ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

CONSTRUCTION OF NEW PET AND GLASS BOTTLE LINE

M/S COCA COLA BEVERAGES PAKISTAN LIMITED

SITUATED AT PLOT NO. 52-60, INDUSTRIAL ESTATE PHASE II, FIEDMC, SAHIANWALA FAISALABAD

PREPARED BY

IES ENVIRONMENTAL SOULUTIONS

Environmental Services

IES Environmental Solutions
114 E Nawab Town, Raiwind Road, Lahore.
Phone: +92 423 2326882, +92 334-9776233,
Email: info@iesolutions.pk Waqas.ahmed@iesolutions.pk

EXECUTIVE SUMMARY

This executive summary presents an overview of the main findings of the Environmental Impact Assessment (EIA) report for the "Construction of New PET and Glass Bottle Line by M/S Coca Cola Beverages Pakistan Limited Located at Plot No. 52-60, Industrial Estate Phase II, FIEDMC, Sahianwala Faisalabad".

Coca-Cola, is a carbonated soft drink manufactured by the Coca Cola Beverages Pakistan Limited Originally marketed as a temperance drink, it was invented in the late 19th century. The Coca Cola Beverages Pakistan Limited began building its global network in the 1920s. Now operating in more than 200 countries and producing nearly 450 beverages, the Coca Cola Beverages Pakistan Limited system has successfully applied a simple formula on a global scale: provide a moment of refreshment for a very small amount of money -- a billion times a day

Environmental Impact Assessment (EIA) of the project has been conducted in accordance with the Punjab Environmental Protection (Amendment) Act 2012 and IEE/EIA Regulations 2022. The process for conducting environmental assessment and the results of EIA is described in this document.

SALIENT FEATURES OF PROJECT:

Sr.#	CONSTITUENT	DESCRIPTION
1)	**Name of Project**	Construction of New PET and Glass Bottle Line By M/S Coca Cola Beverages Pakistan Limited
2)	**Project Location:**	Located at Plot No. 52-60, Industrial Estate Phase II, FIEDMC, Sahianwala Faisalabad.
3)	**Total Area**	127,3680/ Square feet,
4)	**Project Cost**	13 M USD
5)	**Project Overview:**	The proposed project is "Construction of New PET and Glass Bottle Line By M/S Coca Cola Beverages Pakistan Limited Located at Plot No. 52-60, Industrial Estate Phase II, FIEDMC, Sahianwala Faisalabad". The subject project falls in the category B (4) (Food processing industries including, **beverages**, milk and dairy products, with total cost more than Rs. 200 million) of the project requiring

		Environmental Impact Assessment (EIA) of Schedule-II of PEPA Regulation 2022.
6)	**Project Proponent & Contact Person**	Mr. Muhammad Fowad Saeed S/O Muhammad Saeed Akhtar R/o House # 7, Street # 1, Sitara Valley, Faisalabad
7)	**Project Process**	The proposed project is Construction of New PET and Glass Bottle Line By M/S Coca Cola Beverages Pakistan Limited Located at Plot No. 52-60, Industrial Estate Phase II, FIEDMC, Sahianwala Faisalabad. **The process includes the following activities** ➢ Incoming Raw Material Receiving / Sampling QC Checks ➢ Glass Filling Line ➢ PET Bottle Filling Line ➢ Shipping ➢ Associated Operation
Environmental Precise		
1)	**Project Environmental Consultant**	IES Environmental Solutions 114 E Nawab Town, Raiwind Road, Lahore. Phone: +92 423 2326882, +92 334-9776233 Email: info@iesolutions.pk
3)	**Solid Waste Management**	All raw materials will be recycled during the construction activities as road filling and maintenance purposes. During the construction solid waste will be generated which will be placed in solid waste bins within the project boundary wall and will be handed over to contractors. HSE manager will be appointed by the proponent to manage the solid waste on regular basis, to ensure the good housekeeping at site and in production unit, to inspect any discrepancies arise due to improper functioning of the HSE conditions and to adopt the proper solid waste management system.

4)	**Tree Plantation**	Trees will be planted in all open spaces and boundary of the Project Area. Green belts will also be developed

➢ BRIEF OUTLINE OF PROPOSAL

The proposed project is **Construction of New PET and Glass Bottle Line By M/S Coca Cola Beverages Pakistan Limited Located at Plot No. 52-60, Industrial Estate Phase II, FIEDMC, Sahianwala Faisalabad.** The subject project falls in the category B (4) (Food processing industries including, **beverages**, milk and dairy products, with total cost more than Rs. 200 million) of the project requiring Environmental Impact Assessment (EIA) of Schedule-II of PEPA Regulation 2022. The total area of the project is 127,3680 sqft and the total cost of the project is 13 Million USD

MAJOR IMPACTS AND RECOMMENDED MITIGATION MEASURES:

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

Key impacts related to the operation phase include:

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

➢ PROPOSED MONITORING

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

➢ CONCLUSION AND RECOMMENDATIONS

On the basis of the overall impact assessment, more specifically, nature and magnitude of the environmental impacts identified during present EIA it is concluded "Construction of New PET and Glass Bottle Line By M/S Coca Cola Beverages Pakistan Limited Located at Plot No. 52-60, Industrial Estate Phase II, FIEDMC, Sahianwala Faisalabad"., is likely to cause conventional environmental impacts mainly occur during its construction phase. However, these impacts can be mitigated provided the proposed activities are carried out as mentioned in the report, and the mitigation measures included in this report are effectively implemented.

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CHAPTER # 1

1.1 INTRODUCTION

"Construction of New PET and Glass Bottle Line by M/S Coca Cola Beverages Pakistan Limited Located at Plot No. 52-60, Industrial Estate Phase II, FIEDMC, Sahianwala Faisalabad." intends to conduct business in the most economic and environmentally friendly way.

1.2 Purpose of the Report

Environmental Impact Assessment (EIA) report is being submitted to the Environmental Protection Agency **(EPA),** Government of the Punjab in compliance with the legal requirement for Punjab Environment Protection Act-1997 (amended 2012) for obtaining the approval before starting any activity /storage 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.

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

1.3 Scope of the study

The scope of study includes the preparation of Environmental Impact Assessment (EIA) of the proposed project for the compliance of section 12 of PEPA 1997 and to ensure the compliance with the PEQS.

1.4 Identification of Project and Proponent

Mr. Muhammad Fowad Saeed S/O Muhammad Saeed Akhtar R/o House # 7, Street # 1, Sitara Valley, Faisalabad is the proponent of the subject project "Construction of New PET and Glass Bottle Line by M/S Coca Cola Beverages Pakistan Limited Located at Plot No. 52-60, Industrial Estate Phase II, FIEDMC, Sahianwala Faisalabad."

1.5 Nature, Size and Location of the Proposed Project

The proposed project is "Construction of New PET and Glass Bottle Line by M/S Coca Cola Beverages Pakistan Limited Located at Plot No. 52-60, Industrial Estate Phase II, FIEDMC, Sahianwala Faisalabad.". Over a total land area is 127,3680/ Square feet the project will be facilitated with all above said facilities. The cost of the whole project is about 13 M USD

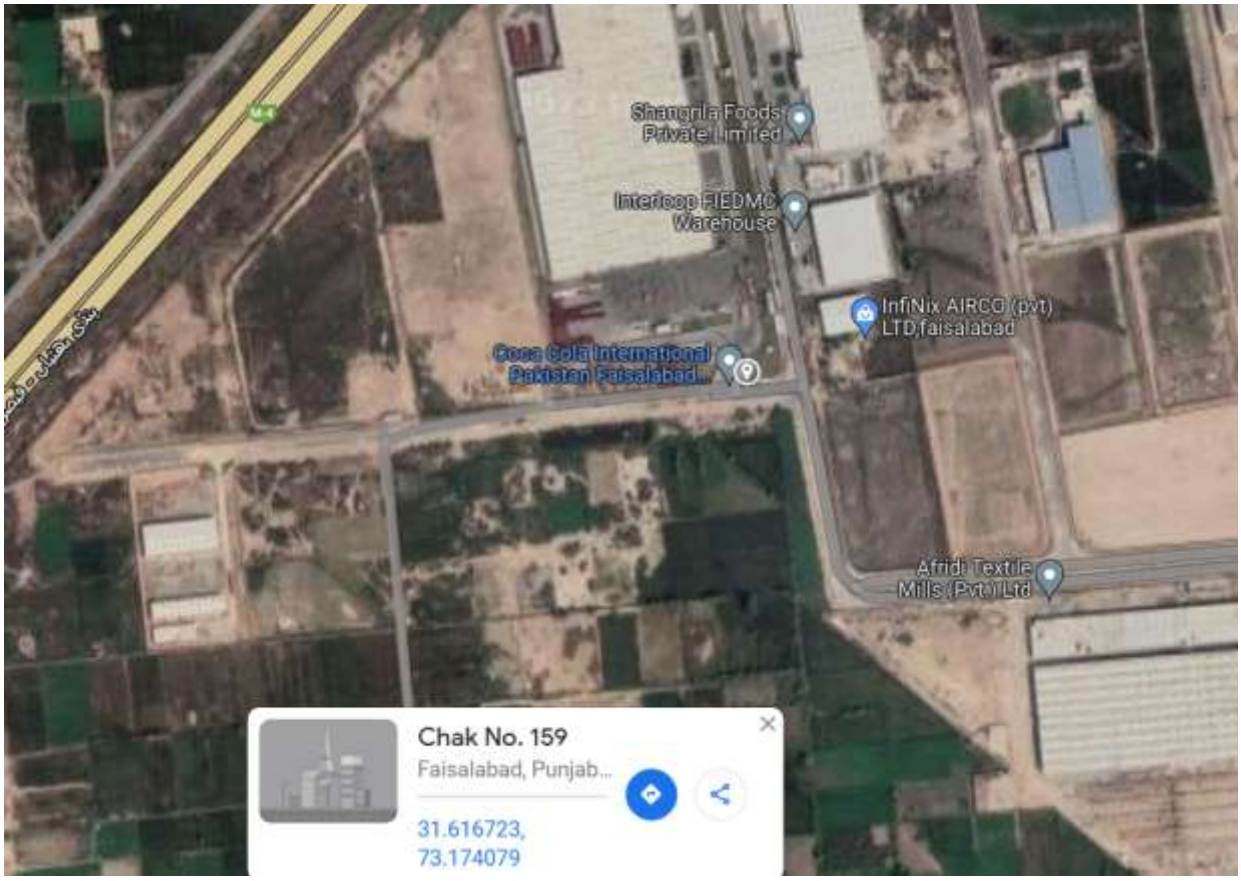


Figure 1 Location of Project

1.6 Objective of the Report

Objectives to conduct EIA are as following:

- It is mandatory according to Punjab Environmental Protection Act-PEPA 1997 (Amended 2012).

- To identify the environmental issues pertaining to the operational site.
- To evaluate the ability of the site in view of social acceptance and environmental soundness.
- To provide the maximum information to the proponent and other stakeholders about the existing environmental conditions and the implications of the operational project.
- Collection of available data, reports, drawings and other relevant information about area of operational project.
- Review of applicable existing environmental legislation and Pakistan environmental quality standards (PEQS).
- Propose mitigation measures to eliminate or to reduce the negative impacts to an acceptable level.
- Development of well-resourced environmental management and monitoring plans to identify mitigation strategies targeted towards avoidance, minimization and rehabilitation of the impacts.

1.7 Details of Consultant

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

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

CONSULTANTT DETAILS:

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

Table 1.1: List of Team Members

Sr. #	Name	Highest Qualification
Technical Team Member		
	Mr. Waqas Ahmad Khan	MPhil in Environmental Sciences (NUST)
Members		
	Dr. Nusrat Ehsan	PhD in Environmental Sciences
	Mr. Abdul Rehman	MPhil Environmental Sciences (UOL)
	Bilawal Zafar	BS(Hons) Environmental Sciences (UOL)
	Fajar Waheed	BS(Hons) Environmental Sciences (UOL)
	Masooma Batool	MPhil Environmental Sciences (GC)
	Muhammad Haris	BS(Hons) Environ mental Sciences (UOL)

1.8 Methodology

The methodology adopted to carry out the EIA study of the subjected project was as follow:

- Orientation
- Planning of Data Collection
- Data Collection
- Site Reconnaissance
- Literature Review
- Desk Top Research
- Public Consultations .
- Field Studies

- Laboratory Analysis
- Evaluation of Impacts and their analysis
- Categorization of impacts based on their potential environmental significance and prescription of preventive / mitigation measures

In addition to the evaluation and review of the available records, data and the facts for the previous project, detailed discussions were held with the concerned members of the project management as well as other project stakeholders.

Notes and proposals for measures to be taken to mitigate and compensate for any determined/detrimental environmental impacts are contained in the Environmental Management Plan (EMP) as well as a Monitoring Plan, including all parameters that need to be measured, and the frequency of monitoring actions.

A comprehensive qualitative and quantitative methodology was adopted to conduct this study inter-alia in due compliance with the EIA requirements. The study included collection of both primary and secondary data regarding environmental status and other relevant factors. This EIA report has been accomplished after carrying out thorough visit to the project site and detailed investigation to identify the following Environmental areas of concern:

- To achieve the desired environmental compliance standards; as per the national & provincial environmental regulatory requirements; as applicable to the project.
- Plans and activities to prevent/mitigate any potential impacts and the gaps that could probably remain after implementation.
- Any other points/steps to be taken which could be beneficial to mitigate environmental adverse impacts that may accrue both during construction and regular operation of the project.

1.9 Scoping

The EIA report covers the examination of the physical, biological environment and socioeconomic impact of the following;

- Construction activities related with the factory building including the erection/installation of machinery.
- Relevant off-site construction activates like construction of access roads, etc.
- Operational phase of the project.

Screening

The subject project falls in the category B (4) (Food processing industries including sugar mills, beverages, milk and dairy products, with total cost of Rs. 100 million and above) of the project requiring Environmental Impact Assessment (EIA) of Schedule-II of PEPA Regulation 2000.

The proposed project falls in EIA.

1.10 Organization of the Report

The Environmental Impact Assessment (EIA) has been organized as following:

Executive Summary

- Chapter 1: *Introduction of the Project*
- Chapter 2: *deals with the project Description*
- Chapter 3: *covers the Description of the Environment*
- Chapter 4: *Deals with the Environmental impacts and Mitigation measures*
- Chapter 5: *describes the Environmental Management Plan & Monitoring Program*
- Chapter 6*: covers the Impact Assessment Methodology*
- *Chapter 7: Stakeholder Consultation*
- Chapter 8: *involves the conclusion & Recommendation*

1.11 Spatial and Temporal Boundaries of the Assessment

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

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

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

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

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

Construction – includes all activities associated with project construction and before commencement of the project such as:

- Transportation corridors construction;
- Mobilization of equipment and supplies to the site by road and air;
- Camp operations and personnel transport during construction;

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

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

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

1.12 Important Issues and Concerns raised during consultation

Issue	Aspect/Concern raised by Stakeholders	Project Proponent Commitments

Employment Opportunities	Expectations of employment are very high. Job opportunities are less for herders as they generally have less skills and training.	Employment is the main priority of the industry. Mostly locally skill and unskilled labor will be prioritized and also there will be job in executive level. Around 100 people will be employed by the Industry.
Health & safety	Truck traffic is a main concern because the road used by the Project passes through a number of small communities and different industries and there will be a high volume of trucks transporting Concentrate.	Development of Transport Management Plan including traffic safety training. Traffic advisory signs will be installed along project site and all nearby specific areas.
Local economy and business development	Local service providers are keen to participate in providing services to provide raw material and expect to receive in order to adjust their businesses to meet specific needs. Local/regional companies and entrepreneurs have limited understanding about meeting the high volumes required by the Project and the quality standard, but are keen to know these requirements so, they can become suppliers.	Proponent has main focus that they will all the material regarding construction and plant operation to buy from the local market. This will help the local and small business and to people who are keen interested to become suppliers.
Environmental Issues	Dust and noise impacts, particularly from the construction activities and in operation of mechanically unfit machines, are of concern to herders and other residents. Environmental degradation during road construction and use. Loss and change of vegetation due to soil degradation.	Implementation of controls under the Environmental Management Plans, including on and off-site dust and noise monitoring. A Participatory Environmental Monitoring Program will be launched to spread awareness.
Water quantity and quality	Water quality and quantity, and impacts from the wastewater disposal are all key concerns for nearby herders.	Implementation of consultation in relation to water use and development of the Participatory Environmental Monitoring Program. Water treatment will be done by the Proponent that will help to safe disposal of the water.

1.13 Suitability of the Site

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

1.14 Significance Impact

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

Key impacts related to the operation phase include:

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

1.15 Consideration of Alternatives

1.16 Alternatives Considered, And Reasons for Their Rejection

No, Alternative sites were considered for the proposed project, as proponents intends to install new PET line and RGB line in its existing plant.

1.17 Design/technology alternatives, their selection and rejection criteria

The proposed project is Construction of New PET and Glass Bottle Line by M/S Coca Cola Beverages Pakistan Limited Located at 23 Km Raiwind Road Lahore. A team of professionals has designed a building in such a way to maintain the safety of the workers as well as to keep the environment safe and clean. The proposed design for the building is environmental and human friendly so; the proponent did not consider any other design for the proposed line.

1.18 Environmental Alternatives, their selection and rejection criteria

The project simply involves the "Construction of New PET and Glass Bottle Line M/S Coca Cola Beverages Pakistan Limited Situated at Plot No. 52-60, Industrial Estate Phase II, FIEDMC, Sahianwala Faisalabad". This selected site is environmentally friendly and sustainable. There is no specie present that will be harm due to Project. Hence, there is no environmentally alternative considered for this specific project.

1.19 Economic Alternatives, their selection and rejection criteria

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

CHAPTER # 2

DESCRIPTION OF THE PROJECT

2.1 Type and Category of the Project

"Construction of New PET and Glass Bottle Line M/S Coca Cola Beverages Pakistan Limited Situated At Plot No. 52-60, Industrial Estate Phase II, FIEDMC, Sahianwala Faisalabad". Environment Protection Agency, Punjab (Review of IEE & EIA) Regulation 2000, Schedule-II clearly states the list of projects requiring EIA. The subject project falls in the category B (4) (Food processing industries including, beverages, milk and dairy products, with total cost more than Rs. 200 million) of the project requiring Environmental Impact Assessment (EIA) of Schedule-II of PEPA Regulation 2022. Therefore, to fulfill the legal requirements of Section-12 of the Punjab Environment Protection Act-2012, the client is required to submit the consolidated EIA report in the Environmental Protection Agency, Government of the Punjab, Lahore to obtain the required Environmental Approval (EA).

2.2 Objectives of Project

"Construction of New PET and Glass Bottle Line M/S Coca Cola Beverages Pakistan Limited Situated At Plot No. 52-60, Industrial Estate Phase II, FIEDMC, Sahianwala Faisalabad".

- To covers the distribution of CBPL products to most part of Faisalabad city to save the environment by reducing the transportation cost, less burning of fossil fuel and to meet sustainable development goals (SDGs) in accordance to meet the demand of the product
- The project fulfills the requirement of beverages in perspective area
- Support services/utilities at one location
- Attract/make available skilled and unskilled manpower
- Project is environmental friendly in all aspects.
- This project is Provide employment to a large population. In addition, creation of new job opportunities for locals.

EIA report is being submitted to Punjab Environmental Protection Agency incompliance with the legal requirements for Punjab Environmental Protection Act-1997 (Amended 2012) for obtaining Environmental Approval / NOC before starting construction and operation of the

project as per section 12 of the act. Other relevant regulations and guidelines considered while preparation of this EIA report include.

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

Various aspects like environmental, social, physical and other aspects of the project during both construction and operational phase 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.

2.3 Existing Land Use

The land is located at industrial area. There is already coca cola beverages Pakistan plant established, proponents intends to install a new PET and RGB Line in its existing unit. The project site is situated at Plot No. 52-60, Industrial Estate Phase II, FIEDMC, Sahianwala Faisalabad. All laws and by laws of the government are applicable to any land planning and use as well.

2.4 Road Access

The main road is Industrial road. It has wide paved and massive roads infrastructure. Subject project is present in Situated at Plot No. 52-60, Industrial Estate Phase II, FIEDMC, Sahianwala Faisalabad so, road access is very easy and convenient.

2.5 Project Process

The process includes the following activities;

- Incoming Raw Material Receiving / Sampling QC Checks
- Glass Filling Line
- PET Bottle Filling Line
- Shipping
- Associated Operation

A. Incoming Raw material receiving / Sampling QC checks

Most of the Raw Material will be prepared in Pakistan. When the material is received as per the quantity and pack size, material is sampled as per the Company requirement for Merchandise and Ingredient, Sampling procedure is as under.

Procedure

Preparation for sampling is done viz. collection of bottles / polythene bags, thief, "Ingredient / Merchandise sampling form", hand gloves, nose mask, goggles, funnel, sampled labels, tamper evident seals/ labels and other sampling material like stainless steel dipper, scoop, etc. Equipment used for the sampling of merchandise and ingredients are cleaned and where needed (for sensitive ingredients) sanitized prior to use. Person sampling visually inspects the material to be sampled for - seals/ labels on containers, any damage, spillage, intact labels with all details. Before sampling lab chemist verifies the lot number, manufacturer, ingredient, and date of manufacture is checked against the paperwork received from the supplier (In voice, Certificate of Analysis, etc.) Sampling personnel use applicable personal protective equipment to prevent contamination of the material and to avoid potential mix up between batches and ensure their safety. Lab Chemist samples the incoming ingredient / merchandise as per Company's procedure. Any deviation has to be validated by the QC Manager and approved by Corporate Quality and authorized by QC Manager.

B. GLASS FILLING LINE PROCESS

New bottles and also the return bottles from the market will be fed at one end of the filling line. The bottles are placed in crates stacked on wooden pallets and fed through fork lifter. The bottles feed process includes:

De-Palletizer: Automatic machine lifts the crates containing empty bottles and places them on a conveyor belt, one layer at time.

Bottle Feed: lifts the bottle from plastic crates and feeds them on a Conveyor belt which transports empty bottles to bottle washing unit. Empty crate move on a conveyor to the crate washing unit.

- ### Bottle washing:

The bottles would be automatically fed into the bottle washer pockets, where the bottles will pass through four stages of cleaning and sterilization a continuous process. The bottles will be washed with caustic and detergents and finally rinsed with soft water. Bottles will be first rinsed with warm caustic water jets to loosen out any sticking scum/ dirt etc. then pass through two stages of soaking and caustic jetting to

completely clean and sterilize the bottles. The bottles will then be rinsed with soft water to remove clean and sterilize the bottles. The bottles will then rinse with soft water to remove the traces of caustic. The automatic bottle washer will ensure minimum soak time and temperature for effective cleaning and sterilization of the bottles. The bottles are washing process takes about 45 minutes and exposes to a temperature up to 70 degree centigrade. Automatic bottle washing unit proposed for the project will be highly water and energy efficient, fitted with recirculation of washing water and energy efficient pumps for jetting. Water discharged from bottle water will be recycled for crates washing process. Water consumption of the proposed washing unit will be about12 m^3 per hour.

- **Bottle checking:**

Washed bottles will be checked on an all-surface electronic bottle inspection (ASEBI) system, where damaged or dirty bottles are rejected by an automated unit. Bottles will be screen through high-speed electronic cameras passing through the unit on a continuous line. The computerized unit will automatically remove any defected bottle.

- **Filling:**

Empty washed bottles after inspection will enter the filling unit. Filling unit will prepare beverage by mixing final syrup from the syrup tank, automatically diluting it with treated water and injecting carbon dioxide in the ratio specified under Coca-Cola standards to prepare the carbonated beverage. The beverage will be filled at 18 centigrade.

- **Capping:**

Bottles will be closed using crown closure in an automatic unit after the filling process.

- **Date Coding**

Filled and capped bottles will be inspected electronically, and then printed with manufacture and expiry dates on the bottles using a date coding device

- **Packing and Ware Housing**

The beverage bottles will move to the automatic packer where bottles will be placed in the crates. The crates will then be stacked onto wooden pallets by automatic palletizer machine. The pallets of filled beverage will be placed using fork lifter in the warehousefor onward distribution to the distribution centers and outlet

C. PET Bottle Manufacturing and Filling Line Process

The filling process for PET bottles is essentially the same as glass bottles, except that the PET bottles are manufactured at the starts of this line: bottle rinsing and packing process are slightly different. The PET bottles manufacturing and filling line process is described below.

I. PET Bottle Manufacturing

Plastic or PET bottle are be manufactured in house in a continuous line. The process of making PET bottles from pre-forms is called bottle blowing. In this process pre- forms are fed into the bottle blowing machine at one end. The pre-forms are heated before blown into the bottle shape by compressor air at a pressure of about 26 bars. Bottle blowing machines are fitted with molds with specific bottle profiles according to size and shape of the bottle being produce. The bottles are blown at a continuous process. The proposed facility will also include in future a unit for manufacturing of pre-forms for PET bottles. Pre-forms manufacturing is described later under associated operation.

II. PET Filling Line Process

- Bottle rinsing

The PET bottle will then move on the star wheels or pneumatic conveyers to the rinse unit where newly blown bottles will be air rinsed.

- **Filling and capping**

The process is similar to glass bottle for PET bottles, except the bottles will be capped with plastic closure.

- **Labeling and date coding**

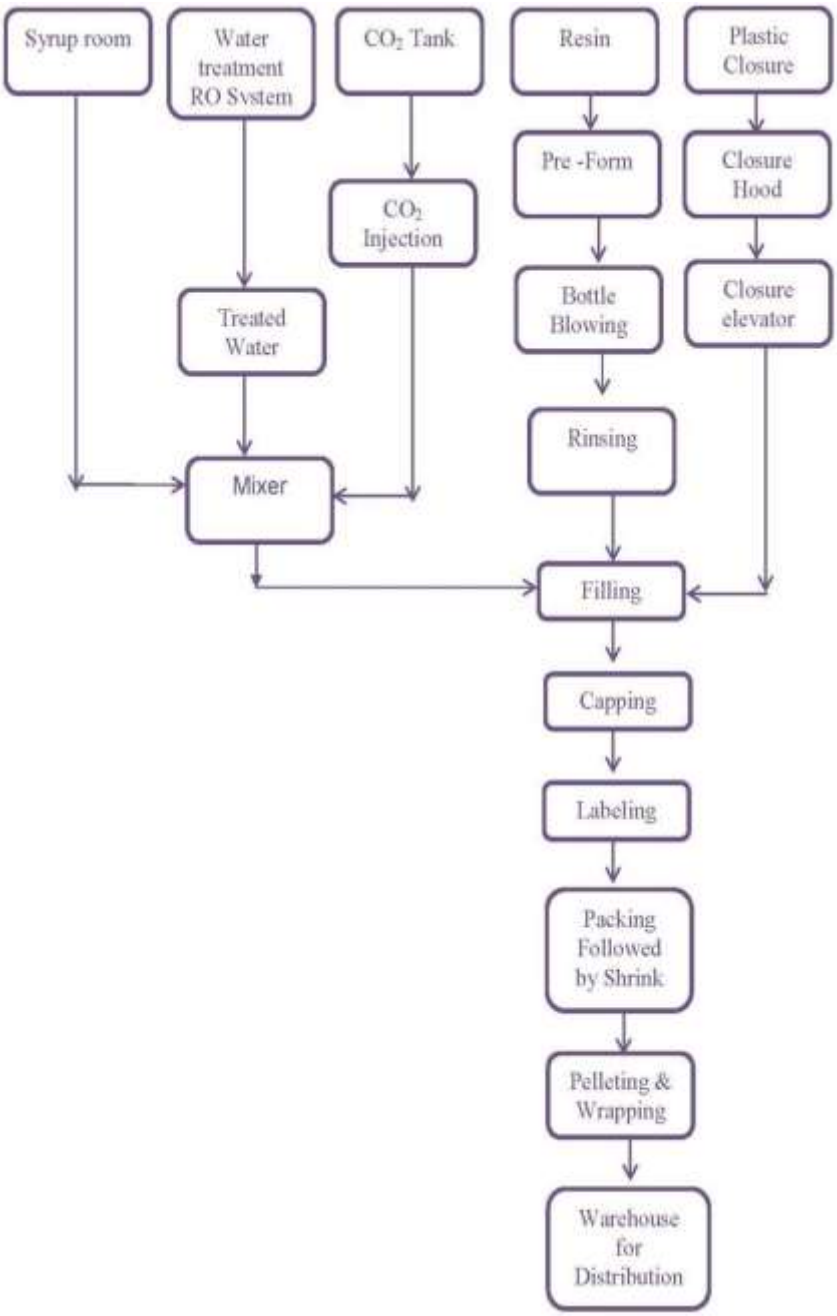
Filled bottle will pass through labeling machine, where printed labels will be pasted on the filled bottles in a continuous process, followed by date coding process.

- **Shrink wrapping**

After date coding, the bottles will be grouped according to case configuration. For example, a 1.5-liter beverage case 6 bottles. Bottles will be wrapped in plastic film, then pass through a heating tunnel to form shrink wrapped PET bottle case.

- **Palletizer**

An automatic machine will stack the case in a specific configuration over a wooden pallet in layers format. Cardboard sheet will be placed after each layer of beverage cases & on top as well. The stack case will be stretched wrapped using thin plastic film to prepare pallet for shipment. The pallets will be lifted by fork lifters and stored in ware house for onward distribution



Process Flow Diagram - PET Filling Line

D. Shipping Process

To ensure sales orders are properly dispatched and documented as per centralexcise rules.

The following staff will be involved in shipping process

- Company's Attorney (CPM, or QCM in the absence of CPM).
- SCM: To prepare the shipping documents.
- Operators: To draw the product from the store for shipment.
- Supply Register: Recording day to day sales.
- QCM: Quality Control Manager.
- SCM: Supply Chain Manager

E. ASSOCIATED OPERATIONS

a. Boilers

A gas/diesel fired boiler will be installed to provide the steam for various beverage manufacturing processes including syrup preparation, bottle washing etc. The boiler will be with a steam generation capacity of 8 tons/h and at 10 bar pressure**.**

b. Air Compressors

Low Pressure & High-Pressure Air compressors will be installed in the facility to provide compressed air for different production processes. High pressure compressors producing compressed air at about 26 bars will be used for PET bottle blowing. Low pressure compressor working at about 10 bars will be used for various operations including for pneumatically driven equipment and for instrumentair.

c. Pre form manufacturing

During pre-form manufacturing PET resin will be fed through a hopper using vacuum suction to the injection molding machine. The machine will heat the resin to the required temperature and inject the molten resin under pressure in to the molds to produce PET bottle pre-forms. The pre forms shape is similar to a test tube with finished bottle head to fit the screw cap. Pre-form contains the specified weight of resin according to the type and size of PET Required**.**

d. Refrigeration

Ammonia based closed loop refrigeration system of about 6000 KW Capacity will be installed in the plant for catering the chilling requirements of the beverage lines and the syrup making facility. The main purpose of this system will be to bring the temperature of beverage to the required temperature during filling process. The air conditioning system of the plant and associated facilities will comprise of split type or similar units. No CFCs will be used in the air conditioning

2.9 Water consumption & waste generation

- Wastewater generated from unit will be treated in wastewater treatment plant.

2.6 Road Access

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

2.7 Vegetation Features of the Site

There is no vegetation present at the site.

2.8 Cost and Magnitude of Operation

Total cost of the project is 13 M USD and it covers the total area of 127,3680/ Square feet.

2.9 Schedule of implementation

The proponent is waiting for the environmental approval from environmental protection department. No Construction work has been initiated so far as the company is waiting for the Environmental Approval from the Department. After the approval, the project construction work would be carried out within 6-8 months.

Sr. #	Activities	2.5 Months			2.5 Months			2.5 Months			2.5 Months		
		4W	4W	2W	4W	4W	2W	4W	4W	2W	4W	4W	2W
1	Detailed Designing												
2	Mobilization of Contractors												
3	Lean Development Period												
4	Peak installation Period												
5	Plantation at Site												
6	Commissioning												*
W=Weeks													

2.10 Water Requirement:

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

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

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

2.11 Solid Waste Management

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

2.12 Atmospheric Emissions:

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

2.13 Electrical Works

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

2.14 Telecommunication

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

2.15 Fire Protection System

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

2.16 Restoration / Rehabilitation Plan

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

One completion of the project, the debris will be removed from the site in order to maintain aesthetics of the project. All measures will be undertaken for ensuring occupational safety, security and clean environment in the project area. Ornamental trees and flower plants will be planted on inside peripheral of the unit premises to restore the land.

2.17 Government Approvals Required by the Project

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

CHAPTER # 3

Description of Environment

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

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

3.1 Introduction

This chapter describes the baseline conditions, which cover the existing physical, ecological, and socioeconomic environment of the Study Area. Information on these aspects has been derived from the desk study of available data, field visits to the project area as well as information obtained through visits to the Government departments and other agencies namely Irrigation Department, Meteorological Department, Forest offices and prevailing environmental laws and environmental quality standards etc.

3.2 General

An environmental baseline study is intended to establish a database against which potential project impacts can be predicted and managed later. This section 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 project have been considered with respect to physical, biological and socio-economic aspects. A site visit was conducted to survey the field area and to collect environmental data on physical, biological and socio-economic 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 subjected project.

3.3 Physical Environment

3.4 Location:

Faisalabad lies in the rolling flat plains of northeast Punjab, at 186 meters (610 ft.) above sea level. The city proper comprises approximately 1,230 square kilometers (470 sq. mi) while

the district encompasses more than 16,000 square kilometers (6,200 sq. mi). The Chenab River flows about 30 kilometers (19 mi), and the Ravi River meanders 40 kilometers (25 mi) to the southeast. The lower Chenab canal provides water to 80% of cultivated lands making it the main source of irrigation. Faisalabad is bound on the north by Chiniot and Sheikhupura, on the east by Sheikhupura and Sahiwal, on the south by Sahiwal and Toba Tek Singh and on the west by hang.

3.5 Geology

The district of Faisalabad is part of the alluvial plains between the Himalayan foothills and the central core of the Indian subcontinent. The alluvial deposits are typically over a thousand feet thick. The interfluves are believed to have been formed during the Late Pleistocene and feature river terraces. These were later identified as old and young floodplains of the Ravi River on the Amalia and Chenab Plains. The old floodplains consist of Holocene deposits from the Ravi and Chenab rivers.

The soil consists of young stratified silt loam or very fine sandy loam which makes the subsoil week in structure with common kankers at only five feet. The course of the rivers within Faisalabad are winding and often subject to frequent alternations. In the rainy season, the currents are very strong. This leads to high floods in certain areas which do last for a number of days. The Rakh and Gogera canals have encouraged the water levels in the district however the belt on the Ravi River has remained narrow. The river bed does include the river channels which have shifted the sand bars and low sandy levees leading to river erosion. Faisalabad is situated at the center of the lower Rachna Doab, the area is located between the Chenab and Ravi rivers. There is a mild slope from the northeast to the southwest with an average fall of 0.2-0.3 meters per kilometer (1.1-1.6 feet per mile). The city is situated at an elevation of about 183 meters (600 ft.). The topography is marked by valleys, local depression and high ground.

Faisalabad stands in the rolling flat plains of northeast Punjab, between longitude 73°74 east, latitude 30°31.5 North, with an elevation of 184 meters above sea level.

There are no natural boundaries between Faisalabad and adjoining districts. The Chenab River flows about 30-Km (19 mi) to the north-west while the River Ravi meanders about 40 km (25 mi) south-east of the city. The lower Chenab canal is the main source of irrigation water, which meets the requirements of 80% of cultivated land. The soil of Samundari-

Faisalabad comprises alluvial deposits mixed with loess having calcareous characteristics, making it very fertile. Due to its high evapo- transpiration, Faisalabad features an arid climate.

The entire land mass up to long distances is flat and sizeable area is under industrial use. Canal water and sub soil are used for irrigation and industry. The project area contains unfolded sedimentary alluvial deposits which are seismically stable within a radius of 100-km. The nearest fault is the Salt Range Thrust (SRT) fault with no significant tectonic activity.

3.6 Soils

Soils form major relation with environment. They influence environment by their special qualities and more so through fertility. Types of soils besides providing food, clothes or housing population serve with special food and lumber products, medicinal plants etc. Soil should not be taken as a lifeless residual layer but it is a very dynamic element of environment in which very complicated physical, chemical and biological activities are constantly proceeding. In this way it is a dynamically changing and developing body. Soil scientists restrict the word soil or solemn merely to the surface material, which has come to have distinct layers or horizon over the extended period of time.

Soils have different meanings for different people. To a Soil Scientist, it means the upper a few layers created through weather effect in which plants are grown. The solid portion of soil is both organic and inorganic. The organic part consists of both living and decayed plant and animal materials.

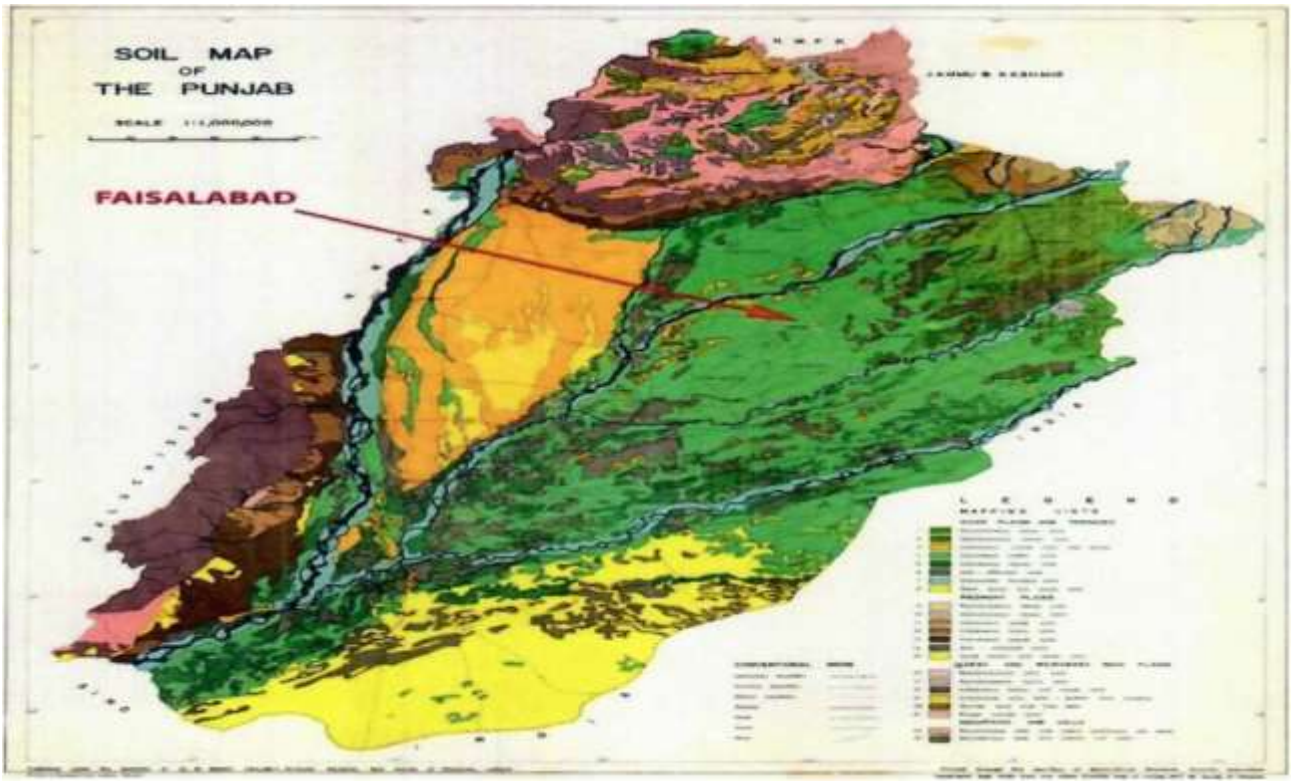


Figure 2 Indicates Project Area in Punjab Soil Map

The soils of the adjoining project area are fertile and rich in both organic and inorganic mass because the project site lies right into the center of the Ravi and Chenab River called as Rachna Doab. The area is made up of flood plain deposits of Qmx (Stream bed and meander belt deposits) and Qfx (flood plain deposits of lower terraces).

3.7 Climate:

Pakistan extends from 240 N to about 370 N with its western border lies close to 620 E. north eastern border extends to about 74/120 E and lies on the western margin of one of the major climatic regions of the world. Therefore, her climate is more continental. Reversal of wind system and variable character of monsoon are quite complex. A major part of Pakistan is dominated by dry climate. Temperature and amount of rain fall determine type of natural vegetation in any area.

These physical features have great bearing on climatology of the area like the entire country; the project area has also four seasons distinctly:

Cold weather season - December to March

Hot weather season - April to June

Monsoon season - June to September

Post Monsoon season - October and November

With the arrival of summer, the area becomes heated and low-pressure area is created. In the month of July atmospheric pressure rises 996.0 millibars in the area under reference. The major sources of the rain fall in the area include the Monsoon Rainfall (July, August & September), Western Depression Rainfall by western depressions and Thunderstorms Rainfalls (spring & autumn rainfall).

The weather in the city is monitored by the Pakistan Meteorological Department. The Pakistan Meteorological Department regularly provides forecasts, public warnings and rainfall information to farmers with the assistance of the National Agromet Centre. Average annual rainfall is approximately 784 millimeters (30.9 in). It is at its peak in July and August during monsoon season though western disturbances during winter months also bring considerable rainfall associated with hail.

Climate data for Faisalabad [hide]

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Record high °C (°F)	26.6 (79.9)	30.8 (87.4)	37 (99)	44 (111)	47.5 (117.5)	48 (118)	46.1 (115.0)	42 (108)	41.1 (106.0)	40 (104)	36.1 (97.0)	29.2 (84.6)	48 (118)
Average high °C (°F)	19.4 (66.9)	22.2 (72.0)	27.4 (81.3)	34.2 (93.6)	39.7 (103.5)	41.0 (105.8)	37.7 (99.9)	36.5 (97.7)	36.6 (97.9)	33.9 (93.0)	28.2 (82.8)	22.1 (71.8)	31.6 (88.9)
Average low °C (°F)	4.8 (40.6)	7.6 (45.7)	12.6 (54.7)	18.3 (64.9)	24.1 (75.4)	27.6 (81.7)	27.9 (82.2)	27.2 (81.0)	24.5 (76.1)	17.7 (63.9)	10.4 (50.7)	6.1 (43.0)	17.4 (63.3)
Record low °C (°F)	−2.9 (26.8)	−1.4 (29.5)	1 (34)	7 (45)	13 (55)	17 (63)	19 (66)	18.6 (65.5)	15.6 (60.1)	9 (48)	2 (36)	−1.3 (29.7)	−4 (25)
Average precipitation mm (inches)	31.5 (1.24)	41.3 (1.63)	49.1 (1.93)	43 (1.7)	24 (0.9)	103 (4.1)	202.4 (7.97)	190.6 (7.50)	100.3 (3.95)	9.8 (0.39)	2.6 (0.10)	20.4 (0.80)	743 (29.3)

Table- 3.1 Monthly Temperature and Precipitation

During winter the weather usually remains cloudy associated with frequent fog. Record-breaking rainfall of 264.2 millimeters (10.40 in) was recorded on 5 September 1961 by the Pakistan Meteorological Department.

3.8 Dust Storm

Storms rarely occur in the project area.

3.9 Earthquakes

The area is not listed in the seismic potential zone.

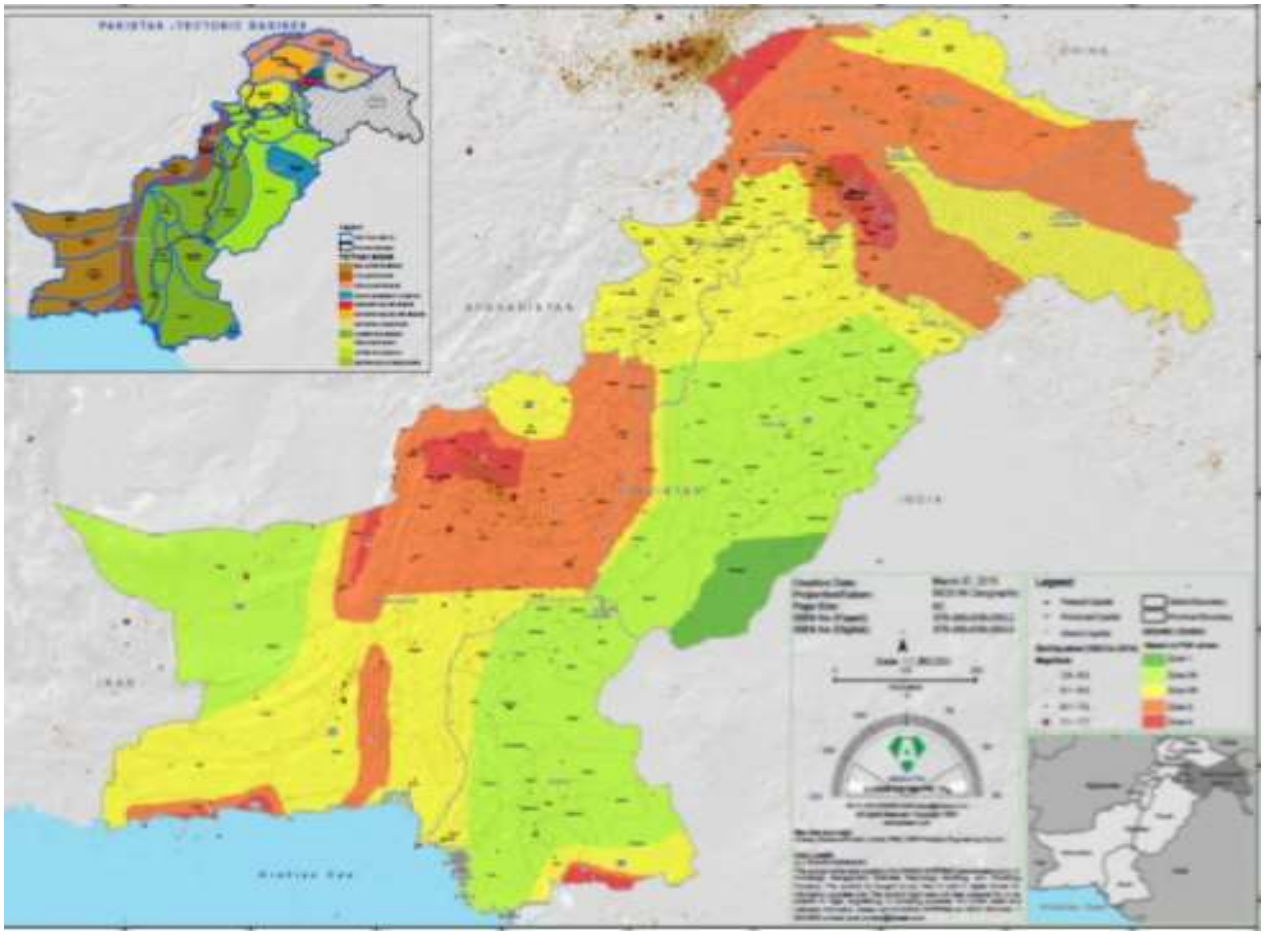


Figure 3 Pakistan Seismic Activities and Zoning Map

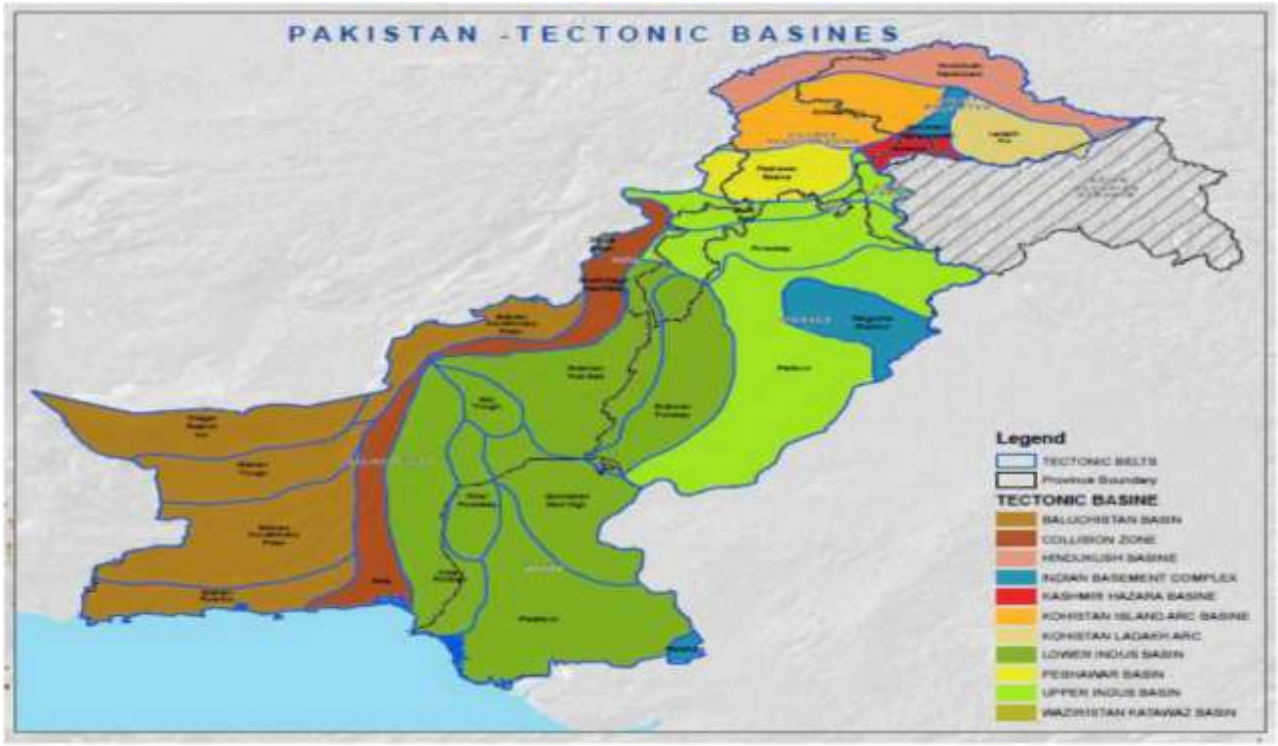


Figure 4 Pakistan Tectonic Basins

3.10 Biological Resources

There is no fish farming in the area either naturally or commercially.

3.11 Fishery and Aquatic Biology

The nearest natural drain has no fish. There is no fish farming in the area either naturally or commercially.

3.12 Biodiversity

Mainly a country's wilderness areas and scenic landscapes with their associated flora and fauna form natural capital of a country. Both collectively and within each level, the range or variety of the resources is referred to as the "Biological Diversity". The contribution of the "Natural capital" is recognized at three distinct levels including genera, species, and community -habitat and ecosystem.

Pakistan comprises of a total of nine major ecological zones and the term has relevance for each of Pakistan's administrative units—district, province, and particularly country. The greater the number of genera, species and habitats and ecosystems present within these units,

the greater is the biodiversity. It is in this background that the biodiversity of the area is discussed below.

3.13 Wildlife in the Project Area

The project is to be sited within the urban area of Faisalabad city; therefore, there is no likelihood of any wildlife, game reserves or else around the project site. On very limited scale the following native birds like sparrows, pigeons, crows, doves, rats, lizards, snakes, etc., are found here and there, like in all Punjab.

3.14 Flora in the Project Area

Since the project site is situated within the urban area of the city of Faisalabad. Therefore, there is no likelihood of any forest or any type of flora worth mentioning around the project area.

3.15 Socioeconomic development:

3.16 Economy of Faisalabad:

Faisalabad contributes over 20% toward Pakistan's annual GDP; therefore, it is often referred to as the "Manchester of Pakistan". Faisalabad's average annual GDP is $20.55 Billion (USD), of which 21% comes from agriculture. The surrounding countryside, irrigated by the Lower Chenab River, produces agricultural commodities such as cotton, rice, sugarcane, wheat, fruit and vegetables. The city has carved a niche as an industrial Centre with its highways, railways, railway repair yards, processing and engineering works. It is a producer of industrial goods and textile manufacturing including cotton and silk textiles, super phosphates, hosiery, dyes, industrial chemicals, clothing, pulp and paper, printing, agricultural equipment, ghee (clarified butter), and beverages.

The Faisalabad Chamber of Commerce and Industry monitors industrial activity in the city and reports their findings to the Federation of Pakistan Chamber of Commerce and Industry and provincial government. The city has a major dry port and international airport.

Faisalabad is recognized as the center of the textile industry in Pakistan, contributing to half of Pakistan's total textile shipments. At the end of June 2012, textile Pvt employed 20% of the nation's workforce, and generated 1.3 trillion rupees ($13.8 billion) in textile products, most

of which were exported to the US and Europe. While Punjab's economy is driven primarily by agriculture, the textile industry along with leather products and light engineering goods play an important role, with more than 48,000 industrial unit spread across Punjab. In an effort to boost bilateral trade, Romania and Turkey have honorary- consulates in Faisalabad which enable trade links with the city. The Faisalabad clock tower and its eight bazaars (markets) remain a major trading zone in the city. Each of the eight bazaars has a special name and is known for selling certain goods as follows:

i. Aminpur Bazaar supplies stationery and interior decor Aminpur Bazaar supplies stationery and interior decor
ii. Katchery Bazaar, named for the court (Katchery) is known for its mobile phone and accessory market.
iii. Kharkhana Bazaar is known for herbal medicines.
iv. Jhang Bazaar supplies fish, meat, vegetables and fruits.
v. Bhawana Bazaar supplies electrical and electronic goods.
vi. Rail Bazar is a gold and cloth market.
vii. Chiniot Bazaar is known for allopathic and homoeopathic medicinal stores, cloth, blankets, sofa cloth, and curtains. It also has poultry feed wholesale shops.
viii. Montgomery Bazaar (also known as Sutar Mandi) is known for yarn and raw cloth trading.
ix. Gol Bazaar contains dry fruit, as well as wholesale soap, oil, and ghee shops. Samundari-Faisalabad has received substantial funding from the government of Punjab and the city district government to improve infrastructure and roads to rural areas. In an effort to deal with the energy crisis, the FCCI has been working with private companies to develop renewable energy resources such as solar energy and the construction of dams within the district. CAE, a German- based renewable energy company, has disclosed plans to establish the first solar panel manufacturing facility in Faisalabad, second of its kind in Asia, with intentions of investing upwards of €100 million (Rs 12.9 billion) for its development

3.17 Traditional Crafts

There is no traditional craft worth mentioning in the Tehsil Samundari District Faisalabad. Samundari-Faisalabad has the greatest concentration of power looms in the country. More than 90,000 power looms are reported working in the Samundari Tehsil

3.18 Geographical Indications

The Project Director (Geographical Indications), Industries, Commerce & Investment Department, Government of the Punjab has identified the following Important Geographical Indications in the district:

- Power Looms (Textile Cloth)
- Agricultural Implements.

3.19 Education

Faisalabad is home to the University of Agriculture, Government College University as well as the Ayub Agricultural Research Institute. Divisional Public-School Faisalabad and National Textile University. The city has its own cricket team, Faisalabad Wolves, which is based at the Iqbal Stadium. There are several other sports teams that comPETe internationally, including hockey and snooker as well as other sporting events.

The education system is monitored by the District Education Officer of the City District Government of Faisalabad. The city government reports its findings to the Ministry of Federal Education and Professional Training and the Minister for Education. Funding is provided by the Government of Punjab, Pakistan. City District Government and the fees collected from schools. There are four levels of the education system in the city: Primary. Elementary. High and Higher Secondary Level.

3.20 Main Crops

Sugarcane. Wheat. Cotton. Maize. Moong and Rice are the main crops grown in the district. Besides. Tobacco. Bajra, Jawar, Mash, Masoor. Gram, Oil Seed such as Sunflower and Rape seed, Mustard Seed is also grown in minor quantities in the district.

3.21 Main Fruits

Guava, Citrus and Mango are the main fruits grown in the district. Besides, Banana, Phalsa, Pears and Peach are also grown in minor quantity in the district.

3.22 Main Vegetables

Potato, Cauliflower, Onion, Lady Finger and Tomato are the main vegetables grown in the district. Besides, Bottle Gourd, Carrot, Turnip, Brinjal, Garlic, Chilies, Radish, Bitter Gourd and Peas are also grown in the district in minor quantities.

3.23 Quality of Life Values

3.24 Roads

The majority of roads are under the control of the National Highway Authority, linking Faisalabad with other cities in the country.

3.25 National Highways and Motorways Passing Through Faisalabad

- Faisalabad is connected to various parts of the country by several National Highways and Motorways
- The Grand Trunk Road, otherwise known as GT Road, is the original highway that links Faisalabad to most parts of Pakistan as well as neighboring countries. GT Road was the main highway that ran through the district before the completion of the motorways
- The M3 motorway (Pakistan) or M3 is a controlled-access motorway connecting Faisalabad with the M2 motorway (Pakistan) or M2 via the Pindi Bhattian Interchange. The M2 was the first motorway connecting Rawalpindi and Islamabad to Lahore.

- The M4 motorway (Pakistan) or M4 is an access-controlled motorway connecting Faisalabad to Multan.

The district government has worked with the National Highway Authority to connect Multan and Faisalabad. The construction of the M4 is completed and opened for commutation. The new motorway will help reduce congestion, boost trade, and reduce travel times and transportation costs from Faisalabad, a major textile hub to the major trade Centre of Multan. One section of the M4 was inaugurated on 16 March 2015 which links Faisalabad to Gojra.

3.26 Buses

The Faisalabad Urban Transport System Service (FUTS) is the main bus operator within the city. It was launched in 1994, and operates a number of large buses and smaller Toyota hiace vans connecting the majority of the city. There is another public-private run bus operator. Brothers Metro, which is a consortium between the government of Punjab and a private firm who operates a fleet of air-conditioned CNG buses.

3.27 Rail

The Faisalabad railway station is the central railway station in the city. The railway line forms part of the Khanewal-Wazirabad railway line. Rail services are operated by Pakistan Railways, owned and operated by the Ministry of Railways.

Cargo Express services are operated by Pakistan Railways which runs from Karachi to Faisalabad via Multan. Twenty-seven bogies comprise the goods train, and are handled respectively by private contractors at the station. The station has a special cargo facility operated by the Ministry of Railways (Pakistan) for handling various goods from the city to other regions of the country. An express parcel service runs from Karachi to Lahore via Faisalabad

3.28 Air Traffic

Faisalabad International Airport is approximately 15 kilometers (9.3 mi) from the city centre and is a major airport for domestic and international travel. The airport includes a cargo facility. As of January 2016, passenger flights are run by the national flag carrier, Pakistan International Airlines, and a number of Middle Eastern carriers. There are seasonal Hajj

operations to Jeddah and Medina operated by Shaheen Air. Fly Dubai became the first international carrier to launch operations from the city followed by Qatar Airways, Air Arabia and Gulf Air.

In 2015. Significant upgrades and renovations to the airport were initiated by the Pakistan Civil Aviation Authority, including updates to aviation technology, construction of additional areas and services for travelers, and the expansion of air traffic capabilities to accommodate wide-body aircraft such as the Boeing.

3.29 General Quality and Availability of Sub-Soil Water

Underground water resources are generally brackish and are not suitable for human consumption and for irrigation. Tube wells have been installed along the banks of canals to supply drinking water to the inhabitants of cities.

3.30 Effluent Disposal Facilities

There are 93 drains nullahs in the district of varying lengths for effluent disposal. However, prior written permission from Irrigation and Power

Department. Government of the Punjab is necessary for discharge of effluent in the nullahs/drains, after pre-treatment to remove harmful ingredients.

3.31 Power Supply

There are 25 grid stations in the district ranging in capacity from 66 KV to 220 KV.

3.32 Natural Gas Availability

Natural gas is available in all main towns of the district.

3.33 Tele-Communication Facilities

There are 113 telephone exchanges operating in the district, ranging in capacities from 100 lines to 20630 lines. Cellular phone services are available in the district.

3.34 Industrial Estate

The Faisalabad Chamber of Commerce and Industry monitors industrial activity in the city and reports their findings to the Federation of Pakistan Chamber of Commerce and Industry and provincial government. The city has a major dry port.

Punjab Small Industries Corporation has established an industrial estate at Sargodha Road, Faisalabad over an area of 244 acres. A total number of 1020 of plots varying in sizes from 7 marlas up to 4 kanals have been developed. Out of which 65 allotments have been made to the Pakistani Entrepreneurs living abroad as well as allotted to different domestic entrepreneurs yet the colonization of estate is only about 80%.

3.35 Dry Port

Faisalabad Dry Port Trust handles imports and exports of various items. The export items are bleached cloth, printed cloth, dyed cloth, cream cloth (white color), grey cloth, garments, made ups, gents & ladies/children dresses, cotton yarn, cotton working gloves, power looms & parts, major starch, etc.

3.36 Suitability of site

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

CHAPTER # 4

SCREENING OF POTENTIAL ENVIRONMENTAL IMPACTS & THEIR MITIGATION MEASURES

This section identifies the potential impacts; related with design, construction and operation of the project on the physical, ecological and socio-economic domains of the environment. Accordingly, mitigation measures have also been proposed to manage the environment and for sustainable development.

Legal requirements of the PEPA and the PEQS Punjab will be the rating standard for the activities. Compliance with the EMP and EMMP, as per recommendations in this EIA report will be adhered to with full spirit.

Project Location

Construction of New PET and Glass Bottle Line M/S Coca Cola Beverages Pakistan Limited Situated At Plot No. 52-60, Industrial Estate Phase II, FIEDMC, Sahianwala Faisalabad.

The project proponent is filing with the EPA Punjab, written Affidavit and Undertaking on judicial papers, that the project throughout its life will operate under Environmental Management Order. Under these conditions the project at its all stages including from construction to regular operation will go in compliance with the PEQS. The project activities will, therefore, neither adversely affects the population nor the environment around the project site. Evaluation of the anticipated impacts from the project activity and their mitigation measures are described below

- ***Environmental impacts:***

Possible adverse effects caused by a development, industrial, or infrastructural project or by the release of a substance in the environment are called environmental impacts.

- ***Mitigation measures:***

Mitigation measures are means to prevent, reduce or control adverse environmental effects of a project, and include restitution for any damage to the environment caused by those effects through replacement, restoration, compensation or any other means

Strict environmental management will be observed during the project construction and regular operation phases. Legal requirements of the PEPA and the PEQS Punjab will be the rating standard for the activities. Compliance with the EMP, as per recommendations in this EIA report will be adhered to with full spirit.

The project proponent is filing with the EPA Punjab, written Affidavit and Undertaking on judicial papers, that the project throughout its life will operate under Environmental Management Order. Under these conditions the project at its all stages including from construction to regular operation will go in compliance with the PEQS. The project activities will, therefore, neither adversely affects the population nor the environment around the project site. Evaluation of the anticipated impacts from the project activity and their mitigation measures are described below measures are described below.

4.1 *Environmental Problems Due to Installation at Present Location*

Environmental problems related to location of the project are mostly in the areas of physical setting, socioeconomic setting, ecological setting and special areas. Field survey revealed that the impacts of the project due to its location are mostly insignificant in nature. This site is located within the Industrial area and has all basic facilities (e.g., road access, telephone lines, electricity, provision of water, and waste water discharge lines etc.) therefore selected site is most feasible for production of food items. Therefore, this option can be supported should be availed for larger benefit of proponent. The subjected site has least environmental & social impacts.

4.2 *Impacts during Pre-Construction and Construction Stage*

Construction activities will involve acquisition of land; establishment of contractor's camps, generation of dust, noise, soil erosion and contamination and solid waste generation from labor camps. Each impact of construction activities and their mitigation measures accordingly are discussed hereunder.

Table 4.1: Environmental Impacts and Mitigation Measures for Pre-Construction and Construction Phase

IMPACTS	MAGNITUDE	RECOMMENDATION MEASURE	RESPONSIBLE AUTHORITY
PRE-CONSTRUCTION PHASE			
Site Clearance	Minor	• Site clearance shall be carried out to in such a way that the clearance and grubbing waste is disposed immediately • In no case the waste material shall be disposed in the river or any other sensitive environment components.	Project Proponent
CONSTRUCTION PHASE			
AIR POLLUTION • Dust emissions likely to occur during the excavation of the top soil. • Dispersion of particles from Stockpiles during high velocity wind. • Dust resulting from construction Work		**DEVELOPMENT OF PROCEDURES FOR:** • All vehicles transporting construction material shall be covered with Tarpaulin to avoid fugitive dust during transportation. • Speed limits on unpaved surfaces on site to limitdust. • Watering all active construction areas when necessary. • Cover all trucks hauling soil, sand and other loose materials, soil stabilizers on all unpaved access	Project Proponent

		roads and staging areas at construction sites. • Fast growing trees will be planted around the project area to act as a wind breaker to reduce the particulate matter. • Covering or use of wind sheets around the stockpiles to avoid air pollution through dispersion.	
Waste • Construction waste from construction activities. • Domestic waste from worker's camp.		• Ensure prevention of inappropriate disposal of waste material. • Conduct separate collection of construction and domestic waste to promote recycling and re-use	Project Proponent
Water Quality • Run-off water from construction Area • Drainage of wastewater on ground can contaminate the soil and groundwater. • Inappropriate disposal of waste. • Open sewerage water disposal on land can contaminate ground water and cause generation of mosquitoes and various other insects		• Proper disposal of waste material on dumping sites to avoid leachate generation and contamination of ground water/surface water. • Prohibit illegal dumping of waste. • The quality of water (wastewater discharged from the camps) shall be analyzed once in three months during construction, for its compliance to the disposal's standards of pollution control authorities.	Project Proponent

in the area. • Leakage of oil and chemical materials from construction activity			
Noise: • Noise caused by construction machinery and vehicles used for mobilization of Construction equipment and workers.		• Control noise through control of working hours and selection of less noisy equipment. • Prohibit use of Pressure Horns. • Provision of acoustic enclosures (hood and shrouds) on generator. • Proper maintenance of vehicles and construction equipment. • The construction materials shall be properly maintained and barricades shall be provided around the site for reducing the noise levels. • Minimize/avoid unnecessary use of pneumatic drills and other noisy machinery. • The personal protective equipment (PPE) will be provided to the construction workers and its usage will be made mandatory	Project Proponent
Health and Safety: • Fall from height Accidents etc.		• Provide Personal Protective Equipment to workers • Health and Safety Training for all site personnel. • Documented procedures to be followed for all site activities. • Provide adequate welfare facilities to workers	Project Proponent

		• Proper arrangement of lighting to reduce accidents.	
Emergency Management		• First aid kits and emergency treatment facilities shall be provided at the work sites, camp sites and all other ancillary facilities.	Project Proponent
Project Site • **Loss of vegetation on site and clearance.**		• Clearance with successful restoration, improvement and long-term management of the surrounding areas for conservation and productive uses will provide significant compensation.	Project Proponent

4.3 *Impacts during operational phase:*

This section discusses the potential impacts from regular operation of the Project and associated facilities on the natural resources and environment of the site and vicinity. The plant invariably has no potential for environmental impacts during the operational phase of the project.

IMPACTS	MAGNITUDE	RECOMMENDATION MEASURE
Air Quality	Major	• Periodic maintenance and management of boiler. • Use of new, efficient vehicles, proper maintenance, rationalization of traffic management system to optimize transport efficiency.
WATER POLLUTION		• Preventative Maintenance and Monitoring Program • Runoff water is collected in the pond and discharged after appropriate treatment • Awareness training to be provided to all personnel regarding responsibilities to the environment
SOLID WASTES		• Implementation of waste management program consisting of reduce, reuse and re-cycling of materials • Systematic collection and protected storage of waste • Waste disposal at appropriate and designated site • Inspection and preventative maintenance of operational equipment and waste handling

HEALTH HAZARDS		• Workers would be provided with pre-employment medical checkups and during employment periodic health checkups. • Proper treatment of effluent before disposal • Provision of personal protective equipment
EMERGENCY RESPONSE		• The following mitigation measures will be adopted to minimize or eliminate the emergency situations: • The design of building will incorporate emergency exits during emergency situation. • Adequate water tanks should be designed, which could supply adequate quantity of water for firefighting during emergency. • Take boundary of safety tape around the electrical implements. • Never permit smoking, fires, or welding within the immediate area. • Avoid excessive heat, flame, or ignition sources. • Locate an ABC-type fire extinguisher in close proximity Avoid sources of high temperature and sparks in mixing areas. • Training of staff and employee will be conducted with regular intervals in order to train them. • First Aid facilities will be available at each block • The emergency numbers of Government Departments like Rescue 1122, Civil Defense, Fire Fighting, Bomb Disposal Squad, Local Police Station will be displayed at appropriate site of each block

TRAFFIC AND TRANSPORT		• Restricting delivery hours to reduce noise nuisance; avoid heavy truck movements in the night hours will be considered
ACCESS TO SOCIAL SERVICES		• Provision of employment to every affected person on fair basis.

4.4 *Potential Environmental Enhancement Measures*

As described above the worth mentioning devastate will be fumes emission, waste water and solid waste in project site. In order to enhance environment, the following measures will be adopted:

- Provide PPEs to worker
- proper separate place will be designated for dumping of solid waste before incineration
- Regular inspection will be done
- Periodic audits will be carried out to identify conservation measures
- Maintenance staff will be aware of handling and safe operation of formulation unit.
- The site should remain free from any garbage or rubbish.
- Development of buffer zone for attenuation of odor and air pollutant levels include design of plantation around the boundary, road side, office buildings and stretches of open land.
- Trainings will be conducted.
- EHS will be routine monitoring of air quality, water pollution etc. In case, the emission levels not exceed the acceptable level.
- Sewage will be discharged to the main sewerage system; after its primary treatment through WWTP; and also getting the permission from the competent authority.

CHAPTER # 5

5.1 *ENVIRONMENTAL MANAGEMENT AND MONITORING PROGRAM*

This section provides brief description of environmental progeny and moderation measures to eliminate and/or reduce environmental and social impingement to an acceptable level, institutional arrangement for the implementation of the mitigation measures and also carrying out environmental monitoring for air quality, water quality pollution related parameters.

5.2 *Objectives of Environmental Management Plan*

The objectives of the EMP arc as follow:

This EMP describes the mitigation and management measures to address the environmental issues during construction, its regular operation and decommissioning phases of the project

The Environmental Management Plan **(EMP)** aims to provide:

a) To outline functions and responsibilities of responsible persons.
b) To state standards and guidelines, which are required to be achieved in term of environmental legislation
c) To outline mitigation measures and environmental specifications which are required to be implementation for all phase of the project in order to minimize the extent of environmental impacts and to manage environmental impact associated with the subjected project.
d) To prevent long term or permanent environmental degradation

5.3 *Institutional Capacity*

Project Proponent will be responsible for Monitoring and Evaluation, but Environment consultant (of the proponent) will responsible to monitor EMP implementation in the field and reporting to the Project Proponent. The Project Proponent will integrate monitoring reports in the main monthly reports of the project. The Environment Specialist of Supervision

Consultant will carry out a final evaluation at the end of the Project. District Office of the EPA at the project area will monitor the overall activity at the site.

Table 5.1 explains the information about Personal Training Program.

PROVIDED BY	CONTENTS	TRAINEES/EVENTS	DURATION
Organizations specializing in environmental management and monitoring	Short seminars and courses Environmental laws and regulations daily monitoring and supervision	Three seminars for Project staff	3 days
Organizations specializing in social management and monitoring	Short seminars and courses on social awareness	Three seminars for Project staff dealing in social matters	3 days
Organizations specializing in occupational health	Short lectures relating to occupational health and safety	Two seminars for workers	2 days

5.4 *Environmental Management Plan (For Construction & Operation Phase)*

Environmental Management Plan (EMP) given in table 5.2 will be implemented for the better management of environmental issues which can be arises by the project activity.

TABLE 5.2 Environmental Management Plan (EMP)

Sr. No.	Project Component / Impact	Targets to be Achieved	Mitigation/ Preventive Action	Responsibility	
				Implementation	Monitoring
PRE-CONSTRUCTION PHASE					
1	**Clearance**	Minimize harm to the site	• Site clearance shall be carried out to in such a way that the clearance and grubbing waste is disposed immediately in the designated site identified for the project. • In no case the waste material shall be disposed in the sea or river or any other sensitive environment components.	By Contractor with coordination of Proponent staff	Project Proponent
CONSTRUCTION PHASE					
2	**Pollution:** • Dust emissions likely to occur during the excavation of the top soil. • Dust resulting from construction work • Use of heavy machinery can generate exhaust and dust emissions	Compliance with prescribed PEQS to control air pollution	Development of procedures for: • All vehicles transporting construction material shall be covered with Tarpaulin to avoid fugitive dust during transportation. • Speed limits on unpaved surfaces on site to limit dust. • Watering all active construction areas when necessary. • Cover all trucks hauling soil, sand and other loose materials, soil stabilizers on all unpaved access roads and staging areas at construction sites. • Fast growing trees will be planted around the project area to act as a wind breaker to reduce the particulate matter.	Contractor with coordination of Proponent staff	Project Proponent

			• Covering or use of wind sheets around the stockpiles to avoid air pollution through dispersion.		
3	**Waste Construction** waste from construction Activities Domestic waste from workers camp Construction waste from construction Activities Domestic waste from workers camp	• Proper & safe handling and disposal of construction related waste. • Compliance with applicable waste management rules for waste disposal. • Implementation of waste • Management plan	• Ensure prevention of inappropriate disposal of waste Material. • Conduct separate collection of construction and domestic waste to promote recycling and re-use. • No waste or debris will be thrown in the nearest canal water or other water bodies	Contractor with coordination of Proponent staff	Project Proponent

4	Water Quality • Run-off water from construction area. • Drainage of wastewater on ground can contaminate the soil and groundwater. • Inappropriate disposal of waste. Open sewerage water disposal on land can contaminate ground water and cause generation of mosquitoes and various other insects in the area. • Leakage of oil and chemical materials from construction activities.	• Control of ground water or surface water pollution from construction activity	• Proper disposal of waste material dumping sites to avoid leachate generation and contamination of ground water/surface water Prohibit illegal dumping of waste. • The quality of water (wastewater discharged from the camps) shall be analyzed once in three months during construction, for its compliance to the disposal standards of pollution control authorities.	During Construction Phase by Contractor with coordination of Proponent staff	Project Proponent

5	Noise • Noise caused by construction machinery and vehicles used for mobilization of construction. • Compliance with prescribed PEQS to control Noise pollution equipment and workers.	• Control noise through control of working hours and selection of less noisy equipment.	• Prohibit use of pressure horns. • Provision of acoustic enclosures (hood and shrouds) on generator. • Proper maintenance of vehicles and construction equipment. • Minimize/avoid unnecessary use of pneumatic drills and other noisy machinery • The personal protective equipment (PPE) will be provided to the construction workers and its usage will be made mandatory	During Construction Phase by Contractor with coordination of Proponent staff	Project Proponent
6	Health and Safety • Falls from working at Heights • Other Accidents etc.	• Prevention of any possibility of work site accident impact on worker's health	• Provide Personal Protective Equipment to workers. • Health and Safety Training for all site personnel. • Documented procedures to be followed for all site activities. • Provide adequate welfare facilities to workers. • Proper arrangement of lighting to reduce accidents.	During Construction Phase by Contractor with coordination of Proponent staff	Project Proponent
7	Emergency Management	• Prevention of any possibility of work site accident.	• First aid kits and emergency treatment facilities shall be provided at the work sites, camp sites and all other ancillary facilities.	During Construction Phase by	Project Proponent

				Contractor with coordination of Proponent staff	
8	Project Site • Loss of vegetation on site and clearance.	• Minimize Construction impacts on flora and fauna	• Clearance with successful restoration, improvement and long-term management of the surrounding areas for conservation and productive uses will provide significant compensation	During Construction Phase by Contractor with coordination of Proponent staff	Project Proponent
OPERATIONAL PHASE					
9	Air Quality Gaseous emission from machineries and from transport vehicles such as: •NOx •CO •S02 •PM • Heat	• Compliance with prescribed PEQS to control air pollution.	• Periodic maintenance and management of machineries • Use of new, efficient vehicles. • Proper maintenance, rationalization of • traffic management system to optimize transport efficiency. • Use of scrubbers to minimize the release of air contaminants to the environment. • Proper ventilation including diluted and • local exhaust ventilation as required by the equipment.	HSE officer of Project Proponent	Project Proponent

10	Water Pollution • Waste water arising from washing of: Spillage on floor Used bottles	• Control of groundwater or surface water pollution from operational activities.	• Preventative Maintenance and Monitoring Program • Installation of wastewater treatment plant so any wastewater produced complies with wastewater standards of PEQS • Runoff water is collected in the pond and discharged after appropriate treatment • Awareness training to be provided to all personnel regarding responsibilities to the environment.	HSE officer of Project Proponent	Project Proponent
11	Solid wastes • Sewage and garbage from workers.	• Proper & safe handling and disposal of waste. Compliance with applicable waste management rules for waste disposal. • Implementation of waste management plan	• Implementation of waste management program consisting of reduce, reuse and re-cycling of materials • Systematic collection and protected storage of waste • Waste disposal at appropriate and designated site • Inspection and preventative maintenance of operational equipment and waste handling	HSE officer of Project Proponent	Project Proponent

12	Health Hazards There may be high risk of following health hazards due to chemicals: • Skin diseases, Eye irritation, Lung's diseases, Manual handling, Lifting, holding, putting down, Pushing, Pulling, Carrying or movement of a load, Are few of the largest cause of injury in the	• Workers Health and Safety	• Workers would be provided with pre- employment medical checkups and during employment periodic health Checkups • Proper treatment of effluent before disposal • Provision of personal protective equipment • Workers would be trained to handle chemicals and heavy loads.	HSE officer of Project Proponent	Project Proponent
13	Emergency response There are always chances of natural or manmade disasters like: • Fires due to electrical short circuiting	• Prevention of any possibility of site accident	The following mitigation measures will be adopted to minimize or eliminate the emergency situations: • The design of building will incorporate emergency exits during emergency situation • Adequate water tanks should be designed, which could supply adequate quantity of water for firefighting during emergency. • Take boundary of safety tape around the electrical implements. • Never permit smoking, fires, or welding within the immediate area. • Avoid excessive heat, flame, or ignition sources. • Locate an ABC-type fire extinguisher in close proximity Avoid sources of high temperature and	HSE officer of Project Proponent	Project Proponent

			sparks in mixing areas		
			• Training of staff and employee will be conducted with regular intervals in order to train them. • First Aid facilities will be available at each block • The emergency numbers of Government Departments like Rescue 1122, Civil Defense, Fire Fighting, Bomb Disposal Squad, Local Police Station will be displayed at appropriate site.		
14	TRAFFIC AND TRANSPORT Increased heavy vehicles traffic	• Reduces risk of heavy traffic loads and related problems.	• Restricting delivery hours to reduce noise nuisance; avoid heavy truck movements in the night hours will be considered.	HSE officer of Project Proponent	Project Proponent
15	Access to social services Employment opportunities	• Empowerment of locals to possible extent. • Increase in employment and business opportunities for locals.	• Provision of employment to every affected person on fair Basis.	HSE officer of Project Proponent	Project Proponent

5.5 *Equipment Maintenance Detail*

Equipment should only be inspected, tested and maintained by qualified trained personnel. If any equipment is not in good operating condition, it should be repaired immediately. Authorized dealers will be responsible for maintenance of equipment's. Equipment procedures and maintenance guidelines should be kept in a central location for quick reference when needed

5.6 *Environment Management Cost*

The total cost for the environmental management is estimated as 800,000/- Pak Rupees.

5.7 *Environmental Monitoring Program*

The monitoring program is designed to ensure that the requirements of the NOC awarded by the EPA are met. Monitoring Program (MP) provides important information that allows for more effective planning and an adaptive response based on the assessment of the effectiveness of mitigation measures. The monitoring of various parameters will help to determine the extent to which project construction / operational activities will cause environmental disturbance. Following is a tentative plan for environmental monitoring;

SR. NO.	MONITORING PARAMETER	MONITORIG LOCATION	REMARKS
1	NOISE	Construction Vehicle/ Machinery/ Welding work	Construction vehicles / machinery will be checked regularly for noise level by the contractor during construction phase.
2	SMOKE EMISSIONS	Construction Vehicle/ Machinery/ generators	Construction vehicles / machinery / generators will be checked regularly for smoke emissions by the contractor during construction phase.
3	WATER QUALITY	Ground Water/Surface Water	Sampling and laboratory testing will be done on monthly basis during the Construction.

OPERATIONAL STAGE			
1	WATER QUALITY	Project area	Sampling and Water quality analysis tests will be done on monthly basis during the operational phase.
2	AIR	Project area	Air quality analyses will be done
3	NOISE	Project area	On daily quarterly basis

5.8 *Tree Plantation Plan*

The plan for development of buffer zone for attenuation of the noise and odor and air pollutant levels include design of plantation around the boundary, road side, office buildings and stretches of open land.

5.9 *Green Belt Design*

Extensive tree plantation will be carried out to act barrier to control escape of odor, if any, in the surrounding areas. As a part of tree plantation plan, plants which are moderately tolerant to the pollutants but are endowed with fast growing, dense foliage canopy will be planted. The number of plants to be grown along the boundary line of the area will be estimated after physical survey of during construction and will be approximately 1000 in single row with a tree-to-tree distance of 5ft/1.5m**.** The trees planted here will have dense spreading canopy. The trees will also be grown along the roads and the open stretches. This area will not only act as to reduce the pollution but also will increase the aesthetics of the area. So, the trees grown in this area must be flowering as well ornamental plants. All along the boundary of the treatment plant, a strip of plantation with trees which are tall in nature and evergreen in habit. This area will act as a barrier and as far as possible check the pollutants from their escape and potential contamination of other components of local environment.

5.10 *Ornamental Plants Preparation*

The HSE manager or designated person shall be responsible for the preparation of the lawn area and planting lawn. Sweet soil shall be placed in the lawn areas and raked. All stones in

excess of 1" in diameter and all rubbish soil shall be removed. Cover the sweet soil with 4" of well decomposed organic manure and mix into top 4" of the topsoil. Additional sweet soil shall be deposited as may be required to correct all settlement and erosion up to the date of acceptance at the substantial completion Inspection. The prepared surface shall be free from all rivulets, crusting and caking. The sub grade soil shall be sacrificed to a 12" minimum depth and brought to a true and uniform grade before dumping and spreading of sweet soil. The lawn bed shall be fine graded to remove all ridges and depressions. Surface irregularities resulting from this or other operations shall be leveled to prevent the depressions. Grades shall be adjusted to assure that the grades, after nature settlement and light rolling, will be 1" below adjoining grade of any paved areas,

Rolling shall be done in two directions at right angles to each other's. The roller shall be a water blast and roller weighing not more than 200 pounds, not less 150 pounds. Rolling shall be in such a manner so as to eliminate the necessity for walking on the finishing grades,

5.11 *Lawn Planting*

No lawn shad will be planted when temperatures are above 90° F or if the ground is in a muddy condition. The sweet soil surface shall be moistened with a fine spray immediately before planting. The lawn shall be planted according to acceptable standards practice in order to ensure a completely healthy grass cover. The planting procedures shall be approved by designated person at site.

5.12 *General Landscape Protection*

Planting areas and plants shall be protected all times against trespassing and damage of all kinds for the duration of maintenance period. If any plant/s become damage or injured, they shall be treated or replaced. Protection shall also include all temporary protections fences and barriers, all signs and all other work incidental to proper maintenance.

5.13 *Schedule of implementation*

The proponent is waiting for the environmental approval from environmental protection department. No Construction work has been initiated so far as the company is waiting for the Environmental Approval from the Department. After the approval, the project construction work would be carried out within 6-8 months.

Sr. #	Activities	2.5 Months			2.5 Months			2.5 Months			2.5 Months		
		4W	4W	2W	4W	4W	2W	4W	4W	2W	4W	4W	2W
1	Detailed Designing												
2	Mobilization of Contractors												
3	Lean Development Period												
4	Peak installation Period												
5	Plantation at Site												
6	Commissioning												
W=Weeks													

5.14 *Environment 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. Project proponent allocated the Environmental Budget for the Training, maintenance and management of Environment is 200,000/- quarterly that will include maintenance of equipment's, restoration, plantation, and strategic planning to cope with any emergency situation and formulate the disaster management plan to cope with natural disaster.

5.15 *Environmental Practitioners and Experts/Environmental Management Team*

Name	**Post**	**Qualification**
Talha Abid	HSE Manager	MPhil Environmental Sciences (NEBOSH)
Ali Malik	HSE Officer	MPhil Environmental Sciences
Abdul Rehman	Senior Environmental Officer	MPhil Environmental Sciences

Masooma Batool	HSE Officer	BS Environmental Sciences
Haris Razzaq	Environmentalist	BS Environmental Sciences
Fajar waheed	Environmentalist	BS Environmental Sciences

Following functionaries will be involved in the implementation of EMMP:

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

Designation	Responsibilities
Manager	• Direct operations at the site. • He will act as team lead. • Effectively motivate staff to follow protocols and to work productively. • Look after the Health and Safety Related issues. • Responsible for scheduling staff and ensuring that supplies are stocked.

Accountant	• Proper management of the funds for the CSR. • Development of fund proposal for environment related expenses. • Ensuring the smooth transaction of funds for environmental related projects/activities. • He will prepare the yearly budget. • Taking minutes in meetings and other administrative duties. • During his shift timings, he will be responsible to look into smooth functioning of the process in environmentally sustainable way. • He will be responsible to rectify any problem regarding environmental matter in collaboration with concerned authorities. • Prepare reports on different events and incidents. • He will report all matters regarding E.M. to the manager.

5.16 *Proposed Monitoring Program to Asses performance or output of EMP*

Monitoring Instrument:

Particulate Matter (PM10)

For PM10 mini volume air sampler was used. In PM10 Sampler air is drawn into the omnidirectional inlet head at a flow rate of 20 LPM. The air is then accelerated toward the first impaction stage where particulate with aerodynamic diameters greater than 10 µm are collected (filtered out). The air stream, carrying particulate 10 microns and smaller, continues down the inlet toward the second impaction stage where particles larger than 2.5 microns are collected. Finally, particulate 2.5 mm and smaller continue down the inlet where they are collected on a 46.2 mm diameter, ring supported filter media disc.

Noise Level

The description of the instrument used for the noise level monitoring is given below:

Name: Digital sound level meter

Model: AR824

Company: Intel Instruments plus

Features:

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

- ✓ Utilizes 0.5"(12.7mm) condenser microphone

Calibration:

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

Specification:

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

Methodology adopted:

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

Sources of Noise Pollution

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

Water Quality:

Lab analysis results of ground water in the area has already submitted in EPA, with case submission documents.

5.17 *Proposed EMP reporting and reviewing procedure*

The EMP shall specify the procedures for the review and revision of the EMP during Project implementation and have a version control procedure. At a minimum, the site-specific EMP shall be reviewed by the Contractor to determine if an amendment or a major revision is warranted:

- At least once every six (6) months or on a seasonal basis;
- As a result of changes in the project or changes in the anticipated environmental effects of the project;
- After corrective actions have been taken in response to an environmental incident;
- after an adaptive management measure has been proposed
- A material revision is one which would be relevant to the question of whether an adverse environmental effect is more likely to occur, or become more adverse, and be significant;
- After a material revision of the EMP is proposed that changes a commitment such as:
    - a reduction or increase of monitoring or reporting requirements; or making a specification less stringent or more stringent

5.18 *Training Schedule*

In order to effectively operate the EMP all the staff to be engaged in this activity will be trained extensively. The person to monitor gaseous emissions, PM and noise levels will be extensively trained to handle his job capably. Training program will include use of monitoring instruments, data generation, processing, interpretation, recording and presentation. Proponent will also be conducting the Personal Training Program at different level to address different responsible persons which involved in project. Training will be done on quarterly basis

CHAPTER # 6

INVOLVEMENT OF STAKEHOLDER/ PUBLIC CONSULTATION

6.1 Public Consultation Process

Stakeholder participation in planning and management of the social and environmental issues assists in reducing the concerns of stakeholders and hence increases public acceptance towards development programs. Consultation process entitles the stakeholders with opportunities to participate in key decisions that will affect their lives. Therefore, detailed public consultation meetings were arranged at different levels of the planning process. For this purpose, periodic consultation meetings were held with various project stakeholders. Different aspects and impacts of the proposed project were highlighted regarding their impacts on the physical, biological, and socio-economic environment of the project area. Stakeholders' trepidations regarding various aspects like existing environment, and impacts of the project on the surrounding environment were emphasized and have been added to this report.

6.2 Objectives of the Public/Stakeholders Consultation

Public consultation plays a vital role in studying stakeholders' perspectives regarding the project and henceforth the successful implementation and execution of the proposed project. Public involvement is a compulsory feature of Environmental Impact Assessment, which leads to improved and acceptable decision-making. The primary objective of the stakeholders' consultations was to learn and know the apprehensions, concerns, and opinions of the key stakeholders over environmental implications of the project activities from public perception. The consultation sessions also served as a source of firsthand information about the users and the beneficiaries' expectations from the project. Dialogue with the stakeholders and recording their concerns at appropriate stages of the project would help to tailor the project in line with stakeholders' aspirations and so increases the likelihood for public acceptance of the project and its subcomponents. It also helps to develop and maintain communication links between the project proponents and stakeholders, providing opportunities to the public to influence the project design in a positive manner. This ensures that the views and concerns of the stakeholders are incorporated into the project design and

implementation with the objectives of reducing or offsetting negative impacts and enhancing benefits of the proposed project.

6.3 Methodology

6.3.1 Responsible Authority

The consultation process began with the identification of the most pertinent stakeholders. Identification of the stakeholders for the proposed project plays a crucial role in development and also assists in quantifying the role of different stakeholders involved. Impacts identified by the stakeholders are measured through matrix method and mitigation measures are proposed according to the intensity of the identified impacts. Efforts were made to identify the relevant stakeholders through a systematic process based on the nature and degree of their actual and perceived stakes related to the project.

6.3.2 Issues Discussed with the stakeholders

Following issues were discussed during the stakeholder consultation meetings:

- Concerns, apprehensions, and views of the community and the stakeholders over the project activities relating to design, construction and operational aspects.
- Probable adverse impacts of the project activities on various components of the environment i.e., physical, biological, and social components
- Possible remedies for the concerns and apprehensions, how the concerns can be effectively addressed?

Identification of any specific personal or site related concerns

- How the project operations can happen in accordance with user/beneficiaries' expectations?
- Beneficial factors and involvement opportunities of the local people in the set of activities of project during construction and operational phases.
- Material's transport management during construction and operational phase of the project.
- Management of water, wastewater and solid waste during construction and operational phase of the project.

- Natural hazards, associated risks and precautionary measures.
- Traffic issues subjected to activities during different phases of the project.

6.4 Environmental Practitioners and Expert

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

The proposed Project does not have direct impacts on any individual; therefore, no primary stakeholders are identified. Secondary stakeholders are institutional stakeholders, which includes Project Proponent, local Government representatives, and Government officials of the relevant departments, NGO, general public, local residents, shop keepers, vendors, hospital owners/staff, teachers, pedestrians, and businessmen/traders of the city. The categories of the stakeholders who provided useful feedback, included:

- Project Proponent
- Government officials
- Environmental practitioners and experts
- Teachers/students
- Shopkeepers

All those stakeholders have different types of stakes according to their involvements in various aspects of the Project. The consultant tried to contact all the stakeholders and shared their views and concerns and also interacted with the community-based organizations that can support the community.

Meetings with Stakeholders/ Environmental Practitioners and experts

A series of consultation was carried out with stakeholders and general public in nearby areas.

The purpose of this survey was to achieve the objectives of the consultation, highlight the main issues in the implementation of the proposed Project and finally propose mitigation measures. Open and close ended questionnaire was used to collect the views concerning the

assessment survey. Scoping sessions and informal group discussions were also carried out with local residents and local government representatives regarding the proposed Project. The outcome of whole consultation process was very encouraging. The following issues were discussed during Informal Meetings with local representatives:

i. Brief Description of the Project
ii. Current economic condition in the area
iii. Suggestions for improvement in the current industrial system and all activities related to industry
iv. Perceptions about the proposed Project
v. Perceived impacts of the proposed Project

The local poor people predominantly requested for unskilled and semi-skilled jobs during implementation of the Project. On the basis of the consultations so far, it appears that the Project will have no insurmountable environmental and social impact. The community generally supported the proposed Project. They have opinion that the Project will not only provide livelihood during construction stage, but also will help to eradicate the burning issue of regarding import of materials.

Other Departments and agencies

Proponent has also consulted with other departments and they are completely satisfied with this project installation.

Proponent applied for other department NOC and will be provided in an operational phase of the project.

Responsible Authority

HSE manager will be responsible for all the operational activities

Environmental Practitioners and Experts

Name	Post	Qualification
Talha Abid	HSE Manager	MPhil Environmental Sciences (NEBOSH)
Ali Malik	HSE Officer	MPhil Environmental Sciences

Abdul Rehman	Senior Environmental Officer	MPhil Environmental Sciences
Masooma Batool	HSE Officer	BS Environmental Sciences
fajar waheed	Environmentalist	BS Environmental Sciences

Proponent Environment Management Team

Talha Abid	HSE Manager
Ali Malik	HSE Officer
Abdul rehman	Senior Environmentalist

Affected and Wider Community

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

Summary of Issues Raised by Stakeholders

A summary of the key issues raised by stakeholders and how these are being addressed by Project Proponent is provided in Table below.

Issue	Aspect/Concern raised by Stakeholders	Project Proponent Commitments
Employment Opportunities	Expectations of employment are very high. Job opportunities are less for herders as they generally have less skills and training.	Employment is the main priority of the industry. Mostly locally skill and unskilled labor will be prioritized and also there will be job in executive level. Around 100 people will be employed by the industry.

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

Affected and Wider Community

There is no population present in the safe radius of the site that's why community will not be disturbed due to project operation. Although, Job opportunities for local will increase after the approval of this project.

CHAPTER # 7

IMPACT ASSESSMENT METHODOLOGY

7.1 What is the problem?

The proposed project is the establishment of "Construction of New PET and Glass Bottle Line M/S Coca Cola Beverages Pakistan Limited Situated at Plot No. 52-60, Industrial Estate Phase II, FIEDMC, Sahianwala Faisalabad". In addition, to the noise and fugitive dust emissions during the development phase solid waste management and disposal issues may arise along with wastewater disposal issues. The major impact associated with the "Construction of New PET and Glass Bottle Line M/S Coca Cola Beverages Pakistan Limited Situated at Plot No. 52-60, Industrial Estate Phase II, FIEDMC, Sahianwala Faisalabad"

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

The impacts from the "Construction of New PET and Glass Bottle Line M/S Coca Cola Beverages Pakistan Limited Situated at Plot No. 52-60, Industrial Estate Phase II, FIEDMC, Sahianwala Faisalabad" will occur during the development and operation due to the civil work involved and the people residing in the project area. These issues included; noise generation, fugitive dust emissions, solid waste management, wastewater disposal, top-soil removal, Health and Safety issues and change in the geographic features of the area. These all problems should be addressed on-site where they are being generated, to avoid the residual or adverse impacts.

7.3 Where problem should be addressed?

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

7.4 How the problem should be addressed?

Proper mitigations measures will be provided according to the nature of the impacts/problems. For example, against dust emissions sprinkling of water may be done on regular basis, for solid waste proper solid waste management and disposal practices may be

adopted, to manage liquid waste proper treatment may be made before discharging into the receiving body.

7.5 Ways of Achieving Mitigation Measures?

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

7.5.1 Changing in Planning Design

There is no endangered and threatened species present in the project area that could be impacted due to the installation of the facility. Moreover, there is not any human settlement or infra-structure that will be dislocated or dismantled due to the proposed project development. No adverse impact is therefore being envisaged due to the installation of the facility in the proposed location as the process employed is controlled as for the management of the wastewater a WWTP will be installed and for the management of the solid waste and by-products a proper waste management plan will be formulated. Hence, there is no need to change the design of project.

7.6 Improved Management and Monitoring Practices

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

a. Compensation in Money Terms

Due to the construction of the facility, the vegetation present on-site will be removed and the geography/landscape of the area will be slightly changed on the permanent basis, however, there is no protected or environmentally sensitive area present within 10.0 km vicinity of the project that could be impacted due to project, no compensation in the monetary terms will be required. However, for the removal of the one tree from the area 3-5 trees will be planted as the compensation along the facility boundary.

b. Replacement/Relocation/Rehabilitation

The proposed project is located in industrial area. There is no sensitive area, population or natural resource is present which could be impacted due to the installation of the facility. No

replacement, relocation and rehabilitation are required because construction and operation of project.

7.7 Prepare Environmental Management Plan

Management plan is already discussed in chapter 6 (Environmental Management and Monitoring plan)

CHAPTER # 8

CONCLUSION AND RECOMMENDATIONS

The report presents Environmental Impact Assessment (EIA) Study for the "Construction of New PET and Glass Bottle Line M/S Coca Cola Beverages Pakistan Limited Situated at Plot No. 52-60, Industrial Estate Phase II, FIEDMC, Sahianwala Faisalabad". EIA Report of project is performed according to guidelines of Environmental Protection Agency (Punjab). It includes; description of the project, description of the environmental baseline's conditions, potential environmental impacts and suggested mitigation measures that are supposed to be adopted to control the same. An implementation mechanism for mitigation measures in the form of an Environmental Management Plan is included in the study. The performed EIA Study showed all anticipated impacts (both positive and negative), associated with the project are with the prescribed limited of the applicable standards. Appropriate mitigation measures as explained in the above sections will reduce, if not eliminate, these impacts so that these are within acceptable limits. Moreover, no deterioration, depletion or exploitation of local natural resources is expected to be caused by this project implementation. Based on overall assessment of the environmental impact of the project, it is concluded that the project is not likely to cause any significant adverse impact on the social, physical and biological environment of area, provided that suitable mitigation measures as identified in this study are implemented with true spirit. 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.

Based on the study conducted for Environmental Impact Assessment (EIA) of the project, the following conclusions are made:

8.1 *Conclusions*

- The EIA study reveals that the project is economically viable, socially acceptable and environment friendly.
- It will generate additional jobs during establishment and operation phases.
- Project is environmental friendly and pollution free

- The proponent has committed to implement the project in the environment friendly manner.
- Project proponent has ensured to install the waste water treatment system to treat the domestic waste water prior to discharge into drain or use for irrigation purposes.
- Project proponent has ensured to adopt the proper solid waste management system.
- Proponent has ensured to adopt all the necessary measures to control any impact if resulting from the project.
- Project proponent has ensured to provide the safe drinking water to all workers and staff.
- The proponent has committed to implement the project in the environment friendly manner.
- Project Proponent has already prepared and implemented very comprehensive Emergency Preparedness and Response Standard Operating Procedures.
- Project Proponent has already prepared and implemented very comprehensive Security and Fire Fighting Standards Operating Procedures.

8.2 *Recommendations:*

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

- No activity should be undertaken at the site which could pose any sort of a threat to public health.
- Worker should be provided with ear plugs or ear muffs (PPEs) like mufflers, goggles, safety gloves, safety shoes, etc.
- Separate parking spaces should be demarcated at the site for parking of vehicles.
- Establishments shall be regularly advised to keep noise levels within acceptable limits.
- Waste minimization practices should be employed and workers should be encouraged to adopt such methods.
- Wages should be distributed on time and wages should not be below minimum wages as prescribed.

- Workers should be told and encouraged to use PPE's.
- Proper ventilation can limit the amount of indoor air pollutants.
- 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.
- Obligatory insurance should be provided to work laborers against accidents.
- Basic medical training should be provided to the specified work staff and basic medical service and supplies to workers.
- Prohibiting flammable materials.
- 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 Environmental Management & Monitoring Plan should be implemented with true spirit.

Annexure: A

Glossary

I. **Ambient:** relating to the immediate surroundings of something

II. **Base line:** Conditions prevailing at the time of study or before initiation of any project

III. **Baseline:** Conditions prevailing at the time of study or before initiation of any project

IV. **Discharge:** means spilling, leaking, pumping, depositing, seeping, releasing, flowing out, pouring, emitting, emptying or dumping

V. **Effluent:** means any material in solid, liquid or gaseous form or combination thereof being discharged from industrial activity or any other source and includes a slurry, suspension or vapor

VI. **Environment budget**: Monitory assets reserve for environmental activity.

VII. **Environment:** means air, water and land; all layers of the atmosphere; all organic and inorganic matter and living organisms; the ecosystem and ecological relationships; buildings, structures, roads, facilities and works; all social and economic conditions affecting community life; and the inter-relationships between any of the factors mentioned

VIII. **Environmental Impact Assessment:** means an environmental study comprising collection of data, prediction of qualitative and quantitative impacts, comparison of alternatives, evaluation of preventive, migratory and compensatory measures, formulation of environmental management and training plans and monitoring arrangements, and framing of recommendations and such other components as may be prescribed

IX. **Fauna:** Animal life occurring in particular region or time.

X. **Flora:** plant life occurring in particular region or time.

XI. **Human Settlement:** A cluster of at least 50 houses.

XII. **Initial Environmental Examination:** means a preliminary environmental review of the reasonably foreseeable qualitative and quantitative impacts on the environment of a proposed project to determine whether it is likely to cause an environmental effect for requiring preparation of an environmental impact assessment

XIII. **National Environmental Quality Standards:** means the permissible standards for emission of air pollutants and noise and for discharge of effluent and waste

XIV. **Nuisance:** A person, thing or circumstances causing inconvenience or annoyance.

XV. **pH:** negative log of hydrogen concentration:

XVI. **Proponent:** the person who intends to carry-out a proposed project.

XVII. **Sustainability:** means such developments that meet the needs of the present generation without compromising the ability of future generations to meet their needs

XVIII. **Waste:** means any material, substance, or by-product eliminated or discarded as no longer useful or required after the completion of a process

Annexure: B

Abbreviation

EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EMMP	Environmental Management and Monitoring Plan
EPA	Environmental Protection Agency
EPO	Environmental Protection Ordinance
ESMF	Environmental & Social Management Framework
GOP	Government Of Pakistan
IEE	Initial Environmental Examination
Km	Kilo Meter
Kmp/h	Kilo Meter Per Hour
PEQS	Pakistan Environmental Quality Standards
NOC	No Objection Certificate
NWFP	North West Frontier Province
PEPA	Pakistan Environmental Protection Act
PCGIP	Punjab Cities Of Governance Improvement Project

EMMP	Environmental Mitigation & Monitoring Plan
WAPDA	Water And Power Development Authority
TMA	Tehsil Municipal Administration

Annexure: C

References

Guidelines for Preparation and Review of Environmental Report

Guidelines for Public Consultation

Labor Laws

Meteorology Department Data (From Website)

National Environmental Policy

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

OSHAS 1800 for Health and Safety

Pakistan Environmental Protection Act, 1997

Pakistan Environmental Protection Agency (Review of IEE/EIA) Regulations

Pakistan Environmental Protection Order (PEPO) 1983

Sectoral Guide Lines for Environmental Reports, Industrial States

The Land Acquisition Act 1894

The Punjab Local Government Ordinance, 2001

Terms of Reference for Environmental Impact Analysis

1.0 Introduction

IES Environmental Solutions has been asked to submit the technical proposal for this project to fulfill the legal requirements under Pakistan Environmental Protection Act 1997 (amended 2012).

Part A- Completion of EIA

2. Environmental Impact Analysis

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

3. Responsibility of Consultant

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

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

1) **Procedure of Environmental Assessment**

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

a. Kick of meeting with client to collect the requisite information regarding project i.e. Design reports, drawings, feasibility study, topographic survey etc. Site topographical surveys and underground reservoir survey reports will be shared by client.
b. Site survey and environmental monitoring of groundwater, noise, wastewater and ambient air quality.

c. Socioeconomic survey of the area.
d. Secondary data collection from district department (Forest, drainage, meteorological)
e. Assessment of environmental and socioeconomic project and mitigation measures
f. Preparation of environmental management and monitoring plan.
g. Environmental assessment report preparation and submission to client for review and comments if any.
h. Follow up of case in EPA till its final Environmental Approval Responsibilities of the Client

Responsibilities of the Client

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

B) Securing NOC and Approval from Govt. Departments

a. Consultant will prepare and submit a complete final Environmental Assessment report to the client along with requisite documents provided by the proponent for onward submission to EPA Punjab securing NOC.
b. Consultant, as required by environmental law, will submit the report along with bank draft of review fee in the name DG EPA, application, affidavit and undertaking provided by the client.
c. EPA Punjab raises queries on EIA report and sends to the client. At this stage, consultant will reply all the queries raised by EPA. Client will submit the reply to EPA.

d. After the approval of Environmental report, a notice for the committee of experts for the proposed project will be issued by EPA Punjab to the client. Consultant will prepare and deliver presentation before committee of experts. All the questions raised by committee of experts will be responded by the consultant.
e. After committee of experts, NOC is issued to the client.
f. Consultant will facilitate the client till the issuance of NOC by concerned Government Department from EPA Punjab.

Proponent **Consultant**