • No contaminated effluents will be released into the environment without having been treated. • An appropriately designed wastewater treatment tank/treatment plant will be used to treat sewage and outlets will release treated effluent into drain or it will be used irrigation purpose. The integrity of the entire system will be maintained and monitored. • Periodic cleaning of the wastewater treatment tank is recommended	

				• Monitoring will be conducted on monthly or quarterly bases by EPA certified lab if required	
6	Water supply	Construction/ Operation	It shall be ensured that no activity tempers with the water supply system.	• It shall be ensured that no activity tempers with the water supply system. • Project proponent committed to provide safe drinking water to all workers and staff	Environmental/HSE Manager/HSE Manager
7	Dust/ gaseous emissions	Construction/ Operation	Air Pollution is a result of dust Other emissions from vehicles can also be harmful Dust may generate during unloading of raw materials. It may result from trash burning	• Construction activities causing dust should not be carried out on excessively windy days. • Provide masks to the workers. • Minimize exhaust emissions from machinery and vehicles • Regular Sprinkling of water on road to minimize dust emissions • One diesel fired generator shall cater for emergency situation only. Their exhaust will be emitted through an adequately fabricated stack. It will also be kept in	Project manager/ contractor/HSE Manager

				mind that the generators will only function during emergency condition for limited period. • Monitoring will be conducted on quarterly basis if required, • No trash burning will be allowed in or oust side the pump site • Air quality monitoring has been conducted before construction and lab results are attached.	
8	Noise pollution	Construction/ Operation	Noise Pollution,; can harm hearing sense of workers, drivers and traders Can cause disturbance to local population	• In order to avoid noise in the project area, vehicles to carry raw materials, shall be operated during night time as far as possible. • The project construction activities don't involve any activity which may create high noise levels. • No activity producing extra ordinary levels of noise will be allowed as a policy matter.	Project manager/ contractor/HSE Manager

				• One standby generator will be installed in emergency situation in a specially constructed room where its noise will be curtailed within the limiting values of the National Environmental Quality Standards • Ear plugs will be provided & implemented • Monitoring will be conducted on monthly or quarterly basis if required • Noise level monitoring has been carried out before construction and lab results are attached.	
9	Odor	Construction/ Operation	Very high odor may cause annoyance to local people and workers	Following mitigation measures will be adopted: • Proper ventilation will be provided at workplace. • Maximum plantation will be done at site	Project manager/ contractor/HSE Manager

				and at the front of ventilation system. • PPEs will be provided to workers in case of heavy odor problem. • Project proponent committed to adopt any mitigation measures to control any impacts resulting from the project.	
10	Decommission and Waste Management problems	Construction/ Operation	Degradation in Aesthetic and social acceptance Sludge piles on site can cause odor problems	Solid waste and sludge must be remove timely from the site and carefully transported to landfill dumping site follow safe route for transportation of sludge	Project manager/ contractor/HSE Manager
11	Traffic control issues	Construction/ Operation	Traffic jams and congestion may take place and cause inconvenience to the people where the construction take place	• Efforts should made to accommodate the traffic along the road as far as practically possible • Provision of signboards directing the drivers about the diversion	Project manager/ contractor/HSE Manager

12	Workers health & safety concerns	Construction/ Operation	Poor management and negligence may cause severe impacts on workers' health	• The EMP guidelines will be followed strictly. • Training of workers will be conducted regarding health and safety. • Use of PPEs will be implemented at workplace. • First aid measures will be provided to workers. • Shift Rotation, proper ventilation will be provided to workers in case of thermal stress. • Safety signs, safety boards, exit arrows etc. will be placed on site. • An Assembling point will be kept to gather in case of emergency situation such as fire hazards. • Fire Fighting Equipment's & system will be installed. • Floor will be kept clean without slippery to avoid any hazard.	Project manager/ contractor/ proponent

				• Electric wires, D.Bs will be kept covered & closed. • Machinery will never be left in running condition. • Safe drinking water will be provided to workers and staff (admitted by the proponent) • Proper housekeeping will be ensured	
13	Environment quality enhancement measures: flowers and plants and decoration lights.	Construction/ Operation	It has positive impact on environment, will provide esthetical beauty to site	• 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 shall also be taken to maintain standards of cleanliness so that the building may add to the scenic/aesthetic beauty of the area around	Project manager/ contractor/HSE Manager
14	Staff for catering the Environmental Management Plan	Construction/ Operation	---	Special staff will be recruited to implement this Environmental Management Plan on regular basis.	Project manager/ contractor/HSE Manager

Environmental Action Plan

The Environmental Action Plan provides the framework for the implementation of mitigating measures and environmental management and monitoring during the execution of rehabilitation project. This document detail all commitments made in the EIA Report and can be used as a reference document to ensure all environmental protection measures are implemented.

Responsibility of EMP

Overall responsibility for implementation of EMP will be that of HSE/Project Manager. He will act as Environmental Manager. He will be assisted by supervisor of project and In-charge Administration. Project Manager will be responsible to the Project Proponent in all respects. He will make liaison with all stakeholders and EPA Punjab.

Monitoring Plan

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

Training Plan

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

Incident Categories:

Category	Title	Definition & Effect	Causing Incident
0	Minor Incident	Incident, which may involves injury or damage to project area controllable by personnel on the spot	1. Small Fire, 2. Small Hydrocarbon Spill, 3. Process Leakage, 4. Small leakage of Hazardous Chemicals, 5. Minor Gas release (Toxic or Flammable)
1	Serious Incident	Incident, which may involves injury, damage or serious damage to project area beyond resources of personnel on the spot and controllable by Emergency Response Team	1. Fire, 2. Small explosion with minor knock on effects, 3. Serious Spill containable, 4. Gas Release but controllable.
2	Major Incident	Incident involving injury, death or major damage to area or environment beyond resources of Site Emergency Response Team and external Aid required.	1. Major Fire, 2. Major Explosion, 3. Major Spill, 4. Major Gas Release 5. Major or multiple injuries or illness.
3	Disaster	Escalating incident involving large-scale injury, death or damage, beyond the resources of External and Internal Emergency Services and threatening civilian population.	1. Toxic Gas Cloud, 2. Flammable Gas Cloud, 3. Disastrous Fires and Explosion

Objective of Emergency Response Plan

Emergency preparedness helps to minimize the human suffering and economic losses that can result from emergencies. It should be understood that the size and density of projects, as well as their access and location, have a bearing on the degree of planning necessary for emergencies. It is therefore strongly recommended that the constructor ensure that a member of staff on site assist in developing the emergency response plan.

Scope of Emergency Response Plan

This plan assesses risk, assign role and responsibilities and give the major steps to be followed in any emergency situation. Its increases understandings of workers and officials in handling different emergency situations which may occur at project area.

Emergency Situations

Following emergencies may occur at workplaces:

- fire
- fuel spillage
- gas leaks
- explosions
- injury from machinery and equipment
- fall, climbing accident
- emergency as a result of environmental conditions (e.g., heat, cold, wet, snow, wind, lightning, bushfires, floods) emergencies requiring evacuation
- hazardous substances and chemical spills
- internal emergencies such as loss of power or water supply and structural collapse
- serious injury events or medical emergencies
- bomb threats
- civil disorder or criminal acts such as robberies and shootings

General Evacuation Procedure

It is not always necessary to evacuate a unit/plant during an emergency. A power outage, for instance, does not necessarily call for evacuation of a unit. The overall safety of the unit must first be evaluated: lighting, hazardous materials, ventilation systems, and other hazardous operations. If the unit can be safely occupied, evacuation is not necessary. In the case of

evacuation, the workers in the effected zone receive instructions from their supervisor or designated person.

As per instruction the workers will immediately leave their places of duty and assemble at the assembly point.

- Area supervisor should roll call the employees to ensure all are out of danger zone.
- On receiving first information of emergency situation the administrative head should contact the Security Officer to ensure that alarm system is activated or not.
- After assessing the emergency situation Security Officer or designated person instruct through telephone to initiated the emergency response procedure and call the responsible personnel at site.
- Administrative Head may also call the external help like fire brigade, police, bomb disposal squad, ambulance etc. and communicate with them.
- Security Officer after consulting the Administrative Head may order the evacuation of workers from affected area.

If evacuation is ordered, follow these procedures:

- Stay calm, do not rush, and do not panic.
- Safely stop your work.
- Gather your personal belongings if it is safe to do so.
- If safe, close your door and window, but do not lock them.
- Use the nearest safe stairs and proceed to the nearest exit. Do not use the elevator.
- Wait for any instructions from emergency responders.
- Do not re-enter the building or work area until you have been instructed to do so by the emergency responders.

Fire Emergency Response Plan

In the case of fire emergency, following emergency response steps will be followed:

- When any employee notice fire or smoke he must immediately decide if the nature of fire is such that he could take action on his own or verbal call for help.
- If it is considered to be beyond the scope of individual control the alarm should be raised.
- The Security supervisor should immediately reach that area and simultaneously called for the emergency response procedures.
- After the alarm called for fire emergency all the members of fire squad should reach the affected area and take instruction of Fire Master.

- If fire reaches the raised alarm state, the members are allowed to leave the area except one guard for the main gate to guide the external Fire Brigade helpers.
- Off-duty key personnel and security staff will also report immediately for duty.
- Equipment's will be removed from the affected area.
- The nearest hospital should be informed for possible causalities.

CHAPTER # 07

STAKEHOLDERS PARTICIPATION

STAKEHOLDERS PARTICIPATION

This section deals with the social acceptability of the project and the area. Consultation with the stakeholders is a tool for managing two-way communication between the project proponent and the affected public. Its goal is to improve decision making and build understanding by actively involving individuals, groups and organizations, which have stake in the project. This involvement increases project's long term viability and enhances its benefits to locally affected people and other stakeholders. It gives the feeling of an ownership to the local population and public indolent is also helpful in smooth implementation and success of the project.

In order to evaluate the socioeconomic and environmental impacts, filed surveys are extremely essential. In addition to the surveys at the preliminary stage, consultation with the community and their active participation plays a vital role in successful implementation of the project. To identity the different types of stakeholders and ascertain their perceptions about the project, an Initial Environment Examination (EIA) was conducted. Informal group discussions were also held as an additional tool for obtaining feedback from the stakeholders that are being discussed in the following pages.

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 proposed 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 proposed 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 may provide 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
- 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;

Methodology of consultation:

The EIA/IEE 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.

Stakeholder identification:

Stakeholders must be considered at all levels according to the importance of the project. They may be 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 & village level (Direct & indirect affecters 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;

Village Level:

1. Project Affected Peoples (PAPs) & local community
2. Neighboring workers
3. Shopkeepers

4. Traders
5. Drivers

Stakeholder Performa's are attached as **Annexure H**

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 project area.

Proponent

Possible impacts and mitigation measures related to the subject 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.

Responsible Authority

Management of M/S Sheikhoo Sugar Mills Limited is the responsible authority to take all measures prior to start project activity.

Other departments and agencies

For the impact analysis detailed meetings were held with the proponent of M/S Sheikhoo Sugar Mills Limited, Industries, local community, and general public residing near the project area 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.

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.

Affected & Wider Community

PGEE team has consulted with the inhabitants of the nearby industries, areas, different villages. They provided positive remarks regarding the subject project and in the favor of the subject project. Stakeholders participation Performa's and socioeconomic questionnaire were get filled by the inhabitants to evaluate the project socio-economic impacts.

Stakeholder Concerns:

Feedback received during the public consultation includes both project related concerns and other/ general concerns.

Project related concerns and suggestions are related to willingness of people to accept project, loss of land, issues related to livelihood, electricity and compensation/relocation/resettlement,

drinking waste supply, sewerage, health facilities, road infrastructure, education, women issues, women empowerment, agriculture & security.

Brief introduction of the project, its positive & negative impacts, duration of construction activities, details of operational activities and other technical details related to environment, health & safety, social and economic considerations were provided before the consultation

Following issues were discussed during the stakeholder consultation:

- Overall activities of the project during operation and construction period were discussed
- Possible impacts on natural vegetation, land and properties was the main concern of stakeholders
- Possible mitigation measures during construction and operational phase to reduce the unavoidable impacts from the project activities
- What would be the benefits for the local population
- It was major concern of the neighbors that any project activity should not contaminate their irrigation water
- Any negative impact on the area's vegetation is not acceptable by the local public
- Proponent must maintain aesthetic beauty of the area after construction activities end
- Health & safety of the workers was discussed during the life cycle of the project
- Details schedule of the project implementation and construction was presented by the project manager of the M/S Sheikhoo Sugar Mills Limited

CHAPTER # 8

CONCLUSION AND RECOMMENDATIONS

CONCLUSIONS

- The EIA study reveals that the project is economically viable, socially acceptable and environment friendly.
- On completion of the project M/S Sheikhoo Sugar Mills Limited will provide Commercial market facility to local people and community.
- It will generate additional jobs during construction and operation phases.
- Project is environmental friendly and pollution free
- The proponent has committed to implement the project in the environment friendly manner.
- Project proponent has ensured to install the Waste Water Treatment facility to treat the domestic waste water prior to discharge into drain or use for irrigation purposes.
- Project proponent has ensured to adopt the proper solid waste management system.
- Proponent has ensured to adopt all the necessary measures to control any impact if resulting from the project.
- Project proponent has ensured to provide the safe drinking water to all workers and staff.
- Proponent of M/S Sheikhoo Sugar Mills Limited intends to register the project with local Government.
- Project proponent has prepared and implemented very comprehensive Emergency Preparedness and Response Standard Operating Procedures.
- Project proponent has prepared and implemented very comprehensive Security and Fire Fighting Standards Operating Procedures.

Main environmental issues are as under:

- Production of Solid Waste (Sludge)
- Generation of waste water (Treated Wastewater)
- Generation Noise
- Traffic issues
- Health and Safety issues

RECOMMENDATIONS

- In view of the comprehensive screening process and findings of the present study there is no need of conducting further investigations.
- Tree plantation and near the ETP project and other site is recommended.
- A good firefighting system should be installed.
- Proper solid waste management system should be followed according to direction of the Local Government. Sludge should be handed over to the EPA approved Contractor for the proper and environmental friendly disposal of Sludge.
- Treated wastewater should be utilized in the nearby agriculture land for the sustainable resource utilization.
- High standards of bio-security and safety should be enforced during operation stage. Safety of the workers should be top priority for the management.
- M/S Sheikhoo Sugar Mills Limited should continue to assist the local communities as a corporate/social responsibility.

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