ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

REPORT



"M/S HIT NATURAL PHARMA"

SITUATED AT LOCATED AT RUSTAM PUR STOP, 14 KM MUREEDKE- NAROWAL ROAD, DISTRICT SHEIKHUPURA.

Leads Enviro Saftey Services

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

EXECUTIVE SUMMARY

Title and Location of the Project:

This document of Environmental Impact Assessment (EIA) is Construction of M/S Hit Natural Pharma, Located At Rustam Pur Stop, 14 Km Mureedke- Narowal Road, District Sheikhupura. Pakistan has a very vibrant and dynamic Pharmaceutical Industry. At the time of independence in 1947, there was hardly any pharma industry in the country. Today Pakistan has about 759 pharmaceutical manufacturing units including those operated by 25 multinationals present in the country. Pakistan Pharmaceutical Industry meets around 70% of the country's demand of Finished Medicine. The domestic pharma market, in term of share market is almost evenly divided between the Nationals and the Multinationals.

Although Pakistan's pharmaceutical and healthcare sectors are expanding and evolving rapidly, about half the population has no access to modern medicines. Clearly this presents an opportunity, but much more work needs to be done by the government and industry's stakeholders. It is a knowledge based industry.

Pharmaceutical companies are geographically spread all over Pakistan. Pharmaceutical production units in provinces tend to concentrate in major cities like Karachi, Lahore and Peshawar. Although the numbers reflect that majority of firms are in the province of Punjab, but in terms of production, capacity utilization, volume and size of business, Karachi leads the way as far as pharmaceutical firms are concerned. To show concern with human health a project is designed to produce medicine with the aim to bring healthcare in the country at par with the best in the world, thus truly making a difference in the lives.

Salient Features of Proposed Project is described elaborately as below.

SALIENT FEATURES OF PROJECT:

Sr.#	CONSTITUENT	DESCRIPTION
1)	**Name of Project**	Construction of M/S Hit Natural Pharma
2)	**Project Location:**	Located At Rustam Pur Stop, 14 Km Mureedke- Narowal Road, District Sheikhupura
3)	**Total Area:**	22618 SFT

4)	**Total Cost:**	PKR 120 million
5)	**Total Project Capacity:**	10,00000/ Month
6)	**Project Description:**	**Protocol for manufacturing herbal syrup** Procedure contain following steps **Step 1:- Raw Material testing**, After receiving herbs raw material sample was taken by QC lab and performed quality test and released for syrup manufacturing if result found satisfactory **Step 2:- washing**, after releasing herbs are washed properly by using RO water **Step 3:- Boiling**, herbs are boiled by using steam jacketed mixing vessel **Step 4:- cooling**, after boiling cooling process is started and mix other excipients **Step 5:- Filtration**, bulk syrup is filtered **Step 6:-** QC lab sample taken for in process testing **Step7:- Filling Area**, bulk syrup is transferred to filling area, on the other hand empty bottles after washing and drying are arranged for filling syrup. **Step 8:- Caps ceiling and labeling,** after filling bottles are caped and labeled **Step9:- Packaging**, syrup bottles are properly packed in packaging **Step 10:-** QC lab performed finished goods tests and released for sale/marketing Waste water from RO water plant is used for washrooms and floor washing. No waster from herbs found. (if rejected from QC lab then it is sent back to the vendor).
7)	**Project Proponent & Contact Person**	Mr. Syed Abid Mehmood Gillani, S/o Syed Manzoor Hussain Shah Gillani, R/o house No. 687-L, Mohallah Phasae 5 Defence Housing authority, Lahore Cantt, Lahore

8)	**Project Category:**	The project for a M/S Hit Natural Pharma, wants to construction the new project falls. According to the Environmental Protection Agency, Government of the Punjab, Lahore- "List of Projects Requiring an EIA", and the project under consideration categories falls under Schedule II for EIA, category B Any other project for which filing of an EIA is required by the Federal Agency under sub-regulation (2) of Regulation 5, of PEPA, Regulation,2000 requiring IEE.
Environmental Precise		
1)	**Project Environmental Consultant**	Lead Enviro Safety Services, Office No 506, 5th Floor, Gold Center, Liberty Market Lahore. Phone: +92-321-8310181, +92-306-4383517 Email: shoaib@envirosustainbility.info
2)	**Water Resources**	Water Requirement of proposed project is about 08 gallons per capita per day of water will be required for total population and workers. Domestic Water will be used for the proposed project.
3)	**Electricity Requirement**	The design criterion for the electrical works will be in compliance with the requirements of WAPDA. Maintenance will be carried out by the management of the Project.
4)	**Solid Waste Management**	Solid waste will primarily consist of the domestic solid waste from the project. About 150 kg/day of domestic solid waste will be generated from the project. The garbage will be collected at a designated area within the area as an intermediate garbage disposal. From this place, garbage will be collected and transported to a suitable location for final disposal. The location for this final disposal will be decided in consultation with the City District Government.
5)	**Tree Plantation**	Trees will be planted in all open spaces and boundary of the Project Area. Green belts will also be developed

➢ MAJOR IMPACTS AND RECOMMENDED MITIGATION MEASURES:

Anticipated impacts associated with the construction phase include noise, air emissions from earthwork and construction machinery and vehicles, and soil contamination due to leakage from or accidents of the construction or transportation vehicles or during on-site refueling, solid waste from construction, municipal water used and safety of the workers and employment conflicts as the major adverse environmental impacts. Mitigation measures recommended to be incorporated into the project include running the machines and vehicles on good quality (low-sulfur fuels) in good working order ensuring regular maintenance, tuning and servicing, and providing them with emission control devices, such as mufflers and silencers, etc. Water suppression and covered transportation and storage of the construction materials and slow driving on unpaved roads will control dust emission. Solid waste of construction and demolition activities will be used for flooring, while the remaining solid waste will be managed as per area practices in the area. For community safety, irrelevant persons will not be allowed inside and boundary of the site will be fenced. Safety of the workers will be ensured by developing SOPs for all jobs, training the workers to follow SOPs, discouraging any careless attitude of workers and providing the workers with, and encouraging them to use PPEs.

Key impacts related to the operation phase include:

- ✓ Construction Noise
- ✓ Wastewater
- ✓ Solid Waste
- ✓ Air Pollution
- ✓ Energy Management
- ✓ Safety, Public Health & Nuisances

However, the magnitude of these impacts shall be very low and insignificant. Only municipal wastewater will be generated, which will be handled via Settling Tank and then will be discharged into the trunk sewer. Solid waste will also be municipal only. Solid waste will not be allowed to pile up and the municipal solid waste will be managed as per area practices. Air pollution will not be there in a project. High noise vehicles will not be allowed in proposed project.

➢ ENVIRONMENTAL MANAGEMENT & MONITORING PLANS:

During construction, ambient air quality for dust level in particular, vehicle and equipment exhaust, noise level (tests), solid waste management and soil contamination, and community

and workers ‘safety (visual) need to be monitored. During operation solid waste management, sewerage lines will be monitored.

- **CONCLUSION AND RECOMMENDATIONS**

On the basis of the overall impact assessment, more specifically, nature and magnitude of the residual environmental impacts identified during present EIA it is concluded of Construction of M/S Hit Natural Pharma, Located At Rustam Pur Stop, 14 Km Mureedke- Narowal Road, District Sheikhupura, is likely to cause conventional environmental impacts mainly occur during its construction phase. However, these impacts can be mitigated provided the proposed activities are carried out as mentioned in the report, and the mitigation measures included in this report are effectively implemented.

- **ENVIRONMENTAL MANAGEMENT & MONITORING PLANS:**

During construction, ambient air quality for dust level in particular, vehicle and equipment exhaust, noise level (tests), solid waste management and soil contamination, and community and workers ‘safety (visual) need to be monitored. During operation solid waste management, sewerage lines will be monitored. Plan has been included in **Chapter-5.**

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Chapter # 01

Introduction

1.1 Purpose of the Report

This report has been prepared to confirm to the requirements of the Punjab Environmental Protection (Amendment) Act 2012 (PEPA), which states that:

"No proponent of a project shall commence construction or operation unless he has filed with the Provincial Agency an initial environmental examination or where the project is likely to cause an adverse environmental effect, an environmental impact assessment, and has obtained from the Provincial Agency approval in respect thereof."

It is of utter importance to examine the environmental impacts, both beneficial and adverse, of the proposed project, and to recommend and propose mitigating measures to prevent, minimize or mitigate such impacts. The EIA study of the proposed project is necessary to assess the environmental consequences of the extraction at the proposed sites and to suggest appropriate, practical and site-specific mitigation as well as enhancement measures.

The objectives of EIA study are to:

- Assess the environmental settings, including the identification of environmental sensitive areas and social baseline conditions of the project area.
- Assess the coal mining activities and their potential environmental impacts.
- Identify the environmental impacts in terms of both quality and quantity.
- To develop an appropriate Environmental Management Plan (EMP), including mitigation and monitoring measures for adverse environmental impacts to enhance the capacity building.
- To propose rehabilitation development plan for the project site.

1.2 Identification of the Project and Proponent

Screening

As per Review of Environmental Impact Assessment (EIA) Regulations, 2000 made under Section 12 of Punjab Environmental Protection Act, 1997 (Amended 2012), According to the Environmental Protection Agency, Government of the Punjab, Lahore- "List of Projects

Requiring an EIA", and the project under consideration categories falls under Schedule II for EIA, category B.

According to PEPA, 1997 (Amended 2012), This case requires EIA.

1.2.1 Details of the Project

Construction of M/S Hit Natural Pharma, Located At Rustam Pur Stop, 14 Km Mureedke-Narowal Road, District Sheikhupura. The project area is over 22618 SFT.

The cost of the project is 120 million.

1.2.2 Details of the Proponent

The affairs of M/S Hit Natural Pharma are controlled by Mr. Syed Abid Mehmood Gillani who is the Proponent of the firm.

Proponent: Mr. Syed Abid Mehmood Gillani, S/o Syed Manzoor Hussain Shah Gillani, R/o house No. 687-L, Mohallah Phasae 5 Defence Housing authority, Lahore Cantt, Lahore

Other Departments and agencies

Proponent also apply other Departments for approval of the project

- **Responsible Authority**

HSE manager will be responsible for all the operational activities

1.2.3 Environmental Practitioners and Experts

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

- **Proponent Environment Management Team**

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

1.2.4 Affected and Wider Community

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

1.2.5 Spatial and Temporal Boundaries of the Assessment

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

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

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

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

Baseline – covers ecological, physical and human-related characteristics of the environment, as characterized in 2006, 2007 and 2008, prior to the initiation of the construction phase;

Construction – includes all activities associated with project construction and before commencement of ore processing (mill start-up) such as:

- transportation corridors construction;
- mobilization of equipment and supplies to the site by road and air;

- construction of mine site facilities, including camp, infrastructure, ore stockpile, mill, waste rock storage dump, TWRMF, water management facilities (diversions, settling ponds, seepage collectors etc.) and mining activities up to the commencement of ore processing;
- camp operations and personnel transport during construction;

Operations – includes ongoing mining and processing of ore to produce concentrate, tailings disposal, water treatment plant operations and effluent disposal, operation of water management facilities, camp operations, transport of concentrate, transport of supplies and personnel;

Decommissioning – includes all activities to decommission mine site facilities and remove equipment and materials from the site, recontour the site and restore drainage patterns to stable long-term conditions, stabilize the mine and wastes (TWRMF and waste rock) for safe long-term maintenance, and implement the final site reclamation procedures to prevent erosion and restore vegetation cover where feasible;

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

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

1.2.6 Important Issues and Concerns raised during consultation

Issue	Aspect/Concern raised by Stakeholders	Project Proponent Commitments
Employment Opportunities	Expectations of employment are very high. Job opportunities are less for herders as they generally have less skills and training.	Employment is the main priority of the industry. Mostly locally skill and unskilled labor will be prioritized and also there will be job in executive level. Around 100 people will be employed by the industry.
Training Opportunities	People are keen to consult with subject industry if the Project offers training and upgrading opportunities to enhance their trade or professional skills.	Development of the Training Strategy, including commitment of allocation of budget investment for training infrastructure, delivery and design. Installation of training facilities in for worker of the company and students will also be

		accommodating. The internship program will offer to the students to develop professional skills.
Health & safety	Truck traffic is a main concern because the road used by the Project passes through a number of small communities and different industries and there will be a high volume of trucks transporting concentrate.	Development of Transport Management Plan including traffic safety training. Traffic advisory signs will be installed along project site and all nearby specific areas.
Local economy and business development	Local service providers are keen to participate in providing services to provide raw material and expect to receive in order to adjust their businesses to meet specific needs. Local/regional companies and entrepreneurs have limited understanding about meeting the high volumes required by the Project and the quality standard, but are keen to know these requirements so they can become suppliers.	Proponent has main focus that they will all the material regarding construction and plant operation to buy from the local market. This will help the local and small business and to people who are keen interested to become suppliers.
Environmental Issues	Dust and noise impacts, particularly from the construction activities and in operation of mechanically unfit machines, are of concern to herders and other residents. Environmental degradation during road construction and use. Loss and change of vegetation due to soil degradation.	Implementation of controls under the Environmental Management Plans, including on and off-site dust and noise monitoring. A Participatory Environmental Monitoring Program will be launched to spread awareness.
Water quantity and quality	Water quality and quantity, and impacts from the wastewater disposal are all key concerns for nearby herders.	Implementation of consultation in relation to water use and development of the Participatory Environmental Monitoring Program. Water treatment will be done by the proponent that will help to safe disposal of the water.

Significance impacts

The process of melting down and recycling plastic produces VOC, or volatile organic compounds, fumes that can harm plant and animal life near the industrial site. The heat needed to melt plastic

1.3 Purpose of the report

Environmental Impact Assessment (EIA) report is being submitted to the Environmental Protection Agency (EPA), Government of the Punjab, in compliance with the legal requirement for Punjab Environment Protection Act-1997 (Amended 2012), Section 12- for obtaining No Objection Certificate (NOC) before starting and construction activity at the project site. The other relevant regulations and guidelines considered while preparing this EIA report

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

1.4 Scope of study

The scope of the EIA Study includes collection and scrutinizing of data related to physical, biological and socio-economic environment of the project area and to prepare the baseline environmental profile. It also aims at the identification, prediction and evaluation of the

possible environmental impacts of the proposed Project on its immediate surroundings on both short and long-term basis. Based on the nature and levels of those impacts, appropriate mitigation measures along with the cost have been incorporated in this EIA Report. This report will be submitted to Pakistan Environmental Protection Agency (Pak-EPA) for approval. After the approval of this Report.

1.5 Objective of Study

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

The specific objectives of the EIA Study are as follows:

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

1.6 Requirement of EIA Study for the Proposed Project

The development projects bring about changes, both positive and negative, in the environmental and social settings of the project area. The intensity and level of change, however, depends upon the nature of the project and the baseline environmental conditions of the area. For the last four decades, this aspect has gained a momentum both at official and public level. As a result of this, official regulations and laws have been promulgated for the protection and conservation of the physical, biological and social environment. The law makes it mandatory to carry out environmental assessment studies before commencement of construction activities of any project. EIA is mandatory according to the Pakistan Environmental Protection Act, 1997 (Amended 2012), current project (coal mining) falls under

Schedule II (List of projects requiring EIA), Category C-I (Mining and processing of coal, gold, copper, sulphur and precious stones).

1.7 Scope of Services and Approach to Carry Out the Study

The Terms of references stipulated following major objectives of this study i.e.

- Identify adverse environmental and social impacts associated with various project components and phases of project implementation.
- Describe baseline environmental and social conditions of the whole project corridor.
- Identification of environmental and social impact of the project and suggest mitigation measures.
- To assess and establish the existing environmental and socioeconomic conditions in the Project area.
- To implement and execute environmental safeguards considering the harmful effects due to the Project.
- To propose mitigation and monitoring measures that can be incorporated into the design of the Project to remove or reduce the damaging effects of various factors, as far as possible, and to control and monitor, residual factors. To facilitate environmental decision making.
- To facilitate an appropriate, follow up process with requirements for monitoring, management, audit and evaluation.
- To assess the proposed activities and to ensure that they comply with the relevant environmental and social regulations and standards.
- Describe the governing national and international laws & regulatory framework on environment and institutional arrangements.
- Prepare Environmental Management Plan (EMP) and Environmental Costs etc.
- To prepare an EIA report as per the relevant guidelines for submitted to the Provincial Environment Protection Department.
- Specific Tasks for the Study Team
- Based upon the available information, a set of tasks has been conceptualized for the Project viz.

1.8 Specific Tasks for the Study Team

Task 1: Examination and analysis of relevant environmental regulations

Task 2: Initial consultations with the relevant agencies and stakeholders

Task 3: Description of the Project and alternatives

Task 4: Description of the Environment

Task 5: Prediction and Evaluation of the impacts

Task 6: Institutional and legal aspects

Task 7: Environmental Management Action Plan

Task 8: Consultation with stakeholders

The services of environmental consultant **Lead Enviro Safety Services** have been taken by the proponent for the formulation of Initial Environmental Examination Report (IEE) Report. It is an environmental consultancy firm that has an unrivalled reputation for providing high quality tailored services. **Lead Enviro Safety Services PVT Ltd** is a dynamic, responsive and innovative in providing this cost-effective solution. **Lead Enviro Safety Services PVT Ltd** comprising of Environmental Engineers & Consultants, and rendering their services to clients in both industrial and the government sectors.

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

CONTACT DETAILS:

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

Table 1.1: List of Team Members

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

1.10 Nature, Size and Location of Project

The proposed project is Construction of Pharmaceutical company by M/S Hit Natural Pharma, Located At Rustam Pur Stop, 14 Km Mureedke- Narowal Road, District Sheikhupura, over an area of **22618 SFT**. The proposed project falls under category B of Schedule II of Review of IEE and EIA Regulations, 2000. The Punjab protection Act was enacted in 1997.

- **Screening**

As per Review of Environmental Impact Assessment (EIA) Regulations, 2000 made under Section 12 of Punjab Environmental Protection Act, 1997 (Amended 2012), According to the Environmental Protection Agency, Government of the Punjab, Lahore- "List of Projects Requiring an EIA", and the project under consideration categories falls under Schedule II for EIA, category B.

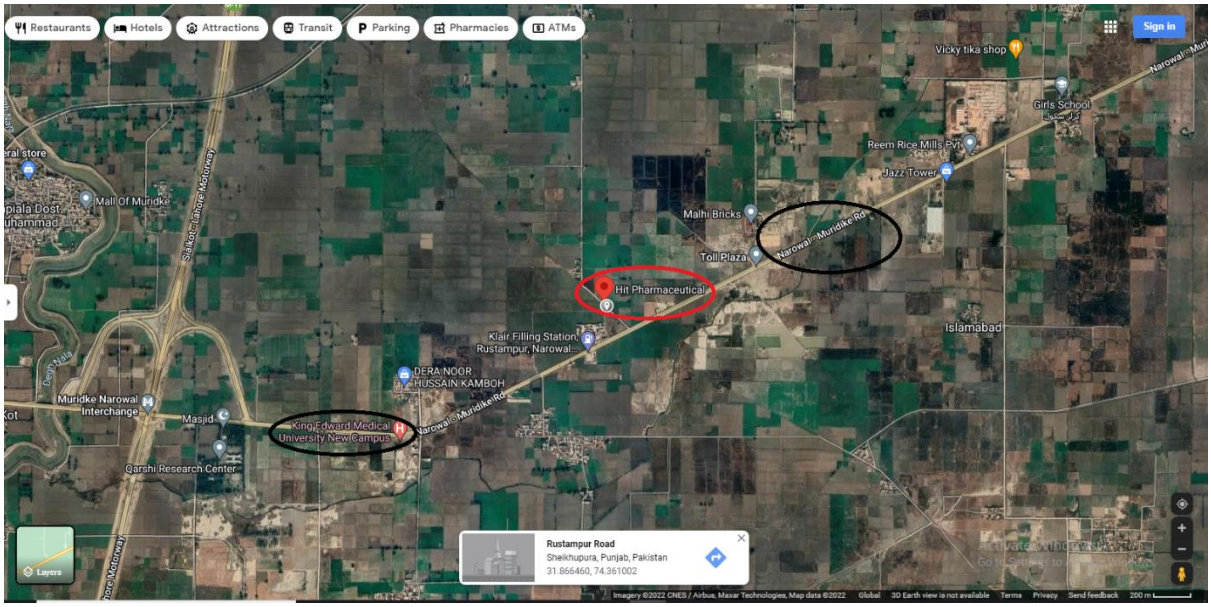


Figure 1 Google Earth Map

1.10 Field Visit

The consultant team visited the Project site and adjoining areas frequently to collect baseline data and investigate physical, biological, and socioeconomic resources. In addition, meetings were held with the stakeholders and community members in the Project area to collect primary information about the Project and record their views and concerns regarding the proposed project.

The rapid Social Appraisal methodology was applied to discover the facts (empirically verifiable observations or verifying the old facts) on the prevailing socio-economic and cultural conditions of the Project area. Various aspects of the physical environment probed during the survey.

1.11 Policy, Legal and Administrative Framework

This section comprises policy, guidelines, statutory obligations and roles of institutions concerning EIA study of the proposed project.

The objective of the review of legal and administrative framework is to obtain information on all legislation pertaining to the Project development. The Consultant Experts reviewed the environmental policies, national, international and provincial laws and guidelines relevant to the Project. A synopsis of all relevant laws is included in the Report.

1.12 Identification of Impacts

The impacts have been identified for the methodical consideration of likely or possible significant impacts on the environment because of construction and operational activities. The aim of this task was to assess the associated risks with these impacts. The identification of impacts is a key activity in the environmental assessment process, which is based on the professional judgment of team's experience supported by national and international guidelines.

1.13 Evaluation of Impacts

Each impact identified has been evaluated against its significance in the terms of its severity and likelihood of its occurrence. The impact evaluation process was carried out to prioritize each potential impact and screen out insignificant or inconsequential impacts. The significance of the impacts has been assessed in terms of the effects on the natural ecosystem, level of public concern and conformity with legislative or statutory requirements. The assessment of the severity was to consider the nature, magnitude, extent and location, timing and duration and reversibility of the potential impact. The evaluation of the significant impacts will outline the basis for development of environmental mitigation and monitoring program.

1.14 Identification of Mitigation Measures

The objective of identification of mitigation measures is to identify practices, technologies or activities that would prevent or minimize all significant negative environmental impacts and propose physical and procedural controls to ensure that mitigation is effective. On the basis of the impact evaluation performed, changes or improved practices have been suggested, where practical, in the planned activities, to prevent and control unacceptable adverse impacts resulting from normal or extreme events. Monitoring requirements have been defined and institutional arrangements for monitoring have been suggested.

1.15 Development of Environmental Management Plan and Environmental Monitoring Plan

An Environmental Management Plan (EMP) has been developed for effective implementation of the recommended mitigation measures. The EMP includes controls to minimize the identified impacts, and monitoring program to monitor residual impacts, if any, during the operation. The EMP also describes procedures to be followed during the operation of the Project and identify roles and responsibilities of all concerned personnel, including reporting in the operational phase. Together with Environmental Management

Plan, an Environmental Monitoring Plan has been framed to ensure that all the corrective actions to counter the adverse environmental impacts have been taken.

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

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

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

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

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

- **Baseline –** covers ecological, physical and human-related characteristics of the environment, as characterized in 2006, 2007 and 2008, prior to the initiation of the construction phase;
- **Construction** – includes all activities associated with project construction and before commencement of ore processing (mill start-up) such as:

 transportation corridors construction;

 mobilization of equipment and supplies to the site by road and air;

 construction of mine site facilities, including camp, infrastructure, ore stockpile, mill, waste rock storage dump, TWRMF, water management facilities (diversions, settling ponds, seepage collectors etc.) and mining activities up to the commencement of ore processing;

 camp operations and personnel transport during construction;

- **Operations** – includes ongoing mining and processing of ore to produce concentrate, tailings disposal, water treatment plant operations and effluent disposal, operation of

water management facilities, camp operations, transport of concentrate, transport of supplies and personnel;

- **Decommissioning** – includes all activities to decommission mine site facilities and remove equipment and materials from the site, recontour the site and restore drainage patterns to stable long-term conditions, stabilize the mine and wastes (TWRMF and waste rock) for safe long-term maintenance, and implement the final site reclamation procedures to prevent erosion and restore vegetation cover where feasible;
- **Closure** – refers to conditions that will exist on the site after the site is abandoned and revegetation is complete.

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

1.2.6 Important Issues and Concerns raised during consultation

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

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

- ***Significance impacts***

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

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: *involves the conclusion & Recommendation*

CHAPTER # 2

DESCRIPTION OF THE PROJECT

2.1 Introduction

Protocol For Manufacturing Herbal Syrup

Procedure contain following steps

Step 1:- Raw Material testing, After receiving herbs raw material sample was taken by QC lab
and performed quality test and released for syrup manufacturing if result found satisfactory

Step 2:- washing, after releasing herbs are washed properly by using RO water

Step 3:- Boiling, herbs are boiled by using steam jacketed mixing vessel

Step 4:- cooling, after boiling cooling process is started and mix other excipients

Step 5:- Filtration, bulk syrup is filtered

Step 6:- QC lab sample taken for in process testing

Step7:- Filling Area, bulk syrup is transferred to filling area, on the other hand empty bottles
after washing and drying are arranged for filling syrup.

Step 8:- Caps ceiling and labeling, after filling bottles are caped and labeled

Step9:- Packaging, syrup bottles are properly packed in packaging

Step 10:- QC lab performed finished goods tests and released for sale/marketing

Note:- waste water from RO water plant is used for washrooms and floor washing.No waster from herbs found. (if rejected from QC lab then it is sent back to the vendor).

2.2 Type and Category of the Project as per PEPA Guidelines

This requirement is under the regulation of Review of IEE and EIA Regulations 2000. Accordance with the above-mentioned list this project falls. According to the Environmental Protection Agency, Government of the Punjab, Lahore- “List of Projects Requiring an EIA”, and the project under consideration categories falls under Schedule II for EIA, category B. Proposed project will be M/S Hit Natural Pharma. For the construction of the proposed project during construction phase cement, sand, bricks, Bajri, iron roads will be required for the construction of the project while in operational phase management

2.3 Objective of the study/ report

IEE report is being submitted to Punjab Environmental Protection Agency incompliance with the legal requirements for Punjab Environmental Protection Act-1997 (Amended 2012) for obtaining Environmental Approval / NOC before starting construction and operation of the project as per section 12 of the act. Other relevant regulations and guidelines considered while preparation of this IEE report include.

- Policy and procedure for filing, review and approval of environmental approval.
- Guidelines for the preparation of and review of environmental reports.
- Guidelines for public participation
- Guidelines for sensitive and critical areas.
- Detail sectorial guideless.

Various aspects like environmental, social, physical and other aspects of the project both construction and operational are highlighted in the EIA report. Measures necessary to be adopted to mitigate any environmental impacts on any part of the environment around are also described.

2.4 Alternatives Considered and Reason of Rejection

Management of the proposed project considered other sites at Narowal road, but were rejected because of availability of residential setup near to project site, lack of infrastructure, nature of area was not agricultural in nature. Site selected by the management is most suitable as area is agricultural in nature and all basic infrastructure is present at project site. Further reason of rejection of above-mentioned site are given below.

- Wastewater disposal drain was not exist
- Ground water quality was not good
- Land ownership conflict due to the land cost
- Site is located near residential area
- Thick vegetation cover was arising tree clearance issue

2.4.1 Reason for Selection of Project Site:

- The land was selected due to the following reason:
- Economically feasible
- Trained or untrained workforce is available
- Availability of access roads

- Communication facilities
- Availability of electricity
- Basic infrastructure
- Sewerage system
- Approved drainage system
- Less/few vegetation/plantation
- Less fauna species at site

- ***Environmental Alternatives, their selection and rejection criteria***

The project simply involves the Waste Water Treatment Plant. This selected site is environmentally friendly and sustainable. There is no specie present that will be harm due to Project. Hence, there is no environmentally alternative considered for this specific project.

- ***Economic Alternatives, their selection and rejection criteria***

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

2.4.2 Location of the project.

3 Construction of M/S Hit Natural Pharma, Located At Rustam Pur Stop, 14 Km Mureedke-Narowal Road, District Sheikhupura.

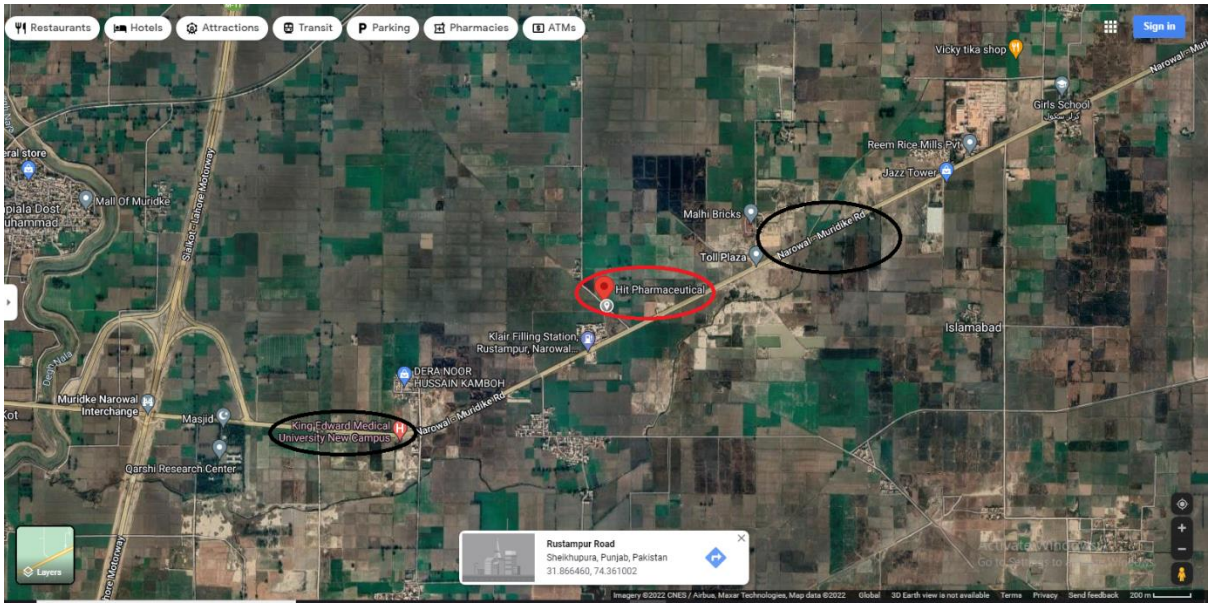


Figure 2.1: Site Google Map Location

2.5 Project Layout

Project layout map attached with file.

2.6 Project Process:

2.7 Protocol For Manufacturing Herbal Syrup

Procedure contain following steps

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2..8 PROJECT DESCRIPTION

Designed project is planned to produce extensive range of quality medicine for humane health care including Tablets, Dry Syrup, Liquid Syrup, Sachet, Capsule, Cream and Ointment.

2.8 RAW MATERIAL

Raw materials from the vendors will received at receiving bay and identification label will pasted over it which includes QC no., SRV no. and other valuable details. Then material will transferred to the QC lab for analyzation purpose after passing, material receive Released label from the QC, if not then Rejected label and material sent back to the vendor.

After the passing of materials it will be stored in different sections based on its use like active ingredient stored in active section while excipient will stored in separate section. Likewise during manufacturing at each step product will sent to QC for evaluation.

2.8.1 PRODUCTION FACILITY

For every operational activity standard operating procedures shall follow to ensure the consistency of the process and reproducibility of the products. Equipment in industry will capable to produce the required quantity of the dosage forms and comply with the requirements of Current Good Manufacturing Practices (CGMP) In-house engineering department and a workshop will establish to keep the equipment well maintained and in good working condition.

The Production section has manufacturing plants for:

- Dry Powder Suspension
- Capsule Section
- Oral Liquid Syrup Suspension
- Tablet Section
-

- **Dry Powder Suspension**

Dry powder manufacturing begins with the powder blends. The ingredients used in the manufacture are weighed and dispensed. The next step involves sieving the ingredients. The dry powder should have uniform granules hence the sieving may involve different stages to ensure homogeneous powder. The powder is transferred to

the cone mixer. The mixing of the dry mixture is done in two steps to ensure complete mixing.

Figure 2.1 shows the process flow of Dry Powder Suspension.

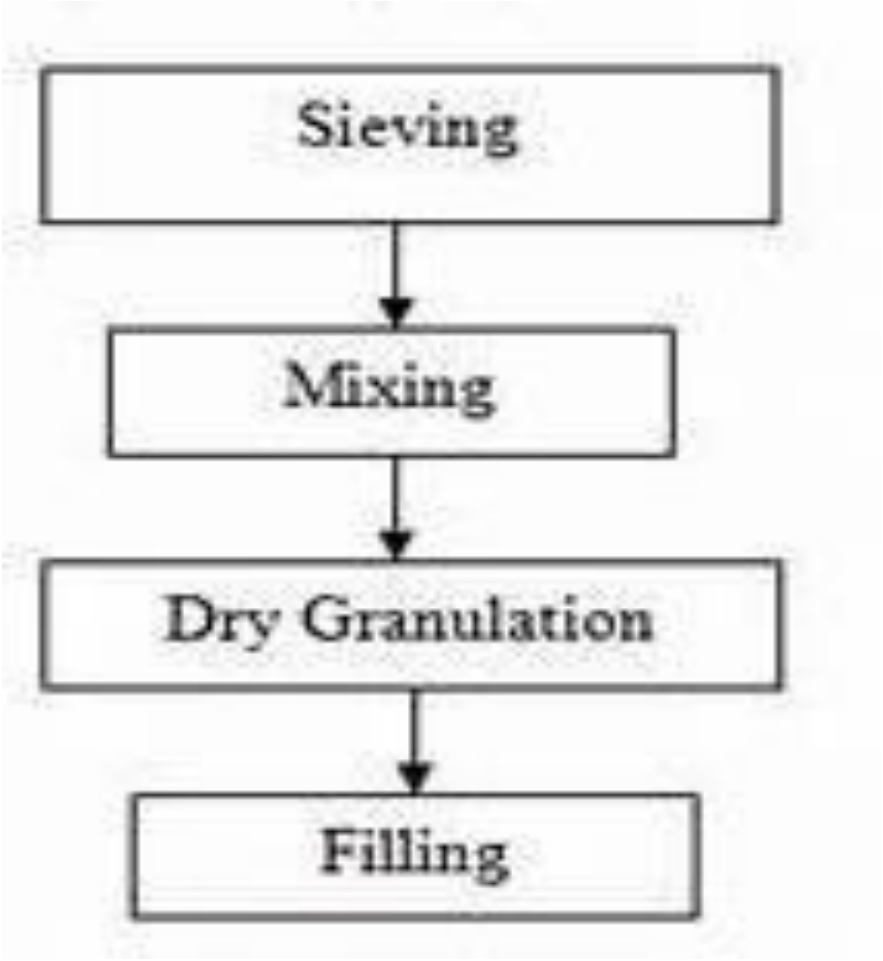


Figure 2.1 Process Flow Diagram

2.9 Land Use at the site

At present site is open land and status of the area is agricultural in nature.

2.9.1 Road Access

Main Road and link road are available to reach at project site. Basic necessary infrastructure like markets, roads, water, power, telephone, Internet etc. is available at the project site. The availability of good roads facilitates movement of raw material and finished goods/Product at cheaper cost. The other basic facilities are vitally important for the entire business to be run. These facilities also go in favor of the present site selection for the project sitting.

2.9.2 Labour Availability

Trained and cheap labour is easily available in the project area in more than desired number. This also makes the site also suitable.

2.9.3 Market of the Product

Gujranwala, Faisalabad, Rawalpindi and Lahore cities which are busiest city of Pakistan and it's a huge market for the product. So, management of the project will sale their product to passengers who will travel these cities

2.9.4 Basic facilities:

All basic facilities like roads, water, repair, maintenances workshops, fax, and telephone are available at the doorstep of the project site. This factor also goes in favour of the selected site project.

2.9.5 Trained Labour Availability:

The trained labour required for the project operation is available conveniently and plentifully at affordable cost at the present site. This factor also supports to select the present site for the said project.

2.9.6 Water:

In the proposed project area, the underground aquifers are available for drinking and used to fulfill the needs of the project, underground water is available in large quantities from a depth of about 250-300 feet.

2.9.7 Environment:

The project area shows no sensitivity of environment around the project site. There is no worth mentioning forestry, biodiversity, fishery, flora, fauna, heritage. For more details, refer to the next section wetland, wildlife or sensitivity of environment.

Environment consideration is extremely important for industrial sitting. The project site is situated in the area where population centers i.e., villages are not that near to each other. The land around the project site is entirely under agriculture use.

Such factors carried important weight age in the selection of the present site for the project. This factor too supported selection of the present site.

The project will be regulated according to Pakistan Environmental Protection Act 1997 and in compliance with the National Environmental Quality Standards (PEQS). Even Environmental Management Plan (EMP) and Environment Monitoring Plan (EMP) will be operational.

Taking into consideration all the above-described factors the selected site is the most suited for installation of the project.

2.9.8 Vegetation features of the site:

The principal crops were wheat, barley, maize, millets, and pulses. The district was traversed by the main line of the North-Western railway, crossing the Indus at Attack and also by a branch towards the Indus at Kushalgarh. Flora of the district has been greatly modified by human. Amongst trees the most important are Kikar (Acacia arbica), Shisham or Tahli (Dalbergia sissoo), Beri (Zizyphus jajaba), Toot (Morus marlaccae), Sharin (Albizzia lebbek, Dharek (Malia azerdaracb), Phulahi (Acacia modesta), and Nim (Melia indica), Piple (Ficus indica) are planted for shade. The growth is composed mainly of three kinds of trees Jand (Prosopis spicigera), Karril (Capparis aphylla), and van or Jal (Salvadora obeoides). Occasionally pelu (acacia Loucophhloea) and Farash (Tamarix articulate) are also found. Pilchi (Tamarix gallio) is found on moist sandy soil.

2.10 Size or magnitude of the operation, including capital cost, and associated activities

The proponent of M/S Hit Natural Pharma, wants to construct new project . The project is Located At Rustam Pur Stop, 14 Km Mureedke- Narowal Road, District Sheikhupura.. Over a total land area of **22618 SFT**. The project will be facilitated with all above said facilities. The land prices are low in some area due to less development. So, the cost of the whole project is about **120 million rupees**. The proposed project will have Capacity **10,00000 Per month**. At

present site is open land and boundary wall has been constructed to secure the area. Management will start their project activities after obtaining NOC from EPA under section 12 and14.

2.11 Proposed schedule for implementation (tentative):

Project installation schedule (tentative) is described hereunder;

Stage- i

In the first step construction of boundary wall for security and to check upon encroachment upon the project land by unsocial elements.

Stage- ii

Installation of turbine and laying necessary pipe work.

Stage-iii:

Land Survey and excavation for civil work.

Stage- iv:

Civil work to commence and end construction of pavements, sewer laying etc.

Stage v:

Fitting of electrical, water, drain pipes etc.

2.12 Water Requirement:

After the building, about 08 gallons per capita per day of water will be required for workers/employee of Project. Bore will be installed to meet the water requirements.

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

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

Table 2.3 Water Requirement Parameter

S. No.	Parameter	Unit	Value
1	Design avg flow rate	m^3/d	109.4
2	pH	-	7 to 8
3	TSS	mg/l	220
4	BOD5	mg/l	220
5	COD	mg/l	500

2.13 Sources of Water

Underground water at the project site is available at the depth of 250-300 feet and source of water for the project will be the pumps. According to the chemical analysis report water is fit for the drinking.

2.14 Sanitary Sewerage System

Sanitary sewerage system has been designed by approximated speed of water as 1.5 ft. /sec. After treatment in septic tank water will be discharge into drain on the left side of the project side.

The Sewage of the building will be treated in community septic tanks. Community sewer lines will be connected septic tanks. As in community septic tank multiple septic tanks has been installed at a place and these tanks are connected to plot sewer lines separately. All the community waste will be reached in the septic tank and anaerobic digestion will be occur to

treat the wastewater. After the design detention time the treated waste will be discharge in to main sewer line. And sludge will be dispose-off as per agreement with TMA.

Location of septic tanks will be selected following the design of sewerage design. As all the sewage will be flow under the action of gravity so septic tank will be located accordingly.

Treatment begins when the domestic wastewater flows from the building to the septic tank through the sewer pipe. A baffle (an internal flap) or tee (a T-shaped pipe) at the inlet slows the flow of wastewater going into the tank and directs it downward toward the middle of the tank. The wastewater is then retained for a day or more in the tank to allow the solids in the wastewater to separate from the liquids. Inside the tank, solids lighter than water—such as greases, oils, and, sometimes, other solid materials like toilet paper—float to the top forming a layer of scum. Solids heavier than water settle at the bottom of the tank forming a layer of sludge. This leaves a middle layer of partially clarified wastewater. An outlet baffle in the septic tank is positioned to allow only the partially treated liquid waste in the middle layer to flow out of the tank for further treatment. The layers of scum and sludge remain in the septic tank where bacteria found naturally in the wastewater work to break the solids down.

This process takes place anaerobically, or without the presence of oxygen, and gases produced from the decaying solids are vented back through the sewer line and released, usually through a plumbing vent located on the roof of the house. The sludge and scum that cannot be broken down is retained in the tank until the tank is eventually pumped. After the wastewater is allowed to settle and separate in the septic tank, the partially treated liquid from the middle layer flows through the outlet baffle or tee to the drain. This sewage treatment facility will be removing the BOD upto 68%, TSS upto 81%, Phosphate upto 60% and fecal coliform upto 66%.

2.15 Waste water Treatment Specification:

Septic tanks will be constructed for the sewage treatment because only municipal sewage waste will be produced during project. After being treated in septic tanks some of the waste water will be used for water sprinkling to avoid dust emission and for the Gardening purpose within the premises of project site.

Design of septic tank

Septic tank will be installed within the boundary wall of the project site. Proposed design is given in below Fig.

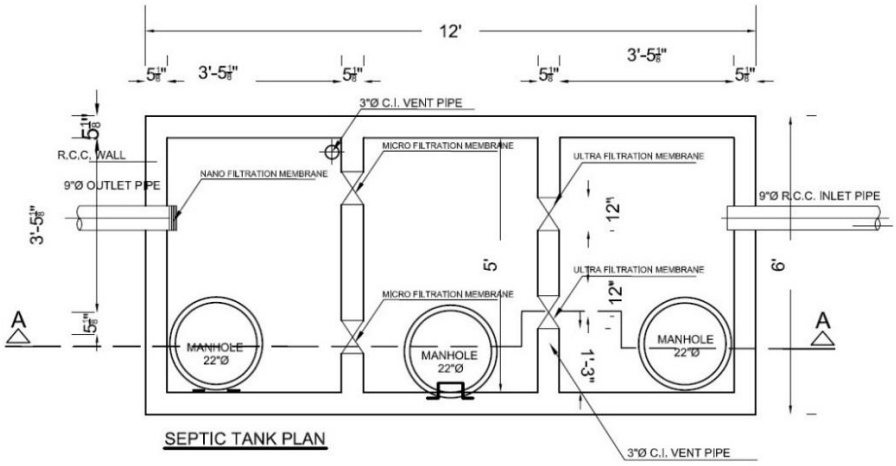


Figure 2.4 Septic Tank

Sludge

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

2.16 Solid Waste Management

Solid waste will primarily consist of the domestic solid waste from the project. About 150 kg/day of domestic solid waste will be generated from the project. For domestic solid waste collected from building. The garbage will be collected at a designated area within the area as an intermediate garbage disposal. From this place, garbage will be collected and transported to a suitable location for final disposal. The location for this final disposal will be decided in consultation with the City District Government

2.17 Atmospheric Emissions:

Dust and particulate matter will be generated during the construction activities. Sprinkling of water will be done on dust tracks, stock piles; raw material will be covered by plastic sheets, loading and unloading of raw material will be done at night etc.

2.18 Electrical Works

The design criterion for the electrical works will be in compliance with the requirements of WAPDA. Maintenance will be carried out by the management of the project, District Gujranwala.

2.19 Telecommunication

Telephone facility will be provided by the PTCL. An underground cable will also be provided for electronic media.

2.20 Plantation

Planation will be done within and outside of the proposed project.

No. of trees to be planted:

Total 3000 trees will be planted according to the following schedule:

Plantation in 1st year	**1000 Plants**
Plantation in 2nd year	**1000 plants**
Plantation in 3rd year	**1000 plants**

2.21 Fire Protection System

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

There will be two security guards round the clock who improve the security of the project site and also in its vicinity.

2.22 Restoration / Rehabilitation Plan

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

2.23 Government approvals required by the project:

Project proponent has obtained approval for disposal of liquid waste. Approval from Social Security Departments, others concerned departments are in process.

Chapter # 3,
DESCRIPTION OF ENVIRONMENT

This section describes the baseline conditions, which cover the existing Physical, ecological and socio-economic environment of the project as well as study area.

Data was collected by reviewing secondary source and field survey and previous similar studies for the subject project in the Sheikhupura city.

3.1 Physical Environment/ Resources

3.1.2 Topography:

Topographically speaking, Sheikhupura lies between the river Ravi which flows along its boundaries with India and river satluj which flow its boundary with Sheikhupura District. The districts may be divided into two parts, a low lying or riverine area along the two bordering rivers and upland, away from the rivers. The riverine area is generally inundating during monsoon season. The water level in this area is higher than in the upland. The soil is sandy. The upland is flat plains sloping from north-west to south-west. The general height of the area is from 150 to 200 meters above the sea level.

3.1.3 Soils:

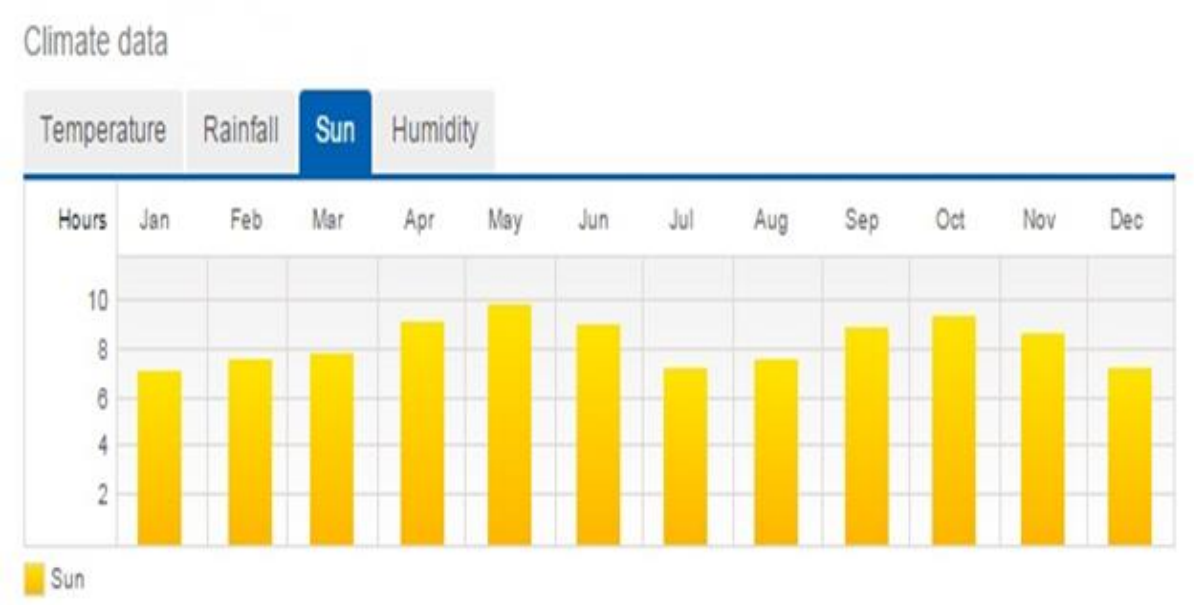
These are river transported deposits (alluvium), which are quite thick and fairly homogeneous in extent. The top soil consists of brown, soft to firm clayey silt / silty clay having slight plasticity and contents of dissolved salts. The top layer is likely to extend about 3 to 6 meter below natural ground, where it is underlain by silty fine sand/fine sand. This layer generally continues to deeper depths. These layers of silty clay and sandy gravel may also exist below 10-meter depth.

3.1.4 Climate:

Sheikhupura has extremes of climate; the summer season begins from April and continues till September. June is the hottest month. The mean maximum and minimum temperature for this month are about 45 and 27 degrees Celsius respectively. The winter seasons lasts from November to February. January is the coldest month. The mean maximum and minimum temperatures for the coldest month are 22 and 0 degree Celsius respectively. Rainfall Towards the end of June monsoon conditions appear and during the following two and a half months the rainy season alternates with sultry weather. The winter rain falls during January, February and March ranging from 23 to 31 millimeters.

3.1.5 Temperature

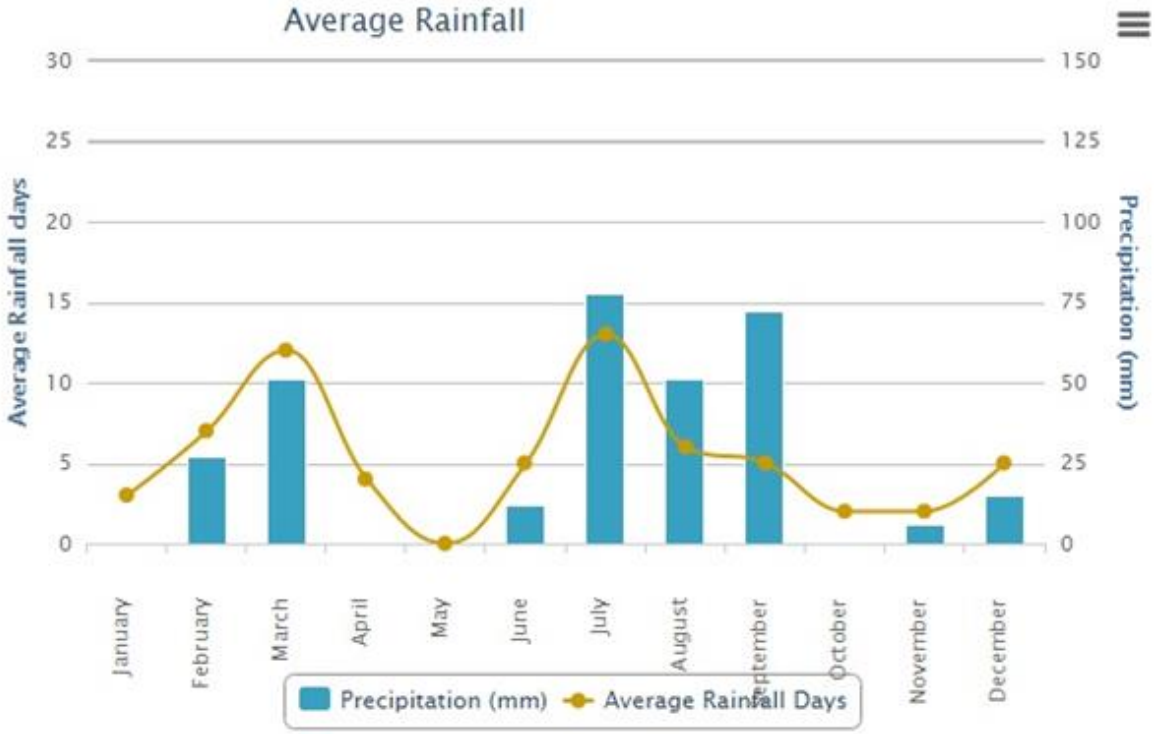
Over the course of a year, the temperature typically varies from 5°C to 30°C and is rarely below 2°Cor above 44°C.



3.1.6 Precipitation

The probability that precipitation will be observed at this location varies throughout the year. Precipitation is most likely around July and September and. Precipitation is least likely around May and October.





3.1.7 Humidity:

Maximum average humidity of district Sheikhupura is in month of July and minimum humidity is observed in April as shown in graph below;



3.2 Ambient Air Quality:

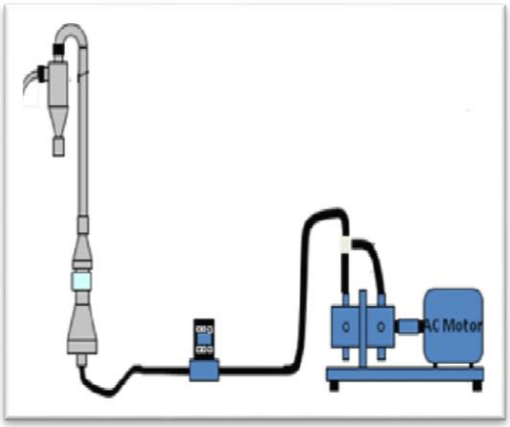
The project is located in commercial area of District Sheikhupura. The major sources of air pollution in the area are surrounding industrial activities and transportation or vehicular traffic.

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.

Instruments used for monitoring Ambient Air Quality.

Ambient air monitoring was conducted by using Lamotte Kit.

3.2.1 Particulate Matter (PM10)



For PM_{10} mini volume air sampler was used. In PM_{10} Sampler air is drawn into the omnidirectional inlet head at a flow rate of 20 LPM. The air is then accelerated toward the first impaction stage where particulate with aerodynamic diameters greater than 10 µm are collected (filtered out). The air stream, carrying particulate 10 microns and smaller, continues down the inlet toward the second impaction stage where particles larger than 2.5 microns are collected. Finally, particulate 2.5mm and smaller continue down the inlet where they are collected on a 46.2 mm diameter, ring supported filter media disc.

Lab results for Ambient Air Quality

NEQS: National Environmental Quality Standards

3.2.2 Discussion of Results

The ambient air result was within the NEQS Limits during the monitoring hours. The ambient air quality was monitored before construction, the market business, industrial processes and traffic was operational.

Noise Level Monitoring:

Basic Environmental conditions:

During the measurement following conditions were prevailed on site

Metrological Conditions:

During the noise level monitoring weather was dry and sky was clear. Air was blowing at high speed

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



Features:

- ✓ +/-1.5 dB accuracy with 0.1 dB resolution
- ✓ A&C weighting
- ✓ Four Measurement Level Ranges
- ✓ Overall range: 30-130 dB
- ✓ Frequency Range: 31.5 Hz to 8 kHz
- ✓ AC and DC output
- ✓ Record Max values over time
- ✓ Over range indication
- ✓ Auto power off and Max Hold functions
- ✓ Utilizes 0.5"(12.7mm) condenser microphone

Calibration:

Self-calibration time: 10 sec (every turn on)

Specification:

- ✓ Display: Large 5 Digit LCD
- ✓ Resolution: 0.1 dB
- ✓ Overall Range: 30 to 130 dB "A", 35 to 130 dB "C"
- ✓ Sound Level Ranges: 30-80 dB, 50-100 dB, 60-110 dB, 80-130 dB
- ✓ Basic Accuracy: +/-1.5 dB
- ✓ Time Weighting: Fast or Slow
- ✓ Sampling Frequency: 2/sec

Methodology adopted:

Noise level measurements were carried out in a way that monitoring round was completed in one go.

Sources of Noise Pollution

Major sources of noise generation are industrial activities and vehicular traffic along the main road. Noise levels were monitored within and outside of boundary walls of the project site. Noise profile of the project site near the main road is shown in sub-section.

Lab Results for Noise level

Discussion of Results

Noise level at west boundary was higher the PEQS Limits during the monitoring hours due to link road present at that side and traffic was flowing. At the time of monitoring the surrounding industries and traffic was operational.

3.3 Water Quality:

The surface water is of good for irrigation.

3.3.1 Ground water:

Underground water is available and its quality is not enough good for drinking at lesser depths. The residents of area mostly use ground water for drinking which is contaminated due to industrial activities in the area. Water is continuously being contaminated by the injection of industrial wastewater through injection well in the study area.

Lab analysis results of ground water in the area:

3.3.2 Wastewater/ surface water:

Proper sewerage system is not available in the area; there is no drain for the disposal of industrial wastewater as well. Mostly industries are injecting water in ground or may use in their own land for irrigation. It is highly recommended that water from the industries must be treated before use in irrigation. Govt. must take steps to provide proper industrial and domestic sewerage system in the area.

Surface water of the area is good for irrigation







3.4 Population

According to the 1998 census, Sheikhupura population was 6,318,745. Mid-2006 government estimates put the population at somewhere around 10 million, which makes it the second largest city in Pakistan, after Karachi. It is considered to be one of the 30 largest cities of the world.

Language

1 Punjabi

2 Urdu, being the national language of Pakistan is universally spoken and understood, while English is also understood and spoken by educated people. Famous singer ustad bade Ghulam Ali khan was also from Sheikhupura gharana of Indian classical music

3.5 Ecological Resources

3.5.1 Fisheries:

The project area is almost free from any commercial fishing activity. There are no lakes, even natural water ponds in the vicinity. Therefore, Fishery or any worth mentioning aquatic biology in this area is out of question.

3.5.2 Biodiversity:

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

3.5.3 Flora:

Project site is free from any protected plant species. Flora of the district has been greatly modified by human agency of the old open forests of small trees and shrubs; there remains only a few Rakhs or portions of forest which are kept as gazing ground for cattle etc. Amongst trees the most important are Kikar (Acacia arbica), Shisham or Tahli (Dalbergia sissoo), Beri (Zizyphus jajaba), Toot (Morus marlaccae), Sharin (Albizzia lebbek, Dharek (Malia azerdaracb), Phulahi (Acacia modesta), and Nim (Melia indica), Piple (Ficus indica) are planted for shade.The growth in Rakhs is composed mainly of three kinds of trees Jand (Prosopis spicigera), Karril (Capparis aphylla), and van or Jal (Salvadora obeoides). Occasionally pelu (acacia Loucophhloea) and Farash (Tamarix articulate) are also found. Pilchi (Tamarix gallio) is found on moist sandy soil along the rivers and is used for wicker-work, basket making etc.







Fauna:





Project site is free from any protected animal species. Wolf and jackal are the only wild animals of an importance. The former being met with occasionally in the low land wastes of Sheikhupura but jackal are found everywhere.

3.5.4 Forests:

An area of 13784 acres is under forest in the district. There is also linear plantation of 1604 kilometers alongside the roads/rails/canals in the district. Trees grown in the area are Kau, Phalai, Kikar and Shisham.





Rare or endangered species:

There are no game reserves or protected lands/areas or endangered or rare species either in the area in the range of 5km from the project site.

3.6 Socioeconomic and Cultural Study

3.6.1 Education:

Sheikhupura is having a higher literacy rate when it is compared with other cities of the country. It is made possible due to its prolific educational institutions.

3.6.2 Tribes & People

The principal tribes and tribes residing in Sheikhupura District are Pathan, Ansari, Bhatti, Malik, Arain, Jut, Sherwani, Safdar, Sunyare Rajput, Rehmani Mayo, Dogar, and Sheikh, The refugees from East Punjab that settled in the district largely belong to these tribes and clans. There are mueens or village artisans including Christians, blacksmiths, carpenters, potters, barbers, weavers etc. These mueens are found in all villages and are generally paid in kind at the time of each harvest.

3.6.3 Dress:

The local dress consists of a Kurta without collar covered by a waist-coat or Kurti and a loose loin cloth or trousers. A long piece of cloth called Chaddar is usually thrown over the willers. Achkan and Sherwani are worn on formal occasions by most people, but quite a large number of Muhajirs (refugees) wear these as normal dresses. In the villages, a Kurta with Tehband

(sheet round of legs) and Safa on willers is the most common dress. The Pagri still carries a sign of respectability and some people in the cities while most people in the villages have this as the sole head-dress. The women's clothes are generally more colorful with popular shades of red and yellow. Women clothing consists of Shalwar, Kamiz and Dopatta or Chaddar to cover their heads and upper part of the body. Phulkari is a silk embroidered shawl often fancied by the rural women-folks. Saree is only worn by women in towns and cities on formal occasions. The most common footwear for men in the villages is shoes of rough leather usually made by the village shoemaker. Boots are worn by those living in the cities and towns while women folk-wear sandal or slippers. Purdah is very common amongst the lower, middle and upper middle-class women but rare amongst women of upper class.

3.7 Public Health/ welfare:

Though earlier very few specialist doctors were available and most of the people resorted to the adjacent city of Sheikhupura for their health care needs. But now, in Sheikhupura District Headquarter Hospital is providing health facilities. Where as many small hospitals and clinics are providing basic health services as well, in rural and urban area.

3.8 Recreational Resources and Development:

The project area has not any private recreational facilities.

3.8.1 Aesthetic Values:

Like the general trend among the citizens of area, most of the people have low awareness about environment. Even then, some people take cleanliness and neatness of the environment lightly. Some people throw municipal solid wastes (MSWs) on the streets. Sense of personal responsibility to keep the environment clean as good citizens is even now lacking among a few people.

3.8.2 Quality of Life Values

Religion

The population of Sheikhupura is over 99% Muslim.

Customs

The peoples are very much concerned about castes and beliefs, visiting shrines is very common among them.

3.8.3 Languages and Major Casts

Punjabi, and Urdu are spoken in the city. Main castes are chishty, Rehmani, LAK, Chadhar, Jut, Tagga, Ansari, Butt, Dulu, Sayal, Kamboh, Bhadru, Mughal, Dogar, Sanpal, Gujjar, Arain, Rajput, Tajra, Hiraj and Shaikh Awan.

Dress

Majority of the people wear Qameez and Shalwar. English dress, shirt and Trousers are also common in Sheikhupura as well like other big cities of Pakistan.

Electric Supply

WAPDA power supply will be available at the site.

Telephone Facilities

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

Educational Facilities

No educational facility is present in the vicinity of the project area.

Agriculture

Major crops of the town are wheat, grain, peas, barley are the important crops of Rabi season, while Kharif crops are cotton, sugarcane, potato, bajra, oil seeds which are shipped by rail and road to other parts of the country.

Site of physical, cultural heritage:

There are no documented or protected sites of archaeological, cultural, historical & religious significance in the project area. No visible signs were observed of such sites while conducting the field work.

➢ Site Suitability

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

Chapter # 04

SCREENING OF POTENTIAL ENVIRONMENTAL IMPACTS & THEIR MITIGATION MEASURES

3.5 General

The chapter discourses the potential environmental and social impacts of the project activities, predicts the magnitude of the impact, assesses significance, identifies the mitigation measures to minimize the adverse environmental impacts and evaluates the residual impact of the project, if any. Environmental impacts of a project are driven out using numerous factors and parameters, due to which it is necessary to evolve Environmental Management Plan (EMP) to develop the mitigation measures. The assessment via these parameters is necessary in the study area for comparative analysis in comparison with that area where there is no activity has been introduced.

3.6 Environmental impacts due to the project location

3.6.1 Project Location:

The subject proposed project Construction of M/S Hit Natural Pharma, Located At Rustam Pur Stop, 14 Km Mureedke- Narowal Road, District Sheikhupura

Surrounding of the area is as follows.

- Left Agricultural area
- Right Agricultural area
- Front road
- Back Agricultural land

3.6.2 Impact:

Subject M/s Hit Natural Pharma is present in the agricultural area of the District Kasur. There is no residential present in the vicinity of subject project. So, if the proponent/owner fulfills all the HSE conditions and development laws and rules than this project will not cause any adverse environmental impacts on the society. Development of this project increases the living standards and employments for the local people of the District Gujranwala. Overall, the impacts of this development due to the location are positive on the local community of District Kasur and country of Pakistan.

Impact significance: very Low or may be positive

Nature of impact: indirect

Duration: Long-term

Timing: Operation phase

Reversibility: NA

Likelihood: Low (unlikely),

Consequences: very low or may be positive

3.6.3 Identification of mitigation measures

It is determined that the predicted impact is significant when compared with the criteria for determining the significance, suitable mitigations measures are then accordingly identified. These measures can be classified into following categories:

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

3.7 Environmental Impacts due to the project design

Subject project under the Construction of M/S Hit Natural Pharma, a proposed project for the Hit Natural Pharma. Proposed project will have office, store room, generator room, offices, parking area etc.

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

3.7.1 Impacts

- Structural stability of the proposed project
- Soil structure and soil bearing capacity
- Road infrastructure design
- Emergency exit in the building for the emergency situations
- Firefighting system
- Wastewater disposal system design

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

Impact significance: moderate to high or may be negative

Nature of impact: direct

Duration: Long-term

Timing: Constructional phase & Operation phase

Reversibility: NA

Likelihood: moderate to high

Consequences: moderate to high or may be negative

3.7.2 Mitigation measures and recommendations

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

- Design and map of the project is attached with file.
- Road infrastructure should be according to the laws and regulations
- Emergency exits should be design during the designing phase of the project
- Firefighting system should be design for the emergency situations
- Waste water drainage should be design vast to bear the rain water capacity of the project.
- Electricity system should be design safe and sound, electricity wires should be covered by thick plastic/electricity resistant covers.
- All the design should be approved from the TMA to minimize the impacts due to the designing.

3.8 Environmental impacts during the construction phase

Construction of M/S Hit Natural Pharma International, now is a proposed recycling Hit Natural Pharma Unit Environmental impacts during the constructional phase are following

3.8.1 Construction Stage Impacts

M/S Hit Natural Pharma International, during the construction phase may cause the following anticipated impacts/vulnerabilities on the environment:

3.8.2 Impacts on Physical Environments

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

3.8.3 Construction Stage

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.

3.8.4 Operation Stage

- About 10-15 persons will occupy the project site. The projects' operations will be kept in working condition so that the workers may give their input in environment friendly conditions.

- Management Committee will supervise the smooth functioning of the project site. All the activities will be managed by the qualified and experienced engineers.

3.8.5 Main Environmental Issues

Main environmental issues associated with project are as follow.

- Waste water due construction activities.
- Fire due to short circuits and other activities.
- Solid waste generation due to domestic/ commercial activities.
- Noise pollution from generator and other machinery.
- Health hazards

3.8.6 Operation Stage

Following points must be implemented during the operation stage.

- Keep water supply, sewerage disposal and electric supply in working condition.
- Wastewater will pass through septic tank Then it will be disposed in existing nearby Trans metatarsal Amputation Predictors (TMA) drain
- Solid wastes and sweepings will be stored in properly placed bins and handed over to contractors.
- Keeps the firefighting arrangements in working condition at all times at gas storage area. Contacts of fire brigades are displayed at prominent places in the project's building.

Table 4.1 – Mitigation Measures

Serial	Environmental Issues/ Impacts	Mitigation Measures
PLANNING, SITE SELECTION AND DESIGN STAGE		
1	Observance of administrative and legal formalities	• Project proponent has submitted their documents in below mentioned departments like • TMA • WAPDA • Civil defense .

2	Acquisition of land	Proponent has paid the total money to land owners and now land has been transferred in the name of project proponent.
3	Loss of environmentally sensitive areas	Avoid utilizing such patches of land.
4	Changes in traffic pattern	Prepare suitable in/out traffic plans
5	Potential conflicts with stakeholders	Settle the issues through scoping and specific group discussions.
6	Resettlement issues	No resettlement issues
SITE DEVELOPMENT STAGE		
1	Erosion due to stripping and site clearance	Sprinkling of water on road side
2	Generation of dust	• Careful loading and unloading of construction materials is recommended. • Sprinkling of water on construction site and surrounding areas is recommended.
3	Generation of noise	• Avoid suing forbidden horns at the site. • Do not throw heavy equipment and construction materials in haphazard manner.
4	Local flooding/pounding	Immediate repair and maintenance of water supply pipes and sewers in case of any defect will be undertaken.
5	Outbreak of fire	Keeps the firefighting equipment at the oil storage area.
6	Safety	• Safety of the workers and others must be ensured.

		• Privacy of the neighbors must not be disturbed.
7	Labor issues	Employ the local labor as far as possible
CONSTRUCTION STAGE		
1	Minor erosion of land	• Add more vegetation, restore the land by more plantation • Sprinkling of water on dusty tracks is recommended
2	Contamination of land and water	Essential services like water supply, sewerage disposal and solid waste management must be in working condition.
3	Impacts of dust, noise and smoke on neighbors	Schedule construction timings to cause minimum disturbance to neighbors.
OPERATION STAGE		
1	Contamination of land and water sources	Continuous vigilance on maintenance of services is recommended Tarpaulin sheets must be placed to avoid leaching of oil into ground
2	Fire breakouts	Firefighting equipment must be kept in working condition at specific area
3	Safety/security concerns	Safety of the workers and others must be ensured. • Privacy of the neighbors must not be disturbed.
4	Malfunction of utilities	It is proposed to appoint maintenance engineer with technicians like plumber and electrician for smooth operation of utility services.

5	Occupational Health, Safety and Environment	• Regular medical check-ups are recommended to improve the working condition and efficiency of workers. • Safety of management, workers and visitors must be ensured. • Observance construction and safety codes must be ensured.
6	Production of Solid Waste	• Area for solid waste is reserved within the subject project. • The solid waste must be managed on regular basis. • The domestic waste must be disposed in municipal channel.

3.8.7 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 Hit Natural Pharma International, entrusted with task of identifying areas where the Management of M/S Hit Natural Pharma International, 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.

3.8.8 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.

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.

Consultation with the Fire Fighting Department, Paramedics and Civil Defense.

Summary of major Impacts and their mitigation measures		
Sr. No	**Constructed Phase Impacts**	**Operational phase impacts**
1	Waste water generation	Noise from machinery
2	Dust and emissions during construction phase	Emissions/ noise from generators and vehicles
3	Worker's health and safety issues	Waste water from workers camp and from other sources
4	Disturbance of flora and fauna (if tree cutting will involve)	Worker's health and safety issues
5	Solid waste generation	Fire
6	Traffic problem due to transportation of material	Safety and security issues
7	Waste water generation	Noise from machinery
8	Dust and emissions during construction phase	Emissions/ noise from generators and vehicles

Potential Environmental Enhancement Mitigation measures

Sr No	Mitigation measures for construction phase and operational phase
1	Septic tanks will be constructed for the treatment of waste water generating from worker's camp. And waste water treatment plant will be constructed for the treatment of waste water generating from project
2	During construction phase Roads will be sprinkled with water to keep dust emissions within PEQS. Only mechanically fit vehicles along with low emissions and noise will be allowed to works at project site.
3	Contractor will be responsible for the provision of Personal Protective Equipment's (Goggles, Masks, Safety shoes and Safety Helmet, Ear Plug and Ear Muff etc.) to workers.
4	Excessive tree plantation in and around the project premises.
5	Construction of hall around the generator along with installation of silencers to reduce noise

6	Installation of fire safety equipment (DCP Cylinders, Water based cylinder, Installation of fire alarm system, smoke detector, safety signs). Provision of emergency exit in the building so that in case of any disaster safe evacuation of workers may be possible.
7	Movement of vehicles is recommended during night time specially when traffic load is negligible to avoid traffic congestion

3.8.9 Changing in planning and design

There will be no change in project plan and design as design/ layout plan submitted along with IEE report will be implemented as provided.

3.8.10 Improved monitoring and management practices

For monitoring of pollution sources or any minor or major source pollution so mitigate it a system of monitoring and management will be adopted. HSE manager will be responsible for the monitoring, identification of pollution source and then its management. Management will monitor their systems as per the direction of the agency. They will submit their monitoring reports on regular basis to EPA to check PEQS. If any parameter found exceeding the PEQS limit proponent/ HSE manager will take immediate action to keep its level within limit by adopting proper mitigation measures. Fire system will be monitored after every month. Workers will be provided training to cope any emergency within the project. Installed machinery and vehicles will be inspected after 15 days to check there working efficiency.

3.8.11 Compensation of money terms

Management has purchased land directly from its owner and cost of land has been paid to its owner and now land has been transferred in the name of project owner. So, there is no effected community to whom compensation will be paid. Furthermore, project is a Hit Natural Pharma it will not disturb surrounding flora and fauna so no need to pay any compensation.

Replacement, relocation and rehabilitation plan

From project activity trees will be damaged and quality of solid may be affected as replacement new trees will be planted and quality of soil will be improved by tree plantation, grassing and flowering.

What is problem?

Due to project activity below mentioned is list of impacts which may occur during construction and operational phase of the project.

Construction phase problems

Below mentioned impacts may occur construction phase of the project

Sr. No	Problem	Time of occurrence
1	Waste water generation	During construction activities and workers camp
2	Dust and emissions during construction phase	Vehicular movement, construction activities
3	Worker's health and safety issues	Construction activities, loading and unloading of goods
4	Disturbance of flora and fauna (if tree cutting will involve)	Leveling of land, construction of homes
5	Solid waste generation	Worker's camp, construction activities
6	Traffic problem due to transportation of material	Loading and unloading of goods

Operational phase impacts

Sr. No	Problem	Time of occurrence
1	➢ Noise from machinery/ vehicles	Construction of project/ construction activities

2	➢ Emissions/ noise from generators and vehicles	Construction of project/ construction activities
3	➢ Waste water from workers camp and from other sources	During development work and construction of project
4	➢ Worker's health and safety issues	Construction activities, loading and unloading of goods
5	➢ Fire	Construction work
6	➢ Safety and security issues	When project will be fully developed
7	➢ Traffic issues due to raw material movement	During constructing material transportation
8	➢ Disturbance to flora and fauna if excessive tree cutting will be done	Construction and development activities.

Where the problem will be addressed

Sr. No	**Mitigation measures**	**Where it should be addressed**
1	Septic tanks will be constructed for the treatment of waste water generating from workers/ office camp.	During construction and operational phase
2	During construction phase Roads will be sprinkled with water to keep dust emissions within PEQS. Only mechanically fit vehicles along with low emissions and noise will be allowed to works at project site.	During construction and operational phase
3	Contractor will be responsible for the provision of Personal Protective Equipment's (Goggles, Masks, Safety shoes and Safety Helmet, Ear Plug and Ear Muff etc.) to workers.	During development and construction activities
4	Excessive tree plantation in and around the project premises.	During project development
5	Construction of hall around the generator along with installation of silencers to reduce noise	During generator installation time
6	Installation of fire safety equipment (DCP Cylinders, Water based cylinder, Installation of fire alarm system, smoke detector, safety signs). Provision of emergency exit in the building so	During construction and development phase

	that in case of any disaster safe evacuation of workers may be possible.	
7	Movement of vehicles is recommended during night time specially when traffic load is negligible to avoid traffic blockage.	During transportation of construction material

CHAPTER # 5

ENVIRONMENTAL MANAGEMENT & MONITORING PROGRAM PLAN

5.1 Introduction

This section presents the environmental management plan (EMP) for the proposed project. The EMP specifies the mitigation and management measures which the Proponent will undertake and shows how the Project will mobilize organizational capacity and resources to implement these measures.

The EMP covers information on the management and mitigation measures that will be taken into consideration to address impacts in respect of the operational phase of project.

5.1.1 Objectives

The objective of the Environmental Management and Monitoring Plan (EMMP) is to address all the major environmental issues and provide framework for the implementation of the proposed mitigation measures during the operational phase of the project. The proper implementation of the EMP will ensure that all the adverse environmental impacts identified in the EIA report are adequately mitigated, either totally prevented or minimized to an acceptable level and required actions to achieve those objectives are successfully adopted by the concerned institutions or regulatory agencies.

The EMMP provides a delivery mechanism to address potential impacts of the project activities, to enhance project benefits and to introduce standards of good practice to be adopted for all project works. The EMMP has been prepared with the objectives of:

- Defining roles and responsibilities of the project Proponent for the implementation of EMMP and identifying areas where these roles and responsibilities can be shared with other parties involved in the execution and monitoring of the project.
- Outlining mitigation measures required for avoiding or minimizing potential impacts assessed in the EIA report.
- Developing a monitoring mechanism and identifying requisite monitoring parameters to confirm effectiveness of the mitigation measures recommended in the EIA report.
- Defining the requirements for communication, documentation, training, monitoring, management, and implementation of the mitigation measures.

5.2 Implementation of EMMP

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

5.3 Environmental Budget

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

Table 5-1 Environmental Budget Breakdown

Sr. No.	Item/Activity		Quantity (No.s)	Budget (PKR)	Description
1	Plantation Campaign		100	20,000/-	Cost includes plantation and maintenance up to 5 years
2	Cost of EMMP		-	95,000/-	Installation + Operational Phases
3	Environmental Monitoring	Air Quality Monitoring	01	10,000	01 sample @ 10,000/- per sample
		Noise Level Monitoring	02	15,000	02 samples @ 7,500/- per sample
		Drinking Water Quality Monitoring	01	10,000/-	01 sample @ 10,000/- per sample
4	Miscellaneous			50,000/-	Lump sum
5	**Total Environmental and Social Management Cost**			**200,000/-**	

5.4 Environment Management Team

Following functionaries will be involved in the implementation of EMMP:

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

Table 5-2: List of Individuals and their Responsibilities

Designation	Responsibilities
Manager	• Direct operations at the site. • He will act as team lead. • Interact with other executives, mine staff and community residents. • Effectively motivate staff to follow protocols and to work productively. • Look after the Health and Safety Related issues. • Responsible for scheduling staff and ensuring that supplies are stocked. • He will play a direct role in developing business goals for the mine they run, and he will help to produce a business plan to ensure that those goals are met.
Accountant	• Proper management of the funds for the CSR. • Development of fund proposal for environment related expenses. • Ensuring the smooth transaction of funds for environmental related projects/activities. • He will prepare the yearly budget. • Taking minutes in meetings and other administrative duties. • During his shift timings, he will be responsible to look into smooth functioning of the process in environmentally sustainable way. • He will be responsible to rectify any problem regarding environmental matter in collaboration with concerned authorities. • Prepare reports on different events and incidents. • He will report all matters regarding E.M. to the manager.

- ***Environmental Practitioners and Experts***

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

- **Proponent Environment Management Team**

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

5.4.1 Responsibilities of Functionaries

- **Responsibilities of Management of Project**

Management of the project will be responsible for the environmental management and supervisory affairs during the project activities. Environmental personnel designated by the management of the project will look after the environmental related issues during the project activities. The responsibilities of environmental personnel are as follows:

- Monitoring progress of the project as per planned schedule of activities.
- Exercising oversight over the implementation of environmental mitigation measures by the contractor.
- Documenting the experience in the implementation of the environmental process.
- Preparing training materials and implementing programs.
- Maintaining interfaces with the other lined departments/ stakeholders and
- Reporting to the management of the project on the status of EMMP implementation.

5.5 Proposed Environmental Management and Monitoring Plan (EMMP)

The Environmental Management and Monitoring Plan (EMMP) will be used as a management and monitoring tool for implementation of the mitigation measures identified in the EIA report.

The EMMP matrix lists down:

- The required mitigation measures recommended in the EIA report.
- The person/organization directly responsible for adhering to or executing the required mitigation measures and monitoring adherence to the mitigation measures.
- The parameters, which will be monitored to ensure compliance with the mitigation measures.
- The timing at which the mitigation or monitoring has to be carried out.

- Budget allocated for management practices (cost of EMMP)
- Project Proponent will hold primary and overall responsibility for ensuring full implementation of the EMMP.

The Environmental Management and Monitoring Plan have been provided for both installation and operational phases of the project below:

5.5.1 EMMP for Installation Phase

The EMMP for installation phase of the project includes following:

- Air quality management & monitoring plan
- Noise management & monitoring plan
- Solid Waste management & monitoring plan
- Health and safety management & monitoring plan

Table 5-3: Air Quality Management & Monitoring Plan for Installation Phase

Management Plan			Monitoring Plan		Estimated Cost
Sr. No.	**Potential Impacts**	**Management & Monitoring Measures**	**Timeframe**	**Responsible Party**	**(PKR)**
Reduce Dust Emissions					
1	Dust Emissions	Monitor speed limits of vehicles operating at project site.	Throughout installation period	Proponent	0/-
		Avoid installation activities in extremely dry weathers.	Throughout installation period	Proponent	0/-
		Sprinkle water at site when necessary to reduce dust spread.	Throughout installation period	Proponent & Contractor	5,000/-
		Ensure the use of Personal Protective equipment by workers and staff.	Throughout installation period	Proponent & Contractor	5,000/-
Reduce Exhaust Emissions					
		Ensure minimization of Vehicle idlingtime.	Throughout installation period	Proponent & Contractor	0/-

2	Exhaust Emissions	Alternatively, fueled equipment shall be used where feasible equipment shall be properly tuned and maintained.	Throughout installation period	Proponent & Contractor	0/-
		Give awareness to vehicle drivers and operators to avoid unnecessary racing of vehicle engines at loading/un-loading points. Ensure that vehicles engines must be switched off at these points.	Throughout installation period	Contractor	0/-
Sub-Total					**10,000/-**

Table 5-4: Noise Management & Monitoring Plan for Installation Phase

Management Plan			**Monitoring Plan**		**Estimated Cost**
Sr. No.	**Potential Impacts**	**Management & Monitoring Measures**	**Timeframe**	**Responsible Party**	**(PKR)**
Minimization of Noise and Vibrations					
1	Noise and Vibrations	Aware vehicle and machinery operators to switch off engines of vehicles or machinery not being used to avoid excessive noise and vibrations.	During installation period	Proponent & Contractor	0/-
		Sensitize drivers to avoid gunning of vehicle engines or unnecessary hooting especially when passing through sensitive areas such as churches, mosques, residential areas and schools.	Throughout installation period	Proponent & Contractor	0/-
		Ensure that machinery is kept in good condition to reduce noise generation.	Throughout installation period	Proponent & Contractor	5,000/-
		The noisy installation works will entirely be planned during day time when most of the neighbors will be at work.	Throughout installation period	Proponent & Contractor	0/-
Sub-Total					**5,000/-**

Table 5-5: Solid Waste Management & Monitoring Plan for Installation Phase

Management Plan			Monitoring Plan		Estimated Cost
Sr. No.	**Potential Impacts**	**Management &Monitoring Measures**	**Timeframe**	**Responsible Party**	**(PKR)**
Minimization of solid waste generation and ensure efficient solid waste management					
1	Increased solid waste generation	Donate recyclable/reusable or residual materials to local community groups, institutions.	During installation period	Proponent	0/-
		Proper waste management plan must be developed.	During installation period	Proponent	0/-
		Waste must be stored at site in covered containers.	During installation period	Proponent	10,000/-
		Containers must be emptied before they reach their carrying capacity.	During installation period	Proponent	0/-
		Littering must be prohibited at the site.	During installation period	Proponent	0/-
		Awareness will be given to the staff and workers about handling of solid waste at site.	During installation period	Proponent	0/-
		Use of an integrated solid waste management system i.e. through a hierarchy of options: 7. Source reduction 8. Reuse 9. Recycling	Throughout installation period	Proponent & Contractor	0/-
		Use of durable, long-lasting materials that will not need to be replaced as often, thereby reducing the amount of waste generated over time.	Throughout installation period	Proponent & Contractor	0/-
Sub-Total					**10,000/-**

Table 5-6: Health and Safety Management & Monitoring Plan for Installation Phase

Management Plan			Monitoring Plan		Estimated Cost
Sr. No.	**Potential Impacts**	**Management & Monitoring Measures**	**Timeframe**	**Responsible Party**	**(PKR)**
Minimization of occupational health and safety risks					
1	Health and Safety Impacts	Implement all necessary measures to ensure health and safety of workers and the general public during installation of the project.	Throughout installation period	Proponent	0/-
		Suitable overalls, safety footwear, dust masks, gas masks, respirators, gloves, ear protection equipment etc. should be made available and personnel must be trained to use the equipment.	Once off	Proponent & Contractor	5,000/-
		Ensure the general safety and security at all times by providing day and night security guards and adequate lighting within and around the premises.	Continuous	Proponent	5,000/-
2	First Aid	Provision of well stocked first aid box must be ensured within the premises of the project area.	One-off/as per required	Proponent	5,000/-
		Provision must be made for persons to be trained in first aid.	One-off	Proponent	5,000/-
Sub-Total					**20,000/-**
Grand-Total					**45,000/-**

5.5.2 EMMP for Operational Phase

The EMMP for operational phase includes following:

- Air quality management & monitoring plan
- Noise management & monitoring plan
- Solid Waste management & monitoring plan
- Health and safety management & monitoring plan

Table 5-7: Air Quality Management & Monitoring Plan for Operational Phase

Management Plan			Monitoring Plan		Estimated Cost
Sr. No.	**Potential Impacts**	**Management & Monitoring Measures**	**Timeframe**	**Responsible Party**	**(PKR)**
Reduce Dust Emissions					
1	Dust Emissions	Monitor speed limits of Vehicles operating at mining site.	Throughout operational period	Proponent	0/-
		Avoid operational activities in extremely dry weathers.	Throughout project lifecycle	Proponent	0/-
		Sprinkle water at site when necessary, to reduce dust spread.	Throughout operational period	Proponent & Contractor	5,000/-
		Ensure the use of Personal Protective equipment by workers and staff.	Throughout operational period	Proponent& Contractor	5,000/-
Reduce Exhaust Emissions					
2	Exhaust Emissions	Ensure minimization of Vehicle idling time.	Throughout operational period	Proponent & Contractor	0/-
		Alternatively, fueled equipment shall be used where feasible equipment shall be properly tuned and maintained.	Throughout operational period	Proponent & Contractor	0/-
		Give awareness to vehicle drivers and operators to avoid unnecessary racing of vehicle engines at loading/un-loading points. Ensure that vehicles engines must be switched off at these points.	Throughout operational period	Contractor	0/-
Sub-Total					**10,000/-**

Table 5-8: Noise Management & Monitoring Plan for Operational Phase

Management Plan	Monitoring Plan	Estimated Cost

Sr. No.	Potential Impacts	Management & Monitoring Measures	Timeframe	Responsible Party	(PKR)
Minimization of Noise and Vibrations					
1	Noise and Vibrations	Aware vehicle and machinery operators to switch off engines of vehicles or machinery not being used to avoid excessive noise and vibrations.	During operational period	Proponent & Contractor	0/-
		Sensitize drivers to avoid gunning of vehicle engines or unnecessary hooting especially when passing through sensitive areas such as churches, mosques, residential areas and schools.	Throughout operational period	Proponent & Contractor	0/-
		Ensure that machinery is kept in good condition to reduce noise generation.	Throughout operational period	Proponent & Contractor	5,000/-
		The noisy production works will entirely be planned during day time when most of the neighbors will be at work.	Throughout project life	Proponent & Contractor	0/-
Sub-Total					**5,000/-**

Table 5-9: Solid Waste Management & Monitoring Plan for Operational Phase

Management Plan			Monitoring Plan		Estimated Cost
Sr. No.	**Potential Impacts**	**Management & Monitoring Measures**	**Timeframe**	**Responsible Party**	**(PKR)**
Minimization of solid waste generation and ensure efficient solid waste management					
	Increased	Donate recyclable/reusable or residual materials to local community groups, institutions.	During operational period	Proponent	0/-
		Proper waste management plan must be developed.	During operational period	Proponent	0/-
		Waste must be stored at site in covered containers.	During operational period	Proponent	5,000/-
		Containers must be emptied before they reach their carrying capacity.	During operational period	Proponent	0/-

1	solid waste generation	Littering must be prohibited at the site.	During operational period	Proponent	0/-
		Awareness will be given to the staff and workers about handling of solid waste at site.	During operational period	Proponent	0/-
		Use of an integrated solid waste management system i.e., through a hierarchy of options: 10. Source reduction 11. Reuse 12. Recycling	Throughout operational period	Proponent & Contractor	0/-
		Use of durable, long-lasting materials that will not need to be replaced as often, thereby reducing the amount of waste generated over time.	Throughout operational period	Proponent & Contractor	0/-
Sub-Total					**5,000/-**

Table 5-10: Health and Safety Management & Monitoring Plan for Operational Phase

Management Plan			**Monitoring Plan**		**Estimated Cost**
Sr. No.	**Potential Impacts**	**Management & Monitoring Measures**	**Timeframe**	**Responsible Party**	**(PKR)**
Minimization of occupational health and safety risks					
1	Health and Safety Impacts	Implement all necessary measures to ensure health and safety of workers and the general public during operation of the project.	Continuous	Proponent	0/-
		Suitable overalls, safety footwear, dust masks, gas masks, respirators, gloves, ear protection equipment etc. should be made available and personnel must be trained to use the equipment.	Once off	Proponent & Contractor	10,000/-
		Ensure the general safety and security at all times by providing day and night security guards and adequate lighting within and around the premises.	Continuous	Proponent	5,000/-

2	First Aid	Provision of well stocked first aid box must be ensured within the premises of the lease area.	One-off/as per required	Proponent	5,000/-
		Provision must be made for persons to be trained in first aid.	One-off	Proponent	10,000/-
Sub-Total					**30,000/-**
Grand-Total					**50,000/-**

5.6 Environmental Monitoring and Evaluation

5.6.1 Aim

In the context of coal mining, the monitoring and evaluation is carried out to achieve following objectives:

- To access whether the project site is being managed in a sustainable manner as planned or certain bottlenecks are experienced both qualitatively and quantitatively.
- To ensure compliance of environmental parameters (i.e., ambient air and noise) with PEQS.
- To ensure the implementation of mitigation measures for overall conservation of environment at the project site.
- To undertake effective environmental surveillance of the site.
- To assess effectiveness of mitigation measures and potential environmental enhanced measures.
- To ensure compliance with national environmental obligations.
- To monitor rehabilitation of recovered land including afforestation.

5.6.2 Environment, Health & Safety Policies

5.6.2.1 Environment Policy

The environment policy right from initiation of project installation to its proper operations will be based on:

- Compliance of applicable regulatory requirements;
- Conservation of natural resources;

- Assurance of sustainable development;
- Maintaining a safe working environment;
- Providing high environmental expertise and know-how; and
- Regular training and refresher courses to achieve continuous improvement of environment.

5.6.2.2 Health & Safety Policy

The proponent identifies safety and health of the personnel as integral part of every work aspect at every level. In addition to compliance with the statutory rules and regulations as the minimum acceptable, the proponent will set nationally acceptable standards for practice and will intend to achieve the above by the following:

- Provide adequate and continuous training to all personnel;
- Prepare an over-all safety & health manual giving general requirements of leadership, planned inspections, job analysis & procedures, emergency preparedness, organizational rules, necessity and use of protective equipment, health control, etc.;
- Systematic evaluation & measurement of system performance at all operational levels and continuously update the over-all safety & health manual;
- Carrying out regular publicity campaigns effective personnel safety and health conscious; and
- To employ a person as in-charge for planning, training & safety and make him responsible for implementation of safety and health policy.

5.7 Equipment Maintenance Details

5.7.1 Objectives

The maintenance of equipment and machinery used during project activities is carried out to achieve following objectives:

- To avoid environmental pollution including dust issues, exhaust emissions, excessive noise a vibration etc.
- To avoid any risk to health and safety of the workers including injuries.
- To avoid any hinderance and to ensure smooth operation of project activities.

5.7.2 Measures for Equipment Maintenance

Measures for the maintenance of equipment involve:

- All the machinery and vehicles will be inspected and monitored.
- Always keep a suitable fire extinguisher ready for emergency situations.
- Always keep a first aid box within the premises of the project site.
- Secure unbolted heavy parts or engines if necessary, to leave the work.
- Monthly tuning, servicing and cleaning of machinery and vehicles.

5.8 Training Needs

There is requirement of training of the members of Monitoring and Evaluation department of multifarious environmental aspects pertaining to coal production. Training may be arranged at a suitable institution.

5.8.1 Training Schedules

- ***Environmental Technical Assistance and Training Plan***

To raise the level of professional and managerial staff, there is a need to upgrade their knowledge in the related areas. The proponent will play a key role in this respect and arrange the trainings.

An environmental and social training and Technical Assistance (TA) program is to be carried out before the implementation of the project. Contractor's environmental awareness and appropriate knowledge of environmental protection is critical to the successful implementation of the EMMP because without appropriate environmental.

Awareness, knowledge and skills required for the implementation of the mitigation measures; it would be difficult for the Contractor(s) workforce to implement effective environmental protection measures.

Proponent will manage the environmental training program. This will organize training courses for contractor staff to train them in specialized areas such as air and noise pollution monitoring; develop environment operation manuals in consultation with the EPA, Punjab. The training will take place in three phases:

Table 5-11: Training Schedules

Phases	Description
Phase-1	• The workers and labor force will be given basic training on project activities. They will be explained on different possible environmental impacts resulting from the project activities. • The environmental management and monitoring staff will be given basic knowledge of the possible environmental impacts, how to mitigate them and methods of personnel protection. This will take place during the design phase.
Phase-2	• Second phase of training will take place at the start of operational phase. • It will involve a hands-on experience of carrying out the different activities during operational phase, responsibilities of each individual, implementation of mitigation measures, use of personnel protective equipment and an emergency handling and exit drill
Phase-3	• All the staff will be briefed about the implementation of EMMP. • The staff and workers will be provided with suitable and required PPEs.

CHAPTER # 6

INVOLVEMENT OF STAKEHOLDER/ PUBLIC CONSULTATION

6.1 Introduction

Stakeholder's consultation is a tool used for communication with a diverse group of stakeholders having multifarious aims such as information dissemination, exchanging views, soliciting feedback and suggestions on issues pertaining to the project, plan future actions. This practice initiates a need assessment and identifies areas of concern for all the parties that maybe affected by the project activities.

Stakeholders by definition are all those people and institutions who have an interest in the successful design, implementation and sustainability of the project. This includes those positively and negatively affected by the project.

6.2 Proponent's Environment Management Team:

- ***Environmental Practitioners and Experts***

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

- **Proponent Environment Management Team**

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

6.3 Benefits and Objectives of Stakeholder's Consultation

Consultation with stakeholders leads to an overall better understanding of the project on the part of the communities and gives the Proponent a clearer understanding of the stakeholders' perspective. Effective public consultation can add substantial value to the EIA study process. The information gained through public consultation on the stakeholders' concerns, interests, and their ability to influence decision-making helps identify key cause of environmental problems.

This can be used to evaluate direct and indirect environmental impacts and assess short term and long-term resource use implications. The input from local communities and NGOs can help evaluate alternatives and strengthen the management planning by incorporating local input and know-how.

An informed public will better understand the tradeoffs between project benefits and disadvantages; be able to contribute meaningfully to the project design; and have greater trust with the project Proponent and support for the project, says the Asian Development Bank. These factors contribute towards improved project implementation sensitized to the human environment of the area. The objectives of stakeholders' consultation are to:

- Promote better understanding of the proposed operation through explaining its objectives and its potential positive and negative impacts.
- Identify and address concerns of all interested and affected stakeholders.
- Provide a mechanism to resolve issues identified by communities, before project plans are finalized and development begins, thereby, avoiding public outcry and resentment.
- Instill trust between various stakeholders and the Proponent to promote cooperation.

➢ **Responsibilities of Management of Project**

Management of the project will be responsible for the environmental management and supervisory affairs during the project activities. Environmental personnel designated by the management of the project will look after the environmental related issues during the project activities. The responsibilities of environmental personnel are as follows:

- Monitoring progress of the project as per planned schedule of activities.
- Exercising oversight over the implementation of environmental mitigation

measures by the contractor.

- Documenting the experience in the implementation of the environmental process.
- Preparing training materials and implementing programs.
- Maintaining interfaces with the other lined departments/ stakeholders and
- Reporting to the management of the project on the status of EMMP implementation.

6.4 Identification and Classification of Stakeholders

During the field survey, significant efforts were made to identify the possible categories of stakeholders and their stakes. Identification of stakeholders is important for the sustainability of a developmental project and helps to evaluate and envisage the role of stakeholders. The influence or impact of the project on stakeholders can be elaborated in the form of a matrix and the mitigation measures are proposed accordingly. All the stakeholders had different types of stakes according to their professions.

6.5 Methodology for Consultation

Stakeholder consultation is a two-way flow of information and dialogue between the project Proponent and stakeholders, specifically aimed at developing ideas that can help shape project design, resolve conflicts at an early stage assist in implementing solutions and monitor ongoing activities.

Various techniques are used worldwide to carry out the stakeholder consultation that includes discussions, meetings and field visits. A series of scoping sessions and formal focus group discussions were carried out with environmental experts and individuals. The meetings were held at various locations.

6.6 Key Consulted Stakeholders

The stakeholders consulted in this case are public as well as environmental experts and individuals working in profession of environment. The list of stakeholders consulted and their feedback is given below.

The organizations consulted are as under:

- Chief Inspectorate of Mines Punjab its related field office

- DG Mines and Minerals Punjab, its related field office
- Representative of the Forest Department of the area
- Surface Landowners
- Nearby Village Numberdar
- Mines Labor Welfare Commissioner
- Civil Defense Officer

Each department was contacted to seek wisdom during an interaction of 4-6 man-hours each.

6.6.1 Summary of Concerns of Consulted Stakeholders

The summary of stakes of consulted stakeholders is given below.

- The activities of the project must be studied in detail to assess all the impacts resulting from the project.
- All the environmental parameters i.e., ambient air quality, noise levels and water quality must be kept within permissible limits of PEQS.
- Project specific mitigation measures must be implemented during project's lifecycle.
- A proper Environmental Management and Monitoring Plan should be prepared to reduce adverse environmental impacts.
- Waste management must be taken into consideration (if generated during project activities).
- Management practices suggested in EMMP for solid waste should be implemented during operation of the project.
- The findings of the EIA report must be incorporated into the design and planning phase of the project.
- The EIA report should be compiled appropriately according to reporting style as suggested in Guidelines/Checklist.
- The project holds a good economic circulation. The advantages of the project seem more than its disadvantages. Therefore, the project should be operational as soon as possible

6.7 Environmental Practitioners and Expert

According to the EIA rules and regulations this report will be compiled and submitted to the Environment Protection Department (EPD) and after the review on the report this report will

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

6.8 Affected and Wider Community

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

- **Other Departments and agencies**

Proponent apply other department for approval.

CHAPTER NO # 07

IMPACTS ASSESSING

This section discusses the potential environmental impact for coal mining, methodologies for impact identifications and characteristics of impacts including nature, magnitude, extent and location, timing, duration, reversibility, risk the assessment carried out in this Section is based on potential impacts on overall environmental receptors within the project area.

7.1 Methodology for Impact Identification

The potential impacts due to coal mining can be both positive (beneficial) and negative (adverse) depending on the resources and receptors involved along with other parameters such as geographical scope (magnitude and extent), temporal scope (duration) and reversibility.

It is anticipated that this project will have positive impacts on sectors such as the economy, employment and foreign exchange earnings among others. Moreover, the project is expected to result in negative impacts of short-term duration and transient in nature.

Environmental sensitivity of the project area is described through a thorough review of the project activities and the evaluation of significance of impacts is carried out through Environmental Checklists and GIS and computer expert system. In checklists, the impacts have been given magnitude based on their severity. A detailed map of the project area is developed on GIS to study the impacts on nearby environmental settings. This chapter then suggests effective mitigation strategies to help combat the adverse nature of these impacts and delivers a monitoring scheme to manage them.

7.2 Impacts Analysis and Prediction

The impacts on different environmental settings were analyzed by conducting different consultation sessions with environmental experts and individuals. Their views were recorded and incorporated in the report. The list of stakeholders and individuals consulted will be provided in the chapter of Stakeholder's Consultation.

7.3 Characterization of Impacts

Impacts were characterized for Dhariala on the basis of following parameters:

- **Nature**
- **Magnitude**
- **Extent**
- **Duration**
- **Spatial Boundaries**
- **Reversibility**

The impacts characterization for the project has been given in Table 7-1

Table 7-1 Characterization of Impacts

Environmental Component	Impacts		Nature of Impact		Duration			Spatial Boundaries			Likelihood			Reversibility Risk	
	Positive	Negative	Direct	Indirect	Short Term	Intermediate	Long term	Local	National	Global	Low	Moderate	High	Reversible	Irreversible
Water Resources	**Nil**														
Acid Mine Drainage	**Nil**														
Land Resources	■		■				■	■				■			■
Air Quality		■	■		■			■			■			■	
Climate Change	**Nil**														
Noise		■	■		■			■			■			■	
Solid waste		■	■		■			■			■			■	
Wastewater		■	■		■			■			■			■	
Flora & Fauna	■		■				■	■				■			■
Community Amenity		■		■	■			■			■			■	
Afforestation	■		■				■	■				■			■
Local Economy, Community Development and Employment	■		■			■		■				■		■	
Resettlement	**Nil**														
Health & Safety		■	■			■		■				■			■

7.4 Impact Significance

After the evaluation of all the potential impacts, the impacts significance is be given using Impact matrix. The impacts significance of Physical importance, Ecological importance, Social importance is given using the matrix approach. The impacts significance is given based on the characterization of impacts. From the Table 6-1 which is showing the characterization of each impact the following significance is given to each physical, biological and socio-economic impact

Table 7-2 Significance of Environmental Impacts

Environmental Parameters	Significance
Water Resources	None
Land Resources	None
Air Quality	Require mitigation
Climate Change	None
Acid Mine Drainage	None
Noise	Require mitigation
Solid waste	Require mitigation
Wastewater	Require mitigation
Flora & Fauna	Acceptable
Community Amenity	Acceptable
Afforestation	Acceptable
Local Economy,Community Development and Employment	Acceptable
Health & Safety	Require mitigation

CHAPTER NO # 8

MITIGATION AND IMPACT ASSESSMENT

8.1 Purpose of Mitigation Measure

The basic purpose of mitigation measures is to reduce the impacts of the Construction of M/S Hit Natural Pharma, Located At Rustam Pur Stop, 14 Km Mureedke- Narowal Road, District Sheikhupura, on the socio-environment up to the maximum possible extent. The mitigation measures are suggested based on the following parameters:

8.2 What is the problem?

The proposed project is the establishment Construction of M/S Hit Natural Pharma, Located At Rustam Pur Stop, 14 Km Mureedke- Narowal Road, District Sheikhupura. The project and study area is fertile, leveled and agricultural land. In addition, to the noise and fugitive dust emissions during the development phase solid waste management and disposal issues may arise along with wastewater disposal issues. The major impact associated with the operation of project includes the management of the solid waste and by-products, wastewater, biological hazards, chemical and physical hazards during process.

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

The impacts from the establishment of M/S Hit Natural Pharma, Located At Rustam Pur Stop, 14 Km Mureedke- Narowal Road, District Sheikhupura, will occur during the development and operation due to the civil work involved and the people residing in the project area. These issues included; noise generation, fugitive dust emissions, solid waste management, wastewater disposal, top-soil removal, Health and Safety issues and change in the geographic features of the area. These all problems should be addressed on-site where they are being generated, to avoid the residual or adverse impacts.

8.4 Where problem should be addressed?

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

8.5 How the problem should be addressed?

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

8.6 Ways of Achieving Mitigation Measures?

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

8.6.1 Changing in Planning Design

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

8.6.2 Improved Management and Monitoring Practices

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

a. Compensation in Money Terms

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

project that could be impacted due operation of the Mining Lease of Coal, project Hence, no compensation in the monetary terms will be required. However, for the removal of the one tree from the leased area 3-5 trees will be planted as the compensation along the facility boundary.

b. Replacement/Relocation/Rehabilitation

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

CHAPTER # 9

CONCLUSION AND RECOMMENDATIONS

Pakistan has a very vibrant and dynamic Pharmaceutical Industry. At the time of independence in 1947, there was hardly any pharma industry in the country. Today Pakistan has about 759 pharmaceutical manufacturing units including those operated by 25 multinationals present in the country. Pakistan Pharmaceutical Industry meets around 70% of the country's demand of Finished Medicine. The domestic pharma market, in term of share market is almost evenly divided between the Nationals and the Multinationals.

Although Pakistan's pharmaceutical and healthcare sectors are expanding and evolving rapidly, about half the population has no access to modern medicines. Clearly this presents an opportunity, but much more work needs to be done by the government and industry's stakeholders. It is a knowledge based industry.

Pharmaceutical companies are geographically spread all over Pakistan. Pharmaceutical production units in provinces tend to concentrate in major cities like Karachi, Lahore and Peshawar. Although the numbers reflect that majority of firms are in the province of Punjab, but in terms of production, capacity utilization, volume and size of business, Karachi leads the way as far as pharmaceutical firms are concerned. To show concern with human health a project is designed to produce medicine with the aim to bring healthcare in the country at par with the best in the world, thus truly making a difference in the lives. For this purpose, it's going through a transition phase of modernization to cater local Pharmaceutical requirements

3.10 Conclusions

The major conclusions of the EIA are:

- The project siting is likely to result into some aesthetic issues, which can be reduced but cannot be completely eliminated.
- For the land take for the Hit Natural Pharma unit appropriate compensation will have to be paid to the land owners.
- The potential impacts during the construction phase include soil erosion and contamination, water contamination, vegetation loss, deterioration of ambient air Quality caused by exhaust emissions and kicked-up dust. Noise pollution, damaged infrastructure, safety hazards and public health concerns for the nearby communities.

- The mitigation measures have been identified for the impacts expected during the Different phases of the project.

Based on the recommended mitigation measures in EIA report, the impacts identified will be reduced with residual impacts having insignificant levels.

On the baste of the overall impact assessment, more specifically, nature and magnitude of the residual environmental impacts identified during the present EIA, it is concluded that the proposed project is unlikely to cause any significant, lasting impact on the social, physical and biological environment of the area, provided that the proposed activities are carried out as mentioned in this report, and the mitigation measures included in this report are completely and effectively implemented.

3.11 Recommendations.

Below mentioned measures will be taken during construction and post construction activities to reduce pollution and to enhance environmental beauty of the project.

- Septic tanks/ water treatment plant will be constructed to treat waste water.
- Workers will be provided with Personal Protective Equipment's.
- Tree plantation in and around the project premises
- Storage of construction material within project premises.
- Firefighting arrangements
- Road within the project premises will be sprinkled with water to reduce dust emissions.
- Collection, segregation, storage and disposal of solid waste in environment friendly manner to nearby land fill site.

There are no remaining issues that warrant further investigation, This EIA is considered adequate for the environmental and social justification of the project.

ANNEXURES

Terms of Reference for Environmental Impact Analysis

1.0 Introduction

Lead Enviro Safety Services Pvt ltd has been asked to submit the technical proposal for this project to fulfill the legal requirements under Pakistan Environmental Protection Act 1997 (amended 2012).

Part A- Completion of EIA

2. Environmental Impact Analysis

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

3. Responsibility of Consultant

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

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

1) **Procedure of Environmental Assessment**

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

a. Kick of meeting with client to collect the requisite information regarding project i.e., Design reports, drawings, feasibility study, topographic survey etc. Site topographical surveys and underground reservoir survey reports will be shared by client.
b. Site survey and environmental monitoring of groundwater, noise, wastewater and ambient air quality.
c. Socioeconomic survey of the area.
d. Secondary data collection from district department (Forest, drainage, meteorological)
e. Assessment of environmental and socioeconomic project and mitigation measures

f. Preparation of environmental management and monitoring plan.
g. Environmental assessment report preparation and submission to client for review and comments if any.
h. Follow up of case in EPA till its final Environmental Approval Responsibilities of the Client

Responsibilities of the Client

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

B) Securing NOC and Approval from Govt. Departments

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

Glossary

- **Ambient:** relating to the immediate surroundings of something

- **Base line:** Conditions prevailing at the time of study or before initiation of any project
- **Baseline:** Conditions prevailing at the time of study or before initiation of any project
- **Discharge:** means spilling, leaking, pumping, depositing, seeping, releasing, flowing out, pouring, emitting, emptying or dumping
- **Effluent:** means any material in solid, liquid or gaseous form or combination thereof being discharged from industrial activity or any other source and includes a slurry, suspension or vapor
- **Environment budget**: Monitory assets reserve for environmental activity.
- **Environment:** means air, water and land; all layers of the atmosphere; all organic and inorganic matter and living organisms; the ecosystem and ecological relationships; buildings, structures, roads, facilities and works; all social and economic conditions affecting community life; and the inter-relationships between any of the factors mentioned
- **Environmental Impact Assessment:** means an environmental study comprising collection of data, prediction of qualitative and quantitative impacts, comparison of alternatives, evaluation of preventive, migratory and compensatory measures, formulation of environmental management and training plans and monitoring arrangements, and framing of recommendations and such other components as may be prescribed
- **Fauna:** Animal life occurring in particular region or time.
- **Flora:** plant life occurring in particular region or time.
- **Initial Environmental Examination:** means a preliminary environmental review of the reasonably foreseeable qualitative and quantitative impacts on the environment of a proposed project to determine whether it is likely to cause an environmental effect for requiring preparation of an environmental impact assessment
- **National Environmental Quality Standards:** means the permissible standards for emission of air pollutants and noise and for discharge of effluent and waste
- **Nuisance:** A person, thing or circumstances causing inconvenience or annoyance.
- **pH:** negative log of hydrogen concentration:
- **Proponent:** the person who intends to carry-out a proposed project.

- **Sustainability:** means such developments that meet the needs of the present generation without compromising the ability of future generations to meet their needs
- **Waste:** means any material, substance, or by-product eliminated or discarded as no longer useful or required after the completion of a process

Abbreviation

NCS	National Conservation Strategy
NOC	No Objection Certificate
EA	Environmental Approval
OHS	Occupational Health and Safety
MICS	Multiple Indicator Cluster Survey
mm	Millimeters
EPA	Environmental Protection Agency
IEE	Initial Environmental Examination
EIA	Environmental Impact Assessment
NEQS	National Environmental Quality Standards
EMP	Environmental Management Plan
EMP	Environmental Monitoring Plan
EMPP	Environmental Management and Monitoring Plan
EPO	Environmental Protection Ordinance
ESMF	Environmental & Social Management Framework
GOP	Government of Pakistan
km	Kilometer
m	Meters
NGO	Non-Governmental Organization
BDL	Below Detection Limit
SWM	Solid Waste Management
TMA	Tehsil Municipal Authority
PPC	Pakistan Penal Code
PEPA	Pakistan Environmental Protection Act
NDWQS	National Drinking Water Quality Standards
LAA	Land Acquisition Act
sq mi	Square Miles
PPE	Personal Protective Equipment
MMD	Mines and Minerals Department
CSR	Corporate Social Responsibility
KHB	Khushab
M. Tons	Metric Tons
in	Inches
GLS	Ground Level Surface
MTa	Metric Tons Annually
TPD	Tons Per Day
HSE	Health Safety and Environment

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viii. Bureau of Statistics, Government of Pakistan, Islamabad, *Population Census of Pakistan, 1998*

ix. Pakistan Meteorological Department, Government of Pakistan, Islamabad, *Published Data*

x. Guidelines for Preparation and Review of Environmental Report

xi. Guidelines for Public Consultation

xii. Labor Laws

xiii. Meteorology Department Data (From Website)

xiv. National Environmental Policy

xv. National Environmental Quality Standards (Self- Monitoring And Reporting By Rules, 2001)

xvi. OSHAS 1800 for Health and Safety

xvii. Environmental Protection Act, 2000

xviii. Environmental Protection Agency (Review of IEE/EIA) Regulations 2009

xix. Sectoral Guide Lines for Environmental Reports, Industrial States

xx. The Land Acquisition Act 1894

List of Names, Qualification and role of Team Members

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