Initial Environment Examination (IEE) Report

M/s Deutsche Chemicals SMC Pvt Ltd.

deutsche chemicals

PROJECT PROPONENT:

Amir Hameed

SUBMITTED TO
ENVIRONMENT PROTECTION AGENCY

EXECUTIVE SUMMARY

This executive summary provides an overview of the main findings of Initial Environmental Examination for the **"Construction of Unit namely** M/s Deutsche Chemicals SMC Pvt Ltd for the production of one of additives named as "One Pack" used in the process manufacturing for characteristics in the PE, PVC and PPR-C PIPES, FITTINGS and PLASTIC WATER TANKS etc. and the situated at Khewat No. 891, Khatooni No. 1295 to 1296 Khasra No. 807, (Hadbust Mouza Manga Ottar, Raiwind Road, Lahore **(the "Unit").**

The major purpose of this project is to produce good quality additive by adopting standard procedure without any kind of waste in shape of solid, liquid or gaseous by ultimately providing it to different purchasers in local market according to consumer demands.

IEE report has been prepared in accordance with the Punjab Environmental Protection Act 1997 & *Review of IEE and EIA Regulations, 2022*. Salient features of said project are given below:

Table 1: Salient Features of the Project

Proponent Name:	**Mr. Amir Hameed**
Project Title:	M/s Deutsche Chemicals SMC Pvt. Ltd.
Project Location:	Located at Khewat No. 891, Khatooni No. 1295 to 1296 Khasra No. 807, **(Hadbast Mouza Manga Ottar, Raiwind Road, Lahore.)**
Final Product	• Additive "One Pack"
Raw Material	• PeWax • Lead Oxide and • Stearic acid • Mixed all for required composition
Final Capacity	90 to 120 bags per day
Source of Water	Groundwater WASA

Water Requirement	Water for domestic usage
Cost of Project	PKR 9.5 Million approx.
Source of Power:	Wapda
Wastewater:	No Wastewater
Solid Waste Management:	No Solid waste.
Type of Process	Only Mixing at required ratio is involved in the Manufacturing process of additive One Pack
Tree Plantation	At designated areas of project site

MAJOR IMPACTS AND RECOMMENDED MITIGATION MEASURES:

Key impacts related to the construction phase include:

- Constructional Noise
- Solid Waste
- Soil Contamination
- Air Pollution
- Community and Workers' Safety
- Employment Conflicts

Mitigation measures recommended to be incorporated into the project include running the machines and vehicles on good quality (low-sulfur fuels) in good working order ensuring regular maintenance, tuning and servicing, and providing them with emission control devices, such as mufflers and silencers, etc. Water suppression and covered transportation and storage of construction materials and slow driving on unpaved roads will control dust emission.

Regular testing for leakage detection will also be ensured. Solid waste of construction activities will be reused for different construction activities, while the remaining solid waste will be managed as per practices in the area. Safety of the workers will be ensured by discouraging any careless attitude of workers and providing the workers with, and encouraging them to use PPEs. Details analysis is given in **chapter 4.** Only municipal wastewater will be generated, which will be discharged in sewerage lines of industrial estate after treatment through primary treatment. Effective noise suppression design and plan will be made for all noise producing equipment i.e. high noise generating machines will be kept in isolation to minimize the overall cumulative noise.

Domestic solid waste along with recyclable waste will be generated that will be handed over to EPA certified contractor for scientific disposal. Monitoring of Ambient air parameters (Particulate matter, SO_x, NO_x) emissions should be carried out on regular basis to ensure compliance with the PEQS.

Impact Summary

Environmental Parameters	Impact Assessment	
	Construction	Operation
A: Physical		
Land Resources		
Soil Erosion and Contamination	-1t	NA
Transportation	-1t	N/A
Land Use	N/A	+1p
Air Resources		
Noise Pollution	-1t	-1p
Air Emission	-1t	-1p
Dust	-1t	-1p
Water Resources		
Ground Water	-1t	-1p
Surface Water	NA	NA
Wastewater	-1t	-1p
B: Ecological		
Flora		
Tree Cutting	N/A	N/A
Fauna		
Animal species	N/A	N/A
C: Socio-Economic		
Employment Opportunities	+1t	+1p
D: Hazards		
Biological Hazards	N/A	N/A
Fire/ Electrical Hazards	N/A	-1p
Legends: 1= Low; 2= Medium; 3= High; 4= Extremely High; NA= Not Applicable t= Temporary, p=permanent		

ENVIRONMENTAL MANAGEMENT & MONITORING PLANS:

During construction, ambient air quality for dust level in particular, vehicle and equipment exhaust, noise level (tests), solid waste management and soil contamination, and community and workers' safety (visual) need to be monitored. During operation, air emission, noise level, water, wastewater will be monitored regularly. Monitoring Plan has been included in **Chapter-6.**

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LIST OF ABBREVIATIONS

℃	DEGREE CELSIUS
DB(A)	A weighted decibel scale
EIA	Environmental Impact Assessment
EMMP	Environmental Management and Monitoring Plan
EMP	Environmental Management Plan
ENGR.	Engineer
EPA	Environmental Protection Agency
EPD	Environmental Protection Department
EPO	Environmental Protection Ordinance
IEE	Initial Environmental Examination
KM	Kilometer
LTD.	Limited
LTI	Loss Time Injury
LWI	Loss Work Injury
M^3/H	Cubic meter per hour
M/S	Masers
NEQS	National Environmental Quality Standards
NO.	Number
NOC	No Objection Certificate
PEPC	Pakistan Environmental Protection Council
PEPA, 1997	Pakistan Environmental Protection Act, 1997
PEPA, 2012	Punjab Environmental Protection (Amendment) Act, 2012
PEPO	Pakistan Environmental Protection Ordinance
PKR	Pakistani Rupees
PM	Particulate Matter
PPES	Personal Protective Equipment
PVT.	Private
SMART	Self-Monitoring and Reporting
SOPS	Standard Operation Procedures
TMA	Town Municipal Authority
WAPDA	Water and Power Development Authority
FDA	Faisalabad Development Authority

CHAPTER 1

INTRODUCTION

CHAPTER 1: INTRODUCTION

1.1 General

For any development project to be initiated in Punjab, it is mandatory to secure Environmental Approval from EPA Punjab under Section-12 of the Punjab Environmental Protection (Amendment) Act, 2012 by filing an IEE or EIA before EPA Punjab, as may be defined in ***Review of IEE and EIA Regulations, 2022*** or recommended by EPA Punjab. This Report presents the INTITIAL ENVIRONMENTAL EXAMINATION (IEE) of *M/s Deutsche Chemicals SMC Pvt. Ltd* for the production of one of additives named as "One Pack" used in the process manufacturing for characteristics in the PE, PVC and PPR-C PIPES, FITTINGS and PLASTIC WATER TANKS etc. and ultimately the product shall be provided to different purchasers in local market according to consumers demand and for this purpose, the Proponent has decided to engage environmental consultants to conduct Initial Environmental Examination (IEE) for the establishment of project.

This report is prepared by critically examining the environmental factors which might affect the environment during the constructional phase activities. The purpose of this report is to analyze the possible impacts of the project and scale of environmental concerns.

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

1.2 The Proponent

The detail of Project Proponent is given below:

Table 2: Details of proponent

Proponent name & address	Mr. Amir Hameed S/o Abdul Hameed S/o Abdul Hameed R/o House No. 15-A, Mohallha Kabazi Market Bilal Ganj, Lahore
Office Registered Address	123-C Ahmad Block, New Garden Town, Lahore

1.3 The Project

The Project under study relates to constructional phase activities of the unit including the its production process, capacity of the unit, its storage points and delivery positions. Its salient features have been described later in this Chapter, Chapter 2 and briefly in Executive Summary of the IEE.

1.3.1 Nature of Project

The project relates to manufacturing of additives only which involves mixing & processing for the final product One Pack without having its impact on the environments.

Size of Project

The production capacity is designed to procure additive packs ranging from 2000 to 3000 bags per month.

1.3.2 Location of Project

This project is located at Khewat No. 891, Khatooni No. 1295 to 1296 Khasra No. 807 Mouza Manga Ottar, Raiwind Road, Lahore

1.3.3 Area of Project

The unit will be comprised of 15 Kanal 12 Marlas of land owned by the unit.

1.4 Purpose of Report

The development of any Project leads to positive and adverse changes in environmental and change in social settings of the Project Area. The intensity and level of change, however, depends upon the nature of the Project and the baseline environmental conditions of the area.

The development and commencement of production of additives will cause minor impacts to environmental and some social impacts on the surrounding area. The main objectives of this IEE study were:

- To determine and document the state of the environment of the project area to establish a baseline in order to assess the suitability of the Project in that area.
- To identify pre-construction, construction and operation activities and to assess their impacts on environment.
- Prepare an IEE Report for submittal to the Environmental Protection Agency, Punjab for according to Environmental Approval.

1.5 Structure of Report

This IEE Report address the environmental concerns including the geological, hydrological, and ecological features, air quality, noise, water quality, soils, social and economic aspects and cultural resources. The Report predicts the probable impacts on the environment due to the said project. The IEE Report also proposes various environmental management measures. Details of all background environmental quality, environmental impact/pollution generating activities, pollution sources, assessment of environmental quality and related aspects have been provided in this report.

The structure of Report will be as follow;

- Description of the Project
- Description of Environmental and Social Conditions
- Assessment of Environmental Impacts and Mitigation Measures
- Mitigation Measures for Identified Impacts
- Public Consultation
- Environmental Management and Monitoring Plan (EMMP)
- Recommendations and Conclusion

CHAPTER 2

SCREENING & SCOPING

CHAPTER 2: Screening

2.1 Screening

According to Section 12 of Pakistan Environmental Protection Act, 1997 (Amended 2012):

"No proponent of a project shall commence construction or operation unless he has filed with the Provincial Agency an Initial Environmental Examination (IEE) and, where the project is likely to cause an adverse environmental effect, an Environmental Impact Assessment (EIA), and has obtained approval from the Provincial Agency in respect thereof."

As per Review of Initial Environmental Examination (IEE) and Environmental Impact Assessment (EIA) Regulations, 2022 the Said Project falls under ***Schedule-I (list of Projects requiring an IEE), Category C (3), i.e., Manufacturing and Processing (Synthetic Resin, Plastics and Man-Made Fibre).*** Thus, an IEE report is being prepared in compliance with Punjab Environmental Protection Act, 1997 (Amended 2012) for duly submission in EPA, Punjab.

CHAPTER 3
PROJECT DESCRIPTION

CHAPTER 3: DESCRIPTION OF PROJECT

3.1 General

This section of the study concentrates on details of the project and its salient features; such as location, site layout, objectives, selection of alternatives, cost and magnitude of operation and various phases. Inputs and discharges relevant to different phases of the project, such as electricity & materials, etc. have also been examined as a response to possible environmental concerns.

3.2 Objectives of Project

Following are the major objectives of said project:

1. To manufacture high quality additives which is used in the pipes and fittings and in water tanks etc
2. To provide employment to people of locality
3. To upgrade the socio-economic condition of area.

3.3 Project site alternatives

The site selection is based on numerous factors including proximity to residential areas, protected areas, surface water bodies, wild life reserves etc. No project site alternative was considered because the proposed project is an industrial unit and permission accordingly was granted by the local authority with clear title of ownership. Moreover, the site is considered suitable because of the following features:

- The selected site is located at designated semi industrial at Manga Ottar, Raiwind Road, Lahore
- Current project site also surrounded by various industrial units.
- The site has availability of infrastructure facilities such as water supply, power, roads, social infrastructure and man power.
- No endangered fauna/flora has been observed near the project site.
- The proposed site does not fall in any category of protected or environmentally sensitive area

3.4 Location and Layout of Project

The project is situated at Khewat No. 891, Khatooni No. 1295 to 1296 Khasra No. 807, (Hadbast Mouza Manga Ottar, Raiwind Road, Lahore.)The production capacity is designed to procure additive packs ranging from 2000 to 3000 bags per month.

3.4.1 Location of the Project

Khewat No. 891, Khatooni No. 1295 to 1296 Khasra No. 807, (Hadbast Mouza Manga Ottar, Raiwind Road, Lahore.)

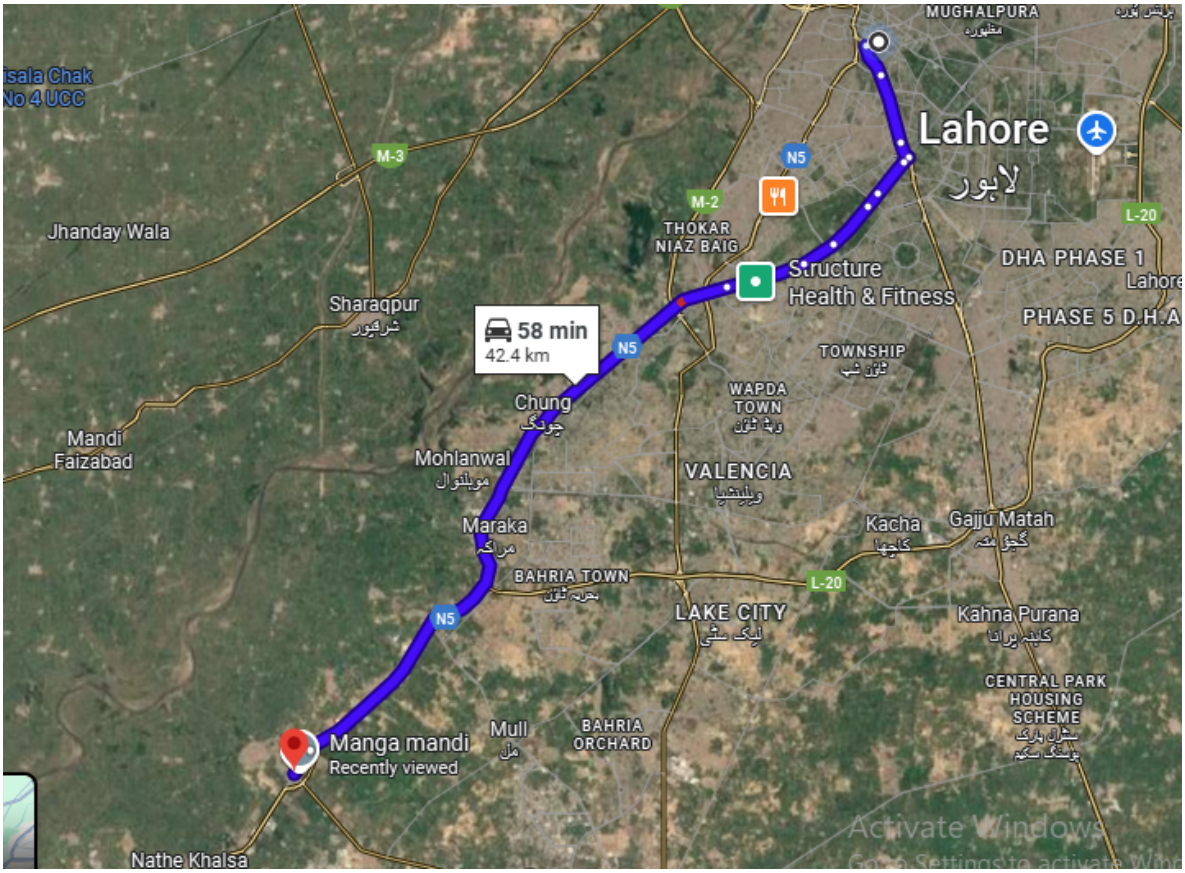


Figure 1: Google map of project site

3.5 Nature of Area

Area of project is semi commercial/industrial in nature as the project is located within the premises at Khewat No. 891, Khatooni No. 1295 to 1296 Khasra No. 807, (Hadbast Mouza Manga Ottar, Raiwind Road, Lahore) where the necessary certificate has been issued by the local authority.

3.6 Title Documents

The proponent has purchased land through sale deed executed in favour of the unit. The copy of the same is attached with the report.

3.7 Other NOCs

That the Industrial Construction was allowed by the local authority and the certificate is attached.

3.8 Land Use on Site

The land use on the site is industrial in nature. There is no settlement, grassland or preserved area in the proximity of the project area that could be damaged or dismantled.

3.9 Road Access

The said Project site is at 4KM Manga , Tehsil Raiwind, District, Lahore.

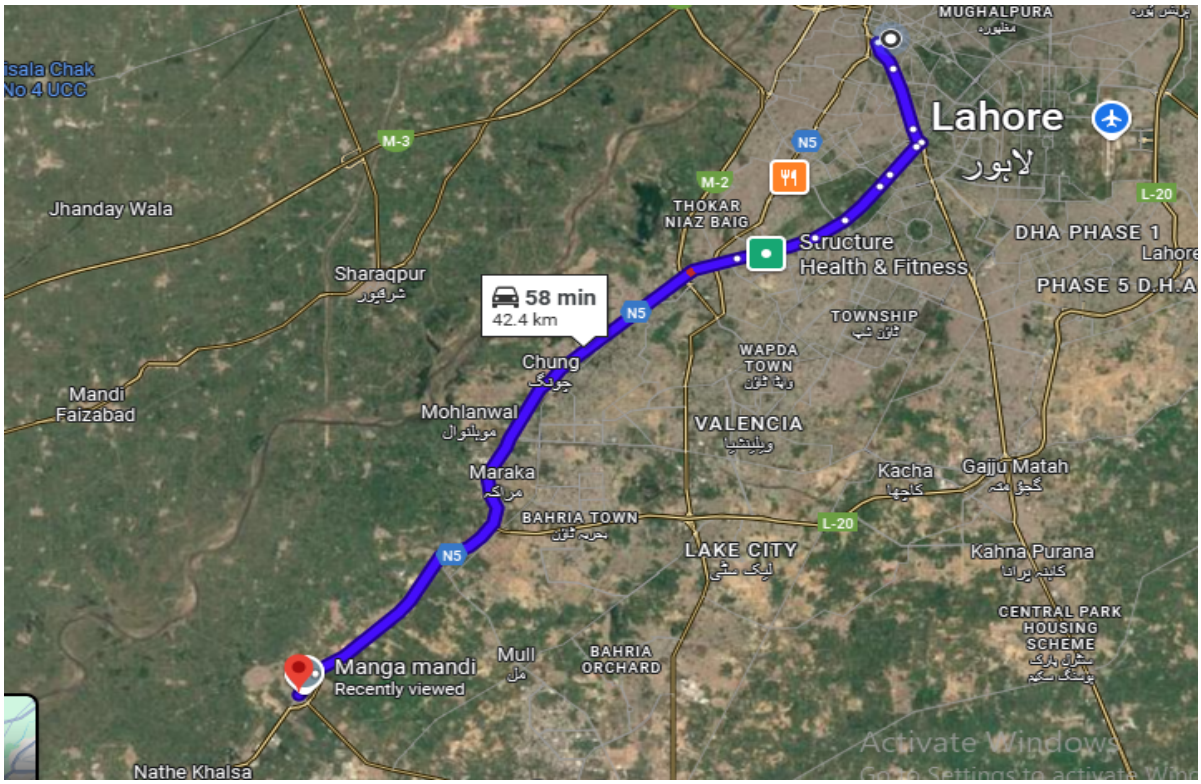


Figure 2: Road Access

3.10 Vegetation features of the site:

The project is located within semi commercial area. There is no vegetation or plantation present on-site, and none will be removed so, no significant vegetation would be removed for project construction present on site.

3.10.1 Cost and Magnitude of Operation

The total cost of the project will be Approx. PKR 9.5 million approximately and magnitude of operation includes:

- Detailed site survey, planning and demarcation of the various regions in the Project Area.
- Construction of infra-structure development
- Plantation of trees
- on the designated area.

3.10.2 Schedule of Implementation

The schedule of implementation of construction phase of Said Project is approximately 6 months and the detail timeline of the development period is given in Table:

Table 3: Timeline for establishment period

Sr. #	Activities	3 Months			3 Months		
		1M	1M	1M	1M	1M	1M
1	Detailed Designing						
2	Lean Development Period						
3	Peak Development Period						
4	Restoration of Site (Plantation/green belt development)						
M=Month							

3.10.3 Raw material

The project involves mixing of PeWax about 30 to 40 %, with Lead Oxide 15% to 25% and Stearic acid 30% to 40% with ratio so required for the end product

That the One Pack being an additive added during the processing of PVC etc. The additives are a combination of various chemicals. As PVC molecule is unstable to heat and light hence to process PVC, it has to be stabilized against the action of Heat required at processing temperatures. That is the reason for using One Pack. This One Pack has helped manufactures to just use one chemical rather than using multiple chemicals like DBLS, TBLS, LS etc traditionally being used.

One Pack additives play important role during processing as well as during the service life of the product to which they are add

3.10.4 Dry Blending (High-Speed Mixer):

During the initial preparation, high-speed mixing generates frictional heat, bringing the mixture to around 100°C–120°C to activate the components. All items of the raw materials are mixed in the mixture for uniformity at temperature and WAPDA is for running mixture.

3.10.4 Printing and Marking

The additives so prepared are packed in the shape of bags with required size and material grade, and manufacturer's name is used an online printing system.

3.10.5Quality shape

The final product shall be in shape of granules and shall be packed with standard lengths of bags by an automatic cutting machine according to specifications.

3.10.3 Quality Testing

Dimensional checks, impact tests, and hydrostatic pressure tests will be performed to ensure compliance with standards.

3.10.4 Packing and Storage

The finished product will be packed in bags, stored properly, and prepared for dispatch to customers.

3.11 Amenities

3.11.1 Manpower:

During construction phase of the project, 15-20 workers while during operational phase of the project 120 will be hired for proposed project.

3.11.1.1 Power Supply

Electricity from the grid station of Manga Ottar will be the main supply in the subject project.

List of Machinery

Below is a list of machinery:

1. Extruder Plant
2. Injection Molding
3. Socket Machine
4. Crusher Machine
5. Mixer
6. Filter Machine
7. Chillers
8. Conveyers

3.11.1.2 Water Supply

During construction and operation phase of the project, water will be required for domestic purposes only and this requirement will be fulfilled through Water Supply Company.

3.11.1.3 Wastewater disposal

During Construction and operation phase of the project wastewater will only be produced from Domestic activities. The generated waste water will be primarily treated through primary treatment plant (septic tank) before final disposal into sewage lines of industrial estate.

3.11.1.4 Solid Waste Management

During construction phase the solid waste will mainly consist of construction material such as; steel, wood, sand, debris and packaging material. They are reusable and will be reused in different construction activities and remaining will be sold to contractors. During operational phase, Solid waste along with recyclable waste will be generated that will be handed over to EPA certified contractor for scientific disposal.

3.11.1.5 Relocation and Rehabilitation Plans

There exists no human settlement within safe radius of Project site to be displaced owing to the commencement of Project. No structure of any significance stands at the site to be relocated or dismantled. Land is already under undisputed ownership, and no fresh land is to be occupied; hence, no relocation and rehabilitation is required.

CHAPTER 4

DESCRIPTION OF ENVIRONMENT

CHAPTER 4: DESCRIPTION OF THE ENVIRONMENT

3.1 General

An environmental baseline study is intended to establish a database against which potential project impacts can be predicted and managed later. The IEE of the proposed Project covers a comprehensive description of the project area, including environmental attributes which are expected to be affected by the project, as well as, those which are not expected to be directly affected by the construction and operation of the project. The existing environmental conditions around the proposed project have been considered with respect to physical, biological and socio-economic aspects. Site visits were conducted to survey the field area and to collect environmental data on physical, biological and socioeconomic parameters. Further, consultations were held with the general public and stakeholders of the project area in order to seek the public opinion on the implementation of the proposed project

4.2 Methodology

The methodology employed to collect the baseline data and information regarding the social structure and various related parameters as discussed in sub-sections below:

4.3 Data Collection

The primary data was collected by visiting the project area and its communities in its nearby vicinity. The secondary data regarding physical parameters (topography, geology, seismology, and climate) was obtained by visiting relevant various government departments and their official websites. The biological parameters such as flora and fauna were studied by preparing a floristic list based on visual observation and fauna was studied by using opportunities approach. The species were recorded with reference to their existence in the project area. Information on wildlife fauna species (mammals, amphibians, reptiles, birds, etc.) in the assessment area was compiled based on opportunistic observation, gathering the existing information and consultation with local experts, community members and government and Non-Government Organizations (NGOs). The socioeconomic aspects were studied and analyzed by studying detailed village profile and by conducting household surveys.

4.4 Social Survey

The purpose of social survey was to record the present condition of the people living in the project area and to assess the expected project impacts on their life, subsistence systems and socio-cultural conditions. Prior to conducting the field surveys, the following steps were taken:

- Clear boundaries of the project area were identified
- Decided the sampling procedure in order to draw a representative sample size of the target population and households
- Developed the tools for data collection i.e. questionnaires to access the socio-economic status of the area

4.5 Sampling Design

Social baseline data of the persons residing in the study area has been estimated and collected through random sampling by using pre-developed questionnaires.

4.6 Questionnaires

In order to test the validity and reliability of the proposed questionnaires, they were reviewed to assess whether questions needed to be clarified, changed or re-sequenced and then a final editing of questionnaires was conducted prior to their application in the project area.

4.7 Data Editing and Analysis

The filled questionnaires and recorded information were compiled by the same field investigators who were involved in the data collection. This was done immediately after completing the field investigations. Data sets were processed. Analysis of the data and preparation of conclusions in the minimum possible time was done using statistical techniques of data analysis.

4.7.1 Review of Legal and Administrative Framework

The objective of reviewing legal and administrative framework is to obtain information on all legislation pertaining project development. The Socio-Environment Team of Environment Consultants & Associates have reviewed the environmental policies, national, international and provincial laws and guidelines relevant to the development of project which helped in systematic identification of impacts.

4.7.2 Baseline Conditions

Baseline conditions refer to the existing physical, environmental, and socio-economic status of the project area. On the basis of baseline information, the project interventions are assessed, and mitigation measures are proposed. The baseline information also helps to indicate the specific issues to be monitored during construction and operational phases. The baseline data (physical, biological, and socio-economic parameters) related to the project area is described below. The information provided is based on primary and secondary data collected by site visits, desk studies and consultation with locals

respectively. This section gives an overview of the topology, geology, seismology and meteorological conditions of whole city whereas, it gives detailed information about the surface water, ground water and air quality of the project area. The detail of each parameter is discussed in sub-sections below:

4.8 Physical Resources

The physical resources consist of existing landform and land use at the project site including geology, hydrology, meteorology and climatology. The pre-project condition (i.e. baseline) of these components of the physical environment is described in detail. To identify the potential impacts on the physical, biological and socio-economic environment that is likely to arise from the project activities.

4.8.1 Geography and Geology

Manga Mandi is a town situated in the Lahore District of Punjab, Pakistan. It is located on National Highway N-5 also known as Multan road, about 38 kilometers southwest of Kalma Chowk, Lahore. Its surrounding areas are Samada Village, Wara Kambowan wala and Kot Asad Ullah. Postal Code of Manga Mandi is 55270. Its latitude is 31.29913° or 31° 17′ 57″ north, while its longitude is 74.06948° or 74° 4′ 10″ east.

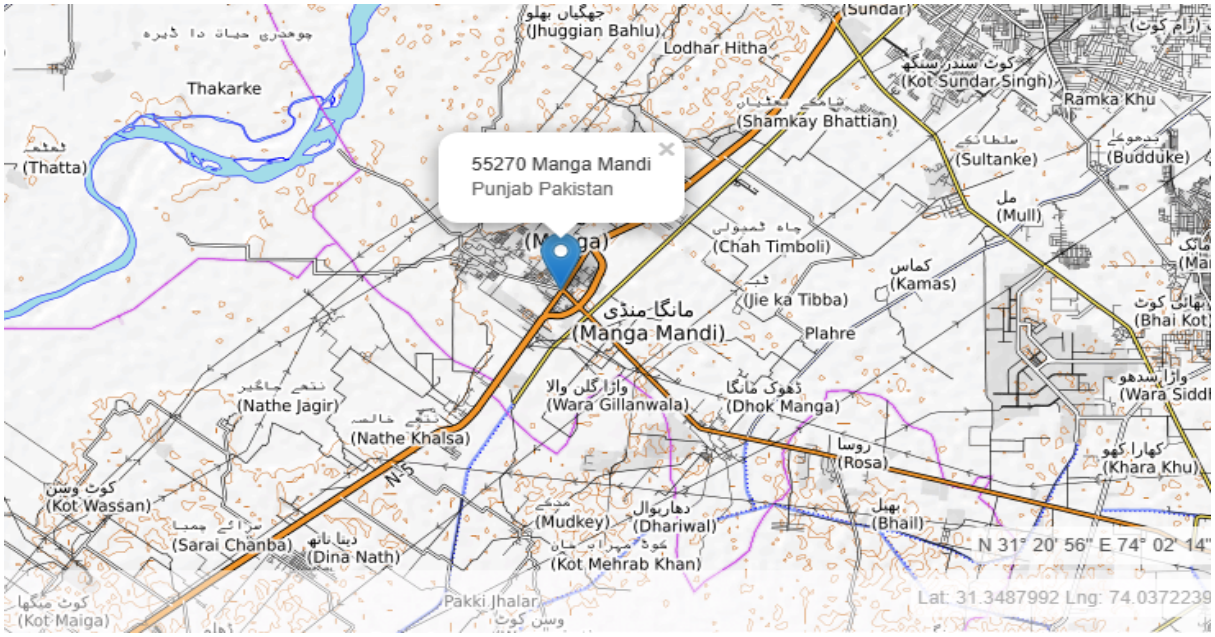


Figure 4: Location of the City

4.8.2 Topography

Manga Mandi has a long history dating back to pre-independence times. It has been a key center for agriculture, livestock trade, and local commerce. The town's "Mandi" (market) was historically an important trading hub for grains, livestock, and household goods, attracting traders from nearby villages and towns.

There is a Gurduwara namely "Gurudwara Chota Nankiana Sahib1" in this town. This site holds immense importance in Sikhism. It is associated with Guru Nanak, the founder of Sikhism, who, during his journeys, is believed to have halted in Manga. Later, Guru Hargobind Ji, the sixth Sikh Guru, also stayed here on his return from Nankana Sahib. The Gurdwara, once a vibrant place of worship, was reportedly damaged during the Partition of 1947.

The estimated population of Manga Mandi is above 1 Lac residents. The primary language spoken is Punjabi, but Urdu and English are also widely understood, especially among the younger generation and business professionals.

4.8.3 Hydrology

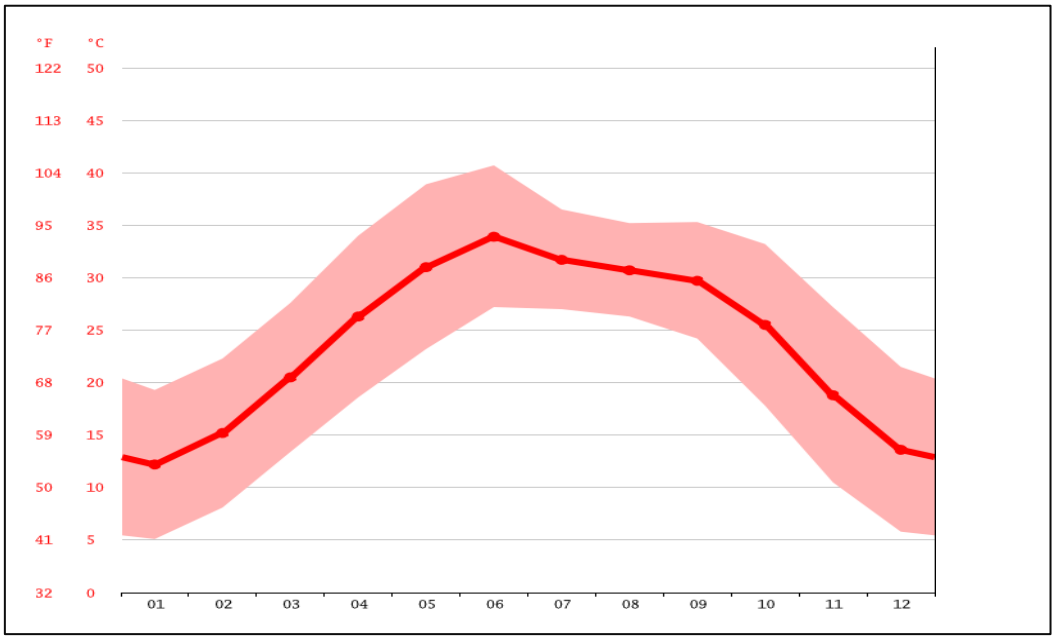
Groundwater from depths of 70 to 200 feet can be used for drinking and other purpose. Groundwater is the major source of water in the study area, which is extracted with the help of pumps and motors. The groundwater extracted is used to fulfill various domestic, irrigation and industrial needs. Ground water quality report of area is annexed.

4.8.4 Climate

4.8.4.1 *Temperature*

The Tehsil Manga Mandi has extreme climate conditions and summer season starts from April and continues till October. During the summer season, temperatures range from 30 °C to 48 °C. The winter season starts in November and continues till March. December and January are the coldest months with a mean minimum temperature of about 3-5 °C. Dust storms occur occasionally during the hot season, June, July and August.

Climate of Tehsil Manga Mandi is very hot and dry in summer and cool in winter. June is the warmest month of the year. The temperature in June averages 33.7 °C | 92.7 °F. January has the lowest average temperature of the year. It is 12.2 °C | 53.9 °F



Rainfall

Manga Mandi is 209m above sea level. The climate here is a local steppe climate. In Manga Mandi, there is little rainfall throughout the year. The temperature here averages 24.2 °C | 75.6 °F. Precipitation here is about 694 mm | 27.3 inch per year.

The driest month is November, with 9 mm | 0.4 inches of rain. With an average of 172 mm | 6.8 inch, the most precipitation falls in July.

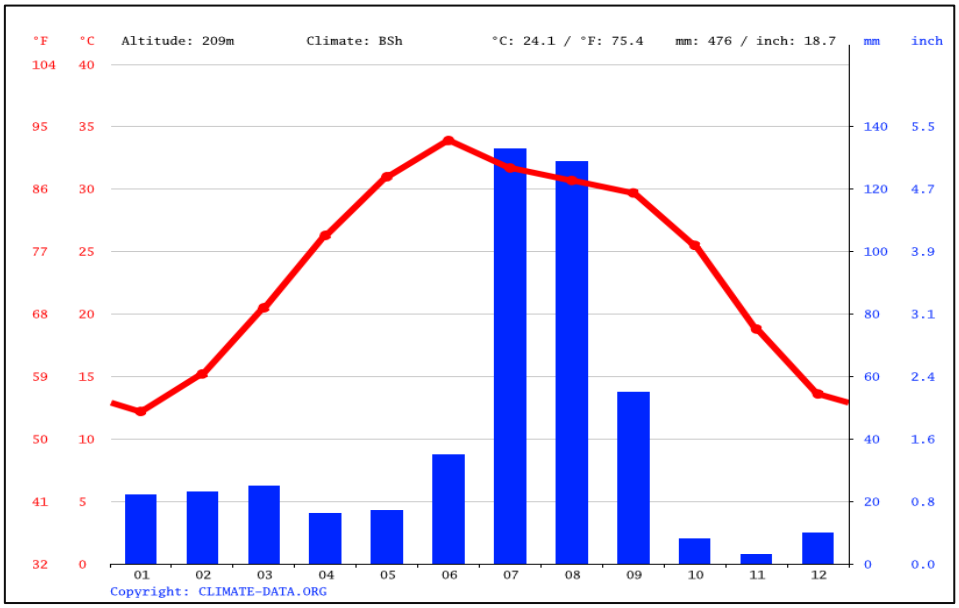


Figure 5: Average Annual Precipitation of Manga Mandi (Source: Climate-data.org)

4.8.4.2 *Wind Speed*

The average daily wind speed was highest in July which was 38 km/h. In recent years, the maximum sustained wind speed has reached 38 km/h.[4] The diagram shows how many days within one month can be expected to reach certain wind speeds.

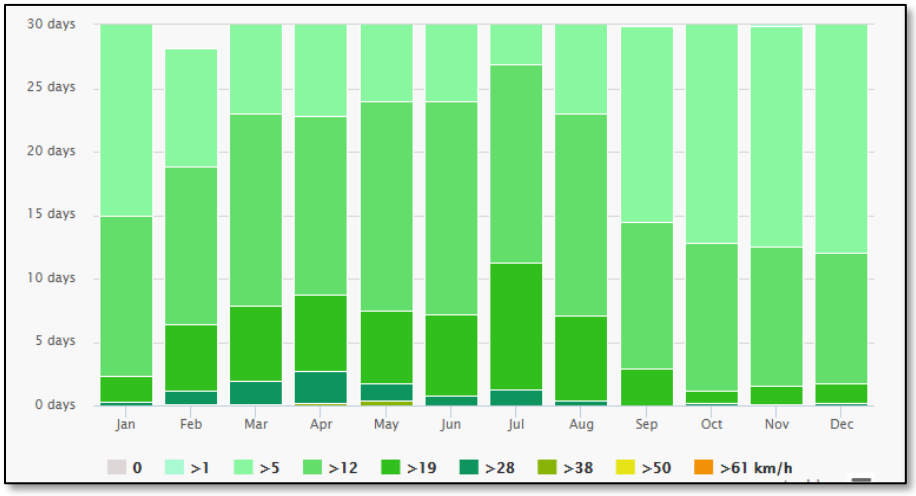


Figure 6 Average Wind Speed

Seismicity

According to Seismic Zoning of Pakistan, the project area lies in Zone 2A and represents minor to moderate damage due to earthquakes.

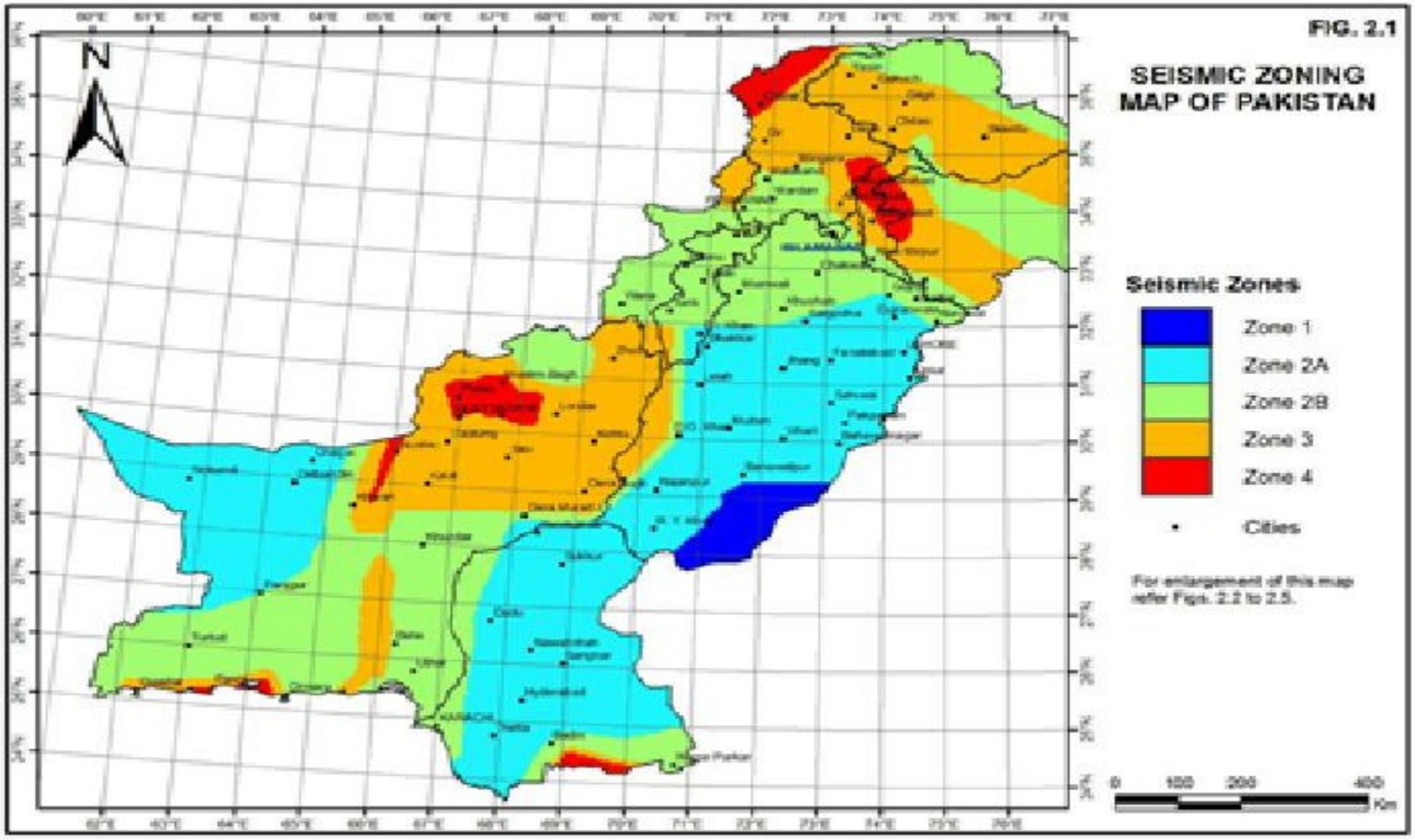


Figure 7: Seismic Zoning of Pakistan

4.9 Ecological Environment

Manga Mandi is not rich with biological and ecological resources. However, the flora and fauna of the district includes; shrubs, herbs, mammals, birds, reptiles, amphibians and insects are found. They are discussed in detail below:

4.9.1 Aquatic Flora and Fauna

There is a canal present in the study area which is being used for the irrigation purpose is Upper Chaneb Canal. No aquatic life is reported in Upper Ravi Canal that can be at the verge of demage and disturbance. Moreover, no aquatic ecosystem (i.e., steam, river or pond) observed within or around the study area, which omits the possibility of any kind of aquatic species that may be harmed due to the establishment of plastic recycling unit.

4.9.2 Flora

The project is located in an industrial area. The project site has no vegetative cover; hence, no trees or vegetation will be removed.. The dominant tree species in study area include Eucalyptus, Neem, and Kikar. The crops present around project site include wheat, sugarcane, and common grass. The nomenclature including common, English, local and botanical names of the flora found in the study area are presented in Table 16:

Table 4: Inventory of the Trees Present in Manga Mandi District

S#	Common Name	Scientific Name
1	Neem	*Azadirachta indica*
2	Kikar	*Vachellia nilotica*
3	Safeda	*Eucalyptus globulus*

4.9.3 Fauna

For study of fauna in the project area, field guides and books were consulted. On the other hand field observations were conducted along with the interviews of local community members about the fauna of the area. The equipment used in field included cameras, binoculars and GPS device (wherever required). It is important to note that there is a number of factors which can change the findings of such survey.The fauna commonly found in Tehsil Manga Mandi includes; Hares, Falcon, Eagle, Quail, Starling, Jungle Pigeon, Russian Sparrow, Doves, King Fisher, Parrot, Crow and Local Sparrow.

Commonly found mammals in the area include; dogs, cats, horses, house-rats, squirrels, porcupines and bats. However, Small Indian Mongoose and Indian Palm Squirrel are also found in the Tehsil Manga Mandi.

Table 5: Mammals in the Study Area

Sr. #	Common Name	Scientific Name
1	Rat	*Rattus*
2	Bat	*Chiroptera*
3	Small Indian Mongoose	*Herpestes javanicus*
4	Indian Palm Squirrel	*Funambulus palmarum*
5	Porcupines	*Erethizon dorsatum*
6	Squirrels	*Sciuridae*

The commonly found birds species include; House Sparrow, Crow and some of them are mentioned below with scientific names:

Table 6: Birds in the Study Area

S#	Common Name	Scientific Name
1	House Sparrow	*Passer domesticus*
2	House Crow	*Corvus splenders*
3	Pigeon	*Columbidae*
4	Bulbul	*Pycno notidae*
5	Teetar	*Francolinus francolinus*
6	Parrot	*Psittaci forms*
7	Titodi	*Vanellus indicus*

In Tehsil Manga Mandi reptiles such as Snakes (Cobra and Kraits), Spiny Tailed Lizard and Fringed Toed Lizard are common in the tract, but cases of snake bites are very rare, as these reptiles have been either killed by expanding urbanization or they have moved away.

Table 7: Reptiles in the Study Area

S#	Common Name	Scientific Name
1	Snake	*Serpentes*
2	Spiny Tailed Lizard	*Uromastix hardwickii*
3	Fingered Toed Lizard	*Acanthodactylus cantoris*
4	Earthworm	*Lumbricina*

The amphibians commonly seen around the project area, especially during the rainy season includes;

Table 8: Amphibians in the Study Area

S#	Common Name	Scientific Name
1	Common Frog	*Rana temporaria*
2	Indus Valley Toad	*Bufo stomaticus*

A large number of insects are present due to open fields in the project site. Few of these insects are known to cause diseases in local population. Following is a list of commonly observed insects at the site:

Table 9: Insects in Study Area

S#	Common Name	Scientific Name
1	Black Ants	*Paratracheaiognicornis*
2	Dragon Fly	*Dragon Fly*
3	House Flies	*Musca domestica*
4	Butter Flies	*Parnassiusbalucha*
5	Honey Bees	*Apismellifera*
6	Wasps	*Anagyrus pseudococci*
7	Grasshopper	*Melanoplus differentialis*
8	Mosquito	*Anophlese sp.*

No endangered species are found at the site. The area has not been identified as ecologically sensitive area by wildlife department.

4.10 Environmental Monitoring

Laboratory analysis for environmental monitoring of proposed site is done in order to check the baseline conditions and pollution load. In this connection M/S SEAL lab which is EPA certified laboratory, was engaged to carry out environmental monitoring of wind speed, air quality, drinking water quality, noise level and particulate matter concentration in the project area.

4.10.1 Sampling Sites

Samples of water, noise, and air for testing according to the testing guidelines of Punjab-EPA.

4.11 SOCIO-ECONOMIC RESOURCES

This section provides collective information about the existing socio-economic and environmental condition of the project area within the AOI. The different types of socio-economic aspects were covered such as demographic profile, occupation, education and health facilities. This data helped in identifying major interventions for the development of Environmental Management and Monitoring Plan (EMMP). The study also helped to assess the positive or adverse impacts on local community.

4.11.1 Cultivated Crops

The main crops that are being cultivated in the study area include; Rice, Wheat, Sugarcane, Onion, Tomato and Potatoes as well as fodder crops. The area is famous for best Basmati rice production in the world.

4.11.2 Socio-Economic Profile of Study Area

This topic provides an overview of the baseline information relating to the socio-economic environment of the project area and the AOI. The socio-economic study gives information about the demographic profile, occupation, education and health facilities in the project area.

4.11.3 Social and Public Amenities Available

The social and public amenities present in the area are given below:

a. Physical structures

The land use on the project site is industrial. The people in this area are deprived of basic facilities like health, proper sewerage and sanitation facility, medical facilities, provision of safe drinking water, etc.

b. Religious Structure

There is no shrine, structure or any other religious infrastructure present in the said project site that could be damaged and dislocated due to the project establishment.

c. Protected Structures

There is no protected site, structure or any other social infrastructure present near project site.

d. Cultural Heritage and Community Structure

Environment Consultants & Associates team also visited the study area but did not find any cultural heritage and community structure within the study area that could be impacted due to the proposed project.

4.12 Quality of Life Values

Socio-Economic Questionnaire and Environmental Checklist were used as survey tools by the Environment Consultants survey team to collect desired information. Graphical representation of results of Socio-Economic Survey is given below:

4.13 Occupation of Respondents

Majority of the respondents (50%) are private Employee, 15% have their own business, 10% attached with agriculture, 10% attached with Transportation, 10 % are shopkeepers and remaining 5% are government employees. During survey, efforts were made to interact with people representing all walks of life. The detailed graphic representation of occupational status is given below:

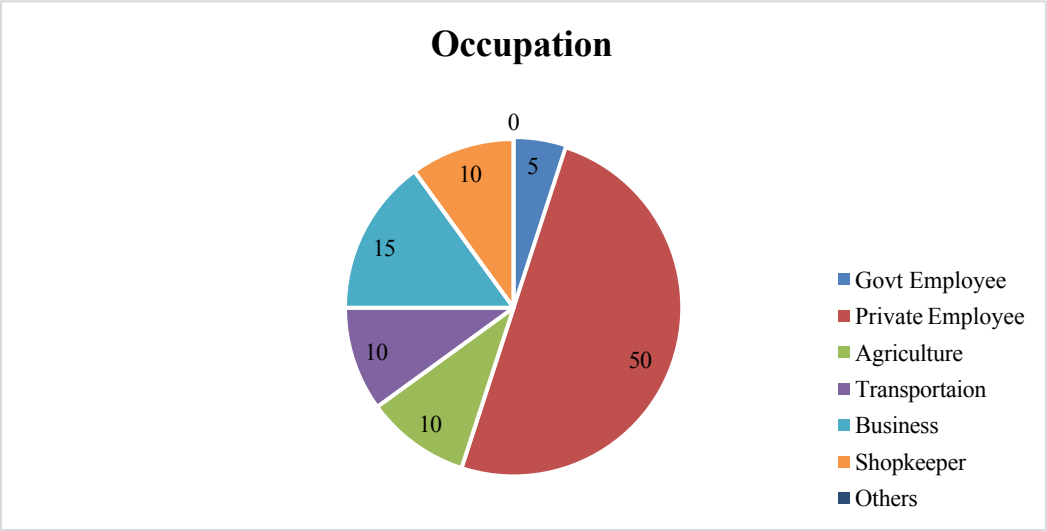


Figure 8: Occupation of Respondents

4.14 Literacy Rate

From survey results, it was found that 10% of the studied population was illiterate, 5% studied up to middle level, 15% of the respondents studied up to higher secondary level, 15 % respondent studied upto Higher Secondary level and 55 % respondents studied upto Graduation level.

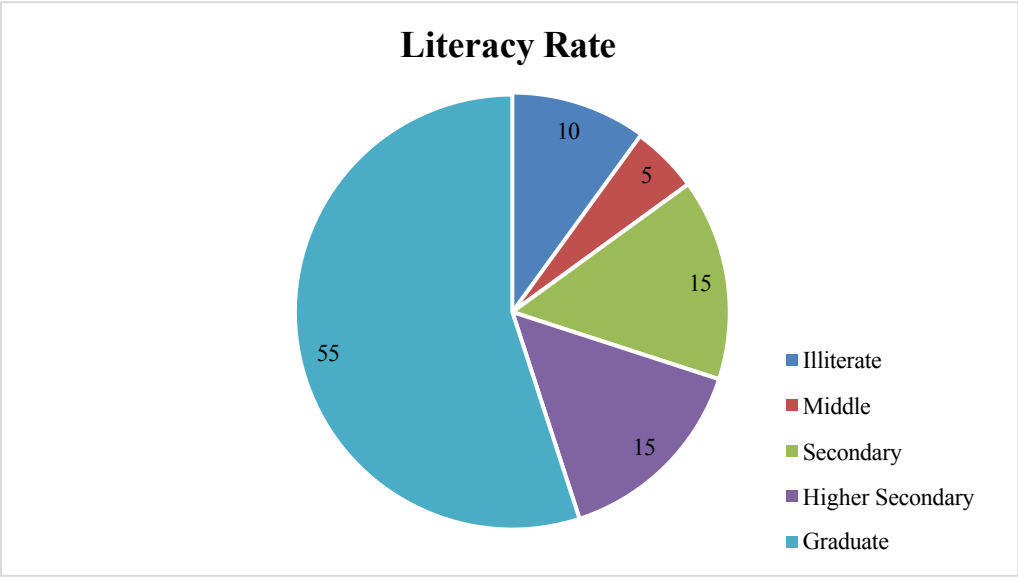


Figure 9: Literacy Rate of Respondents

4.15 Educational facilities

In the project area some educational institutions are found which include Allied School (Ravian Campus), TKS-Manga Mandi Campus, Punjab Public High School, TCF School are present.

CHAPTER 5

SCREENING OF POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

CHAPTER 5: SCREENING OF POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

5.1 General

Assessment of impacts depends on the nature and magnitude of the activity being undertaken, as well as the type of environmental control measures that are envisaged as part of the project proposal. The potential impacts from the project area are identified and assessed based on the type and scale of the various activities associated with this project.

Several aspects and potential impacts were identified for each phase (Project Location, Construction and Operation) of the development, with impacts evaluated in terms of their nature, occurrence, possibility and severity potential.

5.2 Project Location

The project M/s Deutsche Chemicals SMC Pvt. Ltd is Located at at Khewat No. 891, Khatooni No. 1295 to 1296 Khasra No. 807, (Hadbast Mouza Manga Ottar, Raiwind Road, Lahore.) which involves for the manufacturing of additives used in the process of P**E, PVC and PPR-C Pipes, Fittings And Plastic Water Tanks.** The proponent has selected the proposed site owing to the following reasons:

- Proposed Project is the located within designated industrial estate, Manga Mandi.
- The site is undisputed & under the ownership of the proponent and obtained allotment Letter from Industrial estate.
- The nature of area is industrial and surrounded by many industrial units.
- There is no fauna flora (particularly belonging to an endangered species) within 1 km radius of the site.

It can be concluded in view of these reasons that the selected site is best suited for the project and will not pose any adverse impact or threat on any component of the environment.

5.1 Screening of Potential Impacts

Several impacts are likely as a result of the construction and operation of the project. Such impacts may be direct, indirect or ultimate. For the purposes of this IEE, these potential impacts (whether direct, indirect or ultimate), are assessed based on their magnitude (short-term or long-term) and effect (positive or negative). Impacts are also classified in three groups: impacts due to project location, impacts as a result of project construction and impacts as a result of project operation.All the potentially significant environmental impacts from the project are grouped below:

Air Environment

- Impact on ambient air quality

Noise Environment

- Impact on ambient noise

Water Environment

- Impacts on surface and ground water quality

Land Environment

- Impacts on land use

Ecological Impacts

- Impacts on trees/vegetation
- Impacts on forests and wildlife

Socio-Economic Impacts

- Impacts on other infrastructure
- Impacts on employment
- Impacts on public health and safety
- Impacts on cultural resources
- Impacts on aesthetics

5.2 Impacts due to Project Design

At the design phase, no considerable impact would occur on land, soil, topography, ground water, and on people of the area. However, in the pre-construction phase, a management system should be provided at design level so that impacts can be reduced. Design of the proposed project would adhere to all standard technical requirements in order to avoid adverse impacts on the environment and human health.

Mitigation Measures

- The design process should be carried out in recognition of identified hazards and risks assessment. Accepted design solutions should focus on maximum possible opportunity for risks reduction.
- Carry out engineering surveys including environmental surveys depending on the level of complexity and potential hazards of the planned facilities in construction.
- Minimize risks to health and impacts to external environment. Suitable anti-pollution facilities (Solid waste containment and organized removals, wastewater purification) should be part of the design.

Noise Environment

- Impact on ambient noise

Water Environment

- Impacts on surface and ground water quality

Land Environment

- Impacts on land use

Ecological Impacts

- Impacts on trees/vegetation
- Impacts on forests and wildlife

Socio-Economic Impacts

- Impacts on other infrastructure
- Impacts on employment
- Impacts on public health and safety
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- Minimize risks to health and impacts to external environment. Suitable anti-pollution facilities (Solid waste containment and organized removals, wastewater purification) should be part of the design.

5.4 Impacts during Construction/Development Phase

5.4.1 Raw Material Transportation

The said Project area is in the semi commercial area and some roads of the area are un-metaled. During the transportation of raw materials such as cement, bricks, sand, gravel, etc., dust may be generated which could impact the nearby community.

Nature of Impact

The nature of the impact is medium, short-term, and significant.

Mitigation measures

Impacts can be reduced significantly by adopting better management and monitoring practices. Following management and monitoring practices will be adopted to reduce the impacts:

- Proper tuning of vehicles will be done on the regular basis
- Restrict excessive transportation of the vehicles as well as the speed of the haulage trucks that shall not exceed the speed limit of 40km/hour.
- Cover the vehicles with tarpaulin sheet carrying sand

5.4.2 Impacts on Vegetation

The proposed project lies within industrial estate. There are no vegetations or plantation present on-site, and none will be removed so, no significant vegetation would be removed for project construction present on site. The impact is insignificant.

Nature of Impact

The nature of the impact will be low, short-term and insignificant.

Mitigation

Following mitigation measure will be adopted to reduce the impact of the vegetation removal:

- Trees should be planted as soon as the construction on-site completed.
- Dust along the un-metaled road should be control by regular sprinkling water on the construction material.

5.4.3 Impacts on Water Resource

During construction phase, Water will be required for domestic purposes as well as construction activities including sprinkling of water for dust suppression, concrete mixing, watering the bricks etc. The extraction of water for the construction activities may affect the water availability for other water users.

Nature of Impact

The nature of impact is low, short-term, and insignificant.

Mitigation

Following mitigation measures will be adopted to avoid the impact on water resources.

- Avoid un-necessary consumption of the water
- Close the tap when water isn't in use
- Proper tuning of vehicles will be required to protect the petroleum products from spillage
- The labor will use the public toilets already present near the Study Area.
- Open stockpiles of construction materials (e.g. aggregates, sand and fill material) on site should be covered with tarpaulin or similar fabric during the rainy season.
- Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.

5.4.4 Impacts on Air Quality

During construction phase, the machinery working on Project Site may cause air pollution due to release of pollutants such as; carbon dioxide, NO_x and SO_x from the burning of the fossil fuels in the vehicles. Dust may be generated due to the excavation activity. No other impact is envisaged that may pollute the air quality.

Nature of Impact

The nature of the impact will be low, short-term, and insignificant.

Mitigation

Following mitigation measures will be adopted to reduce the impact on the air quality:

- Proper tuning of vehicles will be done on the regular basis in order to control the air pollution.

- Avoid unnecessary movement of the trucks carrying raw-materials.
- Avoid excavation and filling activity on the windy days
- Regular water sprinkling on dusty areas will reduce dust emissions.

5.4.5 Impacts of Noise

During construction phase, heavy construction machinery will be used. The machines are noisy and can cause a certain degree of nuisance to the nearby community. The noise levels of machines and vehicles vary widely depending on the type of noise generated and level of activity. Some common impacts of noise nuisance include annoyance, sleep disturbance and interference with communication. Acceptable levels of noise are regarded to be 40 dB (A) during the night and 50 dB (A) during the day. Since construction will take place during the day only the 50 dB (A) level is of importance.

Nature of Impact

Nature of impact will be low, short-term and significant.

Mitigation

Following mitigation measure will be adopted to reduce the noise.

- The noise related activities should be done during the day-time to ensure minimum disturbance to the local community
- Proper tuning of the vehicles should be done on regular basis.
- Noise related activities should be done speedily and completed as soon as practically possible.
- Construction activity will be confined to the small area.
- Use noise-abating devices wherever needed and practicable.
- Providing the construction workers with suitable hearing protection like ear cap, or earmuffs and training them in their use; and
- Regular maintenance of the construction equipment

5.4.6 Impacts on Land-Use

The land-use around the Project Site is characterized as industrial. No impact is anticipated as the proposed project is said to be constructed in an industrial area and the construction will not change the land use of the area.

5.4.7 Impacts on Socio-Economic Environment

During this phase, skilled and unskilled labor will be required. Employment opportunities for the unskilled workers will therefore increase, which will enhance the positive benefits for the local people who are in dire need of income for sustenance. Furthermore, indirect opportunities for employment will arise from the provision of services to the construction teams, such as sale of raw material such as cement, bricks, sand etc., as well as food and beverages for the labor and after completion of construction phase serve as a permanent business opportunity.

Nature of Impact

This impact is positive, short-term and significant.

5.4.8 Impacts on Cultural and Historic Sites

There will be no adverse impact anticipated on the cultural and historical sites as there are no cultural

and historical sites located within the study area that could be impacted due to the construction of Said Project.

5.4.9 Impacts on Human Settlements

There is no dispute related to the land ownership and dislocation of any human settlements. Moreover, there will be no possibilities of demolition and relocation of any physical infrastructure. The potential adverse impact is considered insignificant in nature because the Project Area is in industrial zone. Said project will not cause any adverse impact or may not cause public nuisances.

5.4.10 Impacts of Work Accidents/health and safety

To limit the risk of accidents, safety procedures will be put in place and enforced by the foreman to ensure that vehicles and machinery only drive-in designated places by authorized personnel.

Nature of Impact

The nature of the impact will be minor, low, short-term, and insignificant.

Mitigation

Following mitigation measures will be adopted.

- Make sure all the workers wear Personal Protective Equipment (PEPs) while working.
- Regular checking of the machines should be done in order to maintain working machinery and to avoid accidents

5.5 Impacts of Operational Phase

5.5.1 Land and Soil

After construction phase the area will be restored back to its original state. Different ornamental plants and native tree species will be planted in designated areas of the project site. This will improve the overall ecology, aesthetic and landscape of the area whereas; the unpaved roads will be converted to metaled roads. This will have positive and significant impact on the land and soil condition of the area.

Nature of Impact

This impact is considered to be positive, long-term and significant.

5.2.1 Air Emissions

Air emissions are likely to occur in the aforesaid project because of burning and melting of aluminum and copper rods and in the manufacturing of pipes. As well as generator will also be the cause of air emissions from the project.

Mitigation

Following mitigation measures are adopted to reduce the impacts of Air emissions:

- The garden development and tree plantation activities of proponent has ensured minimal impact of dust emissions.
- All the system and plants are provided with proper enclosure and no air emissions are left to enter in the ambient air without uncheck.
- Regular monitoring of these locations has been done.
- All machinery and generator has been provided with proper enclosure, tuning and maintenance

- Workers are provided with PPEs including masks and use will be ensured.
- Vehicles used for transportation of raw material as well as finished product and the utility vehicles will be regularly serviced and maintained in order to keep the environmental impact on account of their exhaust emissions to its minimum level.

5.2.2 Noise Emissions

During operation phase of the said project, the impact on noise environment is due to manufacturing activities and transportation activities (transportation of raw materials and finished products).

Mitigation

Following mitigation measures are adopted to reduce the impacts from Noise emissions:

- Machinery is placed in sound proof rooms.
- Workers are provided with and encouraged to use PPEs (ear plugs or ear muffs).
- Proper enclosure of generators.
- Properly maintained, good condition machines are installed.
- Greenbelt is developed all around the plant which will be acting as noise barrier.

Water Resource

As in the operational phase, water is being consumed by the workers and in process water will be required for cooling purpose of pipes after being manufactured. The domestic wastewater includes floor cleaning, washrooms etc.

Mitigation

Following mitigation measures have been adopted to reduce the impacts on water resource:

- Avoid using excessive water during various activities
- The water for cooling process will reused as many times as possible
- The capacity of the toilet tanks installed in public and private buildings should be reduced in order to conserve water resources
- Wastewater is being discharged in sewerage lines of the industrial estate after passing through septic tanks.

5.2.3 Solid Waste Management

The key solid wastes from project will be plastics/ scrap/ cuttings as well as domestic waste.

Mitigation

Following mitigations should be adopted to reduce the issues related to the solid waste:

- Appropriate in-housekeeping and solid waste management practices should be adopted
- Aluminum and copper scrap is reused in the process.
- Slag will be handled by EPA certified contractor for safe disposal.

- Workers will be given training for the identification and segregation of hazardous and non-hazardous waste.
- The installed bins will be covered in order to reduce the chances of the disease vector production.

5.2.4 Health and Safety

Operation of the project may cause some concerns for safety and public health within the project area. Workers will be prone to health and safety issues which include vibrations, noise, machinery injury, carelessness, fire incidents and hazards.

Nature of Impact

The nature of impact will be direct, low, long-term and significant.

Mitigation

Following mitigations should be adopted to improve the health and safety:

- Regular inspection and maintenance of the plant is carried out to eliminate the risk and associated hazards of any unfortunate incident
- Workers will be trained on the regular basis regarding personal safety and disaster management
- Operators operating the plant should be fully trained and equipped
- Training regarding HSE should be given on the regular basis
- Workers will be given PPEs such as; helmets, mask, ear-plugs/muffs, safety boots, etc.
- It should be strictly enforced to wear PPEs while working
- Incidents should be reported directly to the concerned authority

5.2.5 Fire Hazards

During operational phase of the project, fire hazard poses a serious threat.

Mitigation

Following mitigations are adopted to reduce the risk of the hazards involved:

- Firefighting arrangement includes fire extinguishers, fire buckets, fire hydrants, fire alarm, first-aid box and emergency exits.
- Smoking will not be permitted in the vicinity of the plant and the burning of the solid waste should be banned
- Regular site inspection will be done to eliminate all the chances of the hazards
- Checking and maintenance of the fire-fighting equipment will be carried out on the regular basis
- Workers will be given proper training of fire-fighting.

5.5.2 Socio-economic Impact

The socio-economic impacts like employment, education, life, style and cultural uplift are the direct benefits during this stage for the people of the Project Area. Local people will be hired for different jobs, i.e., gardening, housekeeping, cooking, tuition, driving etc. Facilities like commodity market and medication will also generate working opportunities for the shopkeepers of nearby communities. The human resources will be developed at local level for future development activities in the area. Operation of the project will also result in an increase in land values. All the Project related job opportunities will ultimately improve per capita income of the population in the area.

5.6 Potential Environmental Enhancement Measures

Following are the positive impacts of the Said Project that will enhance the overall socio-economic and ecological condition of the Project Area.

5.6.1 Employment/Poverty Alleviation

The employment opportunities in the Project Area will be increased due to the development and operation of the said project. During construction and operation of the said project unskilled workers will be required as labors, sanitary workers and sweepers as well as for the skilled workers such as; accounts and managers to run the administration office. In totality, the overall economic conditions of the area will be improved.

5.6.2 Increased Business Opportunities

For a construction of the proposed project a number of raw material will be required. Many venders can supply the required stuff to the on daily and weekly basis. This will serve as a new business opportunity, and it will enhance the socio-economic status of the people directly linked with it.

5.6.3 Tree Plantation

The tree plantation will be carried out along the boundary of Project Site and open green spaces. This will include plantation of ornamental as well as indigenous species of the plants. The plantation will improve the overall ecological conditions of the area. The total cost will be adjusted in the allocated budget for Environment is **PKR 5 million/-**

Impact Screening Checklist of Construction Phase

Environmental	Nature of Likely Impacts						Impact Significance				
	Low Intensity	Moderate Intensity	High Intensity	Local	Moderate Spread	Regional	Beneficial	insignificant	Short Term	Moderate	Long Term
Air Quality		✓		✓							
Noise		✓		✓							
Water Quality	✓				✓ ✓						
Land Use	✓										
Flora	✓										
Fauna	✓										
Local Economy			✓		✓						
Social Impacts			✓	✓							
Health & Safety		✓		✓							

Impact Screening Checklist of Operational Phase

Environmental Sensitivities	Nature of Likely Impacts						Impact Significance				
	Low Intensity	Moderate Intensity	High Intensity	Local	Moderate Spread	Regional	Beneficial	insignificant	Short Term	Moderate	Long Term
Air Quality	✓			✓							
Noise		✓		✓							
Water Quality	✓			✓							
Land use	✓										
Flora		✓		✓							
Fauna	✓			✓							
Local Economy		✓			✓						
Social Impacts		✓		✓		✓					
Health & Safety		✓		✓							

CHAPTER 6

ENVIRONMENTAL MANAGEMENT PLAN

CHAPTER 6: ENVIRONMENTAL MANGEMENT AND MONITORING PLAN

6.1 General

This IEE provides the Environmental Management Plan (EMP) of the project for its construction and operation phases to keep it environment benign as well as the monitoring plan to ensure the compliance of the established EMP.As per the environmental legislation in Pakistan, the EMP for the operations phase, along with other documents, is to be submitted to the Environmental Protection Agency to obtain confirmation for compliance and Environmental Approval for project operation.

Even after implementation of the suggested mitigation measures, the impact may remain significant, and require monitoring. This section also underlines the monitoring framework for both construction and operation phases to check compliance of the EMP and to take timely actions for correction in case any accidence of significant criteria, requirements or goals are found.

6.2 Objectives of Environmental Management Plan

The primary objectives of the EMP are to:

- Facilitate the implementation of the mitigation measures identified in the IEE.
- Define the responsibilities of the project proponent and contractor and provide a means of effective communication of environmental issues between them.
- Identify monitoring parameters in order to ensure the effectiveness of the mitigation measures
- Provide a mechanism for taking timely action in the face of unanticipated environmental situations.
- Identify training requirements at various levels.

6.3 Management Approach

The organizational roles and responsibilities of the key players are summarized below:

Proponent: The project proponent will undertake overall responsibility for compliance with the EMP. Proponent will carry out verification checks to ensure that the contractors are effectively implementing their environmental and social requirements.

Contractors*:* The contractors will implement the majority of environmental and social mitigation measures. The contractors will carry out field activities as part of the project. The contractors are subject to certain liabilities under the environmental laws of the country, and under its contract with proponent.

5.7 Environment Management Plan

It lists all the mitigation measures identified in the IEE and the associated environmental or social aspect, during construction and operation phase with the administrative framework involving all the responsible implementing authorities required to take the planned actions/measures. It enhances project benefits by reducing its impacts and making it environment-friendly.

Environment Management Plan

Table 10: Environmental Management Plan

Sr. No	Type Of Impact	Targets To Be Achieved	Mitigation Measures	Responsibility	
				Implementation	Monitoring
CONSTRUCTION PHASE					
1.	**Air Quality**				
a.	Dust Emission	Compliance with prescribed PEQs	➢ Monitoring of air quality should be conducted by 3rd party EPA certified Laboratory ➢ Well maintained machinery should be used at site and its regular monitoring should be ensured. ➢ Use of water suppression to decrease dust generation. ➢ Workers will be provided with Personal Protective Equipment (PPEs) such as face masks and goggles.	Contractor/ Proponent	Proponent
2.	**Noise**				
a.	Noise due to Construction	Compliance with prescribed PEQs	➢ All machinery should be fitted with acoustic insulation.	Contractor/ Proponent	Proponent

			➢ Providing the construction workers with suitable hearing protection like earmuffs and training them in their use. ➢ Use noise-abating methods/devices wherever needed and practicable.		
3.	**Water Sourcing**				
a.	Water Source	Water Conservation	➢ Availability of water should be assessed to evaluate the impact on community resources. ➢ Water should be used in such way that would not deplete water sources. ➢ Protection of groundwater reserves from any source of contamination such as the construction and oily waste that will degrade its potable quality.	Contractor/ Proponent	Proponent
4.	**Traffic**				
	Traffic Congestion	Smooth way for vehicles	➢ Heavy traffic during the construction phase should come to the project site during early morning or late-night hours. ➢ During construction phase, regulate speed of vehicles.	Contractor/ Proponent	Proponent

			➢ Designated parking areas will be provided for different type of project vehicles within or around the project site.		
5.	**Wastewater Generation**				
a.	Wastewater	Groundwater protection	➢ Wastewater generated will be municipal and treated through septic tank before final disposal. ➢ Wastewater will not be allowed to pollute any surface or groundwater body. ➢ Water conservation strategies will be employed to avoid wastage of water.	Contractor/ Proponent	Proponent
6.	**Solid Waste Management**				
a.	Solid Waste	Proper & safe handling and disposal of construction related waste	➢ Confirm amounts of surplus rock-based materials can be reused in the project or by other interested parties for public projects. ➢ Records of all waste generated during the construction period will be maintained.	Contractor/ Proponent	Proponent
7.	**Health and Safety**				

a.	Workers Health & Safety	Prevention of any possibility of work site accident/ impact on worker's health	➢ Better safety conditions during the construction phase should be ensured. ➢ Providing every worker with skull guard or hard hat and safety shoes. ➢ Conduct proper worker health and safety training and orientation prior to initiation of tasks.	Contractor/ Proponent	Proponent
8.	**Socio-Economic Impacts**				
a.	Socio-Economic Impacts	Better lifestyle	➢ Local contractors will be given preference for hiring equipment and machinery during operation. ➢ A complaint register will be maintained on site during construction to record complaints of the nearby residents. ➢ The site must be kept clean to minimize the visual impact of the site.	--	Proponent

Objective	**Management Action**	**Responsibility**	**Time framework**
Operation phase			
Wastewater	• Water from the cooling process is reused as many times as possible.	Proponent	Throughout project life cycle

	• Wastewater will be discharged in sewer lines of industrial estate after passing through septic tanks		
Air quality and Dust Management			
To minimize air pollution due to said project	• Company Management needs to regularly carry out checks of all motor driven vehicles and carry out regular servicing and maintenance of it in order to keep the environmental impact on account of their exhaust emissions to its minimum level. • All machinery and generator is provided with enclosure are maintained regularly. • Proper check of emissions is done so that the values of emission does not cross the SEQS limits. • For reducing fugitive dust, regular water sprinkling on roads will be done. • All trucks proposed to be used for transportation will be covered with tarpaulin, maintained and optimally loaded. • Moreover, the garden development and tree plantation activities of management during operational phase would ensure minimal impact of fugitive dust emissions.	Proponent	Throughout project life cycle
Noise & Vibration			

To minimize disturbance of communities due to noise and vibrations	• Proper encasement of noise generating sources will be done to control the noise levels within limits. • The generator will be provided with acoustic enclosures and silencers in the exhaust. In case of maintenance, the persons working near the generator building will be provided with ear muffs. • A thick greenbelt will be developed all around the plant which will be acting as noise barrier. • The use of concrete and masonry walls & barriers keeping in view the benefits of stiffness weight & cavity construction & the need to provide well sealed sound attenuating doors & windows. • The use of complete or partial enclosures. • Attenuation by use of sound absorbents on walls and fixed or suspended ceilings • Introduction of control and monitoring rooms having good sound insulation properties. • The use of mufflers, sound attenuation and acoustic louvers in air flow paths, taking particular care to direct inlet and discharge an opening away from critical areas wherever possible, so as to take advantage of direct effects. • All the workers will be provided with ear plugs. • All the transporters will be advised to carry out regular maintenance of their vehicles.	Proponent	Throughout project life cycle

Vehicular Emission Analysis	• Company will make sure proper tuning of their Vehicles to control air pollution	Proponent	Throughout project life cycle
H S E			
To minimize loss work injury/hazards/incidents/accidents	• Proper Health and Safety Policy will be made and enforced. • Training regarding HSE should be given on the regular basis • Workers will be given PPEs such as; helmets, mask, ear-plugs/muffs, safety boots, etc. • It should be strictly enforced to wear PPEs while working • Workers will be trained on the regular basis regarding personal safety and disaster management • Incidents should be reported directly to the concerned Authority	Environmental Manager	Throughout life cycle of project
Solid Waste			
To ensure safe disposal	• Slag produced from furnace will be handled by EPA certified contractor. • Domestic Solid waste is disposed off as per practices of area. • Plastic pieces are reused. • Provisions of bins is adapted.	Environmental Manager/HSE	Throughout life cycle of project
First Aid			
To ensure Safety and Health	• HSE Policy will be strictly followed and will be reviewed after certain period of time.	Environmental	Throughout life

	• First aid box is available at the site • First aid training will be given to the employees on regular basis • Numbers of all the concerned/authorized persons that will be contacted in the case of emergency will be displayed on-site	manager/HSE	cycle of project
Fire Hazard			
To prevent any disaster	• Firefighting equipment including DCP type fire extinguisher, CO2 Type extinguisher, sand buckets, sand drums with spade and hose pipe cabinet will be installed inside the facility • All the equipment will be placed at strategic locations where the risk of out-burst of the fire is high. List of fire posts is annexed. • Smoking is not permitted in the vicinity of the plant • Regular site inspection is being done to eliminate all the chances of the hazards • Checking and maintenance of the fire-fighting equipment will be carried out on the regular basis • Emergency evacuation plan is annexed.	Environmental manager/HSE	Throughout life cycle of project
Employment			
To provide job opportunities and helping in improving living standard of people	• During this phase, skilled and unskilled labour will be required.	Proponent	During operation phase

	• Employment opportunities for the un-skilled workers will therefore increase which will enhance the positive benefits for the local people who are in dire need of income for sustenance. • Indirect opportunities for employment will arise from the provision of services to the construction teams, such as sale of raw-material such as cement, bricks, sand etc., as well as food and beverages for the labor and after completion of construction phase serve as a permanent business opportunity.		

6.4 Environmental Monitoring Plan

Environmental monitoring is a vital component of the Environmental Management Plan. It is the mechanism through which the effectiveness of the Environmental Management Plan in protecting the environment is measured. The feedback provided by the environmental monitoring is instrumental in identifying any problem or lapse in the system under implementation and planning corrective actions.

6.4.1 Proposed EMP reporting and reviewing procedures

It lists all the mitigation measures identified in the IEE and the associated environmental or social aspect, during construction and operation phase with the administrative framework involving all the responsible implementing authorities required to take the planned actions/measures. It enhances project benefits by reducing its impacts and making it environment-friendly.

Institutional Capacity of the Unit

The organizational structure for the Environment Management Plan is outlined below:

Primary Responsibilities

The primary responsibility for implementing EMP lies with the owner of project.

Operation Management & Control

Conducting the operational activities in environmentally sound manner will be the responsibility of the concerned Manager; for which he will be trained.

Supervision & Monitoring

Senior Supervisor will be responsible for all environmental issues and for the implementation of EMP.

Communications and Documentation

An effective mechanism to store and communicate environmental information during the project is an essential requirement of an EMP.

Table 11: Proposed Monitoring Plan

Phase	Parameters	Frequency	Standards
Ambient Air Quality Sampling Plan			
Construction	➢ Monitoring of SO_x, NO_x, CO, $PM_{2.5}$, PM_{10} & O_3 ➢ Restrict vehicle speed on unsealed road access to site.	Quarterly	PEQS
Operation	➢ Monitoring of SO_x, NO_x, CO, $PM_{2.5}$, PM_{10}, CO_2 & O_3	Quarterly	PEQS
Drinking Water Sampling Plan			
Construction	• Monitoring of important parameters like TDS, pH, Color, Taste, oil and grease. • Avoid unnecessary usage of water.	Quarterly	PEQS
Operation	• Monitoring of important parameters like TDS, pH, Color, Taste, Total Hardness as $CaCO_3$. • Enough water in storage tanks.	Quarterly	PEQS
Noise Level Sampling Plan			
Construction	Area Mid-Point ➢ Activities must be done during day only. ➢ Operators must be aware of risk of noise their hazards.	Quarterly	PEQS for Noise
Operation	➢ Maintenance of generators. ➢ Environmental monitoring of emissions	Quarterly	PEQS for Noise
Solid Waste Management			
Construction	➢ Waste generation rate, waste composition; recyclables and non-recyclables.	Quarterly	Best Practice

	➢ Waste segregation at source. ➢ Reduce, reuse and recycle.		
Operation	➢ Waste bins to be placed at suitable places.	Quarterly	Best Practice
Occupational health and Safety			
Construction	➢ Fencing of the site ➢ PPE's ➢ Barriers and guards for employee's protection.	Monthly	Best Practice
Operation	➢ Use of PPE's ➢ Provision of fire extinguishers. ➢ Signage – danger warning or Caution will be put at strategic places	Weekly	Best Practice

6.5 Institutional Capacity of the Unit

The organizational structure for the Environment Management Plan is outlined below:

6.5.1 Primary Responsibilities

The primary responsibility for implementing EMP lies with the owner of the project.

6.5.2 Operation Management & Control

Conducting the operational activities in an environmentally sound manner will be the responsibility of the concerned Manager; for which he will be trained.

6.5.3 Supervision & Monitoring

Senior Supervisor will be responsible for all environmental issues and for the implementation of EMP.

6.5.4 Communications and Documentation

An effective mechanism to store and communicate environmental information during the project is an essential requirement of an EMP.

6.5.5 Training Schedules

To enhance the capacity of the Proponent/EA as well as the Contractor, training will be imparted related to the environmental and social issues of the project implementation of mitigation measures, the monitoring protocols and reporting mechanism. Project will ensure in-house training for the project staff,

contractor and the supervisory staff of the Proponent/EA and the Consultants through the provision of one day basic training and one day advanced training, covering environmental and social aspects of the development projects in general and implementation requirements will emphasis on the development projects in general, implementation requirements with emphasis on the roles and responsibilities of the Proponent/EA and the Contractor staff while executing the environmental monitoring plan in particular. The training protocols will include the following aspects:

- Procedures for monitoring the air quality parameters and measures to be adopted for avoiding or minimizing air pollution, particularly from the concrete batching plant and haul-trucks, etc.
- Procedures for monitoring water quality parameters and measures to be adopted for avoiding or minimizing water pollution, particularly from the wastewater effluent generated from the raw-material preparation, machinery washing yards and other obnoxious chemicals whose leaching can deteriorate the quality of the ground water resource
- Safe waste disposal practices to manage the generated solid waste during the constructional and operational phases
- Safe noise levels from the operation of the construction machinery during the constructional as well as operational phase.
- Safety measures against hazards for workforce and the local communities arising from the construction activities
- Use of safety equipment and gadgets by non-skilled workers

6.6 Environmental Budget

Approximately **PKR 2 million** will be reserved for the Environmental budget.

CHAPTER 7

STAKEHOLDER CONSULTATION

M/S DEUTSCHE CHEMICALS SMC PVT LTD

CHAPTER 7: STAKEHOLDER CONSULTATION

7.1 General

Public consultation refers to the process by which the concerns of local affected persons and others who have plausible stake in the environmental impacts of the project or activity are ascertained with a view to considering all the material concerns in the project or activity design as appropriate. According to the IEE and EIA Review Regulations, public consultation is mandatory for any socio-environmental study. Impact assessment survey and public consultation sessions held with different Stakeholder groups that may be impacted by the said project development. The consultation process was carried out in accordance with the guidelines laid by EPA. The objectives of this process were to:

- Share information with stakeholders on said project installation and operation.
- To access the impacts on the physical, biological, and socio-economic environment
- Understand stakeholder concerns regarding various aspects of the project.
- Understand the perceptions, assessment of social impacts and concerns of the communities of the project area.
- Find out the awareness level and situation of acceptability to identify any issues for the implementation of the said project.
- To invite people to express their views about the positive/negative impacts on their lifestyles and environment

7.2 Objectives of Consultation

Public consultation plays a vital role in studying the impacts said project on stakeholders in its successful implementation and execution. It offers an opportunity to sharing knowledge with the all stakeholders. Referring particularly to a project related to environmental evaluation, public participation is very mandatory, as it leads to better and more acceptable decision-making. The overall objective of the consultation with the stakeholders is to help verify the environmental and social problems, besides technical ones, that have been presumed to arise and to identify those which are not known or are specific to the project. In fact, discourse with many who have thoroughly observed the site conditions in the pre-developmental phase, goes a long way in updating the knowledge and understanding.

7.3 Identification of Stakeholders

All the people who are directly or indirectly affected or concerned with the project are the stakeholder. Besides the living population of the surrounding 44s, some other stakeholders were identified and contacted. They are the key players including; shops owners, vendors, public offices, school, university, hospitals. Not only published material but also noted their views and the concerns. Project stakeholders include the settled families, property owners or the tenants, businessmen, land owners, traders, shopkeepers, vendors, transporters etc.

7.3.1 Direct

In this case, the PAPs are those who will be benefited directly by project. No disturbance on the local community is being foreseen due to the installation of the said plant

7.3.2 Indirect

Indirect impact will occur on those who are living or doing business within project area of influence. Indirect respondents include;

- Government agencies are responsible to deal with the project related activities.
- Government Agencies directly, indirectly or widely involved in the execution and monitoring of the said project.
- Workers of political, cultural, religious or social scientific bodies, directly or indirectly related

7.4 Public Disclosure

Public disclosure is the outcome of all such activities where the public is involved at least in the information sharing process. This is an integral part of that process so before the proponent applies for NOC to the EPA, this disclosure will be distributed properly among all stakeholders. It is the responsibility of the proponent and the consultants to display public disclosure documents at prominent places where community has easy access.

7.5 Consultation Process

Information disclosure, public consultation and discussion regarding the various aspects of the project with the people of the area are necessary. This process is intensified during the IEE Studies, and separate rounds of public consultations were held. Surveys were carried out in order to investigate physical, biological and socio-economic resources falling within the immediate area of influence of the project. Primary data collection included:

- ✓ Data collection regarding the socio-economic condition of the study area

- ✓ Pretesting of socio-economic survey tools in the field
- ✓ To consult the locals for collection of information on biological environment

Various meetings with the stakeholders were held the following objectives:

- Share information with stakeholders on the said project and expected impacts on community in the vicinity of the project
- Understand stakeholders' concerns regarding various aspects of the project, including the existing condition of the upgrading requirements, and the likely impact of construction and operation activities
- Provide an opportunity to the public to influence the project design in a positive manner
- Attain local and traditional knowledge, before decision making
- Increase public confidence about the proponent, reviewers and decision makers
- Reduce conflict through the early identification of controversial issues, and work through them to find acceptable solutions
- Dissemination of information through discussions, education and liaison
- Documentation of information narrated by the stakeholders and mitigation measures proposed by the stakeholders
- Incorporation of public concerns and their address in the IEE and eliciting their comments and feedback

7.5.1.1 Consultation Methodology

The methodology adopted for consultations is summarized below.

7.5.1.2 Consultation Material

The main document for distribution to stakeholders during the consultations was Social Impact Assessment Interview.

7.5.1.3 Consultation Mechanism

Primary stakeholders were consulted during informal and formal meetings held in the project area. The consultation process was carried out in the Urdu language. During these meetings a simple, non-technical, description of the project was given, with an overview of the project's likely human and environmental impact. This was followed by an open discussion allowing participants to voice their concerns and opinions. In addition to providing communities with information on the said project, their feedback was documented during the primary stakeholder consultation. The issues and suggestions raised were recorded in field notes for analysis, and interpretation. By reaching out to a wider segment of the population and using various communication tools such as participatory needs assessment, community consultation

meetings, focus group discussions, in-depth interviews, and participatory rural appraisal IEE involved the community in active decision-making. This process will continue even after this IEE has been submitted, as well as during future IEE in which similar tools will be used to create consensus among stakeholders on specific environmental and social issues.

Secondary stakeholder consultations were more formal as they involved government representatives and local organizations, consulted during face-to face meetings. They were briefed on the IEE process, the project design, and the potential negative and positive impact of the project on the area's environment and communities. It was important not to raise community expectations unnecessarily or unrealistically during the stakeholder consultation meetings in order to avoid undue conflict with community's leaders or local administrators. The issues recorded in the consultation process were examined, validated, and addressed in the IEE report.

7.5.1.4 Primary Stakeholder Consultation

The community consultations were conducted with the community members outside their settlements to encourage and facilitate their participation. Consultation was done for 1 day.

7.5.1.5 Stakeholders Concern & Recommendation

The finding of the community consultation has been addressed in various sections of IEE. Mitigation plan has been incorporated into EMP. The summary of consultation with various stakeholders is given below Out of total respondents of, 75% knew about the project whereas 25% were not aware of the project planning and implementation.

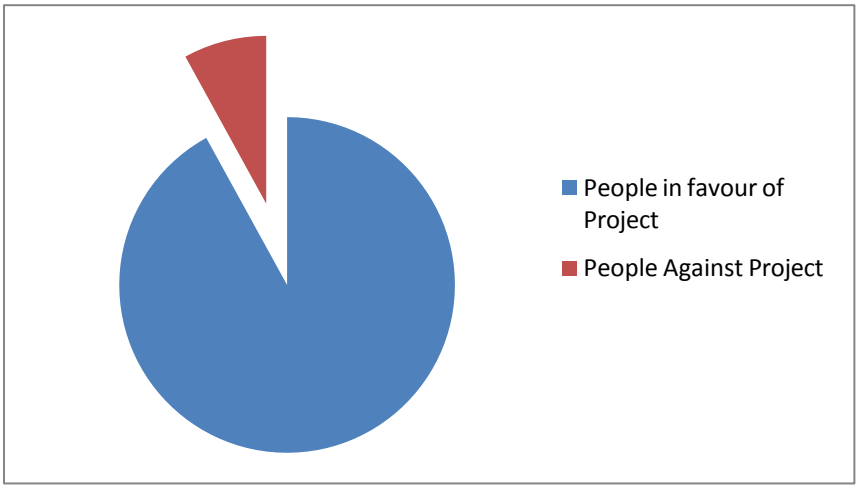

Figure 10: Awareness Regarding Projects

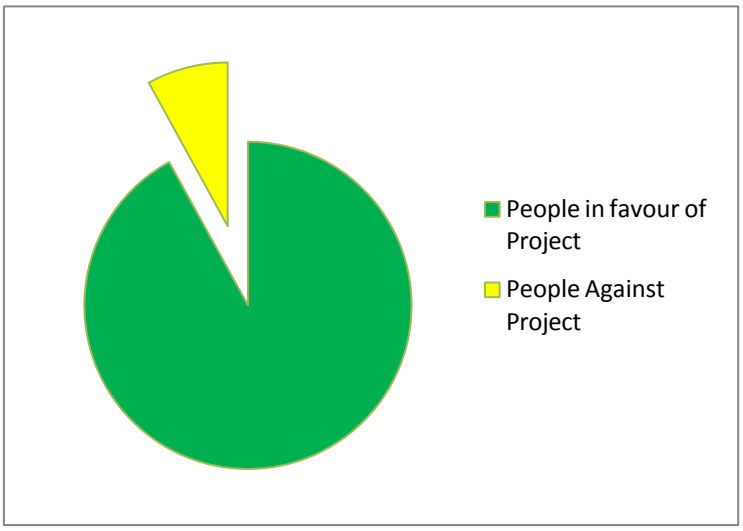

Figure 11: Percentage of People Who Showed Perspective

Out of 89%, majority of the people (about 92%) favored the construction of the project keeping in view its importance and 8% people showed pessimistic views in general but mitigation measures and solutions to their concerns were provided. Majority of people were in favor of project.

7.6 STAKEHOLDERS CONSULTED

Names and CNIC of consulted stakeholders are given in table below:

7.7 Govt Official Consultation

The consultations were carried out with the local government officials and Comments and recommendations of all government representatives are presented in table below:

CHAPTER 8

CONCLUSION AND RECOMMENDATIONS

8 CHAPTER 8: CONCLUSION AND RECOMMENDATIONS

8.1 Conclusion

The report presents Initial Environmental Examination of *M/s Deutsche Chemicals SMC Pvt. Ltd*. the unit which involves manufacturing of good quality of additives named as "One Pack" used in the process to complete manufacturing of PE, PVC AND PPR-C PIPES, FITTINGS AND PLASTIC WATER TANKS etc. as per the standard quality and procedure to be followed. The detail procedure have been elucidated above including the dry blending. The study is conducted as per the guidelines of EPA and the Regulations 2022. It includes description of the project, description of the environmental baselines, potential environmental impacts and suggested mitigation measures. An implementation mechanism for mitigation measures in the form of an Environmental Management Plan is included in the study.

The performed IEE showed all anticipated impacts (both positive and negative), associated with the project. Appropriate mitigation measures as explained in the environmental study shall reduce, if not eliminate, these impacts so that these are within acceptable limits. It is concluded that the project is not likely to cause any significant adverse impact on the social, physical and biological environment of the area, provided that suitable mitigation measures as identified in this study are implemented.

It is accordingly recommended that Environmental Approval for the project may be issued by Environmental Protection Agency, Punjab.

8.2 Recommendations

The IEE study and survey results are finally evaluated to recommend the following:

- Implementation of EMP must be given top priority.
- During construction phase Create environmental awareness amongst the workers by training.
- Provide guidance to workers on use of PPEs and also make it compulsory for them to use PPEs during construction.
- Installation of fire extinguishers in the premises.
- Use of equipment with low operating noise levels within PEQS limits and regular monitoring of machines used during construction phase.
- Proper tree planation should be done within and around the project site.

GLOSSARY

Ambient	Relating to the immediate surroundings of PROJECT
Contamination	Pollution
Conservation	The preservation of natural resources for use by future generations
Consultation	A process of communication with those potentially affected by a project, policy, plan or program.
Effluent	any material in solid, liquid or gaseous form or combination thereof being discharged from industrial activity or any other source and includes a slurry, suspension or vapor
EMMP	An EMMP is a site specific or project specific plan developed to ensure that appropriate environmental management and monitoring practices are followed during a project's construction and operation.
Environment budget	Monitory assets reserve for environmental activity
Environment	Air, water and land; all layers of the atmosphere; all organic and inorganic matter and living organisms; the ecosystem and ecological relationships; buildings, structures, roads, facilities and works; all social and economic conditions affecting community life; and the inter-relationships between any of the factors mentioned
Environmental Impact Assessment	An environmental study comprising collection of data, prediction of qualitative and quantitative impacts, comparison of alternatives, evaluation of preventive, mitigatory 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
Extent/ Magnitude	The size or degree of the predicted impact
Fauna	Animal life occurring in particular region or time

Flora	plant life occurring in particular region or time
Geological	Relating to the study of the earth's physical structure and substance.
Impact	The consequence of an action or activity on the human or natural environment. Impacts may be positive, negative or neutral
Initial Environmental Examination	means a preliminary environmental review of the reasonably foreseeable qualitative and quantitative impacts on the environment of a proposed project to determine whether it is likely to cause an environmental effect for requiring preparation of an IEE.
Mitigation	Prescribed actions taken to prevent, avoid, reduce or minimize the impacts or potential adverse effects of a project
Monitoring	A combination of observation and measurement to assess the environmental and social performance of a project and its compliance with IEE/ EMP, or other approvals and regulatory conditions
Particulate Matter	A complex mixture of extremely small particles and liquid droplets that get into the air
Proponent	the person who intends to carry-out a proposed project
PEQS	Punjab Environmental Quality Standards
Sustainable development	Economic development that is conducted without depletion of natural resources.
Waste	means any material, substance, or by-product eliminated or discarded as no longer useful or required after the completion of a process