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*Environmental Impact Assessment Report for Extension at
M/S Nestle Pakistan Limited Kabirwala Factory, District Khanewal*

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EXECUTIVE SUMMARY

Title and location of the project:

The subject project is the extension at Nestle Pakistan Limited Kabirwala Factory, the Proposed installation of 1.5g Nescafe filling and packing/New filling machine/200kgs butter oil drums filling machine, at existing facility of Nestle Pakistan Limited located at 7 Km Kabirwala-Khanewal Road, District Khanewal. The capacity of said project will be for Coffee 25kg/hr and Butter oil will be 2T/hr. The approximate cost for the project will be 344 million rupees. The project can be considered under category B clause IV of Schedule II of Review of IEE and EIA Regulations, 2022. TORs of the study under clause 5 (f) of policy and procedure for the filing, review, and approval of environmental assessment are annexed as **Annexure-A** with this EIA report.

Location

The project site is present in the existing unit premises of Nestle Pakistan Limited Kabirwala Factory. Located at 7-Km Khanewal-Kabirwala Road, District Khanewal.

Land co-ordinates of the Nestle Kabirwala Factory are as follows:

Land Coordinates	30°22'20.37"N	71°52'57.69"E
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Environmental Impact Assessment Report for Extension at M/S Nestle Pakistan Limited Kabirwala Factory, District Khanewal



Figure 1: Google Earth Map showing Nestle Kabirwala Factory

For further details please consult the Layout plan & colored Google Earth Maps (A3-size) of the project site attached as **Annexure-B**.

Project proponent

The company has authorized the Factory Manager Mr. Rizwan Islam, having CNIC No 35202-2351367-7. The correspondence should be done on Mailing address “Nestle Pakistan Limited, Kabirwala Factory 7-Km Khanewal-Kabirwala Road, District Khanewal”.

For further details CNIC copy of proponent and other relevant documents are attached as **Annexure-C**.

Environmental consultant

Pak Green Enviro-Engineering (Pvt.) Ltd, as independent consultants, has been appointed by the proponent to conduct an Environmental Impact Assessment study.

Lahore Office: Pak Green Laboratory (EPA Certified), 46 M, Gulberg III, Lahore.

Islamabad Office: Suite No. 14 Shaukat Plaza, I-10 Markaz Islamabad.

Peshawar Office: House # 01, Old Bara Road, University Town, Peshawar.

Contact #: +92-4235441444, +92-303-4442334

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For a detailed company profile & study team see *Chapter # 1 “Introduction”*.

A brief outline of the proposal

the Proposed installation of 1.5g Nescafe filling and packing/New filling machine/200kgs butter oil drums filling machine, at existing facility of Nestle Pakistan Limited located at 7 Km Kabirwala-Khanewal Road, District Khanewal. The capacity of said project will be for Coffee 25kg/hr. and Butter oil will be 2T/hr. The approximate cost for the project will be 344 million rupees.

The construction and installation of the subject project will be started only after obtaining the NOCs from all concerned government and local authorities including NOC of EPA Punjab.

The project can be considered under category B clause IV of Schedule II of Review of IEE and EIA Regulations, 2022.

Major Impacts during Constructional phase and their mitigation

Major impacts and their mitigation are given in below table:

Aspect	Constructional phase	Mitigation
Health & Safety issues	Health and safety issues may be arisen if mitigation measures are not adopted. due to machinery handling, loading/ unloading, lack of training of contractor/ staff and constructional activities.	HSE Trainings of contractor/ labors involved in the construction will be ensured by SHE Staff. PPEs will be provided to workers during constructional activities.
Gaseous emissions	Flue gases may be generated due to vehicles transportation	Regular tuning and inspection will be ensured to keep the emissions below the PEQs.
Particulate matter (PM)	Particulate matter may be generated during the constructional and transportation activities.	Regular tuning and inspection will be ensured to keep the emissions below the PEQs. Sprinkling of water on unpaved area during the constructional activities

		will be ensured to avoid ambient dust.
Solid Waste	Solid waste may be generated due to constructional activities and domestic sources.	Because the proposed project are located in the premises of Nestle Kabirwala factory which has signed agreement for hazardous and non-hazardous waste with certified waste management company for the scientific disposal of the waste.
Soil Contamination	Soil may be contaminated due to leaching of oil, fuel, any stored oil used during constructional activities, etc.	Storage of such material will be done on the paved area if any spillage occurs, the contaminated soil be handed over to waste management company. The Nestle has signed agreement for three years with the 3R incinero and waste management company for disposal of hazardous or non-hazardous waste.
Waste water	Waste water may be generated from domestic sources.	Wastewater treatment plant exist at the Kabirwala factory for the treatment of wastewater. Estimated 30 gallons/day water may be generated during construction phase.
Noise	Noise may be generated due to construction machinery and vehicles transporting materials	Tunning of vehicles will be ensured and PPEs will be provided to the workers.
Impacts on flora and fauna	The proposed site is open plot with no vegetation and fauna.	As the proposed site is within walled boundary of unit and installation site has clear open land with no vegetation so, no tree cutting/

		habitat loss issue involved. Hence impact is Nil.
Socioeconomic	Positive impact due to generation of Employment opportunity	Native will be preferred for the job if meet the qualification criteria.

Major Impacts during operation phase and their mitigation

Major impacts and their mitigation are given in below table:

Aspects	Operational Phase Impacts	Recommendations during Operation phase
Gaseous Emission and Particulate Matters	Gaseous emission from the said project will be nil, however emissions from the stack of biomass project may occur if mitigation measures are not implemented.	Scrubbing system at the stack of the biomass boiler will be installed to control the gaseous and particulate matter emissions at the PEQs level.
Noise	Noise may exceed the permissible limit if the mitigations are not placed.	Ear plugs/muffs should be provided to workers in case of high noise during working hours. Monitoring should be conducted on regular basis as per EPA PEQS and record should be maintained.
Solid Waste	Ash will be generated from biomass project	Ash will be handed over to the contractor for recycling.
Wastewater	Waste water will be generated from domestic sources only.	Wastewater treatment plant exist at the Kabirwala factory for the treatment of wastewater. Estimated 50 gallons/day water may be generated during operational phase. Compliance of PEQS for Municipal and Liquid Industrial Effluents will be ensured.

Health and safety issues	Occupational health and safety issues may arise if proper training of the staff will not be conducted.	Training of workers should be conducted regarding Health Safety & Environment. Use of PPEs should be implemented at workplace. Controlled access to the area, only with work permit access should be allowed. Adequate firefighting/ emergency response measures should be available at site. First aid measures/ medical facility already available at site in case of injury. Safety signs should be placed inside the premises and at all sensitive areas etc. Coffee & butter oil related machinery/ safety equipment should be marked and tagged properly and should be regularly inspected. Inspection of the machinery on a regular basis will be ensure to avoid any safety hazards.
Impacts on flora and fauna	Positive Impact	Due to Plantation within the premises will enhance the flora and fauna.
Socioeconomic	Positive Impact	Community wellbeing should be considered and anticipated measures are recommended to preserve the local culture and ecosystem.

		Local people should be preferred for the employment if they meet qualification criteria as per company policy.
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Proposed Environmental Monitoring

To oversee the environmental performance of the project through its lifecycle enforcing the PEQS an Environmental Monitoring Program is formulated which ensures effective surveillance of the environmental parameters at various stages of the project development and compliances with PEQS and legal obligations. Monitoring for Environmental Parameters is recommended:

Gaseous Emission and Particulate Matter/ Dust

Monthly monitoring of PEQs in this regard will be performed by EPA certified laboratories and reporting will be submitted to the EPA, as collectively of the Kabirwala factory, on quarterly basis.

Noise

Monthly monitoring of PEQs in this regard will be performed by EPA certified laboratories and reporting will be submitted to the EPA, as collectively of the Kabirwala factory, on quarterly basis.

Ambient Air Quality

Monthly monitoring of PEQs in this regard will be performed by EPA certified laboratories and reporting will be submitted to the EPA, as collectively of the Kabirwala factory, on quarterly basis.

Water

Monthly monitoring of PEQs in this regard will be performed by EPA certified laboratories and reporting will be submitted to the EPA, as collectively of the Kabirwala factory, on quarterly basis.

CHAPTER # 1

INTRODUCTION

This section of the report provides an overview of the rationale of the project, objective of the project, why it is to be installed, purpose of the report and approach adapted to conduct the Environmental Impact Assessment (EIA) study for the Proposed installation of 1.5g Nescafe filling and packing/New filling machine/200kgs butter oil drums filling machine, at existing facility.

Purpose of the report

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

- Policy and procedures for filing, review and approval of environmental assessments.
- Guidelines for the preparation and review of environmental reports.
- Guidelines for public participation.
- Guidelines for sensitive and critical areas.
- Detailed sectorial guidelines

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

Scope of study

The scope of the study includes a baseline survey of the proposed project, collect relevant data from primary and secondary sources, assess the impacts related to the subject project, suggest the mitigation measures to control the anticipated impacts, formulation of the environmental

monitoring program to check the environmental parameters at PEQS, prepare an Environmental Management plan to implement the recommended mitigation measures, consultation with the stakeholder or nearby community to know their concerns regarding the subject project.

Identification of the project:

According to the *Review of IEE/ EIA Regulations 2022*, the proposed project can be considered under category B clause IV of Schedule II of Review of IEE and EIA Regulations, 2022.

Project title:

The proposed project to which Environment Impact Assessment (EIA) study required is entitled “the Proposed installation of 1.5g Nescafe filling and packing/New filling machine/200kgs butter oil drums filling machine, at existing facility, located at 7 Km Kabirwala-Khanewal Road, District Khanewal.”.

Project benefits/ objectives:

- To establish a business for the proponent.
- Provide job opportunities to the local public.
- Contribute to the national economy of the country.
- Project will function in a sustainable way.

Project proponent

<i>Proponent</i>	<i>Mr. Rizwan Islam</i>
<i>Designation</i>	<i>Factory Manager</i>
<i>CNIC #</i>	<i>35202-2351367-7</i>
<i>Resident of</i>	<i>House # 337 B, Phase 12, EME, DHA Lahore</i>

CNIC and other relevant documents are attached as **Annexure- C**.

Project consultant:

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

Lahore office: Pak Green Laboratory (EPA Certified), 46 M, Gulberg III, Lahore.
Islamabad office: Suite No. 14 Shaukat Plaza, I-10 Markaz Islamabad.
Peshawar office: House # 01, Old Bara Road, University Town, Peshawar.
Contact #: +92-4235441444, +92-303-4442334
Email: info@pakgreen.pk

The current study was carried out by the following professionals:

Sr. #	Name	Qualification	Role in EIA
1	Abdul Hafeez Nasir	Ph.D Environment, LLB	Team Leader
2	Sabeera Tauheed	M.Phil Environmental Sciences	Report writing
3	Hassan Afzal Khan	M.Phil Environmental Sciences	Report Reviewer
4	Imran	BS Environmental Engineer	Reviewed the Designed parameters
5	Husnain Ali Naqvi	Law Graduate	Legal aspects of report
6	Umair Rasheed	BS Chemistry	PEQs Monitoring
7	Zaira Tasneem	BS Psychology	Socio economic Survey

Nature, size and location of the proposed project:

The proposed project to which Environmental Impact Assessment (EIA) study required is entitled as the Proposed installation of 1.5g Nescafe filling and packing/New filling machine/200kgs butter oil drums filling machine, at existing facility of Nestle Pakistan Limited located at 7 Km Kabirwala-Khanewal Road, District Khanewal. The capacity of said project will be for Coffee 25kg/hr and Butter oil will be 2T/hr. The approximate cost for the project will be 344 million rupees.

Location

Project site is located at 7 Km Kabirwala-Khanewal Road, District Khanewal. The proposed setup will be installed within the Nestle industrial premises.

For further details please consult the layout plan & google earth map of the project site attached as **Annexure-B**.

Methodology of EIA study & report writing:

For the purpose of this report, environmental and social baseline data and conditions at/ around the project site has been undertaken. The methodology adopted to conduct EIA Study includes Review of Layout Plan, detail meetings with the client, orientation session, development of

data acquisition plan, Analysis of data, review of existing data, primary & secondary data collection survey, Screening of Potential Environmental Impacts and Mitigation Measures and also interviews with people near the project area has been conducted to collect their opinion regarding the proposed project and after findings it has been concluded that the project will not have any major adverse impacts on the socio-economic environment of the existing community.

Screening

According to the Review of IEE/ EIA Regulations 2022, the proposed project falls under Category B, Clause IV of Schedule-II.

CHAPTER # 2

ANALYSIS OF ALTERNATIVES

This Chapter deals with the analytical overview of different alternatives that have been considered. The analysis has been carried out critically so as to justify the need of the Project and to select the most feasible alternative. Besides the economic viability; environmental sustainability and social soundness of the proposed Project has also been considered while analyzing different alternatives.

THE NO PROJECT ALTERNATIVE

Adopting zero-alternative would mean abandoning all the potential that the site offers to investor(s), contribution to government revenue and even local community livelihoods' improvement.

LOCATION/SITE ALTERNATIVES

To fulfill the commercial aspects of the project under reference of this EIA Report, it is to be sited at a place where commercial processing activity is either already going on or there are bright prospects of the same. Concurrently, it must also meet the legal requirements of the Punjab Environmental Protection Act, 1997 (Amended 2012). Availability of land at the best convenient place is equally important among other considerations for the site selection. Availability of access roads, communication facilities, electricity, basic infrastructure, sewerage etc. is yet the other necessary requirements.

Obviously, environmentally sound, neat and clean environment are the other considerations for site selection. The project will also facilitate the people of the area with increasing the opportunity of employment, and other related facilities.

Keeping these requirements and their feasibility and other basic infrastructural requirements, the selected site is ideally suited for Construction of the subject unit.

ALTERNATIVE SITE

No Alternative site has been considered due to insignificant environmental impacts. The proposed site fulfills the site selection criteria.

MODIFIED CONSTRUCTION TECHNOLOGY ALTERNATIVES

As the project site is said project is proposed, there are no construction technology alternatives rather some alteration/renovation of the building will be done.

TECHNOLOGY ALTERNATIVES

M/s Nestle Pakistan Limited will install the best efficient machinery of the plant the proponent is ensuring the technology equipped with pollution abatement system.

A state-of-the-art system of Nestle controls the operations of the filling. It used digital feedback and control system to adapt to filling requirements. The filling plant will have an industrial grade keypad, display and electronic control box to make safe for its operation. Filling operation does not start until the clamping is properly secured, and a safety signal is given to the control system. The system used a state-of-the-art calibration mechanism.

CHAPTER # 3

DESCRIPTION OF THE PROJECT

Type and category of project:

Subject project for which this EIA study has been conducted is the Proposed installation of 1.5g Nescafe filling and packing/New filling machine/200kgs butter oil drums filling machine, at existing facility of Nestle Pakistan Limited located at 7 Km Kabirwala-Khanewal Road, District Khanewal. The capacity of said project will be for Coffee 25kg/hr. and Butter oil will be 2T/hr. The approximate cost for the project will be 344 million rupees.

According to the Environmental Protection Agency, Government of the Punjab, Lahore, the project can be considered under category B, clause IV of Schedule II of Review of IEE and EIA Regulations, 2022.

Project objectives

Main objectives of the proposed project are given below:

- To establish a business for the proponent.
- Provide job opportunities to local public.
- Contribute to the national economy of the country.
- Project will function in a sustainable way.

Proposed location:

Land Coordinates	30°22'20.37"N	71°52'57.69"E
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The proposed setup will be installed within the industrial premises.



Figure 4: Google Earth Map Showing Nestle Kabirwala Factory

For further details please consult the Layout plan & colored Google Earth Maps (A3-size) of the project site attached as **Annexure-B**.

Existing land use:

The land proposed for the installation of proposed the Proposed installation of 1.5g Nescafe filling and packing/New filling machine/200kgs butter oil drums filling machine, at existing facility of Nestle Pakistan Limited is under the ownership of M/s Nestle Pakistan Limited an open area free of any activity.

Road access:

The Nestle factory is located on the Khanewal-Kabirwala main road and proposed activities within the premises of the factory.

Cost and magnitude of the project:

The current status of the project is proposed, the production capacity of said project will be for Coffee 25kg/hr. and Butter oil will be 2T/hr. The approximate cost for the project will be 344 million rupees.

Schedule of implementation:

The project is proposed installation of 1.5g Nescafe filling and packing/New filling machine/200kgs butter oil drums filling machine, at existing facility of Nestle Pakistan Limited which is expected to be completed within a few months after the issuance of approval from the

relevant departments.

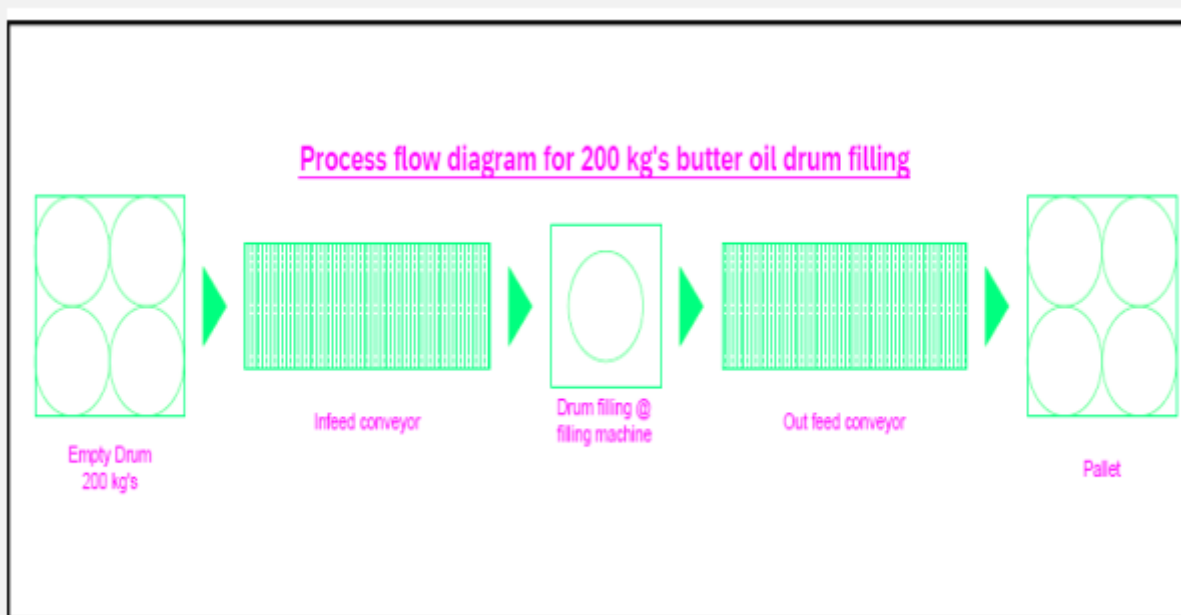
Project description:

The Proposed installation of 1.5g Nescafe filling and packing/New filling machine/200kgs butter oil drums filling machine, at existing facility at M/s Nestle Pakistan Limited, Kabirwala factory, district Khanewal. Purpose of the said project is to install the new machinery to produce the 1.5g Nescafe and 200kgs butter oil drums for the country economy.

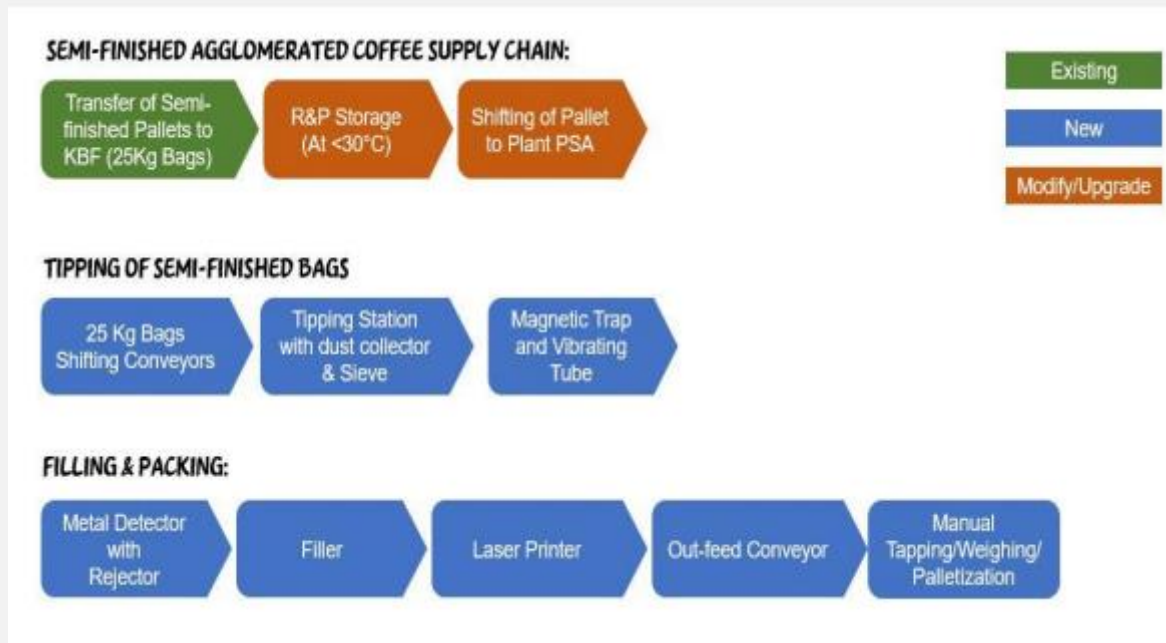
Silent features of the project:

Purposes of project:	Filling of Coffee and Butter oil
Total Capacity:	25kg/hr Coffee and 2 ton /hr Butter oil.
Qty. of Coffee Machine:	01
Qty. of Butter Oil Machine	01
Cost of the project:	Rs. 344 million (Approx.)
Power Requirements:	N/A
Solid Waste:	Packaging and domestic
Liquid Waste:	Only domestic

Process Flow of Butter Oil Filling Plant:



Process Flow of Coffee Filling Plant:



Water requirement:

In the proposed project ground water is available from the existing factory.

Solid waste:

During operational stage, only packaging and domestic waste will be generated from the said project which will be handed over to certified contractor for scientific disposal/recycling.

Trainings:

SHE Manager is already appointed by the management should conduct Monthly or quarterly trainings of the workers/ staff. SHE Manager will train the SHE staffs for regular inspection and field visits of the area. SHE department of the M/s Nestle Pakistan Limited regularly conduct the training sessions in order to advance the skills of the staff and workers.

Personal protective equipment:

Workers will be provided with safety shoes, ear plugs, Masks & other personal protective equipment during the working hours to insure personnel health & safety. Implementation of PPEs will be ensured by the SHE department.

Restoration / Rehabilitation Plan

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

One completion of the project, the debris will be removed from the site in order to maintain aesthetics of the project. All measures will be undertaken for ensuring occupational safety, security and clean environment in the project area. Local species of trees and flowering plants will be planted within the unit premises, along the road sides with the consultation of EPA and experts.

Plantation

Area for plantation should be reserved within the premises of the project and plantation should be done within, outside and at the boundary wall of the unit.

Government approvals:

Project proponent will get NOCs from all concerned departments including EPA.

CHAPTER # 4

DESCRIPTION OF ENVIRONMENT

This section describes the baseline conditions, which cover the existing Physical, ecological and socio-economic environment of the project as well as study area. Data was collected by reviewing secondary data and field survey.

Physical environment:

The project site is situated in District Khanewal. There is no any natural habitat at the proposed site. Khanewal District was created in 1985. Comprises of four Tehsils: Khanewal, Mian Channu Kabirwala and Jahanian. Situated on Peshawar-Karachi main Railway Line and on National Highway. Surrounded by six districts: Multan, Jhang, Sahiwal, Vehari, Toba Tek Singh, Muzaffar Garh. Major Part of its Tehsils Kabirwala and Mian Channu are old settled areas along the banks of Ravi and Chenab Tulamba is an ancient town in tehsil Mian Channu where Alexander has a sojourn.

Geography:

The proposed site is situated at District Khanewal. This district is situated in the center of the country at an almost equal distance from Karachi and Peshawar and on the main routes of the railway and the Grand Trunk Road. The district is bounded on the north by Jhang District and Toba Tek Singh District; on the south by Vehari District; on the east by Sahiwal District and on the west by Multan.

Topography & Soil:

The project site is located in the plain area. Agricultural fields and roads are the main topographic features. Elevation of the area is about 50 m above mean sea level.

Climate

Summer season prevails from April to September with June being the hottest month. Summer months have means maximum and minimum temperatures as 40.4°C and 27.3°C respectively. Winter months are from November to March and January is the coldest month. Table shows the climatic data.

Serial	Month	Mean Temperature (°C)
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		Max	Min	Precipitation (mm)	Relative Humidity (%)
1	January	19.8	5.9	23.0	64.6
2	February	22.0	8.9	28.5	57.6
3	March	27.1	14.0	41.2	51.1
4	April	33.9	19.6	19.7	37.9
5	May	38.6	23.7	22.4	31.9
6	June	40.4	27.3	36.3	39.8
7	July	36.1	26.8	202.1	63.3
8	August	35.0	26.4	163.9	68.8
9	September	35.0	24.4	61.1	59.6
10	October	32.9	18.2	12.4	53.2
11	November	27.4	11.6	4.2	61.4
12	December	21.6	6.8	13.9	67.8
13	Annual	30.8	17.8	628.7	54.7

Rain fall

Monsoon rains mostly occur in July and August. Winter rains fall in January and February.

Wind

Wind blows from North-West and South-East during winter and summer season respectively. Moderate intensity wind storms occur in months of April to July. During June their frequency increases because of development of low pressures.

60% days of the year are calm and 33% days have mean speed of 1-3 knots. Only 6% day's exhibit speed of 4-6 knots and higher.

Air Quality

- **Ambient Air Quality**

Priority pollutants and certain other parameters were monitored at proposed site and ambient Air Quality test report is given in **Annexure-D**.

- **International Air Quality Standards**

International Air Quality Standards are summarized in Table:

International Air Quality Standards

Pollutant	USEPA		WHO	
	Standard	Averaging Time	Guideline	Averaging Time (Hour)
CO	35 ppm	1 hour ^a	35 ppm	1
NO _x	53 ppb	1 year	106 ppb	1
So _x	0.14 ppm	24 hours ^a	134 ppb	1
PM ₁₀	150 ug/m ³	24 hours ^a	70 ug/m ³	24

Not to be exceeded more than once a year

Ambient Noise level

Ambient noise level was monitor on each site at four points to establish the baseline data.

Ambient Noise Quality test report is given in **Annexure-D**.

Ecological Environment:

Fauna:

The wildlife is scant in the area. No rare/endangered species of plants and animals are found in the project area.

Flora

The project site is devoid of any significant natural vegetation. Common trees found in the area are Shisham, Mulberry, Neem and Dhrek. In the rakh areas trees like Kikar, Phulahi, Jand, Khaggal, Van, Farash and Beri are found in small numbers.

Socioeconomic Environment:

Demographics:

The main tribes and clans include: Niazi Afghans, Seoul, Daduana, Kamboh, Matyana, Gujjar, Doltana, Sahu, Rajputs (Rana), Rajpoot Dhudhi, Awan, Sheikh, Jatt, Bucha, Nikyana Sial, Siyal, Arain, Bhati, Baloch, Khokhars Mayo Solgi (jutt) and toru.

At the time of the 2017 census the district had a population of 2,920,233, of which 1,482,668 were males and 1,437,272 females. Rural population is 2,333,801 while the urban population is 586,432. The literacy rate was 58.59%. Muslims were the predominant religious community

with 98.26% of the population while Christians were 1.69% of the population. At the time of the 2017 census, 73.41% of the population spoke Punjabi, 18.55% Saraiki, 6.47% Urdu and 1.16% Pashto as their first language. According to the census of 1998, Punjabi is the most widely spoken first language, accounting for 81% of the population. Urdu was the native language of 7.8% (although almost all of the inhabitants of the district use it as a second language), Saraiki is native to 5.8% and Pashto.

Education:

Khanewal district, like majority of the districts in Pakistan has both public and private educational institutions from primary to university level. Most educational institutions are gender based from primary to university level. The education system in Khanewal district is formulated along specific modern, religious, cultural, social, psychological, commerce and scientific injunctions. The current literacy rate of district is 39.9%. The standard national system of education is mainly inspired from the British system. The system also aims to imbibe a secular outlook among the students with the awareness of the rich cultural heritage of Pakistan. Khanewal district has a wide range of schools, colleges and universities that caters to diverse streams. The system is divided into five levels: primary (grades one through five); middle (grades six through eight); high (grades nine and ten, leading to the Secondary School Certificate); intermediate (grades eleven and twelve, leading to a Higher Secondary School Certificate); and university programs leading to graduate and advanced degrees. All academic education institutions are the responsibility of the provincial governments. The federal government mostly assists in curriculum development, accreditation and some financing of research.

Agriculture

District Khanewal has fertile lands and it is also known for the wheat, cotton, sugar-cane and other crops. Total reported area of the district Khanewal is 1,059,630 acres. Cotton-wheat is the prominent crop rotation in the district.

Resources and Development:

The project area has not any private recreational facilities.

Suitability of site:

The proposed site for the construction/ installation is an open plot. As the project site lies within the boundary wall zone embarked for industrial activity of Nestle Pakistan Limited, site does not fall in any sensitive area.

CHAPTER 5

SCREENING OF POTENTIAL ENVIRONMENTAL IMPACTS & THEIR MITIGATION MEASURES

The environmental issues had been identified during literature review, consultation with stakeholders, relevant reports and visits to project site. Various types of environmental issues likely to crop up during the life cycle of project are grouped in the following stages:

- Impacts due to location
- Impacts due to design stage/Site development stage
- Construction stage
- Operation stage

Environmental impacts due to the project location

Proposed project site is situated within the premises of Nestle Kabirwala factory, 7 Km Khanewal-Kabirwala Road, District Khanewal, hence no significant negative impact due to the location and project has positive impact in term of reduction in the ambient air pollution by the provision of well-equipped machinery for the filling of coffee and butter oil.

Impact significance: Positive

Nature of impact: Direct

Duration: Long-term

Timing: Construction and Operation phase

Reversibility: NA

Likelihood: Positive

Consequences: Positive

Mitigation measures

- Parking provisions are already available in the parking yard of the existing factory.
- Project have positive impact in reduction of GHG's emissions due to its location.

Environmental Impacts due to the project design

Proposed project has positive impact due to its design and efficiency for the provision of energy to the existing factory

Impacts:

- Inefficient plant design may be a negative impact related to the design of the project.
- Poor road infrastructure design at the project site may cause traffic congestion problems.
- Unavailability of emergency exits may cause loss of life in case of any accident.
- Unavailability of firefighting system may cause loss of life and property in case of any accident.
- Unavailability of proper wastewater disposal system design can be a negative impact on the environment.
- Insufficient rain water harvesting capacity of the drainage system could be a negative impact of the project.
- Electricity hazards may arise due to improper electricity works.

Impact significance: Moderate

Nature of impact: Direct

Duration: Long-term

Timing: Constructional phase & Operation phase

Reversibility: NA

Likelihood: Moderate

Consequences: Moderate

Mitigation measures and recommendations

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

- Energy efficient design should be ensured.
- Proper road infrastructure should be available at the project site.
- Emergency exist points should be marked within the project building.
- Firefighting system should be designed for the emergency situations.
- Electricity system should be designed safe and sound.
- Electricity wires should be covered by thick plastic/electricity resistant covers.

- Proper wastewater treatment plant is available at site and the proposed project does not require the mitigation.
- Sufficient rain water harvesting capacity of the drainage system should be designed.

Impacts during Constructional Stage

Impacts

The construction stage may involve the following vulnerabilities:

- Health and safety issues may be arisen if mitigation measures are not adopted, due to machinery handling, loading/ unloading, lack of training of contractor/ staff and constructional activities.
- Flue gases may be generated due to vehicles transportation
- Particulate matter may be generated during the constructional and transportation activities.
- Solid waste may be generated due to construction activities and domestic sources.
- Soil may be contaminated due to leaching of oil, fuel, any stored oil used during constructional activities, etc.
- Wastewater may be generated from domestic sources.
- Noise may be generated due to construction machinery and vehicles transporting materials
- The proposed site is open plot with no vegetation and fauna.
- Positive impact due to generation of Employment opportunity

Mitigation Measures during Construction Stage

For negative impacts in this stage, following mitigation measures are suggested:

- HSE Trainings of contractor/ labors involved in the construction will be ensured by SHE Staff.
- PPEs will be provided to workers during constructional activities.
- Regular tuning and inspection will be ensured to keep the emissions below the PEQs.
- Sprinkling of water on unpaved area during the constructional activities will be ensured to avoid ambient dust.

- Because the proposed project are located in the premises of Nestle Kabirwala factory which has signed agreement for hazardous and non-hazardous waste with certified waste management company for the scientific disposal of the waste.
- Storage of such material will be done on the paved area if any spillage occurs, the contaminated soil be handed over to waste management company. The Nestle has signed agreement for three years with the 3R incinerator and waste management company for disposal of hazardous or non-hazardous waste.
- Wastewater treatment plant exist at the Kabirwala factory for the treatment of wastewater. Estimated 30 gallons/day water may be generated during construction phase.
- Tuning of vehicles will be ensured and PPEs will be provided to the workers.
- As the proposed site is within walled boundary of unit and installation site has clear open land with no vegetation so, no tree cutting/ habitat loss issue involved.
- Hence impact is Nil.
- Native will be preferred for the job if meet the qualification criteria.

Impacts during Operation Stage

Main environmental issues associated with Project operation are as follow.

- Gaseous emission from the said project will be nil, however emissions from the stack of biomass project may occur if mitigation measures are not implemented.
- Noise may exceed the permissible limit if the mitigations are not placed.
- Ash will be generated from biomass project
- Waste water will be generated from domestic sources only.
- Occupational health and safety issues may arise if proper training of the staff will not be conducted.

Mitigation Measures during Operation Stage

Following points must be implemented during the operation stage.

- Scrubbing system at the stack of the biomass boiler will be installed to control the gaseous and particulate matter emissions at the PEQs level.

- Ear plugs/muffs should be provided to workers in case of high noise during working hours.
- Monitoring should be conducted on regular basis as per EPA PEQS and record should be maintained.
- Ash will be handed over to the contractor for recycling.
- Wastewater treatment plant exist at the Kabirwala factory for the treatment of wastewater. Estimated 50 gallons/day water may be generated during operational phase.
- Compliance of PEQS for Municipal and Liquid Industrial Effluents will be ensured.
- Training of workers should be conducted regarding Health Safety & Environment.
- Use of PPEs should be implemented at workplace.
- Controlled access to the area, only with work permit access should be allowed.
- Adequate firefighting/ emergency response measures should be available at site.
- First aid measures/ medical facility already available at site in case of injury.
- Safety signs should be placed inside the premises and at all sensitive areas etc.
- Coffee and butter oil filling project related machinery/ safety equipment should be marked and tagged properly and should be regularly inspected.
- Inspection of the machinery on a regular basis will be ensure to avoid any safety hazards.
- Due to Plantation within the premises will enhance the flora and fauna.
- Community wellbeing should be considered and anticipated measures are recommended to preserve the local culture and ecosystem.
- Local people should be preferred for the employment if they meet qualification criteria as per company policy.

Impacts on Physical Environments

Groundwater Quality and Level

The proposed project would not affect the quality and level of groundwater directly, only 50 gallons water will be required for domestic use at the project site and the SHE department is involved in recycling of water at the existing Kabirwala factory.

Wastewater Generation

Wastewater generation is very low because in construction phase up to 20-25 people will work. For the treatment of wastewater Nestle Pakistan Limited has already installed wastewater treatment plant in existing factory. In operation phase, water used in the biomass boiler will be recycled only domestic wastewater will be treated in the existing treatment plant.

Solid waste Generation

During operation of project Packaging and domestic solid waste will be generated which will be handed over to the certified contractors.

Impacts on Biological Environments

Flora

The project site is devoid of any significant vegetative cover and 1000 plants will be planted within the premises and surrounding as environmental enhancement measures. Overall, there will be positive impact in respect to the flora of the area.

Fauna

The fauna including wildlife species do not exist at the project site. However, after the plantation and habitat restoration fauna may be enhanced in the area hence it will be the positive impact on the environment.

Impacts on Socio-economic Environments

Land Value

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

Resettlement Issues

Dislocation of Population

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

Loss of Property/ Infrastructure

No movable or immovable property and infrastructure of public and private sectors will be lost or damaged during construction and operation stages because the proposed site exist within the premises of the existing factory. Impact will be nil.

Employment:

Positive impact.

Environmental Enhancement Measures:

- Sprinkling of water will be done on dusty road and tracks during construction.
- PPEs will be provided during construction activity.
- Constructional waste and domestic solid waste will be disposed-off or utilized properly.
- Machinery will never be left unattended
- Efforts should also be made to discuss traffic conditions so that regular traffic is not disturbed. Transporters engaged for the project would be forced to adhere to the load specifications of the access road. No overloading would be allowed in any case.
- Safety signs and boards will be placed during construction
- Machinery will be kept maintained/ serviced.
- Proper SOPs will be followed with proper schedule along with the SHE conditions
- Area will be restored with native plants. A proper tree plantation plan is being already implemented
- Noise will be controlled by adopting proper measures
- PPEs will be provided to workers during working
- Firefighting equipment's and system will be installed
- Safety signs will be placed at all locations where required
- Hygienic conditions will be ensured and proper quality will be maintained by quality control testing.

CHAPTER # 6

ENVIRONMENTAL MANAGEMENT & MONITORING PROGRAM

Purpose and Objectives of the EMP:

The primary objectives of the EMP are to:

- Facilitate the implementation of the mitigation measures identified in the EIA.
- Define the responsibilities of the project proponent.
- Define a monitoring mechanism and identify monitoring parameters.
- Ensure the complete implementation of all mitigation measures

- Ensure the effectiveness of the mitigation measures
- Provide a mechanism for taking timely action in the face of unanticipated environmental situations
- Identify training requirements at various levels.

Management approach:

The overall responsibility for compliance with the environmental management plan rests with the SHE department.

Institutional Responsibilities

Following functionaries will be involved in the implementation of EMP:

- Factory Manager
- SHE Manager
- Project In charge or vendor

Training of building contractor

Training of building contractor & workers will be the part of the TORs regarding the construction/ installation. The provisions given in EIA Report *Chapter 4 Screening of Potential Environmental Impacts & Their Mitigation Measures* will be followed.

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

1. Handling of Machineries in a safe way
2. Use of PPEs
3. Maintenance of vehicles and submission of Environmental Monitoring Reports
4. Placement of safety signs/ boards during construction
5. Monitoring of generator emissions (if any)

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

Responsibility of EMP

Overall responsibility for implementation of EMP will be that of project proponent/ SHE department.

Environmental Technical Assistance and Training Plan

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

Proposed Environmental Monitoring Plan:

To oversee the environmental performance of the project through its lifecycle enforcing the PEQS an Environmental Monitoring Program is formulated which ensures effective surveillance of the environmental parameters at various stages of the project development and compliances with PEQS and legal obligations. Monitoring for Environmental Parameters is recommended:

Gaseous Emissions and

Gaseous Emission and Particulate Matter/ Dust

Monthly monitoring of PEQs in this regard will be performed by EPA certified laboratories and reporting will be submitted to the EPA, as collectively of the Kabirwala factory, on quarterly basis.

Noise

Monthly monitoring of PEQs in this regard will be performed by EPA certified laboratories and reporting will be submitted to the EPA, as collectively of the Kabirwala factory, on quarterly basis.

Ambient Air Quality

Monthly monitoring of PEQs in this regard will be performed by EPA certified laboratories and reporting will be submitted to the EPA, as collectively of the Kabirwala factory, on quarterly basis.

Water

Monthly monitoring of PEQs in this regard will be performed by EPA certified laboratories and reporting will be submitted to the EPA, as collectively of the Kabirwala factory, on quarterly basis.

ENVIRONMENTAL MANAGEMENT PLAN				
		Mitigation Measures to be taken		Responsibility

Sr . #	Env. Aspect/ Parameter	Construction Phase	Operation Phase	Recommendation	
PHYSICAL ENVIRONMENT					
1.	Gaseous emissions and particulate matter/dust emissions	Construction materials i.e. sand, clay shall be transported to the project site as per safety and environmental plans. Dust may generate during unloading of raw materials. Sprinkling will be done on dust tracks to control the particulate matter. All equipment, generators, and vehicles used during the project will be properly tuned and maintained in good working condition in order to minimize exhaust emissions. All project vehicles will be	During operation phase the gaseous emission generated from the stack of biomass plant. Scrubbing system at the stack of the biomass boiler will be installed to control the gaseous and particulate matter emissions at the PEQs level. All project vehicles will be checked regularly to ensure that engines are in sound working condition and are not emitting smoke.	To control any gaseous emission, install cyclone/ wet scrubbers.	SHE Department

		checked regularly to ensure that engines are in sound working condition and are not emitting smoke. Ambient air quality has been monitored for baseline study and results have been incorporated within the report as annexure “Baseline monitoring reports”			
2.	Noise	In order to avoid noise in the project area, vehicles will be properly tuned and training of operators/drivers will be conducted Ear plugs will be provided & implemented in case of heavy noise.	Ear plugs, ear muffs will be provided & implemented in case of any noisy work environment. Noise Monitoring will be conducted as per EPA-PEQS Rules. In order to avoid noise in the project area, machinery will be properly tuned and maintained.	If noise level exceeds the prescribed limits, then M/s Nestle Pakistan Limited Unit will adopt proper mitigation measures by regular maintenance of the generator (in future) and vehicles.	SHE Manager/ Maintenance Engineer

		Noise level monitoring has been conducted for the baseline study and results have been incorporated within the report as annexure “Baseline Monitoring Reports”			
3.	Solid Waste	Solid waste generated due to constructional activities and domestic sources.	Domestic and Packaging waste will be generated from project sites. Waste will be handed over to contractor.	The Nestle has signed agreement for three years with the 3R incinero and waste management company for disposal of hazardous or non-hazardous waste.	SHE Manager
4.	Wastewater	Wastewater generated from domestic purposes.	No process wastewater generated from project activity. During operation boiler steam water will be recycled. Only domestic wastewater will be generated from project. Domestic	Wastewater treatment plant exist at the Kabirwala factory for the treatment of wastewater.	SHE Manager

			wastewater will be treated in existing treatment plant of the Nestle Kabirwala factory.		
5.	Health & Safety	Machinery will never be left unattended. Safe driving practices will be adopted, speed restriction will be implemented. Basic health facilities will be provided to workers. Basic safety trainings will be given to construction workers. PPEs will be strictly implemented.	Training of workers will be conducted regarding health and safety, firefighting and health hygiene. Use of PPEs will be implemented at workplace. First aid measures will be provided to workers. Shift Rotation, proper ventilation/ shelter will be provided to workers in case of thermal stress. Safety signs, safety boards, exit arrows etc. will be placed on site. An Assembling point will be kept to gather in case of emergency situation such as fire hazards. Fire Fighting Equipment & system will be enhanced	According to raw material storage and handling fact sheet following measures are recommended.	SHE Manager

			Floor will be kept clean and roads will be kept clear as it can cause hurdle in emergency case. Electric wires, D.Bs will be kept covered & closed. Machinery will never be left unattended. Safe drinking water will be provided to workers and staff. Heat and flame source will be banned at site. Equipment should be marked and tagged properly Inspect the machiner on a regular basis to ensure it is in good condition, free from rust and housed properly. Proper housekeeping should be ensured.		
6.	Storage and Handling	Nil	Handling should be in accordance with good industrial hygiene and safety	Storage and handling should be as per MSDS and Govt. regulations	Contractor/SHE / Environmental Manager

			practices. These practices include avoiding unnecessary exposure and removal of the material from eyes, skin and clothing. Wash thoroughly after handling. Always use appropriate Personal Protective Equipments (PPEs).		
7.	Odor	Nil	Regular maintenance of Biomass plant is recommended	Regular maintenance of biomass plant is recommended	Contractor/HSE / Environmental Manager
8.	Traffic related problems	The vehicles number will be regulated in a way that no stampedes occur on the site. None of the vehicles will be parked on the road or foot paths in front of the building.	Proper parking area will be reserved for staff and visitors' vehicles No vehicle or motor cycle will be allowed to be parked in the front of the road. There would be no traffic issues due to this project A security guard will be designated to control the flow of	Visiting vehicles	EMR /SHE/ Environmental Manager

			traffic and avoid congestion Heavy traffic visit schedule will be followed, minimum use of horns at the site and provision of ample parking within the premises of site.		
BIOLOGICAL ENVIRONMENT					
1.	Fauna and Flora	Proposed site is devoid - off any protected species of both fauna & flora	Awareness programs will be planned regarding the protection of fauna & flora. Species of Indigenous plants will be planted at site. Animal/reptiles/birds Hunting will be prohibited	Proper tree plantation plan should be developed	EMR /SHE/ Environmental Manager
SOCIOECONOMIC IMPACTS					
1.	Resettlement issues	There is no any issue of resettlement due to the construction of the subject project.	There will not be any issue of resettlement due to the operation of the subject project.	Neighbor's privacy should be on priority.	EMR /SHE/ Environmental Manager
2.	Health	Health facility already exists at the existing	Health facility already exists within at the	First aid and medical facilities should	Proponent

		Kabirwala factory and nearby area. The project proponent should provide first aid facilities at site and also social security and medical checkups of the workers	existing Kabirwala factory and nearby area. The project proponent is committed to provide first aid facilities at site and also social security and medical checkups of the workers.	be provided within the unit	
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Equipment Maintenance Detail

The subject project is Proposed installation of 1.5g Nescafe filling and packing/New filling machine/200kgs butter oil drums filling machine, at existing facility. The company will maintain the records for Health Safety & Environment and SHE manager to check and deal with the SHE issues.

Environmental Budget

The cost required to effectively implement the mitigation measures is important for the sustainability of the Project both in the construction and operation stages of the Project. Company allocated the Environmental Budget for the Training, maintenance and management of Environment is 2% of total cost annually that will include filling and maintenance of equipment, restoration, plantation, and availability of PPEs, strategic planning to cope with any emergency situation and formulate the disaster management plan to cope with natural disaster. Any equipment or devices failure or replacement will not be included in this budget.

CHAPTER # 7

STAKEHOLDERS PARTICIPATION

Public discussions were held with the inhabitant of the surrounding area. They are quite positive to the project and see the project as growing business. The people observe strong positive impacts regarding employment, business and structural development due to this project. EIA findings depict that people perceive overall positive social and economic impacts by the project. Their attitude towards the project installation is highly optimistic. Majority of the people are convinced for development in the area and they correlate this progress with the pace of their social mobility but they were also concerned with scenic beauty of the area and employment which the proponent has ensured to maintain the aesthetics of the area, reclaim the land and also to provide jobs/employment during installation and at the time of functioning of the project. Moreover, project proponent admitted to adopt all the mitigation measures to control any impacts resulting from the subject project.

Methodology of consultation:

The EIA team carried out public consultations at various locations around the Project Site and conducting group meetings with different group of stakeholders. The stakeholder's consultation during this phase of the work targeted the project area, administrative and private offices, Govt. offices, shops, etc. near the Project area:

- Selection of the stakeholders for consultation, reconnaissance of the project site and initial discussions with the locals and feedback in the form of checklist is attached with the report as **Annexure-E**.
- Environmental consultants and social specialists and documenting the opinions of the stakeholders expressed during the meetings etc.

Stakeholder identification:

Stakeholders must be considered at all levels according to the importance of the project. They may be at provincial, district and village level. The process of consultation is an ongoing process which continues during the project life cycle and even after the submission of this environmental assessment report and so on. Therefore, three-tier approach was adopted. Stakeholders were identified, categorized and work consulted

Proponent's Environmental Management Team

Possible impacts and mitigation measures related to the project were discussed with the SHE department. They assured to take all suggested mitigation measures to control any discrepancy arose by the project and to make the project environmentally friendly.

Responsible Authority

SHE department of M/s Nestle Pakistan Limited is the responsible authority to take all measures prior to the process activity.

Other departments and agencies

Environment protection department and food authority are the main relevant agencies for the said project and boiler engineers will inspect the boiler periodically. EPA Punjab and food authority has already granted the approval for existing Nestle Kabirwala factory.

Environmental Practitioners and Experts

Feedback from the environmental practitioners has been incorporated in the report.

Affected & Wider Community

There is no affected community present in the radius of our study area. PGEE team has consulted with the inhabitants of the different area. They provided remarks regarding the project which has been incorporated in the report as the mitigation measures. Stakeholders' participation Performa & socioeconomic questionnaire annexed in **Annexure-E**.

Pictorial evidence of consultation is attached.



CHAPTER # 8

CONCLUSION AND RECOMMENDATIONS

Conclusions

- The EIA study reveals that the project is economically viable, socially acceptable and environment friendly.
- On completion of the project, the renewable energies will be available for the existing Nestle Kabirwala factory and there will be significant reduction of GHG's emissions.
- It will generate additional jobs during construction and operation phases.
- The proponent has committed to implement the project in the environment friendly manner.
- M/s Nestle Pakistan Limited has already SHE department for the implementation of mitigation measures and EMP.
- The SHE department has already SOP's for emergency and firefighting etc.

Recommendations

- In view of the comprehensive screening process and findings of the present study there is no need of conducting further investigations.
- Tree plantation is recommended.
- The untreated wastewater will not be reused for irrigating the vegetation and lawns or drained out into drain without treatment.
- High standards of biosecurity and safety will be enforced during operation stage. Safety of the workers will be top priority for the management.
- The SHE department will continue to assist the local communities as a corporate/social responsibility.
- Water treatment system is already installed in the Kabirwala factory and has the enough capacity to treat the additional wastewater generated by the proposed facility.
- Use of narcotics and smoking will be prohibited during working.

- For proper solid waste management, the company has already signed agreement with certified firm.
- MSDS should be followed
- Safety signs, safety boards, exit arrows etc. will be placed on site.
- Machinery will never be left in running condition.
- First Aid measures, health & safety Equipment (PPEs) will be provided to workers.
- An Assembling point will be kept within the unit to gather in case of emergency situation such as fire hazards.

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