ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Capacity Enhancement of Frozen Food Manufacturing Unit and Installation of Treatment Plant by M/S Dawn Frozen Foods Company (Pvt) Ltd

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LOCATED AT

8 Km, Manga Raiwind Road, Mouza Rossa, Tehsil Kot Radha Kishan, District Kasur, Punjab, Pakistan PROJECT PROPONENT: MR. GHULAM MUHAMMAD CHAOUDHRY

Prepared By

Brick Line Estate & Property Consultants

59-C/4, Chenab Block, Allama Iqbal Town, Lahore

LIST OF ABBREVIATIONS

CO_2	Carbon dioxide
dB(A)	A weighted decibel scale
EIA	Environmental Impact Assessment
EMMP	Environmental Management and Monitoring Plan
EMP	Environmental Management Plan
EPA	Environmental Protection Agency
EPD	Environmental Protection Department
EPO	Environmental Protection Ordinance
IEE	Initial Environmental Examination
Ltd.	Limited
LTI	Loss Time Injury
LWI	Loss Work Injury
m^3	Cubic meter
m^3/h	Cubic meter per hour
MW	Megawatt
M/S	Messrs
NEQS	National Environmental Quality Standards
No.	Number
NOC	No Objection Certificate
NO_x	Oxides of Nitrogen
PEPC	Pakistan Environmental Protection Council
PEPA, 1997	Pakistan Environmental Protection Act, 1997

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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 Operating Procedures
SO_x	Oxides of Sulfur
WAPDA	Water and Power Development Authority

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EXECUTIVE SUMMARY

INTRODUCTION

Said project is the Capacity Enhancement of Frozen Food Manufacturing Unit and Installation of Treatment Plant by M/S Dawn Frozen Foods Company (pvt) Ltd at 8 Km, Manga Raiwind Road, Mouza Rossa, Tehsil Kot Radha Kishan, District Kasur, Punjab, Pakistan. To full fil the compliance of section 12 of PEPA, Act 1997 (amended 2012 & 2017) M/s **Brick Line Estate & Property Consultants** has been engaged to conduct Environmental Impact Assessment (EIA) of said Frozen Foods Processing Industry

The main objectives of this EIA are to establish baseline environmental conditions, identify potential impacts and suggest suitable mitigation measures for the execution of the said project. This study has been accomplished in line with the provisions – guidelines and directives of Punjab Environmental Protection Agency.

This executive summary presents an overview of the main findings of the EIA Report for the aforesaid project i-e Capacity Enhancement of Frozen Food Manufacturing Unit and Installation of Treatment Plant by M/S Dawn Frozen Foods Company (pvt) Ltd.

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PROJECT OUTLINE (Details are given in Chapter 2)

Salient features of project:

Proponent Name:	**Mr. Syed Shahid Aqeel Ghaznavi (CEO)**
Authorized Person	Ghulam Muhammad Choudhry
Designation	Company Secretary
Project Title:	Capacity Enhancement of Frozen Food Manufacturing Unit and Installation of Treatment Plant by M/S Dawn Frozen Foods Company (pvt) Ltd.
Project Location:	8 Km, Manga Raiwind Road, Mouza Rossa, Tehsil Kot Radha Kishan, District Kasur, Punjab, Pakistan
Name of organization preparing report	Brick Line Estate & Property Consultants
Total Area of Plot	31 Kanal and 7 Marla
Source of Water	Groundwater
Cost of Project	PKR 400 million approx.
Nearest Receptors	Kohinoor Textile Mills (North) Manga Raiwind Road (adjacent)

Source of Power:	WAPDA and Backup Generator
Wastewater:	Wastewater from the process will be treated through waste water treatment plant which is part of the extension
Solid Waste Management:	To handle the waste, waste management contract with EPA certified company will be done.
Tree Plantation	At designated areas
Raw Material	Frozen Meat Flour Flavors Preservatives
Capacities	
Manufacturing / Processing of Meat	150 tons/day
ETP	Activated Sludge Process
Finished product	Frozen ready to cook items include nuggets, parathas, samosa, kababs etc
Storage Areas	• Raw material storage area • Finished product storage areas

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MAJOR IMPACTS AND RECOMMENDED MITIGATION MEASURES:

Beneficial/Positive Impacts:

- The establishment of the said project will contribute to enhancing Pakistan's domestic productivity, and help diversify Pakistan's economy
- Provision of employment and stimulation of local economy.
- Provision of high-quality frozen food
- Potential of improvement for social and cultural values of local people's exchange of values and standards through positive social interactions. Positive changes in lifestyles will occur due to availability of income when the natives take up Company jobs.

Negative Impacts:

Impacts	Mitigation measures
Construction phase	
Dust emissions	Most of the dust generating activities during construction will last for a brief period, when excavation works will be executed. Thereafter, vehicular

	movement will generate most of the dusts. Dusts will be suppressed using water bowser to spray exposed land surfaces and particularly areas likely to be disturbed by trucks and other vehicles during the construction of the factory premises. Vehicular speed limits of 20 km/h will be ensured in order to minimize dust generation. Further mitigation measures will be: • Covering haulage vehicles transporting aggregate, soil and cement • Covering onsite stockpiles of aggregate, cement, soil, etc. • Providing workers with the necessary Personal Protective Equipment (PPE) e.g. dust masks and ensure that they are worn • Operating well maintained vehicles and equipment
Wastewater	• Portable toilets with septic tanks will be provided to workers during construction phase
Impacts of accidental spillages	• The integrity of storage facilities will be ensured • Drip pans will be made available where necessary
Safety	• Safety signage will be put in relevant places within the construction site • Reckless driving by construction workers will be prohibited and monitored. • Workers will be given PPEs such as; helmets, mask, ear-plugs/muffs, safety boots, safety goggles, safety jackets, harnesses etc. and its use was strictly enforced • Workers will be trained on regular basis regarding personal safety • Incidents will be reported directly to the concerned authority
Solid waste management	• Recycling or reuse of waste wherever possible. • Application of a good strategy to collect, remove and safely dispose of waste on daily basis to ensure a clean environment in the factory site • Integrated waste management system will be adopted for the proper management of the waste at site • At the end of the construction phase, left-over waste will be removed as per practices of area • All the idle machinery and equipment will be immediately removed from the site • Scrap and the debris will be removed from the site at the end of the construction stage after appropriate segregation of the material
Operation Phase	

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Air Emissions, Particulate emissions and stack emissions	• Emissions from boiler are controlled by equipping with cyclone, scrubber and room • Power Engines will be equipped with air emission control technology. • Monitoring of Ambient air parameters (Particulate matter, SOx, NOx) emissions should be carried out on regular basis to ensure compliance with the PEQS. • The inspection and the maintenance of the boiler and generator will be done on regular basis. • Plantation of indigenous trees within the premises and along the boundary.
Noise Emissions	• 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 from other machines to minimize the overall cumulative noise. • Noise barriers should be implanted • Noise area will not be open site. The source of noise will be in closed and covered place. Where the OSH standard will be applied. • The repairing and the small source of noise will be removed if it will possible. • PPEs are provided to workers • Proper tree plantation has been done • Noise monitoring will be carried out periodically.
Degradation of surface waters quality due to process water and sewage direct disposal	• For treatment of wastewater, effluent treatment plant will be installed • Priority parameters will be tested on monthly basis and all parameters on quarter basis. • Wastewater will be disposed off in Ruhi Naala Drain • The operational maintenance of ETP will be monitored on daily basis.

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To minimize loss work injury/hazards/incidents/accidents	• Proper training will be provided for the proper usage of machineries and personal protective equipment (PPE) will be provided. It will be ensured that the individual who has received the correct training is operating a particular machine. • Site supervisor or health and safety should be present on site • Risk Assessment will be done on daily basis • Emergency response plans will be remained active. • Monitoring cameras and sensors will be implanted at the work site • OSHA polices will be implemented on site • Regulation of the health and safety polices will be done on regular basis • Regular housekeeping practices will be ensured by keeping the floor dry and during washing; proper protective equipment are being used. Restricted entry should be ensured during washing. • Training of staff in the handling of lifting materials. • Timely maintenance and repair of electrical equipment will be conducted. • Implementation of work rotations, provision of regular work breaks. • At workplace, first aid facilities will be maintained at readily accessible places.
To minimize disturbance of communities due to noise	• All the machinery will be installed and operated in a closed hall and from operation of machinery noise will not be a problem for the residents in the area nearby. Further Administration of the unit will take the precautionary measures to avoid the noise emissions. There is no possibility of Noise pollution • A thick greenbelt will be developed all around the plant which will be acting as noise barrier. • All the workers will be provided with ear plugs. • All the transporters will be advised to carry out regular maintenance of their vehicles.
Solid waste management	• There will be separated bins for segregation of different type of waste

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	• Proper waste collection system will be ensured. For this purpose, waste bins are placed inside the boundary. • The recyclable waste will be sent to waste contractors. • The sludge of from the ETP plant will be sold out to waste companies. • The site in charge will ensure the separation of waste at production line. • Proper person will be haired for the collection and removal of waste from the site. • Records of generated waste should be maintained. • All non-hazardous waste that can be recycled or reused will be handed over to the contractors. • Training will be provided to personnel for identification, segregation and management of waste. • All containers of waste will be labeled properly. • The proper waste management system will be applied. • Small bins and large containers will be provided on every waste producing site at defined place causing no risk to worker and machinery. • In-house audits of the waste management will be undertaken on regular basis.
Traffic	• Nighttime driving of project vehicles will be limited where possible. • Vehicles will remain confined to defined access. • The road will be labeled according to the rules and regulations. • Speed limits will be maintained. • Road signage relevant to the project traffic will be placed, where necessary. • Community complaint register and other means will be adopted for the community to complain about non-adherence of traffic to speed limits, safe driving and other safety related concerns.

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	• All vehicle drivers will be trained in community safety aspects. Drivers will be trained in responsible and safe driving practices; safe speed limits for vehicles will be followed.

ENVIRONMENTAL MANAGEMENT & MONITORING PLANS:

During construction, ambient air quality for dust level in particular noise level (tests), solid waste management and soil contamination, and community and workers' safety (visual) need to be monitored. During operation, stack emissions, noise level, air quality, wastewater quality and workers' safety will be monitored. Plan has been included in **Chapter-7** of this EIA Report.

CONCLUSION & RECOMMENDATION

It can be concluded that all the major and minor adverse environmental impacts from the construction/ Capacity Enhancement of Frozen Food Manufacturing Unit and Installation of Treatment Plant by M/S Dawn Frozen Foods Company (pvt) Ltd has been mitigated in environmental friendly manner and the Environmental Impact Assessment is being done in the light of guidelines recommended by Punjab EPA. Hence Environmental Approval may be accorded to the subject Frozen Foods Processing industry for construction phase.

Recommendations:

Following Recommendations are suggested:

- Wastewater produced from process should be treated through Effluent Treatment Plant
- All the workers should be given with proper PPE's during operation phase
- All the concerns of stakeholders should be catered before construction
- EMP should be properly implemented
- The construction and installation should be completed in guidelines of accorded Environmental Approval.

LIST OF ANNEXURE

Following Documents are attached as annexure.

ANNEXURE I:	PROPONENT CNIC
ANNEXURE II:	PROPERTY DOCUMENTS
ANNEXURE III:	LAYOUT MAP
ANNEXURE IV:	GLOSSARY
ANNEXURE V:	ENVIRONMENTAL MONITORING REPORTS
ANNEXURE VI:	WASTEWATER DISCHARGE NOC
ANNEXURE VII:	GOOGLE EARTH MAP
ANNEXURE VIII:	LIST OF MACHINERY
ANNEXURE IX:	COMPANY REGISTRATION CERTIFICATE

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librarian.epa 110.38.160.195
15/10/2026 12:56:20 PM

TABLE OF CONTENT

CHAPTER 1: **INTRODUCTION 27**

1.1 GENERAL 27

1.2 THE PROPONENT 27

1.3 THE PROJECT 28

1.3.1 Nature of Project 28

1.3.2 Size of Project 28

1.3.3 Location of Project 28

1.3.4 Total area 29

1.3.5 Cost of the Project 29

1.4 DETAILS OF CONSULTANTS 29

1.5 PURPOSE OF REPORT 29

1.6 Structure of Report 30

2 CHAPTER 2 32

2.1 General 32

2.2 Type and Category of Project 32

2.3 Objectives of Project 32

2.4 Alternatives 32

2.4.1 Site Alternatives 33

2.4.2 Project Alternative 33

2.4.3 Labor 33

2.4.4 Environmental alternatives 34

2.4.4.1 Wastewater Treatment 34

2.4.5 Economic Alternative 35

3 *CHAPTER 3:* DESCRIPTION OF PROJECT 36

3.1 Objectives of Project 36

3.2 Particulars of Project Site 36

3.3 Location and Layout of Project 36

3.3.1 Location of the Project 36

LUBNA ERVIN (librarian) EPA librarian.epa 110.38.160.195 15/10/2026 12:56:20 PM

3.4 Nature of Area 37
3.5 Land Ownership 37
3.6 Government Approvals 37
3.7 Land Use on Site 37
3.8 Road Access 38
3.9 Vegetative Features on Site 38
3.10 Cost and Magnitude of Operation 38
3.11 Schedule of Implementation 38
3.12 Description of the project: 39
3.12.1 Products: 39
3.12.2 Manufacturing process: 39
..... 41
3.13 Installation of Wastewater Treatment Plant 42
3.14 Relocation and Rehabilitation Plan 46
3.15 List of Machinery 46
3.16 Amenities 46
3.16.1 Electricity Consumption 46
3.1.1. Ground Water Resource 46
3.16.2 Management Plans 46
3.16.3 Air Emissions 46
3.16.4 Wastewater Management and Disposal 47
3.16.5 Waste Management 47
3.16.6 Emergency Preparedness 47
3.16.7 Safety Trainings 47
3.16.8 Use of Drugs and Narcotics 47
3.16.9 Personal Protective Equipment 48
4 *CHAPTER 4:* DESCRIPTION OF THE ENVIRONMENT 49
4.1 General 49
4.2 Methodology 49
4.2.1 Data Collection 49

EPA LOBNA PERVIN (librarian) librarian.epa 110.38.160.195 15/10/2026 12:56:20 PM

4.2.2 Social Survey 50
4.2.3 Sampling Design 50
4.2.4 Questionnaires 50
4.3 Data Editing and Analysis 50
4.3.1 Review of Legal and Administrative Framework 50
4.3.2 Baseline Conditions 51
4.4 Physical Resources 51
4.4.1 Geography and Geology 51
4.4.2 Topography 52
4.4.3 Hydrology 52
4.4.4 Climate 53
4.4.4.1 Temperature 53
4.4.4.2 Seismicity 55
4.5 Ecological Environment 57
4.5.1 Aquatic Flora and Fauna 57
4.5.2 Flora 57
4.5.3 Fauna 57
4.6 Environmental Monitoring 60
4.6.1 Sampling Sites 60
4.7 Socio-Economic Resources 60
4.7.1 Cultivated Crops 60
4.7.2 Socio-Economic Profile of Study Area 60
4.7.3 Nearby Residential Areas 60
4.8 Social and Public Amenities Available 60
4.8.1 Physical structures 61
4.8.2 Religious Structure 61
4.8.3 Protected Structures 61
4.8.4 Cultural Heritage and Community Structure 61
4.9 Quality of Life Values 61
4.9.1 Occupation of Respondents 61

LUBNA PERVIN (librarian) EPA librarian.epa 110.38.160.195 15/10/2026 12:56:20 PM

4.9.2 Literacy Rate 62
4.9.3 Industries 63
4.9.4 Educational facilities 63
4.9.5 Health facilities 63
4.10 Facilities Available 63
5 CHAPTER 5: STAKEHOLDER CONSULTATION 64
5.1 GENERAL 64
5.2 OBJECTIVES OF CONSULTATION 64
5.3 IDENTIFICATION OF STAKEHOLDERS 65
5.3.1 Direct 65
5.3.2 Indirect 65
5.4 PUBLIC DISCLOSURE 65
5.5 CONSULTATION PROCESS 66
5.5.1 Consultation Methodology 67
5.5.1.1 Consultation Material 67
5.5.1.2 Consultation Mechanism 67
5.5.2 Primary Stakeholders Consultation 67
5.5.2.1 STAKEHOLDER CONCERNS AND RECOMMENDATIONS 68
5.6 STAKEHOLDERS CONSULTED 69
5.6.1 Secondary Stakeholders Consultation 70
6 *CHAPTER6:* POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES 72
6.1 GENERAL 72
6.2 IDENTIFICATION OF POTENTIAL IMPACTS 72
6.3 CLASSIFICATION OF IMPACTS 72
6.4 SCOPING CRITERIA FOR IMPACTS 73
6.5 METHODOLOGY FOR IMPACT ASSESSMENT 73
6.5.1 What is the problem? 75
6.5.2 When problem will occur and when it should be addressed? 75
6.5.3 Where problem should be addressed? 76

LUBNA PERVIN (Librarian) EPA Pakistan 15/10/2026 12:56:20 PM

6.5.4 How the problem should be addressed? 76
6.5.5 Ways of Achieving Mitigation Measures: 76
6.5.5.1 Changing in Planning Design 76
6.5.5.2 Improved Management and Monitoring Practices 76
6.5.5.3 Compensation in Money Terms 76
6.5.5.4 Replacement/Relocation/Rehabilitation 76
6.6 Impact Summary 77
6.7 IMPACTS DUE TO PROJECT LOCATION 77
6.8 DESIGN PHASE 78
6.9 IMPACTS ASSOCIATED WITH CONSTRUCTION PHASE 78
6.10 IMPACTS ASSOCIATED WITH OPERATION PHASE 81
6.11 ENVIRONMENTAL IMPACTS 82
6.11.1 AIR EMISSIONS 82
6.11.2 NOISE 83
6.11.3 TRAFFIC 84
6.11.4 SOLID WASTE 84
6.11.5 WASTEWATER 86
6.11.6 ABNORMAL CONDITIONS 86
6.11.7 OCCUPATIONAL HEALTH AND SAFETY 86
6.12 SOCIOECONOMIC IMPACTS 87
6.12.1 EMPLOYMENT OPPORTUNITIES 88
6.13 POTENTIAL ENVIRONMENTAL ENHANCEMENT MEASURES 88
6.13.1 GREENBELT DEVELOPMENT 88
7 *CHAPTER 7:* ENVIRONMENTAL MANGEMENT AND MONITORING PLANS 90
7.1 GENERAL 90
7.2 OBJECTIVES OF ENVIRONMENTAL MANAGEMENT PLAN 90
7.3 MANAGEMENT APPROACH 91
7.4 COMPONENTS OF THE EMP 91
THE EMP CONSISTS OF THE FOLLOWING: 91
7.5 ENVIRONMENT MANAGEMENT PLAN 91

EPA
SOBNA PERVIN (librarian)
librarian.epa 110.38.160.195
15/10/2026 12:56:20 PM

7.6 ENVIRONMENTAL MONITORING PLAN 106
7.7 INSTITUTIONAL CAPACITY OF THE UNIT 108
7.7.1 Primary Responsibilities 108
7.7.2 Operation Management & Control 108
7.7.3 Supervision & Monitoring 108
7.7.4 Communications & Documentation 108
7.7.4.1 Meetings 108
7.7.4.2 Changes-Record Register 108
7.8 ENVIRONMENTAL TRAINING 108
7.9 EQUIPMENT MAINTENANCE DETAILS 109
7.10 ENVIRONMENTAL BUDGET 110
8 *CHAPTER 8:* CONCLUSION AND RECOMMENDATIONS 111
8.1 CONCLUSION 111
8.2 RECOMMENDATIONS 111

LUBNA PERVIN (librarian) EPA librarian.epa 110.38.160.195 15/10/2026 12:56:20 PM

LIST OF Figures

Figure 3-1 Location Map of Project Site.....37
Figure 3-2 Road Access.....**Error! Bookmark not defined.**
Figure 4-1 Location of Project.....52
Figure 4-2 Yearly average temperature of District Kasur, Pakistan from 1958 to 2012.....53
Figure 4-3 Average Annual Temperature of District Kasur (Source: Climate-data.org).....54
Figure 4-4 Average Annual Precipitation of Kasur (Source: hikersbay.com).....55
Figure 4-5 Siesmic Zones of Pakistan.....56
Figure 4-7: Occupation of Respondents.....62
Figure 4-8 Literacy Rate of Respondents.....62

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librarian.epa 110.38.160.195
15/10/2026 12:56:20 PM
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CHAPTER 1: INTRODUCTION

1.1 GENERAL

Said project is the Capacity Enhancement of Frozen Food Manufacturing Unit and Installation of Treatment Plant by M/S Dawn Frozen Foods Company (pvt) Ltd. To full fil the compliance of section 12 of PEPA, Act 1997 (amended 2012 & 2017) M/s Brick Line Estate & Property Consultants has been engaged for conducting Environmental Impact Assessment (EIA) of said Frozen Foods Processing Industry The purpose of this study is to identify the environmental baseline i.e. physical, biological and socio-economic/cultural conditions and assess all possible impacts arising during the construction and operation phase of the project with the aim to find out appropriate measures for their mitigation, to either eliminate those impacts or to bring them to acceptable level and formulate Environmental Management Plan (EMP) for implementation of the project in environment-friendly manner.

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

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1.2 THE PROPONENT

Name	Mr. Ghulam Muhammad Choudhry
Designation	Company Secretary
Name of CEO	Syed Shahid Aqeel Ghaznavi
Address	8-Km, Raiwind Manga Road, Mouza Rossa District Kasur, Pakistan

1.3 THE PROJECT

1.3.1 Nature of Project

The said project is the Capacity Enhancement of Frozen Food Manufacturing Unit and Installation of Treatment Plant by M/S Dawn Frozen Foods Company (pvt) Ltd. Its salient features have been described later in this Chapter, Chapter 3 and briefly in Executive Summary of this EIA Report.

1.3.2 Size of Project

The capacity of the unit will be 150 tons/day. The extension will be done inside the already owned and operational facility of Dawn Frozen Foods Company (Pvt) Ltd. No additional land will be acquired for capacity enhancement. Along with that, effluent treatment plant will also be installed in the facility which is the part of extension.

1.3.3 Location of Project

Said Project is located at 8 Km, Manga Raiwind Road, Mouza Rossa, Tehsil Kot Radha Kishan, District Kasur, Punjab, Pakistan



1.3.4 Total area

Total area required for plot is approx. 31 Kanal and 7 Marla.

1.3.5 Cost of the Project

Cost of project has been estimated at Approx. PKR 400 million.

1.4 DETAILS OF CONSULTANTS

For the preparation of the Initial Environmental Examination report of the said project, the proponent has hired the services of the environmental consultants; M/**S Brick Line Estate and Property Consultants.** Team comprising of environmental engineers, chemical engineers, environmental experts and environmentalists has worked on this report.

Environmental Compliance Studies

- Initial Environmental Examination
- Environmental Impact Assessment
- Socio-Environmental Impact Assessment
- Green House Gas Estimation
- Environmental Management Plan

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1.5 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 said project will cause minor to moderate adverse environmental and social impacts on the surrounding area. Thus, an environmental and social study is mandatory to establish the baseline conditions, evaluate the possible adverse impacts if any, and devise the mitigation measures.

Section 12 of Pakistan Environmental Protection Act, 1997 (PEPA, 1997) states ***"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."*** Later on, Punjab Environmental

Protection Agency (Review of IEE and EIA) Regulations, 2022 provided the guidelines for categorizing the Projects. The main objectives of this EIA 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 said project in that area.
- To identify pre-construction, construction and operation activities and to assess their impacts on environment.
- Provide assistance to the proponent for planning, designing and implementing the project in a way that would strengthen environment, improve ecological resilience, eliminate or minimize the negative impact on the biophysical and socio-economic environment and maximizing the benefits to all parties in cost effective manner.
- To present Mitigation and Monitoring Plan to smoothly implement the suggested mitigation measures and supervise their efficiency and effectiveness.
- To provide opportunity to the public for understanding the project and its impacts on the community and their environment in the context of sustainable development.
- Prepare an EIA Report for submittal to the Environmental Protection Agency, Punjab for according Environmental Approval.

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1.6 Structure of Report

This EIA reviews information on existing environmental attributes of the Study Area. Geological, hydrological and ecological features, air quality, noise, water quality, soils, social and economic aspects and cultural resources are included. The report predicts the probable impacts on the environment due to the said project. This EIA also proposes various environmental management measures. Details of all background environmental quality, environmental impact/pollutant generating activities, pollution sources, predicted environmental quality and related aspects have been provided in this report. The structure of the assessment report will be as follow;

- Description of the Project
- Alternatives
- Scoping & Screening
- 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 Conclusions

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CHAPTER 2

SCREENING AND SCOPING

2.1 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.

2.2 Type and Category of Project

As per Review of Initial Environmental Examination (IEE) and Environmental Impact Assessment (EIA) Regulations, 2000 the Project of Establishment of Project fall in "**B (4)" Category of Schedule II.**

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2.3 Objectives of Project

Following are the main objectives of said Frozen Foods Processing industry:

1. To manufacture frozen food like kebabs, nuggets, parathas and samosa etc
2. To provide employment to the people
3. To change the social life style of the area
4. To upgrade the socio-economic condition of the area
5. Minimization of environmental impacts by adopting best management practices.
6. To support the local economy through significant investment and upgrades to infrastructure.

2.4 Alternatives

The analysis of the alternatives is a part of the EIA process to select the best among all possible project options. The alternatives of a project are defined as the options that can help to meet the objectives of a project by different means including alternative project sites, Environmental alternative etc. The key criteria when identifying alternatives is that they should be feasible and reasonable.

Selection of preferred alternative is based on scores of factors including cost, schedule of delivery, environmental and social impact and the cost for their redressal. The drivers that affect potential alternative options and scenarios include: availability of project sites, current technologies; design changes that need to be introduced, operational situation, capital & recurrent costs, environmental & social issues, their potential impacts, and costs of mitigation.

The details of the site alternatives and project alternatives are discussed below

2.4.1 Site Alternatives

No other site alternative was available to be considered as feasible option for the installation of the plant as proposed project site is owned by the M/S Dawn Frozen Foods Company (pvt) Ltd . The proposed site was selected because of the following reasons;

- The selected site is located in the proximity of other relevant industries
- The site is well connected to the other parts of the country through Manga – Raiwind Road, Kasur.
- No human settlements displacement or relocation is associated with the project development and operation
- Operation of the aforesaid unit in the respective zone will provide job opportunities to local people and will improve their socio-economic status of the study area.
- The project shall produce quality fabric and collars to meet the demand of community.

No important religious, archaeological, recreational site or ecologically/declared protected area and human settlement exists within close proximity of the selected site. In view of these facts, it can be concluded 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.

2.4.2 Project Alternative

2.4.3 Labor

Cheap labor has always been the backbone of the economy of Pakistan. Cheap and ample supply of labor strengthens the industrial and agriculture sector of the country. There are approximately 7 upstream and 6,000 downstream production units in the country which provide employment directly and indirectly to ~ 600,000 people. Of the downstream units, only 700 belong to the organized

sector while the remaining 5,300 units operate in the unorganized sector. Also, this project will emphasize to hire local labors as many as possible increasing the occupational status of the area. Considering the above-mentioned factors, no project alternative can be envisaged.

2.4.4 Environmental alternatives

2.4.4.1 Wastewater Treatment

Wastewater, or sewage, originates from human and home wastewaters, industrial wastes, animal wastes, rain runoff, and groundwater infiltration. Generally, wastewater is the flow of used water from a neighborhood. The wastewater consists of 99.9% water by weight, where the remaining 0.1% is suspended or dissolved material. This solid material is a mixture of excrements, detergents, food leftovers, grease, oils, salts, plastics, heavy metals, sands, and grits. Types of wastewaters include: municipal wastewater, industrial wastewaters, mixtures of industrial/domestic wastewaters, and agricultural wastewaters. Typical agricultural industries include: dairy processing industries, meat processing factories, juice and beverage industries, slaughterhouses, vegetable processing facilities, rendering plants, and drainage water of irrigation systems.

Subsequent to primary treatment of wastewater, large amounts of dissolved and colloidal material must be removed. Secondary treatment, i.e., biological treatment, can transform dissolved materials into larger particles. Chemical treatment, or tertiary treatment, using chemical materials will react with a portion of the undesired chemicals and heavy metals. Biological treatment tends to be a biological process with chemical treatment implemented for the removal of toxic compounds. The cost of chemical additives and the environmental problem of disposing of chemical sludge make this treatment process deficient, so the biological treatment must be implemented. In fact, the microorganisms utilize the dissolved organic matter as food for themselves.

Different technologies are being used to treat industrial wastewater like activated sludge process, Aeration lagoons, chlorination, ozonation, wetlands. Aeration lagoons are profound (3–4 m) compared to oxidation ponds. The aerators keep the microbial biomass suspended and provide sufficient dissolved oxygen. The hydraulic retention time (HRT) ranges from 3 to 8 days based on a treatment level, strength, and temperature. Lagoon systems require more land than other treatment methods. They are less efficient in cold climates and may require additional land or longer detention

times in these areas. Odor can become a nuisance during algal blooms or with anaerobic lagoons and lagoons that are inadequately maintained.

Constructed wetlands are used for wastewater treatment or for greywater treatment. They can be used after a septic tank for primary treatment (or other types of systems) in order to separate the solids from the liquid effluent. Some constructed wetland designs however do not use upfront primary treatment. Disadvantages of constructed wetlands include high land area requirements (depending on the design, they may require a relatively large land area compared to a conventional facility), the need for a preliminary treatment before the wastewaters treated by the system (normally they do not used to treat raw wastewaters).

The system of ETP plant which is going to be installed in the said unit will not only treat wastewater to PEQS but also follow the guidelines of Zero Discharge of Hazardous Chemicals (ZDHC). This is the approach which helps the investor to even reuse the water in process again. This is the most appropriate way of treating effluent because of reuse efficiency.

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2.4.5 **Economic Alternative**

It is cleared that if such huge investment is being done, it will impact the resources as well. If it is considered that as per the capacity of the unit, the electricity is being supplied from WAPDA, it will impact the national supply. To deal with this issue Dawn Frozen Foods Company (pvt) Ltd has planned to use energy efficient machineries.

CHAPTER 3: DESCRIPTION OF PROJECT

This section of the study concentrates on details of the project and its salient features; such as its location, objective, site layout, cost and magnitude of operation at various phases and process employed for the subject process.

3.1 Objectives of Project

The main objective of this project is the Capacity Enhancement of Frozen Food Manufacturing Unit and Installation of Treatment Plant by M/S Dawn Frozen Foods Company (pvt) Ltd for providing the best quality frozen food to public with sustainable measures.

3.2 Particulars of Project Site

Details of location of project are provided in table below:

Table 1: Particulars of Project Site

Particulars	Details
Latitude	31°16'29.04"N,
Longitude	74° 8'17.00"E
Location	8 Km, Manga Raiwind Road, Mouza Rossa,
Tehsil	Kot Radha Kishan
District	Kasur
Nature of area	Industrial
Road connectivity	Manga Raiwind Road

3.3 Location and Layout of Project

3.3.1 Location of the Project

Project site is located at 8 Km, Manga Raiwind Road, Mouza Rossa, Tehsil Kot Radha Kishan, District Kasur, Punjab, Pakistan . Google map is given below:



Figure 3-1 Location Map of Project Site

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3.4 Nature of Area

Said area is industrial in nature.

3.5 Land Ownership

The land is owned by Dawn Frozen Foods Company (pvt) Ltd . Property documents have been attached as **Annexure II.**

3.6 Government Approvals

Management has applied for the approvals from different concerned departments. Once the NOCs will obtain from different department, will be provided to EPA.

3.7 Land Use on Site

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

3.8 Road Access

The said Project area has road accessibility as it is accessible through Manga Raiwind Road

3.9 Vegetative Features on Site

The area around the project area is industrial. There found no vegetative features nearby the project site.

3.10 Cost and Magnitude of Operation

Cost includes land cost, Building & Infrastructure cost, machinery cost, land scaping cost. Total cost of the project is PKR 400 Million (Approx.).

3.11 Schedule of Implementation

The schedule of implementation for the commencement of the civil work involved for the installation construction and operational maintenance is approximately 12 months and the detail timeline of the construction period is given in Table below:

Table 2: Timeline for Project Development

Sr. #	Activities	3 Months			3 Months			3 Months			3 Months		
		4W	4W	4W	4W	4W	4W	4W	4W	4W	4W	4W	4W
1	Detailed Designing												
2	Mobilization of Contractors												
3	Lean Development Period												
4	Peak installation Period												
5	Commissioning												*
W=48 Weeks													

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3.12 Description of the project:

Project description is given in details in the preceding. Additional information is provided as under:

3.12.1 Products:

Dawn Frozen Foods Company (pvt) Ltd is to increase the capacity of existing plant production. The capacity will be 750 tons/day. The final product will be Frozen ready to make items which include Parathas, Kebabs, Nuggets etc. Effluent treatment plant installation is also part of the extension which will be installed to treat wastewater generated from process.

3.12.2 Manufacturing process:

Major steps of manufacturing process are described as under:

The production process at Dawn Frozen Foods Company Limited is designed to ensure the highest standards of hygiene, quality, and efficiency in manufacturing frozen food products. The process begins with the **Receiving and Inspection of Raw Materials**. All incoming raw materials, including vegetables, meats, poultry, spices, and flour, are rigorously inspected upon arrival. Materials are checked for freshness, temperature, and compliance with quality specifications. Any substandard or spoiled items are immediately rejected and segregated for proper disposal.

Accepted raw materials then proceed to the **Preparation and Washing Stage**. Here, vegetables are thoroughly washed in dedicated vegetable washing tanks to remove dirt, pesticides, and other contaminants. They are then peeled, cut, and trimmed according to product requirements. Meats are cleaned, deboned, and cut into specific sizes. This stage is critical for ensuring the initial microbiological and physical quality of the ingredients.

Following preparation, the ingredients move to the **Mixing and Marination** area. For products like kababs, nuggets, and koftas, the cut meats and vegetables are mixed with spices, binders, and marination in industrial-sized mixers. This step is crucial for developing the desired flavor profile and texture. The mixture is marinated for a specified period to allow the flavors to infuse deeply.

The next critical phase is **Forming and Shaping**. The marinated mixtures are fed into automated forming machines. These machines shape the product into its final form, such as round kababs, nugget shapes, or samosa patties. This ensures uniformity in size and weight, which is important for consistent cooking and freezing.

The shaped products then undergo a **Pre-Cooking or Frying** process. Depending on the product type, this may involve passing through a continuous frying oven or a baking oven. This step partially or fully cooks

the product, sets its shape, develops its color and flavor, and reduces its microbial load. The cooking medium (e.g., oil) is filtered and monitored to maintain quality.

After pre-cooking, the products enter the **Rapid Freezing (IQF) Tunnel**. This is a pivotal step for preserving quality. The products are conveyed through an Individual Quick Freezing (IQF) tunnel where they are exposed to very low-temperature air, freezing them solid within minutes. IQF technology ensures that each piece freezes individually, preventing them from sticking together and preserving the cellular structure, which maintains the product's texture, moisture, and nutritional value upon reheating.

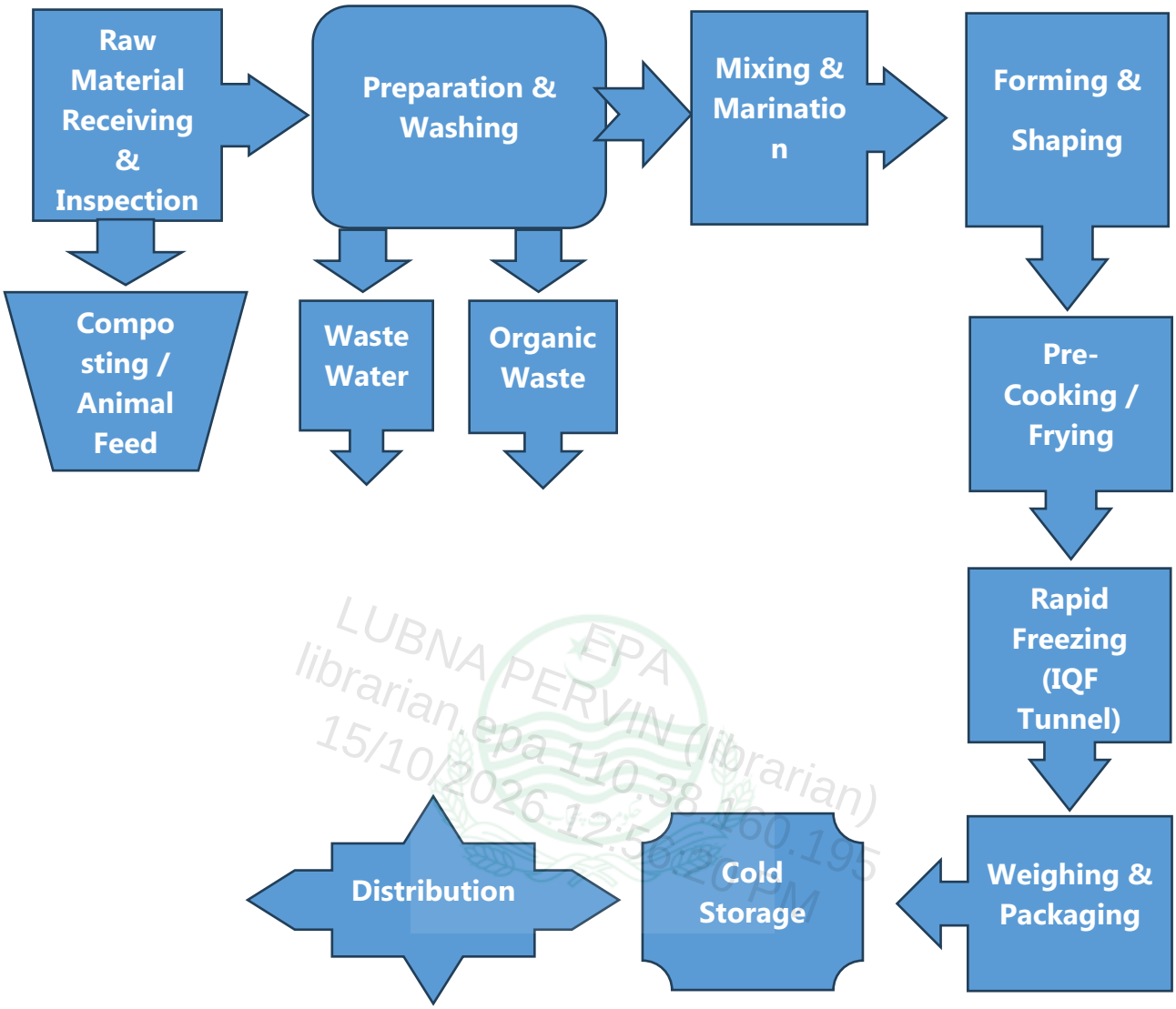
Once frozen, the products are conveyed to the **Automated Weighing and Packaging** line. They are first weighed by multi-head weighers to ensure accurate portion control. The frozen products are then automatically filled into pre-printed, food-grade plastic pouches or other primary packaging. The packaging machines evacuate air and seal the packs to ensure freshness and prevent freezer burn. The primary packs are then cartoned into secondary shipping boxes, which are labeled with batch numbers, manufacturing dates, and expiry dates.

The final step is **Cold Storage**. The packaged finished goods are palletized and transferred to the on-site, temperature-controlled cold storage facility. The cold storage is maintained at a consistent temperature of -18°C or lower. Products are held here until they are dispatched for **Distribution** in refrigerated trucks that maintain the cold chain, ensuring the products reach the consumer in perfect condition.

Integrated Waste Management Processes

Throughout the production process, waste streams are meticulously managed. Organic waste from the preparation stage (peels, trimmings) is collected separately and sent for composting or as animal feed. Wastewater from washing is directed to an effluent treatment plant. Used cooking oil is collected by registered recyclers for conversion to biodiesel. Packaging material off-cuts (plastic and cardboard) are segregated and sent for recycling.

The Process Flow Diagram for Dawn Frozen Foods Company Limited is as follows:



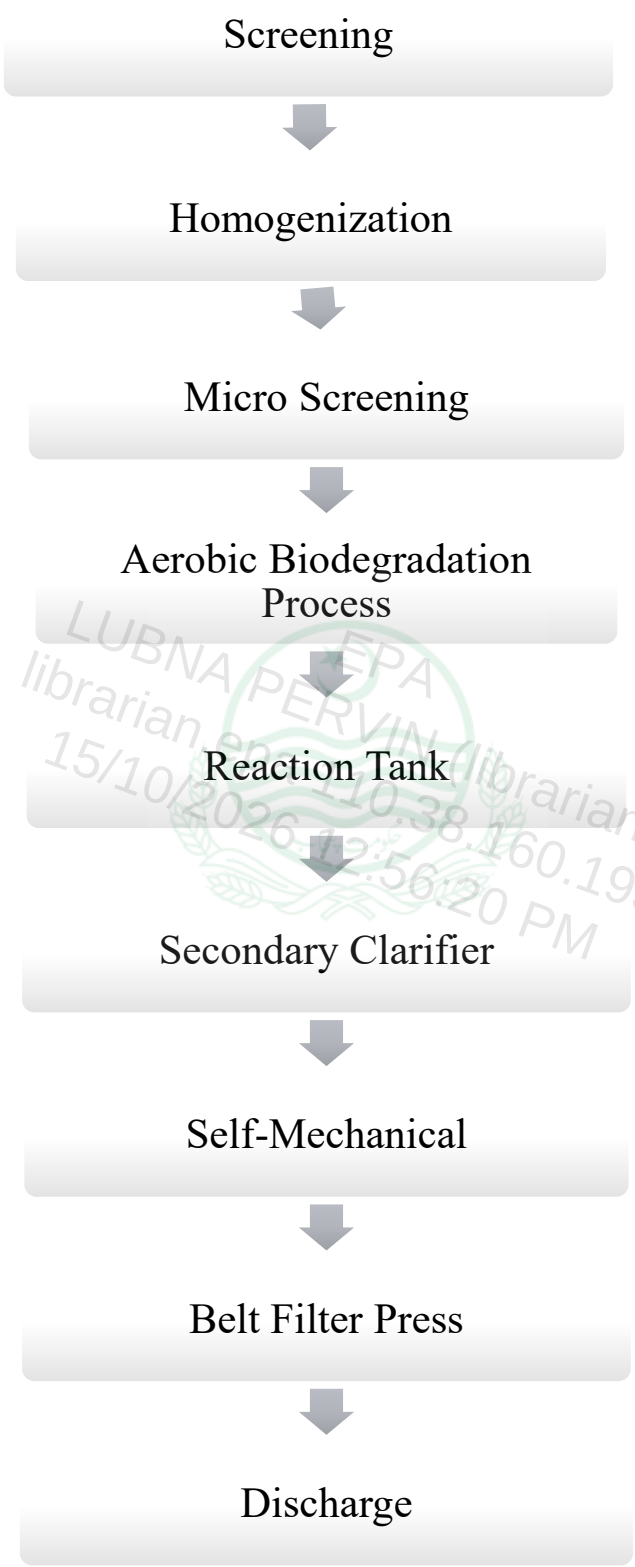
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3.13 Installation of Wastewater Treatment Plant

To treat wastewater of said process Wastewater Treatment Plant (WWTP) to reduce pollution load on environment by using aerobic treatment. The major steps involved in the process are:

i. Screening
ii. Homogenization Process/ Equalization
iii. Micro Screening
iv. Aerobic Biodegradation Process
v. Reaction Tank
vi. Secondary Clarifier
vii. Self-Mechanical

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Process flow diagram of Aerobic treatment

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SCREENING:

Screening is the first unit operation used at wastewater treatment plants (WWTPs). Screening removes objects such as rags, paper, plastics, and metals to prevent damage and clogging of downstream equipment, piping, and appurtenances.

HOMOGENIZATION PROCESS/EQUALIZATION:

Process water which passes through the screen is taken to the equalization basin (in order to equalize the wastewater in terms of flow rate and pollution and to become homogenize) Wastewater is given to the system from the equalization basin to the system. One of these pumps will stay as standby. Also, there will be given air to the equalization basin by BLOWER for the mixture and homogenization of the wastewater

MICRO SCREENING:

Micro screens, are widely used within wastewater treatment. The applications include primary treatment to remove the micro partial from influent. (i.e static screen up to 500 microns).

AEROBIC BIODEGRADATION PROCESS:

Biodegradation is the disintegration of materials by bacteria, fungi, or other biological means. Although often conflated, biodegradable is distinct in meaning from compostable. While biodegradable simply means to be consumed by microorganisms, "compostable" makes the specific demand that the object break down under composting conditions Organic material can be degraded aerobically with oxygen, Biodegradable matter is generally organic material that serves as a nutrient for microorganisms.

REACTION TANK:

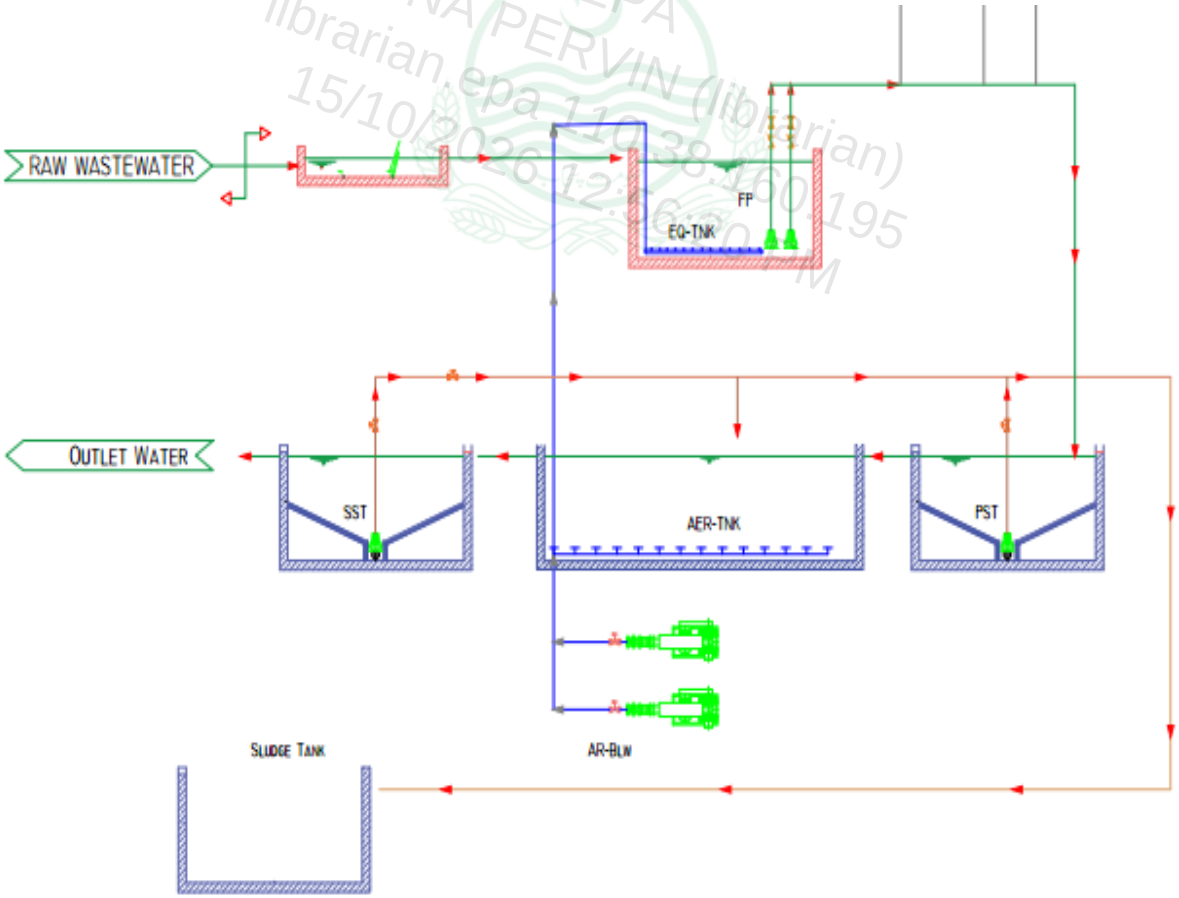
Chemical Polychem 900 is totally organic chemical which has ability to remove color and COD. Diluted chemical will de -color the influent and the suspended solids settle down in sedimentation tank.

BIOLOGICAL SEDIMENTATION:

Clarifier is settling tank built with mechanical means for continuous removal of solids being deposited by sedimentation. A clarifier is generally used to remove solid particulates or suspended solids from liquid for clarification of treated water. The biodegraded over flow shall be let through a Clarifier for separation of bio-sludge. This sludge will partly be pumped back to the Aeration Tank to maintain quantity of biomass and a part of sludge collected at the bottom will be diverted to the sludge holding tank.

BELT FILTER PRESS:

Sludge is dewatered and then be sold out to EPA certified contractor. A Belt Filter comprises a set of two tensioned porous belts around a system of rollers of different diameters. Moist sludge is sandwiched between the belts and is passed over and under the rollers. Increased pressure is created as the belts pass over the rollers of smaller diameter, and causes the sludge to squeeze water.



3.14 Relocation and Rehabilitation Plan

There exists no human settlement within premises of the selected project site to be displaced as a result of the proposed extension. Moreover, no structure of any significance stands at the site is proposed to be relocated. The project area is owned by the proponent. So, no restoration and rehabilitation are required.

3.15 List of Machinery

List of Machinery is attached as annexure:

3.16 Amenities

The following social amenities are present at site and the management of the waste (construction waste, solid waste and effluents) is explained in sub-sections below:

3.16.1 Electricity Consumption

Wapda and backup generator,.

3.1.1. Ground Water Resource

During constructional and operational phase ground water will be consumed. The water will be pumped from ground from the depth of 250ft.

3.16.2 Management Plans

Following management plans will be employed to reduce the impact of the proposed activity:

3.16.3 Air Emissions

Air emissions will be generated while continuous operation of generator, steam from, boilers. may deteriorate the quality of air in the open area. No other emissions will be generated from process related activities.

To deal with the pollution generated from these activities, regular monitoring and testing of generators will be carried out to ensure compliance. The workers dealing with the process activities will be provided with masks, safety shoes and all other necessary PPEs. To reduce the public nuisance native trees will be planted on the boundary to reduce the nuisance and to reclaim the disturbed soil effectively.

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3.16.4 **Wastewater Management and Disposal**

In the proposed project the wastewater will be generated from process, municipal and domestic activities. This wastewater will be transferred to the waste water treatment plant where the water will be treated and the results of the final discharge water will be maintained according to the PEQS and then discharge to Nala near by the industry.

It is proposed that tree plantation will be carried out around the premises of project area. The generated wastewater will be consumed for on-site horticultural activities.

3.16.5 **Waste Management**

The solid waste will be generated during the cooking in the worker's mess and during processing. The solid waste which will produce during process activities which will be sold out to EPA certified contractor. Regular training will be given to the workers dealing with the waste management it will include identification, segregation and management of waste. Other waste producing from the admin block, canteen, warehouse or from skybridges will goes to the municipal waste committee

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3.16.6 **Emergency Preparedness**

Emergency response preparedness committee will be formulated consisted of heads of all departments and nominated members. Project Manager will be the head of the team who will chair the Committee. In the case of emergency, he will immediately inform the concerned authorities. HSE Manager will be responsible for on-site HSE management.

First aid facilities will be available at facility which will include; blankets, hot water bottles, sterilized dressing, snake bite kit, cotton and iodine (2% alcohol).

3.16.7 **Safety Trainings**

Skilled, semi-skilled and un-skilled staff will be provided with proper training about the work and safety practices that need to adopt during the process activities.

3.16.8 **Use of Drugs and Narcotics**

Drugs and narcotics are strictly prohibited during working hours in working area. Smoking will be only allowed during rest timings at properly isolated places.

3.16.9 **Personal Protective Equipment**

Following Personal Protective Equipment (PPEs) will be provided to the workers:

- Safety Helmet
- Safety Shoes
- Dust Mask
- Safety Gloves
- Safety goggles
- Ear plugs/ muffles

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CHAPTER 4: DESCRIPTION OF THE ENVIRONMENT

4.1 General

An environmental baseline study is intended to establish a database against which potential project impacts can be predicted and managed later. The EIA 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

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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:

4.2.1 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.

4.2.2 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

4.2.3 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.

4.2.4 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.

4.3 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.

4.3.1 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 Brick Line Estate & Property Consultants reviewed the environmental policies, national, international and provincial laws and guidelines relevant to the development of project which helped in systematic identification of impacts.

4.3.2 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. Information provided is based on primary and secondary data collected by site visits, desk studies and consultation with locals respectively. This section gives the 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:

4.4 Physical Resources

The physical resources consist of existing land form 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.

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4.4.1 Geography and Geology

Kasur district is located in the Lahore Division of the Punjab Province, Pakistan Kasur town is situated, on the border of India about 30 miles (50 km) south of Lahore. The district lies from 300 -40' to 310 - 20' north latitudes and 730 - 38' to 740 - 41' east longitudes.

The surrounding area consists of a flat alluvial plain bordered by the Ravi River to the northwest and the Sutlej River to the southeast. Five canals, used for irrigation, flow through the district. Agriculture is the principal occupation; wheat, rice, sugarcane, cotton, fruits, and vegetables are grown in the region. A forestry plantation was started at Chhanga Manga in 1864 and now produces silk, honey and beeswax, and turmeric, as well as seasoned timber. Pop. (1998) 245,321.

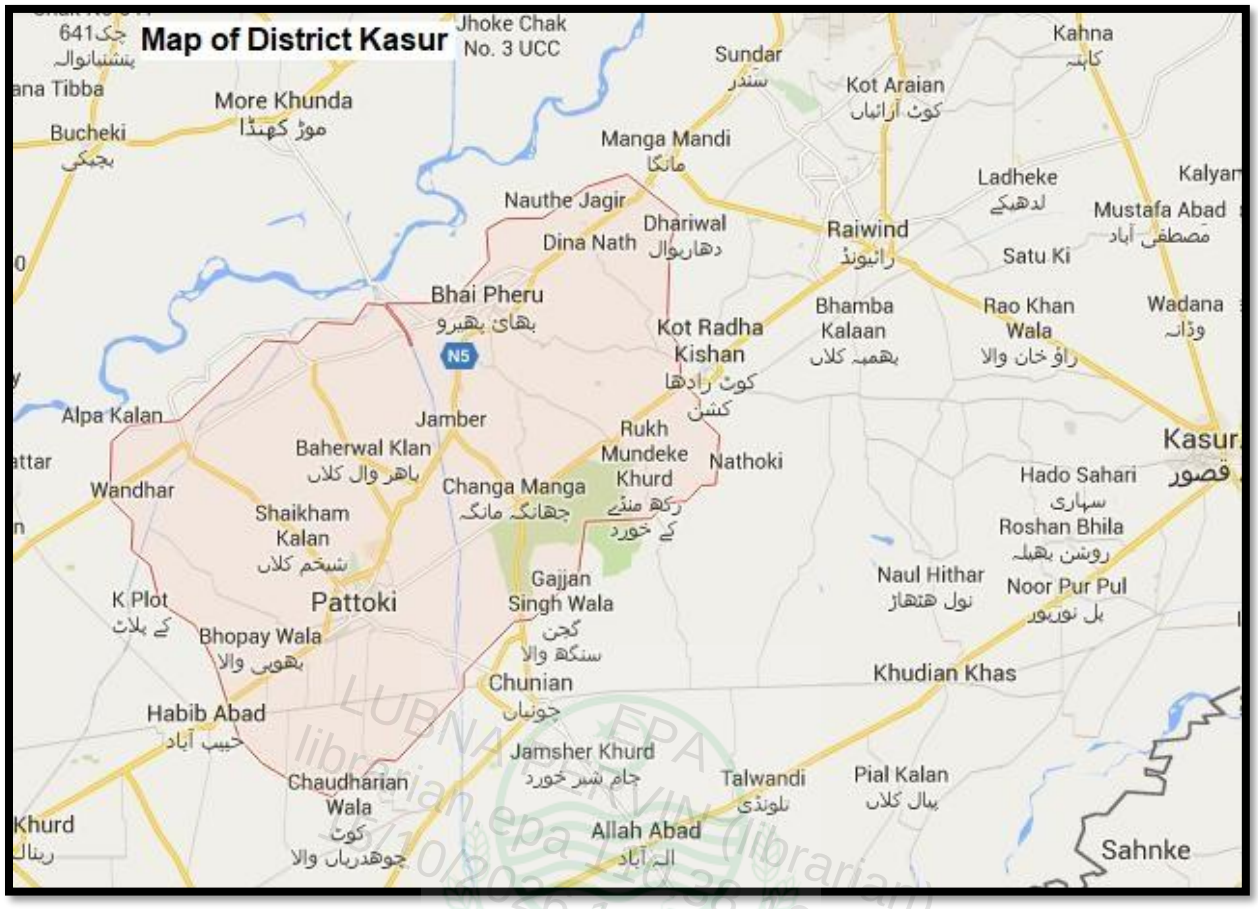


Figure 4-1 Location of Project

4.4.2 Topography

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

4.4.3 Hydrology

Groundwater from depth of 200-250 ft 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.

4.4.4 Climate

4.4.4.1 Temperature

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

Climate of District Kasur is very hot and dry in summer and cool in winter. At an average temperature of 33.5 °C | 92.4 °F, June is the hottest month of the year. The lowest average temperatures in the year occur in January, when it is around 12.3 °C | 54.1 °F.

Average temperature in Kasur over the years. Average Weather in Kasur, Pakistan. Climatological information about changes of temperature over the years in Kasur.

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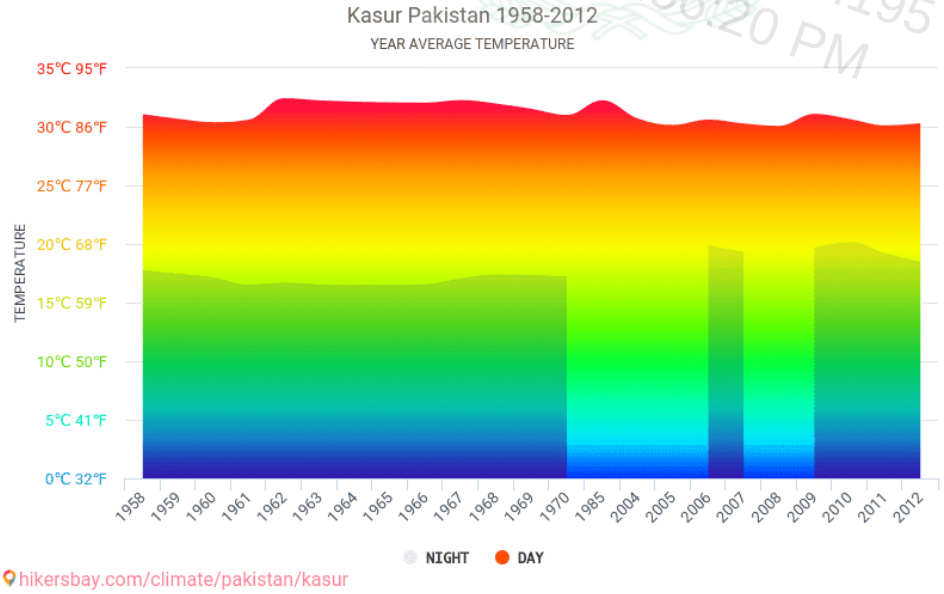


Figure 4-2 Yearly average temperature of District Kasur, Pakistan from 1958 to 2012

(Source: hikersbay.com)

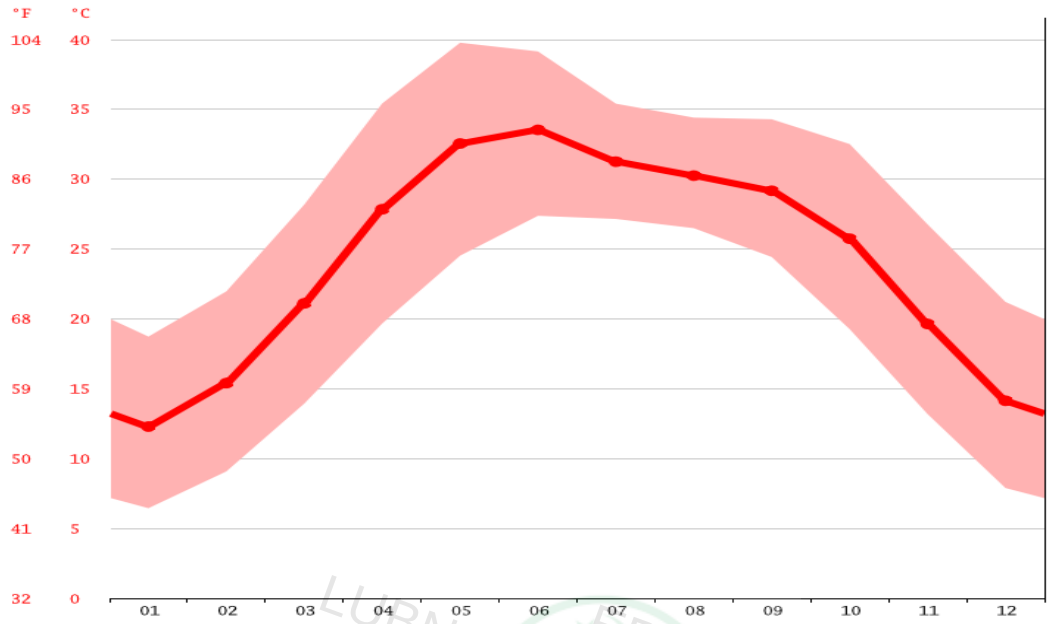


Figure 4-3 Average Annual Temperature of District Kasur (Source: Climate-data.org)Rainfall

District Kasur is 150 to 200 meters above sea level The climate here is considered to be a local steppe climate. In Kasur, there is little rainfall throughout the year. Months with the largest precipitation are August, July, September with 293 mm precipitation. Most precipitation occurs in August with an average precipitation 120 mm. The annual amount of precipitation in Kasur is 432 mm. The average annual temperature is 31°C in Kasur. The warmest month of the year is June, with an average temperature: 37°C. Usually January is the coldest month in Kasur, with average temperature 22°C. The difference between the hottest month: June and the coldest month: January is: 15°C. The difference between the highest precipitation (August) and the lowest precipitation (November) is 114mm.

Precipitation is the lowest in November, with an average of 6 mm | 0.2 inch. The greatest amount of precipitation occurs in July, with an average of 151 mm | 5.9 inch.

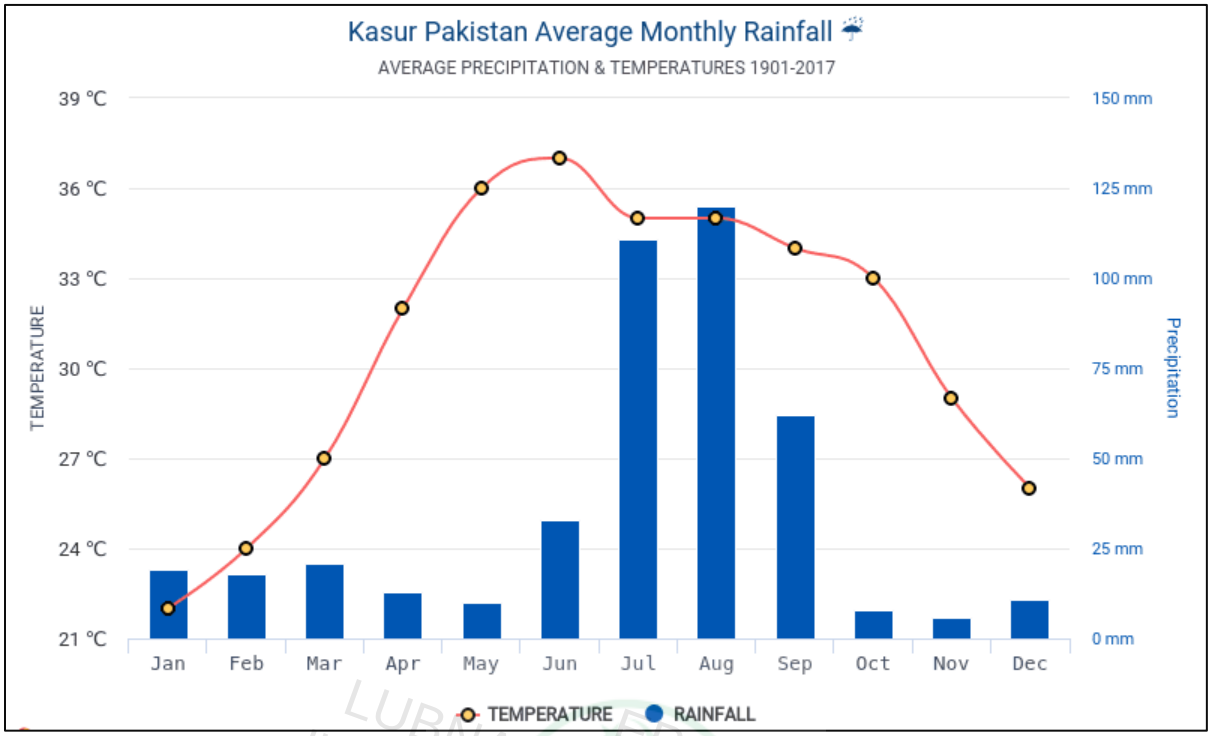


Figure 4-4 Average Annual Precipitation of Kasur (Source: hikersbay.com)

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4.4.4.2 Seismicity

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

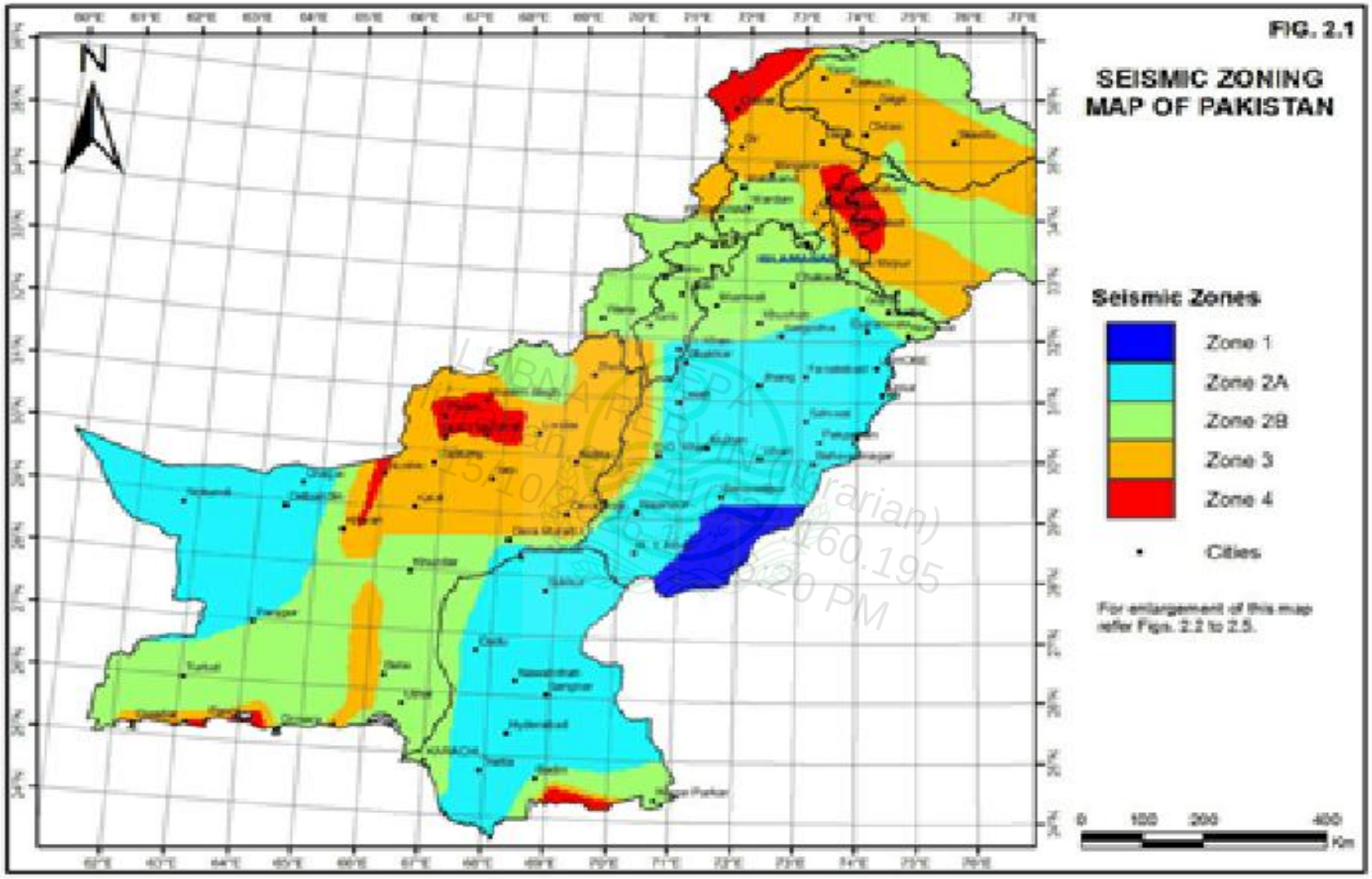


Figure 4-5 Seismic Zones of Pakistan

4.5 Ecological Environment

District Kasur 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:

4.5.1 Aquatic Flora and Fauna

There is 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 Chaneb 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 stiching unit.

4.5.2 Flora

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

4.5.3 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. It may be pointed out that the pattern of seasonal migration of small birds varies depending upon each specie. During the construction activity in project area, no important biological feature will be damaged or disturbed.

The fauna commonly found in District Kasur 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 District Kasur.

Table 3: 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 4: 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 District Kasur 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 5: 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 6: 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 7: 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.

4.6 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 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.

4.6.1 Sampling Sites

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

4.7 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.

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4.7.1 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.

4.7.2 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.

4.7.3 Nearby Residential Areas

The proposed project site is located at Manga-Raiwind Road.

4.8 Social and Public Amenities Available

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

4.8.1 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.

4.8.2 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.

4.8.3 Protected Structures

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

4.8.4 Cultural Heritage and Community Structure

Brick Line Estate & Property Consultants 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.

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4.9 Quality of Life Values

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

4.9.1 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:

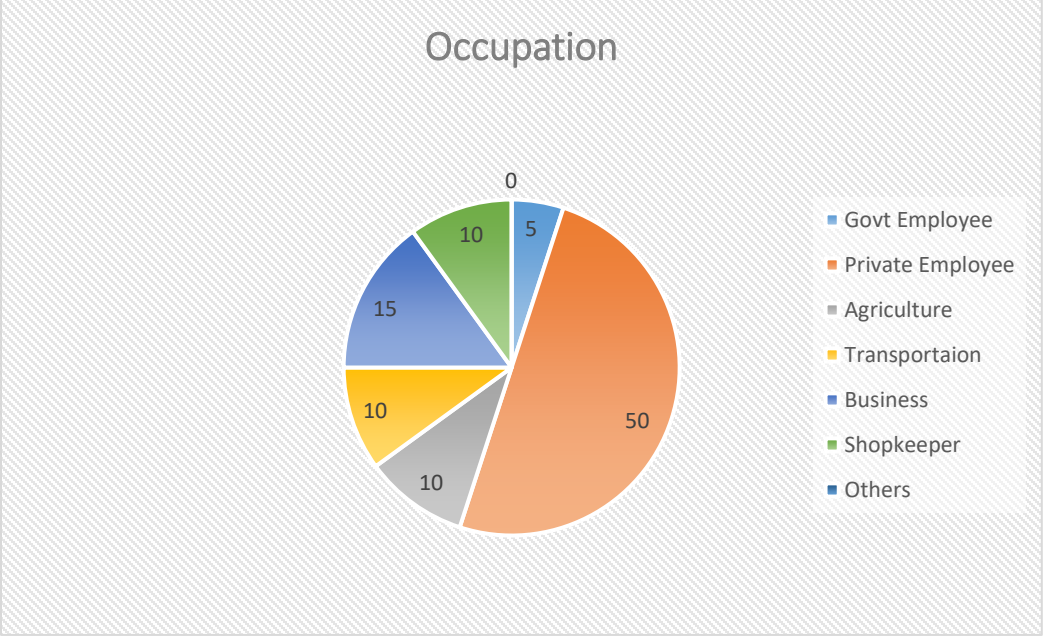


Figure 4-6: Occupation of Respondents

4.9.2 **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.

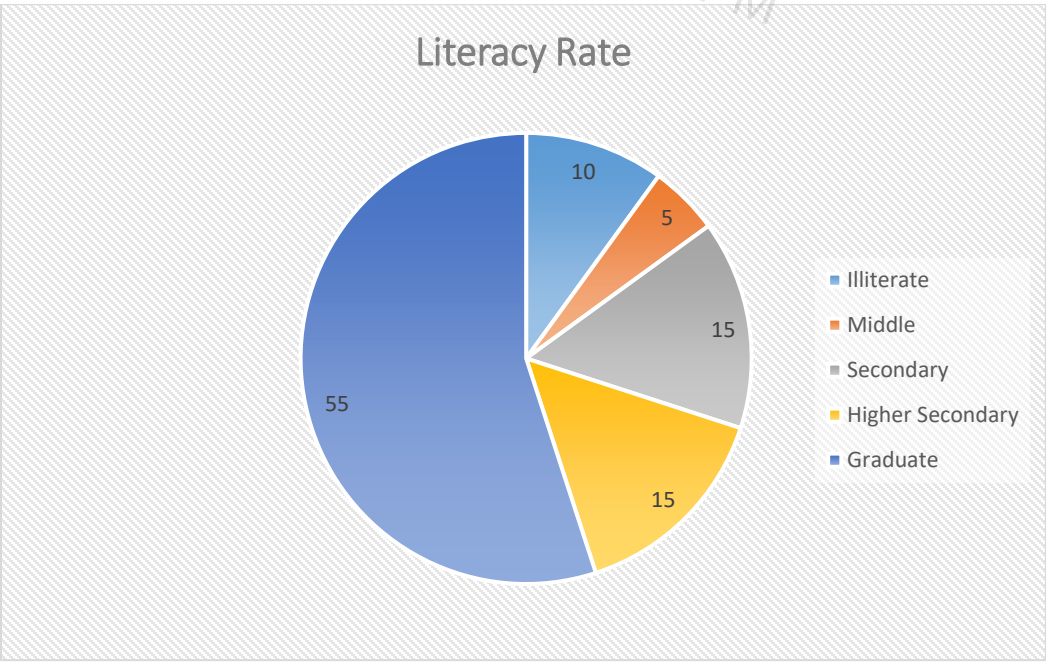


Figure 4-7 Literacy Rate of Respondents

4.9.3 Industries

There has been a steady expansion of industries in and around District Kasur since independence. Industries nearby project site are shown in map below:

4.9.4 Educational facilities

Various government and private educational institutes are present near project site,

4.9.5 Health facilities

Various hospitals are present near the project site. Social Security Hospital is adjacent to the site as shown in google map attached.

4.10 Facilities Available

Facilities available at the houses, shops and factories are depicted here. It shows that electricity, water supply, telecommunication, sewerage, gas supply and every other routine facility is available in study area.

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CHAPTER 5: STAKEHOLDER CONSULTATION

5.1 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 taking into account 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 life styles and environment

This report includes all the comments, which were taken into account in preparing the definitive development concept for the establishment of said project. Public consultation performa is attached as Annexure of this EIA Report.

5.2 OBJECTIVES OF CONSULTATION

Public consultation plays a vital role in studying the impacts said project on stakeholders in its successful implementation and execution. It provides an opportunity to exchange knowledge with theall stakeholders. Referring particularly to a project related to environmental assessment, involvement of public is all the more essential, 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 issues, 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.

5.3 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 areas, 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 (Both brief and comprehensive literature were obtained on request) but also noted their views and the concerns. Following stakeholders are identified for this project:

Project stakeholders include the settled families, either property owners or the tenants, businessmen (land owners, traders, shopkeepers, vandors, transporters, restuarent owners etc.), employees of the commerical entities. PAPs are of two types, for instance:

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5.3.1 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.

5.3.2 Indirect

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

- ✓ Government agencies 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

5.4 PUBLIC DISCLOSURE

Public disclosure is the outcome of all such activities where 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 stakeholder. It is the

responsibility of the proponent and the consultants to display public disclosure document at prominent places where community has easy access.

5.5 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 EIA 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 meeting 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
- Obtain 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 EIA; and eliciting their comments and feedback

5.5.1 Consultation Methodology

The methodology adopted for consultations is summarized below.

5.5.1.1 Consultation Material

The main document for distribution to stakeholders during the consultations was Social Impact Assessment Interview. The filled Survey forms of stakeholders are annexed

5.5.1.2 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 EIA involved the community in active decision-making. This process will continue even after this EIA has been submitted, as well as during future EIA 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 EIA 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 EIA report.

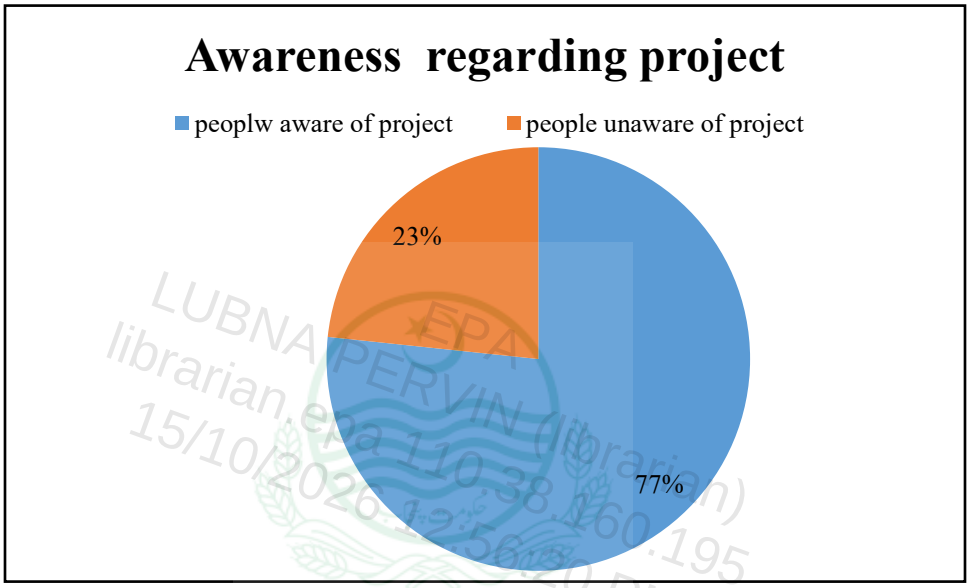
5.5.2 Primary Stakeholders Consultation

The community consultations were conducted with the community members outside their settlements to encourage and facilitate their participation.

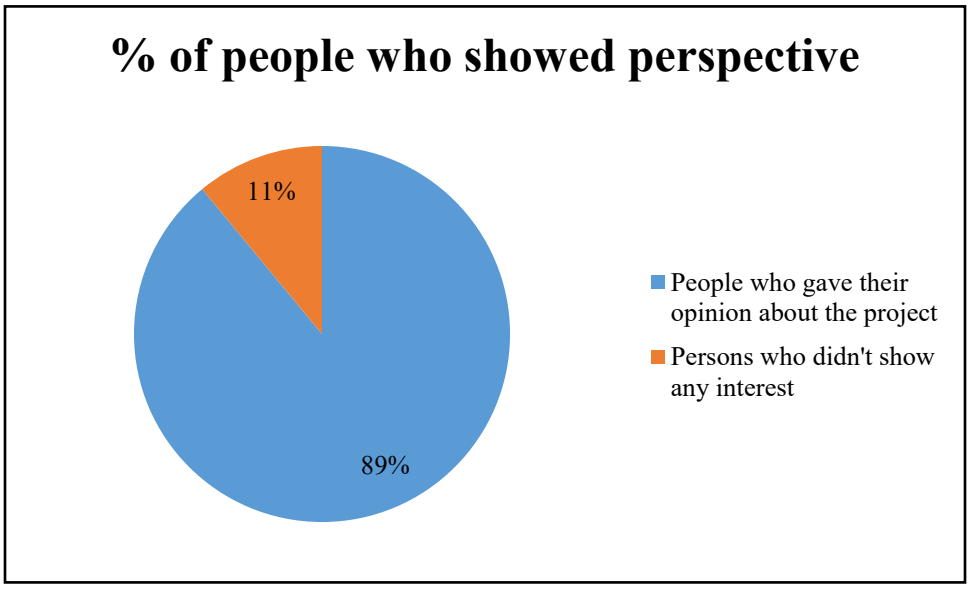
5.5.2.1 STAKEHOLDER CONCERNS AND RECOMMENDATIONS

The finding of the community consultation has been addressed in various sections of EIA. Mitigation plan has been incorporated into EMP. The summary of consultation with various stakeholders is given below

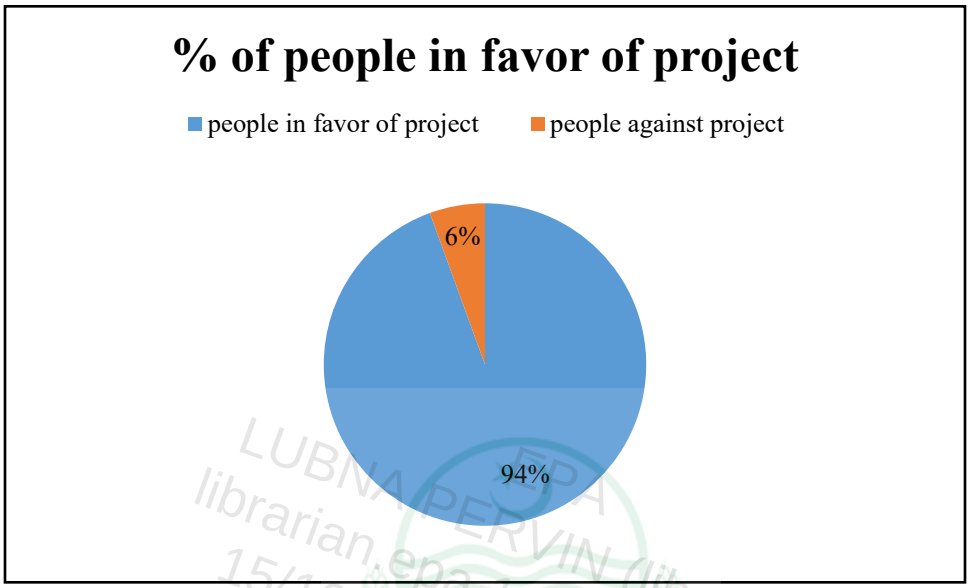
Out of total respondents of, 77% knew about the project whereas 23% were not aware of the project planning and implementation. All people were then briefed about the project.



89% commented their views about the project and 11% didn't respond.



Out of 89%, majority of the people (about 94%) favored the construction of the project keeping in view its importance and 6% people showed pessimistic views in general but mitigation measures and solutions to their concerns were provided.



Majority of people were in favor of project. They said that project will result not only in direct jobs opportunities for locals but also will enhance subsidiary business, trade, education, and agriculture and community development. The people were of the view that industry might also elevate education standards, struggle for career enhancement besides improvement in standard and quality of living in area. People were also of the view that industry may also be instrumental in connecting the local people with major cities and will result in increase in GDP.

Very few near to 6 % only shows concerns over power house emissions, noise, wastewater and health impacts. Majority of the concerns were changed in the favor of installation after communicating the participants proper solutions and mitigation measures

5.6 STAKEHOLDERS CONSULTED

Names of consulted stakeholders are given in table below:

Table 5-1: List of consulted stakeholders

Sr. No	Stakeholder name

1.	Muhammad Hakim
2.	Abdulaziz
3.	Asghar Ali
4.	Kashif Ali
5.	Parvez Hussain
6.	Muhammad Naeem
7.	Muhammad Zulfiqar
8.	Muhammad Waqar
9.	Muhammad Arif
10.	Muhammad Javed
11.	Muhammad Jalal
12.	Muhammad Tofail
13.	Syed Barat Hussain
14.	Arif Khan
15.	Basheer Hussain
16.	Saddam Hussain
17.	Muhammad Javed
18.	Muhammad Aslam
19.	Hameed Ahmad
20.	Muhammad Zafar
21.	Muhammad Maqsood
22.	Muhammad Aslam

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5.6.1 Secondary Stakeholders Consultation

The consultations were carried out with the local government officials and officials of the following departments:

1. District Office Environment
2. Proponent
3. Environmental Precautionar

Comments and recommendations of all government representatives are presented in table below:

S#	Participant	Designation	Concerns/Remarks
Responsible Authority			
1	Mr. Rafiq	Inspector Environment	• Environmental enhancement measures such as; Tree plantation, monitoring and safety should be ensured • HSE plan should be enforced strictly • Should work for local people benefit • Preventive measures should be adopted to avoid any unfortunate incident
Proponent			
1	Abdul Wajid	Representative of Proponent	• Local employment will be ensured • Tree plantation will be done to make project environment friendly • No waste will be dumped improperly • Quality will be ensured
Environmental Practitioners and Experts			
1	Dr. Muhammad Faqir Irfan	PhD. Environment Lawyer	• Health and safety arrangements must be provided

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CHAPTER6: POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

6.1 GENERAL

This chapter describes the potential environmental and social impacts of the proposed activities, predicts the magnitude of the impact and assesses the significance. The main intention of this section is to provide the mitigation measures that need to be adopted wherever necessary, to reduce, minimize, or compensate for the negative impacts.

6.2 IDENTIFICATION OF POTENTIAL IMPACTS

In the first step, potential impacts of the project are identified by desktop screening exercise, using checklists during field visits for collection of baseline data, professional judgment, published literature on environmental impacts of similar projects and standard environmental guidelines. Potential impacts are also identified through discussion with project proponent, consultation with stakeholder and community to identify their concerns. The main aspects associated with potential impacts are as follows:

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- Water resources
- Ambient Air Quality
- Waste discharges
- Noise pollution
- Ecology of the area, including flora and fauna
- Vehicle movement
- Socio-economic conditions
- Archaeology

6.3 CLASSIFICATION OF IMPACTS

According to the type of potential receptors, the potential impacts are classified. The following receptor categories were used.

Category of Receptor	Description

Community	People their social and cultural values, aspirations and archaeological sensitivity
Land and Soil	Land resources, soil resources
Air Quality	Ambient air quality
Water Resources	Ground and surface water resources
Ecosystem	Vegetation, wildlife and biodiversity

6.4 SCOPING CRITERIA FOR IMPACTS

The identified potential impacts of the project are evaluated on the basis of following criteria;

- The present baseline condition, the change in environmental parameters likely to be affected by the project related activities;
- Is there any impact that environmental standards or environmental guidelines applicable to the project will be breached?
- Is there a high risk of permanent, irreversible, and significant change to environmental condition due to particular project activity?
- Did the community express any concern about this aspect?

6.5 METHODOLOGY FOR IMPACT ASSESSMENT

The impact assessment methodology defines three levels of consequences (or severity) and likelihood (chance of occurrence) i.e. Low, Moderate/Medium or High. The significance of an impact is determined on the basis of the level of consequence and likelihood of the impact.

Table 6-1: Definitions of severity and likelihood of impacts

Level	**Severity of Impact (Consequence)**	**Likelihood**
High	Serious / catastrophic damage to local and regional environment Serious threat to corporate reputation/ profitability / ability to do business	High likelihood of occurrence during lifetime of operation Regular / continuous part of operations
Moderate	Measurable damage to the environment Potential to affect reputation / cost Reduced efficiency	Moderate possibility of occurrence during lifetime of operation Periodic / occasional part of operations
Low	Negligible damage to the environment No risk to business	Unlikely to occur during lifetime of operation

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Table 6-2: Impact Significance Matrix

		Likelihood (Probability of occurrence)		
Impact (Consequence)		**High**	**Medium**	**Low**
	High	High	High	Medium
	Medium	High	Medium	Low
	Low	Medium	Low	Low

The prediction of impacts also includes the duration of impacts in terms of short-term or long-term, nature of impact, geographical location of the impact, reversibility of the impact. The criterion for impact assessment is illustrated in the Table

Table 6-3: Impact Assessment Criteria

Impact Characteristics	**Categories**

Nature of the Impact	**Direct:** The environmental parameters that are directly affecting by this project. **-Indirect:** The environmental parameters change due to the combinational effect by project and environmental impacts
Duration of the Impact	**Short term:** Lasting only till the duration of the project **Medium term:** Lasting from a few months to a year **Long term:** Lasting for a period much greater than medium term impacts
Geographical Location of the impact	**Local:** Within the area of project i.e. operation site and access roads **Regional:** Within the boundaries of the project area **National:** Within the boundaries of the country
Reversibility of the impact	**Reversible:** When a receptor resumes its pre-project condition **Irreversible:** When a receptor cannot resume its pre-project condition

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6.5.1 What is the problem?

The project is about Frozen Foods Processing industry, namely "Capacity Enhancement of Frozen Food Manufacturing Unit and Installation of Treatment Plant by M/S Dawn Frozen Foods Company (pvt) Ltd. The major impact associated with the construction and operation of said industry includes solid waste management, wastewater management, noise emissions, tree plantation and fire-fighting arrangements.

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

The impacts from the said industry mainly occur during the construction and operational phase of the project. These issues include; noise generation, fugitive dust emissions, solid waste management, wastewater disposal, top-soil removal, Health and Safety issues and change in the geographic features of the area. These all problems should be addressed on-site where they are being generated, to avoid the residual or adverse impacts. The tell the description and impacts to Government and public by reports and public hearing.

6.5.3 Where problem should be addressed?

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

6.5.4 How the problem should be addressed?

Problem should be addressed with its full detail i.e. its magnitude, possible impacts and problem, long time effect, environmental impacts, and proper mitigation measures will be provided according to the nature of the impacts/problems.

6.5.5 Ways of Achieving Mitigation Measures:

Following ways will be adopted to reduce the impacts of the said project:

6.5.5.1 Changing in Planning Design

The design of industry is developed considering environmental risk and hazards. As the area is industrial lot of industries are present there. Moreover, there is no endangered and threatened species present in the project area. Any human settlement or infrastructure was not dislocated or dismantled due to the project development. The proper roads and transportation system along with migration measures is there. The project is fare away from urban development. Not any impact will affect the urbanization. Hence, there is no need to change the design of the project.

6.5.5.2 Improved Management and Monitoring Practices

The anticipated impacts will be reduced significantly by adopting better management activities, as it will be carried out for the betterment of the society. While environmental monitoring will be conducted on the regular basis to keep the sources of the air pollution, wastewater generation, noise and public nuisances in-check. All the migration measure and advance technology will be implanted to mitigate the impact. All the practices will meet the Punjab environmental standards and international standard like OSHA and AEPA.

6.5.5.3 Compensation in Money Terms

Due to the development of the project, no tree cutting is involved, however, there is no protected or environmentally sensitive area present within 2.0 km vicinity of the project that could be impacted. Hence, no compensation in the monetary terms is required.

6.5.5.4 Replacement/Relocation/Rehabilitation

The project site is owned by the proponent and reserved for the said industry. No replacement, relocation and rehabilitation is required for the commencement of the aforesaid project.

6.6 Impact Summary

Environmental Parameters	Impact Assessment during Different Phases	
	Construction	Operational
A: Physical		
Land Resources		
Soil Erosion and Contamination	0	0
Transportation	-1t	-1 t
Solid Waste and By-Products	-1t	+1p
Land Use	NA	NA
Air Resources		
Noise Pollution	-1t	-1p
Air Emission	-2t	-1p
Dust	-1t	-1t
Water Resources		
Ground Water	-1t	-1p
Surface Water	NA	NA
Wastewater	-1t	-1p
B : Ecological		
Flora		
Tree Cutting	N/A	N/A
Fauna		
Terrestrial Fauna	N/A	N/A
C: Socio-Economic		
Employment Opportunities	+1t	+1p
Land Value Appreciation	N/A	N/A
D: Hazards		
Physical Hazards	-1t	-1p
Health and Safety	-1t	-1p
Legends: 1= Low; 2= Medium; 3= High; 4= Extremely High; NA= Not Applicable; t= Temporary; p= Permanent; app= Applicable; 0= Negligible		

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6.7 IMPACTS DUE TO PROJECT LOCATION

The said project site is located in area surrounded by other industries. As all the rules and migration procedure is applied. The project site is owned by the company. Further, the project site is devoid of any human habitation hence evacuation of the project-affected persons will not be involved in this project. Thus, no resettlement and rehabilitation issues will be involved in the said project.

This project will be developed while undertaking minimum cutting for making terraces for construction while making minimum modifications in the terrain conditions and implementing environmental measures.

The topsoil removed from the site will be restored in dumps during construction period and in the post construction phase. The top soil will be spread on the unbuilt area of the plot and tree plantations and green belt development will be taken up. As the top soil removed from the site will be reused for the growth of plants, no adverse impact will be envisaged due to removal of topsoil from the site.

6.8 DESIGN PHASE

In general, the design of the said project optimized the use of best available technology in order to prevent or minimize potentially significant environmental impacts associated with the project as well as to ensure high level business and environmental performances. In pre-construction / design phase, a management system will be provided at design level for the reduction of impacts. Design of the said project will adhere to all standard technical requirements in order to avoid adverse impacts on the environment and human health. Efficient infrastructure will be developed. Procurement of construction materials from approved dealers will be ensured.

6.9 IMPACTS ASSOCIATED WITH CONSTRUCTION PHASE

Sr. No	Aspect	Impacts	Mitigation Measures
1	Economy Improvement	During construction phase, employment opportunities for local people will be generated. Raw material will be obtained locally increasing the economic value of area.	No specified mitigation measure is required. The contract is signed with the authorized construction companies. All of labor rules will applied on them.
2	Air Quality	During construction phase, suspended particulate matter are the main pollutants during the site	Dust emissions will be minimized through strict enforcement of onsite speed controls.

		development activities such as leveling of land, filling activities, transportation of construction material to the project site from various places. Fugitive emissions will be observed due to vehicular movement. But it will be negligible or temporary phenomenon.	The routes will be sprinkled with water regularly to reduce the amount of dust generated by construction vehicles. Construction machinery will be kept away from the walkways. All the vehicles carrying the construction material will be fully covered and well maintained. The inspection of the vehicles and construction machinery will do on regular basis. All vehicles and construction machinery will be properly tuned, serviced and monitored on regular basis.
3	Water Quality	During construction phase, water will be required for construction of structures, sprinkling on roads for dust suppression, domestic uses of construction workers	During this phase, water conservation practices will be given proper consideration.
4	Relocation of Utilities	The project site is already near other industries. The construction will not relocate the existing public utilities.	No mitigation measure is required.
5	Solid Waste Generation	During excavation of the site for foundation works and landscaping, solid waste will be generated. The waste consisted of metal cuttings, rejected materials, surplus material,	Recyclable material will be separated at source. The cement bags and other such items will be handed over to

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		paper bags, cement bags, empty cartons and broken glass pieces.	approve contractors on weekly basis. Other waste will be accumulated at waste area and will be taken by the municipal waste management company.
6	Noise Pollution	During construction phase, the major sources of noise will be due to operation of construction equipment. The anticipated noise will be mostly confined to the facility itself.	Several mitigation measures will be considered. For this purpose, most of the construction works will be done in day time. The advance machinery will be recommended to lower the noise and work efficiency. Proper PPEs (ears plugs and ears muffles) will be given to workers so that expose less to noise.
7	Ecology	The project site is located in industrial area. It was devoid of thick forest and vegetation.	After the construction, tree plantation will be done to act as pollution barrier as well as to enhance the aesthetic beauty of the area.
8	Worker's Health, Safety and Environment	The construction activities had the potential to pose negative impact on the health and safety of workers in case of unfavorable working conditions.	The contractor ensured that the workers and labors will be trained in safety procedures for all relevant aspects of the construction. Workers will be provided with proper safety equipment which

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			were required on the basis of nature of the work. First aid kits will be kept available on the site to ensure safe working environment for the labors and workers. As per the requirement warning signs will be displayed in local language. Proper fencing will be done around the site. A safety officer will be appointed at the site for risk assessment and ensure the safety of workers.

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6.10IMPACTS ASSOCIATED WITH OPERATION PHASE

During the operation phase different type of the process will be done. The possible impacts of the process of manufacturing, ETP & Boiler, etc is being evaluated as down here.

In this section, the combined environmental and socio-economic impacts associated with the said process of this project in operation phase are discussed. The impacts that are discussed are as follows:

Environmental Impacts

- Air emissions
- Noise
- Traffic
- Solid waste and by-products
- Wastewater
- Resource Consumption

- Abnormal conditions
- Occupational Health and Safety

Socioeconomic Impacts

- Employment Opportunity
- Community Development

6.11ENVIRONMENTAL IMPACTS

6.11.1 AIR EMISSIONS

POTENTIAL IMPACTS

Air emissions from the project are relatively small and specified. Fugitive dusts and emissions may result during raw material handling and storage which is relatively less likely to occur. Some volatile organic compounds may present due to miss-handling and unfortune events. Other potential sources for air emissions are combustion products (nitrogen oxides, sulfur dioxide, particulate matter, carbon monoxide) from standby diesel generators, boilers and combustion products from vehicles used for project activities. Air Emissions from boilers and generator include Smog producing compounds like nitrogen oxides and volatile organic compounds. The smoke of boilers and generator produce other compounds like, Particulate matter, Carbon monoxide, Sulfur dioxide, Air Toxins (Toxics), Greenhouse Gases, Wastewater (once-through cooling water, cooling system blowdown, boiler blowdown, water-side boiler cleaning and demineralizer regenerant. The emissions from standby generators will be less in concentration. The emission levels depend on the type and quality of fuel and the manner in which it is burnt.

MITIGATION MEASURES

The following mitigation measures will be implemented. The proposed mitigation measures to reduce the impacts on air quality during the operation activities are:

- Emissions from boiler are controlled by equipping with cyclone, scrubber and room
- Emissions from the dying unit, rooms and warehouse also pass through the ventilation system including filters
- Power Engines will be equipped with air emission control technology.

- Monitoring of Ambient air parameters (Particulate matter, SOx, NOx) emissions should be carried out on regular basis to ensure compliance with the PEQS.
- The inspection and the maintenance of the boiler and generator will be done on regular basis.
- Plantation of indigenous trees within the premises and along the boundary.

RESIDUAL IMPACT

If proper mitigation measures are effectively implemented, the residual impact of the proposed activities on the area's air quality is expected to be low in terms of significance, reversible.

6.11.2 NOISE

POTENTIAL IMPACTS

The main sources of pollution from noise are during raw material and finished good loading and unloading, vehicle movements, operation of machines. The increased noise may be a source of disturbance to workers, working near to the machines. The main source of the noise id boiler and power house unit. But this area is closed and separated from other operational areas. So, the Noise level during operation phase of unit will be limited to specific site. In the dying, unit latest machinery is planted that has low level of noise. Workers could be exposed to high noise levels for limited time, however only concerned staff will be working in the area with required personal protective equipment (PPE) to minimize or reduce the noise exposure.

MITIGATION MEASURES

The following mitigation measures will be undertaken in order to further reduce the noise levels:

- 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 from other machines to minimize the overall cumulative noise.
- Noise barriers should be implanted
- Noise area will not be open site. The source of noise will be in closed and covered place. Where the OSH standard will be applied.
- The repairing and the small source of noise will be removed if it will possible.
- PPEs are provided to workers

- Proper tree plantation has been done
- Noise monitoring will be carried out periodically.

RESIDUAL IMPACTS

Implementation of the mitigation measures proposed above will result in negligible to no residual impact due to unit noise on the surrounding environment.

6.11.3 TRAFFIC

The operational phase of the unit will result in increased traffic. However, the impact will be minimal. Vehicles will be well maintained to prevent unnecessary exhaust emissions and drivers will be appropriately trained.

MITIGATION MEASURES

The following mitigation measure will be implemented.

- Nighttime driving of project vehicles will be limited where possible.
- Vehicles will remain confined to defined access.
- The rote of the vehicles will be defined and given to drivers and security system.
- The road will be labeled according to the rules and regulations.
- Speed limits will be maintained.
- The timetable and schedule of the vehicles will be defined and the monitoring of vehicles will be done every time.
- Road signage relevant to the project traffic will be placed, where necessary.
- Community complaint register and other means will be adopted for the community to complain about non-adherence of traffic to speed limits, safe driving and other safety related concerns.
- All vehicle drivers will be trained in community safety aspects. Drivers will be trained in responsible and safe driving practices; safe speed limits for vehicles will be followed.

6.11.4 SOLID WASTE

Solid waste generated will be generated from process will be organic waste, from ETP (solid sludge), organic and domestic solid waste from the canteen and admin block will produce. Most of the generated waste will be recyclable. That goes to the waste companies. All the waste will be

segregated from its production line. The generated domestic solid waste will be handled as per area practices. If the waste management is not carried out properly, it can affect health of workers, pollution of soil, surface or ground water. All waste generated from the project will be managed by proposed controls. The environmental impacts will be minimized after the implementation of the proposed mitigations.

MITIGATION MEASURES

The following mitigation measures will be implemented:

GENERAL WASTE MANAGEMENT PRACTICES

During operational phase of the project, a proper waste management plan will be devised and implemented. Key elements of the waste management system will include the following:

ON-SITE HANDLING

- There will be separated bins for segregation of different type of waste
- Proper waste collection system will be ensured. For this purpose, waste bins are placed inside the boundary.
- The recyclable waste will be sent to waste contractors.
- The sludge of from the ETP plant will sold out to waste companies.
- The site in charge will ensure the separation of waste at production line.
- Proper person will be haired for the collection and removal of waste from the site.
- Records of generated waste should be maintained.
- All non-hazardous waste that can be recycled or reused will be handed over to the contractors.

OTHER MANAGEMENT MEASURES

- Training will be provided to personnel for identification, segregation and management of waste.
- All containers of waste will be labeled properly.
- All the container should be caped clean, making sure no Oster will produce in it.
- The proper waste management system will be applied.

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- Small bins and large containers will be provided on every waste producing site at defined place causing no risk to worker and machinery.
- In-house audits of the waste management will be undertaken on regular basis.

RESIDUAL IMPACTS

Proper implementation of the mitigation measures will minimize the residual impact from waste. Monitoring and inspection will be undertaken to ensure the implementation of mitigation measures.

6.11.5 WASTEWATER

Wastewater will be produced from process and domestic uses. The wastewater may include different type of chemicals due to usage of dyes.

Mitigation Measures

- For treatment of wastewater, effluent treatment plant will be installed
- Wastewater will be disposed off in Ruhi Naala Drain, the management has obtained approval.
- The operational maintenance of ETP will be monitored on daily basis.

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RESIDUAL IMPACTS

Implementation of the proposed mitigation measures and regular monitoring is not likely to leave any significant impact of the waste water from the unit.

6.11.6 ABNORMAL CONDITIONS

Abnormal events might include loss of power and diesters. The unit will have its own backup power supply using diesel generator to protect against a loss of power. This site is fare from river so no changes of flood. As the project will be constructed above to the ground and high liniment so when the heavy rain occur the water flow will stand on project site.

6.11.7 OCCUPATIONAL HEALTH AND SAFETY

This section discusses the occupational health and safety impacts of the operation of said unit. Physical hazards may include exposure to same-level fall hazards due to slippery conditions. In a variety of situations, a worker can be exposed to lifting, carrying, and repetitive work and work posture injuries.

MITIGATION MEASURES

In order to reduce the physical hazards and other health and safety issues that may be encountered at workplace, following will be followed.

- Proper training will be provided for the proper usage of machineries and personal protective equipment (PPE) will be provided. It will be ensured that the individual who has received the correct training is operating a particular machine.
- Site supervisor or health and safety should be present on site
- Risk Assessment will be done on daily basis
- Emergency response plans will be remained active.
- Monitoring cameras and sensors will be implanted at the work site
- OSHA polices will be implemented on site
- Regulation of the health and safety polices will be done on regular basis
- Regular housekeeping practices will be ensured by keeping the floor dry and during washing; proper protective equipment are being used. Restricted entry should be ensured during washing.
- Training of staff in the handling of lifting materials.
- Timely maintenance and repair of electrical equipment will be conducted.
- Implementation of work rotations, provision of regular work breaks.
- At workplace, first aid facilities will be maintained at readily accessible places.

6.12SOCIOECONOMIC IMPACTS

A summary of potential socio-economic impacts of the project is presented in Table below.

Table 6-4: Potential Socioeconomic impacts of the project

Impact	**Beneficial**	**Adverse**
Economic	• Employment generation • Procurement of equipment and services • Local authority business tax / rates revenue	Negative economic Impacts are not anticipated

	• Increase in property value	
Social	• Indirect beneficial community impacts from employment • Provision of training to employees and workers	Risks of occupational and environmental health issues.

By implementing the following mitigation measures, impact to community can be minimized.

- All vehicle drivers will be trained in community safety aspects.
- The company will maintain a social complaint register at the site to document all complaints received from local communities. The register will also record the measures taken to mitigate these concerns.
- It will be ensured that generators, vehicles, and other potentially noisy equipment used are in good condition. Noise from generators, vehicles and other equipment will be kept to the minimum through regular maintenance.
- Maximum number of unskilled and semi-skilled jobs will be reserved for the local communities.

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6.12.1 EMPLOYMENT OPPORTUNITIES

The project is expected to have positive impact on economic condition of locals. Employment opportunities will be generated due to project activities.

Similarly, the operation of the project will create far greater number of indirect income resources for example income resource for transporters for the transportation of the raw materials, procurement of required goods from local market etc.

Overall, the project will have a positive impact on the employment opportunities of Pakistan.

6.13 POTENTIAL ENVIRONMENTAL ENHANCEMENT MEASURES

6.13.1 GREENBELT DEVELOPMENT

Apart from functioning as a pollutant sink, green belts provide other benefits like:

- Green belt helps in noise abatement for the surrounding area. Thus, it is recommended as noise barriers.

- Green belt will help to regulate the air quality
- Green belt also absolves extra heat help to maintain the change of enthalpy
- Green belt will provide natural refreshment to workers
- It will increase the ornamental beauty of the industry
- Green belt helps in achieving bio diversity by providing possible habitats for birds and animals.
- Green belts increase the aesthetic value of the site.

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CHAPTER 7: ENVIRONMENTAL MANGEMENT AND MONITORING PLANS

7.1 GENERAL

This EIA provides the Environmental Management Plan (EMP) of the project to keep it environment benign as well as the monitoring plan to ensure the compliance of the established EMP.

Outline and key features of the EMP for construction and operations phase is presented in sub-sections below. 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 regular monitoring. This section also underlies 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.

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7.2 OBJECTIVES OF ENVIRONMENTAL MANAGEMENT PLAN

The primary objectives of the EMP are to:

- Facilitate the implementation of the mitigation measures identified
- 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.
- To apply the rules and regulation of the Punjab Environmental laws and international standards
- Making of environmental managemental polices
- Reviewing, regulating and improving of environmental policies on regular basis.

7.3 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. Concerned Departments 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.

7.4 COMPONENTS OF THE EMP

THE EMP CONSISTS OF THE FOLLOWING:

- Management plan
- Monitoring Plan
- Communication and documentation
- Institutional capacity
- Environmental training

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7.5 ENVIRONMENT MANAGEMENT PLAN

It lists all the mitigation measures identified in the EIA and the associated environmental or social aspect in line during operational phase with the administrative framework involving all the responsible implementing authorities who are required to take the planned actions/measures. It enhances project benefits by reducing its impacts and making it environmental friendly.

Table 7-1: Environmental Management Plan

Objective	Management Action	Responsibility	Time framework	Residual impact
Construction phase				
Employment Opportunities				
To promote the employment of local persons	Recruitment of local workers will be undertaken without discrimination and in accordance with company recruitment policy by contractors involved in construction	Contractor	On commencement of construction activities	Unemployed people of area will get job opportunities and their standard of living improved
To promote the use of local service providers	Local procurement of goods and services will be undertaken wherever possible and cost effective and where practicable to the project	Contractor	On commencement of construction activities	Indirect job opportunities
Safety during construction				
To ensure safety on construction site	• Safety signage will be put in relevant places within the construction site • Site Health and Safety officer is present • Construction drivers are subjected to public safety awareness	Contractor/Environmental manager/HSE manager	On commencement of construction activities	Safety of workers will be ensured by implementing proposed mitigation measures.

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	• Reckless driving by construction workers will be prohibited and monitored • Workers will be given PPEs such as; helmets, mask, ear-plugs/muffs, safety boots, etc. and its use will be strictly enforced • Workers will be trained on the regular basis regarding personal safety • Incidents will be reported directly to the concerned authority			
Construction waste management				
To prevent the contamination of soils and water resources due to inappropriate management and disposal of waste	• The construction site will have litter bins for waste collection • Recycling or reuse of waste wherever possible. • Application of a good strategy to collect, remove and safely dispose of waste on daily basis to ensure a clean environment in the factory site	Contractor	Throughout construction stage	Waste was disposed of/reused/ recycle or resale as per practices of area.

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	• Integrated waste management system will be adopted for the proper management of the waste at site • At the end of the construction phase, left-over waste will be removed by using the standard waste management procedures • All the idle machinery and equipment will be immediately removed from the site • Scrap and the debris will be removed from the site at the end of the construction stage after appropriate segregation of the material • All the domestic waste produce by the worker will be given to the municipal waste management company			
Pollution control management				
To contain spillages	• Proper maintenance of construction vehicles and equipment will be undertaken	Contractor	On-site establishment	Potential for accidental release of materials during

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	• Appropriate environmental security measures including shovels and plastic bags etc will be provided to prevent accidental release to ground. • Appropriate procedures and protocols will be established and monitored for materials transport and handling whilst on the site. • Emergency response plan will be developed for any incident.			transport and handling on the site should be minimized.
To manage sewage	Portable toilets will be provided at site.	Contractor	On commencement of construction	Portable toilets will be cleaned properly and regularly
Protection of biodiversity				
To avoid unnecessary disturbance of and quick recovery of biodiversity in the plant site	• Avoid destruction of biodiversity outside the designated factory construction site • Minimize clearing of vegetation during construction	Contactor	Throughout construction phase	Although the land is industrial in nature but vegetation loss cannot be avoided, but successful restoration, improvement and long-term management of the surrounding areas and

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	• Surface soil excavated during construction to be placed back on the sub-soil to fast vegetation recovery • Prepare and implement an appropriate landscaping programme to help in re-vegetation of affected project areas after construction • The flora of the site will be restored at the end of the construction phase by landscaping and planting native vegetation • Defining the route for vehicles and machinery transport, defining the work area, the pathway for the worker area will also be defined and policy will form for the minimum use of outer land during construction.			maintenance of planted trees will be provided
Air quality & dust management				
To minimize the dust entrainment during construction	• Regular surface wetting will be implemented on dusty sections in the factory construction site	Contractor	On commencement of construction activities	Dust propagation will be limited to construction area and will not influence local community. However,

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	• Strict on-site speed controls will be enforced for construction vehicles • All trucks hauling soil, sand and other loose materials will be covered • No excavation activity will be carried out during windy days • The watering of the route will be done on regular basis • Specified routes will also help to overcome the dust to evolve. • Fuel-efficient and well-maintained haulage trucks will be employed to minimize exhaust emissions • Construction workers will be sensitized on measures to reduce air pollution			workers were supplied with dust masks especially on dry days.
Noise				
To minimize disturbance due to noise	• Loading and unloading of materials will be done carefully to reduce noise disturbances to surrounding households	Contractor	On commencement of construction activities	within PEQs

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	• Residences are at a safe distance from site so no disturbance will be envisaged. • Drivers will be instructed to avoid unnecessary gunning of vehicles, hooting and buzzing. • Regular maintenance of the machinery will be done to reduce the noise • Vehicles will be tuned on regular basis • The inspection of the vehicles will be done by health and safety officer on regular interval			
Occupational health & safety				
To ensure healthy and Secure/safe environment in the construction site for all workers	• Management will ensure that fire extinguishers should be located in strategic and visible places • Health and Safety data sheet will be design and formed by Safety officer.	Contractor	Throughout construction phase	Record of all incidents will be maintained and reported to HSE manager.

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	• All vehicles and construction equipment will be under control of competent personnel • Inspection of material and harmonization to the occupational health and safety standards. • Adequate security for workers will be provided during construction • Sensitize workers to operate in teams			
Operation phase				
Wastewater management				
Degradation of surface waters quality due to process water and sewage direct disposal	• For treatment of wastewater, effluent treatment plant will be installed which is the part of the extension. • priority parameters will be tested on monthly basis and all parameters on quarter basis. • Wastewater will be disposed off in Ruhi Naala Drain, the management has obtained approval.	Dawn Frozen Foods Company (pvt) Ltd	Throughout project life cycle	None

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	• The operational maintenance of ETP will be monitored on daily basis.			
Air quality management				
Particulate emissions and stack emissions	• Emissions from boiler are controlled by equipping with cyclone, scrubber and room • Power Engines will be equipped with air emission control technology. • Monitoring of Ambient air parameters (Particulate matter, SOx, NOx) emissions should be carried out on regular basis to ensure compliance with the PEQS. • The inspection and the maintenance of the boiler and generator will be done on regular basis. • Plantation of indigenous trees within the premises and along the boundary.	Dawn Frozen Foods Company (pvt) Ltd	Throughout operation phase	Local air quality will be virtually unaffected and will be based on PEQs
Noise & vibration				

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To minimize disturbance of communities due to noise	• All the machinery will be installed and operated in a closed hall and from operation of machinery noise will not be a problem for the residents in the area nearby. Further Administration of the unit will take the precautionary measures to avoid the noise emissions. There is no possibility of Noise pollution • A thick greenbelt will be developed all around the plant which will be acting as noise barrier. • Introduction of control and monitoring rooms having good sound insulation properties. • All the workers will be provided with ear plugs. • Latest technology will be implanted which has low level of noise. The boiler and power house (closed system) will be planted away from the admin and the work area.	Dawn Frozen Foods Company (pvt) Ltd	Throughout project life cycle	Noise level will be based on PEQs
Traffic & transport				

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Increased heavy vehicles traffic both locally and nationally.	• Maximize the use of the rail network, when available, for bulk deliveries and abnormal loads. Restricting delivery hours to reduce noise nuisance; avoid heavy truck movements in the night hours will be considered whether deliveries should be scheduled to avoid peak times to reduce congestion • Routes for the transport and speed limits will be defined for vehicles and machinery	Management of Dawn Frozen Foods Company (pvt) Ltd	Throughout project operation	The traffic has the potential to contribute to congestion and lead to complaints due to noise/vibration nuisance on a local basis. However, the study indicates that there will not be a significant impact.
HSE				
To minimize loss work injury/hazards/incidents/ accidents	• 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. • Risk assessment will be done on daily basis by HSE officer	Environmental manager/HSE of Dawn Frozen Foods Company (pvt) Ltd	Throughout life cycle of project	Potential of injuries will be minimized

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	• Permits and safety data sheets will be filled on regular basis and record will be maintained • 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			
First aid				
To ensure safety and health	• First aid box will be available at the site • First aid training will be given to the employees on the regular basis • Numbers of all the concerned/authorized persons that will be contacted in the case of emergency will be displayed on-site	Environmental manager/HSE of Dawn Frozen Foods Company (pvt) Ltd	Throughout life cycle of project	None
Fire hazard				

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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 plant • 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 will not be permitted in the vicinity of the plant • 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 ✓ Emergency evacuation plan is annexed.	Environmental manager/HSE	Throughout life cycle of project	Potential of disaster will be minimized by suggested mitigation measures implementation
Employment				

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To provide job opportunities and helping in improving living standard of people	• During this phase, skilled and unskilled labour will be required. • 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 labour and after completion of construction phase serve as a permanent business opportunity.	Dawn Frozen Foods Company (pvt) Ltd	During construction and operation phase	Direct and indirect jobs

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7.6 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.

Table 7-2: Environmental Monitoring Plan

Env. Components	Project Stage	Parameters	Instrument	Standards	Monitoring			Institutional Responsibility
					Location	Frequency	Duration	
Air	Construction	PM_{10}, SO_2, NO_2, CO, SPM ,O_3	Air Quality Monitors/Gadgets	PEQS	Project site	Twice during construction	As per approved testing method	Contractor through approved monitoring lab
	Operation	Stack emissions	Air Quality Monitors/Gadgets	PEQs	stack	Quarterly	As per approved testing method	Through approved third party/monitoring lab

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Noise Levels	Construction	Noise levels on dB(A) scale	Digital Sound Meter	PEQs	Project site	Twice during construction	Reading to be taken at 15 seconds interval for 15 minutes every hour and then averaged	Contractor through approved monitoring lab
	Operation	Noise levels on dB(A) scale	Digital Sound Meter	PEQs	Project site	Quarterly	Reading to be taken at 15 seconds interval for 15 minutes every hour and then averaged	Through approved third party/monitoring lab
Wastewater	Operation	BOD, COD, TSS etc	Through approved equipments	PEQs	ETP	Monthly	As per approved testing method	Through approved third party/monitoring lab

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7.7 INSTITUTIONAL CAPACITY OF THE UNIT

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

7.7.1 Primary Responsibilities

The primary responsibility for implementing different aspects of the EMP within the company lies with the concerned departments of Dawn Frozen Foods Company (pvt) Ltd .

7.7.2 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.

7.7.3 Supervision & Monitoring

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

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7.7.4 Communications & Documentation

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

7.7.4.1 Meetings

As environment is multidisciplinary subject with environmentalist having a dynamic role therefore In-charge environment would be considered as integral part in both constructional and operational team. Participation of Environmental in-charge in daily morning meeting and any other special meeting is mandatory. Besides internal meeting HSE in-charge/Environment in-charge is also responsible to conduct meeting with local in keeping administration in liaison.

7.7.4.2 Changes-Record Register

A change-record register will be maintained at the site, in order to document any changes in project design. These changes will be handled through the change management mechanism.

7.8 ENVIRONMENTAL TRAINING

Environmental training will help to ensure that the requirements of the EIA and EMP are clearly understood and followed by all project personnel in the course of the project.

Table 7-3: Training Program

Target audience	Trainers	Contents	Schedule
Selected management staff	Contractors	Key finding of mitigation measure	After every five months
All personnel	HSE Officer	Mitigation measures	Monthly
Technical Staff	HSE Officer	Waste disposal or sale out status, vehicle movement restriction and other mitigation measures	After every three month
Other staff	HSE Officer	Waste disposal, resource conservation and other mitigation workers	Monthly

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7.9 EQUIPMENT MAINTENANCE DETAILS

The project is about Frozen Foods Processing industry namely "Dawn Frozen Foods Company (pvt) Ltd ". Machines in said unit will be maintained on the regular basis. Following is the maintenance details for the machines and equipments:

Task	**Weekly**	**Monthly**	**Semi-Annually**	**Annually**
Visual Inspection	✓			
Testing and Inspection		✓		
Maintenance of Machines				
Fire Mains and Nozzles				
Containers/Cylinders				
Control and Section Valves				

7.10 ENVIRONMENTAL BUDGET

Approximately PKR 4 million budget will be reserved for tree plantation, solid waste management, wastewater management and environmental monitoring. Monitoring tests for ambient air quality, noise and groundwater quality will also be conducted.

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CHAPTER 8: CONCLUSION AND RECOMMENDATIONS

8.1 CONCLUSION

The report presents Environmental Impact Assessment (EIA) of the said unit. EIA of said Project is performed according to guidelines of EPA. 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 EIA showed all anticipated impacts (both positive and negative), associated with the project. Appropriate mitigation measures as explained in the environmental study will strengthened the environment and promote sustainable development.

Based on overall assessment of the environmental impact of the project, it is concluded that the economic benefit from the project is not at the cost of environment. From the historical records and vast experience in sustainable development keeping environment as integral part of manufacturing system, Dawn Frozen Foods Company (pvt) Ltd is worthy of Environmental approval. Further the project is not likely to cause any significant adverse impact on the physical and biological environment but positive impact on social development and economic prosperity 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 the Punjab Environmental Protection Agency, subject to payment of the requisite scrutiny fee by the proponent of the project.

8.2 RECOMMENDATIONS

The Environmental Impact Assessment study and survey results are finally evaluated to recommend the following:

- Implementation of EMP must be given top priority.
- Proper PPEs including ear plugs, ear muffs, mufflers, goggles, gloves and shoes etc. should be provided to workers

- Train workers to use PPEs
- Advise workers to follow SOPs.
- Equipment maintenance and efficiency must be checked.
- No compromise on public health and environment should be allowed.
- Waste minimization practices should be employed and workers should be encouraged to adopt such methods.
- Wages should be distributed on time.
- Proper tree plantation plan should also be developed in order to make the unit environment friendly.
- Small waste storage bins should be installed at different corner for proper waste collection and discharge.
- Proper dispensary and first aid box should be provided for workers
- Smoking should be avoided within premises of project site and near fuel storage areas.
- The Security Guards shall also be trained to act in case of all possible emergency situations. The fire alarms can be activated to signal evacuation. At the same time, communication shall be made with hospitals, emergency services and police for urgent support.
- The proposed Environmental Management & Monitoring Plan should be implemented.
- The construction and installation should be completed in guidelines of accorded Environmental Approval.

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