ABBREVIATIONS

Acronym	Full Text
ADP	Annual Development Programme
BHU	Basic Health Unit
BOD	Bio CHEMICAL Oxygen Demand
COD	Chemical Oxygen Demand
dB	Decibel
DHQH	District Headquarters Hospital
EFI	Evergreen Chemical Industries
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EMMP	Environmental Management and Monitoring Plan
EMP	Environmental Management Plan
EPA	Environmental Protection Agency
EPD	Environmental Protection Department
ERS	Emergency Response System
ESH	Environmental Safety and Health
GoPb	Government of the Punjab
GoPk	Government of Pakistan
EIA	Environmental Impact Assessment (EIA)
EIAR	Environmental Impact Assessment (EIA) Report
PEQS	Punjab Environmental Quality Standards
NOC	No Objection Certificate
P EPA	Punjab Environmental Protection Agency
PEPA	Punjab Environmental Protection Act
PM	Particulate Matter
PPE	Personal Protection Equipment
RCC	Reinforced Cement Concrete
RHC	Rural Health Centre
SPM	Suspended Particulate Matter
SW	Solid Waste(s)
TDS	Total Dissolved Solids
TSS	Total Suspended Solids
WAPDA	Water and Power Development Authority
WASA	Water and Sanitation Agency
WHO	World Health Organization

EXECUTIVE SUMMARY

ES.1 Title and Location of Project

This document is the Environmental Impact Assessment (EIA) report of the project titled is **M/S EVER GREEN CHEMICAL INDUSTRIES** is located at 5 KM Jaranwala Road Tehsil Shahkot District Nankana Sahib. The title of the project is M/S Ever Green Chemical Industries will be constructed by proponent for fulfillment of legal requirement.

Coordinates of the Project 31°31'52"N 73°29'37"E

ES.2 Name of Project's Proponent

That the proponent namely Muhammad Ashraf S/o Taj Muhammad R/o Ward No. 6, Mohalla, Iftikhar Colony, Nankana Road, Shah Kot, District Nankana Sahib bearing CNIC No. 36601-6029826-3 being Proponent/Owner of M/S Ever Green Chemical Industries and this unit/project shall be used for agricultural purposes. The Industry situated at 5 KM Jaranwala Road Tehsil Shahkot District Nankana Sahib. The proponent will carry out all necessary acts and activities in relation to the project's construction and the subsequent operation including procurement and producers to different vendors. The proponent will take all necessary steps for hiring services of various personnel staffs pertaining to project.

ES.3 EIA Study Team

"Environmental Consultants & Associates", who are the leading Environmental management consultants have prepared the report in accordance with the applicable rules, regulations, guidelines and provisions of other relevant laws in vogue. Green Revolution have their Head Office at Hatif Chambers, Ground floor, 9 Fane Road, Lahore

Team detail

Sr. No.	Name	Designation
1.	Mr. Wasif Ali M. Sc. (Environmental Engg.)	Environmental Engineer for specific design (Joint Venture with ECA)
2.	Miss Humaira Yasir M.Sc. (Environmental Science) The University of Punjab 2006-2007	Environmental Manger
3.	Miss Haleema Qayyum M. Phil Environmental Science	Environmentalist
4.	Miss Rehma Waseem Lone B.Sc. Environmental Science Kinnared College, Lahore	Environmentalist
5.	Miss Javerai Mushtaq M. Phil Environmental Science	Environmental Science
6.	Kamarn Haider M.S.(Environmental Science)	Environmental Engineer
7.	Miss Seemab Aslam Advocate High Court	Environmental Lawyer

ES.4 A Brief Out Line of the Project

The proponent intends to establish / construction of Chemical Industry under the name of name and style M/S Ever Green Chemical Industries situated at 5 Km, Jaranwala Road, Tehsil Shahkot District Nankana bearing khewat No. 13, Khatooni No. 55 Qitta No. 20. The Total Area of project land is measuring 10 Kanals. The Project Coordinates of the Project 31°31'52"N 73°29'37"E

Detail of schedule area

Total Area	10 Kaanls
Open area	48740 Sft
Covered area	5660 Sft

The plant will produce zink sulphate

The plant in charge is a qualified Chemical Engineer with more than 25 years of practical experience. He is supported by a team of Engineers. MSc and BSc / F.Sc and Diploma holders in Chemical Technology for the smooth operation of the plant. The total estimated cost Rs.8 *Mill*ion will be incurred on project including land, construction, machinery and infrastructure development. Zinc Ash which is obtained mostly from the galvanizing Industry having varying quantity of zinc of zinc contents is reacted with Sulphuric Acid to produce Zinc Sulphate solution. The solution is allowed tosettle, decanted and filtered before heating in coil evaporators. The concentrated liquid this obtained is drained into collecting pits. The crystal of Zinc Sulphate heptahydnate are formed upon cooling and seprate shaded platform. One dried up the hepta Zinc Sulphate is heating in rotary dyers to produce the desired quality of Zinc Sulphatemonohydrate.

The product is collected stored and packed in 5kg plastic bags, Two such bags are placed in Woven polypropylene bags to make a 10 kg unit pack. The plastic bags are duly sealed and the Woven polypropylene bag is sewan up before dispatch or shifted to product storage as per required. The proponent will have installed dry scrubber to control dust and air emission all raw materials are consumed fully in the manufacturing process, there will not be any generation of the process solid wastes from the plant. The plant has the requisite infrastructure for the storage and handling of the raw materials, finished products, and other essentialities for manufacturing of good quality Chemical The designed production capacity of the plant will be 100 tonnes. However, installed capacity of the relocatedplant at SIE is only 65 metric tonnes per day. Whereas, the actual on ground production capacity will be 40 tonnes.
A large storage hall with RCC Roof and cemented floor is available for storage of packed product. The storage capacity (50'x70' x20') is sufficient to accommodate over 100 tonsof packed product. The storage hall has an gate for

fully protection against damage due to any reason. The Management M/S Ever Green Chemical Industries will provide proper security within the unit premises. No visitor shall be allowed to enter into the unit without wearing proper uniform. Extensive plantation shall be done to improve/enhance the Environmental scenario of the unit. The factory will be worth seeing and model for the others
The project will operate in compliance with national Environmental quality standard (PEQS) Pakistan. A adequate fir fighting facilities are available at the manufacturing and storage sites. The fire-fighting system covers fire detection and protection system for the a project. The system will include the following

- Fire-fighting water supply system
- Outdoor hydrants system
- Indoor door hydrants system
- Fixed water spray system
- Fire Extinguishers
- Foam fire-fighting system
- Gas fire-fighting system
- Fire detection and alarm system

The Management of M/S Ever Green Chemical Industries project will adopt Environmental control technique It is hoped that findings of the instant Evergreen Chemical. EF will help in avoiding and averting the negative impacts of the project an Environmental friendly and Environmental compliant facility.

5. The Major Impacts

The overall impact of the Project can be considered positive. However, it may pose someminor and moderate negative social and Environmental impacts which will require proper mitigation measures during constructional phase.
Therefore, the intended mitigation measures are directed towards mitigation of the identified adverse impacts. Because of generation of small amounts of wastes, there will not be any significant Environmental and social impacts of the project facility

- Likelihood of relatively higher local dust levels from engine exhausts of the vehicles employed for transportation of materials and machinery to the project site
- Likelihood of higher local levels of drag dust blowing off wheels of the moving vehicles on the unpaved and poorly maintained roadway to the project site
- Likelihood of backend Impacts relating to consumption of natural resources including water for various process and non-process operations

- Likelihood of backend Impacts relating to consumption of manmade resources including synthetic plastic.
- Likelihood of impacts relating to generation of sanitation wastewater from toilets and washrooms at the project facilities only if disposal is improper
- Likelihood of impacts relating to disorderly stacking of the various building materials (as a rule haphazard stacking of various materials can cause inconveniences of movement from obstruction of the walkways)
- Likelihood of Impacts relating to steel fixing and fabrication activities (as a rule, steel fixing activities are associated generally with generation of noise which may be annoying for the nearby community)
- Likelihood of various socio-cultural impacts relating to rights of easement, ventilation and opportunities of job and employment. Similarly, there could be frictions with the locals from interaction of the labourers with the local community.
- Likelihood of impacts relating to occupational health, worksite safety and non- insurance of the workers against the risks of on the job injury and resultant consequences

There will be some generation of the ordinary food-based wastes and food residues resulting from consumption of food and eatables by the workers taking their meals at the project site. Additionally, there will be generation of sanitation wastewater from theworksite toilets at the project premises. A brief description of the various likely impacts follows hereunder:

- **Impacts of land use change**: The project land belongs to the proponent. Therefore, construction of the project would not involve acquisition of any additional land. Moreover, the land earmarked for the project construction is already lying fallow. Therefore, construction of the project would not involve any land use change, (***Activity devoid of any Environmental or social impact***).

- **Loss of livelihood and structural damages**: Construction of the project on the available land will not involve any loss of livelihoods of the neighboring residents, landowners or farmers as the project land is wholly under occupation and possessionof the project proponent. Furthermore, construction of the project on the land own and possessed by the proponent will not result in structural damage to any adjacent privately owned structures (***Activity devoid of any Environmental or social impact***)

- **Cutting and removal of trees and crops**: No impacts relating to cutting or removal of trees and crops, as the project will be constructed on a empty clear plot. Therefore, no cutting of trees is involved. There are no standing crops or trees at the project site. On the other hand, the proponent intends to plant large number of trees at the project site as a part of external development and beautification of the project site.

- In nutshell, establishment and of the project will not cause any damage to local biota (***Aspect/Activity devoid of any adverse Environmental or social impacts*****)**

- **Impeachment of the easement rights of the local community**: No impacts relating to impeachment of the easement rights of the neighbors (such as blockage of sunlight, aeration and ventilation), as the project will be constructed deep inside the earmarked land. Furthermore, the height of the structures to be constructed under the project will not affect any of the natural enjoyments of the neighbours *(**Aspect/Activity devoid of any adverse Environmental or social impacts**)*

- **Impacts on groundwater**: Very minimal and insignificant impacts relating to abstraction and consumption of groundwater. Additionally, small amounts of freshwater are required for drinking by the staff employed at the facility premises. Another usage is for sanitation needs at the washrooms, toilets, and closets. However, consumption and usage of water on this account will be quite minimal. As such, there is no evidence of spendthrift usage of freshwater at the project site at all. *(**Aspect/Activity devoid of any adverse Environmental or social impacts**)*

- **Impacts on surface water**: No impacts on the nearby surface waters as the construction and the subsequent operation of the project will be devoid of any interaction with the surface waters of the area, whatsoever *(**Aspect/Activity devoid of any adverse Environmental or social impacts**)*

- **Impacts of inadequate treatment and disposal of wastewaters**: No impacts relating to generation, inadequate disposal and treatment of the wastewaters as the project activities will not generate any wastewaters or effluents at all. Only negligible amount of the sanitation wastewater will be produced from the worksite toilets during construction and operation. *(**Aspect/Activity devoid of any adverse Environmental or social impacts**)*

- **Impacts of inadequate disposal of the MSW**: No impacts relating to generation and disposal of municipal solid wastes (MSW), as there will not be any generation of MSW at the project facility at all. Only negligible amounts of the ordinary MSW are expected to generate occasionally from the eating activities by the workers at the project site. This will be disposed of through the

  local MSW management system as and when produced. The ordinary food based MSW will not produce any adverse Environmental impacts because of extremely small amounts. Hence, there will not be any Environmental impacts, whatsoever, relating to generation of MSW *(**Aspect/Activity devoid of any***

adverse Environmental or social impacts)

- **Likelihood of worksite risks and personal injuries**: Non-observance of the standard procedures and steps for carrying out a particular activity and non-compliance of the precautionary measures (like smoking on worksite, wearing loose clothes and avoiding to put on safety equipment) may render the workers prone to higher chances of worksite and industrial accidents. It is imperative that all workers performing various handling activities must put on safety equipment and the right kind of dress while on work ***(Aspect/Activity devoid of any adverse Environmental or social impacts)***

- **Likelihood of land instability and land sliding**: No impacts as this aspect are totally irrelevant to the project's geographical settings. Therefore, there is no likelihood of soil instability and land sliding from any of the activities at the project facility ***(Aspect/Activity devoid of any adverse Environmental or social impacts)***

- **Impacts on local ecology, biodiversity and the habitat**: No impacts as this aspect are totally irrelevant to the construction of project and because of its geophysical location. None of the construction or operation activities are likely to produce any sort of adverse Environmental impacts on the local ecology. Similarly, owing to the project's geophysical settings in an established industrial estate, there is no likelihood of damage to the local flora and fauna ***(Aspect/Activity devoid of any adverse Environmental or social impacts)***

- **Displacement & resettlement issues**: No impacts, as this aspect is totally irrelevant to the project construction, other complementary activities. Onsite activities relating to project will not cause displacement of any persons or loss of the workplace or abode (***Aspect/Activity devoid of any adverse Environmental or social impacts***)

- **Social and cultural issues**: No negative impacts, as this aspect is totally irrelevant to the activities relating to construction and operation of the project facility. The project will not interact with any of the nearby local communities. Hence, no chances of social frictions and conflicts over cultural practices of the locality

- ***(Aspect/Activity devoid of any adverse Environmental or social impacts)***

A detailed account of the genesis of the above-referred adverse impacts, their potentiality to affect the ambient Environmental and the measures for their mitigations has been presented in this EIA Report. However, it would be suffice here to state that if the project activities at the site are carried out in a sustainable manner and in accordance with recommendations of the EMP and other relevant mitigation measures, as are given in this EIA study; then the majority of these

adverse impacts would become insignificant and of no relevance at all.

ES.6 Recommendation for mitigation Measures

The report details a set of comprehensive mitigation measures and strategies for avoiding and countering the adverse Environmental and social impacts of the project. In addition to the preventive measures for warding off the adverse impacts, corrective measures have also been suggested for all and various project activities at the facilitysite to address the adverse impacts. The majority of the mitigation measures, as suggested in the EIA Report. The report containing a set of comprehensive mitigation measures and the strategies for avoiding and or addressing the adverse Environmental impacts of the project's construction and subsequent operation phases. Unwanted water usage during construction can be avoided by relying on conservation practices on water use, such as curing the masonry and concrete structures with wet gunny wraps instead of direct showering of water streams on them. And by fitting auto shutoff taps and equipment. Impacts on surface- and ground-water quality can be mitigated by avoiding direct discharge of the untreated sanitation effluents onto lands and or into freshwater channels

The mitigations relating to construction stage of the project at its former site included thefollowing:

- preparation of the tailored checklists for checking propriety of each and everyactivity in a systematic manner
- identification of alternate routes in case of temporary blockade of the approachroad
- isolating the worksite with some dense material
- orderly stockpiling of the construction materials
- preferring to carrying out noisy activities during daytime hours, and
- Ensuring worksite safety during installation of machinery and equipment, etc.

The proponent will be taken appropriate measures for the worksite safety, and Therefore, no impacts relating to construction of project and consequently no mitigations measures required.

ES.7 Proposed Monitoring

A stringent monitoring regime has been proposed for the entire project life of the unit. In order to ensure infallible and quality monitoring, formulation of a smart and efficient Environmental Safety & Monitoring Unit (ESMU) has been proposed. The ESMU will be headed by a qualified person having due knowledge of the worksite Environmental safety. In addition to regular and round the clock internal monitoring by the ESMU, an agreement will be made with "Green Revolution" for a long term and regular annual as well as special external Environmental audits, inspections and monitoring.

The monitoring and reports, both of the internal as well as of the external audits, will be submitted to the concerned quarters, if, so and when desired. The proposed Environmental monitoring is an essential tool for testing Environmental performance of the project and ascertaining whether Environmental mitigation recommendations are meeting their goals. The prime objectives of the Environmental monitoring are:

- To check whether mitigation and Environmental enhancement measures are adequate, effective and are actually implemented
- To ensure compliance with legal and community obligations including observance of safety procedures at the construction sites
- To provide the means whereby impacts which were uncertain at the time of preparation of the report, or which could not be assessed, can be identified and steps taken to adopt appropriate corrective measures.
- To improve the approach for alike projects, i.e, to provide information on the actual nature and extent of the key impacts and effectiveness on mitigation and enhancement measures in order to improve the planning and execution of similar projects in the future

  The implementation and success of the EMMP will be verified through compliance monitoring of the various project activities and the recommendations of the monitoring plan. The primary purpose of the Environmental compliance monitoring or the post project auditing is to ensure that the process operations at the project remain in consonance with the mitigation measures and the terms and conditions of the Environmental Approval issued by the EPA-Pb.

ES-8 Conclusion

In conclusion EIA of the project shows that with adoption of the proper Environmental management and mitigation measures, the project will not have any adverse impact on any element of Environmental or the surrounding communities .Therefore, no Environmental or Social Impact Assessment is

required for this project. Consultants accordingly recommended without any reservation that No objection certificate (NOC) may be issued in favour of proponent allowing the commencement of the project

CHAPTER No. 1

INTRODUCTION

This Report presents the Environmental Impact Assessment (EIA) Study for the construction of project name as "**M/S Ever Green Chemical Industries** is located at 5 KM Jaranwala Road Tehsil Shahkot District Nankana Sahib. This study has been carried out to estimate the likely Environmental and social impacts during construction and identify proper mitigation measures for reducing the adverse impacts onEnvironmental.

1.1 Purpose of Report

The purpose of the instant report is to present a comprehensive Environmental Impact Assessment (EIA) of the evergreen Chemical unit. The proponent intends to establish small scale Chemical unit at District Nankhana sb. The primary objective of this Environmental and social impact assessment study relating to unit evergreen Chemical is to examine, compare, review and analyses the already identified Environmental and social impacts on various Environmental parameters. To make a preliminary Environmental review of the reasonably foreseeable qualitative and quantitative impacts on the Environmental, if any, from manufacturing operations at the instant unit and to determine whether continuation of operations of the plant has caused or will cause any adverse Environmental effects on the ambient Environmental. Another objective is to review the already proposed mitigation measures with respect to their relevance, efficacy and adequacy in addressing the identified impacts of the project and to suggest appropriate modifications therein, if so warranted. The nature of the Environmental and social impacts of the original project. The operational activities at the relocated Plant relating to storage of raw materials, mixing and curing of the primary product, granulation of the finished product and packing of the product shall essentially remain the same. They will have the same Environmental and social impacts as at theprevious location. Therefore, the underlying objective of this report is only a comparative screening, scoping and assessment identified impacts at the project. Another objective isto carry out a comprehensive and all-encompassing review of the Mitigation Guidelines. n doing so, the EIA Report presents a critical review of the activities and processes relating to plant operations. The report presents a review the nature, magnitude and implications of the Environmental and social impacts of operation of the plant against the standard Environmental parameters as prescribed under the Provincial Environmental Quality Standards (PEQS).

The Environmental and social impacts of the various operational activities in relation to operating of the unit all during its operational life is the key focus area of the EIA. Besides evaluating the Environmental profile of the site, plant and the operations, the report outlines a comprehensive mechanism for addressing the various likely Environmental and social concerns particularly those relating to operatingof the plant. It is hoped that findings of the instant EIA Report

will help in avoiding and averting the negative impacts of the project's relocation to render it an Environmental friendly and Environmental compliant facility.

- The main objectives of this Environmental Impact Assessment (EIA) Report are to identify the baseline Environmental, biophysical, and socio-economic conditions, to examine project alternatives including alternate sites, and to study the potential impacts along with formulation of suitable mitigation measures for an Environmental friendly implementation of the project site and around the project area. The purpose of the EIA study is to identifythe possible beneficial and adverse Environmental impacts as presently envisaged and propose the practical mitigation measures to be implemented during construction of the Project to minimize the negative impacts of the unit. The specific stages and purpose of EIA are Review of available documents;
- Overview of different Project Alternatives;
- Collection of baseline data related to physical, ecological and social domains ofEnvironmental;
- Evaluation of Project impacts on Environmental and social settings; Suggesting mitigation measures for adverse impacts;
- Preparation of Environmental Management Plan (EMP); and Preparation ofReport.

The report provides relevant information, as required under the officially approved format, to help the decision makers i.e. EPA Punjab before issuing the Environmental Approval.

1.2 Identification of Project and Proponent

a. Project Site

M/S Ever Green Chemical Industries Unit is situated at 5 Km Jaranwala Road Tehsil Shahkot District Nankana Sahib.

b. Contact Person

Muhammad Ashraf S/o Taj Muhammad R/o Ward No. 6, Mohalla, Iftikhar Colony, Nankana Road, Shah Kot, District Nankana Sahib bearing CNIC No. 36601-6029826-3 is the principle proponent of the project.

1.3 Project's Environmental Consultant

M/S Environmental Consultants & Associates are the accredited consultants for conducting a detailed and in-depth EIA of operating of the plant in accordance with the rules, regulations, guidelines and provisions of relevant laws in vogue.

The below named persons will act as the Focal Persons for and on behalf of the Proponent and Consultants and present this project in EPA.

Team detail

Sr. No.	Name	Designation
1.	Mr. Wasif Ali M. Sc. (Environmental Engg.)	Environmental Engineer for specific design (Joint Venture with ECA)
2.	Humaira Yasir M.Sc. (Environmental Science) The University of Punjab 2006-2007	Environmental Manger
3.	Miss Javerai M.Phil. Environmental Science	Environmental supervisor
4.	Miss Rehma Waseem Lone B.Sc. Environmental Science	Environmentalist
5.	Miss Haleema Qayyum M. Phil Environmental Science	Environmentalist
6.	Mr. Kamara Haider M.S.C Environmental Science	Environmental Engineer
7.	Miss Seemab Aslam LLB. Advocate High Court	Environmental Lawyer

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

The project essentially is a Chemical mixing unit (zinc sulphat) manufacturing) unit. The main processing operations include Zinc Ash which is obtained mostly from the galvanizing Industry having varying quantity of zinc contents is reacted with Sulphuric Acid to produce Zinc Sulphate The product include zinc sulph and other allied products. The management will be installed requisite machinery and equipment for manufacturing of the intended products and the production operations.

The processing and production activities consist of receiving of all necessary raw materials, their quality check and storage followed by their consumption utilization in the requisite ratios, as per the standard and applicable formulary in order to produce the products of requisite quality and standards. Coordinates of the Project 31°31'52"N 73°29'37"E As far as Chemical are concerned, some of them are manufactured locally and therefore an indigenous produce of the country. However, some other are not produced in the country and therefore imported from abroad. Depending on the process operations, some of the Chemical are consumed fully in the manufacturing process. Whereas, some are consumed only partially. Accordingly, residue Chemical, which are not consumed fully, cab be present in the effluent coming out of the factory.

The concentrated liquid this obtained is drained into collecting pits. The crystal of Zinc Sulphate heptahydnate are formed upon cooling and seprate shaded platform. One dried up the hepta Zinc Sulphate is heating in rotary dyers to produce the desired quality of Zinc Sulphate monohydrate.

The product is collected stored and packed in 5kg plastic bags, Two such bags are placed in Woven polypropylene bags to make a 10 kg unit pack. The plastic bags are duly sealed and the Woven polypropylene bag is sewan up before dispatch or shifted to product storage as per required.

The storage capacity (50'x70' x20') is sufficient to accommodate over 100 tons of packed product. The storage hall has an MS gate for fully protection against damage due to any reason.
As per findings of the EIAR, there will not be any serious or irreversible Environmental impacts of the production and process operations at the plant. Any adverse impacts, if found later, other than those identified and given in the EIAR, can be made good by implementing the recommended mitigation measures and the Environmental management and monitoring plan, as given in this EIAR. On the other hand, continuation of the plant is highly beneficial for the proponent, Environmental, economy and the community at large, as it is providing opportunities of jobs, employment and earnings for large number of people of the nearby and distant areas.
The findings of the EIA further show that continuation of the plant will immense advantage and benefit for the people, industry, economy and the country. The EIAR shows that there was not any unnecessary and exhaustive exploitation and consequential depletion of the local natural resources from operational activities of the plant. In view of the limited and calculated scope and magnitude of the process operations of the plant, the local resources shall remain conserved and available for sustainable future development. The plant has therefore brought-in abundantly positive and healthy improvements in the socio-economic profile of the area. The plant has benefitted hundreds of ordinary citizens, people, businesspersons and others, locally as well as distantly.
The premises will have a dedicated and in always ready to use fire fighting system consisting of a centralized water showering system as well as standalone fire extinguishers, to be placed at key points at the premises.

Size: 10 Kanals (khewat No. 13, Khatooni No. 55 Qitta No. 20)

Location:

The project site of M/S Ever Green Chemical Industries located at 5 Km, Jaranwala Road, Tehsil Shahkot District Nankana sahib The geographical coordinates of the site are 31º31'52."N & 73º29'37"E. A adequate fir fighting facilities are available at the manufacturing and storage sites.

1.5 Need For Environmental Impact Assessment (EIA)

Clause 12 of Punjab Environmental Protection Act 1997 (PEPA-97), stipulates that the "Proponent of any development Project will have to submit Environmental Assessment Report (EIA or EIA, whichever is applicable) to the concerned Environmental Protection Agency to obtain its approval prior to start of construction and operation of the Project". Construction of this project has been judged to fall under Schedule 1 of EIA/EIA Regulations 2000 and requires submission of EIA Report prior to construction. To ensure compliance with the lawful provisions of section 12 of PEPA 1997, rules and regulations made there under, this EIA Report has been prepared for obtaining Environmental approval under section 12 of PEPA 1997 from EPA Punjab.

1.6 Objectives and Scope of Work

The main objectives of the study are to identify the Environmental impacts due to the construction of the project and to suggest appropriate measures to mitigate the adverse impacts of this project. The primary objective of this Environmental and social impact study relating to the boilers / chickens production unit of M/S Ever Green Chemical Industries is to examine, compare, review and analyses the identified Environmental and social impacts on various Environmental parameters. Another objective is to review the mitigation measures with respect to their relevance, efficacy and adequacy in addressing the identified impacts of the project and to suggest appropriate modifications therein, if so warranted.

Another objective is to carry out a comprehensive and all-encompassing review of the Mitigation Guidelines and the Environmental and Social Management and Monitoring Plan (ESMMP).

The scope of the work for the EIA study can be summarized as under:

- Identification of the existing physical, biological and socio-economic aspects.
- Identification of probable impacts of the Project
- Determination of the significant impacts during construction
- Recommendations for the implementation of mitigation measures
- Development of a detailed Environmental Management Plan (EMP)

It is hoped that findings of the instant study will help in avoiding and averting the negative impacts of the project to render it an Environmental friendly and Environmentally compliant facility.

1.7 Approach and Methodology of EIA Study

EIA is conducted under the legal framework of Punjab Environmental Protection Agency (PEPA). As per legal requirements, the Project will be reviewed in the light of the provisions of Pakistan Environmental Protection Act, 1997 and Pakistan Environmental Assessment Procedures, issued by Punjab Environmental Protection Agency (Punjab EPA). Secondary information for this EIA Study was collected from relevant departments/personals and literature to establish physical, socio-economic and Environmental profile of the Project Area. Relevant secondary information available with the proponent on the physical, technical and institutional aspects of the Project was also utilized. Architect and Engineers of the Project were also consulted for obtaining information about various features of the Project.

Interviews and direct consultations with the stakeholders. The secondary sources of data and information included the office record of the Proponent, information on the project as available with the EPA-Pb, relevant websites and a few other similar sources of information.

1.8 Environmental, Social & Disaster Management & Monitoring Plan (ESDMP)

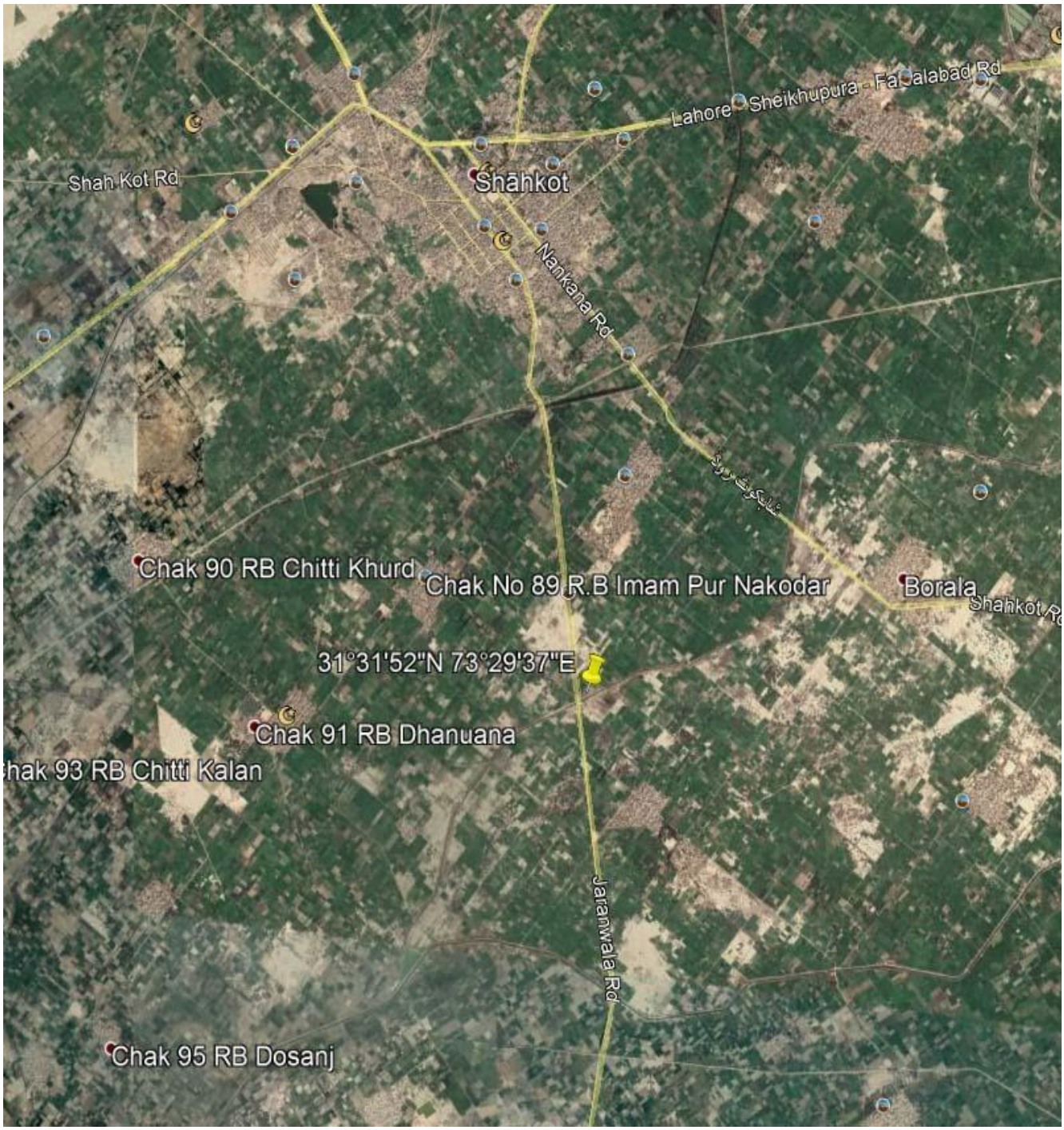
The Environmental, social & disaster management & monitoring plan (ESDMP) provides a mechanism for implementing the preventive and mitigatory measures in the form of suitable Environmental guidelines

The main objectives of the ESDMP are firstly to prevent, and wherever it is not possible, to attenuate the adverse impacts to an acceptable level by adopting suitable administrative and or technical options. The key components of the ESDMP include the Environmental and social guidelines to be implemented by the project authorities, the construction contractor and all others concerned. The ESDMP also outlines the institutional setup for implementing the mitigation guidelines i.e., designating a focal person by the proponent (usually the project's Environmental Manager) for managing Environmental and social impacts of the various project activities at the appropriate managerial levels.

1.9 Study Methodology

This study of the assessment of the Environmental and social impacts of relocation of the project has primarily relied on the process operations data and information as contained in the project. However, wherever so required, additional data and information has been gathered through various additional sources, which included visiting the project site by the Consultant's Team of Professionals for evaluating the impacts with relation to project's location and its surroundings. The Team also obtained the requisite information from the key persons of the proponent, like the project manager, finance manager and the engineering staff at the project site. Besides, the Team also consulted various other stakeholders including officers of the EPA-Pb. Interviews and direct consultations with the stakeholders have been used as the preferred mode of soliciting their viewpoint and to learn about their concerns, if any, over relocation of the plant. Consultant's Team of professionals used the same impact assessment matrix for characterizing impacts on the selected parameters of the physical, biological, and the social Environmental, as had been used for the EIA Report.

The secondary sources of data and information included the office record of the Proponent, information on the project as was available with the EPA-Pb, relevant websites and a few other similar sources of information.


Lahore Sheikhupura - Faisalabad Rd
Shah Kot Rd
Shahkot
Nankana Rd
Chak 90 RB Chitti Khurd
Chak No 89 R.B Imam Pur Nakodar
Borala
31°31'52"N 73°29'37"E
Chak 91 RB Dhanuana
Jaranwala Rd
Chak 95 RB Dosanj

Chapter No 2

DESCRIPTION OF PROJECT

2.1 Type and Category of Project

The proponent of project intends to establish Chemical products. Project falls under the category of project requiring an Environmental Impact Assessment (EIA) for its Environmental approval under section 12 of the Act. The project falls in the EIA/EIA Regulations, 2000 notified by Government of Punjab. Now coming to the Punjab Environmental Protection Agency(*Review of EIA and EIA) regulations, 2000,* Projects requiring an EIA the Regulations Governing the functioning of the EPA's with respect to the EIA and EIA reports. Section 12 of the Punjab Environmental Protection Act (PEPA), 1997 makes it mandatory for the proponent of a project to file with the concerned Environmental Protection Agency (Provincial) either an Environmental Impact Assessment (EIA) or Environmental Impact Assessment (EIA), as the case may be, in respect of the project.

2.2 Objectives of the Project

The primary objective of this supplementary limited Environmental report unit is to examine, compare, review and analyses the already identified Environmental and social impacts on various Environmental parameters as a result of shifting from former location to the present site. Another objective is to review the already proposed mitigation measures with respect to their relevance, efficacy and adequacy in addressing the identified impacts of the project and to suggest appropriate modifications therein, if so warranted. Regardless of relocation, the nature of the Environmental and social impacts of the original project and the relocated project, because of similarity of the operational activities and processing steps, will remain almost the same. Like the original project, the operational activities at the relocated Plant relating to storage of raw materials, mixing of the rock phosphate with sulphuric acid, curing of the primary product, granulation of the finished product and packing of the product (Single Super Phosphate Chemical) shall essentially remain the same.

They will have the same Environmental and social impacts as at the previous location. Therefore, the underlying objective of this SL-EIA is only a comparative screening, scoping and assessment of the differences in the identified impacts at the two locations, if any. Another objective is to carry out a comprehensive and all-encompassing review of the Mitigation Guidelines and the Environmental and Social Management and Monitoring Plan (ESMMP) of the original Plant and its updating and dovetailing to the relocated Plant.It is hoped that findings of the instant SL-EIA will help in avoiding and averting the negative impacts of the project's relocation to render it an Environmental friendly and Environmentally compliant facility.

2.3 Alternatives Considered and Reasons For Their Rejection

The consideration of alternatives to any project is one of the key aspects of an Environmental study. Consideration of the alternatives provides for the examination of different options to achieve a stated objective and assist the decision makers in the choice of the best option, which has the least adverse and the greatest beneficial Environmental, social, and economic consequences. Different alternatives sites considered for the M/S Ever Green Chemical Industries project by the Proponent**.** Keep the following points in mind while selection of project site.

- Minimum Environmental adverse impacts
- Minimum resettlement and land acquisition
- Cost effective solution

Site A

This site is located at area of Sheikhupura. The proponent looking land for its project in Sheikhupura but he rejected the land due to following reasons.

Reasons of Rejection

The complete land is not available for its project.

- The owner of neighboring land was not willing to sale.
- Such land is very costly.
- The access to road is not easy available for project.

Site B

The proponent also considered the land for its project in Tehsil Jaranwala District Faisalabad. But Proponent also rejected the second option due to dire reason for its project.

Reason of Rejection

- Area fall within the residential sector
- Area was too congested
- Involved rehabilitation and relocation of the locals.
- Traffic jam during peak and rush hours.

Location of Present Site

The present site of project *M/S EVER GREEN CHEMICAL INDUSTRIES* situated at 5 Km Jaranwala Road Tehsil Shahkot District Nankana Sahib best option for proponent because a critical analysis was made based on the available accessibility with Reference to land availability, accessibility of site, availabilityof water resources, less damage to existing Environmental and other Environmental problem. Finally selected present site of a project is more practicable with respect to economic, social and Environmental perspective and future development. Some of the factors that were kept inmind during site selection for a project.

Groundwater vulnerability

- Access to an ample supply of suitable water Access to power and all weather roads
- Suitability of soils and topography for a project construction

- Access to suitable areas
- Location in relation to labor force, grain and processing works.

A suitable site in terms of land availability, access to it, basic infrastructure available in the area and potential for future growth along with the level of Environmental sensitivityof the area, keeping all these factors in view the site has been finalized for Chemical Unit as the land is with no residential colonies and thus does not involve any expenses of compensation.

The selected site for the project is Agricultural as per TMA Nankana Sahib record. In the surrounding there is agriculture area of the proponent. Therefore, the land selected is best suitable for the development of project. There is no alternative site available or specified by the proponent as the proponent has already owned the a site for ages and the site is surrounded by an agricultural land which is suitable for such kind of project.

2.4 Location and Site Layout of Project

The site is a vacant and available piece of land owned and possessed by the proponent on 5Km Jaranwala Road Tehsil Shahkot District Nankana Sahib. The geographical coordinates of the site are 31°31'52."N & 73°29'37"E.. **Fig** are a few Google Earth images of the site. The Location map and site layout of project is annexed at the end of report.

2.5 Land Use of Site

The land use of the site is agriculture as the site is already earmarked for setting-up of the Chemical plant here. The site is a vacant and available piece of land owned and possessed by the proponent on 5 KM Jaranwala Road Tehsil Shahkot District Nankana Sahib.

The land use of the site and of the surroundings is mixed agricultural, commercial, industrial and residential.

The site is surrounded all around by open land except on east, on which side it touches the main road.

2.6 Road Access of Project Site.

The site is accessible by Jaranwala road. The main Nankana Road is a dual carriageway highway and links the site with various important and key destinations at 5 Km Jaranwala Road Tehsil Shahkot District Nankana Sahib

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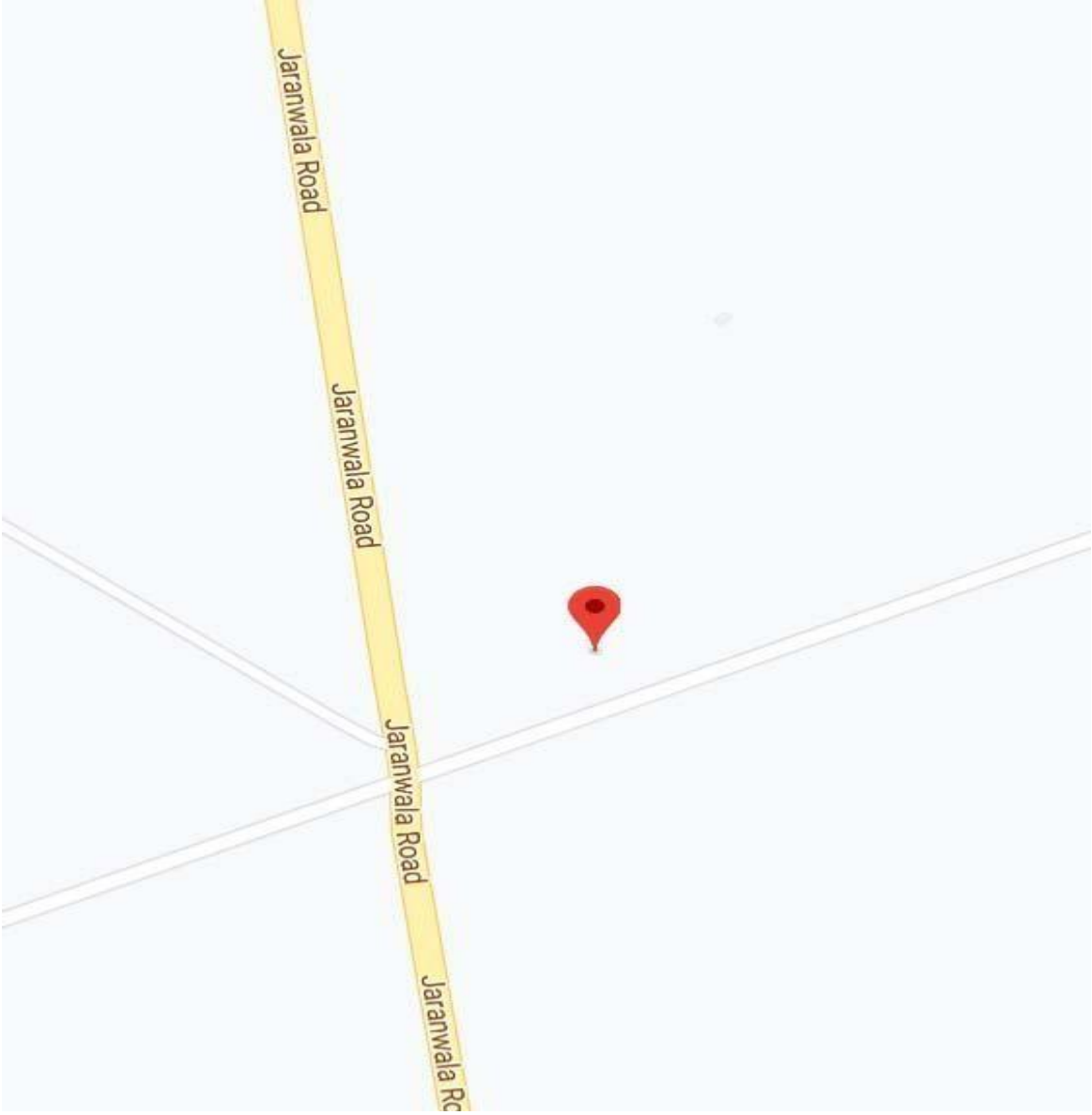


2.7 Vegetation Features of the Site

Vegetation is the outcome of the habitat, Environmental condition and existing biotic influences. The present study describes the existing vegetation structure, species diversity and soil-plant relationship. Vegetation Aquatic vegetation includes Carer fedia. Chara sp. Cynodon dactylon, Hydrila verticillata, Juncus sp., Phragmitcs karka, Potamogeton spp., Saccharwn spp.,

Typha angustata and Zannichellia palustris. Surrounding areas are mainly under cultivation for cotton, rice, wheat, and sugar cane. The natural vegetation of the surrounding plains is tropical thorn forest with species such as Tamariz aphylla, Prosopis cineraria, Zizyphus mauritiana, Z. nununularia, Acacia nilonca,

Crotolaria burhia, Aerua javanica, Suaeda frwicosa, Salsola foetida, Eleusine conrpressa and Panicwn antidotale. Pennisetum typhoides and Triticwn aestivwn arc widely cultivated.The findings will help ethno botanists, Environmentalists, ecologists to work in area. The vegetation of any area can be described at various scales and in varying degrees. For a large area, the vegetation can usually only be described generally, e.g., the broad vegetation formations, such as forest, woodland, shrubland, grassland, and wetland, along with the dominant cover species, e.g., white spruce forests, alder shrublands. The vegetation of a small area can be inventoried in a reasonable period of time, although even in such cases, certain limits are placed on the inventory, e.g., only sampling the vascular plants and other plant life forms growing in and on the soil. For the data that is used in the CNVC, the following criteria are placed on the sample plot inventory: Vegetation stands uniform in the vegetation cover and the habitat conditions are selected and a sample plot is located within the stand. The result is a set of sample plots for a vegetation type that quantify the range of floristic composition within the type, and of site conditions that repeatedly produce the type on the landscape .

The plots are classified using a classification analysis procedure The vegetation component suggested it to be sub-tropical chir pine forest Adhatoda, Carissa, Maytenus increase under continuous, deforestation and overgrazing**.** There is a central ridge, in the centre of District Nankana Sahib , and the boundary b/w the eastern and western half of the district, the subsoil water is brackish, therefore the area is dependent on canals for irrigation. However the subsoil water is sweet and good for agriculture.

2.8 Cost & Magnitude of Operation

Cost:

Around Rs. 8 million (Eighty Lacs) approx. including cost of land and machinery

The estimated total cost of the project is about Rs.8 million.

Details are as below:

Land investment estimated	4.0 million
Machinery equipment	2.2 million
Construction	1.0 Million
Environmental Budget	0.8 Million

2.9 Magnitude of Operation:

Environmentally safe manufacturing of zinc sulphate in order to cater for marketdemand of the commodity in a safe and secure manner.

2.10 Schedule of Implementation

The machinery, equipment and allied components will be constructed, installed and commissioned along with construction of civil structures and building as a one-go activity on fast track basis and within the shortest possible time. The machinery and equipment will be transported to the site on carriage vehicles from their manufacturers, fabricators and sellers. The setting-up of the machinery, equipment and other allied components will comprise the following essential steps:

Pre-Construction Stage

- Making preliminary arrangements and spadework for setting-up of the plant at the site
- Receiving and unloading the various parts and components of the machinery and equipment
- Opening outer packaging boxes and cartons of various components of the machinery and equipment by the trained personnel and checking their contents
- Laying of electricity wiring for electric power supply to various machine and equipment from the mains in a safe and secure manner
- Intimation of initiation of construction to the local office of the EPA-Pb and requesting for Environmental Approval

Construction Stage

- Unpacking of the boxes and cartons and taking out the components out of boxes and containers
- Inspection of the machinery to check for any damage during carriage and transportation
- Clearing the individual site for installation of the individual components of machinery and equipment
- Installation of the machinery and equipment at their respective places safely and securely

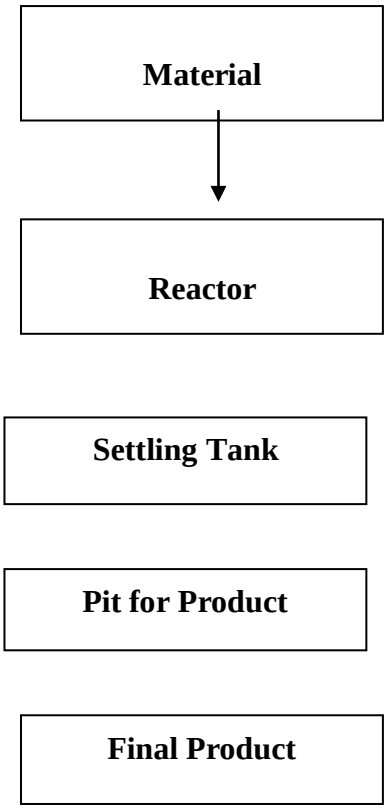
- Connecting the machinery and equipment to the electric power supply by expert electrician

- Test run of the machinery and equipment to check for its correct installation
- Removal of the packing material, wraps, boxes and cartons
- Intimation of construction to the local office of the EPA-Pb

Post-Construction Stage

- Regular cleaning, greasing, oiling and upkeep of the machinery, equipment and other components
- Routine and emergency repair and maintenance works of the machinery, equipment and building
- Maintenance of water supply and sewerage system for the worksite toilets
- Upkeep of the premises and implementation of other Environmental enhancement measures, janitorial services, horticulture and beautification (plantation of trees, exotic shrubs and ornamental flowers) etc
- Maintenance, inspection and regular upkeep of the firefighting system (risk/hazard management)
- Ensuring round the clock security of the premises by deploying security guards
- Provision of first aid cover for the workers

2.11 Description of Project / FLOW CHART of A Project.



Quality Control Department

Bags Packing

Supply to Market

2.12 Human Recourse Equipment

Number of Employees during construction phase

The details of construction staff required during construction are given in Table. About 18Workers are engaged during its construction phase.

List Of Construction Staff

Sr. No.	Category of Staff	Tentative No.
1	Contactor	01
2	Construction Manager	01
3	Supervisor	01
4	Foreman	01
5	Skilled worker	04
6	Semiskilled worker	06
7	Machinery operator	03

The construction machinery for construction is shown below in Table.

List of construction Machinery to be used for construction

Sr. No.	Type of Machinery	Quantity
1.	Excavator	01
2.	Dumper and loader	01
3.	Tractor and trolley	02
4.	Water browser	01
5.	Lift / crane	01
6.	Generator	01
7.	Concrete Pump	01
8.	Water Pump	01
9.	Welding plant	01
10.	Concrete mixing plant	01

2.13 Restoration and Rehabilitation

There will be no matter of rehabilitation as the site is already owned by the project proponent. During entire construction period, necessary precautions will be taken to ensure that no damage is done to the basic infrastructures Cleaning and restoration will be carried out during and immediately after each phase of construction and will be the responsibility of each team in their respective area. After completion; all construction matrix, debris and garbage will be removed off immediately from the site within the minimum possible time under safe conditions. Any minor spill ever of these materials will be cleared adequately. The land, if and where pitted will be adequately leveled. On the whole, the project site and the area in its near vicinity will be made neat and clean. Not any restoration or rehabilitation plans required, mainly because of the following reasons:

- The plant machinery will be installed along with construction of the plant building
- There is no land use change as the site is already possessed by proponent.
- The premises is situated away from any human settlement, villages and towns
- There are not any vicinity houses, shops or other structures that might need to bedemolished for setting-up the plant
- Construction of the plant building will not involve acquisition of any private land as the land owned by the proponent is sufficient for construction of the plant premises here
- There is not any displacement of persons as the plant will be constructed on a vacant piece of land
- Setting-up of the plant will not involve displacement of any person or damage to any nearby property as none are existent within the zone of Environmental influence of the plant site
- Setting-up will not involve cutting or removal of any trees or green plants
- The onsite construction of plant building will not involve damage to any public or private infrastructure as none are existent within the zone of Environmental influence of the plant site
- Construction of the plant building on a vacant and available land will not involve displacement of any persons or property. Hence, there will be neither any affected persons nor any issue of payment of compensation to them

Aggressive tree plantation, development of greenbelts and grassy lawns at and around the site/premises has been recommended for improving Environmental ambience and aesthetics of the premises.

2.14 Government Approvals

The proponent already has the layout plan of the building. Therefore, not any other approval is required from any other agency or authority except Environmental approval from the EPA-Pb for which the instant EIAR has been prepared and being filed to the Agency. So, far the Environmental approval from the EPA, Punjab Lahore is the major requirement.


31°31'52"N 73°29'37"E

Chapter No. 3

POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

3.1 General

This section deals with the current policy as well as legal and administrative framework related to carrying out of Environmental Impact Assessment (EIA) of various projects.

Like other Projects, the a Project (Evergreen CHEMICAL Industry(Pvt) Ltd, before its execution, is required to go through an Environmental Assessment, in accordance with the provisions of the Punjab Environmental Protection Act (PEPA, 1997).

3.2 Existing Regulations And Legal Framework

This EIA Study has been carried out in the light of the policy guidelines of the Government of Pakistan, under the procedures and practices formulated by the Federal Environmental Protection Agency (EPA).

3.3 National Conservation Strategy, 1992

On March 1, 1992, the Cabinet of Pakistan approved the National Conservation Strategy. It describes the stark reality of the country's deteriorating resource base and its implications for what is still largely a natural resource-based economy. It sets forth the beginnings of a plan to integrate Environmental concerns into virtually every aspect of Pakistani economic life.

The strategy has three overriding objectives: conservation of natural resources, sustainable development, and improved efficiency in the use and management of resources.

A) PEPO, 1983 AND PEPA, 1997

In 1983, the Government of Pakistan issued an Environmental Protection Ordinance (EPO), which has now been replaced by the PEPA, 1997, through an Act of Parliament. Under Sec. 8 of Environmental Protection Ordinance (EPO) 1983, it was necessary to carry out EIA / EIA for all development projects, but there were no EIA / EIA regulations under that ordinance.

Under section 12 of the Punjab Environmental Protection Act (PEPA, 1997), it is mandatory to carry out an EIA / EIA of all development projects causing significant Environmental impacts.

B) National Environmental Policy 2005

Government of Pakistan (GOP) has notified National Environmental Policy 2005, for different projects / aspects in which guidelines/priorities have been given to undertake / commence the projects having significant Environmental impacts.

C) Review of EIA And EIA Regulations, 2000

The GOP has issued Review of Environmental Impact Assessment (EIA) and Environmental Impact Assessment Regulations 2000, to review the Environmental Impact Assessment (EIA) / Environmental Impact Assessment (EIA) Reports.

D) Guidelines For The Preparation And Review Of Environmental Reports, 1997 The GOP has also framed guidelines for the preparation and review of EIA/EIA ofprojects in various developmental sectors.

E) Punjab Environmental Quality Standards (PEQS)

According to PEPA, 1997, Punjab Environmental Quality Standards (PEQS) were established for municipal and industrial effluents and air emissions. The latest revision of PEQS carried out in year 2001 is attached as Annexure to this Report.

F) Guidelines For Sensitive And Critical Areas

GOP has issued Guidelines for Sensitive and Critical Areas in October, 1997. The objective of the guideline is to provide guidance to project proponents and other stakeholders in the Environmental assessment process, so that the a projects are planned and sited in way that protects the values of sensitive and critical areas.

G) Policy And Procedures For The Filing, Review And Approval Of Environmental Assessments, November-1997

Environmental Assessment is the Primary means of managing the approval of new development proposals in Pakistan. Environmental Assessment allows for the systematic examination of proposals, clear procedures which provide for the interests of relevant Government Departments and other stakeholders to carefully considered.

H) Guidelines For Public Consultation, Punjab Environmental Protection Agency October, 1997

This guideline is part of a package of regulations and guidelines which include:

- Pakistan Environmental Protection Act, 1997
- Policy and Procedures for filing, review an approval of E I A
- Guidelines for the preparation and review of Environmental Reports
- Guidelines for sensitive and critical areas
- Punjab Environmental Quality Standards (PEQS)
- Detailed sectoral guidelines

I) Punjab Wildlife Protection Act, 1974

This act was framed in 1974 by the Province Punjab and is about of protection and conservation of Wildlife.

J) Forest Act, 1927

This act was framed in 1927. The Forest Act, 1927 is still the basic charter for the forest departments in Pakistan. This law empowers provincial governments to manage forest areas.

K) Explosive Act, 1884

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

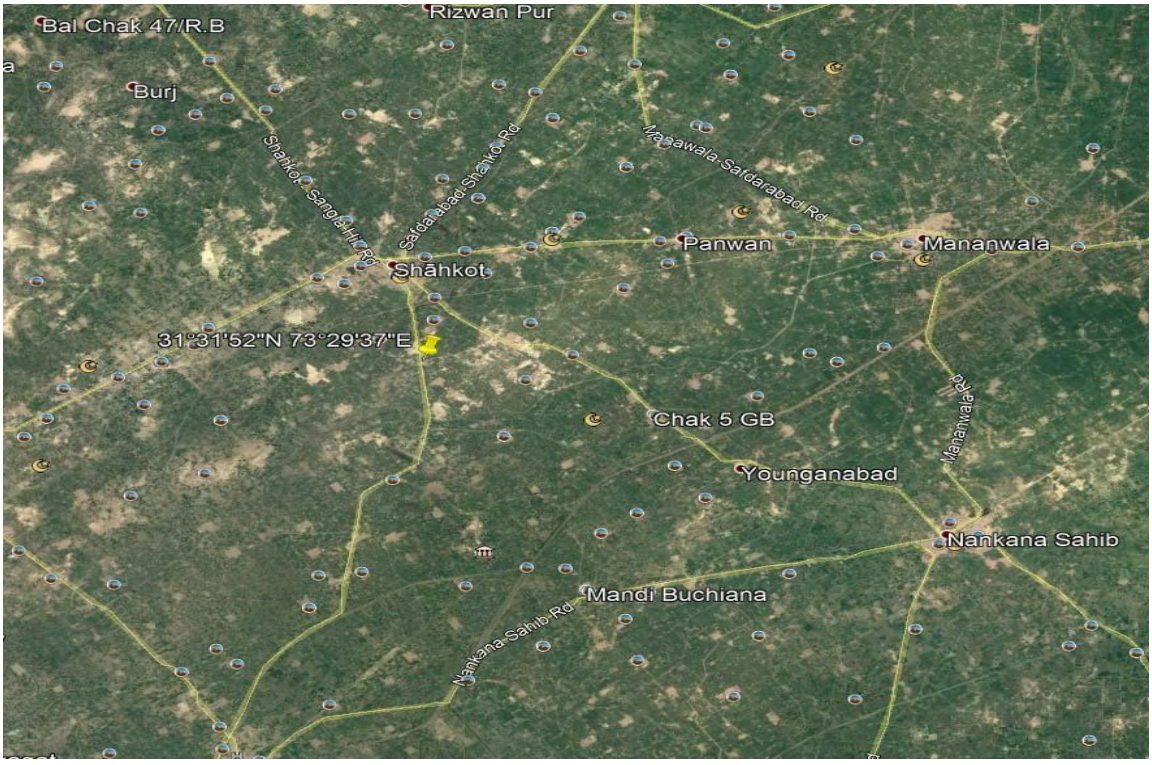
L) Punjab Local Government Ordinance, 2001

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

M) Pakistan Penal Code, 1860

This defines the penalties for violations concerning pollution of air, water bodies and land. Sections 272 and 273 of this Act deal with the adulteration of food or drink. Noise pollution has been covered in Section 268, which defines and recognizes noise as a public nuisance. “A person is guilty of a public nuisance who does any act or is guilty of an illegal omission which causes any common injury, danger or annoyance to the public or to the people in general who dwell or occupy property in the vicinity, or which must necessarily cause injury, obstruction, danger or annoyance to persons who may have occasion to use any publicright.”


31°31'52"N 73°29'37"E
Jaranwala Rd


Bal Chak 47/R.B
Rizwan Pur
Burj
Shahkot Sangla Hill Rd
Saddarabad Shahkot Rd
Jaranwala Saddarabad Rd
Panwan
Mananwala
Shahkot
31°31'52"N 73°29'37"E
Chak 5 GB
Younganabad
Mananwala Rd
Nankana Sahib
Mandi Buchiana
Nankana Sahib Rd

Chapter No. 4

DESCRIPTION OF ENVIRONMENTAL

4.1 Clear-Cut Picture of Existing Environmental

The baseline (clear-cut) and the existing Environmental profile of the project's radius of influence serves as the standard benchmark against which various activities relating to and in connection with the project are assessed with respect to their potential of affecting the Environmental either positively or negatively. The instant section outlines those of the pertinent features of the physical, biological, ecological, social, and cultural Environmental of the project area as are likely to affect them. The Nankana Sahib have all the basic physical and organizational structures, services and facilities needed and necessary in a city the country.

4.2 Introduction to the Project District Nankana Tehsil Shahkot

Nanakan Sahib is an ancient part of the Punjab located in between two famous rivers, the Ravi and Chenab. It is bound on the north by Disttt Faisalabad, on the south by Distt Sheikhupura, Lahore and Nankana Sahib, Sheikhupura and on the west by Distt Faisalabad. District Nankana Sahib is spread over an area of 2720 square kilometres, and it includes the historic towns of Nankana, the birthplace of Guru Nanak and is famous the world over for this distinction. Nankana was given the status of district in 2003. The district is bound on the north by district Faisalabad, on the east by district Sheikhupura, on the west by district Faisalabad and Nankana Sahib. District Nankana is spread over an area of 2,720 square kilometres and comprises four tehsils. The district lies in the well-irrigated lands of the Punjab. The climate of the district is subject to extreme variations. From the middle of December to middle of March, the air is quite damp or cold and light to moderate rains take place at intervals. The winter season offers a spell of pleasant weather following a shower of rainfall. The temperature starts going up from April onward and the next three months are very hot. Towards the end of June or July, the monsoon conditions appear and the spells of rainy weather alternate with intervals of sultry oppressive weather for about two to two and half month. The average annual rainfall is about 635 mm. District Nankana lies in Neeli Bar area of the Punjab. The Bar or the upland in the natural conditions is a level prairie thickly dotted over with stunted undergrowth of bushy jungle. The Bar soil is locally known as Missie. The lowland particularly along river Ravi has light loam. The central portion of the district is geologically a valley like formation or Deg Valley, which has a stiff soil. The stiff soil is either Rohi or Kallarathi, depending on the salt (kallar) content of the soil. For its being a newly created district, the infrastructure in district Nankana is not upto the standard of a district. The roads are narrow and the overall condition of the roads is not good. The existing dimensions and Row of the existing roads of the district are proving inadequate to accommodate the growing traffic load in the district. District Nankana is located in the fertile irrigated plains of the Punjab commanded by the canals drawn from Rivers Ravi and Chenab. Due to alluvial deposits from Ravi, the lands in district Nankana are very fertile and productive. The Upper Chenab Canal (UCC), which is one of the big canals of the Indus Irrigation Network, originates at Marala Headworks and passes through district Nankana and irrigates a vast command area in the district. The British Government in India

constructed the Indus Irrigation System in the second half of the 19th century. The primary objective of construction of the Indus Irrigation System was to boost the income from land revenue and to bring more area under cultivation. In order to achieve this objective, the British Government built an extensive network of irrigation canals and associated water regulation structures in the Punjab in 1886. This surface irrigation network comprised structures for regulation of waters of the five major rivers in the Punjab, i.e., Indus and its four associated rivers namely Jhelum, Chenab, Ravi, and Sutlej. This irrigation network is one of largest of its kind in the world. Many canal districts and well-planned agricultural areas were developed anew under this programme (the chakbandi system). Construction of the Indus Irrigation System of canal network also greatly benefitted district Nankana (then a tehsil of district Sheikhupura) and hitherto un-irrigated areas were also irrigated and agricultural production got an impetus in the district especially that of rice, sugarcane, and wheat. Today, Nankana Sahib besides being the birthplace of Guru Nanak is an important agricultural district and a centre for dairy products, too. Despite being the newest of all the districts in the Punjab, the district Nankana has become an important agricultural, commercial, touristic and political entity and playing an important role in country's trade, human resource capital, politics, general life and economy. Administratively, Nankana district comprises 4 tehsils, and 68 union councils. The project falls within the administrative boundaries of tehsil Nankana.
The reported population of the district as elucidated from the 1998 Census Report is 12,73,000 (1.273 million), and the projected population as on 30.06.2007 (with mean annual growth rate of 1.9%) is 14,49,000 (1.44 million). The land area of the district is 2720 square kilometers. The population density is 524 / sq.km. The district is playing a pivotal role in country's economics and politics. There are 6 technical and vocational training institutions imparting training in various trades e.g., mechanical, electrical, auto-engineering, welding, wood-working, and commerce. Vocational institutions for women impart training in hand / machine embroidery, stitching, and knitting. Sugarcane, wheat, and rice are the main crops grown in the district. Maize, jawar, bajra, cotton, moong, masoor, mash, and oilseeds, are also grown on a smaller area. Guava and citrus are the main fruits grown in the district. Besides, mango, banana, leechi, jaman, and falsa are also grown in minor quantities. The vegetables grown in the district include potatoes, carrot, cauliflower, and salad leaves. Tomato, onion, turnip, peas, chilly, and garlic are also grown in smaller quantities.

District Nankana occupy important locale in the agriculturally rich and fertile area commanded by river Ravi and river Chenab. Beside small agro-based industrial units, there is one large sugar mill in the district, which has given special impetus to the growth of sugarcane crop in the area. Nankana is connected to other parts of the country through railway and roadway network. District Nankana Sahib is playing a pivotal role in country's economics and politics.

There are number of technical and vocational training institutions that are imparting training in various trades e.g., mechanical, electrical, auto-engineering, welding, woodworking, and commerce.

Vocational institutions for women are imparting training in hand and machine embroidery, stitching, and knitting. Sugarcane,wheat, and rice are the main crops of the district. Maize, jawar, bajra, cotton, moong, masoor, mash, and oilseeds, are also grown on a smaller areas. Guava and citrus are the main fruits grown in the district. Mango, banana, leechi, jaman, and falsa are also grown in minor quantities. The vegetables grown in the district include potatoes, carrot, cauliflower, and salad leaves. Tomato, onion, turnip, peas, chilly, and garlic are also grown in smaller quantities. District occupies important position in the agriculturally rich and fertile area commanded by the surface irrigation system.
After independence of Pakistan in 1947, many Muslims of East Punjab and Haryana migrated to and settled in Nankana Sahib. The predominantly Muslim population supported the Muslim League and Pakistan Movement. After the independence of Pakistan in 1947, the minority Hindus and Sikhs migrated to India while the Muslim refugees from India settled in Nankana. Sheikh, Sayed, Qazi, Japaa, Bala, Chadhar, Haral, Sangha, Khokhar, Lali, Sipra, Nesoana, Rehan, Wallahrai and Khundowa are the leading clans of the region. show geographical map of the Punjab and location of the district with respect to other districts in the province.
According to 1998 Census, the population of Distt Nankana is 1,046,000 persons. The projected figure for the year 2015 is 1,384,000 persons. The urban population is 159,000 persons (12.8%), and the rural population is 886,000 persons (87.2%). The male to female ratio is 111:100. Administratively, District Nankana Sahib is subdivided into three tehsils, namely:

1. Nankana Sahib
2. Sangla Hill
3. Shahkot

4.3 Location of District

For the purpose of Environmental description, a concentric area upto 0.5 km from center of the project plot was taken as the project's zone of Environmental and socioeconomic influence. The project site is situated on a link road, called Lahore Faisalabad Road. The project site will be located away from any human population in the open countryside amidst agricultural lands around. Owing to its rural nature, the area does not have sufficient provision of the essential civic amenities like the natural gas, municipal water supply and municipal sewerage and drainage system. Electricity and mobile telephony is however available in the area. depicts the zone of Environmental and social influence of the project plant. The project plant will be located entirely in district Nankana at geographical coordinates from 31°27′N 73°42′E at an altitude of 614 feet above sea level. There are number of marketplaces, commercial concerns, industrial establishments, factories, schools, masjids and healthcare facilities located in the project district.

4.3.1 Physical Environmental

The physical Environmental includes topography and drainage, climate, land use, seismology, surface water, groundwater, and ambient air quality. The geophysical Environmental is that part of the overall Environmental profile of an

area that relates to the geological and physical entities in the immediate radius of influence of the project site. Description of the geophysical Environmental, amongst the various Environmental parameters, includes description of the site, locale, geology, hydrology and atmospheric features of the area around the project sitein particular.

4.3.2 Geography

The project site is bound all around by open agricultural fields. There are no built-up areas near the project site. The nearby villages and towns are located at a considerable distance from the project site. Similarly, there are no residential settlements, commercial properties, shops, educational buildings, healthcare establishments, graveyards, shrines and places of worship in the zone of Environmental influence of the project plant. The approach road to the project site is a link road, called Lahore Sheikhupura Road.

4.3.3 Topography

Topographically, the project site, being a part of the floodplains of Rachna Doab, falls in the sub-montane zone of Himalayan foothills. This zone is characterized by flat lands mixed with some dry areas called bars. As such, the topographic area around the project site forms part of the wider system of Indus floodplains. The project site exhibits features typical of flat floodplains of the central Punjab. The site and the floodplains are devoid of any significant topographic features. The relief of these flat floodplains has facilitated large-scale cultivation, development of an extensive irrigation network, construction of roads, railways and other infrastructure. The project site exhibits the same very topographic features, which are typical of flat floodplains of the region. The general surface gradient is from north to south and from west to east with an extremely gentle slope .. According to the Google map imagery, elevation of the site is 187m above the mean sea level. The most important natural surface water channel of the area is river Ravi, which is one of the eastern tributaries of the industry river system. Under the Indus Water Treaty, the waters of Ravi have been given to India. The wider project area being agrarian in nature, there are numerous irrigation channels that are spread all over the wider project area. There is also a wastewater drain in the project area. Apart from the above-mentioned aspects, the project area does not exhibit any other special physical, geological and geomorphologic features.

4.3.4 Geology

Geologically, the lands at and around the route of the project site, being a part of the wider area of the Indus floodplain are mantled lightly with alluvial deposits. The mighty Indus and its tributary rivers have transported these deposits down from the Himalaya foothills over the centuries. The underlying bedrock is composed of Precambrian to Metamorphic and Tertiary consolidated rocks. The overlying alluvium consists of Pleistocene to recent unconsolidated deposits of sand, clay and silt. The formation age of the alluvium dates back to Pleistocene to recent times, the latter being predominant near the riverbanks and the former around central part of the plains.

4.3.5 Seismology

According to the Seismic Survey Map of Pakistan, District Nankana falls in the seismic zone, which has the seismic activity equivalent to zone "2A" of the Earthquake Zones Classification of the United States Uniform Building Code, 1997 (UBC-97). This zone is associated with unknown geological conditions and the reported earthquake damage is "moderate". Nevertheless, earthquakes of magnitude up to five on the Richter scale, which generate ground acceleration up to 0.1 g, have been reported for this zone. No major earthquake has been reported during past two decades in the district. According to Pakistan Building Code of 2007, district Nankana falls in Zone-4 of the Seismic Zoning Map of Pakistan. This zone has very low seismic activity.

4.3.6 Soil Morphology

By their very nature and composition, soils at the site, which are contiguous with the soils of the rest of district Nankana, are granular to amorphous mix of sand, silt, clay, and loam. The texture, morphology, and moisture holding capacities of these soils show some intrinsic variations as one travels from north to south and from east to west. The soil crust is composed of alluvial deposits consisting of silt, clay, sand, and loam. Clay and silt formations occur in discontinuous layers with limited lateral extent. Their thickness is generally less than five meters. Because of the presence of a rich surface irrigation network, fertility and the yield per acre of the soils is good.

4.3.7 Surface Hydrology

River Ravi is the major surface water channel of the region and is located far off the project site. Under the Indus Water Treaty of 1965, waters of the three eastern rivers (Ravi, Beyas, and Sutlej) have been given to India, whilst those of the western rivers (Indus, Jhelum and Chenab) have been given to Pakistan.

Ravi is an old river, which serves as boundary between district Lahore and Sheikhupura. It flows approximately 25 km west to the project site. Owing to concession given to India over its waters under the Indus Water Treaty, the flow in this river has reduced only as marginal. Water in the river actually is the water of river Chenab that has diverted into river Ravi through Marala-Ravi Link Canal. Under the Indus Water Treaty (IWT), the waters of three eastern rivers (Ravi, Beyas, & Sutlej) have been given to India and that of three western rivers (Indus, Jhelum, and Chenab) to Pakistan. In order to maintain the flow and to meet irrigation requirements of the respective areas, waters from the western rivers are diverted into the eastern rivers through the link canals. Marala-Ravi Link Canal and Qadirabad-Balloki Link Canal are two such canals, which divert waters of river Chenab into river Ravi upstream and downstream of Lahore, respectively. Waters of Chenab therefore keep Ravi flowing to meet the irrigations needs to some extent.

Pollution of surface waters in Pakistan is assuming serious proportions, because the untreated industrial and municipal effluents are thrown into the nearby rivers with impunity. This problem is more conspicuous in case of the three eastern rivers because of lesser volume and lower flow of the river water. The dilution of the poured-in untreated raw sewage direct into the river waters, especially near the city reaches, has been producing alarming pollution of the river waters is therefore quite lower. As a result of the unscrupulous pouring in of the effluents, the water quality of the rivers has been deteriorating. The canals are also not saved from this nuisance of the direct pouring of the raw sewage into them.

Plate presents layout of the Indus basin system & **Table** presents typical physical and CHEMICAL quality of the surface waters in the wider project area.

Table 4.3.7: Surface Water Quality of Project District

Sr.	Parameter	Unit	Results
1	Alkalinity	m.mol/l	7.11
2	Bicarbonates	mg/l	369
3	Calcium	mg/l	50
4	Chlorides	mg/l	51
5	Hardness	mg/l	375
6	Iron	mg/l	0.07
7	Nitrate	mg/l	1.69
8	Phosphate	mg/l	0.28
9	Sulphates	mg/l	121
10	TDS	mg/l	780
11	Turbidity	NTU	0.8
12	pH	--	6.9
13	Total coliform	In 100 ml	5 – 8

(Source: Sub Soil Water Quality of 14 Districts in the Punjab by Environmental Protection Department)

4.3.8 Hydrogeology & Groundwater

Owing to its location in the Rachna doab and because of proximity to river and canal waters, the rate of groundwater recharge through downward infiltration in the area is reasonably fair. Water table in the area was hit at a depth of around 30~35 metres. There are number of groundwater turbines, water pumps and hand pump installed in the surrounding areas of the project site. It may be added as a passing reference that abstraction of groundwater by hand pumps is fast declining mainly because of the persistently lowering water table. Motorized pumps have replaced the hand pumps, as they are much more convenient to operate. The general quality of the groundwater at the facility site is satisfactory

and conforms to the WHO Guidelines for potable water. Groundwater at the facility sites, like the wider area of the district, is in flux with the recharge occurring from infiltration of the river and the canal waters as well as from the surface precipitation. River Ravi flows east of and River Chenab flows west of the district and are a source of recharge of the groundwater in the area, particularly after heavy rainfalls and floods. Owing to the natural east to west topographical gradient, the groundwater of the region and that of the facility site per se exhibits the flow characteristics conformant to the area's topography. As per the water the visual inspection, the groundwater is of good potable andirrigable quality with no visible impurities. Government has installed reasonable number of tubewells in the district for drawing up and supplying the groundwater to domestic and commercial consumers. As there is deficiency of the canalirrigation water, many of the landowners in the area have installed their own tubewells privately for abstracting groundwater to cater for their groundwaterneeds.

Since reliability of the canal water for irrigation, owing to various factors, is not of the desired level, the district has a large number of tubewells, both in the public and in the private sector, for extracting groundwater primarily for agricultural needs but also for other uses such as domestic consumption and industrial needs. The number of the existing tubewells and the pace of groundwater abstraction exhibit the aquifers to be of reasonable reserve. It will be pertinent to mention that tubewell irrigation is the second major mode of irrigation in the province. According to "Agricultural Statistics of Pakistan", irrigation by tubewells accounts for nearly 30% of water consumption for agriculture.
According to Bureau of Statistics, Government of Punjab, there exist 15,720 tubewells in the district. The number of tubewells was around 2,330 in early eighties. Thus, the number of tubewells has approximately doubled in about 40 years. The proposed site and its surrounding areas are both canal and tubewell irrigated. According to hydrogeological mapping of the area, the groundwater yield in the vicinity of the facility area varies between 50-150 m^3/hr down to the 150m and the aquifer is moderately thick and extensive. **Table** present respectively the number of tubewells, physical, CHEMICAL and microbiological quality of the groundwater of the project district.

Table Number of Tubewells in Project District

Total			**Diesel**			**Electric**		
Pvt.	Govt	Total	Pvt.	Govt	Total	Pvt.	Govt	Total
18393	00	18393	15893	00	15893	2500	00	2500

(Source: Punjab Development Statistics, Bureau of Statistics, GoPb, 2015)

Table: General Groundwater Quality of Project District

Sr.	**Parameter**	**Unit**	**WHO Desirable Level**	**WHO Permissible Max Level**	**Results**
1.	Temperature				34°C
2.	pH	--	7.0~8.5	6.5~9.2	7.50
3.	Odour	--	Unobjectionable		Odourless
4.	Colour	P.C.U	05 Units	50 Units	Colourless
5.	Taste	--	Unobjectionable	Unobjectionable	Tasteless

6.	Turbidity ppm Silica Units	NTU	05 Units	25 Units	1.20
7.	Total Dissolved Solids	--	500	1500	620
8.	Calcium as Ca^{++}	ppm	75	200	36
9.	Magnesium Mg--	ppm	50	150	15
10.	Total hardness as $CaCO_3$	ppm	100	500	150
11.	Total alkalinity as $CaCO_3$	ppm			350
12.	Sulphate as SO_4^-	ppm	200	400	140
13.	Chloride as Cl^-	ppm	200	600	24
14.	Conductivity at 25°C	µs/cm			880

Table Microbiological Quality of Groundwater of Project District

Sr.	Parameter	Results
1.	Total plate count / ml	--
2.	Total coliforms (MPN/100 ml)	--
3.	Faecal coliforms (MPN/100 ml)	--
4.	E. coli (MPN/100 ml)	Not detected

(Source: Lab investigation of water sample from the site from Water Quality Testing Lab of PHE Deptt of GoPb, 2016)

4.3.9 Meteorology & Climate

The project site, being a part of district Nankana, exhibits a hot and dry climate with moderate rainfall like rest of the district. According to meteorological profile of Nankana, summers are generally hot with moderate humidity, whilst winters exhibit extreme cold. Spring and autumn seasons are the most pleasant parts of the year. Mean winter temperature (December/January) ranges between 10.5°C to 14.5°C. The mean summer temperature remains around 35°C to 37°C with spikes crossing 40°C. The mean of the maximum temperature ranges between 29-30°C and mean of the minimum from 15-16°C. Approximately 50 percent of the average annual rainfall occurs during the monsoon in the months of July and August.The past climatic records indicate that the rain-rich years have been occurring at a cycle of 15-20 years with intervening dry period. The facility site being a part of the floodplains of Central Punjab, the general climatic pattern is characterized by a dry climate except during monsoon whence humidity level in the air is high. There occurs profuse rainfall during the monsoon season with substantial precipitation (approx. 50% of annual total) occurring in July and August. The average annual precipitation of the district for the past 10 years (2000~2010) has been around 229 mm. The wind flow is gentle during most of the year with occasional and sporadic dust storms during peak summer. The rate of evapotranspiration in the built-up areas, for example, the city and the surroundings is lower, compared to the open grassland/cropland in the periphery of the city. **Table** presents typical meteorological features of the project district.

Table 4.3.9: Meteorological Features of the Project District

Parameter	Description
Classification of climate	Tropical (hot / humid)
Predominant wind direction	East / Northeast
Wind intensity	Weak to moderate

Average annual precipitation	270 mm
Rainy season	July to September
Dry season	October to June
Average annual temperature	22-23 ^{0}C
Average summer temperature	39-41 ^{0}C
Average winter temperature	16-18 ^{0}C

(Source: Pakistan Meteorological Department, GoPk, 2015)

4.3.10 Air Quality

The entire project site is located amidst the open agricultural lands in predominantly rural settings. Because of this disposition, the air quality profile of the site is reasonably good with low levels of airborne dust and pollutants. However, the fugitive dust levels are relatively higher on and near the highly trafficked roads. There is no stack emission contribution of pollutants to the local air quality mainly because there is not any sources of stack emissions in the form of local industry, brick kilns and other stationary emission sources. At the time of visit inspection of the site, the local atmosphere around the project site was found clear from particulate dust and of good visibility.

According to number of investigative and research studies conducted by various independent sources, the air quality profile of the country, particularly of some major urban centres shows concentrations of some of the air quality parameters higher than the WHO Guideline Values as well as the prescribed Punjab Environmental Quality Standards (PEQS). According to a joint air quality investigation of the major districts in the country by the Pak-EPA and the Japan International Cooperation Agency (JICA), the average suspended particulate matter (SPM) in the study districts was 6.4 times higher than WHO Guideline Values. The levels of sulphur dioxide, carbon monoxide, and oxides of nitrogen also exceeded the acceptable standards in some areas, but the average levels were below the Guideline Values. Another similar study revealed higher concentrations of SPM in the ambient air. However, barring congested urban centres, air quality in the rest of the province conforms largely to the WHO Guideline Values. **Table** presents typical air quality profile of the project, which has been used as the benchmark, because air quality profile of the district could not be found.

Table 4.3.10: General Air Quality Profile of the Project Area

Parameter	Ozone (ppb)	SO_2 (ppb)	NOx (ppb)	NO (ppb)	CO (ppm)	Humidity (%)	Wind speed (m/s)
Conc.	6.3	10.0	41.3	29	8	25-45	1.0-2.1

(Source: Air Quality Monitoring Data of the Environmental Protection Department, GoPb, 2016)

4.3.11 Effluent Disposal

According to the Pakistan Economic Survey, availability of the underground sewerage in the country is deplorably low. Barring some major towns, there is hardly any proper sewerage and sanitation system in the project district, particularly in the rural areas. Hence, disposal of the domestic effluents in the rural areas outside the municipal limits of the cities and towns is not very satisfactory. Similarly, there is hardly any separate and dedicated system for the

handling of the storm water. Because of non-availability of the storm water channels in the area, the rainwater and the storm-waters usually make their own way out to the nearby drains. The project area is devoid of the municipal water supply, municipal effluent disposal and the sanitation system.

4.3.12: Background Radiological Characteristics

There background radiological characteristics at and around the project site are non-existent. The X-ray machines, scanners and the radiotherapy equipment, installed at the healthcare establishments and the biomedical facilities at major towns in the district do have some radioactive sources installed in them.

However, the quantum of emission of radioactivity from these sources is negligible and does not contribute much towards the background ambient radioactivity levels. Because of the rural disposition of the area, there are not any background radiological characteristics at the project site.

4.3.13 Ambient Noise Characteristics

The ambient noise levels in the district as well as around the project site vary from place to place and time of the day and night. Generally, the levels of the ambient and the background noise are higher during the peak and rushy hours. Vice versa, the ambient noise levels are generally higher at the busy road junctions, near industrial establishments, commercial concerns and the educational institutions during the morning and the evening hours. **Table** present the ambient noise characteristics and their impacts on the human health and behaviour.

Table Expected Noise Levels from Construction Activities

Sr. No.	Location	Noise Level (dB)
1.	Active Machinery and Construction Zone	85-90
2.	Offsite Areas	70-75
3.	Loading & Unloading Areas	80-90
4.	Offices & Support Facilities	50-70
5.	Parking Area	40-50
6.	Residential Area of the Project	60-75

Table Noise Annoyance Levels for Resident Communities

Day-night average sound level (dB)	Hearing Loss	Average community reaction (likely)	Significance
75 and above	May begin to occur	Very severe	Noise is likely to one of the important adverse aspects of the community Environmental
70	Will not likely to occur	Severe	-do-
65	Will not occur	Significant	-do-
60	Will not occur	Moderate to slight	-do-
55 and below	Will not occur	Un-noticed	-do-

4.4 Ecological

The ecological and biological Environmental of an area is generally considered sensitive to large-scale physical and infrastructure developments. Disturbances and imbalances in the ecological or the biological Environmental can affect the biodiversity features of an area adversely. The biodiversity of an area generally reflects the abundance and richness of the biological and or the ecological resources.

4.4.0 Forests, Habitat and Ecologically Sensitive Areas

The project site, because of its location in the rural area, per se, is devoid of any specific species of flora or green plants. Nevertheless, one comes across number of self-grown as well as properly planted trees at recreational parks and plantation areas. Almost all the trees within the zone of Environmental influence of the project site are of indigenous varieties like kikar, sheesham, beri, bargad, jaman, toot, and sufeda. Construction of the project plant will not involve cutting and removal of any trees and plants. The major floral resources of the project district include the linear plantations, which are found mostly along the roads, railway tracks and the water channels. However, there are no major forest plantations within the project site's zone of Environmental influence. Similarly, there also are not any horticulture parks, wildlife sanctuaries and the planned ecological gardens at or around the project site. There are no sensitive bioreceptors at or around the project site. **Tables** lists respectively the fruit and non-fruit trees as are found around the project site.

It may be mentioned as a passing reference that owing to the consistent human interventions over centuries, the existing natural habitat of the area is largely a modified form of the original habitat of tropical thorn forests. Construction of an extensive irrigation network during early 20th century paved the way for transformation of the Tropical Thorn Forests into agricultural lands. This has led to a changed landscape and loss of wildlife. The predominant habitat of district is Tropical Thorn Forest.

Table Fruit Trees around the Project Site

Sr.	Tree Name	Nos.
1.	Jamin	39
2.	Toot	72
3.	Dates	01
4.	Mosami	39
5.	Apricot	538
6.	Guava	115
7.	Falsa	25
8.	Mangoes	26
9.	Peaches	13
10.	Kino	30
11.	**Total**	**898**

(Source: Site Survey by Proponent, 2016)

Table : Non Fruit Trees around the Project Site

Sr.	Tree Name	Nos.
1.	Neem	04
2.	Eucalyptus	28
3.	Bakain	42

4.	Berry	05
5.	Lahsoora	01
6.	Kikar	08
7.	Sars	14
8.	Bohar	05
9.	Piple	15
10.	Shisham	208
11.	Amla	03
12.	Kachnar	10
13.	Sumbal	63
14.	Popular	01
15.	Reetha	06
16.	Arjan	02
17.	Sukhchain	02
18.	Beery patta	02
	Total	**419**

(Source: Site Survey by Proponent, 2016)

4.4.1 Local Flora

Apart from some sporadic trees in the project site's zone of Environmental influence, there are no large-scale plantations at the project site. The predominant species of the plants around the project site include shisham (*dalbergia sissoo)*, eucalyptus, silver oak, kikar (*acacia nilotica*), jand (prosopis spicigera), karir (capparis aphylla), beri (zizyphus jajaba), van (salvadora abeoides) and aak (calotropois hamiltonit). Additionally, some wild varieties of self-grown grass species are found along some poorly maintained watercourses of the area. There are no horticulture or wildlife parks and planned gardens around the project site. Common forms of weed, bush and the self-grown endemic species of plants are found in the open agricultural lands in the area. **Table** presents names of some common flora of the area alongwith their botanical names.

Table Some Common Flora of the Area along with Botanical Names

Sr.	Common / Local Name	Botanical Name
12.	Jand	Prosopis spicigera
13.	Van	Salvadora obeoides
14.	Peelu	Salvadora Percica
15.	Keekar	Acacia Nilotica
16.	Shisham	Dalbergia
17.	Baqain	Azadrachta indica
18.	Shreen	Albizzia Lebeck
19.	Popular	Popules deltoids
20.	Sufeda	Eucalyptus canaldulensis
21.	Pippal	Phycus Religiosa

(Source: Forestry and Wildlife Department GoPb, 2015)

4.4.2 Local Fauna

There is not any specific fauna indigenous either to the the project site's zone of Environmental influence or even to the wider area beyond the said zone.

Similarly, there are no species of aviary, aqua or wildlife indigenous, resident or migratory to the project site. Common forms of reptiles, mammals and rodents are seen occasionally in the open lands. Rarely, wild boar, jackals and fox are seen in the thick plantations or sugarcane crop. As such, the biodiversity features of the area are insignificant. **Table** presents names of some common fauna of area. **Plate** present the wildlife distribution and ecological resources of the Punjab**.**

Table : Some Common Fauna of the Area along with Zoological Names

Sr.	Common / Local Name	Zoological Name
1.	Geedarh	Cannis aurius
2.	Sayyarh (Khargosh)	Lepus capensis
3.	Percupine (Seh)	Hysterix Indica
4.	Black partridge (Teetar)	Electoris melanocephala
5.	Eagle (Cheel)	Mitrus migrans
6.	Vultures (Giddh)	Gyps futros
7.	Bulbul	Pycnonodus xynthopygos
8.	Pigeon (Kabootar)	Treron waalia
9.	Dove (Fakhta)	Streptopilia roseogrisera
10.	Ducks (Batakh)	Anas spp

4.4.3 Protected and Ecologically Sensitive Areas

There are no protected or ecologically sensitive notified areas around the project site.

4.5 Socio-Cultural Environmental

The sociocultural Environmental qualifies the demographic features, social traditions, cultural practices, economy and the lifestyle value system of the community of an area. The pertinent features of the socioeconomic Environmental of the project area/district have been highlighted in this subsection.

4.5.0 Demographic Profile

The existing status of population count of the area in which the project plant will be located is not known due to non-availability of the pertinent data. The existing status of population count of the individual settlements along the project trajectory itself could not be ascertained due to non-availability of the pertinent data. Therefore, demographic profile of the project district has been used as an alternative for establishing the baseline conditions pertaining to this aspect of the socio-cultural Environmental. The land area of district is 2,720 square kilometres. The population of the district, which was 1046 thousand in the 1998 Census, is now crossing over 1,386 thousands. The average rate of population growth of the district is 2.96 percent per annum. With the existing growth rate, the population is expected to double by 2025. The urban population is 159,000 persons (12.8%), and the rural population is 886,000 persons (87.2%). The male to female ratio is 111:100. **Table** presents demographic profile of district Nankana Sahib.

Table : Demographic Profile of District Nankana Sahib

Tehsil	Area (km^2)	1951	1961	1972	1981	1998	2015(pro)
Sangla Hill		54	62	99	124	170	
Shahkot		60	70	111	139	191	
Nankana Sahib		249	292	419	509	684	
Total	**2,720**	**363**	**424**	**629**	**772**	**1,046**	**1,276**

(Source: Punjab Development Statistics, Bureau of Statistics, GoPb, 2015)

4.5.1 Land Use/Agricultural Profile

The land use pattern along and around the project site, per se, is typical of the open country lands marked by agricultural fields with mixed disposition of villages and rural dwellings. However, because of the pressures of the ever-growing population, the hitherto uninhabited areas are changing into the residential areas. The land use status of the areas near the major roads is fast changing into residential and industrial usage. Because of this shift in the land use profile, agricultural lands now interpose with built-up areas, inhabitations, farmhouses and miscellaneous constructions.

Owing to various factors, the project area has developed tremendously during the recent past. Resultantly, there has been a marked shift in the land use in the district from agricultural to residential, commercial and industrial categories and from open lands into built-up structures. This change is continuing with an unfettered pace, particularly in the peripheral rim around big towns. Whereas, land use profile in the major towns is predominantly that of permanent and the fixed structures, it is of mixed type in the suburbs and along the outer rim of the main towns, where agricultural lands still interpose with new fixed developments, constructions and inhabitations.

Despite some industrialization in the recent past, agriculture is still the predominant economic activity of the district. The principal modes of irrigation are the surface canals supplemented by tubewells. Rainfall accounts only for a small proportion of the irrigation supplies. The major seasonal crops are wheat, rice, maize, and vegetables. Other agricultural products include fodder, fresh vegetables and lattice. Sericulture, horticulture, and aviculture are also a flourishing agriculture related activity. Investments in honeybee- sheep-, goat-, fish-, poultry, and dairy farming are also increasing. **Tables** present respectively the land use profile and production of main vegetables of the district.

The reported area of Nankana is 296,000 hectares, out of which 193315 hectares is cultivated land and the remaining is uncultivated. The combined cropped area both for rabi and kharif crops is 299748 hectares. Area under forest cover, however, is only 1,000 hectares. Area not available for cultivation, i.e., partly occupied by fixed structures, buildings, roads, etc is 57,000 hectares.

The principal modes of irrigation in the district are the surface channels supplemented by tubewells. Rainfall accounts only for a small proportion of the irrigation supplies. The major seasonal crops are wheat, rice, maize, and vegetables. Other agricultural products include fodder, fresh vegetables, and lattice. Sericulture, horticulture, and aviculture are also a flourishing agricultur

related activity. Honeybee farming is also a growing trade. Sheep, goat, fish, and poultry farming are also gaining popularity. **Tables** present respectively the land use profile and production of main vegetables in the project district.

Table Land Use/Agricultural Profile of the Project District

Reported Area	Cultivated Area	Uncultivated Area	Cropped Area
237	193	44	227

(Source: Punjab Development Statistics, Bureau of Statistics, GoPb, 2015)

(Thousand hectares)

4.5.2 Industrial Profile

According to the survey status of the industry, conducted by the Directorate of Industry and Mineral Development Department, Punjab, there are 20 industrial units operating in district Nankana Sahib. Currently, the district presents a mix of the economies of the industrial, agricultural, services, commercial sectors and that of the expatriates' income. Compared to the neighbouring districts of Sheikhupura and Faisalabad, the pace of industrialization in district Nankana is low and slow primarily because of its agrarian economy.

There are number of small to medium industrial estates in the district. There is no Chamber of Commerce & Industry in the district. Nevertheless, Faisalabad Chamber of Commerce & Industry (FCCI), which is one of the big chambers in the country, serves the industry in the district. FCCI is the main hub of the industrial and economic activities and an export centre in the region. The district has over 100 small to large cottage units and industrial concerns, absorbing an average daily labour force of 25,000 persons.

Nankana is famous in the province for its high quality handmade wooden furniture, which has no match in artisanship, design, colourfulness, quality and lacquer finish. Craftsmen and artisans have for centuries carved flowers and geometric patterns onto cellulose fibres. Masons from Nankana are thought to have been employed during the construction of Taj Mahal and Golden Temple, both now in India.

Government of the Punjab has made little effort to promote cottage industry in the district. Lack of vocational educational and training centres means, poor growth of industry. The lack of computer aided design (CAD) facilities also serves as a hindrance to modern manufacturing. Rather it needs at least one technical university in place to compete the global updation. The important products of Nankana include silk, cotton, wheat, sugar, rice, milk, pottery, and wooden-furniture etc. Being a rice-grown area, the district contains number of rice and flourmills. It has a sugar mill. **Tables** present glimpses of the industrial profile of the district.

Table Census Statistics of Manufacturing Industry of Project District

Census Year	No. of Factories	Avg. Daily Employment	Gross Value of Industrial Production
2014-15	40	18,000	16290 M

(Source: Punjab Development Statistics, Bureau of Statistics, GoPb, 2015)

Table Number of registered factories & employment status

Factories & Employment (30.06.2015)		
<100	**>100**	**Total**
31	63	179

(Source: Punjab Development Statistics, Bureau of Statistics, GoPb, 2015)

4.5.3 Healthcare Facilities Profile

The number of healthcare facilities, their service level, and the area-coverage in the district is reasonably satisfactory. There is fair number of general and specialized healthcare outlets for providing round-the-clock medical care services in the entire length and breadth of the district. The District Headquarter Hospital (DHQH) is the highest tier of medical care in the district. DHQH is providing the primary and secondary level healthcare. Hence, there is no healthcare establishment of tertiary level in the district. Therefore, for specialized and advanced treatment, patients from the district have to go to nearby big cities like Faisalabad, Sheikhupura and Lahore.

The DHQH has a Nursing School for providing training to the young nurses. The Paramedics School of the Hospital offers some paramedical and laboratory technician courses. The DHQH also offers internship facilities for the fresh medical and dental graduates. Other public sector healthcare facilities include Tehsil Headquarters Hospitals (THQH), Rural Health Centres (RHCs), Basic Health Units (BHUs), Mother & Child Healthcare Centres (MCHCs) and Rural Dispensaries. These are providing primary to secondary level outdoor and indoor healthcare services for the affording patients. Besides the public sector hospitals, there are number of private healthcare facilities of comparable standard and quality, number of which has grown reasonably in the recent past.

Welfare institutions in Nankana include Anjuman Imdad-e-Mareezan, Edhi Welfare Centre, Human Rights and Welfare Council, Chenab Officer Club, Pakistan Social Association, District Anti TB Association. The private sector healthcare centres in Nankana are Ali Hospital, Fatima Memorial Hospital, Fazal-e-Umar Hospital, Islamia Hospital, Lillah Hospital, Noor ul Ain Hospital, Subhan Hospital, T.B Clinic, Yousaf Zubaida Hospital & Tahir Heart Clinic Nankana. There are 44 vaccinators who provide daily EPI outreach services to children up to the age of 11 months. **Table** presents healthcare profile of district Nankana Sahib.

Table Healthcare Profile of Project District

Hospitals		Dispensaries		RHCs		BHUs		TB Clinics		SHC	MCH
No	**Bed**	**No**	**Bed**	**No**	**Bed**	**No**	**Bed**	**No**	**Bed**		
04	212	29	20	11	220	30	108	01	04	12	05

4.5.4 Education Facilities Profile

Educational facilities in the district range from primary level masjid-maktab schools upto Degree Colleges. There are no universities in the district either in

the public or in the private sector. Neither any specialized research institutions nor centres of excellence exist in the district. There are only few Master and Degree level colleges in the district run by the public and the private sectors. There also are a few technical and vocational training institutions and small number of special education institutions in the district run by the Technical Education and Vocational Training Authority (TEVTA) and the Department of Special Education, respectively. However, facilities for the primary and the secondary level education are good. There are number of schools, institutions, academies and tuition centres owned by private entities and the Government. The literacy rate of the district, as per 1998 Census, is 43.8%. The male literacy rate is 53.3% and the female 33.3%. The literacy rate in the urban population is 57.6% and in the rural folk 38.8%.

Educational institutions (Colleges) in Nankana include ICON Group of Colleges, Punjab College, Chenab College, Din College, Nankana Sahib Degree College, Govt. Degree College, Govt. Islamia College, Govt. Institute of Commerce, Pak Poly-Technique College, University of Higher Education, Takbeer College and Future Star Science and Commerce Academy. High Schools in Nankana include Govt. Islamia High School, Govt. High School Nankana, Govt High School Warburton, Govt High School Feroze Wattoan and Allied School Nankana Campus. **Table** presents education profile of district Nankana Sahib.

Table : Educational Profile of the Project District

Masjid Schools	Primary Schools	Middle Schools	High Schools & HS Schools	Colleges
43	490	106	48+8=56	04+01+02=07

(Source: Punjab Development Statistics, Bureau of Statistics, GoPb, 2015)

4.5.5 Livestock and Farming

Agriculturally fertile land is a big asset of the country. However, because of its fast engulfment by the housing and other non-agrarian sectors, availability of lands for agricultural pursuits has squeezed over the time. Nevertheless, agriculture and livestock farming are still the major sources of income for the peri-urban and the rural communities of the district. A number of small to medium size dairy and cattle farms can be seen in the villages as well as at some places in the region. These dairy farms provide fresh milk for the residents of the nearby cities. Because of number of factors, livestock-, goat-, and sheep farming are becoming attractive sectors of investments. In a way, livestock is complimentary and dependent on the agricultural farming. Usage of the husbandry for ploughing and for farming purposes is at the decline and is being replaced rapidly by mechanical implements of farming. Government and commercial financial institutions are granting liberal loans to the farmers and the growers for purchasing agricultural

machinery. **Table** presents livestock resource profile of the district.

Table Livestock Resources of the Project District

Bullock	Cow	M/Buffalo	F/Buffalo	Camel	Horse	Ass	Mules	Total
1897	43	281	149	21	3887	40502	3738	50518

(Source: Punjab Development Statistics, Bureau of Statistics, GoPb, 2015)

4.5.6 Communication, Transport and Infrastructure Profile

There is reasonably satisfactory infrastructure in the project district. Nankana is connected with rest of Pakistan by road and rail. The nearest international airport is Faisalabad International Airport, which is 30 kilometres from Nankana. The district has a railway track which besides serving as the passenger route, also serves as an easier and cheaper mode of transportation since 1927. The railway facility is used as a dependable mode of transporting goods from Nankana to rest of the country. Vice versa, it is a main route of importing goods from various parts of the country to the district. Nankana Railway Station was built in 1927 during the British Empire and was a great step for boosting economy of the area. A bridge on river Ravi at Syedwala Pattan serves as a direct and short link with the National Highway (N5) via district Nankana Sahib. **Table** presents infrastructure profile of district Nankana.

Table : Infrastructure Profile (Length of Roads) in the Project District

National Highway	Motorway	District Roads					Total
		Prov Highway	R&B Sector	FMR	SC Road	DC Road	
20.80	27.50	122.30	36.36	278.28	16.60	188.00	689.84

(Kilometres)

4.5.7 Socioeconomic Profile

The project site, being a contiguous geographical extension of the surrounding area, exhibits the same socio-cultural features as are found in rest of the wider area around. Nankana is a politically and economically important district of the province. As far as availability of employment is in the district is concerned, opportunities exist in business, economy, trade, social, educational, and general activities. A large section of the population is absorbed in services sector, in the army and in the civil service including the federal, provincial and the district governments. Many are working abroad as expatriates and some are engaged in the agricultural sector. The mean level of income of the city residents is a bit higher to their counterparts living in the villages. There are more than twenty five thousand registered vehicles in the district. Because of multiple factors, number of vehicles in the district is increasing with every passing day. Communication system in the form of regular landline and mobile telephone connections is one of the fastest growing areas of economy in the district. The number of mobile phone connections in the district runs into thousands. The banks with branches in

Nankana include Muslim Commercial Bank, United Bank Limited, Allied Bank Limited, Zarai Taraqiati Bank Limited, The Bank of Punjab, National Bank of Pakistan, Askari Bank Limited, Bank AL Habib, Bank Alfalah and Habib Bank Limited.

There are various locally operated FM radio and cable networks in the districts, such as FM 95, FM 100 and FM 101, which broadcast programmes for the public. Internet facility through dialup and the high-speed broadband and wireless DSL is available in all cities of the district. The district is connected with all major districts and cities of the country through fibre optic communication system. Almost alleducational institutions in the public and the private sector have computers. These are used for teaching and for practical computer laboratory work. There is good number of hotels and restaurants in the district, which offer variety of delicious and tasty foods. The evenings and nights are colourful and outdoor dining is getting popularity amongst the city residents.

4.5.8 Quality Of Life

i) Average Household Size

From the data presented in the **Table**, it is clear that the majority of the respondents (76%) with average household size ranging between 6 to 10, 20% families between 1 to 5 while 4% families were those who have average household size above 10.

Table : Average Household Size

Sr. No.	Family Size	Numbers	Percentage
1	1-5	20	20
2	6-10	76	76
3	>10	4	4
Total		**100**	**100**

Pie chart of Average household size of the respondents is given below.

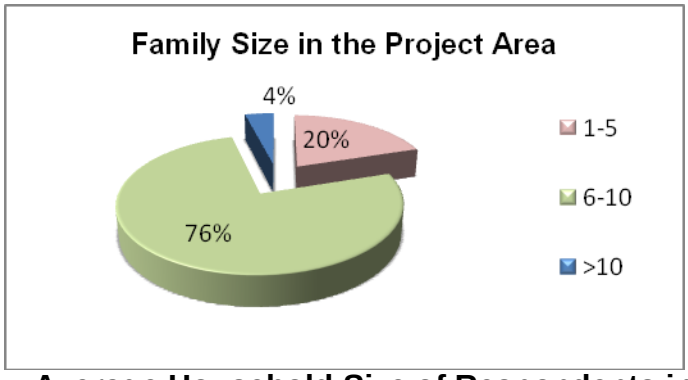


Figure: Average Household Size of Respondents in the Project Area

ii) Average Working Hours of the Respondents

The respondents were associated with various professions such as business/ shop owners, office workers, drivers and teachers etc. 44% of the people interviewed were working for 1 to 8 hours daily, 49% for 8 to12 hours while 7% of the respondents were those people who were working more than 12 hours on a routine basis

(**Table**.

Table: Average Working Hours of the Respondents

Sr. No.	Working Hours	Number of Respondents	Percentage
1	1-8	44	44
2	8-12	49	49
3	>12	07	07
	Total	**100**	100

The graph shows the of the average working hours of the respondents

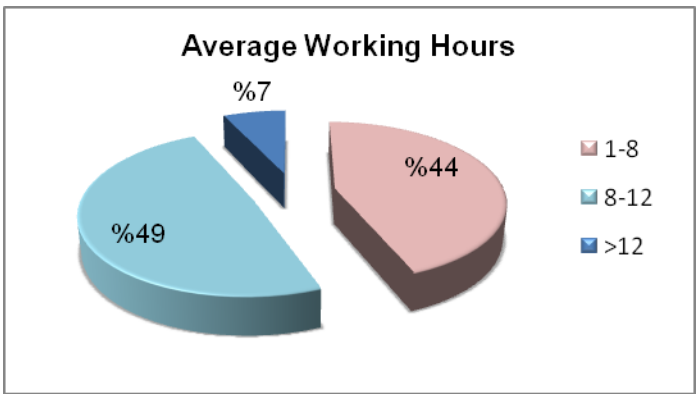


Figure : Average Working Hours of the Respondents

iii) Income Level of the Respondents

From the **Table**, shows that the 59% of the respondents were earning their monthly income between Rs.10, 000 – 20,000, 30% fall in the income group of 20,000 and above, 6% were earning below Rs.10, 000. 5% respondents did not give any response about their income level.

Table 4.66: Average Monthly Income of the Respondents

Sr. No.	Frequency Distribution Income	Number of Respondents	Percentage
1	<10,000	06	06
2	10,000 - 20,000	59	59
3	20,000 and Above	30	30
4	No Response	05	05
	Total	**100**	**100**

In the Pie chart, the income groups of various respondents areshown below

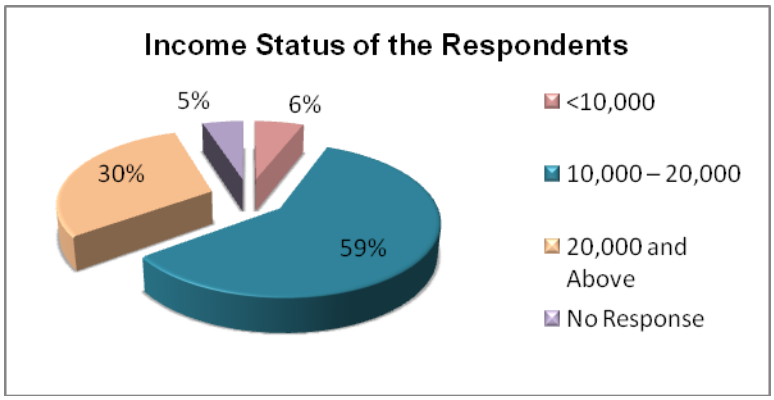


Figure : Income Level of the Respondents

iv) Sources of Domestic Water

Table shows the source of water for domestic usage. The respondents 19% were enjoying Govt. water supply scheme and majority (80%) of respondents were depending on bore hole and 1% were using hand pump as source of water for their domestic usage.

Table: Sources of Domestic Water

Sr. No.	Water Supply Source	Number of Respondents	Percentage
1	Tap Water/Govt Water Supply	21	19
2	Bore Water	88	80
3	Hand Pump	1	1
Total		**110**	**100**

In the pie chart water supply source of respondents in the project area are shown below.

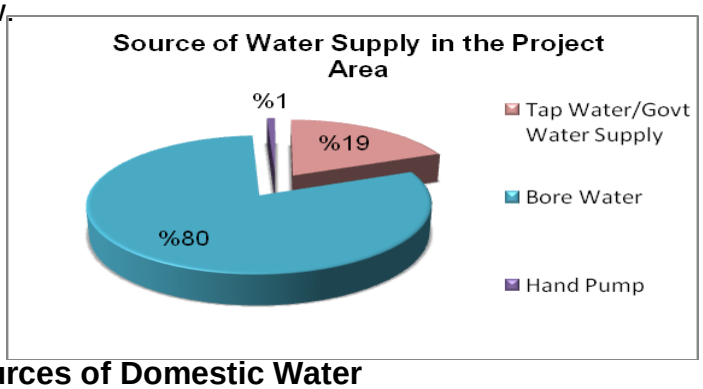


Figure Sources of Domestic Water

v) Satisfaction about Quality of Water

Table shows the current situation of the water quality in the project area. Majority of the respondent's i.e.71% were not satisfied with the quality of water available in the project area due to hard and brackish water. While 29% respondents were satisfied with the quality of water.

Table: Quality of Water

Sr. No.	Satisfaction with Quality of Water	Number of Respondents	Percentage

1	Satisfied	29	29
2	Un-Satisfied	71	71
Total		**100**	**100**

In the Pie chart, satisfactions about quality of water of respondents in the project area are shown below

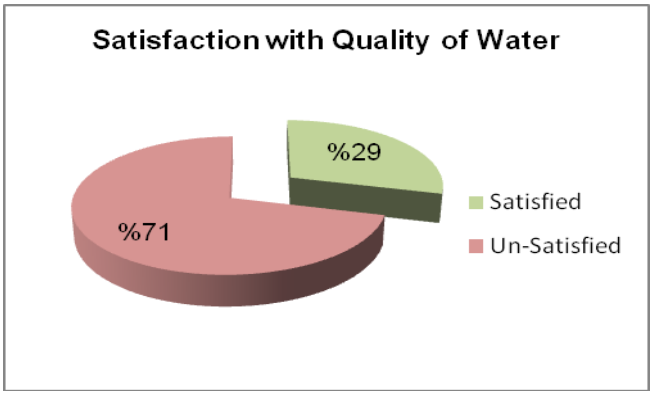


Figure : Quality of Water in project Area

vi) Health Facilities in the Project Area

The over-all health condition of the residents is poor in the project area (82%), but no serious disease was reported by the respondents except the water borne diseases. However, few hepatitis and cholera patients were also reported from the respondents. The health facilities provided by the government in the project area are only 18% as shown in the **Table 4.69** given below.

Table: Health Facility Available in the Project Area

Sr. No.	Health Facility	Number of Respondents	Percentage
1	Yes	18	18
2	No	82	82
Total		**100**	**100**

The graph shows availability of Health Facilities in the Project Area

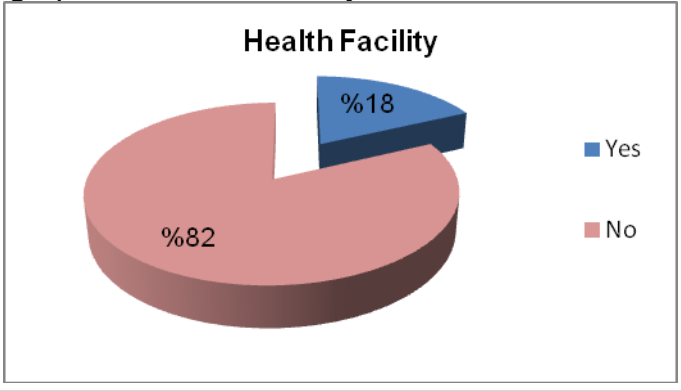


Figure: Health Facility in the Project Area

vii) Educational Institutions

According to Survey conducted in a project Area, 83% educational Institute were available like private school (Matric), primary school for boys and girls chazahoora, Govt Primary school Bangla, TCF (Atlas Honda), Govt IntermediateSchool (Boys+Girls) Khan Pur etc.

Table: Educational Facility Available in the Project Area

Sr. No.	Educational Institute	Number of Respondents	Percentage
1	Yes	83	83
2	No	17	17
	Total	**100**	**100**

The graph shows availability of educational institutes in the Project Area

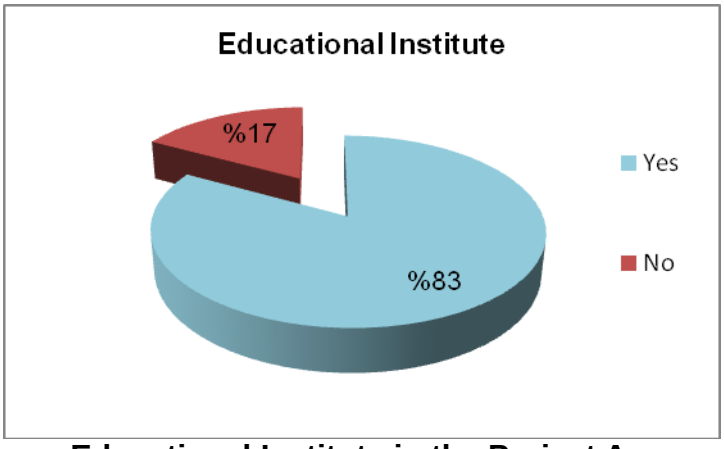


Figure: Educational Institute in the Project Area

viii) Common Diseases

Sampled respondents were also inquired regarding the diseases found among men, women and children and the factors responsible for these diseases in their relative area. It is concluded from the survey results that Hepatitis Typhoid, Dingi, Malaria and Diarrhea are the most common diseases among men and women and children as shown in given below.

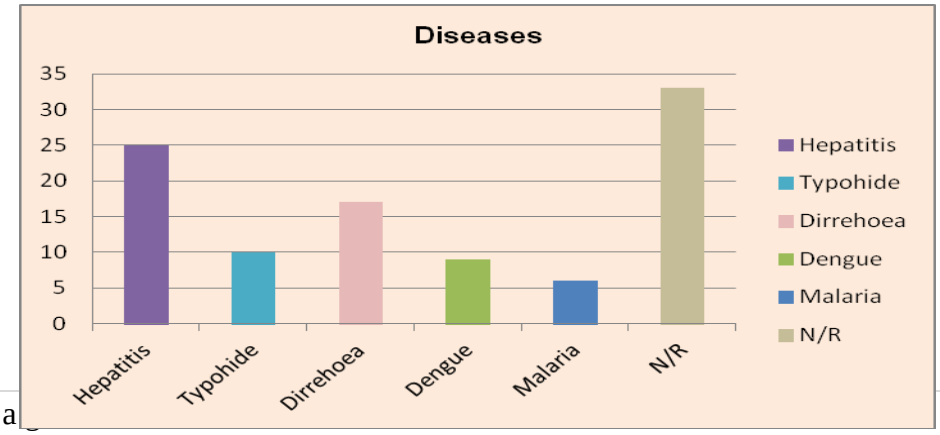


Figure Common Diseases in the Project Area

ix) Housing Patterns

The houses in the Project area are mostly Pacca (65%), with very small number of katcha houses (2%), While 33% of the houses are semi pakka. Following types of the houses are commonly found in the project area as given in **Table**

Table : Housing Characteristic of the Respondents

Sr. No.	Type of Houses	Number of Respondents	Percentage
1	Pacca	65	65
2	Semi Pacca	33	33
3	Katcha	2	2
Total		**100**	**100**

Following pie chart shows the type of houses in the project area

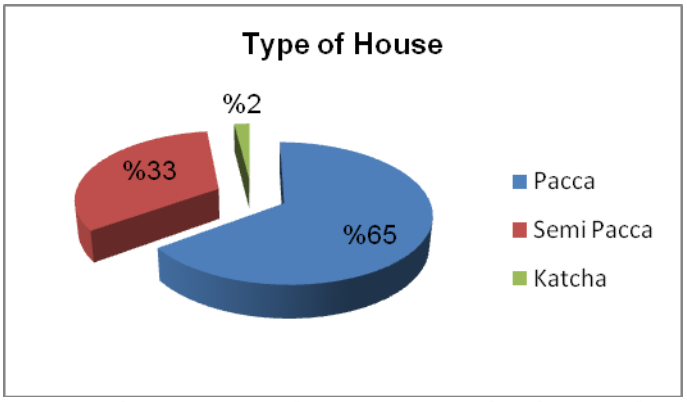


Figure Housing Patterns in the Project Area

x) Ownership of House

The people have constructed the houses for their own residing purposes. This statement is endorsed by the field investigation, which shows that majority of respondents (97 percent) were living in their own houses and only 03% of the respondent were found to live in the rented houses. Ownership of houses in the project area is given in **Table**

Table: Ownership of House in the Project Area

Sr. No.	Ownership of House	Number of Respondents	Percentage
1	Self Owned	97	97
2	Rented	03	03
Total		**100**	**100**

Following pie chart shows the ownership of houses in the project area

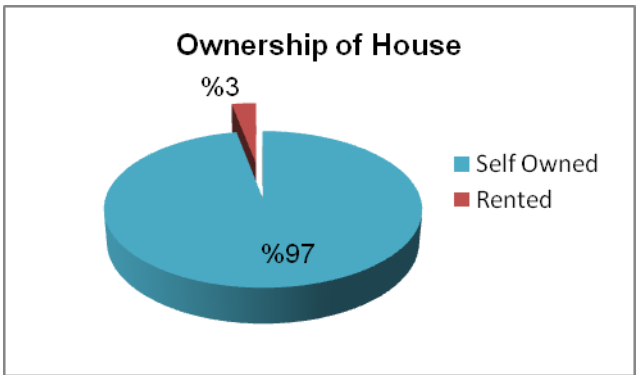


Figure: Ownership of House in the Project Area

vi) Source of Energy

Table shows that majority of respondents (58 percent) were use fire wood, 17% were use gas cylinder. 18% & 2% were gas & electricity and only 6% of the respondents were found to use fire wood/gas cylinder/gas as source of energy (Cooking, Lightening & Transport).

Table : Source of Energy in the Project Area

Sr. No.	Source of Energy for Cooking, Lightening & Transport	Number of Respondents	Percentage
1	Fire Wood	87	58
2	Gas Cylinder	25	17
3	Gas	27	18
4	Electricity	03	02
5	Fire Wood/Gas Cylinder/Gas	09	06
Total		**151**	**100**

*Multiple Reponses

Following pie chart shows the source of energy in project area

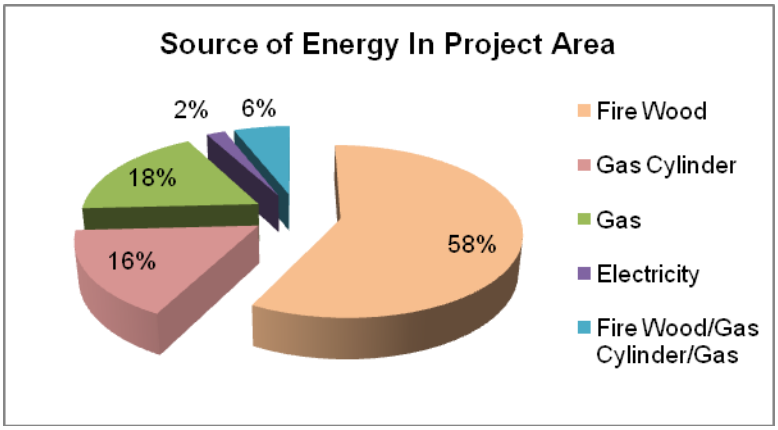


Figure : Source of Energy In Project Area

vii) Awareness Regarding the Project

Among the respondents 75% were aware of the project while only 25% were those, who had no prior knowledge about the construction of the project

(**Table.**

Table : Awareness about the Project

Sr. No.	Awareness of the Project	Number of Respondents	Percentage
1	Having Awareness	25	25
2	No Awareness	75	75
Total		**100**	**100**

The Pie chart, awareness regarding the project of various respondents is shown below.

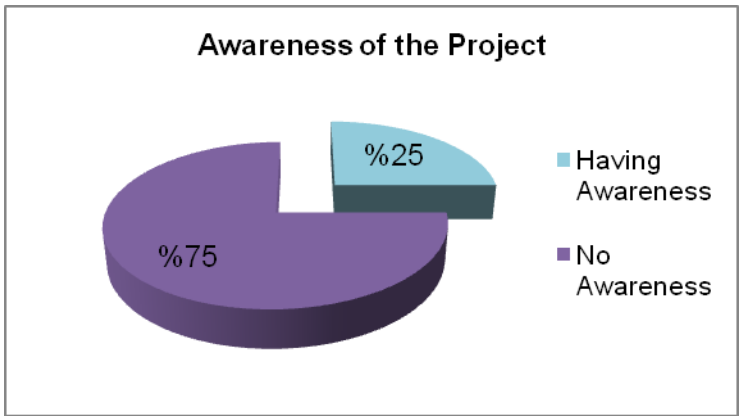


Figure : Awareness about the Project

viii) Acceptability of the Proposed Project

Majority of the respondents (88%) favored construction of the Extension (Assembling Units, Welding Shop & Canteen) In Atlas Autos, keeping in view its importance and only in 12% cases; responses were against the construction of the project (**Table).**

Table : Respondents in Favor of the Project

Sr. No.	Frequency of Project Acceptability	Number of Respondents	Percentage
1	Yes	88	88
2	No	12	12
	Total	**100**	**100**

The Pie chart regarding the Acceptability of the project of is shown below.

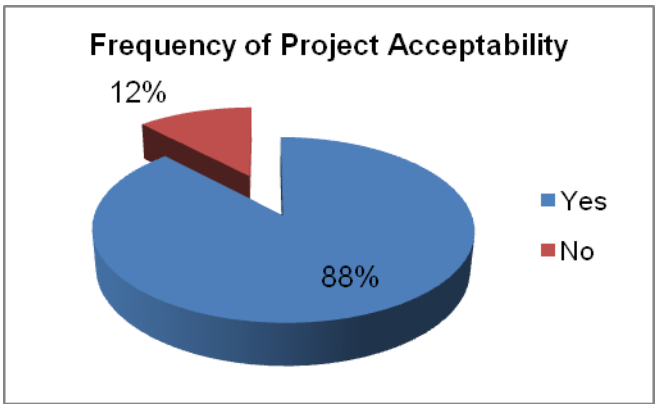


Figure : Acceptability of the Proposed Project

ix) Perceived Impacts

Table provides us the various perceived impacts of the respondents of the construction of the Extension of (Assembling Units, Welding Shop & Canteen) In Atlas Autos Plant, 30% considered it will increase dust and noise problem during the construction phase of the project, 4% & 12% thinks that it will increase their business and job opportunities during the construction & operational phase 3% out of the total responses were those, who feared a disturbance of traffic movement.. 5% thinks that the project will be beneficial for the public as well as development of area, while a majority of respondents 37% did not consider any impact regarding the project. 9% respondents remained quiet in giving any response about the foreseeing impacts of the project.

Table : Perceived Impacts

Sr. No.	Impacts	Number of Respondents	Percentage
1	Increase in Dust and noise pollution	52	30
2	increase in business activities	7	4
3	Increase in job opportunities	21	12
4	Inconvenience to Commuters during Construction Stage	5	3
6	Beneficial for the public as well as for development of area	9	5
5	No Impacts	63	37
7	N/R	15	9
	Total	**172**	**100**

The Perceived Impacts of the respondents about the construction of the Extension of (Assembling Units, Welding Shop & Canteen) are shown below in graphical form work.

4.5.9 Historical & Archaeological Sites

There are no sites of archaeological and historical importance in district Nankana neither under the Pakistan Antiquities Act, 1976 nor under the Punjab Special Premises Ordinance, 1985. **Table** presents a list of the historical sites of district Nankana.

Table Historical and Archaeological Sites in District Nankana Sahib

Federally Protected Sites	Provincially Protected Sites
▪ Nil	▪ Nil

(Source: Punjab Archaeological Department, GoPb, 2015)

4.6.0 Ambient Noise Characteristics

The ambient noise levels in the wider area and at the project site vary from place to place and from time to time. Generally, levels of the ambient or the background noise levels are higher during the peak hours. Similarly, ambient noise levels are higher at the busy road junctions, near the industrial establishments, commercial concerns and the educational institutions during late morning and early evening. Present the ambient noise characteristics and their impacts on the human health and behaviour carried out a noise measurement survey around the project site, results of which are presented in Table, below:

Table Noise record at the Project Site

DATE	TIME	NOISE (dB)	DATE	TIME	NOISE (dB)
01-04-2024	00:00	50	01-04-2024	12:30	70
01-04-2024	00:30	45	01-04-2024	13:00	70
01-04-2024	01:00	45	01-04-2024	13:30	70
01-04-2024	01:30	40	01-04-2024	14:00	75
01-04-2024	02:00	40	01-04-2024	14:30	75
01-04-2024	02:30	35	01-04-2024	15:00	75
01-04-2024	03:00	30	01-04-2024	15:30	75
01-04-2024	03:30	30	01-04-2024	16:00	70
01-04-2024	04:00	35	01-04-2024	16:30	75
01-04-2024	04:30	30	01-04-2024	17:00	70
01-04-2024	05:00	35	01-04-2024	17:30	75
01-04-2024	05:30	35	01-04-2024	18:00	75
01-04-2024	06:00	40	01-04-2024	18:30	70
01-04-2024	06:30	45	01-04-2024	19:00	70
01-04-2024	07:00	45	01-04-2024	19:30	75
01-04-2024	07:30	50	01-04-2024	20:00	80
01-04-2024	08:00	55	01-04-2024	20:30	80
01-04-2024	08:30	55	01-04-2024	21:00	75
01-04-2024	09:00	60	01-04-2024	21:30	75
01-04-2024	09:30	60	01-04-2024	22:00	65
01-04-2024	10:00	65	01-04-2024	22:30	60
01-04-2024	10:30	60	01-04-2024	23:00	55
01-04-2024	11:00	65	01-04-2024	23:30	55
01-04-2024	11:30	65	01-04-2024	00:00	50
01-04-2024	12:00	65	01-04-2024	00:30	45

Expected Noise Levels at Different Project Locations

Sr. No.	Location	Noise Level (dB)
1.	Active machinery construction zone	85-90
2.	Offsite areas	70-75
3.	Loading & unloading areas	80-90
4.	Offices & Support Facilities	50-70
5.	Parking Area	40-50
6.	Residential Area of the Project	60-75

Noise Annoyance Levels for Resident Communities

Day-night average sound level (dB)	Hearing Loss	Average community reaction (likely)	Significance
75 and above	May begin to occur	Very severe	Noise is one of the likely and important adverse aspects for the community
70	Will not likely to occur	Severe	-do-
65	Will not occur	Significant	-do-
60	Will not occur	Moderate to slight	-do-
55 and below	Will not occur	Un-noticed	-do-

Plate 4.3.0a: Geographical map of the Punjab showing location of the project district Nankana Sahib.

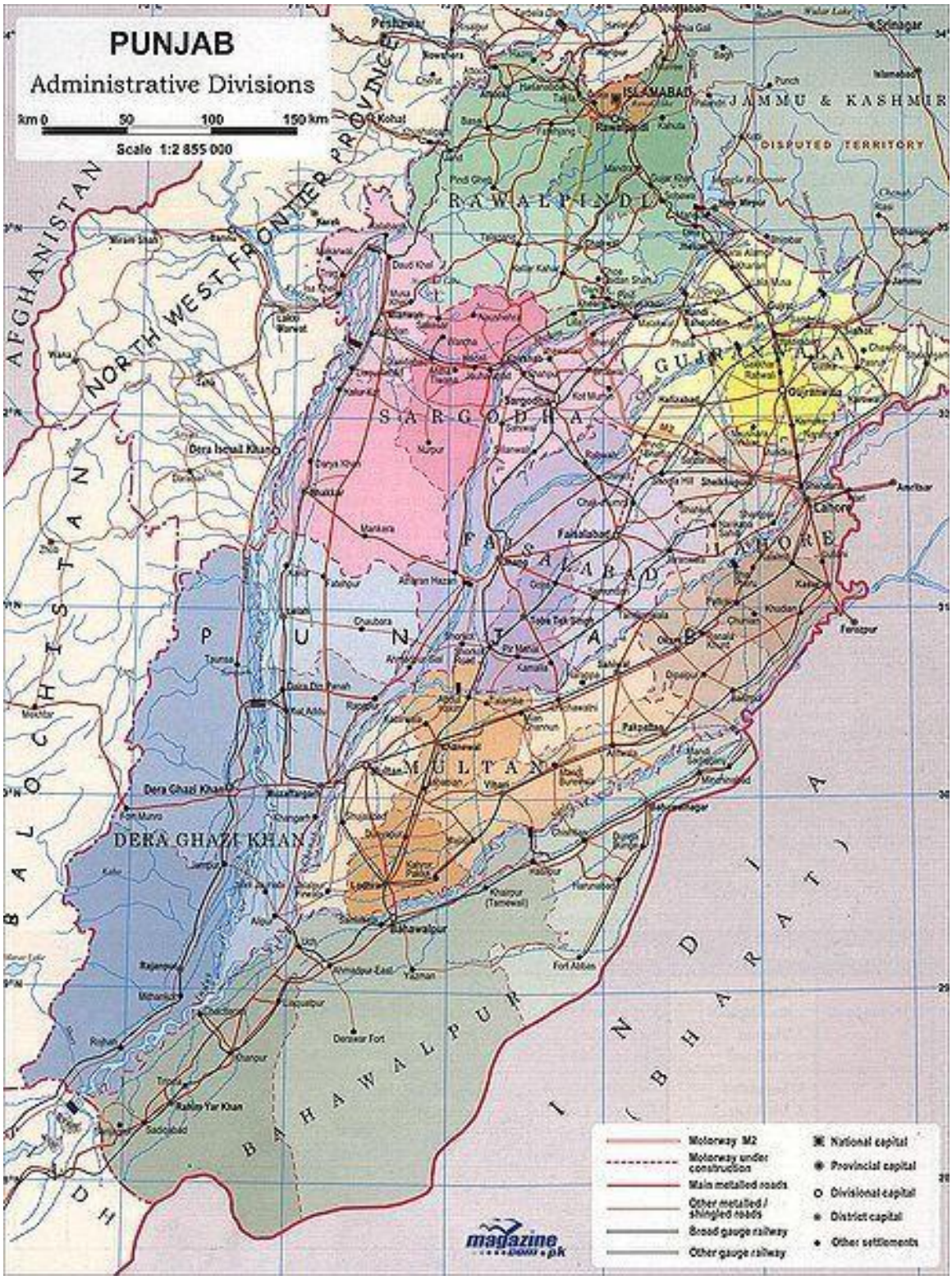
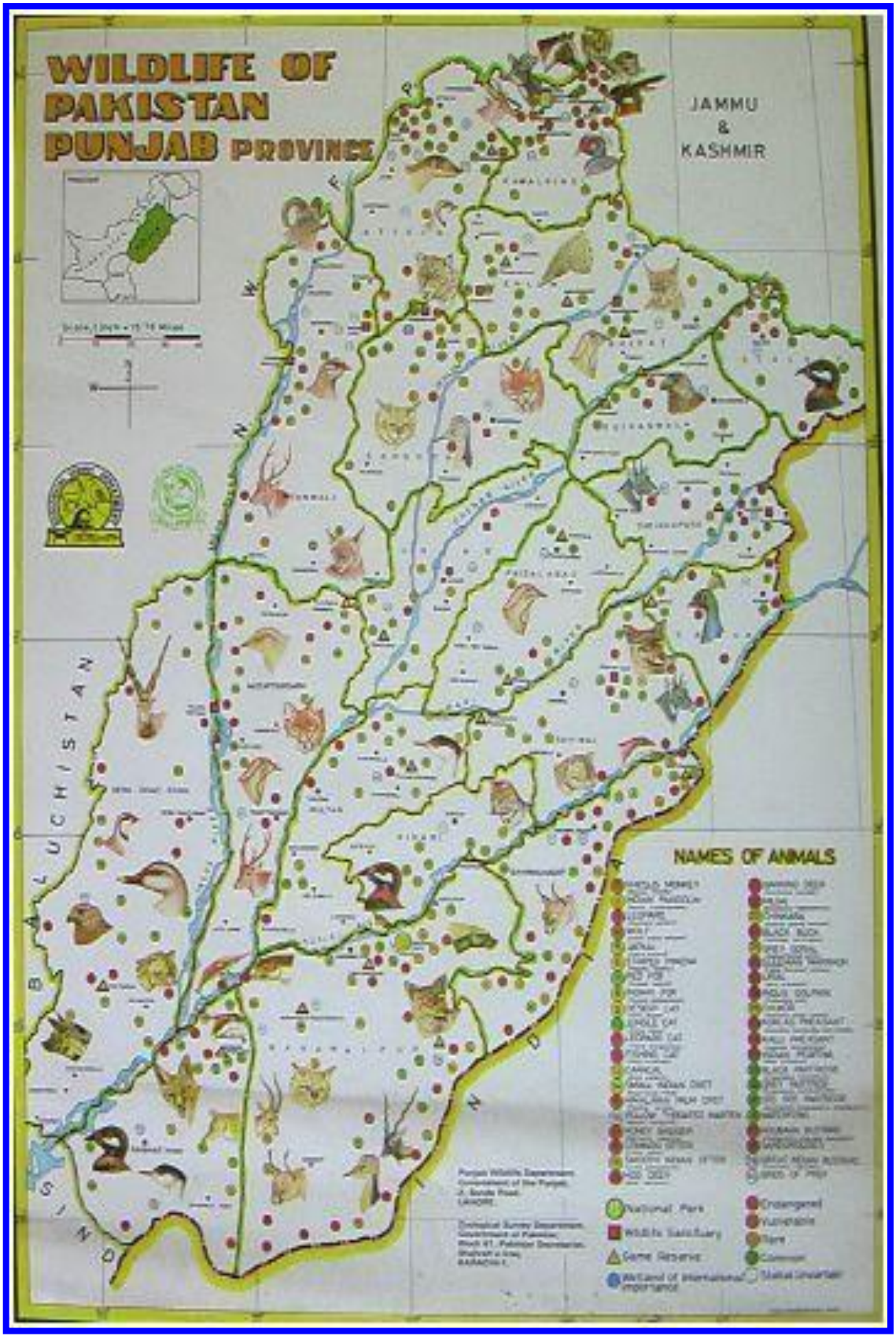

PUNJAB
Administrative Divisions
Km 0 50 100 150 km
Scale 1:2 855 000
AFGHANISTAN
NORTH WEST FRONTIER PROVINCE
BALOCHISTAN
JAMMU & KASHMIR
DISPUTED TERRITORY
RAWALPINDI
GUJRANWALA
SARGODHA
FAISALABAD
LAHORE
MULTAN
DERA GHAZI KHAN
BAHAWALPUR
INDIA (BHARAT)
Motorway M2
Motorway under construction
Main metalled roads
Other metalled / shingled roads
Broad gauge railway
Other gauge railway
National capital
Provincial capital
Divisional capital
District capital
Other settlements
magazine.pk

Plate 4.3.0c: Map of Punjab showing geographical location of the project district with relation to other districts *(adopted from GoogleMaps)*

Plate 4.4.2a: Wildlife Map of the Punjab



Chapter No.5

SCREENING OF POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION AND MEASURES

5.0 Environmental Examination & Mitigations

The instant section describes the aspects of Environmental examination of setting up and operation of the unit on the physical, biological, social aspects of the Environmental. The report presents an outline of the measures for mitigation of the identified impacts. Both the primary and secondary as well as the direct and the indirect impacts have been discussed with respect to their immediate and the ultimate impacts on the various Environmental quality parameters and the social significance.

Unlike the large-scale developmental projects, the instant project, because of its extremely small size, scale and spread, is likely not to produce any significant or even insignificant impacts on the local physical, biological and social Environmental within or out the project's zone of Environmental influence. The setting up of the CHEMICAL plant and involve civil works in the form of construction of unit and or allied/ancillary infrastructure.

The civil and mechanical components of the proposed project and the architectural plan was prepared by an architectural engineer, which did not cause any disturbances to the Environmental. The activities relating to construction of unit (such as civil, mechanical & electrical works etc.) were carried out owing to availability of proposed project. Therefore, now only the interaction of operating of the plant with the Environmental parameters and its possible impacts on the baseline Environmental profile (positive & negative; visible & invisible; concrete & absolute; and reversible & irreversible) has been examined, as hereinafter.

The sections and subsections, following hereinafter, present a discussion and analysis of the various foreseeable Environmental and social impacts of the project, if any (although none is expected) during both phases of the project i.e., the machinery setup phase and the subsequent operation phase. Besides presenting analysis of the likely impacts, the discussion presents an outline of the mitigation strategy and the best-suited mitigation measures for avoiding and addressing the identified adverse impacts, if any. The report presents discussion and analysis of the various primary and the secondary impacts as well as the direct and the indirect impacts of the project with respect to their immediate and the ultimate or distant effects on the various Environmental quality parameters and the social factors of significance, wherever relevant.

The Environmental impacts of operation of the plant are likely to arise mainly from consumption of the various raw materials as well as other resources during the operation phases. It is assumed that some vehicles running on fossil fuel (like petrol, diesel) were deployed during installation of the machinery in the proposed project. The end-of-pipe exhaust emissions from engines of these vehicles and generation of noise during their usage might have produced some limited scale and momentary impacts on the local Environmental. Additionally, generation and

disposal of unspent materials, debris, solid wastes and packaging wastes may also be associated with some other insignificant and transitory impacts of setting up of the machinery. Since the plant has been setup in a pre-existing industrial building, there was not any civil work, except some minor repair and maintenance works. Therefore, the majority of the impacts of setting up of the plant, if any, were temporary and transitory in nature. They abated after setting up of the plant was complete in all respects.

As against the negative impacts, there are number of positive impacts of the plant. These include availability of jobs for both skilled and unskilled personnel, income prospects for the persons involved in carriage and transport of materials and goods for the project and above all round the year easy availability of the products to be manufactured at the plant with a view to avoid their shortage in the market.

The premier most positive benefit of the plant is equitable availability of the products manufactured here even for the distant and the remote areas of the province at comparative prices. Because of these benefits, it is suffice here to state that the positive impacts of the plant far outweigh the potentially negative impacts, if any, particularly, whence most of the latter are insignificant and mitigable. As regards the operation phase, not any significant Environmental impacts could be discerned except the probability of industrial accidents from non-observance of the precautionary and the standard operating procedures by the workers and carelessness on their part.

5.1 Assessment Methodology

The instant EIA Report is based on the standard impact assessment methodology as prescribed by Government of Pakistan. In accordance with the said methodology, comparative analysis, both of the negative and the positive impacts has been carried out with respect to the already existing baseline conditions. The said comparison follows a parametric and a non-parametric scheme i.e., how and to what extent various Environmental quality parameters (e.g., those relating to soil, air, water, and aesthetics) and non-parametric aspects (economy, social value system, employment, lifestyles, and behavioural patterns) will be influenced by various activities within the plant's zone of Environmental influence.The Modified Impact Assessment Matrices and a specific questionnaire have been used for identification, screening and characterization of the unmitigated as well as the residual impacts on the physical, biological and social aspects using a numerical scale from (-)2 to 0 to (+)2 respectively. The value (-) 2 denotes high adverse impacts, (-) 1 low adverse impacts, 0 insignificant impacts, (+) 2 high beneficial impacts, (+) 1 low beneficial impacts, and N denotes nil impacts. This method of scaling up of the magnitude of the impacts helps in easy appreciationof the nature, quantum and effect of the project's impacts.

5.1.1 Mitigation Strategy

The mitigation measures, as presented in this document, are aimed to prevent and reduce the foreseeable impacts of the constructional and operational activities during both setting up and the subsequent operation phase of the plant.

The mitigation strategy for countering the adverse impacts is built on the following hierarchy of choices:

- Avoiding a particular impact altogether by taking or not taking a certain action or activity
- Minimizing the impact by limiting the degree or magnitude of the action and its implementation
- Rectifying the impacts by repairing, rehabilitating or restoring the affected Environmental
- Reducing or eliminating the impacts over the time by preserving and maintaining the operations all during life of the action
- Compensating for the impacts by replacing or providing substitute resources or Environmentals
- Installing pollution control equipment and devices (wet scrubber), wherever indicated and necessary
- Improving landscape of the site to augment aesthetics and to reduce visual intrusion
- Reducing transmission of unwanted noise from site or spots of noise generating activities
- Taking any other appropriate step on the basis of feedback information on plant's usage and operation

It is advisable that these measures are implemented in a sequential order, beginning with avoiding the impacts and thereafter adopting the next sequential choices according to the ease of their implementation and cost considerations. Adoption of the above outlined mitigation strategy is expected to ensure long-term Environmental and social sustainability of the project.

5.1.2 Likely Impacts and Mitigations of Location, Design & Planning

The discussion following hereinafter relates to impacts of construction of the plant building and installation of machinery and equipment on various important Environmental parameters.

5.2 Design, Location & Layout Planning

The subsections following hereinafter present a discussion on Environmental impacts of the project's design and planning stage. As per the information provided by the proponent, the site is a vacant and virgin land and the plant will be constructed as an altogether new structure. The proponent will hire professional services of an architect and engineer, who will prepare architectural design and layout plan of the project perfectly in accordance with the laid down criteria, guidelines and specifications of the concerned regulatory agency. As regards construction of the building and installation of plant machinery, the proponent will carry it out by a hired-on-contract labour force and a petty contractor. Therefore, both the proponent and the petty contractor will be responsible for the aspects relating to construction and operation of the plant.

The scope of construction work of the building will include preparation of detailed design criteria, design analysis, calculations, detailed architectural drawings and quality control procedures necessary for setting-up of the plant and installation of machinery together with O&M costs. The contractor will also carry out the additional site investigations, if any will be required, for developing and drafting a time schedule suitable to meet construction requirements by adhering to the same.

- **i) Likely Impacts**

Nil

ii) Activities Likely to Produce the Impacts

- Nil

iii) Mitigation Measures

- Nil

5.2.1 During Construction Phase

The discussion following hereinafter relates to impacts of the construction phase of the project on various important Environmental parameters.

5.2.3 Parametric Impacts of Construction Phase

The subsections following hereinafter present a discussion on the various parametric impacts of the project's construction phase.

5.2.4 Soils and lands

There will not be any Environmental impacts on the soils and lands from construction of plant's building and installation of machinery on a vacant and available land owned and possessed.

i) Likely Impacts

- Nil

ii) Activities Likely to Produce the Impacts

- Nil

iii) Mitigation Measures

- Nil

5.2.5 Surface Water Quality

There are not any significant surface water channels in the zone of Environmental influence of the project site. River far off the project area and therefore they do not have any interaction with the plant site.

i) Likely Impacts

- Nil

ii) Activities Likely to Produce the Impacts

- Nil

iii) Mitigation Measures

- Nil

5.3 Groundwater Abstraction and Quality

The normal quantities of water will be utilized for construction of various civil structures and for human consumption by the labour hired for setting-up and installation of machinery and equipment. The approx. water consumption during construction will not be more than about 20 litres per person per day. The existing water source at the site will be used for construction of building and various human needs during this phase. As the amount of water required for various needs will be quite small, its consumption will not compete with water resources of the area. After completion of construction of the plant building and laying off the labour, the water requirements for this purpose will cease off completely. As there will not be the usage of water for any of the manufacturing activities, the requirements of water will remain restricted only to its logical usage in the worksite toilets and washrooms. There is no population or human settlement adjacent to or near the plant site, which might be affected from water usage at the plant premises. The usage of water at the plant will not interfere with community's water resources.

Generally, construction activities, per se, do not cause groundwater contamination. The groundwater quality is affected only if wastewater (from any source) somehow succeeds in reaching to the groundwater aquifer. The most plausible route is a groundwater borehole. As there is no borehole at the plant site, therefore, there is no probability of contamination of groundwater from this route.

i) Likely Impacts

- Nil

ii) Activities Likely to Produce the Impacts

- Nil

iii) Mitigation Measures

- Nil

5.4 Wastewaters and Effluents

The construction of the plant building and installation of machinery and equipment therein will not generate any wastewaters, whatsoever

i) Likely Impacts

- Nil

ii) Activities Likely to Produce the Impacts

- Nil

iii) Mitigation Measures

- Nil

5.5 Air Quality

The construction of the plant building and installation of machinery and equipment therein will not produce any air quality impacts, whatsoever

i) Likely Impacts
- Nil

ii) Activities Likely to Produce the Impacts
- Nil

iii) Mitigation Measures
- Nil

5.6 Noise and Vibrations
Generally, the noise and vibrations are of relevance to construction activities only if their levels exceed the prescribed limits. The noise levels higher than a threshold can produce psychological and social impacts of distracted attention, irritation and short-temperedness. However, owing to non-cumulative property of sound and vibrations, the impacts are reversible and of significance only during continuation of the noisy activities.

i) Likely Impacts
- Nil

ii) Activities Likely to Produce the Impacts
- Nil

iii) Mitigation Measures
- Nil

5.7 Non-Parametric Impacts of the Construction Phase
The subsections following hereinafter present a discussion on the non-parametric impacts of the plant's construction phase.

5.8 Land use change
The land use change from a more useful purpose to a less useful purpose is considered generally a kind of negative Environmental impact. As regards construction of plant's building and installation of machinery, there will not be any change in the land use as the site is a vacant open land. Therefore, there will not be any land use change, whatsoever from setting-up of the plant on a vacant site.

i) Likely Impacts
- Nil

ii) Activities Likely to Produce the Impacts
- Nil

iii) Mitigation Measures
- Nil

5.9 Solid Wastes
The construction of the plant building and installation of machinery and equipment therein will not generate any solid wastes.

i) Likely Impacts
- Nil

ii) Activities Likely to Produce the Impacts
- Nil

iii) Mitigation Measures
- Nil

5.10 Access, Easement, Health, Wellbeing and Worksite Safety

The construction of the civil structures will not cause any Environmental and social impacts of rights of access, easement, health, community's wellbeing and worksite safety. Improper and poor design can lead to construction of poor quality structures, which in turn can produce psychological, behavioural and health impacts on the users of the facility. A poorly designed structure can be troublesome for the users and the neighbouring communities. Haphazardly placed materials and debris on or near the plant site can cause impedance of movement, risks of personal injury and inconvenience for the neighbours.

i) Likely Impacts
- Nil

ii) Activities Likely to Produce the Impacts
- Nil

iii) Mitigation Measures
- Nil

5.10.1 Cutting and Removal Trees and Crops

The construction of the plant building and installation of machinery and equipment therein will not involve cutting and removal of any trees, whatsoever

i) Likely Impacts
- Nil

ii) Activities Likely to Produce the Impacts
- Nil

iii) Mitigation Measures
- Nil

5.11 During of Operational Phase

The discussion following hereinafter relates to some foreseeable impacts of the plant's operation phase on various important Environmental parameters as well as of the non-parametric aspects. As a general rule, the potentiality of the negative impacts of a unit is likely to increase with the number of persons using the facility. Higher the number of users, higher will be the amount of the wastes, effluents and air emissions generated. Thus, volumetric increases of consumption of resources and the resultant generation of effluents and emissions

will be proportional directly to the number of the users

5.12 Parametric Impacts of the Operation (Usage) Phase

The subsections following hereinafter present a discussion on the parametric impacts of the plant's operation phase.

5.13 Soils and Lands

Operation of the plant does not have any significant interventions with the land and soils at all

i) Likely Impacts

- Nil

ii) Activities Likely to Produce the Impacts

- Nil

iii) Mitigation Measures

- Nil

5.14 Surface Water Quality

Plant's operation does not have any interaction with any nearby surface waters. There is not any natural surface water body near the plant site. However, there are few irrigation watercourses in the vicinity for supplying water to the agricultural lands. None of the surface water sources of the area is likely to be affected from any of the operational activities under the project. Furthermore, the local geographical gradient also does not suggest any likelihood of effects on the surface waters from any of the plant activities. Therefore, no chances of pollution of the local surface waters during operation.

i) Likely Impacts

- Nil

ii) Activities Likely to Produce the Impacts

- Nil

iii) Mitigation Measures

- Nil

5.15 Groundwater Abstraction and Quality

The operation of the plant as a corrugated packaging (boxes & sheets) manufacturing unit will not require any excessive amount of freshwater other than that required for some of the process operations. Additionally, some freshwater will be used in the worksite toilets for sanitation, toilet flushing, washing, bathing and ablution purposes. The amount of water used for these ordinary and daily human pursuits at the worksite toilets will be just normal and of no Environmental concern at all.

i) Likely Impacts

- Nil

ii) Activities Likely to Produce the Impacts

- Nil

iii) Mitigation Measures

- Nil

5.16 Wastewaters and Effluents

Because of its very nature, the plant does not generate any type of effluents during its operational life. Hence, no generation of wastewaters is expected and therefore no resultant impacts.

i) Likely Impacts

- Nil

ii) Activities Likely to Produce the Impacts

- Nil

iii) Mitigation Measures

- Nil

5.17 Air Quality

The operation of the plant as a corrugated packaging (boxes & sheets) manufacturing unit will not cause any air quality impacts. The process or non-process operations of the plant will not affect the local air quality in any manner, whatsoever.

i) Likely Impacts

- Nil

ii) Activities Likely to Produce the Impacts

- Nil

iii) Mitigation Measures

- Nil

5.18 Water Usage

The routine operations of the plant, per se, do not require any alarming amounts of freshwater. However, freshwater is required for the various ordinary human, sanitation and other miscellaneous needs of the project staff. As has been mentioned under Section 1, the strength of the operational staff will hardly exceed 10 persons at any one time. If it is assumed that all 10 persons are always present and the average per capita consumption for all and various needs will be 50 litres per person per day, then the total volumetric requirement of freshwater for 10 persons will be 500 litres (0.5 m^3) per day, the maximum. Based on these calculations, the monthly consumption will be 15000 (15 m^3) litres and the annual consumption against the 280 days' work year will be 140000 (140 m^3) litres. This is just normal and without any significance.

Moreover, the site will be a vacant and open piece of land owned and possessed by the proponent. There is no population or human settlement near the site. Construction of the project building will not affect the community water supplies in any manner, whatsoever.

i) Likely Impacts

- Nil

Activities Likely to Produce the Impacts

- Nil

ii) Mitigation Measures

- Nil

5.19 Solid Wastes

There is not the generation of any solid wastes during operation phase of the plant, except some very small quantities of ordinary type municipal wastes, which may be containing wrappings, papers, eatables, food residues, paper, glass, empty cans, tin bottles, food packaging, peelings, PET bottles, plastics, toys and rags. According to a study on the subject, such types of the municipal wastes contain relatively higher amounts of inorganics on comparative weight basis. The organic constituents of these wastes tend to putrefy early and therefore may give rise to foul smells particularly during hot summer days.

i) Likely Impacts

- Nil

ii) Activities Likely to Produce the Impacts

- Nil

iii) Mitigation Measures

- Nil

5.20 Noise, Vibrations and Odours

There is not the generation of any undesirable noise and vibrations during operation phase of the plant.

i) Likely Impacts

- Nil

ii) Activities Likely to Produce the Impacts

- Nil

iii) Mitigation Measures

- Nil

5.21 Health, Safety and Community Wellbeing

There will not be any impacts relating to health, safety and community wellbeing

i) Likely Impacts

- Nil

ii) Activities Likely to Produce the Impacts

- Nil

iii) Mitigation Measures

- Nil

5.22 Receiving of Raw Materials

The protect land will have a separate designate enclosure for receiving and storing the incoming raw materials under optimal conditions. The enclosure will be a well-ventilated, airy and well-lit place to ensure favourable conditions for storage of the materials without affecting their quality and characteristics. The incoming materials will be properly unloaded under the supervision of the shift incharge and stacked at their respective places according to nature and type of the material. There will not be any discernible impacts of this activity of unloading and storing of the raw materials at the plant premises.

i) Likely Impacts

- Nil

ii) Activities Likely to Produce the Impacts

- Nil

iii) Mitigation Measures

- Nil

5.23 Impact on Topography

Construction of project will not bring major changes in the existing topography of the project site. The change due to construction of building will be of modern nature.

Mitigation Measures

No mitigation required.

5.24 Impacts on Soil

The overall quality of soil of project area is not expected to be adversely impacted due to the execution of project site.

Mitigation Measures

Plantation will be done at open places of project site so that soil becomes stabilized and not eroded during rain.

5.25 Traffic Congestion and Blockage of Access

The site is located on 5 Km Jaranwala Road Tehsil Shahkot District Nankana Sahib and having no major traffic load as discussed above. There are no issues of traffic congestion as it is not a busy road.

Mitigation Measures

No mitigation measures required. An adequate parking area will be provided for loading and unloading purposes. A car parking for employees and visitors will also be provided

5.26 Potential Environmental Enhancement Measures

The subject project has been installed with all precautionary measures to enhance and safe the Environmental. Following necessary measures will also be adopted for the maintenance and enhancement of Environmental conditions Plantation. Project proponent is committed to plant about 1500-2000 plan

species in and around the project area. About 1000 plant will be planted within and along the boundary and these tree plants will be fast growing nature plants belonging to conifer group and others i.e. Polyelthia longifolia (Ulta ashok). Conocarpus Plantation in next two year will be done with the consultation of AE Nankana Sahib or EPA (Punjab). Arid this plantation will be in different schools and colleges and also along the road sides.

5.27 Detailed plantation is given

Years No of Trees Plantation Species Consultation With 1St Year 1000 Polyelthia, Ulta ashok Pongamia glabra Sukh chain Conocarpish Proponent it self 2nd Year 500 Terminelia, Dilbergia sisoo (Sheesham) Azadirachta indica(Neem) AE/EPA 3rd Year SOO Terminelia, Dilbergia sisoo (Sheesham) Azadirachta indica(i Neem) AE/EPA (Nankana Sahib)

5.28 Lowering of carbon foot print

It is considered the prior step to enhancement of Environmental potential. By reducing the carbon foot print the Environmental structure could be regularized. Hence project proponent is committed to lower the Carbon foot print by choosing best ways.

- Replacement of furnace oil with the diesel in the generator.
- By converting some appliances on solar system.
- By driving low carbon vehicles.
- By reducing the amount of wastage of water.

5.29 Social Uplifting

A social campaign will be started by the proponent to motivate the people to choose the best Environmental friendly practices.

• Local people should be trained regarding health and safety issues

5.30 Development of the Area

Construction and operation of the project will also facilitate development of the area through provision of jobs and employment opportunities as well as by producing electricity for industrial use.

5.31 Opportunities of New Businesses

Construction and operation of the project will usher in new opportunities of business and trade for the vendors, suppliers, contractors and service providers who will be providing various goods and services for the project.

Chapter No. 6

ENVIRONMENTAL MANAGEMENT ANDMONITORING PROGRAM

6.0 Objective of Environmental Management Plan

The Environmental Management Plan (EMP) is the integral part of Environmental assessment report. The primary objectives of the EMP are to:

- Define the responsibilities of project proponent, contractors and other role players, and effectively communicate Environmental issues among them;
- Facilitate the implementation of the mitigation measures identified in the EIA by providing the technical details of each project impact, and providing an implementation schedule;
- Define a monitoring mechanism and identify monitoring parameters to ensure that all mitigation measures are completely and effectively implemented;
- All Environmental safeguards are carried out correctly
- Adverse impacts on Environmental are minimized
- All relevant legislation is complied with
- The project is monitored for Environmental impacts

6.1 Structure of EMP

The structure of the EMP should:

- Propose Environmental control methods to be used to prevent or minimize Environmental impacts
- Assign responsibility for each control measure to specific a staff member
- Identify key monitoring parameters and schedule of monitoring of these parameters Identify training requirements at various stages of the development of the project
- Identify the resources required to implement the EMP and outline relevant expenses arrangements

6.2 Institutional Capacity

This section describes the Environmental, social and risk management plan (ESRMP) for ensuring smooth Environmental and social management of the project at all stages of activities and dealing with an emergency as and when it may occur. The objective of including the ESRMP into this EIA Report is to ensure prevention of any situation of emergency and in case of development of such a situation, the steps required to be taken to manage the situation. The section also contains a set of Environmental guidelines for avoiding and or preventing the adverse Environmental impacts of the project. Besides, institutional setup for implementing the ESRMP, management of hazards and emergencies, importance of the compliance-monitoring programme has also been discussed.

The ESRMP is considered as the core area of an Environmental examination. It focuses on Environmental protection through minimization of the impending risks

and the likelihood of occurrence of hazards. The ESRMP aims to ensure that adverse consequences of an emergency are addressed appropriately at all stages of disaster management from prevention to rehabilitation and resettlement of the affected

individuals. The ESRMP also provides a mechanism to reduce likelihood of occurrence of the risks to an acceptable level by adopting the risk prevention strategies. Wherever possible and applicable, the ESRMP provides for avoiding Environmental risks and, in case they are unavoidable, then identification of the most direct and the best possible measures for reducing the extent of damage to persons and property. Additionally, ESRMP designates the special risk areas and proposes stringent measures for hazard avoidance at these high risk and sensitive areas. In nutshell, the objectives of the proposed ESRMP would be as under:

- To provide an early warning system for the potential or actual risks
- To provide a systematic and implementable mechanism for risk characterization and risk mitigation
- To test effectiveness of the risk handling mechanism and hence improve upon the weaker areas
- To ensure that operational activities are carried out in sound and secure manner by avoiding the probability of risks occurrence

Safety measures, including appropriate design solutions, onsite handling of the hazardous materials during construction and resolution of social conflicts during operational phase of the project represent major components of the ESRMP. The ESRMP also aims to ensure that the quality of the life values as well cultural and religious sensitivities are fully preserved all through various stages of the project to avoid social severances and conflicts. Lastly, the ESRMP has been framed in line with the national legislative framework, Environmental standards and regulations to ensure Environmental compatibility of the project.

The proponent shall setup an Environmental Safety and Health (ESH) Unit for timely appreciation, identification, and reporting of the Environmental issues relating to the plant activities and for taking necessary preventive and corrective measures for addressing the issues at various levels of responsibilities. The ESH will be permanent setup and will exist during the operation phase as well but with a little changed composition and mandate. During the operation phase, the ESH may consist of the persons appointed in consultation with the EPA and other relevant agencies. Expenses of the ESHU may be met with from regular budget of the project. The ESHU would be an independent functional unit headed by an ESH Officer, who will be assisted by an appropriate number of subordinate officers, technical personnel, and others. The ESHU should be equipped all essential equipment for dealing with any situation of emergency and disaster.

6.2.1 Specific Implementation Responsibilities

The implementation of the EMP will be the prime responsibility of the project proponent. He will designate responsibilities and obligations to its selected contractors and Environmental Manager/Supervisor. Specific responsibilities of key role players are illustrated hereunder

6.2.2 Proponent

Proponent will be responsible for ensuring overall implementation of the EMP during construction as well as operational stages of the project. He will provide the requisite financial resources to the contractor and Environmental Manager/ Supervisor to implement the EPM. Key responsibilities of proponent are:

- Coordinate with regulatory agencies like TMA and EPA
- Communicate with local community and Regulatory Authorities in order to get time to time feedback of these stakeholders on various social and Environmental concerns
- Make sure liaison between the contractor/ Environmental Manager/ Supervisor and Environmental consultant to check Environmental compliance with EPA requiem

The Contractor will be responsible for the implementation of all measures necessary to ensure that Environmental impacts during construction phases should be minimized. In order to fulfill these requirements, Contractor will carry out the following;

- Implement Environmental good practice measures outlined in the mitigationmeasures.
- Provide, to extent practicable, Environmental training to the work force andpromote Environmental awareness.
- Coordinate with local authorities as appropriate
- Facilitate consultants during Environmental monitoring

6.2.3 Environmental Manager/ Supervisor

The principal responsibilities included:

- To monitor on daily basis whether operational activities are carried out in an Environmentally sound and sustainable manner
- Coordination with provincial and local officials, community groups, government departments, etc. on Environmental issues
- Monitoring of the Environmental aspects of project during operation to ensure that the Environmental impacts and the mitigation measures a in the EMP are implemented.
- Preparing Environmental audit report/ monitoring report on quarterly basis and submit the same to EPA, office. Developing and conducting Environmental training activities for staff.
- Undertake critically important routine and visual monitoring of waste disposal and overall Environmental management practices adopted.
- Devise solutions to Environmental issues as they arise particularly related with odor, dead birds, manure disposal etc. that are in some instances unavoidable.

6.2.4 Environmental Protection Agency

The role of EPA is on the apex and includes checking:

- Whether requirements of the conditional NOC awarded by the EPA against EIA Report are met
- The implementation of mitigation recommendations as given in EIA Approval forstarting actual project operations is obtained from EPA And
- Orderly review of audit reports prepared internally or by a third party monitor

- Carry out Environmental monitoring on quarterly basis and advise any changes inthe structure or implementation method of the EMP
- Suggest or order any appropriate solutions

6.2.5 Auditing

The Audit will be carried out internally by the Proponent, Contractor and Environmental Manager/ Supervisor. The primary aim of the auditing is to assess compliance and effectiveness of the EMP as well as the alternative Environmental and social objectives, and also to assess the effectiveness of corrective actions. Audit will also suggest remedial measures to overcome the Environmental and social problems.

The external auditing will be carried out by the EPA, Punjab, in order to check compliance and implementation of EMP. The EPA will check various parameters with reference to various sections of PEPA- 1997 and standards specified by PEQS there under:

6.3 Training Schedules

The prime objective of the trainings and capacity building programmes will be to ensure long-term Environmental sustenance of the plant's operations and activities and to keep the ESH Manager and the project management abreast of the emerging issues, troubleshooting strategies, and modern techniques of Environmental management and handling emergencies. The efficacy of trainings will be tested from quickness of the response to a crisis as exhibited by the preparedness exercises.

It is recommended to hold at least one training or practice drill session into Environmental issues every six months all during the operational life of the plant. The selected personnel and the employees posted on key points may attend these training sessions. These training sessions should focus on issues of practical nature likely to come up during the plant's operations. They should also focus on sensitizing the participants about Environmental stakes of the project and its various process operations. The training programmes must cater for managing the on-ground Environmental problems and the strategies for implementing the suggested Environmental mitigation measures. A comprehensive training session or a training workshop of appropriate duration be held annually with a much wider participation from the project management down to the plant workers. These workshops may focus on the policy issues, sustainable development strategies, and the troubleshooting mechanisms on the basis of the experiences of the preceding years. An external Environmental consultancy of eminence and repute will be involved in making these training sessions and workshops meaningful.

Training Schedule Of Construction Phase				
Activity	**Duration**	**Trainer**	**Venue**	**Addressee / Participants**
Work at height	1 day	Environmental Specialist of Contractor	On site of CHEMICAL Unit	20 Workers of construction phase

Emergencydrills	1 day	EnvironmentalSpecialist of Contractor	On site of CHEMICAL Unit	20 Workers of construction phase
Health and Safety	1 day	Environmental Specialist of Contractor	On site of CHEMICAL Unit	20 Workers of construction phase
Water Sprinkling	1 day	EnvironmentalSpecialist of Contractor	On site of CHEMICAL Unit	20 Workers of construction phase
Briefing about EMP of construction Phase	1 day	Environmental Specialist of Contractor	On site of CHEMICAL Unit	20 Workers of construction phase

6.4 Equipment Maintenance Details

Equipment maintenance details are given below:

All the machinery and equipment, installed at the plant, is kept clean, tidy, tuned-up and up-to-date as per the instructions and the operating manuals of their respective manufacturers. The ESH Unit will verify the daily monitoring checklists of the upkeep and maintenance schedules

i. Maintenance of vehicles = Daily basis
ii. Maintenance of firefighting equipments = Weekly basis
iii. Maintenance of unit equipment and machinery = After one week
iv. Maintenance of unit = Daily basis
v. Maintenance of Generators = Weekly basis
vi. Maintenance of tree plantation and grassy area = Daily basis

6.5 Environmental Budget

Funds will be required for efficient performance of the ESH Unit. Apart from expenses on maintenance, payment of utilities, salaries of the staff, external compliance monitoring by an Environmental firm willalso require

allocation of money. It is, therefore, recommended that the project should have suitable Environmental budget.

Sr. No.	Activity	Budge (PRs)
1.	Personal Protective equipments	1,00,000
2.	Water Sprinkling	50,000
3.	Tree Plantation and grassy area	3,00,000
4.	Fencing	50,000
5.	Fire Fighting	3,00,000
6.	Housekeeping	50,000
7.	Training of Workers	50,000
8.	Vehicle Maintenance	50,000

6.5.1 Mitigation and Impact Assessment

What is the problem	When will problem occur and whenit should be addressed	Where problem should be addressed	How the problem shouldbe addressed
Dust Pollution	During construction phase, it should be addressed during construction phase	During construction activities	Water Sprinkling
Impacts on air quality	During construction phase by, it should be addressed during construction phase	Construction vehicles during construction activities	Given in detail below & Previous Chapter

6.5.1.0 Mitigation and Impact Assessment Purpose of mitigation measures

Purpose of Mitigation Measures Purpose of mitigation measures should include:

- **What is the problem i.e. in terms of "major Environmental impacts" whichmay arise by the subject project activity?**
- **When the problem will occur and when it should be addressed**
- **Where the problem should be addressed**
- **And how the problem should be addressed**

The major impacts may arise by the subject project are, dust, noise, solid waste, and waste water. Other impacts are of minor importance. These impacts can arise during operation but precautionary measures have been adopted prior to start the operational activity, during the activity and post activity.

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

Project proponent will be responsible for the implementation of EMP and he has appointed a Project manager/Environmental manager along with site manager to assess any impact that could be arisen during operation of the project. He is responsible to address the problem and to mitigate it.Whys of achieving Mitigation Measures By adopting proper mitigation measures, any anticipated major or minor Environmental

impacts could be controlled or mitigated. The detail of impacts and mitigation measures have been discussed previous chapters.

6.5.1.1 And how the problem should be addressed

The major impacts may arise by the subject project are, dust, noise, solid waste, and waste water. Other impacts are of minor importance. These impacts can arise during operation but precautionary measures have been adopted prior to start the operational activity, during the activity and post activity. Any impact that would arise due to the subject project activity will be addressed through proper channel and on site. Trainings will be conducted regarding HSE, firefighting, best work practices etc. while other precautionary measures are also adopted to make the project safe and Environmental friendly.

Project proponent will be responsible for the implementation of EMP and he has

appointed a Project manager/Environmental manager along with site manager to assess any impact that could be arisen during operation of the project. He is responsible to address the problem and to mitigate it.

6.5.1.2 Ways of Achieving Mitigation Measures

Adopting proper mitigation measures, any anticipated major or minor Environmentalimpacts could be controlled or mitigated. The detail of impacts and mitigation measures have been discussed previous chapters .Project proponent of CHEMICAL Unit has been taking appropriate measures to provide pollution free and safe Environmental during the project activity by implementing improved management. Practices and monitoring techniques suggested in EMP. Management will further take necessary actions to mitigate any residual impacts.
Project proponent of Management of unit will adopt such plan that will assure the minimum impact on the Environmental and health by implementing proper mitigation measures. Design of the building assures the structure stability in a long run. There was no dispute arose at the time of purchase the land and the land is the property of proponent of M/S M/S EVER GREEN CHEMICALS INDUSTRIES and if in future, there would arise any issue regarding Environmental degradation, the project proponent will compensate in terms of money as he has assured to achieve PEQS and compliance to other regulations made under PEPA 1997 (Amended).
Plantation has been done within the unit and for this area is reserved, it can also be seen on project map attached with report. Project proponent will further develop Restoration/ reclamation or tree plantation plan to restore the project area. Plantation will be enhanced with native species within the unit, along the boundary wall and along the road side as per direction by EPA Punjab.

6.5.1.3 Improved Monitoring And Management Practices

The aim of improving monitoring is to enhance the Environmental performance of the project through its enforcing the PEQS at all stages of activities as well as dealing withan emergency as and when it may occur. The objective of exercising by the management of the unit is to ensure prevention of occurrence of any situation of emergency and in case of development of such a situation, steps required to be taken to manage the situation. The section also contains a set of Environmental guidelines for avoiding and or preventing the adverse Environmental impacts of the project. The monitoring will be carried out in accordance with PEQS by the management. The proponent along with management will undertake monitoring of the safety, Health and Environmental aspect, it will be the best tool for achieving mitigation measures.

6.5.1.4 Compensation in Money Terms

There is no affecting of the project because the land of a project is owned by the proponent. The construction and operational activities at the project site will not damageinflict to any of the private properties, houses or structures of the neighbouring communities. Hence, no need of any sort of compensation. Not applicable in case of current project

6.5.1.5 Replacement, Relocation and Rehabilitation

The management carrying all responsibility for cleaning and restoration will be carried out during and immediately after each phase of construction and will be the responsibility of each team in their respective area of operation. If relocation

of any public utility or facility will involved, it should be carried out well ahead of start of construction to avoid disruption of service to the user-community Once the phase will over, efforts for restoring normalcy and rehabilitation should be initiated under instructions of the appropriate authorities or the project management committee, if any existing. Cleaning and restoration will be carried out during and immediately after each phase of construction and will be the responsibility of each team in their respective area of operation. The following measures will be taken in this regard.

All pin flags, stakes, signs and refuse will be removed.

- All concrete slabs will be broken and shipped to an appropriate site outside theProject
- Area for proper disposal.
- Erosion control measured will be taken where needed.
- Site will be cleaned so that no refuse or wastes are left behind; the waste will beproperly disposed off.
- All ditches and sumps will be backfilled.
- Contaminated soil will be removed and be proper disposed off.

6.6 Summary Of Impacts and their Mitigation Measures

Summary of impacts and their mitigation measures are presented below in Environmental Management Plan (EMP) of construction and operation phase.

As mentioned earlier in the Executive Summary, there will not be any potentially negative Environmental impacts of either construction or operation of the plant. Hence, no mitigation measures are warranted. As regards, cleanliness of the premises, implementation of the good housekeeping practices will be sufficient to ensure good janitorial profile and hygiene of the premises. Although not any specific mitgation measures are required or recommended, yet implementation of the ordinary Environmental enhancement measures and compliance of the Environmental laws of the country will ensure desirable Environmental performance of the plant. Likewise, implementation of the management guidelines, as given in the relevant chapters of the EIAR, is expected to upscale the Environmental profile of the plant.

The operation phase, like the construction phase too, is devoid of any impacts. Therefore, not any specific mitigation measures have been proposed. This Environmental performance of the project shall be reviewed regularly for early detectionof any Environmental negativity of the plant's operational activities once it has gone into full operation. In addition to the above, a stringent monitoring regime has been proposed to monitor Environmental performance of the project all during its operational life with a view to take up timely corrective and ameliorative measures and address them, if warranted.

In view of the increasing demand of good quality corrugated packaging in the country, it is an urgent need of the time to take up establishment of such like projects in order to meet the market demand on the one hand and to provide opportunities of job, employment and economic prospects for the people of the country on the other hand. Nevertheless, this emergent necessity of setting up such like units should not undermine reverence of the Environmental. It is imperative that likely impacts of such projects on the

Environmental should be well evaluated and addressed in their planning, construction and operation. It needs to be ensured that setting up of such like projects does not affect the Environmental adversely by bringing about unfavourable land use changes, large-scale exploitation of natural resources, and irreversible pollution of the air, water and soil Environmentals from emissions, effluents, solid wastes and other contaminants, if anymight originate from such projects. It is therefore necessary that these projects are subjected to compulsory Environmental examination prior to their implementation, as envisaged under the Punjab Environmental Protection Act 1997 to ascertain their likely adverse impacts of construction and operation well in advance.

Last but not the least, implementation of the mitigation measures should not be taken as substitute of research and development (R&D) which is the keystone to find advanced measures and technologies for addressing Environmental issues and concerns. R&D must be recognized as one of the appropriate tools to find solutions for the diverse Environmental issues that may crop up during lifespan of a project. It is, therefore, recommended that the proponent may review operations of the project continuously to make them compatible with the applicable Environmental quality standards. This will helpto improve Environmental profile of the project and will improve its socio-Environmental outlook as well.

SUMMARY OF IMPACTS AND THEIR MITIGATION

	IMPACTS	MITIGATION MEASURES
	Noise during construction machinery and vehicles	Use of PEEs
	Noise by generator during functioning of the project.	Sound proof room for generator. Regular maintenance and vehicles monitoring.
	Waste water during construction and operation phase.	Waste water from domestic sources will be treated in WWTF prior to use for and drained out during construction. During operation waste water from domestic sources will be treaded in WWTF and drained out. Monitoring.
	Gaseous emissions/particulate matter during construction and operation phase by generator.	Sprinkling of water on dust tructs. Covering of construction material to avoid dust. Installation of cyclones or other equipment's at the stack of generator in case of any emission. Use of PPEs. Maintenance and inspection of vehicles and generator.
	Construction, domestic or project related solid waste.	Utilize the constructional waste for road filling and maintenance. Solid waste bins will be placed at all suitable places. Moreover disposal facility and proper management system.
	Land or soil erosion	Removal of less vegetation. Restoration of land by plantation and maximum plantation will be done.
	Health and safty issue	Use of PPes.

	Installation of firefighting systemand equipment at project site.Training regarding Health & safety, firefighting, and medical first Aid. Proper housekeeping at work place. Never left machinery unattended. Well management practices will be adopt.
Socioeconomic	Provide employment opportunity.Prefer local people for jobs.

6.7 Environmental Management Plan for Construction & Operational Phase

Environmental Management Plan for Construction Phase					
What is the Problem	Aspect	Indicators	Environmental Issues	How the Problem will be addressed/Mitigation measure	Response ability
Camp Site	Camp Site selection, clearing, establishment operation and rehabilitation to the original Condition.	Public acceptability. Least Interference in normal activity of local population.	Acceptability to local population owner and community interference.	Construction camp will be established on the project land owned by the proponent. After completing the construction work, the area will be rehabilitated to its original condition.	Contractor
	Sanitation and wastewater disposal at camp site	Proper disposal of wastewater	Health risk for workforce and local public if not properly managed	Proper sewage system shall be designed (Pit latrines and septic tanks) to receive the sanity wastewater.	Contractor
	Generation and burning of solid wastes at/near camp site	Proper dumping of solid waste	Air pollution associated with burning of used lubricants and garbage.	Refuse collection containers will be placed at site to minimize burning impacts. The burning of solid waste will not be allowed at project site.	Contractor

Construction on Works	Workers safety and hygienic conditions	Provision of healthy Environmental for workers	Health risks if unsafe and/or unfavorable working conditions are provided	Safety measure taken by the constrictors, firefighting equipment, safe storage of hazardous material, first aid, security, fencing. Contingency measures in case of accidents. Obligatory insurance of contractor's staff and laborers against accidents. Protection devices (ear muffs) for	Contractor
				workers operating in vicinity of high noise generating machines. Provision of adequate sanitation, washing, cooking facilities.	
	Camp site security and security during construction	Safe campsite and working areas	Security hazards security related conflicts with local community.	Proper storage and fencing/locking of storage room containing hazardous material. Employment of guard for security. Provision of adequate security against storage, petrol pilfering and theft. Friendly relations with local community.	Contractor

	Storage handling and transport of hazardous construction materials.	Safe Handling and storage of hazardous material	Work safety and human health risks. Safety atwork	Properly designed places for storage of hazardous construction material. Covered transportation of the hazardous material to minimize accidental risks. Provision of protective clothing and equipment for labors handling hazardous materials (hamlet, adequate footwear) for concrete works., protective goggles, gloves. ensuring strict use of wearing protective clothing and use of equipment during work activities.	Contractor
	Movement of vehicle at construction site	Smooth running of vehicles at constructio nsite	Interference in trafficflow	Ensured movement of construction machinery on designated routes. Construction vehicles, machinery and equipment movement, stationed in designated places	Contractor
	Rehabilitation of borrowpits	Barrow pits property rehabilitated	Soil erosion, Derelict	Rehabilitation of Borrow pits. Barrow area, if agriculture	Contractor

			land uses, conflicts, Visual soresin landscape, Public health risksdue to mosquito breeding places	field, removal and storage of top 4 inches soil and spreading it back during restoration of barrow area. Abandoning barrow rears without proper rehabilitation measures and drainage be disallowed	
	Spillage of liquid waste (lubricants, fuel, chemical and other waste material)	Safe disposal ofliquid waste material	Polluting surface/ groundwater r from liquid waste spillage, drainage and run off construction site	Ensuring those fuels, oils, and other hazardous substances are handled and stored according to standard safety practices such as secondary containment. Fuel tanks shall be labeled according as containing hazardous substances. Appropriate arrangements such as concrete base, drip pans shall be used to avoid spills.	Health &Safety manager + Contractor
Water	Use of water for construction and consumption	Economic use of water	Conflict water demand	The contractor should make its Arrangements forwater required for construction.	Contractor

Air Pollution Control	Transpiration of materials, and construction activities creating dust and other emissions	Keeping minimum airpollution	Dust emissions during transportation And construction activities causing health risksfor operators. Impacts on biophysical Environmental	Vehicle delivering loose and fine materials like sand and aggregates shall be covered to reduce failing on roads. Water sprinkling will be carried out at dust prone areas. Ambient air quality monitoring shall be carried out in accordance with Environmental monitoring plan.	Health & Safety manger

Noise control	Running of construction machinery and equipment	Tolerable noise level	Noise fro mvehicles, compaction rollers and concrete mixers and constructio nequipment exceeding PEQS is harmful for receptors.	Plants and equipment used for construction will strictly conform to noise standards specified in PEQS. Vehicles and Equipment used should be fitted, as applicable, with silencers and properly maintained. Restriction on loudly playing radio/tape recorders etc. construction activities will be restricted to 6 am 6 pm.	Health & Safely manger
Flora andFauna	Loss of vegetation and associated fauna	Loss fauna	Loss of aesthetic value	Plantation/ development of greenery at open places in the project area.	Contractor + proponentt

Road safety and communitylife	Risks associated with vehicular movement at construction sites and access/ roads	Safety measures for local population particularly women, children and elderly people	Accident risks, particularly for local population especially women, children andelderly people.	Movement of construction machinery restricted on the designated routes for Transportation of construction materials.Provision of propersafety signage, particularly near accident-prone spots. Setting up speed limitsnot more than 40 km in work area.	Contractorr
	Risks associated with construction activities	Vulnerability to accidents. Human accidents risk	Accident and health risk	Provision and wearing of safety equipment required for specific works (helmets, dust masks, ear muffs, safety goggles). At construction site, a readily available first aid kit including dressing materials and p a person with basic medical knowledge is	Contractor
				Available. Contingency plan is case of major accidents. Strict enforcement keeping non-working person particularly children, away from work sites.	

Archeological Sites	Encountering archeological sites during earthworks.	Safety	Impacts on historically important sites and damage to fossils, artifact, as defined in antiquities act 1975.	In case of detecting any archeological artifact, structure, andcontractor needs immediately haltall works at the site and brief the client about the site as soon as possible.Upon receiving information from the contractor, the client shall bring issue in notice of the archeological department within one working day. In the event of such change finding, the contractor has the duty to secure the site against any intrusion until the archeological expert will decide on future Action.	Contractor + Proponent

Table: ENVIRONMENTAL MANAGEMENT PLAN FOR OPERATIONAL PHASE

ENVIRONMENTAL MANAGEMENT PLAN FOR OPERATIONAL PHASE

	Aspect	**Indicators**	**Environmental Issues**	**Mitigation measure**	**Responsibility**
Water	Consumption of water for domestic purpose .Generation of wastewater from kitchen and toilets.	Economic use of water. Health and hygienic problems.	Conflict water demand.	Provide separate source of drinking water for birds and human beings. Keep a reserve of six hours supply. The storage tanks should be properly cleaned and disinfected on quarterly basis. Quality of water should be got tested from an approved laboratory. The septic	Environmental Manger

				tanks must be checked regularly for their operational capabilities. Remove the grit regularly from the septic tanks. Disinfection of toilets, waste water pipes should be carried out on monthly basis.	
Solid Waste	Generation CHEMICAL waste. Solid waste	Health and hygienic problems. Health and	Bad health of the surrounding surrounding	Finally be disposed in Environmental friendly manner. Wastes hold not be allowed to fall on the floor if this happens the feed should be disposed along .For collection of waste bins should be placed in the shed, office, labor colony and the other areas. Undertake the disinfection of collection bins regularly with proper disinfectants. Organic waste should be finally disposed by composting, Inorganic waste should be Managed separately. Dead birds should be buried in properly constructed concrete pits. Waste materials	Environmental Manger

				should not be thrown here and there inside and outside the units. Segregation of the waste and disposal through recycling and dumping at appropriate disposal site.	
Odor	Generation of Odor	Health and hygienic problems	Bad health of the surrounding	The bedding materials should be reshuffled frequently to prevent the generation of odor. Waster wall odor control	Environmental Manager
			communities	system should always be in working conditions. All the gadgets for controlling temperature, humidity and ventilation should be in worthy operation condition. The mortality pit shouldalways be covered witha slab or an openings and close gate. For enhancing of efficiency of odor control system use caustic soda in proper concentration. Odor control plan presented above.	
Air Quality	Air Quality	Keepin minimum air pollution	Dust emission s during transportation and generation causing health risks of workers. Impact on biophysics al Environmental.	The open space should be covered with concrete/bitumen/grass. Sweeping should not be done in haphazard manner the floor surface should be sprinkled with water before sweeping. Generators should be well condition	Environmental Manager

Safety and Security	Risk associated with safety and security	Take preventive measure to avoid safety issues	Economicloss. Chance to impact the neighbor in case offire etc.	Keep the unit premises safe and secure formany external agent. Always keep the firefighting equipment in working conditions. Display the contact number of fire brigades and the other rescuer services at prominent places.	Environmental Manager
Health and Hygiene	Health and Hygiene	Take preventive measures to avoid health	Health Impact of workers	All rotary equipment's/ parts will be covered for safety of workers, gloves will be provided during	Environmental Manager

		hazards		handling of manure, illumination level as prescribed by factories rule 1978 will be managed at working sites, fire extinguishers will be placed near electrical installations, clean work Environmental will be provided to all workers, yearly medical checkup will be carried out by authorized practitioner, routine safety talks with employees in local language will be carried out with workers, Carry out regular medical checkup of the workers and keep proper records. The workers should ensure personal hygiene of highest order. The workers should use proper protective clothing.	**Environmental Management and Monitoring Measures** **Change in Design and Planning Stage**

Environmental Guidelines	Responsibility
Design Aspects (1) Project's Design and Layout should: a) have architectural features, to the extent possible, in conformity to general landscape of the area b) be in consonance with local climatic, Environmental,and meteorological conditions c) prefer local construction materials to the maximum extent possible d) incorporate proper ventilation of the structures and provide for sunshine, air movement, and maximum usage of the daylight e) provide adequate space for movement of the workers around process machinery and installations f) make provisions for collection, treatment, and disposal of process wastes (solid wastes) in an Environmentally sound manner by providing a well designed process wastes handling system of	▪ Proponent ▪ Project Consultant ▪ Architect / Design Consultant / ▪ Project ▪ Engineer

Environmental Guidelines	Responsibility
appropriate capacity g) make provisions for collection, treatment, and disposal of process effluents and emissions (liquid, gaseous) in an Environmentally sound manner by providing a well designed process effluents and emissions handling system of appropriate capacity h) Provide adequate structural safeguards for avoiding contact of storm water with raw materials etc. through collection, diversion, and removal of storm water runoff away from production unit and stores i) provide for internal footpaths and or pavements to ensure all weather access to various plant locations j) provide adequate arrangements for community toilets for the workers at convenient locations k) Provide construction of septic tank system for collection, treatment, and disposal of toilet wastewater all during the project's construction phase l) be in accordance with the applicable byelaws and building code m) provide for availability of safe drinking water for the workers at convenient locations in the project premises both during construction and the operation phase	

i) Construction Stage

Environmental Guidelines	Responsibility

Air Quality Concerns (1) The dust producing activities (operating the machinery, loading/offloading the materials) be preferably carried out at evening hours to minimize exposure of the persons working onsite and in the vicinity to high levels of dust emissions (2) All the machinery and equipment that run on fuel oil and the vehicles engaged in connection with project construction be adequately tuned up and well serviced to avoid emission of smoke and the particulate in their exhausts (3) Only new and unadulterated fuels and lubricants be used in the machinery and vehicles. Spent oils be avoided (4) Operation of the fuel powered machinery and equipment be avoided in windy conditions to prevent spread of the exhaust fumes (5) All loose materials (e.g., sand, soil) be kept covered with canvas/plastic sheets while stacked onsite or while being transported on a carriage vehicle to avoid their flying off with air currents or vehicular movement. If sheeting is not possible, then their top layer/surface layer be lightly sprinkled with water (6) All vehicle drivers be instructed to lower down the speed particularly on the earthen and narrow rural roads and at road bends to reduce blowing of the drag dust (7) The active constructional areas be obscure and isolated from the	▪ Construction Contractor ▪ Project Manager

Environmental Guidelines	Responsibility
exterior by vertical shields / blinds, where necessary to avoid entry of particulate dust from them into the Environmental	
Water and Wastewater (1) No water for constructional needs be drawn from a shared community water source (e.g., a canal, a community well) except with consent of the community to avoid any chances of friction with the community (2) No raw wastewater be disposed of onto land, into a drain, into a watercourse, or used for irrigating the crop field unless it has been appropriately treated to conform to the intended usage (3) All effluents and wastewaters be compulsorily subjected to treatment before their final release into the Environmental (4) Throwing of the liquids/CHEMICAL/paints/effluents into nearby water bodies or onto land be avoided (5) Washing the machinery, vehicles, construction implements into nearby surface waters be avoided (6) All the freshwater and the wastewater pipelines be buried (or well secured if open) to avoid their accidental or mischievous damage by vehicles, animals, and or miscreants (7) Rainfall containment structures or storm water diverting barriers/channels be provided all around the project structures to avoid direct hit of the storm water to the building/sensitive structures	▪ Construction Contractor ▪ Project Manager

Noise Pollution (1) The noise producing constructional machinery be operated preferably during daytime so that quietness of the night is not impeached and nearby community is not disturbed (2) The night time operation of the constructional machinery, welding activities, and movement of the vehicles be avoided to the maximum possible extent (3) The steel fixing, fabrication, welding, and loading /unloading activities be preferably carried out at the daytime hours (4) All the machinery, equipment, generators, and the vehicles, which are a source of noise, be kept well maintained. Consider fitting a silencer to reduce noise generation, wherever required	▪ Construction Contractor ▪ Project Manager
Public Utilities (1) The excavation and digging activities be carried out only after ascertaining that no gas, oil, or public utility lines are passing through or underneath the area to be excavated (refer to local utilities layout map) (2) A standard operating procedure be devised for dealing with accidental damage to utilities along with an immediate restoration plan well ahead of undertaking the excavations (3) If relocation of any public utility or facility (e.g., electricity poles) is involved, it should be carried out well ahead of start of construction to avoid disruption of service to the user-community	▪ Construction Contractor ▪ Project Manager

Environmental Guidelines	Responsibility
Cultural and Archaeological Heritage (1) The discovery of any remnants / relics of historical, cultural, or archaeological importance during excavations or diggings be immediately reported to concerned authority / archaeology department	▪ Construction Contractor ▪ Project Manager
Social Environmental / Worksite Safety (1) All the working staff at the project site be made aware of the risks of personal injuries associated with constructional activities and the ways of avoiding them (e.g., wearing helmets, breathing masks, earmuffs, safety goggles, gloves, etc.) (2) A first-aid box be always kept handy at the construction site all during construction and if needed an appropriate medical care unit be setup during construction of the project (3) the heads/supervisors of the various sections be made aware of the standard operating procedures for dealing with emergencies and for appropriate hazard management (4) Indicative signage and warning boards be affixed at appropriate locations at the premises for information and guidance of the workers/employees (5) The wastes and the packaging materials be collected, segregated, and stockpiled in covered sheds to avoid their spoiling by the rainwater (6) The labour should be paid wages according to Government's notified minimum wage rates and not less than that to avoid labour disputes and unrest (7) The women workers be paid the same wages as are paid to the men for equal hours of work (8) employing of children as labourers be avoided (9) Fire fighting arrangements be always kept ready at the worksite all during construction (10) Lighting of matchsticks or lighters and the cigarette smoking be strictly prohibited at or the work places and particularly near inflammable materials (11) All ignitable and inflammable materials be separately stored at a safe distance away from any source fire	▪ Construction Contractor ▪ Project Manager

Chapter No.7

CONSIDERATION OF THE PROJECT ALTERNATIVES

7.0 Significance of the Alternatives

The consideration of alternatives to a project is one of the key aspects of an EIA. Consideration of alternatives assists the decision makers in the choice of an alternative, which has the least adverse and greatest beneficial Environmental social and economic consequences. The most pertinent question to assess feasibility and propriety of a developmental project, from Environmental impact perspective, is to ask whether an alternative option would be better than the project proposal. The comparative analysis of the Environmental and economic impacts of all the possible alternative options can provide an answer to this important query. The project alternative question has been objectively and analytically examined in this EIA in the light of the impacts on the physical, biological, ecological, health, and economic Environmental as well as views and reservations of the stakeholders (proponent and the likely beneficiaries / losers).

7.1 No Project Possible Alternatives to the Project Reasons

In the light of the views of the stakeholders and other objective evidence.

- The site Abandonment of the project on financial and technical grounds andmaintenance of the existing position (i.e., status quo or no project option)
- Changing the size and operational scope of the project facility (Reducing & downsizing;or enhancing & upsizing)
- Shifting the project facility to some other location (site shifting)
- Construction of an alternative network of smaller independent units at differentlocations in a much wider coverage area

The above-mentioned possible alternatives are discussed below briefly:

7.1.0 Abandonment of the Project (No Project Option)

The first alternative option could be to abandon the project altogether and continue with the existing situation. This option is not supported by objective conditions, populationsize of the district, and public demand for provision of good quality housing facilities. Opinions and viewpoints of the stakeholders (buyers, property dealers, neighboring residents, and shopkeepers) were also solicited on this no project option. Not a single interviewee voted against construction of the project facility. All the stakeholders rated construction of the project as a benevolent step from the proponent to reduce shortageof housing facilities in the district. As such, this alternative has no rationale or justification and therefore not tenable.

7.1.1 Changing the Scope

The second alternative could be change in the scope of the project facility, i.e., either reduction and downsizing the size of the project or the scope of the services or enhancing and upgrading the same. The downsizing or upsizing would include both the area of the project. The physical constraint in upsizing the project is non-availability of additional clear land at the site. On the other hand,

downsizing is likely to jeopardize economic viability of the project. According to the proponent, both these factors have been taken into account while designing the project. As such, the objective evidencedoes not support downsizing. Since additional land is not available at the site, the upsizing option automatically becomes irrelevant, at least for the time being. Therefore, option of change in the scope of the project is found not feasible.

7.1.2 Relocating the Project

The third possible option could be shifting, either a part or the entire project, to some other location. As mentioned in earlier1, due to space constraints the project is being the undertaken at this site primarily because land is available with the proponent at this site. Therefore, shifting of the project to some other place in or around the city is not possible because it will be firstly non-feasible and secondly, it will not serve objectives of the project.

7.1.3 Construction of Isolated Independent Housing Units

This option was not considered because of its being diametrically contrary to project's objectives.

7.2 Summary of the Project Alternative Options

Based on the objective analysis, views, and opinions of the stakeholders, as detailed above, various alternative options are found not feasible. Furthermore, the net socio- Environmental impacts of the a project are positive. Therefore, consideration of the above-discussed alternative options is not relevant to the instant project.

7.3 Final Selection Of Site

A critical analysis was made based on the available accessibility with Reference to land availability, accessibility of site, availability of water resources ,less damage to existing Environmental and other Environmental problem. Finally selected present site of a project is more practicable with respect to economic ,social and Environmental perspective and future development for residential housing society.

Chapter No.8

STAKEHOLDERS' CONSULTATIONS

This section describes the process and outcome of the consultations held with the relevant stakeholders and the neighboring community over Environmental aspects ofthe project.

8.0 Objectives and Rationale of Consultations

The primary objective of the stakeholders' consultations was to learn and know the apprehensions, concerns, and opinions of the key stakeholders over Environmental implications of the project. The consultation sessions also served as a source of first- hand information about expectations of the community and beneficiaries of the project. Dialogue with the stakeholders and recording their concerns at appropriate stages of the project can help to tailor the project in line with stakeholders' aspirations and therefore likely to promote public acceptance of the project and its sub-components.

8.1 Identification of the Relevant Stakeholders

The consultation process began with identification of the most pertinent stakeholders. Efforts were made to identify the relevant stakeholders through a systematic process based on the nature and degree of their actual and perceived stakes in the project. **Tables** are the various categories of the stakeholders and the nature of their stakes into the project pertaining both to construction and operation stages of the project:

Table 8.1a: Stakeholders into the Project and Nature of their Stakes (Construction Phase)

Category	Stakeholders	Nature of the Stakes
Design & Construction Stage		
Project Funding Agency	▪ Proponent	▪ All those stakes which a funding agency would have i.e., achieving the desired objectives and reaping benefits of investment into the project
Project Sponsoring Agency	▪ Proponent	▪ That the project is carried on smoothly in accordance with scheduled timeline
Project Implementing Agency	▪ Proponent ▪ Project's DesignConsultant ▪ Construction Contractor ▪ Sub-contractors and Labour ▪ Vendors of machinery, equipment and various goods and services for	▪ That the project is implemented as per schedule and delays on whatsoever account are avoided ▪ That all bottlenecks and impediments are removed in a timely and effective manner ▪ That the bills are cleared in timely manner and payments are made as per contract

	the Project	agreement
Regulatory Authorities	▪ Environmental ProtectionAgencies ▪ Local District and the Municipal Administration ▪ Local Building Control Authority	▪ That constructions under the project conform to applicable building codes, rules, regulations, bylaws, and Environmental standards
Project	▪ Proponent	▪ That the project is completed as

	Stakeholders	Nature of the Stakes
Design & Construction Stage		
Users/Beneficiaryes	▪ Construction contractors ▪ Persons employed at theproject ▪ Goods & Serviceproviders ▪ Others	per schedule and that they get maximum benefits from the project ▪ That the project structures meet with their needs and requirements
Public andCommunity	▪ Neighbourhood community, Residents, Vendors, Agriculturists, and Land owners	▪ That the project activities do not affect their living, business, and civic rights in an adverse manner ▪ That the project activities are not harmful for their health, hygiene and aesthetic ambience ▪ That the locals are preferred in provision of jobs at the project

Table 8.1b: Stakeholders into the Project and Nature of Their Stakes (Operation Phase)

Category	Stakeholders	Nature of the Stakes
Operation Stage		
Project Funding Agency	▪ Proponent	▪ That the fruits of investment are fully realized to the desired extent and the objectives are achieved to a satisfactory level
Project Sponsoring Agency	▪ Proponent	▪ That the project operates as a successful venture and serves as a role model for replicating similar projects by others
Project Operating Authorities	▪ Proponent	▪ That operational bottlenecks are removed in a timely manner and the project's operations carries on smoothly
Regulatory Authorities	▪ Environmental ProtectionAgencies ▪ Local District and the Municipal Administration ▪ Local Building ControlAuthority	▪ That the project remains conformant to the applicable rules, laws and the Environmental standards
Project Beneficiaries	▪ Proponent ▪ Employees and Project Staff ▪ Persons providing services and goods at and for the projectcomplex ▪ Others	▪ That the project provides all the services and facilities for which it has constructed ▪ That the project is safe and secure from any outside intrusion ▪ That the quality of academics and research at the project university of international standard ▪ The food served at the project facilities (canteens, mess, cafeteria etc.) is of prime standard and quality ▪ That the project activities do not pollute the Environmental

Category	Stakeholders	Nature of the Stakes
Operation Stage		
		▪ That appropriate training and capacity building is provided tothe project staff ▪ That operation of the project is free from corrupt practices and maladies and is geared to serve its underlying objectives ▪ That payment to suppliers are made in a timely manner without any hassle and problems. ▪
Public an dCommunity	▪ Neighbourhood community, Residents, Shopkeepers, Vendors, Villagers, Farmers, Land owners and Passers-by	▪ That the project activities do not affect their living, business, and civic rights in an adverse manner ▪ That the project activities are not harmful for their health, hygiene and aesthetic ambience ▪ That the locals are preferred in provision of jobs at the project

8.2 Consultation Methodology

Onsite consultations were held with representatives of the various categories of the stakeholders as were available during field visits of the project sites. Additionally, wherever found feasible, general public in the vicinity were also consulted to know their views and concerns over the project activities. The majority of these consultations were either one to one meetings or small and focused group discussions.

8.3 Issues Discussed

The points listed below are some of the issues discussed during the consultations:

- Are the constructions being undertaken in accordance with applicable codes, rules,and regulations?
- Are the constructions commensurate to their usage after completion?
- Are the contractors complying with the Environmental requirements?
- Are there any concerns apprehensions, and views of the community and the stakeholders over the project activities relating to design, construction and operational aspects? What are these?
- What are the likely adverse impacts of the project on the various components of the Environmental i.e., physical, biological, and social components?
- What could be the possible remedies for the concerns and apprehensions? How they concerns can be effectively addressed?

- Any particular and specific personal or site related concerns.
- What steps would be needed to ensure long-term sustainability of the project and the activities under the project?
- How the project operations can come up to expectations of the users and or the beneficiaries?

8.4 Outcome of the Consultations

The neighbourhood communities did not express any specific or significant concerns. Interestingly, different stakeholders had different perceptions and different concerns about the project. Some of the concerns and apprehensions relating to various aspectsof the project are reproduced below:

8.4.0 Design Aspects

- The design aspects need to take into account the relevant building codes, byelaws,and the applicable governmental policies.

8.4.1 Construction Aspects

- Delays in construction and completion of the project are likely to result into escalation of construction costs.
- Delays in payments to the contractors, sub-contractors, suppliers and the labour can cause delays in the project implementation.
- Delays in handing over the sites and later changes in the drawings and scope of work result into slow progress of the constructions under the project.
- Interferences by the local regulatory agencies and the municipal authorities are also likely to cause delays in completion.
- Disorderly and haphazard placement of construction materials with its attended consequences could be a nuisance for the labour and other persons working on the project.
- Construction related noise could be troublesome for the neighbourhood community.
- Generation of dust and its deposition on exposed surfaces would require frequent dusting.

8.4.2 Operation Aspects

- There could be disruptions and discontinuations in the supply of the machinery and equipment and other materials for timely completion of the project
- There could be non-payment or delayed payment of wages to the work charge and thetemporary employees.
- There could be unsatisfactory cleanliness of the premises due to administrative andsupervisory lapses.

8.5 Measures to Address the Concerns

Table 8.5 presents a summary of the concerns and apprehensions of the various stakeholders to the project and the plausible measures to address them:

Table 8.5: Summary of Stakeholders' Concerns alongwith Remedial Measures

Persons Consulted	Concerns/Apprehensions	Remedial Measures
Environmental Protection Agency	▪ Environmental and functional compatibility of the project ▪ An institutional setup for addressing the issues and concerns ▪ No or minimal delays at various milestones	▪ EIA, EMP and the Environmental Guidelines as given in this documents will ensure Environmental and functional compatibility of the project ▪ An Environmental Safety, Health and Social Management Unit (ESHU) will be setup to manage all Environmental and social issues of the project during both construction and subsequent operation
District Executive Authorities	▪ The project carries on smoothly without creation ofany serious impediments	▪ The core administration of theproject as well as ESHU will ensure smooth functioning of the project without eruption of

Persons Consulted	Concerns/Apprehensions	Remedial Measures
		any unpleasant situation
Project Staff	▪ Wages are paid in time and no deductions are made therefrom on any count ▪ Good quality and hygienic food is served ▪ Social security cover is provided for the project staff and the labour	▪ The core administration and the ESHU will ensure that all apprehensions are allayed ina timely manner

Contractors	▪ Delays in construction and completion of the project and resultant escalation in construction costs ▪ Delays in clearing of the running bills/ payments ▪ Poor coordination between various departments and functionaries ▪ Changes in the drawings and scope of work ▪ Lengthy and tedious procedural requirements ▪ Interferences by the local regulatory agencies and themunicipal authorities	▪ The majority of the contractors' concerns relateto procedural and management issues. The institutional setup a for Environmental and social management of the project will help solve the problems
Office staff and other employees	▪ Non-fulfilment of promises by the project authorities ▪ Disruptions in the supply of essentialities like office stationery, diesel for generators, and ink for printers ▪ Non-payment or delayed payment of wages to the work charge and the temporary employees ▪ Unsatisfactory cleanliness ofthe premises ▪ Lack of appropriate working space for the employees ▪ Lack of space for placing the important record and files ▪ Lack of safe drinking water facility	▪ The majority of the concerns relate to procedural and management issues. The a institutional setup will help solve the problems
Neighborhood community and shopkeepers	▪ Noise pollution ▪ Dust and air pollution ▪ Disorderly placement ofconstruction materials ▪ Environmental compatibilityof the project ▪ Neighbours are not displaced	▪ The ESHU will keep constant liaison with the neighbouring community and will resolve all disputes and differences in an amicable manner through negotiations an dconsultations

Persons Consulted	Concerns/Apprehensions	Remedial Measures

	or their business are notaffected ▪ Timely completion of theproject ▪ Preference in provision ofjobs to locals	▪ Timely completion of the project will be ensured ▪ No person will be dispossessed or displaced from his land without paying for due compensation ▪ The proponent will give due preference in provision of jobs to the locals provided they otherwise qualify for the job as per the prescribed qualification and applicable conditions

8.6 Proponent

Possible impacts and mitigation measures related to the subject project were discussed with the project proponent and management. They assured to take all suggested mitigation measure to control any discrepancy arose by the project and to make the project Environmental friendly. Responsible Authority Management of CHEMICAL is the responsible authority to take all measure during the operation activity.

8.7 Other Department and Agencies

For the impact analysis detailed meetings were held with the management of M/S Evergreen CHEMICAL and local community. Issues were discuss that may affect the Environmental and also the implementation of a project. All possible mitigation measures were considered and incorporated in the Environmental Management Plan.

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

8.8 Environmental Practitioners and Experts

Environmental Practitioners and Experts Team of M/S Environmental Consultants & Associates visited the project site, had discussions with stakeholders and consulted with the local people of nearby and other villages to evaluate the project socio-economic impacts. People of the area belong to different professions like mostly belong to employment, shopkeepers, in agriculture, and drivers etc. Women were also consulted for their point of view regarding the betterment of the area by this project, some of them communicated but according to social value of the area they mostly hesitate to communicate comfortably and get pictured. People provide the massive information about the project and have positive remarks regarding the project development.

8.9 Affected & Wider Community

There is no affected community present in the radius of our study area. Team has consulted with the inhabitants of the different villages. They provided positive

remarks regarding the subject project and in the favor of the subject activity for the current established unit. Stakeholders participation Performa's and socioeconomic questionnaire were get filled by he inhabitants to evaluate the project socio-economic impacts.

people of the area belong to different professions like mostly belong to agriculture, industrial workers, labor, drivers, land owners etc. Women were also consulted for their point of view regarding the betterment of the area by this project, but they were hesitated o communicate comfortably and get pictured. People provide the massive information out the project and have positive remarks regarding the project development.

Chapter No.9

CONCLUSION AND RECOMMENDATIONS

CONCLUSIONS

- The EIA study reveals that the project is economically viable, socially acceptable and Environmental friendly. On completion of the a project M/S Ever Green Chemicals Industries will sale the in local market.
- It will generate additional jobs during construction and operation phases.
- The proponent has committed to implement the project in the Environmental friendly manner.
- M/S ever Green Chemical Industries intends to register the project with local Government.
- The M/s Ever Green Chemicals Industries has prepared and implemented very comprehensive Emergency Preparedness and Response Standard OperatingProcedures.
- The M/s Ever Green Chemicals Industries has prepared and implemented very comprehensive Security and Fire Fighting Standards Operating Procedures.

RECOMMENDATIONS

- In view of the comprehensive screening process and findings of the present study there is no need of conducting further investigations. Tree plantation inside the farm is not recommended because of proliferation of epidemics. However it should be done along the outside of boundary.
- The untreated wastewater should not be reused for irrigating the vegetation and lawns. High standards of bio security and safety should be enforced during operation stage. Safety of the workers should be top priority for the management.

- M/S Ever Green Chemicals Industries should continue to assist the local communities as a corporate/social responsibility.

- The present EIA Report is enough to meet the administrative and legal framework.Therefore, the Environmental approval may be accorded for the a project

Annexure -1

GLOSSARY

Ancillary Material
Material that is not used directly in the formation of a product or service.
Action
learning
Learning
A process in which participants learn through experience and application A training techniques by which management trainees are allowed to work full time analyzing and solving problems in other departments.

Auditing
Environmental Management System Audit.

Biotic Resources
Resources which are considered biotic and therefore renewable. The rainforests and tigers are examples of biotic resources.

By-Product
A useful and marketable product or service that is not the primary product or service being produced. See also co-product.

Certification

The procedure by which third party gives written assurance that a product, process, or service conforms to specific requirements. See also registration.

Characterization

Characterization aggregates classified Environmental interventions/aspects within an Environmental impact category. This step results in Environmental performance indicators.

Characterization Factor

A factor that describes the relative harmfulness of an Environmental intervention within one Environmental impact category. A factor is a result of modeling Environmental effects/problems.

Classification
Classification attributes are Environmental interventions/aspects listed in an Environmental inventory/Environmental effects register according to Environmental impact categories.

Close-loop Recycling
A recycling system in which a product made from one type of material is recycled into a different type of product (e.g. used newspapers into toilet paper). The product receiving recycled material itself may or may not be recycled. See also open-loop recycling.

Co-Product
A marketable by-product from a process that can technically not be avoided. This includes materials that may be traditionally defined as waste such as industrial scrap that is subsequently used as a raw material in a different manufacturing process.

Continuous Improvement
The process of enhancing an Environmental management system to Achieve improvements in overall Environmental performance in line with an organization's Environmental policy.

Damage
A deterioration in the quality of the Environmental not directly attributable to depletion or pollution.

Depletion
The result of the extraction of abiotic resources (non-renewable) from the Environmental or the extraction of biotic resources (renewable) faster than they can be renewed.

Eco-Efficiency
The relationship between economic output (product, service, activity) and Environmental impact added caused by production, consumption and disposal.

Emission
One or more substances released to the water, air or soil in the natural Environmental. See also Environmental release, pollution and Environmental intervention.

Environmental
Surroundings in which an organization operates, including air, water, land, natural resources, flora, fauna, humans, and their interrelations. This definition extends the view from a company focus to the global system.

Environmental Aspects
Elements of an organization's activities, products or services which can interact with the Environmental. A significant Environmental aspect is an Environmental aspect which has or can have a significant Environmental impact. See also Environmental interventions, Environmental problem.

Environmental Effect
Any direct or indirect impingement of activities, products and services of an organization upon the Environmental, whether adverse or beneficial. An Environmental effect is the consequence of an Environmental intervention in an Environmental system. See also Environmental impact, Environmental problem.

Environmental Effects Evaluation
A documented evaluation of the Environmental significance of the effect of an organization's activities, products and services (existing and planned) upon the Environmental.

Environmental Effects Register
A list of significant Environmental effects, known or suspected, of an organization's activities, products and services upon the Environmental. Also see Environmental inventory.

Environmental Impact
Any change to the Environmental, whether adverse or beneficial, wholly or partially resulting from an organization's activities, products or services. An Environmental impact addresses an Environmental problem. Also see Environmental effect.

Environmental Impact Added
The total of all Environmental interventions of a product or production system evaluated (weighted) according to the harmfulness of each intervention to the Environmental

Environmental Intervention
Exchange between the economy and the Environmental including resource extraction, emissions to the air, water, or soil, and aspects of land use. If resource extraction is excluded, the term used in this case is Environmental release. See also emission and pollution.

Environmental Inventory
An Environmental inventory identifies and quantifies - where appropriate - all Environmental aspects of an organization's activities, products and services. Also see Environmental effects register.

Environmental Issue
A point or matter of discussion, debate, or dispute of an organization's Environmental aspects.

Environmental Management
Those aspects of an overall management function (including planning) that determine and lead to implementation of an Environmental policy. See also Environmental management system.

Environmental Management Audit
A systematic evaluation to determine whether an Environmental management system and Environmental performance comply with planned arrangements, and whether a system is implemented effectively, and is suitable to fulfill an organization's Environmental policy.

Environmental Management Manual
The documentation describing the procedures for implementing an organization's Environmental management program.

Environmental Management Program
A description of the means of achieving Environmental objectives and targets.

Environmental Management Review

A formal evaluation by management of the status and adequacy of systems and procedures in relation to Environmental issues, policy and regulations as well as new objectives resulting from changing circumstances.

Environmental Management System
The part of an overall management system which includes structure, planning activities, responsibilities, practices, procurements, processes and resources for developing, implementing, achieving, reviewing and maintaining an Environmental policy.

Environmental Management System Audit
A systematic and documented verification process to objectively obtain and evaluate evidence to determine whether an organization's Environmental management system conforms to the Environmental management system audit criteria set by the organization,and communication of the results of this process to management.

Environmental Objectives
The overall Environmental goal, arising from an Environmental policy, that an organization sets itself to achieve, and which is quantified where practical.

Environmental Performance
Measurable results (see environmental performance indicators/index) of an Environmental management system, related to the control of its Environmental aspects. Assessment of Environmental performance is based on Environmental policy, Environmental objectives and Environmental targets.

Environmental Performance Index
A parameter describing Environmental impact with a single figure. An index is usually calculated by weighting the actual impact level against a target level. Also see valuation.

Environmental Performance Indicators
Different parameters describing the potential impact of activities, products or services on the Environmental. These parameters are the result of characterizing classified Environmental interventions/Environmental aspects.

Environmental Policy
A statement by an organization of its intentions and principles in relation to its overall Environmental performance. Environmental policy provides a framework for action andfor the setting of its Environmental objectives and target.

Environmental Problem
An Environmental problem is a description of a known process within the Environmental ora state of the Environmental which has adverse effects on the sustainability of the Environmental including society. They include resource consumption and Environmental impacts. See also Environmental effects, Environmental aspects.

Environmental Regulation Register
A list of regulations regarding Environmental aspects of an organization. Also see Environmental effects register and Environmental inventory.

Environmental Release
See Environmental interventions.

Environmental Target
A detailed performance requirement, quantified where practical, applicable to the organization or parts or combination thereof, that arises from Environmental objectives and that must be set and met in order to achieve those Environmental objectives.

Environmental Strategy
A plan of action intended to accomplish a specific Environmental objective.

Interested Party
Individuals or groups concerned with or affected by the Environmental performance of an organization. Interested groups include those exercising statutory Environmental control over an organization, local residents, an organization's investors, insurers, employees, customers and consumers, Environmental interest groups and the general public.

Open-loop Recycling
A recycling system in which a particular mass of material (possible after upgrading) is remanufactured into the same product (e.g. glass bottles into glass bottles). See also open-loop recycling.

Organization

A company, corporation, firm, enterprise or institution, or part or combination thereof, whether incorporated or not, public or private, that has its own functions and administration. For organizations with more than one operating unit, a single operating unit may be defined as an organization.

Pollution
Residual discharges of emissions to the air or water following application of emission control devices (EPA 1993b). See also Environmental release and Environmental intervention.

Primary Product
The product or service which is the strategic focus of an organization. See also by- product and co-product.

Prevention of Pollution
The use of processes, practices, methods or products that avoid, reduce or control pollution. These may include reycling, treatment, process changes, control mechanisms, efficient use of resources and material substitution.

Recycling
The process of re-using material for the production of new goods or services on the same quality level. If the quality of the goods and services produced with recycled material is lower, then the process is known as down cycling. See also close-loop recycling and open-loop recycling.

Registration
The procedure by which an organization indicates relevant characteristics of a product, process or service, or particulars of an organization or person, and then includes or registers the product, process, or service in an appropriate publicly available list. See also certification.

Resources
Materials found in the Environmental that can be extracted from the Environmental in an economic process. There are abiotic resources (non-renewable) and biotic resources (renewable).

Reuse
The additional use of a component, part, or product after it has been removed from a clearly defined service cycle. Reuse does not include reformation. However, cleaning, repair, or refurbishing may be done between uses.

Solid Waste
Solid products or materials disposed of in landfills, incinerated or composted. See also waste.

System
A collection of operations that perform a desired function.

Valuation
The process of weighting characterized Environmental interventions against each other in a quantitative and/or qualitative way. This process results in an Environmental performance index.

Verification Activities
All inspection, test and monitoring work related to Environmental management.

Annexure 2

Sources of Data and All References Material Used

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Annexure 3

TERMS OF REFERENCES OF ENVIRONMENTAL REPORTS AND THOSE GIVEN TO INDIVIDUAL SPECIALISTS

The Agreement (hereinafter called Agreement) is made between Environmental consultant and M/S EVER GREEN CHEMICALS INDUSTRIES EIA Report (Environmental Impact Assessment (EIA) Report) for seeking Environmental approval for M/S EVER GREEN CHEMICAL INDUSTRIESsituated at situated at 5 Km Jaranwala Road Tehsil Shahkot District Nankana Sahib Client has requested the consultant to provided consulting services for preparation of EIA Report and seeking its approval thereoffrom the EPA Punjab under his seal and signature on mutually agreed terms and conditions as under:

NOW THEREFORE the parties hereto hereby agree as follows:

- The client shall provide assistance and access to the information contained in the feasibility study, layout plan and other project relevant documents and when required by the consultant for performance of his obligations.
- The client shall provide all available data maps, reports about the project including but not limited to layout plan of the project.
- The consultant shall carry out the services in accordance with the provisionsof the agreement including.
- The consultant shall prepare EIA Report with due diligence in agreed time period and shall seek its approval from EPA Punjab under statutory requirements of the PEPA, 1997.
- The consultant shall give the consultancy for the preparation of the detailed management plan for the enhancing the Environmental conditions such as plantation, management of the surface runoff, mitigation of sociallyadverse impact if any.
- The consultant will review all the activities during construction phase and recommend suggestions/ mitigation measures to keep PEQS within limit.
- Consultant will prepare the EIA, file documents in the light of information, documents provided by the client.
- The consultant shall examine the entire activities and list of the details of activities likely to cause adverse impacts during and after construction phase. Consultant shall suggest mitigation measures for all such activities which may cause adverseimpacts.

Consultant

Proponent

Annexure 4

Persons Interviewed & Consulted during the Study

Sr.	Name and Designation
1.	Muhammad Ashraf CEO & Proponent
2.	Mehran Bashir
4.	Tehsil Municipal Officer, TMA, Nankana Sahib
5.	Local Officers & Heads of the Line Departments District Government, Nankana Sahib
6.	**Locals** 1. Muhammad Kashif S/o Muhammad Sdiq 2. Shahzad Shah S/o Riaz Shah, 3. Abdul Jabbar S/o Abdul Sattar , 4. Muhammad Afzal S/o Muhammad Akhtar, 5. Muhammad Hamid Sajjad S/o Muhammad Sadiq 6. Muhammad Saleem S/o Taj Muhammad 7. Safdar Nadeem S/o Muhammad Afzal 8. Asim Nadeem S/o Muhammad Rafi 9. Umer Hayat S/o Muhammad Imran 10. Zafar Iqbal s/O Muhammad Ismai 11. Muhammad Munir Ahmad S/o Niaz Ali 12. Mehran Bashir S/o Muhammad Bashir Anjum, 13. Shaukat Ali S/o Bashire

Annexure 5

Survey Form at A project Location

PUBLICE CONSULTATION QUESTIONNAIRE REGARDING PROJECT SITTING EVERGREEN CHEMICAL INDUSTRIES (IN THE CONTEXT OF ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

Project title	**M/S EVER GREEN CHEMICAL INDUSTRIES**
Location	Situated 5 Km Jaranwala Road Tehsil Shahkot District Nankana Sahib
Name of the personinterviewed	Muhammad Afzal S/o Muhammad Akhtar
Age	26
Profession	Private job
Qualification	NIL
Address	Nankana Sahib
View about project	Such projects provide jobs to local people.

:

Survey Form at A project Location

PUBLICE CONSULTATION QUESTIONNAIRE REGARDING PROJECT SITTING M/S EVER GREEN CHEMICAL INDUSTRIES (IN THE CONTEXT OF ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

Project title	**M/S EVER GREEN CHEMICAL INDUSTRY**
Location	Situated 5 Km Jaranwala Road Tehsil Shahkot District Nankana Sahib
Name of the personinterviewed	Muhammad Kashif S/O Muhammad Sadiq
Age	34
Profession	Farmer
Qualification	Middle
Address	Nankana Sahib
View about project	Such projects provide jobs to local people.

:

Survey Form at A project Location

PUBLICE CONSULTATION QUESTIONNAIRE REGARDING PROJECT SITTING M/S EVER GREEN CHEMICAL INDUSTRIES (IN THE CONTEXT OF ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

Project title	**M/S EVER GREEN CHEMICAL INDUSTRY**
Location	Situated 5 Km Jaranwala Road Tehsil Shahkot District Nankana Sahib
Name of the personinterviewed	Shahzad Shah S/o Riaz Shah
Age	35
Profession	Farmer
Qualification	NIL
Address	Nankana Sahib
View about project	Such projects provide jobs to local people.

Survey Form at A project Location

PUBLICE CONSULTATION QUESTIONNAIRE REGARDING PROJECT SITTING M/S EVER GREEN CHEMICAL INDUSTRIES (IN THE CONTEXT OF ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

Project title	**M/S EVER GREEN CHEMICAL INDUSTRIES**
Location	Situated 5 Km Jaranwala Road Tehsil Shahkot District Nankana Sahib
Name of the personinterviewed	Abdul Jabbar S/o Abdul Sattar
Age	70
Profession	Farmer
Qualification	Primary
Address	Nankana Sahib
View about project	Such projects provide jobs to local people.

:

Survey Form at A project Location

PUBLICE CONSULTATION QUESTIONNAIRE REGARDING PROJECT SITTING M/S EVER GREEN CHEMICAL INDUSTRIES (IN THE CONTEXT OF ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

Project title	**M/S EVER GREEN CHEMICAL INDUSTRIES**
Location	Situated 5 Km Jaranwala Road Tehsil Shahkot District Nankana Sahib
Name of the personinterviewed	Muhammad Haseeb S/O Muhammad Ahmad
Age	32
Profession	Farmer
Qualification	Nil
Address	Nankana Sahib
View about project	Such projects provide jobs to local people.

Annexure 6

SCHEME OF TREATMENT OF A WASTEWATER FACILITY / PLANS WITHDIMENSION AND DESCRIPTION

There are no main sewage pipes of the TMO in the project area. Septic tanks are used as small scale sewage treatment system common in areas with no connection to main sewage pipes. Therefore, for the treatment of wastewater from factory, septic tanks would be used as preliminary treatment. Septic tanks will receive all wastewater from toilets, baths, showers, wash basins, sinks and washing machines etc. Water that will be excluded includes run-off water from roofs, yards and other sources not considered being wastewater.

Description of wastewater treatment mechanism in the Septic Tanks is presented below:

- The term "septic" refers to the anaerobic bacterial Environmental that develops in the tank which decomposes or mineralizes the waste discharged into thetank. A septic tank generally consists of more than one tank connected to an inlet wastewater pipe at one end and a septic drain field at the other. In general, these pipe connections are made via a T pipe, which allows liquid to enter and exit without disturbing any crust on the surface. The design of the tank usually incorporates two chambers (each equipped with a manhole cover), which are separated by means of a dividing wall that has openings located about midway between the floor and roof of the tank.
- Wastewater enters the first chamber of the tank, allowing solids to settle andscum to float. The settled solids are an aerobically digested, reducing the volume of solids. The liquid component flows through the dividing wall into the second chamber, where further settlement takes place, with the excess liquid then draining in a relatively clear condition from the outlet. The outlet of septic tank will carry the liquid part of the wastewater to a field drain/ agriculture lands. After primary treatment, it will be used in the agricultural purposes.

DESIGN OF SEPTIC TANK

Design Parameters

Detention time	=	24-48
hoursL: W	=	3.1
Depth	=	1-1.5m
Sludge capacity	=	0.04 m^3/person/year
Dislodging period	=	1-2 year

Design Calculations:

To design a septic tank (ST) for a labor colony of 50 persons (for construction plus operation) by considering the per capita water consumption 100 Liters per person per day. Also take wastewater flow as 80% of water consumption. The septic tank will to be dislodged after every 3 years.

Wastewater flow = 100x50x0.8=4000 Liters per Day or 8 m^3/day Assume a detention time of 24 hours in septic tank

- Volume of Septic Tank = 4000 Liter = 8

m^3 Sludge accumulation = 0.04 m^3 per person

- per yearTotal sludge volume in 3 years

= 50x0.04x3=0.6 m^3

- Total volume of Septic Tank=8 +0.6 =8.6 m^3Let depth of Septic Tank = lm
- Area of septic tank = 8.6 m^2Let L: W = 3:1

Area = 3W x W = 3
$W^2$8.6 = 3 W^2

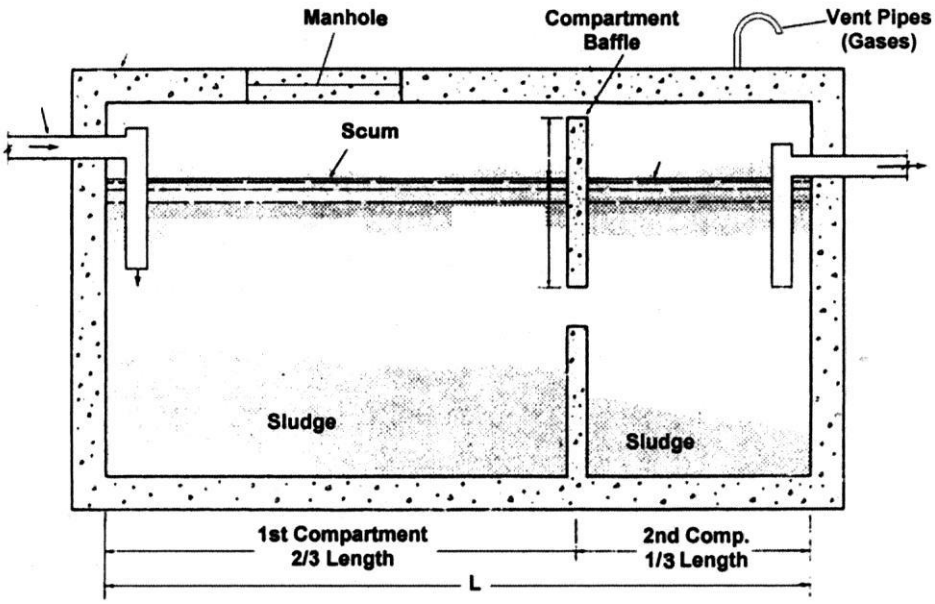
$W = \sqrt{\frac{8.6}{3}}$ = 1693m

- Length = 3 W = 3x1.693 = 5.079 m

First Compartment = 2/3 of 5.079 = 3.386m = 11 ftSecond compartment = 1/3 of 5.079 = 1.693m = 5.6 ft

Take free broad = 0.5 m

Diagram:



Annexure - 7

SPECIFICATION OF FIREFIGHTING SYSTEM

Firefighting system is selected on the basis of types of the material in the area. Followingtypes of fire extinguishers are used for different purposes as discussed below:

Class A: Solids Such As Paper, Wood, Plastic etc.
Class B: Flammable Liquids Such As Paraffin, Petrol, Oil etc.
Class C: Flammable Gases Such As Propane, Butane, Methane etc.Class D: Metals Such As Aluminum, Magnesium, Titanium etc.
Class E: Fires Involving Electrical Apparatus Class F: Cooking Oil & Fat etc.

Water Fire Extinguishers:
These are cheapest and most widely used fire extinguishers. Used for Class A fires. Notsuitable for Class B (Liquid) fires, or where electricity is involved.

Foam Fire Extinguishers
More expensive than water but more versatile. Used for Classes A& B fires. Foam spray extinguishers are not recommended for fires involving electricity, but are safer than waterif inadvertently sprayed onto live electrical apparatus.

Dry Powder Fire Extinguishers
Often termed the 'multi-purpose' extinguisher, as it can be used on classes A, B & C fires. Best for running liquid fires (Class B). Will efficiently extinguish Class C gas fires, But beware, it can be dangerous to extinguish a gas fire without first isolating the gas supply. Special powders are available for class D metal fires

CO_2 Fire Extinguishers:
Carbon Dioxide is ideal for fires involving electrical apparatus, and will also extinguish class B liquid fires, but has no post fire security and the fire could re-ignite.

Wet CHEMICAL
Specialist extinguisher for class F fires.

Fire Fighting System Assessment
Major source of fire in --- CHEMICAL is electrical installation, so Dry CHEMICAL Powder or C02 fire extinguishers to be placed in admin building, and outside the Chemical Unit. Monthly inspection of portable fire extinguishers will be carried out the findings will be closed timely. Safe use of fire extinguishers training will be provided to the workers

Annexure –8

LANDSCAPING AND TREE PLANTATION PLAN

A Landscaping and tree plantation is shown on the map enclosed. Following landscapingand tree plantation plan is prepared and will be followed:

Overview:

i. Plan before planting. Choose plants that fit your landscape.
ii. Handle plants carefully at all times. Plant at the time of year that gives the bestchance for success.
iii. Make the hole large enough - two to three times wider than the soil ball, thecontainer, or the bare root.
iv. Always plant at the same depth at which the tree or shrub was originally growing.
v. Take special precautions when planting in heavy, poorly drained, or sandy soils.
vi. During the first year, fertilize only at the first watering.
vii. Support tall trees with at least three wires and stakes.
viii. Be sure plants get adequate water for the entire first season

What to Plant

Look at the space where to plant the tree or shrub. Estimate the height and diameter of a tree or shrub that will fit there. Check to see if the soil stays wet, or if it drains quickly. Discussion will be done with District Officer Forest/ wildlife/Environmental to select type of plant keeping in view soil type, sunlight, temperature, water, sizes, and root requirementsfor the plant. Then, head out to a nursery to see what they have. Look for healthy, disease- and pest-free plants with well-formed root and branch systems.

Maintenance of tree plantation and landscaping

The Chief Executive will be responsible for costs associated with hiring a qualified professional nursery man to maintain all trees and shrubs in a healthy condition for a minimum three year period as possibly a five year period as required.
Maintenance work shall include but not be limited to:

- Watering
- Weeding of invasive vegetative species
- Pruning where necessary
- Repair or replacement of vandalized trees or hazard trees within striking distanceof structures
- Treatment to control stress or pests
- Removal of tree staking materials at the end of the warranty period

Small Size Park for labor will be established. Maximum tree plantation will be done inside and outside the project boundary wall. Estimated 1000 trees will be planted in the unit.

ANNEXURE - 9

SOLID WASTE MANAGEMENT PLAN

Scope

The waste management plan has been developed to ensure that the management of solid waste generated as a result of the construction and associated activities during the operation phase and in conformance with the laws and regulations.

Minor quantities of SW will be produced during construction phase; the composition of waste will be soil, bricks, camp site waste. Camp site waste will be managed by placing solid waste collector that will be emptied on daily basis.

Major solid waste at operational phase will be Chemical, manure and labor colony waste. Rice husk and manure will- be sell out to the farmers or used as Chemical in own agricultural lands, while labor waste will be managed on source segregation technique.

NNEXURE 10

WATER MANAGEMENT PLAN

Construction Phase

To prevent degradation and to maintain the quality of water sources, adequate control measures have been a to check the surface run-off, as well as uncontrolled flow of water into any water body.

Following management measures are suggested to protect the water quality during the construction phase.

- Avoid excavation during monsoon season.
- Wastewater channels from the site would be connected to septic tank during construction and operation.
- To prevent surface and groundwater contamination by oil grease, leak proof containers should be used for storage and transportation of oil/grease. The floors of oil/grease handling area should be kept effectively impervious. Any wash off from the oil/grease handling area or workshop shall be drained through impervious drains, clarifiers or oil/water separators shall be constructed and effluent should be treated appropriately before releasing it.
- Construction activities generate disturbed soil, concrete fines, oil and other wastes. Onsite collection and settling of storm water, prohibition of equipment wash downs, and preventive of soil loss and toxic releases from the construction site are necessary to minimize water pollution.
- All stacking and loading areas should be provided with proper garland drains equipped with baffles to prevent runoff from the site

Operation phase

In the operation phase of the project, water conservation and development measures need to be taken including all possible potential for conservation of water, reuse, rainwater collection in reservoirs, and recycling of water. These could be in the following form:

- Water source development
- Minimizing water consumption
- Promoting reuse water after treatment
- Water source development shall be practiced by installation of well designedwater extraction pumps.

Minimizing water Consumption

Implementing water efficient fixtures such as 3 liters WC flushing cistern will minimize water consumption, sensor operated urinals and taps to minimize the wastage of water together with other water conservation measures. Furthermore, to ensure ongoing water conservation, an employee education and awareness program will be introduced for the employee of the unit. Dry type urinals will also be selectively.

Domestic usage

Use of water efficient plumbing fixtures uses less water with no marked reduction in quality and services. To install water less W.C. and urinals, this will help in

conserving sufficient quality of water.

Leak detection and repair techniques

- Sweep with a broom and pan where possible,, rather than hose down for external areas;
- Awareness campaign to disseminate knowledge on strategies and technologies that can be used for water conservation.
- Standard water information packet may be prepared and distributed. The information should include water conservation plans, methods being adopted in the complex and a list of essential and non-essential water uses.
- As new conservation efforts are implemented, the manager will communicate these changes accordingly.
- Paper methods of water use will be placed in the toilets and other areas of water consumptions
- Promoting reuse of water after treatment and development of closed loop systems.

Following section details the wastewater scheme suggested for the project.

- Wastewater management
- Sanitation infrastructure shall comprise of wastewater collection and conveyancesystem. The wastewater will be collected in the septic tanks

Annexure–11

NOISE MANAGEMENT PLAN

No residential colonies are present near project location; moreover the a project not intends to use any machinery. Only source for noise pollution will be generator, it is recommended to place generator 100 ft. away from workers work place. Noise levels were measured with noise meter. Noise levels at site are presented below.

Construction phase

To mitigate the impact of noise from construction equipment during the construction phase and other machinery (generator) during operation phase the following measures are recommended for implementation:

Job rotation and hearing protection

Workers employed in high noise areas will be rotated. Earplugs/muffs or other hearing protective wear will be provided to those working very close to noise generating machinery.

Operations Phase

To mitigate the impact of noise from diesel generator sets during the operational phase,following measures are recommended for implementation:

- noise emission control technologies
- Greenbelt development

Noise emission control technologies

All the diesel generator will be housed in suitable acoustics enclosure so that noise level at a distance of 6 to 7 meter do not exceed 75dB (A).The diesel generator set housing will be equipped with walls and ceiling lined with glass wool to acoustically treat the noiselevels.

PPEs

Workers will use Ear muffs during their working hours

Diesel Generator Set Emission Control Measures

The most important pollutant requiring control is NOX, as the impact of S02 emission is minimal because of the use of low (-0.05%) sulphur in diesel as fuel. All the DG set would be provided with emission control equipment's. The following mitigation measures are a for NOX reduction:

- Add-on emission control technologies;

Exhaust Gas Recirculation (EGR) technology will be used to reduce diesel nitrogen oxide (NOx) emissions. It is one of the principal methods used to reduce nitrogen oxide emissions from diesel engines. EGR technology will be used to reduce diesel nitrogen oxide (NOx) emissions by taking a carefully controlled portion of the inert exhaust gases, cooling it and re-introducing it to the combustion chamber when conditions are right to do so. This reduces the high concentration of Oxygen and the high temperatures in the combustion chamber, both of which are causes of NOx formation

ANNEXURE - 12

DUST CONTROL PLAN

Earth moving

For any earth moving, conduct watering as necessary to prevent visible dust emissionsfrom exceeding 50m in length in any direction.

- Apply dust suppression in sufficient quantity and frequency to maintain astabilized surface.
- Areas which cannot be stabilized as evidenced by wind driven dust, must havean application of water at least twice per day to at least 80% of unstabilized area.

Distributed surface areas

Apply water to at least 80% of all inactive accessible distributed surface areas on dailybasis when there is evidence of wind driven fugitive dust.

Unpaved road

Water all roads used for any vehicular traffic once daily and restrict vehicle speed25km/h

Annexure13

DOCUMENTS OF PROJECT SITE

Map

MOHAMMAD ASHRAF
S/O
TAJ MUHAMMAD

SPECIFICATION

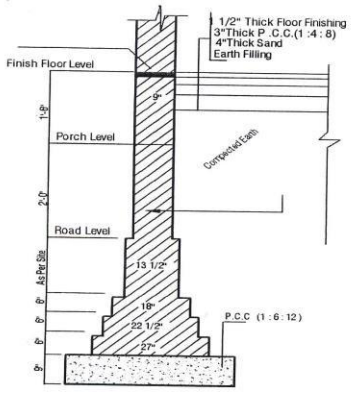
6"TH. CEMENT CONCRETE IN FOUNDATION IN (1:4:8)
BRICK WORK IN FOUNDATION IN CEMENT MORTER IN (1:6)
1.5"TH. D.P.C. OVER 2 COAT OF HOT BITUMEN
BRICK WORK IN SUPER STRUCTURE IST CLASS BRICK TO BE USED
FLOOR FINISH 1.5" P.C.C. OVER 3"TH. RORI OVER
4"TH. SAND OVER WELL BE COMPACTED EARTH
WOOD WORK IST CLASS DEODAR TO BE USED
ROOF 1.5"TH. TILES OVER 3"TH. MUD OVER R.C.C.SLAB 6"TH.

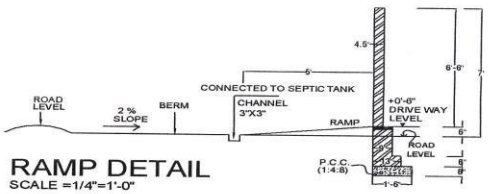
S/Q NO
KILLA NO
CHAK NO 182 R.B
KHEVET NO 13
KHATAUNI NO 55 QITTA NO 20

Signature

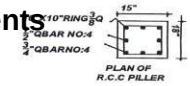
Stamp & Signature

AREA	K 10
TOTAL AREA OF PLOT	= 54400.00 sft
OPEN AREA OF PLOT	=48740.00 sft
COVERED AREA OF PLOT	= 5660.00 sft





Property Documents



نقل رجسٹر حقداران زمین (مسل میعادی)

محال 87-RB طرف/پتی ندارد تحصیل شاہکوٹ ضلع ننکانہ صاحب سال 2014-15 کتاب نمبر ورق نمبر 21 / 1

۱	۲	۳ (الف)	۳ (ج)	۳ (د)	۳ (ہ)	۳ (و)	۴	۵	۶	۷	۸	۹	۱۰
نمبر کھیوٹ مالک	نمبر کھتونی کاشتکار	کوائف مالک: نام مالک معہ نام والد/خاوند قوم اور سکونت	نوعیت حقوق مالک راہن مرتہن	مشترکہ کھاتہ میں مخصوص حصہ	مخصوص رقبہ مطابق حصہ	زرعی پاس بک نمبر	نام کاشتکار معہ احوال	نمبر خسرہ معہ نام اگر کوئی ہو	رقبہ و قسم زمین کھیت وار اور میزان کھتونی کاشتکار و کھیوٹ مالک	وسائل آبپاشی معہ نام چاہ اجباہ وغیرہ	لگان جو کاشتکار ادا کرتا ہے شرح اور مطالبہ	مطالبہ معہ تفصیلات مالیہ و حبوب	کیفیت معہ 1- نام نمبردار (اگر کوئی ہو) 2- شرح مالیہ زمین
13	55	محمد اشرف ولد تاج محمد قوم راجپوت ساکندیہ ۳(ب) قومی شناختی کارڈ نمبر 36601-6029826-3 	مالک	173/2879 حصہ منتقلہ 173/2879	8-13-0 رقبہ منتقلہ 8-13-0		باقی بدستور	قطعات 20	سالم کھاتہ 143-19-0 ایک سو تینتالیس کنال انیس				نمبر انتقال 1261 قسم انتقال بیعہ نمبر انتقال 1196 قسم انتقال بیعہ نمبر انتقال 2140 قسم انتقال وراثت تاریخ فیصلہ 10/01/2017 نمبر انتقال 1767 قسم انتقال بیع رجسٹری تاریخ فیصلہ 30/03/2019
								30 8	8-17-0	تل نہری راجباہ شاہکوٹ			
								30 13	8-0-0	تل نہری راجباہ شاہکوٹ			
		باقی بدستور میزان		2706/2879 173/2879	8-13-0								
								30 18	5-10-0	تل نہری راجباہ شاہکوٹ			
								30 2/1-2	8-8-0	تل نہری راجباہ شاہکوٹ			

Tamzeel

نقل مطابق اصل ہے نام درخواست کنندہ محمد اشرف ولد تاج محمد نام اجراء کنندہ محمد تنزیل سرور ولد محمد سرور
فرد برائے ذاتی ریکارڈ قوم راجپوت شناختی کارڈ نمبر 3660160298263

تاریخ فرد برپٹنگ 01/08/2019 11:50 اراضی ریکارڈ سنٹر شاہکوٹ
تاریخ و اجراء 01/08/2019 11:44 سروس سنٹر فیس 900.00
کمپیوٹرائزڈ نقل۔ دستخط کی اصل کی ضرورت نہیں ہے۔
00-000-000-000-0011175534

نقل رجسٹر حقداران زمین (مسل میعادی)

محال 87-RB طرف/پتی ندارد تحصیل شاہکوٹ ضلع ننکانہ صاحب سال 2014-15 کتاب نمبر ورق نمبر 21 / ۲ ۲

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13 مذکور														
	55 مذکور													
								30 / 9	9-2-0	نل نہری	راجباہ شاہکوٹ			
								30 / 5	0-5-0	غیر ممکن ٹیوب ویل				
								30 / 4	4-2-0	نل نہری	راجباہ شاہکوٹ			
								30 / 3	8-5-0	نل نہری	راجباہ شاہکوٹ			

نقل مطابق اصل ہے — نام درخواست کنندہ: محمد اشرف ولد تاج محمد — فرد برائے ذاتی ریکارڈ — قوم: راجپوت — شناختی کارڈ نمبر: 3660160298263

نام اجراء کنندہ: محمد تنزیل سرور ولد محمد سرور
تاریخ فرد پرنٹنگ: 01/08/2019 11:50
تاریخ فرد اجراء: 01/08/2019 11:44

کمپیوٹرائزڈ نقل۔ دستخط کی تصدیق ضروری نہیں ہے۔ — اراضی ریکارڈ سنٹر شاہکوٹ — سروس سنٹر فیس 900.00

00-000-000-000-0011175534

نقل رجسٹر حقداران زمین (مسل میعادی)

موضع 87-RB طرف/پتی ندارد تحصیل شاہکوٹ ضلع ننکانہ صاحب سال 2014-15 کتاب نمبر ورق نمبر 21 / 21

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نمبر کھیوٹ مالک	نمبر کھتونی کاشتکار	کوائف مالک: نام مالک معہ نام والد/خاوند قوم اور سکونت	نوعیت حقوق مالک راہن مرتہن	مشترکہ کھاتہ میں مخصوص حصہ	مخصوص رقبہ مطابق حصہ	زرعی پاس بک نمبر	نام کاشتکار معہ احوال	نمبر خسرہ معہ نام اگر کوئی ہو	رقبہ و قسم زمین کیفیت دار اور میزان کھتونی کاشتکار و کھیوٹ مالک	وسائل آبپاشی معہ نام چاہ/اجباہ وغیرہ	لگان جو کاشتکار ادا کرتا ہے شرح اور مطالبہ	مطالبہ معہ تفصیلات مالیہ و حبوب	کیفیت معہ 1- نام نمبردار (اگر کوئی ہو) 2- شرح مالیہ زمین
14 مذکور								18	ایک سو چوالیس کنال آٹھ مرلے	غیر ممکن ذیرہ 1-0-0 کل نہری 143-8-0			
							میزان کھیوٹ	قطعات 18	144-8-0 ایک سو چوالیس کنال آٹھ مرلے	قسم زمین غیر ممکن ذیرہ 1-0-0 کل نہری 143-8-0			

میزان کل رقبہ منتقلہ 18-16-0 اٹھارہ کنال سولہ مرلے

کل کھیوٹ خسرہ ویلیویشن 0.00

نقل مطابق اصل ہے

فرد برائے ذاتی ریکارڈ

نام درخواست کنندہ محمد اشرف ولد تاج محمد

قوم راجپوت

شناختی کارڈ نمبر 3660160298263

نام اجراء کنندہ محمد تنزیل سرور ولد محمد سرور

تاریخ فرد پرنٹنگ 01/08/2019 11:50

تاریخ فرد اجراء 01/08/2019 11:44

اراضی ریکارڈ سنٹر شاہکوٹ

سروس سنٹر فیس 900.00

کمپیوٹرائزڈ نقل۔ دستخط کی ضرورت نہیں ہے۔

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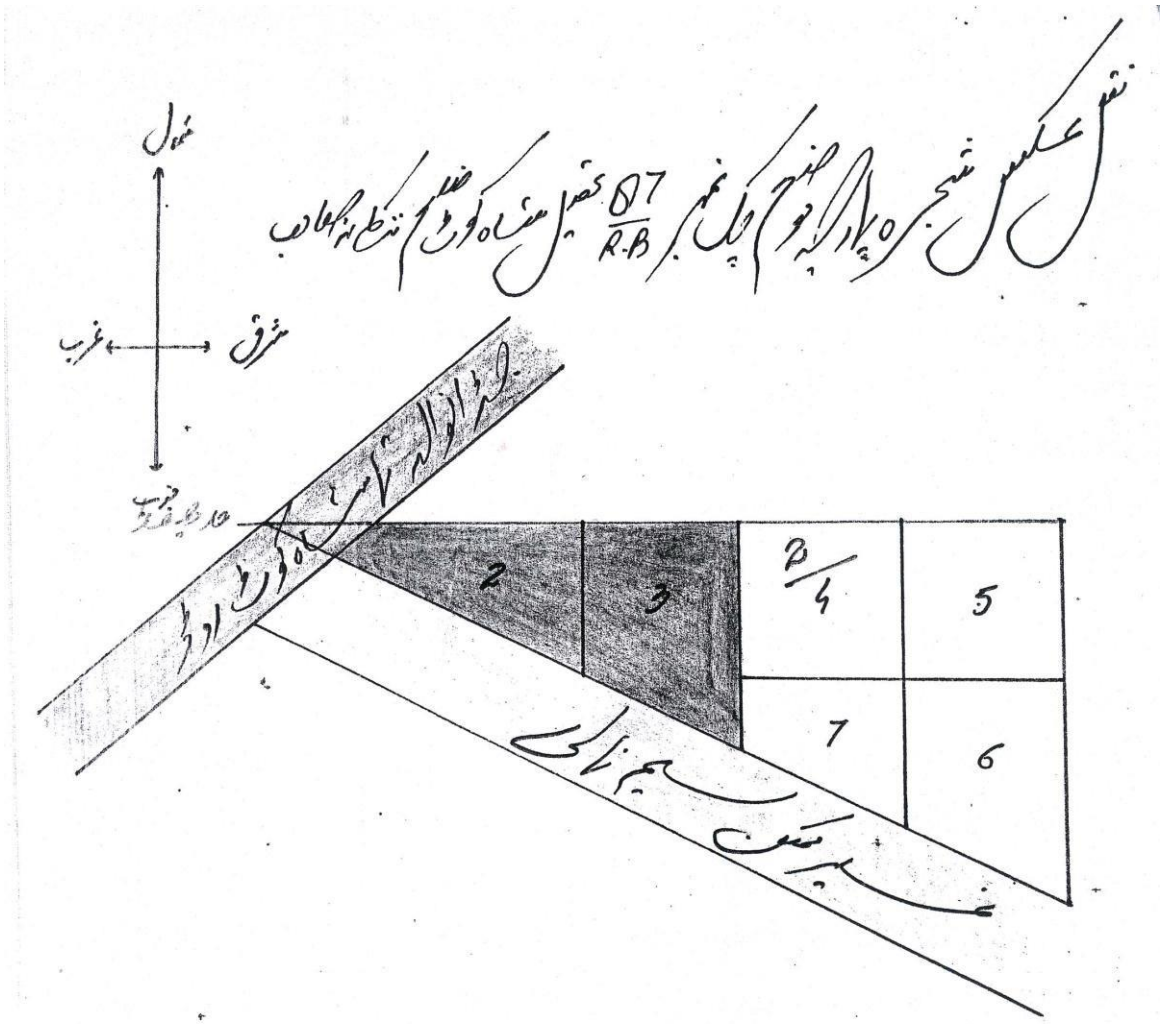
شمال
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Annexure 14

PUBLIC CONSULTATION AND INFORMATION DISCLOSURE SOCIO-ECONOMIC SURVEY OF THE PROJECT AREA

Consultation with the stockholders is a tool for managing two-way communication between the project sponsors and the public. Its goal is to improve decision - making and build understanding by actively involving individuals, groups and organizations which have a stake in the project. This involvement increase project's long term viability and enhances its benefits to locally affected people and other stakeholders. The public consultation was conducted for this project keeping in view the above theme.

Methodology

Identification of stakeholders

Stake holders in this project were identified keeping in view the **Guidelines for** Public **consultation published by Pakistan EPA, 1997.** The stake holders were identified from the following groups.

- Local people
- Affected Communities
- Proponents
- Management of unit
- Government Agencies
- NGO
- Influential people
- Technical persons
- Poor People

Techniques for Public Consultation

The following principals were kept to select the techniques or public consultation

- Provision of material / information in easy language
- Providing sufficient time to understand
- Providing discussion to understand the information in a friendly way
- Portraying the actual issues relating to the project
- Discussion at the place which has easily access to the people
- Selection the time when maximum people are available Selection of influential people of project area
- Including of poor people
- Selection of people who give true presentation of community make up Including technical people who has clear knowledge of on the issues relating to Constructed unit.
- Concerned government departments were selected who had liaison with the execution of the project and Environmental approval.

Public Meetings and Group discussions

The surrounding area is agricultural and rural in nature therefore we decided to hold physical contact instead of using print or electronic media. The group discussion is the way of opinion making used in the Punjab since hundreds of years. It is reliable and unbiased way to get opinion of the people. The seminar or public gathering was avoided as the poor people cannot attend and unable to express his views without duress or influence of chaudry or wadera of the area or village.

Convenient Time and Place

The people in villages do not move away from village except in case of urgency. We went to them on their residences or work places. In this way no time and money of the people was spent and we got indiscriminate access to the concerned people. In this way the people who do not have money to travel to go to government departments got access to information and had opportunity to express his opinion in a liberal way.

Non Government Organization

NGO are working in the area which are mostly exploiting

Limitations of the Public Consultation

We tried our best to include all segments of life in to account according to education and professions as per local distribution of the social formation. But we could not include the enough women in public consultation process due to closeness of the society for women exposure to alien people and social taboo.

Questionnaire

After review of the available information a questionnaire was developed containing all necessary information and question covering positive and negative aspects of the Constructed unit. The questionnaire comprised of two parts. First part has brief description of the project and part II was divided in the following parts:

- Socioeconomic background
- Positive impact of the Zodiac
- Unit Acceptance level of the Project.

Public Consultation

The following stake holders were identified and meetings were held with them to inform them about the project design and know their response.

- Management of Feed Mill
- Nobles of the area.
- Shopkeepers
- Farmers
- Laborers

The socio-economic information was gathered through different techniques and methodologies and is derived from primary and secondary sources. Primary data were collected through following data collection tools: (i) Village profiles; (ii) Socio economic survey; Village profiles were carried out for all villages/settlements falling Project Area. An introductory leaflet about basic information of the project was prepared in Urdu and distributed among the people at public places. This helped the people to understand about the project pros and cons. Leaflet is attached. After one week the area was revisited by the team of experts and again asked the opinion of the people about the project in the form of well-designed social survey questionnaire.
Public consultations were also conducted in the area.

Issues Discussed

Following issues were discussed during the stakeholder consultation: Personal information

- Education status
- Income level
- Residence status
- Information about project
- Possible impacts on natural vegetation, land and properties;
- Beneficial factors and involvement
- Opportunities for the local people.
- Adverse effects of the project
- Scope of the report
- Acceptance of the project by the people of the area
- Scope of the Environmental assessment report

Different segments of the society were included to reflect the true and unbiased opinion. From numberdar to labour all segments of the project area were interviewed. The offices at district level were approached to have their verdict on the project. The people who were interviewed through a questionnaire which showed the following results:

a. Gender:

Male	49
Female	1

b. Education level:

Primary	15	30%
Under matric	20	40%
Matric	10	20%
F.A.	2	4%
Graduation	3	6%
Post Graduate	0	0%

c. Occupation:

Farmer	20	40%

Labor	15	30%
Shopkeeper	10	20%
Government Service	5	10%

d. Water Pollution Problem:

Concerned about water pollution	0	0%
Don't show any concern about water pollution.	50	100%

e. Employment chances Direct and indirect:

Yes	50	100%
No	0	0%

f. Consent on project implementation:

Yes	50	100%
Conditional (Yes)	0	0%
No	0	0%

Apprehensions of the people of the area

- Low employment offer to local people during operation phase
- Social work in the area
- Health dispensary

Mitigation of the Peoples Apprehensions

i. No resettlement in involved
ii. Waste water will be treated before disposal
iii. Big opportunity for the local people during construction phase and small scale chances of job during operational phase.
iv. Parking of trolleys and trucks will be done within factory premises.
v. It will create employment opportunities.
vi. Project management will give priority to local people for employment

Social welfare work through community uplift.

Annexure

The Punjab Environmental Protection Act, 1997
(XXXIV of 1997)

[6th December, 1997]

An Act to provide for the protection, conservation, rehabilitation and improvement of the Environmental, for the prevention and control of pollution, and promotion of sustainable development

Whereas it is expedient to provide for the protection, conservation, rehabilitation and improvement of the Environmental, prevention and control of pollution, promotion of sustainable development, and for matters connected therewith and incidental thereto; It is hereby enacted as follows:

1. Short title, extent and commencement: (1) This Act shall be called the [Punjab] Environmental Protection Act, 1997.
(2) It extends to the whole of [the Punjab].
(3) It shall come into force at once.

2. Definitions: In this Act, unless there is anything repugnant in the subject or context:
(i) "**adverse Environmental effect**" means impairment of, or damage to, the Environmental and includes:

(a) impairment of, or damage to, human health and safety or to biodiversity or property;

(b) pollution; and
(c) any adverse Environmental effect as may be specified in the regulations;
(ii) "**agriculture waste**" means waste from farm and agricultural activities including poultry, cattle farming, animal husbandry, residues from the use of CHEMICAL, pesticides and other farm CHEMICAL:
(iii) "**air pollutant**" means any substance that causes pollution of, air and includes soot, smoke, dust particles, , light, electro-magnetic radiation, heat, fumes, combustion exhaust, exhaust gases, noxious gases, hazardous substance and radioactive substances;
(iv) "**biodiversity**" or "**biological diversity**" means the variability among living organisms from all sources, including inter alia terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; including diversity within species, between species and of eco-systems;
(v) "**Council**" means the [Punjab] Environmental Protection Council established under section 3;
(vi) "**discharge**" includes spilling, leaking, pumping, depositing, seeping, releasing, flowing out, pouring, emitting, emptying or dumping;
(vii) "**ecosystem**" means a dynamic complex of plant, animal and micro-organism communities and their non-living Environmental interacting as a functional unit;

(viii) "**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 vapour;
(ix) "**emission standards**" means the permissible standards established by the [Provincial Agency] for emission of air pollutants and noise and for discharge of effluent and waste;
(x) "**Environmental**" means:-
(a) air, water and land;
(b) all layers of the atmosphere;
(c) all organic and inorganic matter and living organisms;
(d) the ecosystem and ecological relationships;
(e) buildings, structures, roads, facilities and works;
(f) all social and economic conditions affecting community life; and
(g) the inter-relationships between any of the factors specified in sub-clauses (a) to (f);
(xi) "**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;
(xii) "**Environmental Magistrate**" means the Magistrate of the First Class appointed under section 24;
(xiii) "**Environmental Tribunal**" means the Environmental Tribunal constituted under section 20;
(xiv) [*****]
(xv) "**Flour mills**" means any premises in which industrial activity is being under taken.
[(xvi) "**Government**" means Government of the Punjab.]
[(xvii) "**Government Agency**" includes:
(a) a department, an attached department or any other office of the Government; and
(b) a development authority, local authority, company or a body corporate established or controlled by the Government;]
(xviii) "**hazardous substance**" means:-
(a) a substance or mixture of substances, other than a pesticide as defined in the Agricultural Pesticides Ordinance, 1971 (II of 1971) which, by reason of its CHEMICAL activity or toxic, explosive, flammable, corrosive, radioactive or other characteristics causes, or is likely to cause, directly or in combination with other matters, an adverse Environmental effect; and
(b) any substance, which may be prescribed as a hazardous substance;
(xix) "**hazardous waste**" means waste which is or which contains a hazardous substance or which may be prescribed as hazardous substance or which may be prescribed as hazardous waste, and includes hospital waste and nuclear waste;
(xx) [*****];
(xxi) "**hospital waste**" includes waste medical supplies and materials of all kinds, and waste blood, tissue, organs and other parts of the human and animal bodies, from hospitals, clinics and laboratories;

(xxii) "means any operation or process for manufacturing, making, formulating, synthesizing, altering, repairing, ornamenting, finishing, packing or otherwise treating any article or substance with a view to its use, sale, transport, delivery or disposal, or for mining, for oil and gas exploration and development, or for pumping water or sewage, or for generating, transforming or transmitting power or for any other industrial or commercial purpose

(xxiii) "**industrial waste**" means waste resulting from an industrial activity;
(xxiv) "**Environmental Impact Assessment (EIA)**" means a preliminary Environmental review of the reasonably foreseeable qualitative and quantitative impacts on the Environmental of a Constructed project to determine whether it is likely to cause an adverse Environmental effect for requiring preparation of an Environmental impact assessment;
(xxv) "**local authority**" means any agency set up or designated by the [Government] by notification in the official Gazette to be a local authority for the purposes of this Act;
(xxvi) "**local council**" means a local council constituted or established under a law relating to local government;
(xxvii) "**motor vehicle**" means any mechanically propelled vehicle adapted for use upon land whether its power of propulsion is transmitted thereto from an external or internal source, and includes a chassis to which a body has not been attached, and a trailer, but does not include a vehicle running upon fixed rails;
(xxviii) "**municipal waste**" includes sewage, refuse, garbage, waste form abattoirs, sludge and human excreta and the like;
(xxix) [*****];
(xxx) "**noise**" means the intensity, duration and character of sounds from all sources, and includes vibration;
(xxxi) "**nuclear waste**" means waste from any nuclear reactor or nuclear plant or other nuclear energy system, whether or not such waste is radioactive;
(xxxii) "**person**" means any natural person or legal entity and includes an individual, firm, association, partnership, society, group, company, corporation, co-operative society, Government Agency, non-governmental organization, community-based organization, village organization, local council or local authority and, in the case of a vessel, the master or other person having for the time being the charge or control of the vessel;
(xxxiii) "**pollution**" means the contamination of air, land or water by the discharge or emission of effluents or wastes or air pollutants or noise or other matter which either directly or indirectly or in combination with other discharges or substances alters unfavorably the CHEMICAL, physical, biological, radiation, thermal or radiological or aesthetic properties of the air, land or water or which may, or is likely to make the air, land or water unclean, noxious or impure or injurious, disagreeable or detrimental to the health, safety, welfare or property of persons or harmful to biodiversity;
[(xxxiv) "**prescribed**" means prescribed by the rules or regulations;]
(xxxv) "**project**" means any activity, plan, scheme, proposal or undertaking involving any change in the Environmental and includes:-
(a) construction by use of buildings or other works;
(b) construction or use of roads or other transport systems;
(c) construction or operation of factories or other Depots:

(d) mineral prospecting, mining, quarrying, stone-crushing, drilling and the like;
(e) any change of land use or water use; and
(f) alteration, expansion, repair, decommissioning or abandonment of existing buildings or other works, roads or other transport systems, factories or other depots;
(xxxvi) "**proponent**" means the person who proposes or intends to undertake a project;

[(xxxvii) **"Provincial Agency"** means the Provincial Environmental Protection Agency established under the Act, or any Government Agency, local council or local authority exercising the powers and functions of the Provincial Agency];
[(xxxvii-a) **"Punjab Environmental Quality Standards"** mean the standards prepared by the Provincial Agency and approved by the Council];
(xxxviii) "**regulations**" means regulations made under the Act;
(xxxix) "**rules**" means rules made under this Act;
(xl) "**sewage**' means liquid or semi-solid wastes and sludge from sanitary conveniences, kitchens, laundries, washing and similar activities and from any sewerage system or sewage disposal works;
(xli) "**standards**' means qualitative and quantitative standards for discharge of effluents and wastes and for emission of air pollutants and noise either for general applicability or for a particular area, or from a particular production process, or for a particular product, and includes the [Punjab] Environmental Quality Standards, emission standards and other standards established under this Act and the rules and regulations made there under;
xlii) "**sustainable development**" means development that meets the needs of the present generation without compromising the ability of future generations to meet their needs;
xliii) [******];
(xliv) "**vessel**" includes anything made for the conveyance by water of human beings or of goods; and
(xix) "**waste**" means any substance or object which has been, is being or is intended to be, discarded or disposed of, and includes liquid waste, solid waste, waste gases, suspended waste, industrial waste, agricultural waste, nuclear waste, municipal waste, hospital waste, used polyethylene bags and residues from the incineration of all types of waste.

3. Establishment of the [Punjab] Environmental Protection Council: [(1) The Government shall, by notification in the official Gazette, establish a Council to be known as the Punjab Environmental Protection Council consisting of:
(i) Chief Minister of the Punjab; or such other person as nominated by the Chief Minister ... Chairperson
(ii) Minister Incharge of the Environmental Protection Department ... Vice Chairperson
(iii) Such other persons not exceeding thirty five as the Government may appoint, of which at least twenty five shall be non-official including at least three Members of the Provincial Assembly of the Punjab, five representatives of the Chambers of Commerce and Industry and one or more representatives of the Chambers of Agriculture, Medical and legal profession, trade unions and non-governmental organizations concerned with the Environmental and sustainable development, and scientists, technical experts and educationalists; and ... Members.

(iv) Secretary to the Government, Environmental Protection Department ... Member/Secretary]

(2) The Members of the Council, other than ex officio members, shall be appointed in accordance with the prescribed procedure and shall hold office for a term of three years.
(3) The Council shall frame its own rules of procedure.
(4) The Council shall hold meetings as and when necessary, but not less than two meetings shall be held in a year.

(5) The Council may constitute committees of its members and entrust them with such functions as it may deem fit, and the recommendations of the committees shall be submitted to the Council for approval.
(6) The Council or any of its committees may invite any technical expert or representative of any Government Agency or non-governmental organization or other person possessing specialized knowledge of any subject for assistance in performance of its functions.
4. Functions and powers of the Council: (1) The Council shall: (a) co-ordinate and supervise enforcement of the provisions of this Act;
(b) approve comprehensive [Punjab] Environmental policies and ensure their implementation within the framework of a [Punjab] conservation strategy as may be approved by the [Government] from time to time;
(c) approve the [Punjab] Environmental Quality Standards;
(d) provide guidelines for the protection and conservation of species, habitats, and biodiversity in general, and for the conservation of renewable and non-renewable resources;
(e) coordinate integration of the principles and concerns of sustainable development into [Punjab] development plans and policies; and
(f) consider the [Punjab] Environmental Report and give appropriate directions thereon.
(2) The Council may, either itself or on the request of any person or organization, direct the [Provincial Agency] or any Government Agency to prepare, submit, promote or implement projects for the protection, conservation, rehabilitation and improvement of the Environmental, the prevention and control of pollution, and the sustainable development of resources, or to undertake research in any aspect of Environmental.
5. Establishment of the [Provincial] Environmental Protection Agency: [(1) The Government shall, by notification in the official Gazette, establish the Provincial Environmental Protection Agency to exercise the powers and perform the functions assigned to it under this Act, the rules and the regulations].
(2) The Director-General may, by general or special order, delegate any of these powers and functions to staff appointed under sub-section (3).
(3) For assisting the [Provincial Agency] in the discharge of its functions, the [Government] shall establish Advisory Committees for various sectors, and appoint as members thereof eminent representatives of the relevant sector, educational institutions, research institutes and non-governmental organizations.
6. Functions of the [Provincial Agency]: (1) The [Provincial Agency] shall---
(a) administer and implement the provisions of this Act and the rules and regulations made thereunder;
(b) prepare, in coordination with the appropriate Government Agency and in consultant, examination, investigation, research, inspection and audit to prevent

and control pollution, and to estimate the costs of cleaning up pollution and rehabilitating the Environmental in various sectors;

(j) take measures to promote research and the development of science and technology, which may contribute to the prevention of pollution, protection of the Environmental, and sustainable development;

(k) certify one or more laboratories as approved laboratories for conducting tests and analysis and one or more research institutes as Environmental research institutes for conducting research and investigation, for the purposes of this Act;

(l) identify the needs for, and initiate legislation in various sectors of the Environmental;

(m) render advice and assistance in Environmental matters, including such information and data available with its as may be required for carrying out the purposes of this Act:

Provided that the disclosure of such information shall be subject to the restrictions contained in the proviso to sub-section (3) of section 12;

(n) assist the local councils, local authorities, Government Agencies and other persons to implement schemes for the proper disposal of wastes so as to ensure compliance with the standards established by it;

(o) provide information and guidance to the public Environmental matters;

(p) recommend environment.

(t) take or cause to be taken all necessary measure for the protection, conservation, rehabilitation and improvement of the Environmental, prevention and control of pollution and promotion of sustainable development; and

(u) perform any function, which the Council may assign to it.

(ii) taxes, duties, cesses and other levies;

(e) establish and maintain laboratories to help in the performance of its functions under this Act and to conduct research in various aspects of the Environmental and provide or arrange necessary assistance for establishment of similar laboratories in the private sector; and

(f) provide or arrange, in accordance with such procedure as may be prescribed, financial assistance for projects designed to facilitate the discharge of its functions.

7. Powers of the [Provincial Agency]: Subject to the provisions of this Act, the [Provincial Agency] may:

(a) lease, purchase, acquire, own, hold, improve, use or otherwise deal in and with any property both movable and immovable;

(b) sell, convey, mortgage, pledge, exchange or otherwise dispose of its property and assets;

(c) fix and realize fees, rates and charges for rendering any service or providing any facility, information or data under this Act or the rules and regulations made thereunder:

(d) enter into the contracts, execute instruments, incur liabilities and do all acts or things necessary for proper management and conduct of its business;

(h) take samples of any materials, products, articles or substances or of the effluents, wastes or air pollutants being discharged or emitted or of air, water or land in the vicinity of the discharge or emission;

(i) arrange for test and analysis of the samples at a certified laboratory;

(j) confiscate any article used in the commission of the offence where the offender is not known or cannot be found within a reasonable time;

Provided that the power under clauses (f), (h), (i), and (j) shall be

exercised in accordance with the provisions of the Code of Criminal Procedure, 1898 (Act V of 1898), or the rules made under this Act and under the direction of the Environmental Tribunal or Environmental Magistrate; and

[(k) Establish the Punjab Environmental Coordination Committee comprising the Director General as its convener and such other members as the Government may appoint to exercise such powers and perform such functions as may be delegated or assigned to it by the Government for carrying out thepurposes of this Act.]

8. [*****].

9. Establishment of the Provincial Sustainable Development Fund:

[(1) There shall be established a Provincial Sustainable Development Fund].

(2) The Provincial Sustainable Development Fund shall be derived from the following sources, namely:-

(a) grants made or loans advanced by the [Government or the Federal Government];

(b) aid and assistance, grants, advances, donations and other non-obligatory funds received from foreign governments, [Punjab] or international agencies, and non-governmental organizations; and

(c) contributions from private organizations, and other persons.

(3) The Provincial Sustainable Development Fund shall be utilized in accordance with such procedure as may be prescribed for..

(a) providing financial assistance to the projects designed for the protection, conservation, rehabilitation and improvement of the Environmental, the prevention and control of pollution, the sustainable development of resources and for research in any specified aspect of Environmental; and

(b) any other purpose which in the opinion of the Board shall help achieve Environmental objectives and the purposes of this Act.

10. Management of the Provincial Sustainable Development Fund: [(1) The Provincial Sustainable Development Fund shall be managed by a Board known as the Provincial Sustainable Development Fund Board consisting of:

(i) Chairman, Planning and Development Board … Chairperson

n Annual Report incorporating its annual audited accounts, and performance evaluation based on the progress reports.

11. Prohibition of certain discharges or emissions: (1) Subject to the provisions of this Act and the rules and regulations made there under no person shall discharge or emit or allow the discharge or emission of any effluent or waste or air pollutant or noise in an amount, concentration or level which is in excess of the [Punjab] Environmental Quality Standards or, where applicable, the standards established under sub-clause (I) of clause (g) of sub-section (1) of section 6.

(3) Any person who pays the pollution charge levied under sub-section (2) shall not be charged with an offence with respect to that contravention or failure.

(4) The provision of sub-section (3) shall not apply to projects, which commenced industrial activity on or after the thirtieth day of June, 1994.

12. Environmental Impact Assessment (EIA) and Environmental impact assessment: (1) No proponent of a project shall commence construction or operation unless he has filed with the [Provincial Agency] an Environmental Impact Assessment (EIA) or where the project is likely to

16. Environmental protection order: [(1) Where the Provincial Agency is satisfied that the discharge or emission of any effluent, waste, air pollutant or noise, or the disposal of waste, or handling of hazardous substance, or any other

act or omission is likely to occur, or is occurring, or has occurred, in violation of any provision of this Act, rules or regulations or of the conditions of a license, or is likely to cause, or is causing, or has caused an adverse Environmental effect, the Provincial Agency may, after giving the person responsible for such discharge, emission, disposal, handling, act or omission an opportunity of being heard, by order, direct such person to take such measures as the Provincial Agency may consider necessary within such period as may be specified in the order.]

(2) In particular and without prejudice to the generality of the foregoing power, such measures may include:

directions under sub-section (1) are given, does not comply therewith, the [Provincial Agency] may, in addition to the proceeding initiated against him under this Act or the rules and regulations, itself take or cause to be taken such measures specified in the order as it may deem necessary, and may recover the costs of taking such measures from such person as arrears of land revenue.

17. Penalties: (1) Whoever contravenes or fails to comply with the provisions of sections 11, 12, 13, or section 16 or any order issued thereunder shall be punishable with fine which may extend to [five million] rupees, and in the case of a continuing contravention or failure, with an additional fine which may extend to one hundred thousand rupees.

(3) Where an accused has been convicted of an offence under sub-section (1) and (2), the Environmental Tribunal and Environmental magistrate shall, in passing sentence, take into

32. Power to amend the Schedule: The [Government] may, by notification in the official Gazette, amend the Schedule so as to add any entry thereto or modify or omit any entry therein.

33. Power to make regulations: (1) For carrying out the purposes of this Act, the [Provincial Agency] may, by notification in the official Gazette and with the approval of the [Government], make regulations not inconsistent with the provisions of this Act or the rules made thereunder.

(2) In particular a

mpact assessment and development of procedures for their filling, review and approval;

(h) providing procedures for handling hazardous substances; and

(I) depot of devices, in use of fuels by, and maintenance and testing of motor vehicles for control of air and noise pollution.

34. Repeal, savings and succession: (1) The Pakistan Environmental Protection Ordinance, 1983 (XXXVII of 1983) is hereby repealed.

(2) Notwithstanding the repeal of the Pakistan Environmental Protection Ordinance, 1983 (XXVII of 1983), any rules or regulations or appointments made, orders passed, notifications issued, powers delegated, contracts entry into, proceedings commenced, rights acquired liabilities incurred, penalties, rates, fees or charges levied, things done or action taken under any provisions of that Act shall, so far as they are not inconsistent with the provisions of this Act, be deemed to have been made, passed, issued, delegated, entered into, commenced, acquired, incurred, levied, done or taken under this act.