



BLUME

**“CONSTRUCTION OF BLUME AGRI (PVT) LIMITED,
SHEIKHUPURA.”**

ENVIRONMENT IMPACT ASSESSMENT (EIA) REPORT

July-2023



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QUALITY CONTROL SHEET



QUALITY CONTROL SHEET						
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EXECUTIVE SUMMARY

S.1.1 PROJECT TITLE AND LOCATION

The project, for which this Environmental Impact Assessment (EIA) Study has been conducted, is the construction of Blume Agri Pvt. Limited located in Located in Quaid-E-Azam Business Park Sheikhupura on Plot # 100B, 99B, 89B, 90B.

S.1.2 PROJECT PROPONENT

Blume Agri is a joint venture between Descon Holdings (private) Limited and Rafum Corporation (private) limited and Mustapha Yousaf. The company intends to set-up a state of the art, fully automated and integrated fruit processing plant (air-dehydration of fruits, vegetables, and spices) employing global best practices of the industry.

Mr. Mustapha Yousaf, the proponent of project, is intended to get Environmental approval for the construction of said unit by submitting the Environmental Impact Assessment Report for the compliance of section 12, PEPA, 1997 (Amended 2012).

Table 0-1, Details of Project Proponent

Name of Proponent	Mr. Mustapha Yousaf
CNIC	35202-2495703-7
Project Name	Construction of Blume Agri (Pvt) Limited
Mailing Address	House No. 13A E/1, Mohalla Gulberg-3 Lahore

S.1.3 THE EIA STUDY CONSULTANT

ASIAN Consulting Engineers Private Limited (AsCE) is providing their services to conduct environmental assessment for the project. ASIAN Consulting Engineers Private Limited is an independent consulting company working in the field of environment. Asian provides consulting services and sustainable solutions for infrastructure projects, industrial projects and social development projects.

The team of experts are given as under:-

Sr. No.	Team Member	Position Held	Qualifications
1	Aleem Butt	Chief Environmentalist Team Leader-ESIA	M.Phil. Environmental Sciences, Government College University (GCU)Lahore M.Sc. Environmental Sciences, Punjab University (PU), Lahore NEBOSH, Lead Auditor

2	Noman Ashraf	Environmental Specialist	M.Phil. Environmental Sciences, Government College University (GCU) Lahore PGD, Environmental Law University of the Punjab, Lahore
3	Nimra Nawaz	Environmental Specialist	M.Phil. Environmental Sciences, University of Engineering and Technology (UET) Lahore
4	Ayesha Rasheed	Environmentalist	BS Hons Environmental Sciences, Government College University (GCU) Lahore
5	Hafsa Mehmood	Environmentalist	BS Environmental Sciences The University of Lahore
6	Asma Butt	Sociologist	M.Sc. Sociology, university of the Punjab
7	Engr. Umair Tallat	Sr. Field Engineer	M.S. Environmental Engineering, NUST Islamabad
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S.1.4 BRIEF DESCRIPTION OF THE PROJECT

Food is the basic need of man as such food security is vital for the health of a nation, more so, for its independence and honourable living among the community of nations in the world. A hungry nation, what to speak of honour and prestige, cannot even maintain its independence. For achieving primary goal of stability of a political Government, it is very essential to realise the importance of food security in the country. No sensible nation would tolerate food insecurity particularly in the face of mounting population pressure which leads to further widening of already existing disparities. Furthermore, it can lead to conflicts, create chaos and tyranny among the people. Primary goal of every individual nation is to fight against hunger.

FAO has defined Food Security as “access by all people at all times to the food needed for an active and healthy life”. It reflects the desire to eliminate hunger and malnutrition. The World Food Summit (1996) has elaborated the concept by adding into it the dimension “when all the people at all the times have physical and economic access to sufficient, safe and nutritious food to meet the dietary needs and food preferences for active and healthy life”.

Pakistan faces significant challenges in achieving food security. The demand for food, exceeds the available supply, leading to widespread under-nourishment among the population. The high population growth rate, currently over 3 percent per annum, exacerbates the problem. Despite improvements in healthcare and declining mortality rates, the per capita availability of food grains is expected to worsen.

Fruits and vegetables are dried to enhance storage stability, minimize packaging requirement and reduce transport weight. Preservation of fruits and vegetables through drying based on sun and solar drying techniques which cause poor quality and product contamination. Energy consumption and quality of dried products are critical parameters in the selection of drying process. An optimum drying system for the preparation of quality dehydrated products is cost effective as it shortens the drying time and cause minimum damage to the product. To reduce the energy utilization and operational cost new dimensions came up in drying techniques. Among the technologies osmotic dehydration, vacuum drying, freeze drying, superheated steam drying, heat pump drying and spray drying have great scope for the production of quality dried products and powders.

The project is the construction of **Blume Agri (Pvt) Limited**. Blume Agri, a joint venture between Descon Holdings (private) Limited, Rafum Corporation (private) Limited, and Mustapha Yousaf, aims to establish a cutting-edge, fully automated, and integrated fruit processing plant. The plant will specialize in air-dehydration of fruits, vegetables, and spices, utilizing global best practices in the industry.

The proposed multi-food processing line is designed to have a daily capacity of 10 tons for processing various fruits and vegetables. The range of produce includes apples, bananas, plums, apricots, peaches, onions, garlic, red chilies, tomatoes, and leafy vegetables such as mint, coriander, spinach, and more.

Air-dehydration is a common method used in the food industry to remove moisture from fruits, vegetables, and spices, thereby extending their shelf life and preserving their nutritional value. By employing global best practices, Blume Agri aims to ensure that their processing plant meets the highest standards in terms of efficiency, quality control, and food safety.

The integration of automation in the processing plant will likely streamline operations, increase productivity, and reduce human intervention. This will result in consistent product quality, reduced processing time, and potentially lower production costs.

Overall, Blume Agri's vision is to establish a state-of-the-art facility that leverages advanced technologies and industry expertise to offer high-quality, air-dried fruits, vegetables, and spices to local and international

markets.

S.1.5 BRIEF OUTLINE OF THE PROPOSAL

Name of the proposed project	Blume Agri Pvt. Limited
Purpose of the Project	To set-up a state-of-the-art, automated food processing plant (air-dehydration of fruits, vegetables, and spices) employing global best practices of the industry.
Process Details	
Manufacturing Process	Raw Material Receiving → Presorting → Preparation → Dehydration Storage & Dispatch
Raw material	Dehydrated Fruits, Vegetables and Spices.
Production Capacity	1 Ton per day finished product
Land Requirement	
Total Area of Industry	08 Acers
Covered Area	3.1 Acers (Future expansion) = 2.4 Acers
Status and location	
Location of the proposed site	Quaid-e-Azam Business Park Sheikhpura.
Water Requirement	
Water consumption for the project	5,400 Litres/day during construction phase. During operation phase, plant will use 900 Cu ft per day with 04 processing lines for pre-sorting (if required) and preparation of raw material whereas 6120 Liters/day will be used for domestic purpose.
Ways of extraction	
Source of Water consumption	Groundwater (both during construction and operational phase)
Source of waste water	Construction phase: Construction and domestic activities Operation Phase: For washing of raw material and domestic activities.
Mode of treatment	Construction phase: Wastewater will be generated mainly from kitchen and Flushing. Some wastewater will be produced from construction activities. Wastewater during construction phase will be treated with gravity based septic tanks. Operation Phase: Fruits, vegetables and spices water will be evaporated. Only domestic wastewater will be produced that will be gravity based septic tanks.
Solid Waste	

Source of solid waste generation	Construction phase: Construction and domestics waste. Operation Phase: Estimated solid waste will be 4 to 5 tons/day (depending upon fruits, vegetables and spices quantity). Domestic solid waste would be approximately 34 ton/day.
Mode of disposal	Construction phase: Construction waste will be reused during the construction activities as road filling and maintenance purpose. Domestic waste would be recycled or remaining would be handed over to local contractor. Operation Phase: As the waste mainly would be peels from fruits/vegetables the waste may be converted into compost or used as animal feed. Domestic waste would be recycled or remaining would be handed over to local contractor.
Manpower	
Labor Force	About 50-75 persons during construction
	About 85 persons during operations
Power requirements	
Source of power	Power requirements at the project site will be fulfilled by LESCO from transformer of 1000 KVA.
Gas Connection Capacity	0.0000001 million cubic feet per day
List of Machinery	- Dehydrator System manufactured by TecnoFrutta Italy. - Preparation Table manufactured by VICENZA Italy. - Universal multi-cut slicer manufactured by Turrati Italy. - Compact abrasive peeler manufactured by Turrati Italy.

S.1.6 LOCATION

Land coordinates are given below:

North	Open Industrial Plot
South	Open Industrial Plot
East	Roadside
West	Agricultural Land

For further details, google earth map of the project is attached here under.

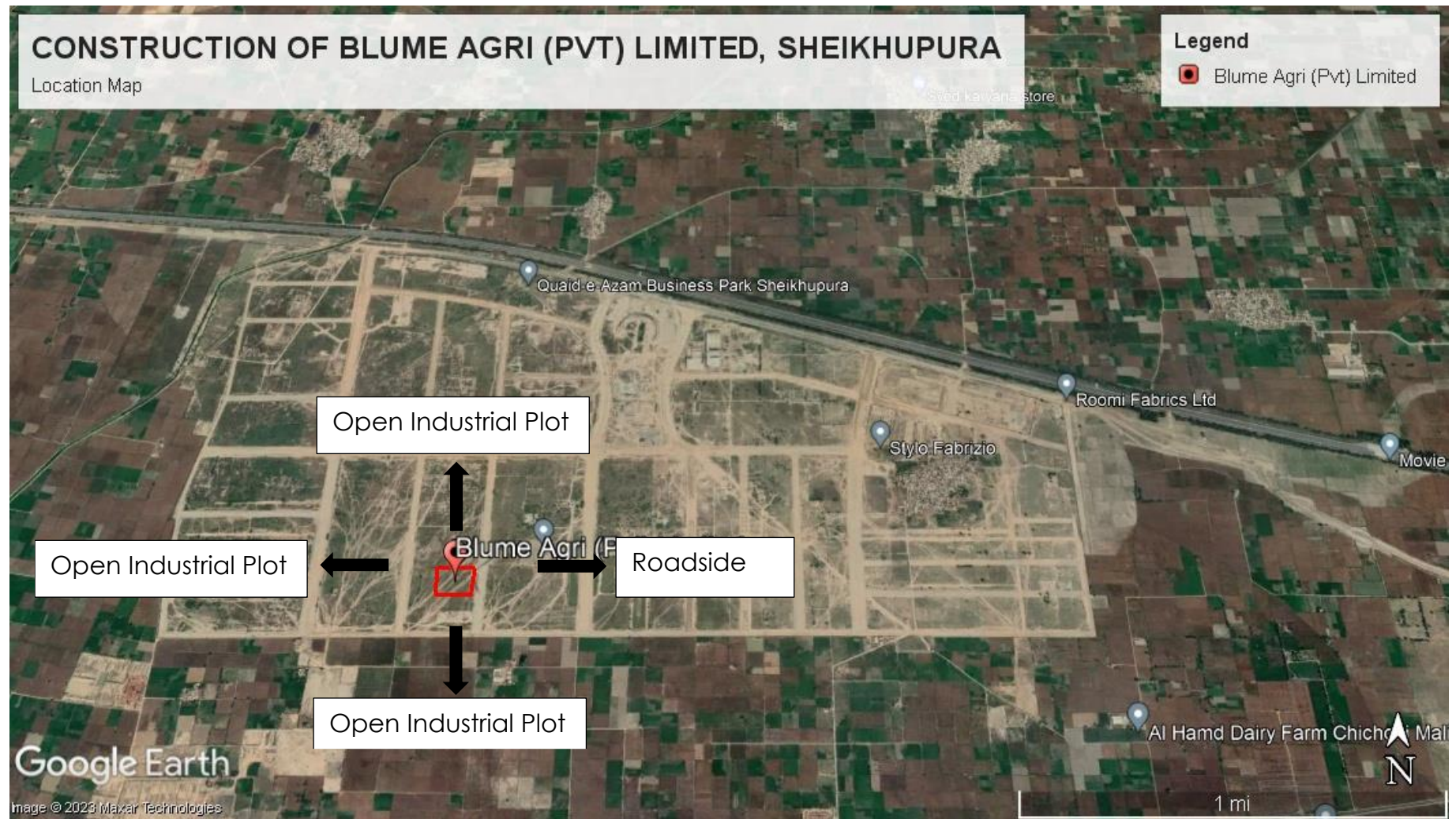


Figure 0-1, Location Map of Project Site

S.1.7 MAJOR IMPACTS & THEIR MITIGATIONS

In order to identify all the activities associated with the project during construction & operation phase with potential to cause significant environmental impacts and harm a thorough review has been conducted. Project will not have significant negative impacts on the nearby community and on environment. And, the project will have positive impacts on the local population and country as a whole.

Table 0-2, Summary of Major Impacts during Construction & Operation Phase

Pollutant	Constructional Phase	Operational phase
Air Quality	- Particulate matter will be generated during the constructional and transportation activities at the site - Due to raw materials loading/ unloading	Dehydration processes often involve the generation of fine particles, which can contribute to air pollution and respiratory issues. VOCs released during the dehydration process can contribute to the formation of ground-level ozone and can have detrimental effects on air quality and human health. The dehydration process can generate strong odors, which can cause nuisance issues for nearby communities Energy consumption during dehydration processes can contribute to greenhouse gas emissions and air pollution if generated from fossil fuel sources.
Gaseous emissions	Flue gases will be generated due to site generators and vehicles	The use of boilers, generators, and other equipment emits gaseous pollutants like NO_x, SO_x, CO₂, PM, and CO, further impacting air quality
Noise	Noise will be only generated due to construction machinery and vehicles transporting materials	Sources of noise pollution: - Raw material and finished goods loading/unloading - Vehicle movements - Operation of machines - Impact on workers - Hearing damage - Stress and fatigue - Communication difficulties

Pollutant	Constructional Phase	Operational phase
Odor	Nil	Smell of rotten fruits, vegetables and spices.
flora and fauna	Few trees, herbs and shrubs are present which would be prevented during construction.	No impacts on flora and fauna.
Solid Waste	Solid waste will be generated due to construction and domestic sources. Also due to sludge from septic tank	Dehydration processes can generate organic waste such as peels, cores, or residual plant material. Improper disposal of organic waste can lead to odor, pests, and environmental pollution Dehydrated fruits, vegetables, and spices often require packaging materials, such as plastic bags or containers. Improper management of packaging waste can contribute to landfill waste and environmental pollution.
Soil Contamination	Soil can be contaminated due to leaching of oil, fuel, any stored oil.	Soil can be contaminated due to leaching of oil, fuel, any stored oil.
Waste water	Waste water will be generated from constructional and domestic sources	Dehydration processes typically require water for washing, rinsing, or steam generation. Improper water management can lead to excessive water consumption and wastewater generation.
Health and safety issues	Health and safety issues will be arising due to machinery handling and constructional activities	Slips, Trips, and Falls: Wet or slippery floors, cluttered work areas, or uneven surfaces can increase the risk of slips, trips, and falls, leading to injuries. Improper use of machinery, lack of training, or malfunctioning equipment can result in injuries, including cuts, burns, or entanglement. Repetitive motions, awkward postures, or lifting heavy loads can lead to musculoskeletal disorders (MSDs) and physical strain.

Pollutant	Constructional Phase	Operational phase
		Workers may be exposed to chemicals, such as cleaning agents, pesticides, or fumigants, which can cause skin irritation, respiratory issues, or long-term health effects. Electrical malfunctions, improper wiring, or flammable materials can pose fire hazards and electrical shocks Working in high-temperature environments during the dehydration process can lead to heat-related illnesses, including heat exhaustion or heatstroke.
Socioeconomic	Disturbance to neighbors by constructional activities	Employment opportunity

S.1.8 RECOMMENDATION FOR MITIGATION MEASURES

Trainings will be provided to workers for better implementation of mitigation measures. Regular Monitoring and Inspections will be conducted to evaluate the implementation of Plans.

Pollutants	Recommendations during Construction phase	Recommendations during Operation phase
Particulate matter (PM)/dust	- Sprinkling of water will be done - All constructional raw material will be kept covered.	- Wet scrubber is installed on sulfuric acid stack. - Maintain vehicle speeds.
Gaseous emissions	- Constructional machinery and vehicles will be tuned and maintained properly. - All project vehicles will be checked regularly	- Canopies should be built over generators to avoid noise pollution. (if any) - Generators should be maintained properly. - PPEs should be provided to workers where needed. - Multi scrubber system will be installed to mitigate gaseous emission - All the places within the unit are paved to avoid any dust emissions during loading/unloading and transportation.
Noise	Vehicles to carry raw	Ear plugs/muffs will be

Pollutants	Recommendations during Construction phase	Recommendations during Operation phase
	materials will be operated during night time as far as possible. • Ear plugs will be provided in case of heavy noise	provided to workers in case the noise exceeds the PEQS during working hours. • Proper Maintenance of machines and generated will be done to avoid noise. • Trainings for safe driving practices & HSE trainings of the employees and workers will be recommended. • Within the unit, horns are prohibited during working hours and speed limit of 15 km/hour should be permissible.
Odor	• Nil	• Proper selection of produce • Cleaning and washing • Sanitizing equipment • Adequate ventilation: • Separate strong-smelling produce: • Use odor absorbers • Regular cleaning and maintenance • Use natural deodorizers • Proper waste disposal
Impacts on flora and fauna	• Only herbs and shrubs are present currently at project site	• Plantation will be done at project side during operation in order to improve the environment of the area.
Solid Waste	• Constructional waste will be utilized for road filling and maintenance • Domestic waste was disposed of properly, handed over to contractors, placed in bins.	• Waste bins are placed at suitable places. • Colored Bin System is recommended in company. • Domestic/office waste will be handed over to the contractor.
Soil erosion/Soil Contamination	• Placed plastic sheet under generator or leaching material to avoid leaching (if any) • Less removal of vegetation or clearing of land	• Soil contamination will be controlled by maintaining leakage record of vehicles, and by regular inspection. • Fuels are already in practice to be stored properly at safe place. • Where needed, secondary

Pollutants	Recommendations during Construction phase	Recommendations during Operation phase
		containments are used to secure environment.
Waste water	Construction waste will be treated in septic tank before disposal in any drain.	Waste water from Industry will be treated in Septic tank.
Health and safety issues	- PPEs will be provided to workers during constructional activities. - First aid will be provided to project related employees. Specially the worker dealing with loading and unloading of Fuel	Blume Agri Pvt. Limited will designate teams for HSE concern emergency equipment like fire extinguishers, spill kits, water hydrant system, effective use of PPEs and first aid are already well managed.
Socioeconomic	- People will be informed in advance when work is about to start at the site. - Job opportunity was provided to local people of the area	- Community wellbeing should be considered and neighbor's privacy should not be disturbed. - Local people should be preferred for the employment.

S.1.9 PROPOSED ENVIRONMENTAL MONITORING

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

- **Ambient Air**

Quarterly monitoring for ambient air should be conducted during construction & operational activities of the project and report should be submitted to EPA Punjab.

- **Noise**

Quarterly monitoring for noise level should be maintained periodically during construction & operational phases of the project and report should be submitted to EPA Punjab.

- **Water Quality**

Quarterly monitoring of water quality should be conducted during construction & operational phases of the project and report should be submitted to EPA Punjab.

Detailed Schedules of Environmental Monitoring is [resented in chapter 7 of this report.

SECTION - 1: INTRODUCTION

Food is the basic need of man as such food security is vital for the health of a nation, more so, for its independence and honourable living among the community of nations in the world. A hungry nation, what to speak of honour and prestige, cannot even maintain its independence. For achieving primary goal of stability of a political Government, it is very essential to realise the importance of food security in the country. No sensible nation would tolerate food insecurity particularly in the face of mounting population pressure which leads to further widening of already existing disparities. Furthermore, it can lead to conflicts, create chaos and tyranny among the people. Primary goal of every individual nation is to fight against hunger.

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The project is the construction of **Blume Agri (Pvt) Limited**. Blume Agri, a joint venture between Descon Holdings (private) Limited, Rafum Corporation (private) Limited, and Mustapha Yousaf, aims to establish a cutting-edge, fully automated, and integrated fruit processing plant. The plant will specialize in air-dehydration of fruits, vegetables, and spices, utilizing global best practices in the industry.

The proposed multi-food processing line is designed to have a daily capacity of 10 tons for processing various fruits and vegetables. The range of produce includes apples, bananas, plums, apricots, peaches, onions, garlic, red chilies, tomatoes, and leafy vegetables such as mint, coriander, spinach, and more.

Air-dehydration is a common method used in the food industry to remove moisture from fruits, vegetables, and spices, thereby extending their shelf life and preserving their nutritional value. By employing global best practices, Blume Agri aims to ensure that their processing plant meets the highest standards in terms of efficiency, quality control, and food safety.

The integration of automation in the processing plant will likely streamline operations, increase productivity, and reduce human intervention. This will result in consistent product quality, reduced processing time, and potentially lower production costs.

Dehydration of fruits and vegetables can align with several Sustainable Development Goals (SDGs). Here's how it relates to specific goals:

Zero Hunger (SDG 2): Dehydration can help reduce food waste by preserving surplus fruits and vegetables. By dehydrating and storing them, they can be used as nutritious food sources during times of scarcity or distributed to areas with limited access to fresh produce, contributing to achieving zero hunger.



well-being.

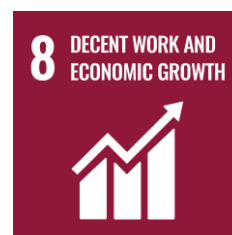
Responsible Consumption and Production (SDG 12): Dehydration is a sustainable method of food preservation. It helps extend the shelf life of fruits and vegetables without the need for refrigeration or preservatives. By reducing food waste and promoting efficient use of resources, dehydration supports responsible consumption and production patterns.



Sustainable Cities and Communities (SDG 11): Urban areas often face challenges in accessing fresh and affordable fruits and vegetables. Dehydrated fruits and vegetables can be used as a nutritious and convenient alternative, making it easier to provide healthy food options in urban environments. This aligns with creating sustainable cities and communities that promote well-being and access to adequate food.



Decent Work and Economic Growth (SDG 8): The dehydration process can create opportunities for income generation and entrepreneurship. It enables farmers, particularly small-scale producers, to diversify their income streams by adding value to their crops through dehydration. This can contribute to local economic growth, job creation, and poverty reduction



By aligning dehydration of fruits and vegetables with these SDGs, we can promote sustainable food systems, reduce waste, mitigate climate impacts, support livelihoods, and enhance access to nutritious food.

Overall, Blume Agri's vision is to establish a state-of-the-art facility that leverages advanced technologies and industry expertise to offer high-quality, air-dried fruits, vegetables, and spices to local and international markets.

1. PURPOSE OF THE REPORT

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

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

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

2. IDENTIFICATION OF THE PROJECT AND PROPONENT

According to the IEE and EIA Regulations, 2022, **“The Construction of Blume Agri (Pvt) Limited”**, project falls under Schedule II (List of projects requiring an EIA), Category B (Manufacturing and Processing), and Clause 4 (*Food Processing Industries*) thus requires Environmental Impact Assessment (EIA):

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

Mr. Mustapha Yousaf, the proponent of project, is intended to get Environmental approval for the construction of said unit by submitting the Environmental Impact Assessment Report for the compliance of section 12, PEPA, 1997 (Amended 2012). The details of the proponent are given below:

Table 1-1, Details of Project Proponent and Project

Name of Proponent	Mr. Mustapha Yousaf
CNIC	35202-2495703-7
Project Name	The Construction of Blume Agri (Pvt) Limited
Mailing Address	House No. 13A E/1, Mohalla Gulberg-3 Lahore
Nature/ Feature of the project	Industrial Area

3. THE CONSULTANT

Asian Consulting Engineers Private Limited is providing their services to conduct environmental assessment for the project. Asian Consulting Engineers Private Limited is an independent consulting company working in the field of environment. Asian provides consulting services and sustainable solutions for infrastructure projects, industrial projects and social development projects.

The team of experts are given as under:-

Sr. No.	Team Member	Position Held	Qualifications
1	Aleem Butt	Chief Environmentalist Team Leader-ESIA	M.Phil. Environmental Sciences, Government College University (GCU) Lahore M.Sc. Environmental Sciences, Punjab University (PU), Lahore NEBOSH, Lead Auditor
2	Noman Ashraf	Environmental Specialist	M.Phil. Environmental Sciences, Government College University (GCU) Lahore PGD, Environmental Law University of the Punjab, Lahore
3	Nimra Nawaz	Environmental Specialist	M.Phil. Environmental Sciences, University of Engineering and Technology (UET) Lahore
4	Ayesha	Environmentalist	BS Hons Environmental Sciences,

	Rasheed		Government College University (GCU) Lahore
5	Hafsa Mehmood	Environmental	BS Environmental Sciences The University of Lahore
6	Asma Butt	Sociologist	M.Sc. Sociology, university of the Punjab
7	Engr. Umair Tallat	Sr. Field Engineer	M.S. Environmental Engineering, NUST Islamabad
8	Muhammad Abbas	Field Officer	M.S. Environmental Sciences, PU Lahore

The contact details for the company are given as under:-

Asian Consulting Engineers Private Limited

Tel: +92 42 35450914-5 | **Fax:** +92 42 35450916 | **Mobile:** +92 321 4260133

E-mail: arslan.hanif@asiancon.com, aleem.butt@asiancon.com

Address: C-3, Jhelum Block, Green Forts-II, Lahore, Pakistan.

4. BRIEF DESCRIPTION OF PROJECT

1.1.1 Nature & Size of Project

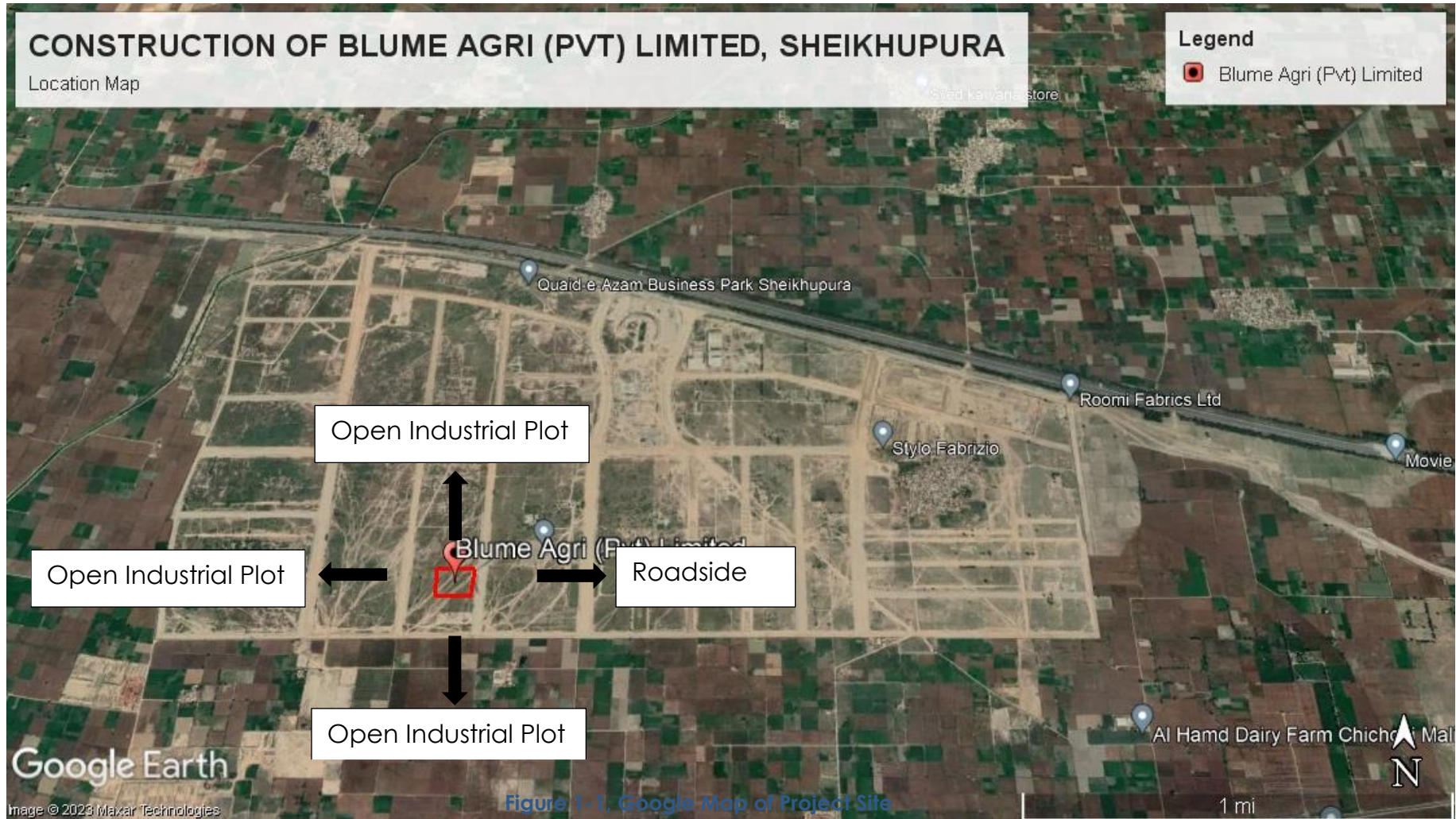
The project for which this Environmental Impact Assessment (EIA) Study has been conducted for **Construction of The Blume Agri (Pvt) Limited**. that is to be located in Quaid-e-Azam Business Park Sheikhupura on an eight-acre land plot (Plot # 100B, 99B, 89B, 90B) and is food processing unit that intends to set-up a state-of-the-art, automated food processing plant (air-dehydration of fruits, vegetables, and spices) employing global best practices of the industry. The proposed multi-food processing line will have the capacity to process initially 10 tons per day of fruits and vegetables such as apples, bananas, plums, apricots, peaches, onions, garlic, red chillies, tomatoes, and leafy vegetables (mint, coriander, spinach etc.) Initially comprising of one process line further lines are to be added as per business requirements.

5. LOCATION

Land coordinates are given below:

North	Open Industrial Plot
South	Agriculture Land
East	Roadside
West	Open Industrial Plot

For further details, google earth map of the project is attached here under.



SECTION - 2: SCREENING AND SCOPING OF PROJECT

6. SCREENING OF THE PROJECT

According to the IEE and EIA Regulations, 2022, Construction of Blume Agri (Pvt) Limited. project falls under Schedule II (List of projects requiring an EIA), Category B (Manufacturing and Processing), and Clause 4 (Food Processing Industries).

Table 2-1, Spatial and Temporal Boundaries of Environmental Assessment

Spatial Boundaries	Temporal Boundaries
REGIONAL: Impact could extend to the region surrounding the proposed Project	YEAR ROUND: Significant throughout the year
LOCAL: Impact limited to the local area in close proximity to the proposed Project	SEASONAL: Significant on a seasonal basis, depending on nature of valued environmental component (VEC)

7. IMPORTANT ISSUES AND CONCERNS RAISED DURING CONSULTATION

During the survey, the respondents were asked for their opinions on the proposed project. Only few respondents expressed concerns regarding dust and noise issues during the construction phase, while majority had positive reviews and supported the construction of the project. These individuals emphasized the importance of completing such projects within the scheduled timeframe. This viewpoint is commonly shared when it comes to construction projects, as extended timelines can lead to prolonged disturbances and inconveniences for the community.

It is common for large construction projects to generate dust and noise during the construction phase. This can be attributed to activities such as excavation, demolition, and heavy machinery operation. Implementing measures such as dust suppression techniques, noise barriers, and scheduling construction activities during appropriate hours can help address these concerns.

Overall, the survey results indicate a mix of opinions, with some respondents expressing concerns about dust and noise issues during the construction phase, while others highlight the importance of completing the project within the planned timeframe. These insights can be valuable for project developers and authorities to consider while addressing community concerns and managing construction projects effectively.

8. SIGNIFICANT IMPACTS AND FACTORS TO BE DETERMINED

- Soil Contamination and Erosion
- Ground water contamination

- Air quality deterioration
- Noise Pollution
- Waste material
- Labor HSE issues

SECTION - 3: ANALYSIS OF ALTERNATIVES

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

9. THE NO PROJECT ALTERNATIVE

Globally, the issue of food insecurity has taken the central stage of policymakers. Nearly a billion people across the world experience the effects of food insecurity with the largest proportion of undernourished people living in Asia and the Pacific Islands, followed by Sub-Saharan Africa.

Pakistan has also been one of the worst-impacted nations in the world in terms of a massive increase in the number of chronically food-insecure populations. Food insecurity in Pakistan is influenced by several factors. Firstly, the country faces challenges in agricultural productivity due to issues such as limited access to quality seeds, irrigation systems, and modern farming techniques. Insufficient infrastructure and lack of mechanization contribute to low crop yields. Secondly, recurring natural disasters like floods, droughts, and earthquakes negatively impact agricultural production, leading to crop losses and reduced availability of food. Thirdly, poverty and income inequality are significant drivers of food insecurity. A large portion of the population lacks the means to access nutritious food, resulting in inadequate diets and malnutrition. Moreover, inadequate social safety nets, limited access to education and healthcare, and political instability exacerbate the problem. Lastly, issues of food waste and inefficient distribution systems contribute to food insecurity by further limiting the availability and affordability of food for vulnerable populations. Addressing these multifaceted challenges requires a comprehensive approach involving agricultural reforms, infrastructure development, poverty alleviation measures, and social safety net programs.

The project "Blume Agri Private Limited" aims to make a significant contribution in combating food insecurity through the dehydration of fruits, vegetables, and spices. By utilizing modern dehydration technologies and practices, the project intends to address various challenges associated with food availability, preservation, and accessibility. Through the dehydration process, the project will extend the shelf life of perishable fruits, vegetables, and spices, thereby reducing post-harvest losses and ensuring a more reliable and stable food supply. By harnessing the nutritional benefits of these produce, the project will create dehydrated products that retain their essential vitamins, minerals, and fibre, providing a nutrient-rich food source even during non-harvest seasons.

In addition, the project will focus on working closely with farmers, providing them with technical expertise, training, and access to quality seeds and modern farming techniques. By improving agricultural productivity, the project aims to enhance the availability and quality of raw materials for dehydration, positively impacting the livelihoods of farmers and contributing to increased food security at the grassroots level.

Considering the information provided, it is evident that the implementation of the proposed project on dehydration of fruits, vegetables, and spices will have a positive impact on addressing food-related issues in Pakistan. This project has the potential to contribute to combating food insecurity by extending the shelf life of perishable produce and ensuring a stable food supply. Additionally, the project opens up opportunities for collaboration with international companies like PepsiCo, facilitating market access and export opportunities for dehydrated products. In light of above situation, NPO is not acceptable for the Project.

10. LOCATION ALTERNATIVES

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

In the context of the Blume Agri Private Limited project, it is noted that initially, different locations were considered for construction. However, upon careful evaluation, it has been determined that the Quaid-e-Azam Business Park Sheikhupura is a suitable location for establishing the project. This decision is primarily based on the following factors:

Easy Access to Roads: Quaid-e-Azam Business Park Sheikhupura offers convenient access to major roads, transportation routes, and logistical networks. This ensures smooth and efficient transportation of raw materials required for the dehydration process, as well as the distribution of finished products to domestic and international markets.

Proximity to Agricultural Land: The presence of nearby agricultural land provides an advantage for the project. It allows for close collaboration with local farmers, facilitating the sourcing of high-quality fresh produce for dehydration. This proximity helps to minimize transportation costs and ensures a steady supply of raw materials.

Infrastructure Facilities: Industrial parks often provide well-developed infrastructure, including reliable electricity, water supply, waste management systems, and necessary utilities. These facilities are essential for the smooth operation of the dehydration process and ensure uninterrupted production.

Cluster Effect: Industrial parks often foster a cluster effect by attracting related industries and businesses in the same vicinity. This can lead to synergistic benefits, such as shared resources, knowledge exchange, and potential collaboration with other food processing companies or suppliers within the industrial park.

Government Support: Industrial parks usually receive government support in terms of infrastructure development, regulatory facilitation, and incentives for investment. This support can create a favourable business environment and provide additional advantages for the project's success.

By considering these factors, selecting Sheikhpura Industrial Park as the location for the Blume Agri Private Limited project provides the opportunity to leverage the advantages of easy road access, proximity to agricultural land, and supportive infrastructure. It positions the project strategically for efficient operations, access to raw materials, and potential growth in the food processing industry.

11. MODIFIED CONSTRUCTION TECHNOLOGY ALTERNATIVES

The development will be constructed using modern, locally and internationally accepted technology and materials to achieve public health, safety, security and environmental aesthetic requirements. Equipment that saves energy and water will be given first priority without compromising on cost or availability factors. The concrete pillars and walls will be made using locally sourced stones, cement, sand (washed and clean), metal bars and fittings that meet the quality standards requirements.

12. TECHNOLOGY ALTERNATIVES

There is imported machinery available that is environmentally friendly. Proponent has already bought machinery for unit's final design of hall. Machinery is advanced technology and precise control system. These machines have pollution remove technologies built in. Therefore, it the best option to use that technology.

13. ENVIRONMENTAL ALTERNATIVES

Two alternatives' sources were considered for the lighting in the Project Area:

- Using existing power supply of LESCO
- Using Solar Energy

Although the option of lighting through solar panels seems suitable as sun being the most suitable alternate energy source but it was not selected due to the following reasons:

Solar lights can be adopted but, the security of solar lights can be a major issue as these are very expensive and prone to theft. To overcome this problem, the height of the lights can be increased. But increasing height to avoid theft will reduce the light intensity. Apart from security reasons, solar power is inconsistent and not reliable as it depends on the steady delivery of special atoms called photons to keep the electricity generating process going on. As soon as the sun disappears behind thick clouds or falls below the horizon at night, the photons stop striking the solar panels and the power drops. Some solar power can be stored in large battery arrays. Solar power would only be viable with current technology as long as the sun's photon atoms can strike a solar panel directly. The power generation during foggy weather and cloudy days will be reduced. So, the power supply from LESCO will be considered.

14. ECONOMIC ALTERNATIVES

Raw material for construction will be purchase from nearby area from local vendor, so that the transportation cost of material might be save. The establishment of a fully automated and integrated fruit processing plant can contribute to economic development at both the local and regional levels. It can stimulate the agriculture sector by providing a market for farmers, producing and supporting the growth of associated industries, such as packaging and transportation. The plant's operations can also generate revenue through product sales and exports, further boosting the economy. post-harvesting facilities will also offer economic advantages by reducing losses, adding value, ensuring product quality, expanding market access, and facilitating exports. Investing in these facilities can enhance the competitiveness and profitability of the agricultural sector, benefitting both farmers and the overall economy.

SECTION - 4: DESCRIPTION OF PROJECT

This chapter presents all aspects of the project. It describes the nature of the project, its location, designs and site layout/ plan. It presents the activities that will be involved during all stages of project; how product will form, detail of process and machinery as well as details on supportive resources i.e., man power and utility requirements.

Blume Agri Private Limited, the newly-formed company is a joint venture between Descon Holdings (Private) Limited, Rafum Corporation (Private) Limited, and Mr. Mustapha Yousaf.

The company intends to set-up a state-of-the-art, fully-automated, and integrated food processing plant (dehydration of fruits, vegetables and spices) employing global best practices of the industry. Processed foods can be cold stored for long periods of time, and are used to fabricate infant nutrition products, snacks, noodles, soups, ice creams, sweets, jellies, and yogurts. The primary objective of processing is to preserve the perishable fruits in a stable form that can be stored and supplied to local as well as distant markets round the year.

The proposed multi-food processing line will have the capacity to process 50 tons per day of fruits and vegetables such as Apples, Banana, Plums, Apricots, Peaches, Onion, Garlic, Red Chilies, Tomatoes, and Leafy Vegetables.

The demand for dehydrated foods is being driven by the rising consumption of convenience foods in Pakistan, triggered by the increasing number of health-conscious consumers.

Current processing capacity of existing plants (old and new) is approximated to be about 100-150 tons per day, and is not sufficient to meet the growth. There is space in the market for a large-scale player.

The envisaged capacity of the processing plant will require procurement, processing, and cold storage of up to 15,000 – 20,000 tons of fresh produce per year. There is already established demand for this level of produce.

Descon Holdings (Private) Limited is part of Descon which is a conglomerate engaged in multi-faceted Engineering, Procurement, Manufacturing, Construction, commissioning, Project Inspection & certification, Chemical and Power production in Pakistan and Middle East. Faisal Dawood Holds Bachelors of Science Degree in Materials Science and Engineering (MSE) from Cornell University and a Master’ s Degree in Business Administration from Columbia University. Served as Head International Business Development of Descon Engineering and was heading Descon Engineering's Manufacturing Division. Has served in a variety of engineering and chemicals management positions and executive management positions around the world. Member of the Board of Directors of Descon Engineering Ltd, Descon Oxychem

Limited and other Descon entities for Engineering, Chemicals and Power Sectors.

Currently serving as Vice Chairman of Descon. Member of the Board of the National Management Foundation at the prestigious Lahore University of Management Sciences (LUMS).

RAFUM GROUP With retail at its core, Rafum Group today manages and operates 124 retail stores. It owns 10 plus footwear and apparel brands which are sold throughout Pakistan. It also exclusively retails many European footwear and apparel brands. It started out with the ‘sight on future’ adopted by Zahid Hussain, the group founder. The ambition was for its first brand Borjan to ‘help make its customer look smart’. And nothing helps the looks more than a smart pair of shoes. The business success has earned Zahid Hussain a name in the 100 business leaders of Pakistan, by Manager Today. Rafum Group runs 108 shops of Borjan. Present in 54 cities and towns of Pakistan the brand has made its forays into the Middle Eastern market with shops opened in Dubai and Sharjah, UAE. Advancing the attraction of fashion in footwear, it claimed the Fashion Forward tag line and aired the Fashion Talk advertisement in 2014 to win the best add award for the fashion category. Mocciani, a mid upper market brand, is retailing trendy and quality footwear for men and women. The footwear is complimented with fashion accessories in the stores. With its 14 shops running the brand plans to add three more shops in the next two years. Caanchi & Lugari is a departmental store in the luxury category. Offers the latest Armani footwear and accessories and other European brands. It operates 3 such store. It also brings Bugatti, Hiltl, Jacques Britt, Cortefiel and Pdh amongst other fine quality brands to its customers.

Mustapha Yousaf is the CEO of Dar-Es-Salaam Farms, a company engaged in the production, sourcing, distribution, and retail of agriculture produce from across Pakistan. His work on agriculture innovations, particularly climate-smart technologies and sustainable agriculture, has been covered by the Food and Agriculture Organization (FAO), The Consortium of International Agricultural Research Centers (CGIAR), The Federal Association of Consumers, Germany (Verbraucher Initiative e.V.), and Nestlé Pakistan Limited, amongst others. He has received trainings in innovations in Agriculture from The Netherlands, Japan, Australia, and Taiwan. In addition, he has attended several leading international agriculture trade fairs including Agritechnica and FruitLogistica (Germany), EIMA, Agrilevante and Macfrut (Italy), and Gulf Food (UAE).

Mustapha’s current area of focus is on leveraging the potential of technology in agriculture – particularly applications of IOT in agriculture, data-analytics, precision farming, including demand-driven irrigation systems, digital plant protection, and Artificial-Intelligence based disease models.

He is a graduate of McGill University, Canada and Aitchison College, Lahore.

He also holds an Executive Certificate in Agribusiness Management from the Lahore University of Management Sciences. Prior to starting his agriculture venture, he worked with ABN Amro Bank and The Royal Bank of Scotland Group in their International Wealth Management Division at Dubai, UAE.

15. OBJECTIVE OF PROJECT

Following are the main objectives of the project:

- Ensure that the plant is designed in line with the food industry hygiene standards;
- Project execution while ensuring Quality and Safety;
- Cost effective optimized design solutions as per local food industry practices;
- Project completion within Schedule and Budget;
- Layout of plant and components to facilitate the plant expansion philosophy;
- Enhance the growth of economy;
- To increase local exports of country; and
- Create job opportunities for the local people.

16. LOCATION & SITE LAYOUT OF PROJECT

To fulfil the Industrial aspects of the project under reference of this EIA Report, it must also meet the legal requirements of the Punjab Environmental Protection Act, 1997 (Amended 2012). Availability of land at the best convenient place is equally important among other considerations for the site selection. Availability of access roads, communication facilities, electricity, basic infrastructure, sewerage etc. is yet the other necessary requirements.

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

Plant is to be located in Quaid-e-Azam Business Park Sheikhupura on an eight-acre land plot (Plot # 100B, 99B, 89B, 90B).

The site selected on the following reasons:

- Easy access to road
- Site is safe from any kind of flood
- Site is away from residential areas
- Area of land availability was enough
- For further details, layout map of the project site is attached here under.

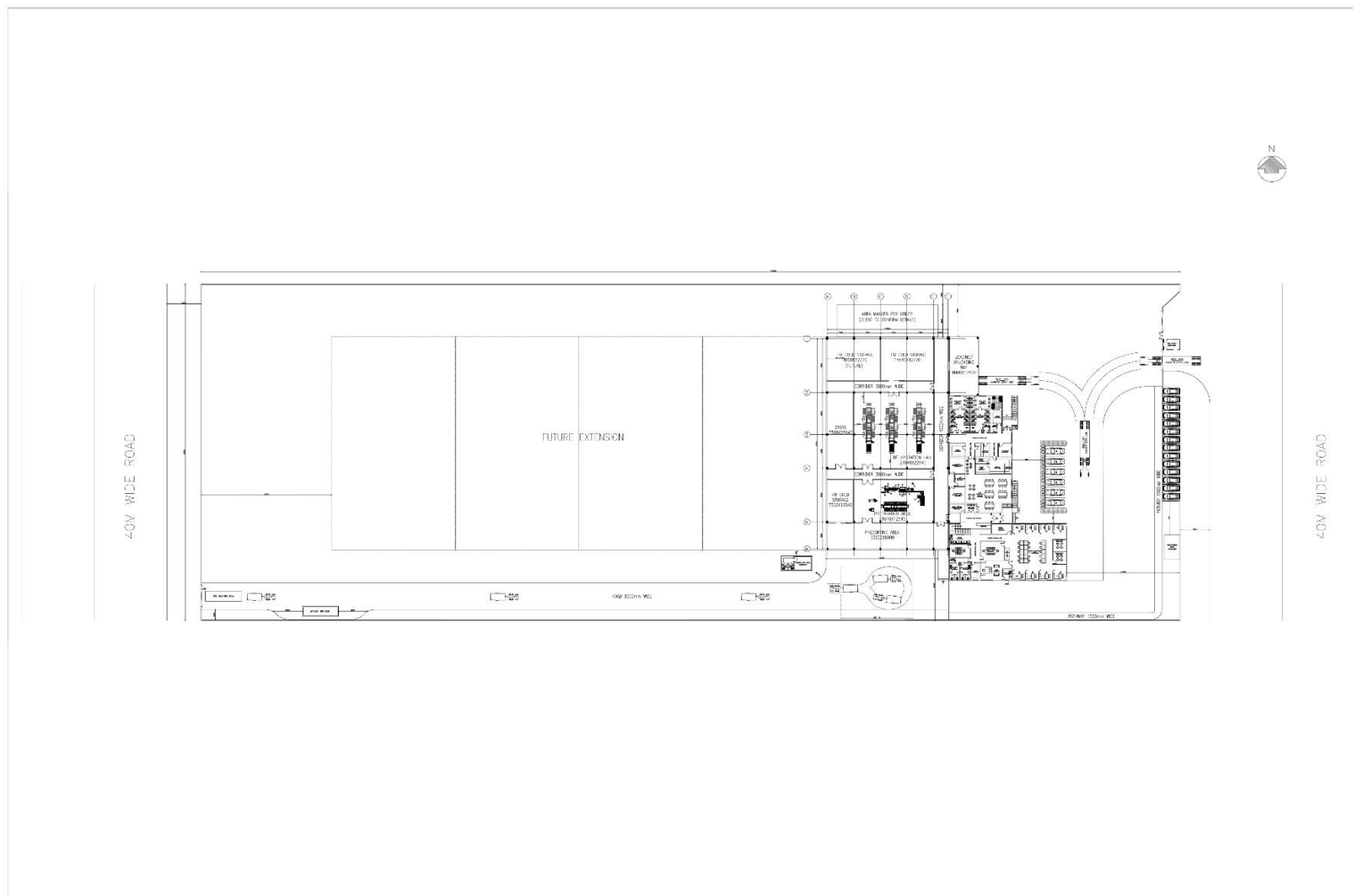


Figure 4-1, Layout Map of Project Site

17. LAND USE & VEGETATION FEATURES ON SITE

The proposed project site falls in Quaid-e-Azam Business Park Sheikhupura which is approved and priority industrial investment part for food processing industries. For the construction of this project, no trees will be removed from the site.

18. ROAD ACCESS

A link road is present at south side of project site, connecting Lahore-Islamabad Motorway Road.

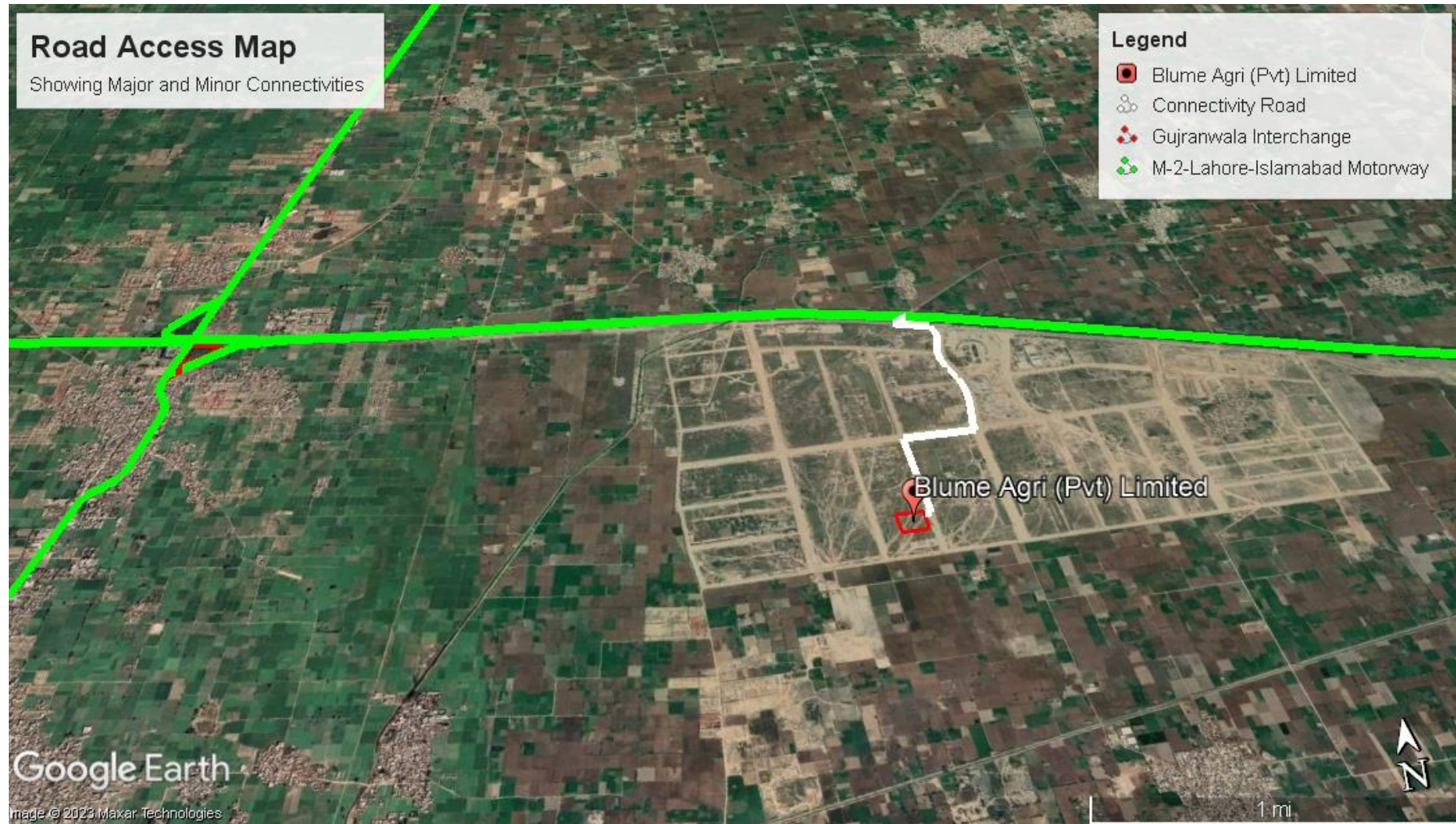


Figure 4-2, Road Access Map of Project Site

19. COST & MAGNITUDE OF THE PROJECT

The estimated total cost of the project is approximately PKR

1.4 billion. The production capacity of the Dehydrated Fruits and Vegetables will be 01 Ton per day finished product.

20. SCHEDULE OF IMPLEMENTATION

Detailed feasibility studies and designing of the project have been completed. Necessary legal, administrative and financial formalities have been also completed. The project is expected to be completed within 3 months from the date of environmental approval. Subsequently the construction, operational and maintenance aspects of the project will be undertaken by the proponent.

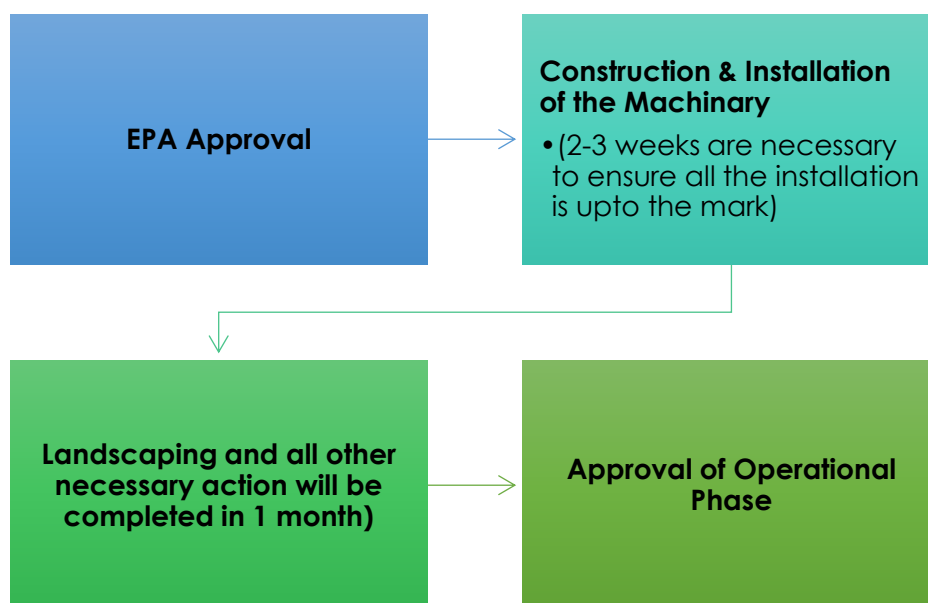


Figure 4-3, Schedule of implementation

21. PROJECT DESCRIPTION

Blume Agri is a joint venture between Descon Holdings (private) Limited and Rafum Corporation (private) limited and Mustapha. The company intends to set-up a state of the art, fully automated and integrated fruit processing plant (air-dehydration of fruits, vegetables, and spices) employing global best practices of the industry. The total area of the project is 8 acres, with a project-specific covered area of 3.1 acres. The primary focus of the project is the production of dehydrated fruits, vegetables and spices such as apples, bananas, plums, apricots, peaches, onions, garlic, red chillies, tomatoes, and leafy vegetables (mint, coriander, spinach etc.) as the final products after processing. The list of Machinery used would be:

- Dehydrator System manufactured by TecnoFrutta Italy

- Preparation Table manufactured by VICENZA Italy
- Universal multi-cut slicer manufactured by Turrati Italy
- Compact abrasive peeler manufactured by Turrati Italy

The production capacity of the facility is 01 ton per day from raw material of 10 ton / day with a storage capacity of 70 tons of raw material at site, indicating the number of dehydrated fruits, vegetables and spices that can be processed on a daily basis. This capacity provides an idea of the volume of production and can be adjusted based on market demand.

The total cost of the project is estimated to be approximately PKR 1.4 billion. This cost includes various aspects such as, construction, machinery, equipment, labor, utilities, and other expenses associated with establishing and running the facility.

Land Use	
Total Area	8 Acers
Covered area 1st phase	3.1 Acers
Covered area (Future expansion)	2.4 Acers
Open area	2.5 Acers

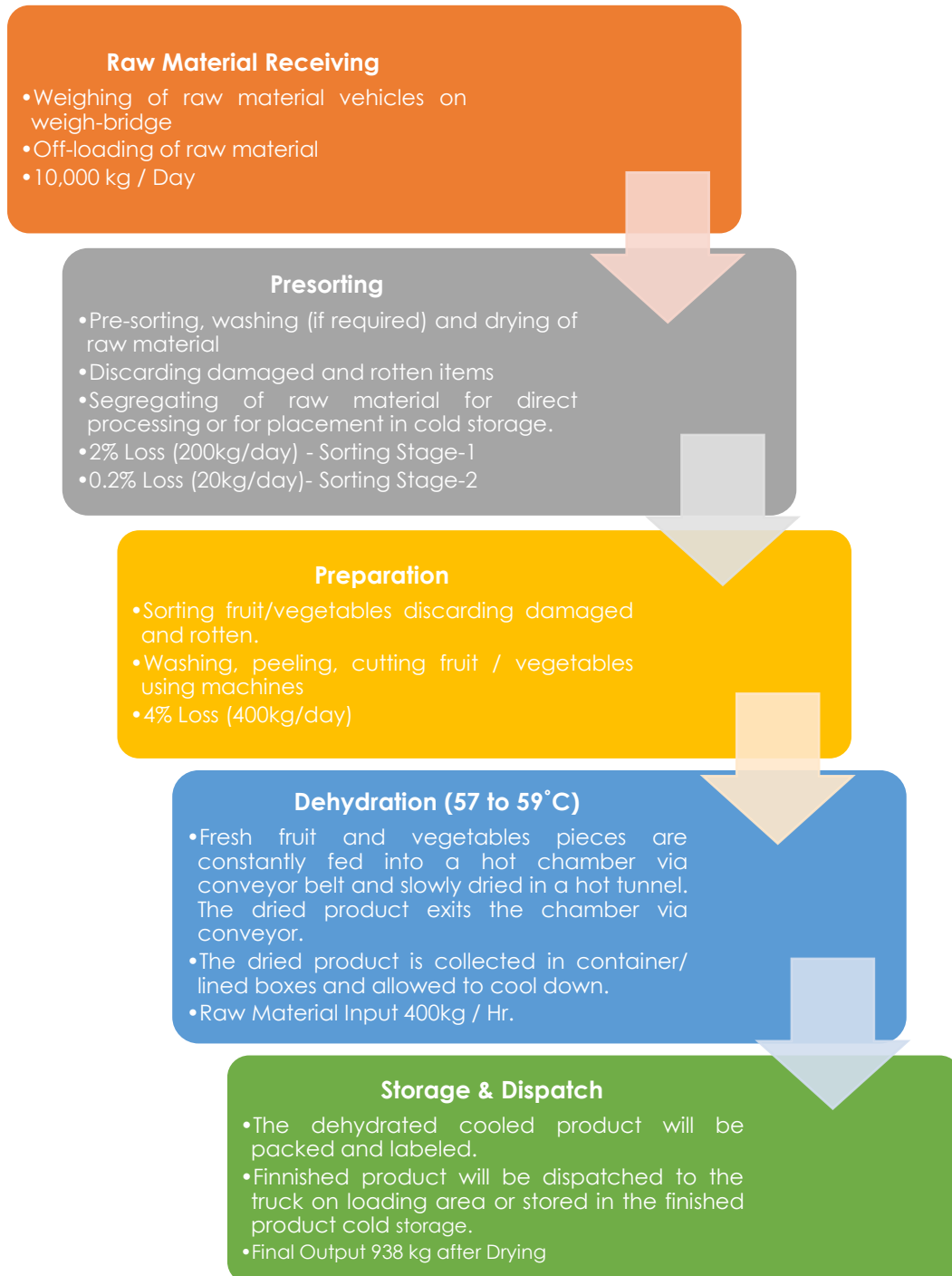
22. PROCESS DESCRIPTION

The fruits, vegetables and spices dehydration process involve transforming fresh fruits, vegetables and spices into dried products for extended shelf life and convenient storage. Here's a more detailed explanation of the dehydration process:

- Once the raw materials have been pre-sorted, washed, and dried (if required), they proceed to the preparation stage, where any remaining damaged or rotten items are discarded. The fruits and vegetables are sorted again to ensure only high-quality product is used. Using specialized machines, the selected items are washed, peeled, and cut into desired shapes and sizes.
- Next, the prepared fruit, vegetable and spices enter the dehydration stage. They are continuously fed into a hot chamber through a conveyor belt, which transports them through a hot tunnel. Inside the tunnel, the hot air circulates around the raw materials, gradually removing the moisture content. The drying process typically involves controlled temperature and airflow to preserve the nutritional value and flavour of the produce.
- As the fruit, vegetable and spices pieces progress through the hot tunnel, they gradually lose moisture and become dehydrated. Once they reach the end of the tunnel, the dried product exits the chamber via a conveyor system.

- To collect the dried product, containers or lined boxes are used. These containers are designed to facilitate proper air circulation and prevent moisture absorption, ensuring the dried produce remains in optimal condition. After collection, the dehydrated product is allowed to cool down, which helps to stabilize its moisture content and prevent condensation.
- Once the cooled, dehydrated product is ready, it is packed and labelled for storage and dispatch. Packaging is essential to protect the dried food from moisture, light, and contaminants. Proper labelling ensures easy identification and provides important information such as the product name, batch number, and expiration date.
- Depending on the immediate demand, the finished dehydrated product can be dispatched directly to trucks in the loading area for transportation to customers or retailers. Alternatively, it may be stored in a finished product cold storage facility. Cold storage helps to maintain the quality and extend the shelf life of the dehydrated products until they are ready for distribution.
- By undergoing the dehydration process, fresh fruits and vegetables are transformed into lightweight, compact, and long-lasting products that are easy to store, transport, and use in various culinary applications.

23. FLOW CHART



24. WATER CONSUMPTION & WASTEWATER DISPOSAL

SOURCE OF WATER

Source of Water during Construction Phase

Contractor will be responsible to arrange water for construction works. The source of water during construction phase of the project will be tube wells.

Source of Water during Operation Phase

Plant will use 900 Cu ft per day with 04 processing lines.

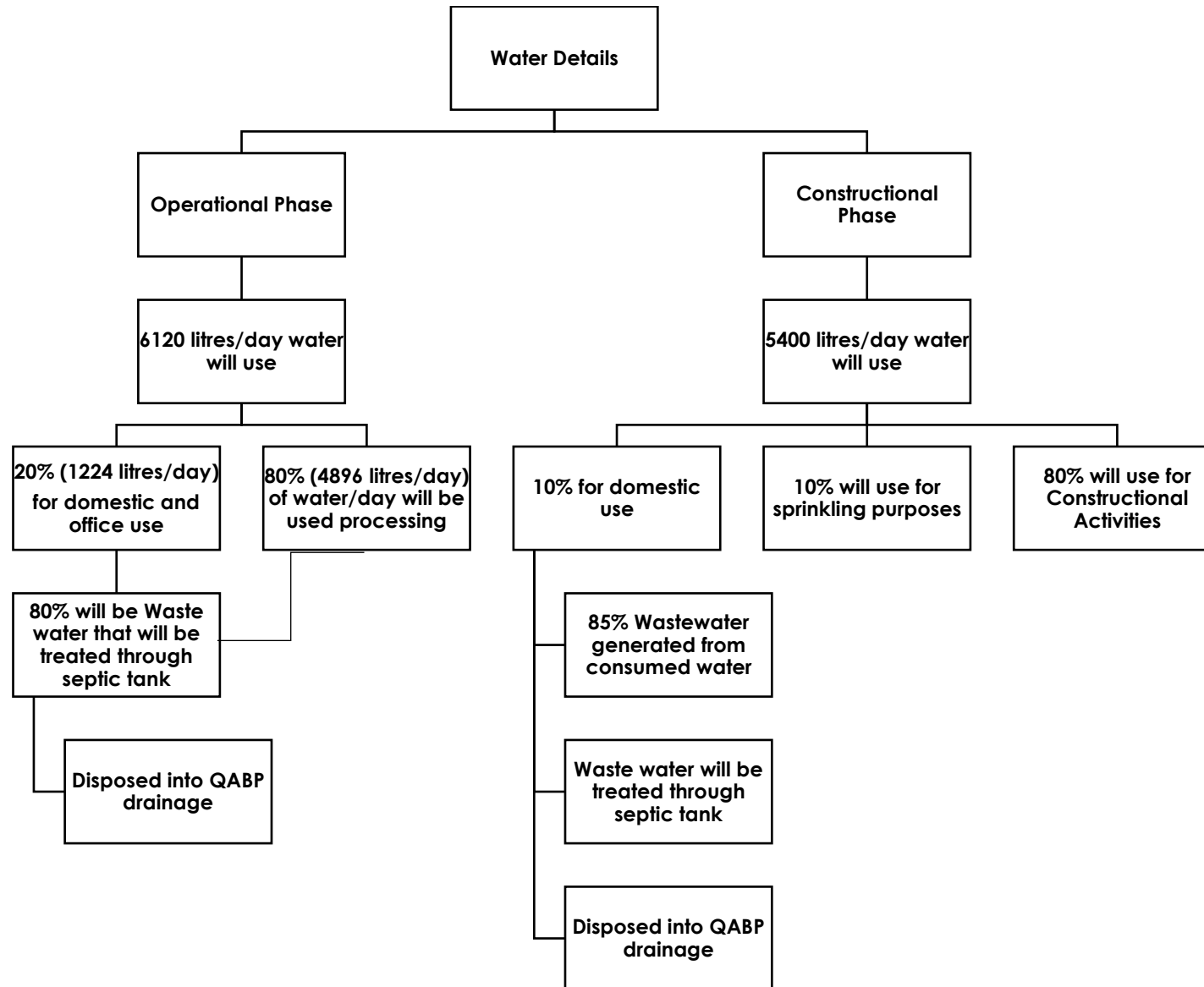
2.10.2 WATER REQUIREMENT

Construction Phase

The water consumption is estimated to be 5,400 Litres/day for 75 construction workers during construction phase of the proposed Project.

Operation Phase

In operational phase, about 6120 Litres/day of water may be required for total estimated population of about 85 persons approximately.



WASTEWATER GENERATION

Construction Phase

The wastewater generation is estimated to be 4'590 Litres/day for 75 construction workers during construction phase of the proposed Project.

Operation Phase

The wastewater generation is estimated to be 4'896 Litres/day during operation phase for 85 persons of the proposed Project.

Treatment of Waste water

Waste water will be treated in anaerobic septic tank present at project site.

Septic Tank

A septic tank is a watertight chamber made of concrete, fiberglass, PVC or plastic, through which domestic wastewater (sewage) flows for primary treatment. Settling and anaerobic processes reduce solids and organics, but the treatment is only moderate.

The term "septic" refers to the anaerobic bacterial environment that develops in the tank which decomposes or mineralizes the waste discharged into the tank.

Tentative Design of Septic tank:

Tentative Design is given in below Figure 2.4;

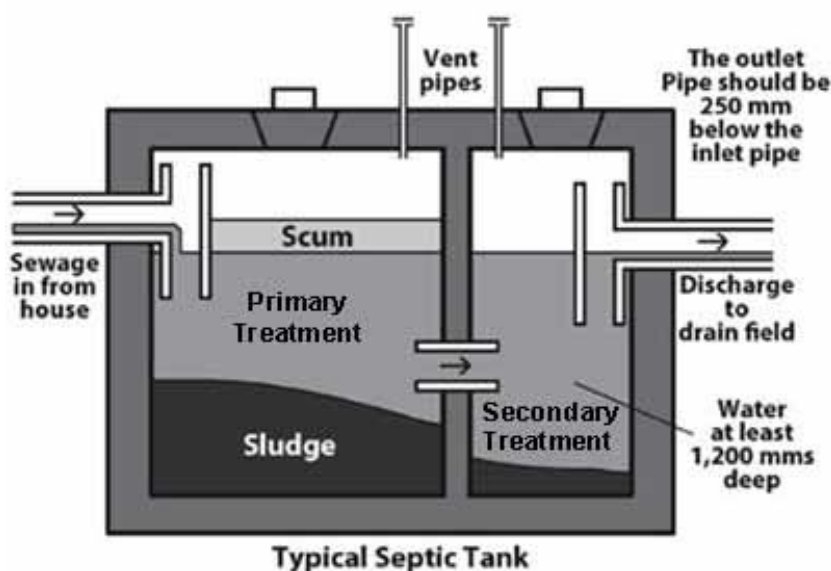


Table 4-19, Design Criteria of Septic Tank

Parameters	PHED Criteria
Detention Period	12-36 Hours
Length to Width Ratio	2-3
Depth of the Tank	1.2-1.8 m
Inlet from the top of the sewage line	30 cm
Rate of accumulation of sludge	30 liters/person/year
BOD from the Effluent	100mg/l

Source: PDSSP PHED Criteria, April 2008

Wastewater Disposal

Proponent will dispose off wastewater after treatment from septic tank in Quaid-e-Azam Business Park (QABP) drainage network as per direction from authoritative body. Septic tanks installation would be done at the responsibility of the project proponent and permission from the relevant regulatory body will be obtained.

25. SOLID WASTE

In constructional phase products, concrete, masonry scrap and rubble (brick, concrete masonry, stone), and plastics and all waste materials such as landscape and land clearing debris, gravel and aggregate paper from cement bags will be recycled during the construction activities as road filling and maintenance purposes. Solid waste generated during construction phase will be placed in separate bins.

In the operational phase of the described process, an estimated solid waste of 04 to 05 tons/day (depends on fruit/vegetable being processed) is expected. This waste primarily consists of peels from fruits and vegetables. There are two common ways to utilize this waste:

Composting: The fruit and vegetable peels can be converted into compost through a composting process. Composting involves the decomposition of organic materials into a nutrient-rich soil amendment. The peels can be collected separately and combined with other organic materials such as leaves, grass clippings, and other food waste. Through proper management of temperature, moisture, and oxygen levels, microorganisms break down the organic matter, resulting in compost. This compost can then be used to enrich soil in gardens, farms, or landscaping projects, providing valuable nutrients for plant growth.

Animal Feed: Another option is to repurpose the fruit and vegetable peels as animal feed. While not all animals can consume these peels, they can be suitable for certain livestock or farm animals. It's important to ensure that the peels are free from any harmful substances or chemicals before using them as animal feed. Consulting with

an animal nutritionist or veterinarian can help determine the suitability and appropriate quantities for specific animals.

Both composting and using fruit and vegetable peels as animal feed contribute to waste reduction and sustainable practices. Composting helps divert organic waste from landfills and returns nutrients back to the soil, while repurposing the waste as animal feed reduces the need for other feed sources. By implementing these methods, the facility can effectively manage the solid waste generated during the operational phase while promoting environmentally friendly practices.

Whereas the domestics solid waste would be 34 tons/day which would be handed over to local contractor.

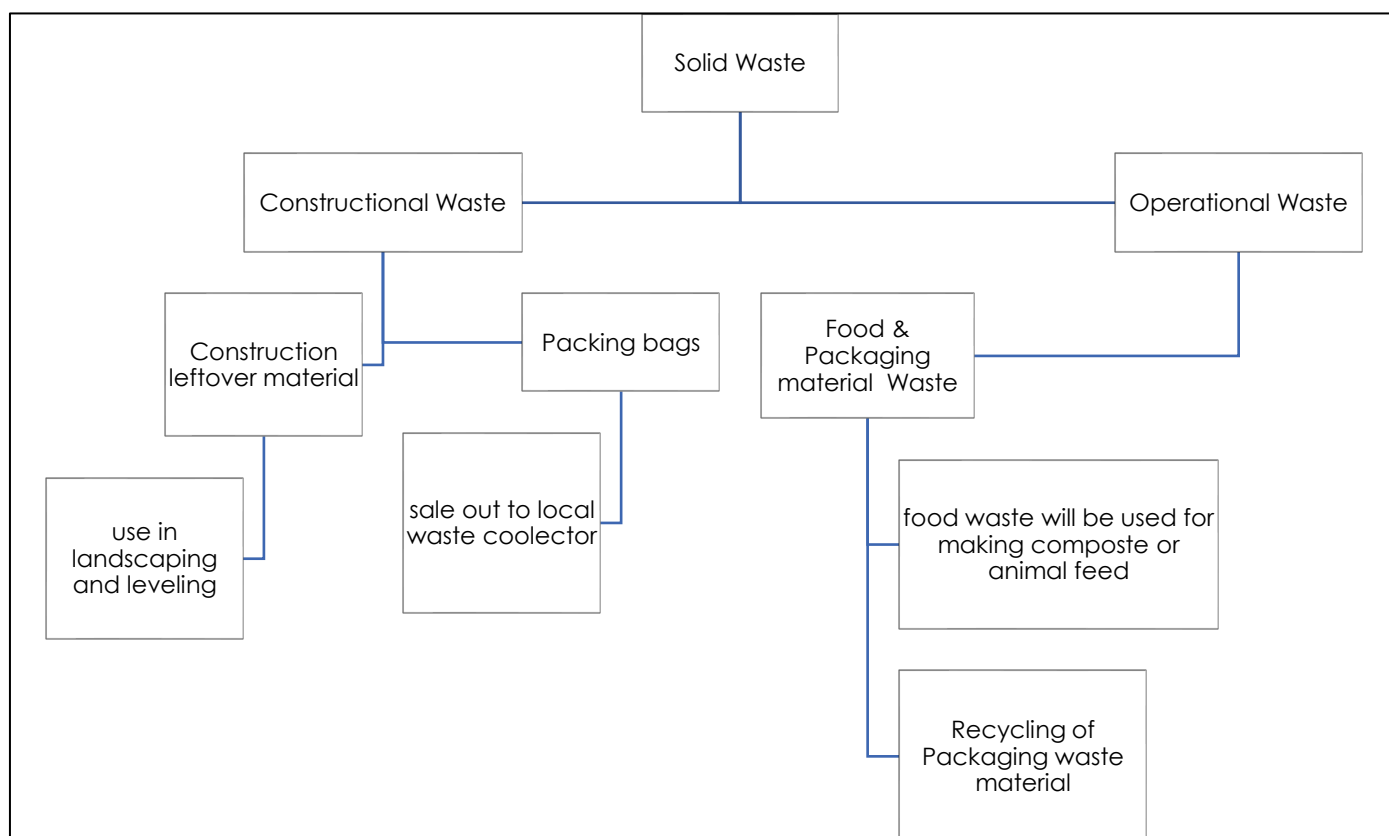


Figure 4-4, Solid Waste Management

POWER REQUIREMENT/ POWER SOURCE

Construction Phase

For construction camps and machinery, electricity demand will be fulfilled by Lahore Electric Supply Company (LESCO).

Operational Phase

The calculated electricity load of the proposed Project is 1,000 KW during operational phase. To meet the estimated electricity load mentioned above, demand will be fulfilled by Lahore Electric Supply Company (LESCO). For emergency situation, alternative is yet to be decided.

26. RESTORATION AND REHABILITATION PLANS

All possible precautions will be taken to prevent an untoward incident in terms of life and property losses. On completion of the project, solid waste will be removed from the site in order to maintain aesthetics of the area. All measures will be undertaken for ensuring occupational safety, security and clean environment during the working hours.

4.1.1 Details of Restoration and Rehabilitation at the End of the Project Life

There will be no matter of rehabilitation as the site is already owned by the project proponent and within the boundaries of Quaid-e-Azam Business Park (QABP). At the end of the life of the project, it will be duly dismantled with special precautions to avoid/ minimize pollution and at the same time taking all safety precautions to protect human life and property around the building.

The materials capable of recycling/reuse will be either sold in the market or to be reused for other suitable purposes.

SECTION - 5: DESCRIPTION OF ENVIRONMENTAL & SOCIAL BASELINE CONDITIONS

27. BASELINE CONDITIONS

Baseline conditions are crucial for understanding the existing state of the project and its surrounding area, including physical, environmental, and socio-economic aspects. This information serves as a foundation for assessing project interventions and proposing mitigation measures. Baseline data also helps identify specific issues to be monitored during the construction and operational phases. The following is a description of the baseline data related to the physical, biological, and socio-economic parameters of the project and study area:

Physical Environment:

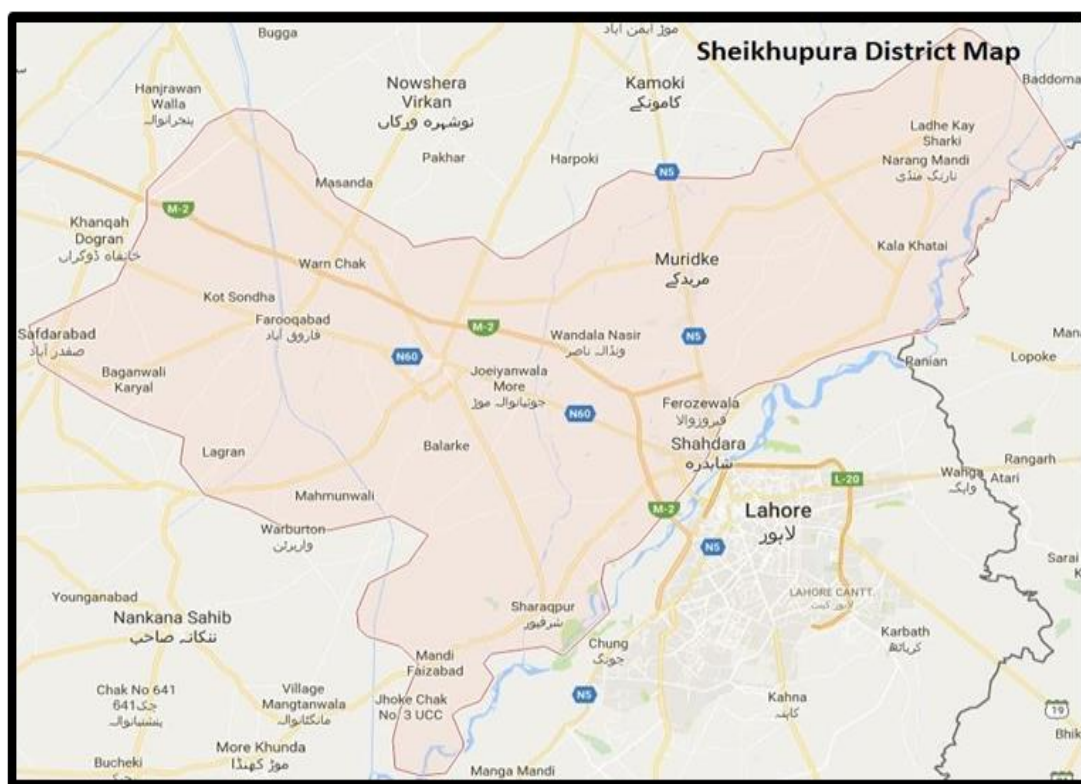
- **Topology:** Describes the shape and features of the land surface, such as hills, valleys, or plains.
- **Geology:** Provides information about the geological composition and structure of the project area.
- **Pedology:** Refers to the study of soils, including their types, properties, and distribution.
- **Hydrology:** Focuses on the study of surface water, including rivers, lakes, and other water bodies, as well as drainage patterns.
- **Meteorology and Climatology:** Encompasses the study of weather patterns, climate conditions, and long-term weather trends.
- **Surface Water:** Describes the baseline conditions of surface water bodies such as rivers, streams, ponds, or lakes in the project area. Includes information on water quality parameters, flow rates, and ecological characteristics of these water bodies.
- **Groundwater:** Provides details about the existing groundwater conditions, including depth, quality, and recharge rates. Includes information on the hydrogeological characteristics of aquifers and the vulnerability of groundwater resources to contamination.
- **Air Quality:** Describes the baseline air quality parameters, including pollutant levels, particulate matter, and emissions sources. Includes information on meteorological factors that influence air quality, such as wind patterns and temperature inversions.

In addition to the physical environment, baseline data should also encompass biological and socio-economic parameters. However, the provided information focuses primarily on the physical environment. The baseline data is obtained through primary sources such as site visits and

secondary sources such as desk studies and consultations with local stakeholders. This data serves as a starting point for assessing the potential impacts of the project activities on the physical, biological, and socio-economic aspects of the project area.

5.1.1 Geography & Geology

Sheikhupura lays $31^{\circ}42'51.16''$ North latitude and $73^{\circ}59'3.49''$ East longitude. The city is well connected with its surrounding big urban centers like Lahore (35 km) Faisalabad (94 km), Sargodha (143 km) and Gujranwala (54 km). Sheikhupura is also a railway junction. The area is a part of Rachna Doab, and consists of some recent sediment brought by spill channel from River Chenab. There are some old channel levee remnants and old basins filled up with clay materials. It is probably of Late Pleistocene Age derived from mixed calcareous, sedimentary and metamorphic rocks of the lower Himalayas. District Sheikhupura is spread over an area of 3,241 km² and comprises 5 tehsil such as; Sheikhupura, Ferozewala, Sharaqpur Sharif, Muridke and Safdarabad. the map showing the area of district Sheikhupura is given below:



5.1.2 Topography

Topography of Sheikhupura City is flat. The area is a part of Rachna Doab and consists of sub-recent sediments brought by spill channel from the River Chanab. There are some old channel levees remnants and old basins filled

up with clay materials. The material is probably of Late Pleistocene Age derived from mixed calcareous sedimentary and metamorphic rocks of Lower Himalayas. The area of the Sheikhpura District is comprised of the fluvial deposits of Ravi River.

5.1.3 Climate

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

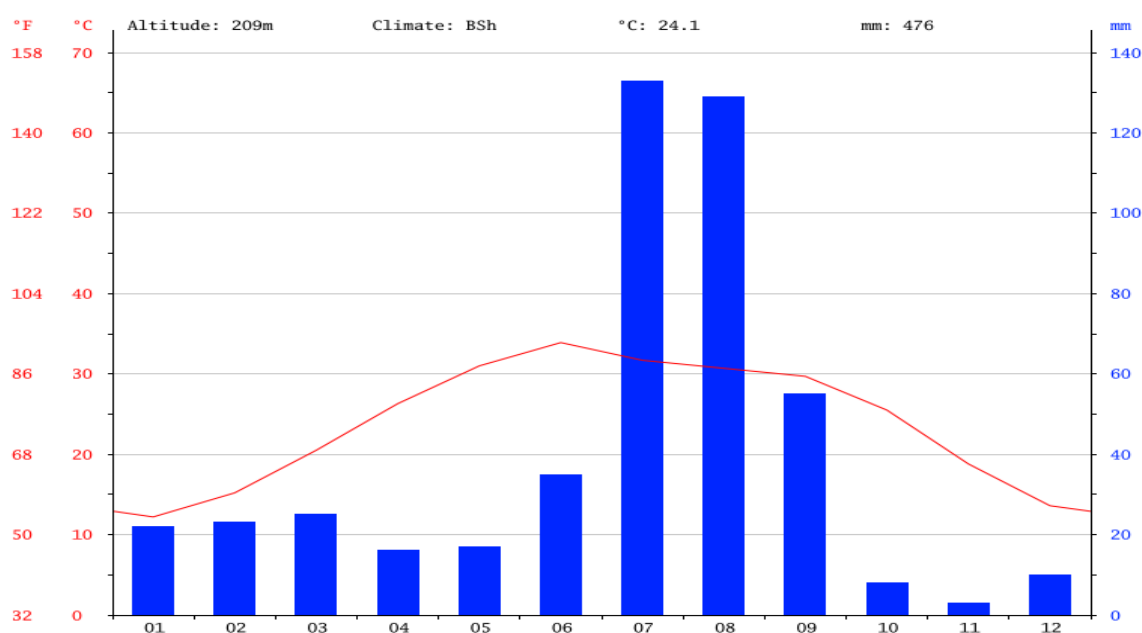


Figure 5-1, Annual Mean Temperature (Meteoblu)

Rainy weather alternates with oppressive weather. The rainfall is **500 mm** per annum. In the recent year, the maximum average precipitation occurred in September and it was around **50-100mm**.

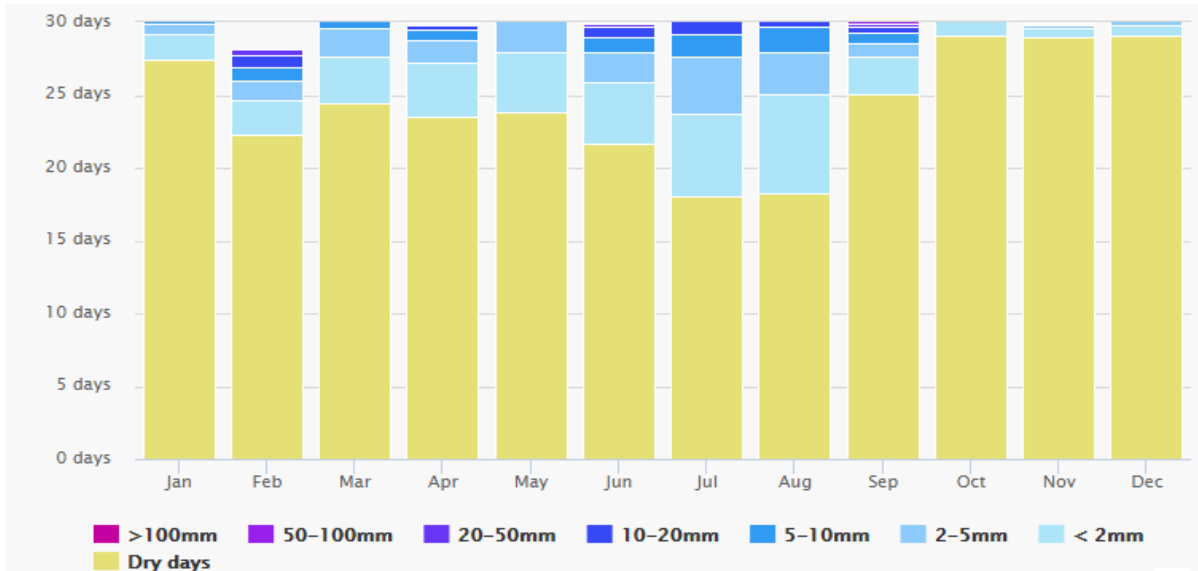


Figure 5-2, Annual Mean Precipitation (Meteoblu)

The average daily wind speed was highest in July which was **38 km/h**. In recent years, the maximum sustained wind speed has reached **38 km/h**.¹ The diagram shows how many days within one month can be expected to reach certain wind speeds. Monsoons create steady strong winds on the Tibetan Plateau from December to April, but calm winds from June to October. The wind speed directly affects the dispersion and transport of plume. So, the greater is the wind speed, the greater will be the dispersion and the distance at which plume strikes the ground and the lesser will be the pollution concentration.

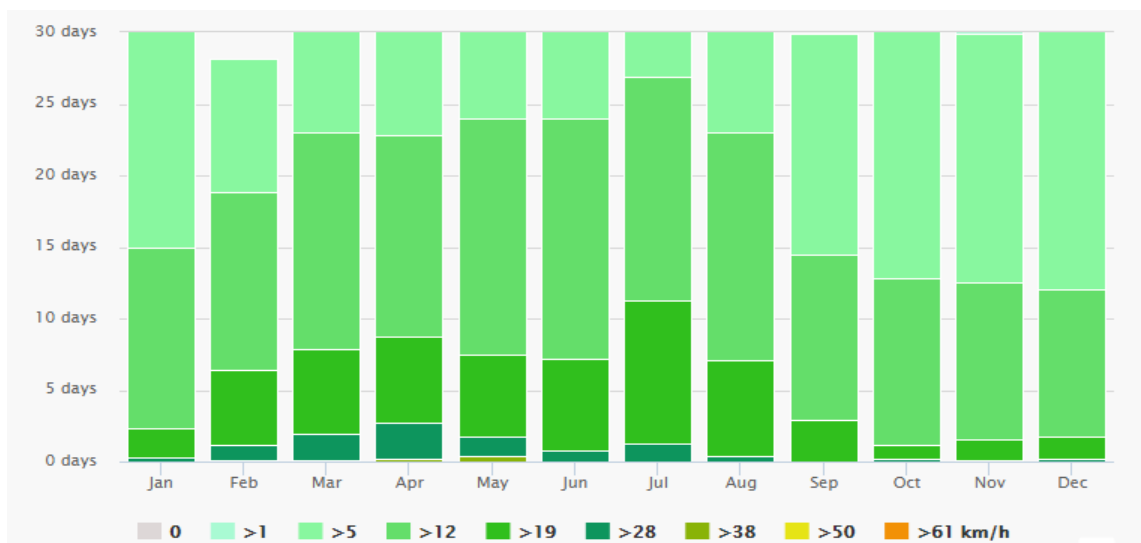


Figure 5-3, Average Wind Speed (Meteoblu)

5.1.4 Seismicity

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

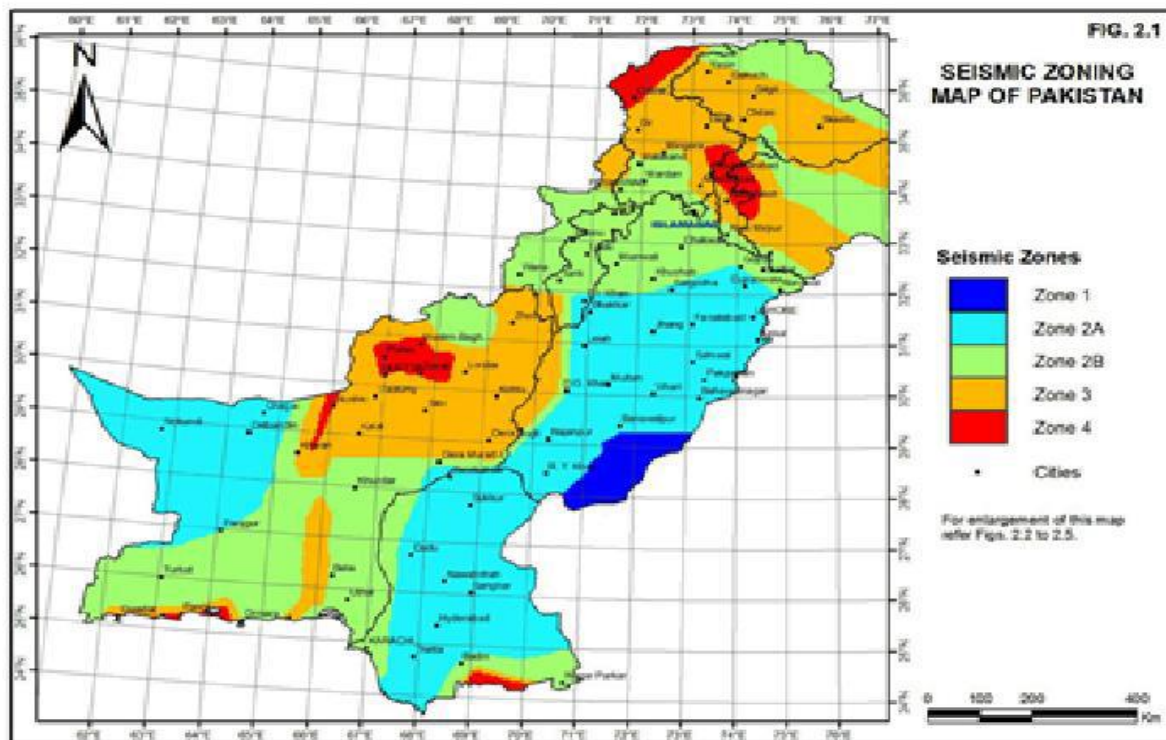


Figure 5-4, Seismic Zones of Pakistan (Geological Survey of Pakistan)

28. ECOLOGICAL ENVIRONMENT

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

5.1.5 Aquatic Flora & Fauna

The proposed project site is located near Khanpur Canal (Canal Upper Chenab) at a distance of 4.5 km. Khanpur Canal, often referred to as Canal Upper Chenab, is a man-made waterway that extends from the head of the River Chenab at Marala to the River Ravi. Only few types of fishes have been reported in Canal Upper Canab. The distance between project site and the nearby water body is shown below:



Figure 5-5, Distance between Various Water Bodies

5.1.6 Flora

The project is located in industrial area which has a few of the trees, herbs and shrubs. For the construction of this project, no trees will be removed from the site.

5.1.7 Fauna

For study of fauna in the project area, field guides and books were consulted. On the other hand, field observations were conducted along with the interviews of local community members about the fauna of the area. The equipment used in field included; cameras, binoculars and GPS device (wherever required). It is important to note that there is a number of factors

which can change the findings of such survey. It may be pointed out that the pattern of seasonal migration of small birds varies depending upon each species. The proposed site has a fresh water aquatic body at a distance of 4.5 km having few fish species. During construction activity, in project area, no important biological feature will be damaged or disturbed.

The fauna commonly found in District Sheikhpura includes; Hares, Falcon, Eagle, Quail, Starling, Jungle Pigeon, Russian Sparrow, Doves, King Fisher, Parrot, Crow and Local Sparrow. Commonly found mammals in the area include; dogs, cats, horses, house-rats, squirrels, porcupines and bats. However, Small Indian Mongoose and Indian Palm Squirrel are also found in the District Sheikhpura. The list of the mammals along with their scientific names, observed in the study area are enlist in the **Table 5-1** below.

Table 5-1, Mammals of Study Area

Sr. No.	Common Name	Scientific Name
1	Rat	<i>Rattus</i>
2	Bat	<i>Chiroptera</i>
3	Small Indian Mongoose	<i>Herpestes javanicus</i>
4	Indian Palm Squirrel	<i>Funambulus palmarum</i>
5	Porcupines	<i>Erethizon dorsatum</i>
6	Squirrels	<i>Sciuridae</i>

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

Table 5-2, Birds of Study Area

Sr. No.	Common Name	Scientific Name
1	House Sparrow	<i>Passer domesticus</i>
2	House Crow	<i>Corvus splendens</i>
3	Pigeon	<i>Columbidae</i>
4	Bulbul	<i>Pycnonotidae</i>
5	Teetar	<i>Francolinus francolinus</i>
6	Parrot	<i>Psittaciformes</i>
7	Titodi	<i>Vanellus indicus</i>

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

Table 5-3, Reptiles of Study Area

Sr. No.	Common Name	Scientific Name
1	Snake	<i>Serpentes</i>
2	Spiny Tailed Lizard	<i>Uromastix hardwickii</i>

3	Fingered Toed Lizard	<i>Acanthodactyluscantoris</i>
4	Earthworm	<i>Lumbricina</i>

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

Table 5-4, Amphibians of Study Area

Sr. No.	Common Name	Scientific Name
1	Common Frog	<i>Ranatemporaria</i>
2	IndusValley Toad	<i>Bufo stomaticus</i>

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

Table 5-5, Insects in Study Area

Sr. No.	Common Name	Scientific Name
1	Black Ants	<i>Paratrachea iognicornis</i>
2	Dragon Fly	Dragon Fly
3	House Flies	<i>Musca domestica</i>
4	Butter Flies	<i>Parnassius balucha</i>
5	Honey Bees	<i>Apis mellifera</i>
6	Wasps	<i>Anagrus pseudococci</i>
7	Grasshopper	<i>Melanoplus differentialis</i>
8	Mosquito	<i>Anopheles</i> sp.

The area has not been identified as ecologically sensitive area by wildlife department.

29. WATER RESOURCES

The main source of the water consumption is the ground water. It is being used in the study area for industrial and domestic purposes.

To check the quality of the water in the area, ground water was collected and analysed. The ground water was collected from existed boreholes in the project site for the detail study of water quality. The results of ground water quality are given below and lab reports are also attached as **Annexure-F**.

Ground Water Analysis Results					
Parameter	Analysis Method	PEQS	Result	MU (CL95%)	Remarks
Lab Analysis					
Color*	SMWW 2120 C	≤ 15 TCU	0	N.A.	Optimal

Taste*	SMWW 2160 C	Non- Objectionable	Non- Objectionable	N.A.	Optimal
Odor*	SMWW 2150 B	Non- Objectionable	Non- Objectionable	N.A.	Optimal
Turbidity*	SMWW 2130 B	< 5 NTU	0	N.A.	Optimal
Total Hardness (as CaCO ₃) **	SMWW 2340 C	< 500 mg/L	148	± 2.07	Optimal
Total Dissolved Solids (TDS)**	SMWW 2540 C	< 1000 mg/L	853	± 9.18	Optimal
pH**	SMWW 4500 H ⁺ B	6.5- 8.5	7.62	± 0.049	Optimal
Aluminum (Al)	SMWW 3111 B	≤ 0.2 mg/L	<0.005	N.A.	Optimal
Antimony (Sb)	SMWW 3114 B	≤ 0.005 mg/L	<0.005	N.A.	Optimal
Arsenic (As)	SMWW 3114 B	≤ 0.05 mg/L	<0.005	N.A.	Optimal
Barium (Ba)	SMWW 3113 B	0.7 mg/L	0.0035	N.A.	Optimal
Boron (B)	SMWW 3113 B	0.3 mg/L	0.02	N.A.	Optimal
Cadmium (Cd)	SMWW 3113 B	0.01 mg/L	0.006	N.A.	Optimal
Chloride (Cl ⁻) **	SMWW 4500 Cl ⁻ B	< 250 mg/L	58	± 1.38	Optimal
Chromium (Cr)	SMWW 3113 B	≤ 0.05 mg/L	<0.004	N.A.	Optimal
Copper (Cu)	SMWW 3111 B	2.0 mg/L	0.164	N.A.	Optimal
Cyanide (CN ⁻)*	SMWW 4500 CN ⁻ F	≤ 0.05 mg/L	0	N.A.	Optimal
Fluoride (F ⁻)**	SMWW 4500 F ⁻ D	≤ 1.5 mg/L	0.60	± 0.61	Optimal
Lead (Pb)	SMWW 3114 B	≤ 0.05 mg/L	<0.005	N.A.	Optimal
Manganese (Mn)	SMWW 3113 B	≤ 0.5 mg/L	0.015	N.A.	Optimal
Mercury (Hg)	SMWW 3114 B	≤ 0.001 mg/L	<0.001	N.A.	Optimal
Nickel (Ni)	SMWW 3113 B	≤0.02 mg/L	0.02	N.A.	Optimal

Nitrate (NO ₃ ⁻) *	SMWW 4500 NO ₃ ⁻ B	≤ 50 mg/L	0	N.A.	Optimal
Nitrite (NO ₂ ⁻) *	SMWW 4500 NO ₂ ⁻ B	≤ 3.0 mg/L	0	N.A.	Optimal
Selenium (Se)	SMWW 3114 B	0.01 mg/L	<0.01	N.A.	Optimal
Residual Chlorine (Cl ₂) *	SMWW 4500 Cl ⁻ B	0.5 mg/L	0	N.A.	Optimal
Phenolic Compounds (as Phenols) *	SMWW 5530 D	NGVS	0	N.A.	-
Zinc (Zn)	SMWW 3113 B	5.0 mg/L	0.040	N.A.	Optimal
Microbiological Analysis					
Total Coliforms*	SMWW 9222 B	0 CFU/ 100 mL	0	N.A.	Optimal
Fecal Coliforms *	SMWW 9222 D	0 CFU/ 100 mL	0	N.A.	Optimal

30. AMBIENT AIR QUALITY

At present, major sources of air pollution are industrial and mobile sources. Other sources of ambient air pollution are the generators in industrial units for alternative power supply sources. The key pollutants likely to be found at project proposed locations are Carbon Monoxide (CO), Oxides of Nitrogen (NO_x), Sulfur Dioxide (SO_x) and Particulate Matter (PM). In order to determine the air quality of the area, Laboratory had the requisite air sampling device and expertise for collection of samples.

The monitored parameters included Carbon mono-oxide (CO), Nitrogen oxides (NO_x), Sulphur oxides (SO_x), Particulate Matter (PM10). The monitoring was carried out for a period of 24 hours. The results of ambient air quality are given below and lab reports are also attached as **Annexure-F**.

Parameters	Units	Monitoring Duration	LDL	Average Obtained Concentration	PEQS	Remarks
Nitrogen Dioxide (NO ₂) *	µg/m ³	24Hours	1.00	24.05	80.0	Optimal
Nitrogen Oxide (NO)*	µg/m ³	24Hours	1.00	19.54	40.0	Optimal
NO _x *	µg/m ³	24Hours	1.00	43.54	120.0	Optimal
Sulphur Dioxide (SO ₂) *	µg/m ³	24Hours	1.00	33.30	120.0	Optimal
Carbon Monoxide (CO)*	mg/m ³	24Hours	0.01	1.04	05.0	Optimal

Particulate Matter (PM ₁₀) *	µg/m ³	24Hours	1.00	79.21	150.0	Optimal
Particulate Matter (PM _{2.5}) *	µg/m ³	24Hours	1.00	19.90	35.0	Optimal
Total Particulate Matter (TSP)	µg/m ³	24Hours	1.00	147.91	500.0	Optimal

31. NOISE

Noise level of the project area was monitored at project site using digital sound meter and the results of noise level monitoring are presented below and reports are attached as **Annexure-F**.

Sr. No.	Time	Noise dB(A)		PEQS
1	11:00	66	Day Time	65
2	12:00	62		
3	13:00	61		
4	14:00	63		
5	15:00	62		
6	16:00	64		
7	17:00	59		
8	18:00	58		
9	19:00	59		
10	20:00	57		
11	21:00	53	Night Time	55
12	22:00	49		
13	23:00	48		
14	00:00	46		
15	01:00	47		
16	02:00	45		
17	03:00	46		
18	04:00	47		
19	05:00	43		
20	06:00	49		
21	07:00	53	Day Time	65



Ambient Air Monitoring



Ground water Testing

Environmental Monitoring at The Project Site

32. TESTING TEAM

All laboratory tests for water, noise and ambient air were conducted by Asian Environmental Services Private Limited which is certified laboratory form EPA-Punjab. The testing team of expertise is presented in **Table 5-6**.

Table 5-6, Testing Team

1	Mr. Sajjad Hussain	Chief Chemist	M.Phil. Chemistry, GCU Lahore
2	Mr. Ashir Shahbaz	Lab Analyst/ Chemist	BS. Chemistry, University of The Punjab
3	Ms. Musharaf Jabeen	Chemist	MSC. Chemistry, University of The Punjab
4	Ms. Sadia Sawar	Environmentalist	B.Sc. Environmental Sciences – Govt. College University, Lahore
5	Mr. M. Abbas	Field Environmentalist	B.Sc. Environmental Sciences – University of Punjab, Lahore

33. SOCIO-ECONOMIC AND CULTURAL FEATURES

This section deals with the socio-economic and cultural conditions of the project area. During the desk/ office study, available reports/ documents were comprehensively studied.

The basic objectives of the social surveys were to:

- Get the primary data from the various sources.
- Informed people about objective and purpose of the proposed project.
- Identify the potential impacts associated with the implementation of the proposed project.
- Get feedback from community about project related social issues
- And address the mitigation measures about the social issues in the report.

This section provides collective information about the existing socio-

economic and environmental condition of the project area within the AOI. The different types of socio-economic aspects were covered such as; demographic profile, occupation, education and health facilities. This data helped in identifying major interventions for the development of Environmental Management and Monitoring Plan (EMMP). The study also helped to assess the positive or adverse impacts on local community. The major occupation of the people in the study area is agriculture and the detail of crops, being sown in this specific area is given below:

5.1.8 Cultivated Crops

The main crops that are being cultivated in the study area includes; Rice, Wheat, Fodder Crops as well as the seasonal crops grown in the region. District is famous for best Basmati rice production in the world.

5.1.9 Livestock

People in the study area have common livestock which include; Cows, Buffalos, Sheep, Goats and Hens. However, there is no proper cattle or poultry farm observed within the study area.

34. SOCIO-ECONOMIC PROFILE OF STUDY AREA

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

5.1.10 Social and Public Amenities Available

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

1. Physical structures

As the proposed project is situated in the industrial area of Sheikhupura, therefore any considerable dense human settlement is not present in the study area. The surrounding industries are coca cola and juice factory. At south west side beyond the boundary of industrial area small villages are present. The boundary wall is constructed to separate the settlements from industrial area. Number of settlements that present on south west and north west side has been surveyed for the purpose of identify the socio-economic conditions of the area. The land use on the project site is industrial cum agricultural. The people in this area are deprived of basic facilities like; sewerage and sanitation facility, water supply, medical facilities, provision of safe drinking water, etc.

2. Protected Structures

There is no protected site, structure or any other social infrastructure present at the proposed project site as the project is being constructed in the already designated Industrial Area.

3. Cultural Heritage and Community Structure

As stated earlier that the project area has no population and physical structure that may be damaged due to construction of Blue Agri Private Limited Asian team also visited the study area but did not find any cultural heritage and Gender-wise Households community structure within the study area that could be impacted due to the proposed project establishment.

5.1.11 Quality of Life Values

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

A) Occupation of Respondents

Majority of the respondents (15%) belongs to the labour class, 5% have their own business, 15% attached with agriculture, 5% shopkeepers, 15% are engineers and remaining 45% are private employees. During survey, efforts were made to interact with people representing all walks of life. The detailed graphic representation of occupational status is given below:

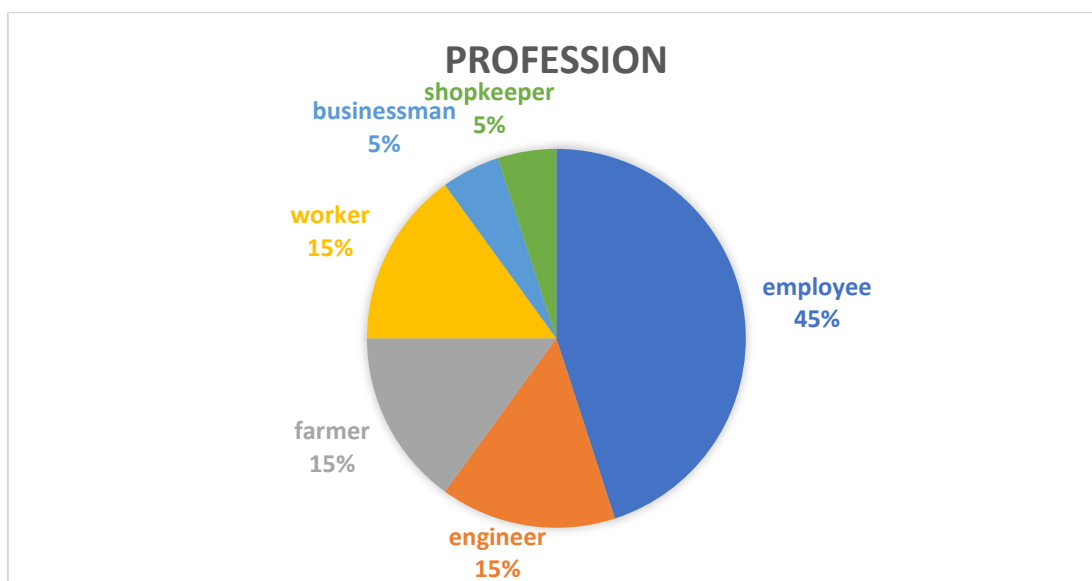


Figure 5-6, Occupation of Respondents

B) Facilities Available

Facilities available at the houses, shops and factories are depicted here. It shows that electricity, telecommunication, gas supply and every other

routine facility is available in study area. However, the study area was deprived of the basic amenities such as; water supply and sewerage system.

C) Literacy Rate

From survey results, it was found that 35% of the studied population was had a bachelor's degree, 25% was masters, 15% was educated up to matriculation, 10% was educated up to middle, 5% was PhD was 5% was educated up to primary level.

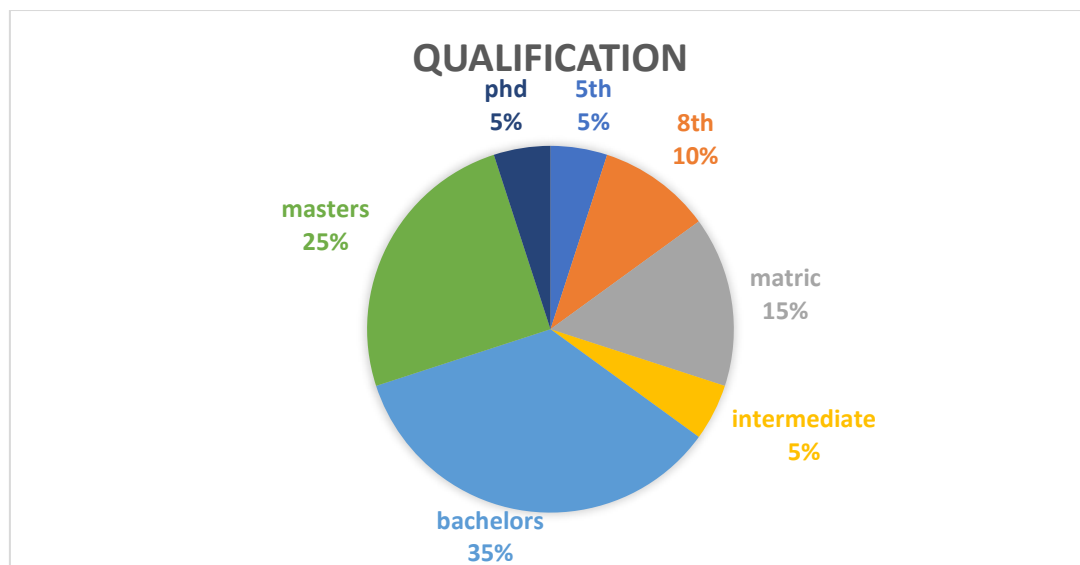


Figure 5-7, Education of Respondents

5.1.12 Quality of Life Values

Most of the respondents had the basic social facilities such as; basic health facility, electricity, un-metalled road network, railway track, public and private transportation to sustain life. Most of the respondents were working with the agricultural, livestock, doing their own business, shop-keepers and working as the labor in the nearby industries. The common diseases observed in that area were Diarrhea, cough diabetics and heart diseases.

5.1.13 Lab Reports of Environmental Analysis

Testing of different parameters was done from a certified laboratory in order to check the quality of different environmental parameters. The copy of the lab reports of these parameters (ambient air analysis, water quality analysis and noise) is attached at **ANNEXURE-F**.

5.1.14 Suitability of Site

The project does not fall in any sensitive zone because it is already designated industrial area named as **Quaid e Azam Business Park, Sheikhpura**. There are numerous industries along site the project location which makes it suitable for establishment of industry.

SECTION - 6: POTENTIAL ENVIRONMENTAL IMPACTS & MITIGATION MEASURES

35. GENERAL

This chapter identifies the potential impacts related with Preconstruction, construction and operation phases of the Project on the physical, ecological and socio-economic domains of the environment. Accordingly, mitigation measures have been proposed to mitigate the negative impacts and to enhance the positive impacts. Negative Impacts can be mitigated through hierarchy of control.

The hierarchy of control is a framework used to manage and prioritize workplace hazards, with the goal of reducing risks to health and safety. While the hierarchy primarily focuses on mitigating risks, it can also be applied to identify and address negative impacts associated with certain activities. Here are some examples of negative impacts that can be considered within the hierarchy of control:

Elimination: The highest level of the hierarchy involves eliminating the hazard or activity that causes negative impacts. For instance, if a particular process or practice is known to have significant negative environmental or social consequences, eliminating it entirely would be the most effective approach.

Substitution: Substituting a hazardous or harmful activity with a less harmful or more sustainable alternative can help minimize negative impacts. For example, replacing a resource-intensive or polluting method with a cleaner and more efficient process can reduce environmental degradation.

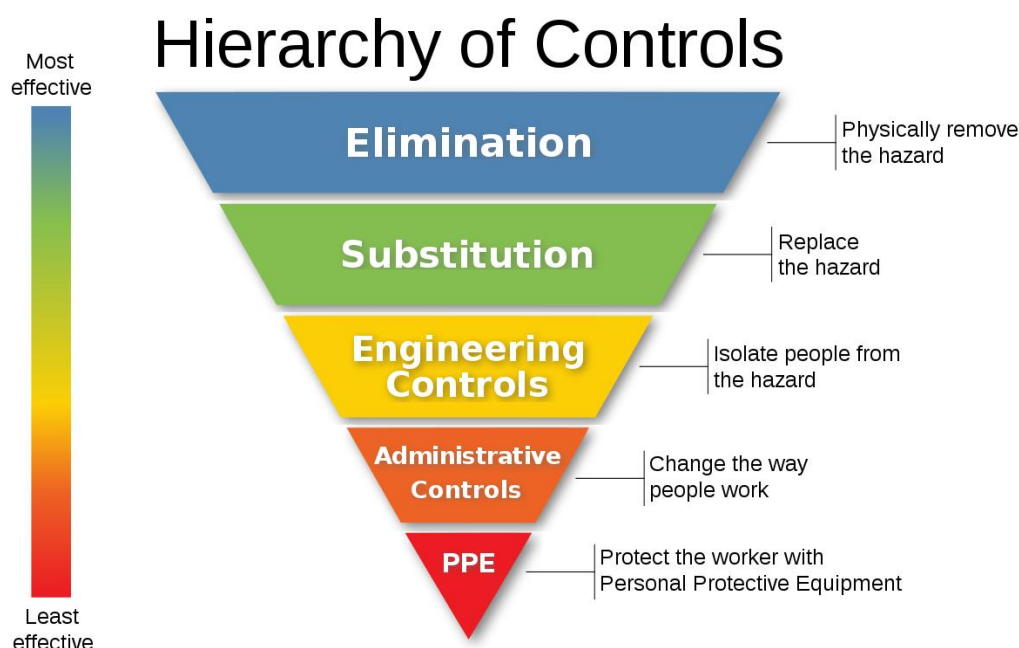
Engineering controls: Engineering controls involve modifying the physical environment or infrastructure to minimize negative impacts. This could include implementing technologies or systems that capture and treat pollutants, reduce emissions, or improve resource efficiency.

Administrative controls: Administrative controls focus on changing work practices, policies, or procedures to mitigate negative impacts. This may involve implementing guidelines, training programs, or protocols to ensure responsible and sustainable practices are followed.

Personal protective equipment (PPE): PPE is the last line of defence in the hierarchy of control and is used to protect individuals from hazards. While PPE may not directly address negative impacts, it can help safeguard workers or individuals against specific risks associated with an activity that cannot be eliminated or substituted.

It's important to note that the hierarchy of control primarily aims to reduce risks and improve safety. However, considering the broader context, it can be extended to include considerations of negative impacts on the

environment, social well-being, and sustainability. By applying the principles of the hierarchy of control to identify and address negative impacts, organizations can work towards more responsible and sustainable practices.



36. APPROACHES AND METHODOLOGY

During the preparation for the project construction phase the future contractors must be notified and prepared to co-operate with the executing agency, project management, supervising consultants and local population in the mitigation of impacts. Furthermore, the contractor must document the implementation of the EMP in full and be ready to engage trained environmental management staff to audit the effectiveness and review mitigation measures as the project proceeds. The effective implementation of the EMP will be prepared and must be audited and this will be considered as the most important part of planning. In this regard the proponent must fulfil the requirements of the law and guidance prepared by EPA on the environmental aspects of power projects and the recommendations already made for projects in this EIA and under EIA/IEE regulation and Punjab Environmental Protection Act (2012).

For impact identification, various EIA methodologies are available including the checklists, interaction matrices, networks and overlays. Among these four methods, following three are used in EIA of Blume Agri Private Limited project.

- Project Interaction Matrix
- Checklists
- Overlays

Interaction matrix is a two-dimensional matrix wherein the project actions are placed along one axis (i.e. along y-axis) and on the other axis there are different environmental parameters likely to be affected by the proposed project actions grouped into categories i.e. Physical, Ecological & Socio-economic Environment. Interaction matrix is used in this project due to the following reasons:

- It provides cause-effect relationship between the project actions and resulting consequences impacts.
- It provides nature (+ve or -ve) and weighting of different impacts.
- It provides cumulative impacts of a project.

Matrix grouped project actions into temporal phases. For the impact assessment, project interaction matrix is used by dividing the project action into different phases (Preconstruction, construction and operation). The environmental impacts are divided into three main categories including physical, ecological and socio-economic domains. The environmental impacts of the project actions are identified and weighed into the following categories:

+3	=	Extremely Beneficial
+2	=	Potentially Positive
+1	=	Slightly Positive
0	=	Insignificant
-1	=	Slightly Negative
-2	=	Potentially Negative
-3	=	Extremely Negative

The assignment of significance is based on the previous knowledge and professional judgment of EIA team experts. It may be noted that the environmental parameters, which are not related to the implementation of the projects, have not been considered in the matrix.

6.1.1 Checklist

The assignment of significance is based on the previous knowledge and professional judgment of EIA team experts. The project Checklist has been developed for “without” and “with mitigation”. It may be noted that the environmental parameters, which are not related to the implementation of the projects, have not been considered in the matrix.

6.1.2 Overlays

In order to identify spatial based impacts, overlays were used. An overlay is based on a set of transparent maps, each of which represents the spatial

distribution of an environmental characteristic (for example, susceptibility to erosion). Information for an array of variables is collected for the standard geographical units within the study area, and recorded on a series of maps, typically one for each variable. These maps are overlaid to produce a composite. The resulting composite maps characterize the area's physical, social, ecological, land use and other relevant characteristics, relative to the location of the proposed development.

37. CHARACTERISTICS OF IMPACTS

The predicted impacts have been characterized; various aspects of the impact characterized include:

- Nature (direct/indirect)
- Duration of impact (Short term, medium term, long term)
- Geological extend (local, regional)
- Timing (Project phase)
- Reversibility of impact (Reversible/Irreversible)
- Likelihood of the impact (certain, likely, unlikely, rare)
- Impact consequence severity (major, moderate, minor)
- Significance of impact (High, medium, low)

The above aspects of environmental characterization are defined in **Table 6-1**.

Table 6-1, Impact Characterization

Nature	Direct: The environmental parameter is directly changed by the project. Indirect: The environmental parameter changes as a result of change in another parameter
Duration of Impacts	Short-term: lasting only for the duration of the project such as noise from the construction activities. Medium-term: Lasting for a period of few months to a year after the project before naturally reverting to the original condition such as loss of vegetation due to clearing of campsite, contamination of soil or water by fuels or oil. Long-term: lasting for a period much greater than medium term impact before naturally reverting to the original condition such as loss of soil due to soil erosion.
Geographical Extent	Local, regional (spatial dimension)
Timing	Construction and Operation
Reversibility of Impact	Reversible: when a receptor resumes its pre-project condition. Irreversible: when a receptor does not or cannot resume its

	pre-project condition.
Likelihood of the Impact	Almost Certain: Impact expected to occur under most circumstances. Likely: Impact will probably occur under most circumstances. Possibly: Impact may possibly occur at some time. Unlikely: Impact could occur at some time. Rare: Impact may occur but only under exceptional circumstances.
Impact Consequences severity	Major: When an activity causes irreversible damage to a unique environmental feature; causes a decline in abundance or change in distribution over more than one generation of an entire population of species of flora and fauna: has long term effects (period of years) on socioeconomic activities of significance on regional level. Moderate: When an activity causes long-term (period of years), reversible damage to a unique environmental feature; causes reversible damage or change in abundance or distribution over one generation of a population of flora or fauna: have short-term effects (period of years) on socioeconomic activities of significance on regional level. Minor: When an activity causes short-term (period of a few months), reversible damage to a unique environmental feature; slight reversible damage to a few species of flora or fauna within a population over a short period; has short-term (period of months) effects on socioeconomic activities of local significance. Negligible: when no measurable damage to physical, socioeconomic, or biological environment above the existing level of impact occurs.
Significance of Impact	Categorized as High, Medium, Low Based on the consequence, likelihood, reversibility, geographical extent, and duration: level of public concern: and conformance with legislative of statutory requirements.

The impact characterization due to Design, Location, Construction and operational phase is given in their respective sections.

38. ENVIRONMENTAL IMPACTS AND THEIR MITIGATION DURING PRE-CONSTRUCTION PHASE

6.1.3 Environmental Impacts Regarding Project Location

As already discussed in the location alternative that the current site is already owned by Quaid-e- Azam Industrial Park, Sheikhpura and this location is best suitable with reference to studied dimensions of drainage and availability of vacant land.

Impact	Nature	Duration	Geo Extend	Reversibility	Likelihood	Consequence	Impact Significance
Land Acquisition and Resettlement	Direct	Local term	Local	Reversible	Almost Certain	Moderate	Low

Mitigation

No construction will disturb existing structure of industry.

39. ENVIRONMENTAL IMPACT AND THEIR MITIGATION DURING CONSTRUCTION PHASE

6.1.4 Physical Impacts

A) Soil contamination

- Soil Construction activities such as excavation, filling and disposal of materials (both solid and liquid) will affect the existing soil conditions in the Project Site and in its nearby surroundings. Spillage from the generator or from moving vehicle will cause contamination of soil at construction sites.
- Construction Camp site will generate about 0.4 kg/person/day solid wastes from site camps and construction debris from construction activities. Although quantity of waste is much less, inappropriate disposal methods will have a negative impact on the physical environment of the project area.
- During the construction stage of the project, minimal quantity of waste materials, chemicals, fuel and lubricants will be used apart from the generation of solid waste and liquid waste from the construction camps. Fuels and chemicals will be stored at the site for their immediate use, which will contaminate the soil.

Impact	Nature	Duration	Geo Extend	Reversibility	Likelihood	Consequence	Impact Significance
Soil Contamination and Erosion (Construction Phase)	Direct	Short Term	Local	Reversible	Likely	Minor	Low

Mitigation

Good engineering practices will help in controlling soil erosion at construction sites. Following measures will be adopted as per site conditions:

- Soil contamination can be curtailed by reducing the oil spill at project construction areas by well maintaining the construction vehicles as well as generators.
- The Contractor is required to impart proper training to his workforce in the handling and proper disposal of solid waste.
- Proper drainage facility will be provided to avoid the water accumulation, which will minimize the soil contamination.
- Ground shall be levelled to avoid slopes.
- Proper solid waste management plan should be developed by the Contractor and implemented to avoid the litter and any other waste problems.

6.1.5 Contamination of Surface and Groundwater Resources

- There is QABP Drain present outside of boundary of Industrial Estate having distance of 2.3 km from the project area. Due to the construction activities i.e., drilling, concreting, excavation and dumping of soil, chemicals, oil, lubricants, detergents etc. its quality might get deteriorated.
- Sewage is generated from the construction camps.

Impact	Nature	Duration	Geo Extend	Reversibility	Likelihood	Consequence	Impact Significance
Surface Water Contamination (Construction Phase)	Indirect	Long Term	Regional	Irreversible	Possibly	Moderate	Medium
Ground Water Contamination (Construction Phase)	Direct	Medium Term	Regional	Irreversible	Unlikely	Moderate	Medium

6.1.6 Mitigation Measures of Impacts on Water Resources

Sewage from construction camp will be disposed off using septic tank which has been designed properly keeping in view the following parameters:

- Soil stratigraphy at site
- Depth of groundwater table
- Discharge of sewage from construction camp

The septic tank has been designed by the Design Consultant according to the relevant standards. The example of the septic tank is shown in **Figure 6-1**.

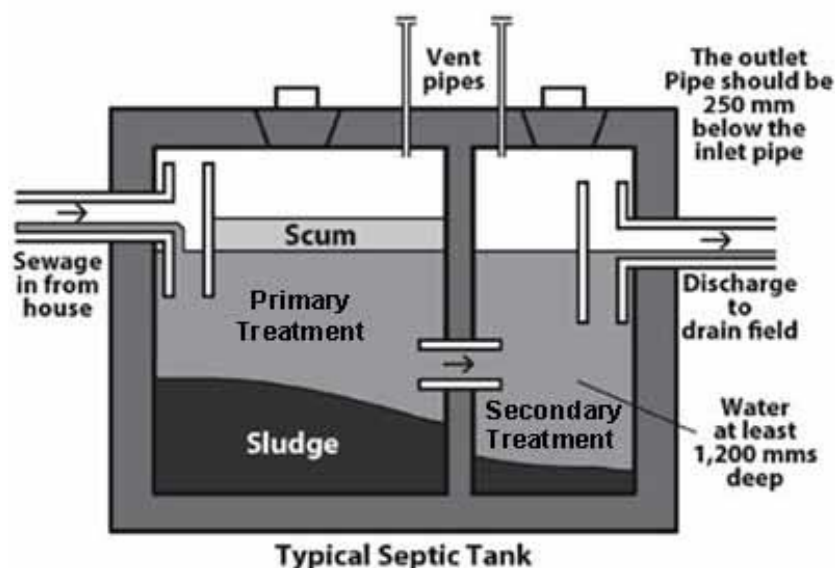


Figure 6-1, Septic tank

- Construction camps should be established in areas with adequate natural drainage channels in order to facilitate flow of the effluents.
- Avoid accidental spills of oils and lubricants through good practice. Prepare and implement Emergency Response Procedures in case of any spill hazard.

6.1.7 Impact on Ambient air quality

Due to the construction activities like excavation, clearing, levelling and compaction with the use of machinery like batching plants, excavators, dump truck and other transport vehicles etc. Most of these are using diesel engines that generate noise and exhaust emissions. The possibility of exhaust emissions increases when old vehicles/plants are utilized for the execution purposes. Generally, the above activity is generating particulate- matter (PM10), smoke, dust, CO and NO_x in the ambient air, which is deteriorating the air quality and resulting in impacts on human health, fauna and flora. The movement of heavy machinery and vehicles on the dirt tracks is also causing dust emissions. Particles are lifted and dropped from the rolling wheels, and the road surface is exposed to strong air currents in turbulent shear with the surface.

Impact	Nature	Duration	Geo Extend	Reversibility	Likelihood	Consequence	Impact Significance
Air Quality Deterioration (Construction Phase)	Direct	Short term	Local	Reversible	likely	Minor	Medium

Mitigation Measures of Impacts on Ambient Air Quality

- Tuning of vehicles should be made mandatory to reduce the emissions of NO_x, SO_x, CO and PM₁₀.
- Equipment and vehicles powered with diesel should be well maintained to minimize particulate emissions.
- Haul-trucks carrying, earth, sand, aggregate and other materials should be kept covered during transportation of materials and during storage at site, with tarpaulin.
- The fugitive dust emission will not be a problem because the roads are paved but for the precautionary measure sprinkling of water-by-water trucks will be done.
- Use of water spraying systems to suppress dust emissions during construction activities, helps prevent the release of dust particles into the air. Water trucks, sprinklers, or misting systems can be employed for effective dust control.
-

6.1.8 Impact on Ambient Noise Levels & Vibration

During the implementation of the project, equipment's and construction machinery will be utilized for construction. The equipment would include excavators, concrete mixer, trucks and other machinery and vehicles. The operation and movement of such equipment will increase the noise and vibration in the Project Area and Neighbourhood Industries or residential may be disturbed by the noisy activities. The impact will be significant when compared to the without project situation.

Impact	Nature	Duration	Geo Extend	Reversibility	Likelihood	Consequence	Impact Significance
Noise (Construction Phase)	Direct	Short term	Local	Reversible	likely	Minor	Medium

Mitigation Measures of Impacts on Noise & Vibration

- Choose quieter equipment and machinery during the procurement process.
- Look for equipment models that comply with noise emission standards and guidelines.
- Regular maintenance and servicing of equipment are essential to keep them in optimal working condition, minimizing noise and vibration levels.

6.1.9 Disposal of Construction Debris & Garbage

During construction phase of the Project, large quantity of construction waste

will produce, the disposal of which, if not managed properly could have negative impacts on the site and surrounding areas. Clearing of shrubs and grass could pose a fire hazard and affect air quality if burned on location. Construction materials including concrete waste, wood, steel, packaging plastics etc. could be dispersed that may result in the blockage of drainage channels if not disposed of at approved disposal sites.

Impact	Nature	Duration	Geo Extend	Reversibility	Likelihood	Consequence	Impact Significance
Waste Material (Construction Phase)	Direct and Indirect	Medium	Regional	Irreversible	Likely	Moderate	Medium

Mitigations

- A site waste management plan should be made the responsibility of the construction contractor to provide for the designation of appropriate waste storage area on the site and a schedule for the timely collection and removal of construction debris to an approved dump site.
- The construction waste will be disposed on approved landfill site from Punjab-EPA
- The organic waste produced during site clearing should be mechanically mulched and composted at the site and used for landscaping.
- Arrangements should be made for regular garbage collection and removal of sewage from the construction site.

40. ECOLOGICAL ENVIRONMENT

6.1.10 Impact on Flora

- There are few trees present at the proposed site of plant. Few herbs & shrubs are also present on site.

Impact	Nature	Duration	Geo Extend	Reversibility	Likelihood	Consequence	Impact Significance
Impact on trees	Direct	Short Term	Local	Reversible	Likely	Minor	Low

Mitigation

- The designated green area will be vegetated and native vegetation present on-site will be preserved

- Biodiversity at the site will be maintained by transplanting or culturing endangered or threatened plants such as Sheesham which is under-attack in Asia will be planted at site.

6.1.11 Threats to the aquatic life due to contamination and Generation of effluent

During construction of waste water treatment plant, Solid waste and liquid waste such as oils and lubricants residues are released that may affect nearby water channels. That will ultimately increase pollution due to water contamination associated with solid waste, sedimentation and sewage generated during project activities, these water bodies may lose the aquatic biodiversity as their biological oxygen demand (BOD) and chemical oxygen demand (COD) may increase.

Impact	Nature	Duration	Geo Extend	Reversibility	Likelihood	Consequence	Impact Significance
Threats to the aquatic life due to contamination	Direct	Medium Term	Regional	Reversible	Possibly	Moderate	Medium

Mitigation

The impact will be mitigated with best construction management practices to prevent accidental damage to the water resources.

41. SOCIO ECONOMIC ENVIRONMENT

6.1.12 Impact on Socio Economy

In project area, no significant changes are envisaged in the traditional life style and occupation of the local people in residing in the nearby communities. The local people are rather benefited due to the provision of job opportunities. No impact is envisaged due to the influx of the workers as the local will be preferred and hired for working.

Social issues may arise which will cause minor negative impact on the social life style of the people. Moreover, health and safety related issues may arise during the construction activities. These impacts are in-significant can be further reduced significantly by adopting best management practices.

Impact	Nature	Duration	Geo Extend	Reversibility	Likelihood	Consequence	Impact Significance
Impact on Socio Economy	Direct	Short Term	Local	Reversible	Likely	Minor	Medium

Mitigation Measures

- Good relations with the local communities will be promoted by encouraging Contractor to provide opportunities for skilled and un-skilled employment to the locals as well as on-job training
- The contractor should prefer hiring local labor from adjacent community.
- The contractor will keep the copy of National Identity Card (CNIC) of his employees and will warn the workers not to involve in any anti-social activities otherwise they may face dire consequences
- At the time of hiring the Contractor has to ensure that the workers should be of good repute
- First aid kits having all the necessary first aid stuff will be available at the site
- Routine medical check-ups of all the field staff including unskilled labor needs to be conducted by qualified physician and surgeon
- Training of workers should be carried out for operating various constructional machinery, safety procedures should be adopted, environmental awareness should be carried out, equip all workers with safety boots, helmets, gloves, protective masks and monitoring of their proper and sustained usage will be carried out. In case of accidents, contractor will provide free medical treatment to the community
- The Contractor will be responsible for the sensitivity towards the local customs and traditions

42. ENVIRONMENTAL IMPACT AND THEIR MITIGATION DURING OPERATIONAL PHASE

6.1.13 Physical Impacts

A) Noise & Vibration

During operation phase, noise levels are not expected to exceed current baseline measurements. However, expected noise sources with their impacts are discussed here.

Sources of noise pollution:

- **Raw material and finished goods loading/unloading:** The use of heavy machinery, conveyor belts, or equipment during these processes can generate significant noise.

- **Vehicle movements:** Transportation vehicles such as trucks, forklifts, or loaders can contribute to noise pollution, especially in busy loading/unloading areas.
- **Operation of machines:** Industrial machines, equipment, and processes often generate noise, particularly those involving mechanical operations, high-speed rotations, or repetitive movements

Impact on workers:

Excessive noise levels can lead to various health issues and negatively impact workers' well-being, including:

- **Hearing damage:** Prolonged exposure to high noise levels can cause permanent hearing loss or impairment.
- **Stress and fatigue:** Continuous exposure to loud noise can result in increased stress levels, fatigue, reduced concentration, and decreased productivity.
- **Communication difficulties:** Excessive noise can make it challenging for workers to communicate effectively, leading to errors or accidents in the workplace.

However, it is anticipated that during operations noise and vibration from all equipment's will be kept within the permissible limits, transient in nature, reversible and not significant. Moreover, Blume Agri (Pvt) Limited management will take all required measures to ensure that the noise levels do not exceed the threshold values for occupational noise and remain within the bearable limit of the workers.

Impact	Nature	Duration	Geo Extend	Reversibility	Likelihood	Consequence	Impact Significance
Noise & Vibration (Operational Phase)	Direct	Short Term	Local	Irreversible	Likely	Minor	Low

6.1.14 Mitigation Measures of Impacts from Noise & Vibrations

Effective noise management protocols should be implemented, wherever applicable, during operational phase of the project. The implementation of following measures further reduces predicted impacts.

- **Engineering controls:** Modify machinery or processes to reduce noise emissions. This can involve installing noise-reducing equipment, using vibration isolation techniques, or enclosing noisy machinery.
- **Administrative controls:** Implement policies and procedures to limit exposure time or distance from noise sources. This may include rotating workers or providing quiet areas for breaks.

- **Personal protective equipment (PPE):** Provide workers with suitable hearing protection devices, such as earplugs or earmuffs, which should be worn in areas with high noise levels.
- **Regular maintenance:** Ensure machinery and equipment are properly maintained to minimize noise emissions caused by mechanical issues or wear and tear.
- **Training and awareness:** Educate workers about the risks associated with noise exposure, proper use of PPE, and encourage reporting of any concerns or issues

6.1.15 Air Quality

The operations of dehydration of fruits, vegetables, and spices can have potential impacts on air quality due to the release of particulate matter, volatile organic compounds (VOCs), and odorous emissions. These impacts can affect both the environment and human health. However, there are several mitigation measures that can be implemented to reduce these impacts. Some potential impacts are discussed here:

- **Particulate Matter (PM) Emissions:** Dehydration processes often involve the generation of fine particles, which can contribute to air pollution and respiratory issues.
- **Volatile Organic Compounds (VOCs) Emissions:** VOCs released during the dehydration process can contribute to the formation of ground-level ozone and can have detrimental effects on air quality and human health.
- **Odorous Emissions:** The dehydration process can generate strong odors, which can cause nuisance issues for nearby communities
- **Energy Efficiency and Emissions Reduction:** Energy consumption during dehydration processes can contribute to greenhouse gas emissions and air pollution if generated from fossil fuel sources.

Impact	Nature	Duration	Geo Extend	Reversibility	Likelihood	Consequence	Impact Significance
Air Quality (Operational Phase)	Indirect	Short Term	Local	Irreversible	Likely	Minor	Low

6.1.16 Mitigation Measures of Impacts on Air Quality

- Install particulate matter collection systems such as cyclones, fabric filters, or electrostatic precipitators to capture and remove particulate matter from the exhaust air.

- Optimize drying processes to minimize the generation of fine particles, such as adjusting temperature and airflow parameters.
- Implement enclosed drying systems or use ventilation systems to capture and treat VOC emissions.
- Install activated carbon adsorption systems or thermal oxidizers to remove VOCs from the exhaust air.
- Implement odor control measures such as biofilters, activated carbon filters, or chemical scrubbers to remove odorous compounds from the exhaust air.
- Employ good housekeeping practices to reduce spills and leaks that can contribute to odorous emissions.
- Optimize drying processes to reduce energy consumption by using efficient equipment and controlling temperature and humidity conditions.
- Consider renewable energy sources, such as solar or biomass, for powering drying operations.
- All equipment and vehicles used during the project should be properly tuned and maintained in good working condition.
- Monitoring of Ambient air parameters (Particulate matter, SO_x, NO_x) emissions should be carried out on regular basis to ensure compliance with the PEQS.
- Regular checks for O & M (operations & maintenance)

6.1.17 Occupational Safety

During the operations of dehydration of fruits, vegetables, and spices, there are potential occupational safety impacts that can affect the health and well-being of workers.

- **Slips, Trips, and Falls:** Wet or slippery floors, cluttered work areas, or uneven surfaces can increase the risk of slips, trips, and falls, leading to injuries.
- **Machinery and Equipment Hazards:** Improper use of machinery, lack of training, or malfunctioning equipment can result in injuries, including cuts, burns, or entanglement.
- **Ergonomic Hazards:** Repetitive motions, awkward postures, or lifting heavy loads can lead to musculoskeletal disorders (MSDs) and physical strain.
- **Chemical Exposure:** Workers may be exposed to chemicals, such as cleaning agents, pesticides, or fumigants, which can cause skin irritation, respiratory issues, or long-term health effects.
- **Fire and Electrical Hazards:** Electrical malfunctions, improper wiring, or flammable materials can pose fire hazards and electrical shocks
- **Heat Stress:** Working in high-temperature environments during the dehydration process can lead to heat-related illnesses, including heat exhaustion or heatstroke.

Impact	Nature	Duration	Geo Extend	Reversibility	Likelihood	Consequence	Impact Significance
Occupational Safety (Operational Phase)	Direct	long-term	Local	Irreversible	Likely	Minor	Low

6.1.18 Mitigation Measures of Impacts

To ensure worker's safety during operation phase, following measures should be taken:

- Ensure proper housekeeping practices, including regular cleaning and drying of floors, removing obstacles, and maintaining clear and organized work areas.
- Use anti-slip mats or flooring in areas prone to wetness.
- Provide proper lighting to enhance visibility and reduce the risk of accidents.
- Provide comprehensive training to workers on the safe operation of machinery and equipment, including proper use, maintenance, and emergency procedures.
- Ensure that workers are adequately trained and authorized to operate specific machinery.
- Regularly inspect and maintain equipment to identify and address any potential hazards or malfunctions.
- Implement lockout/tagout procedures to control hazardous energy sources during maintenance or repair activities.
- Provide ergonomic training to workers, emphasizing proper lifting techniques, posture, and body mechanics.
- Use lifting aids or equipment, such as forklifts, hoists, or trolleys, to reduce manual handling of heavy loads.
- Implement job rotation or breaks to minimize prolonged exposure to repetitive tasks.
- Design workstations and equipment with ergonomics in mind, considering factors like height-adjustable work surfaces, proper seating, and good lighting.
- Provide appropriate personal protective equipment (PPE) based on the chemicals used, such as gloves, goggles, respirators, or protective clothing.
- Ensure proper ventilation in areas where chemicals are used or stored to minimize exposure.
- Implement safe handling and storage practices for chemicals, including proper labeling, containment, and spill response procedures.

- Train workers on the potential hazards of chemicals and proper handling techniques.
- Regularly inspect and maintain electrical systems to identify and address potential hazards.
- Ensure proper grounding, wiring, and use of electrical equipment in accordance with safety standards.
- Store flammable materials in designated areas away from ignition sources, following proper storage and handling procedures.
- Provide appropriate fire detection and suppression systems, such as fire extinguishers, sprinklers, or alarms, and conduct fire drills periodically.
- Provide adequate ventilation, cooling systems, or air conditioning in work areas to reduce heat stress.
- Schedule work during cooler hours of the day whenever possible.
- Encourage workers to stay hydrated and provide access to drinking water.
- Train workers on recognizing the signs of heat-related illnesses and implementing proper rest breaks.

6.1.19 Solid waste

During the operations of dehydration of fruits, vegetables, and spices, there are potential impacts associated with solid waste generation. Here are some potential impacts:

- **Organic Waste:** Dehydration processes can generate organic waste such as peels, cores, or residual plant material. Improper disposal of organic waste can lead to odor, pests, and environmental pollution
- **Packaging Waste:** Dehydrated fruits, vegetables, and spices often require packaging materials, such as plastic bags or containers. Improper management of packaging waste can contribute to landfill waste and environmental pollution.

Impact	Nature	Duration	Geo Extend	Reversibility	Likelihood	Consequence	Impact Significance
6.1.19 Solid waste (Operational Phase)	Indirect	Short-term	Local	Irreversible	Likely	Minor	Low

6.1.20 Mitigation Measures of Impacts

- Implement waste segregation practices to separate organic waste from other types of waste.

- Compost organic waste to reduce its volume and convert it into a valuable resource.
- Use dedicated collection bins for organic waste and ensure regular collection and proper disposal according to local regulations.
- Explore opportunities for recycling or repurposing organic waste, such as animal feed production or biogas generation
- Optimize packaging design to minimize material usage and choose recyclable or biodegradable packaging options whenever possible.
- Implement waste reduction strategies, such as using bulk packaging or promoting the use of reusable containers.
- Establish recycling programs to collect and recycle packaging waste, ensuring proper segregation and disposal.
- Educate employees about proper waste management practices, including the importance of recycling and reducing packaging waste.

6.1.21 Water Waste:

Dehydration processes typically require water for washing, rinsing, or steam generation. Improper water management can lead to excessive water consumption and wastewater generation.

Impact	Nature	Duration	Geo Extend	Reversibility	Likelihood	Consequence	Impact Significance
6.1.19 Water waste (Operational Phase)	Indirect	Short-term	Local	Irreversible	Likely	Minor	Low

6.1.22 Mitigation Measures of Impacts

- Implement water conservation measures, such as using water-efficient equipment, recycling water, or capturing and reusing condensate.
- Monitor water usage and identify opportunities for optimization and reduction.
- Treat and recycle wastewater where feasible, following local regulations and best practices.
- Regularly inspect and maintain water management systems to prevent leaks and ensure efficient use.

43. ECOLOGICAL ENVIRONMENT

6.1.23 Impact on Flora& Fauna

- The physical existence and operations of the plant may generate noise, odour nuisance and fugitive. These issues may scare the birds from nesting around the site.

Impact	Nature	Duration	Geo Extend	Reversibility	Likelihood	Consequence	Impact Significance
Impact on Flora & Fauna (Operational Phase)	Direct	Short Term	Local	Reversible	Likely	Minor	Low

Mitigation

- Tree planting will enhance biodiversity at the site.
- Trees will attract many bird species and other animal species.
- The designated green area will be vegetated and native vegetation present on-site will be preserved

44. SOCIO ECONOMIC ENVIRONMENT

6.1.24 Impact on Socio Economy

In project area, no significant changes are envisaged in the traditional life style and occupation of the local people in residing in the nearby communities. The local people are rather benefited due to the provision of job opportunities. No impact is envisaged due to the influx of the workers as the local will be preferred and hired for working.

Social issues may arise which will cause minor negative impact on the social life style of the people. Moreover, health and safety related issues may arise during the construction activities. These impacts are in-significant can be further reduced significantly by adopting best management practices.

Impact	Nature	Duration	Geo Extend	Reversibility	Likelihood	Consequence	Impact Significance
Impact on Socio Economy	Direct	Short Term	Local	Reversible	Likely	Minor	Medium

Mitigation Measures

- Good relations with the local communities will be promoted by encouraging Contractor to provide opportunities for skilled and un-skilled employment to the locals as well as on-job training

- In the case of not hiring the locals, Contractor will restrict his permanent staff to mix with the locals to avoid any social problems
- The contractor will keep the copy of National Identity Card (CNIC) of his employees and will warn the workers not to involve in any anti-social activities otherwise they may face dire consequences
- At the time of hiring the Contractor has to ensure that the workers should be of good repute
- First aid kits having all the necessary first aid stuff will be available at the site
- Routine medical check-ups of all the field staff including unskilled labor needs to be conducted by qualified physician and surgeon
- Training of workers should be carried out for operating various constructional machinery, safety procedures should be adopted, environmental awareness should be carried out, equip all workers with safety boots, helmets, gloves, protective masks and monitoring of their proper and sustained usage will be carried out. In case of accidents, contractor will provide free medical treatment to the community
- The Contractor will be responsible for the sensitivity towards the local customs and traditions

6.1.25 Potential Environmental Enhancement Measures

In order to enhance environment, the following measures will be adopted:

- a. Landscaping around proposed project
- b. Air emission control technology will be installed on stacks of industry.
- c. Sprinkling of water will be done on dusty roads and tracks.
- d. PPEs will be provided during construction & operational activity.
- e. Constructional waste and domestic solid waste will be disposed-off or utilized properly.
- f. Local people will be informed in advance when work is about to start in an area.
- g. Machinery will never be left unattended.
- h. Efforts should also be made to discuss traffic conditions so that regular traffic is not disturbed. Transporters engaged for the project would be forced to adhere to the load specifications of the access road. No overloading would be allowed in any case.
- i. Safety signs and boards will be placed during construction.
- j. Multi scrubber system will be installed within the project during operation.
- k. Machinery will be kept maintained.
- l. Proper SOPs will be followed with proper schedule along with the HSE conditions.

- m. Solid waste will be handed over to contractors and agreement will be made.
- n. Noise will be controlled by adopting proper measures.
- o. PPEs will be provided to workers during working.
- p. Firefighting equipment' s and system will be installed.
- q. Safety signs will be placed at all locations where required.
- r. Hygienic conditions will be ensured and proper quality will be maintained by quality control testing.
- s. First aid facilities will be made available.

SECTION - 7: ENVIRONMENTAL MANAGEMENT AND MONITORING PROGRAM

The primary objectives of the EMMP are to:

- 1) Facilitate the implementation of the mitigation measures identified in the EIA.
- 2) Define the responsibilities of the project proponent.
- 3) Define a monitoring mechanism and identify monitoring parameters in order to:
 - a. Ensure the complete implementation of all mitigation measures.
 - b. Ensure the effectiveness of the mitigation measures.
 - c. Provide a mechanism for taking timely action in the face of unanticipated environmental situations.
 - d. Identify training requirements at various levels.

45. INSTITUTIONAL CAPACITY

The overall responsibility for compliance with the environmental management plan rests with the project proponent. He will appoint HSE/ Quality Manager of relevant qualification. HSE/ Quality Manager will act as Environmental Manager and will manage all HSE conditions at the PEQS.

A certain degree of redundancy is inevitable across all management levels, but this is in order to ensure that compliance with the environmental management plan is crosschecked.

Following functionaries will be involved in the implementation of EMP:

- Project Proponent
- HSE Manager
- Safety Supervisor
- Safety Officer

46. TRAINING SCHEDULE

Training for the management/contractors/engineers and workers on environmental aspects of the project will be arranged during the constructional phase of the project. It will be imparted by a team of experienced trainers.

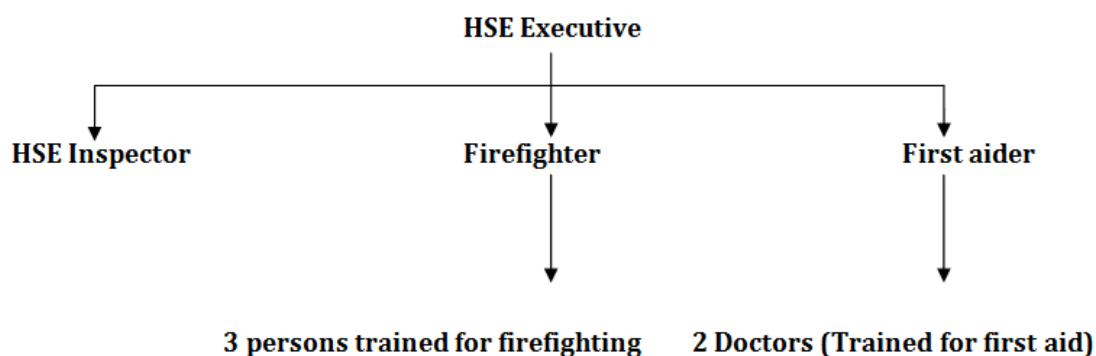


Figure 7-1, Institutional Capacity for the implementation of EMP

Management must appoint HSE officer to initiation of constructional work at the project site. HSE officer is responsible for conducting the training of the labor, which will be organized either by the management of industry or by the contractor. Following schedules of training will be implemented:

Table 7-1, Training Program

Sr. No.	Description of program	Labor/ Personnel involved	Time/ duration
1.	General HSE Training	Trainers and whole labor	Quarterly for 1 hour
2.	Instrument use/ workplace specific items	Trainers and whole labor	Quarterly for 1 hour
3.	PPEs use and safe work practices at work site.	Trainers and whole labor	Quarterly for 1 hour
4.	Reporting and investigating accidents/ incidents	Trainers and whole labor	Quarterly for 1 hour
5.	Emergency procedures	Trainers and whole labor	Quarterly for 1 hour
6.	Medical and first aid	Trainers and whole labor	Quarterly for 1 hour

In order to raise the level of professional and managerial staff, there is a need to upgrade their knowledge in the related areas. HSE/Quality Manager should play a key role in this respect and arrange the training programs. HSE/Quality Manager will provide training to staff and workers about the best environmental management practices at the construction site and affective implementation of the EMMP. The training modules will include air, noise and water pollution monitoring, social awareness, Environmental Laws, Punjab Environmental Quality Standards (PEQS), Usage of personal protection equipment's, and health and safety related issues on the construction site.

The HSE/Quality Manager will train all workers & staff in basic sanitation and health care issues (e.g., how to avoid malaria and transmission of Sexually

Transmitted Infections (STI) HIV/AIDS and in general health and safety matters, and on the specific hazards of their work). Training should also consist of basic hazard awareness, site specific hazards, safe work practices, and emergency procedures for fire, evacuation.

HSE/Quality Manager will conduct Training on monthly or quarterly basis regarding health & safety, hygiene, firefighting and first aid.

7.1.1 Training of Building Contractor

Training of building contractor & workers will be the part of the TORs regarding the construction of the scheme.

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

- 1) Handling of Machineries in a safe way
- 2) Use of PPEs
- 3) Maintenance of vehicles and submission of Environmental Monitoring Reports
- 4) Maintenance of Water Consumption records
- 5) Testing of water and waste water and submission of Environmental Monitoring Reports
- 6) Placement of safety signs/boards during construction
- 7) Sprinkling of water on the roads and dusty tracks
- 8) Monitoring of generator emissions

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

47. MATRIX (MMM)

This matrix identifies the environmental impacts of multipurpose project during the construction and operation stages and establishes the linkages between the environmental and social impacts, mitigation strategy and the agencies responsible for execution. The MMM presented in Table 7-2 identifies the following:

- The mitigation measures recommended in EIA.
- The person/organization directly responsible for adhering to or executing the required mitigation measures.
- The person/organization responsible for ensuring and monitoring adherence to the mitigation measures.
- The parameters which will be monitored to ensure compliance with the mitigation measures.
- The timing at which the mitigation or monitoring has to be carried out.

Table 7-2, Mitigation management matrix

Sr. no.	Anticipated impacts	Mitigation measures	Responsibility		Actions/Monitoring parameters/Monitoring methods
			Execution	Monitoring	
Construction Phase					
Physical Impacts					
01	Soil Erosion and Contamination due to construction activities	• Good engineering practices should be adopted by Contractors, which will help to control soil erosion at the construction sites. • Soil contamination can be curtailed by reducing the oil spill from generator and other machinery at project construction areas, proper solid waste management. • The Contractor is required to impart proper training to his workforce in the storage and handling of obnoxious materials, like oil, diesel and petrol that can potentially cause soil contamination. • Proper drainage facility will be provided to avoid the water accumulation, which will minimize the soil contamination.	CC	SC and BA	• Equipment maintenance. • Placement of solid waste storage containers at project site. • Collection and disposal by Contractor
02	Surface and Ground Water Contamination during construction activities	• Septic tank and artificial drainage pipe should be developed and attached to natural drainage. • The Contractor should instruct its staff	CC	SC and BA	• Septic tank • Verify that the camp has constructed on adequate natural drainage.

Sr. no.	Anticipated impacts	Mitigation measures	Responsibility		Actions/Monitoring parameters/Monitoring methods
			Execution	Monitoring	
		not to throw any of the waste and the other scarified/scrapped materials directly into the river or canal passing from the project area in order to avoid contamination. - Construction camps should be established in areas with adequate natural drainage channels in order to facilitate flow of the effluents. - Avoid accidental spills of oils and lubricants through good practice. Prepare and implement Emergency Response Procedures in case of any spill hazard.			
03	Generation of noise, vibration and exhaust emission due to construction activities. Ambient Air Quality Deterioration due to Construction Activities	- Tuning of vehicles should be made mandatory to reduce the emissions of NOx, SOx, CO and PM10. - Water Sprinkling on roads - Equipment and vehicles should be well maintained to minimize particulate emissions. - Haul-trucks carrying, earth, sand, aggregate and other materials should be kept covered during transportation of materials and during storage at site, with tarpaulin - Use of silencers Mufflers and proper	CC	SC and BA	- Maintenance of Vehicles - Water Sprinkling - Filled Vehicles covered with tarpaulin

Sr. no.	Anticipated impacts	Mitigation measures	Responsibility		Actions/Monitoring parameters/Monitoring methods
			Execution	Monitoring	
		tuning of vehicles to control noise • Movements of the trucks and other construction machinery causing high noise levels must be restricted at night time			
04	Disposal of Construction Debris and Garbage	• A site waste management plan should be made the responsibility of the construction contractor to provide for the designation of appropriate waste storage area on the site and a schedule for the timely collection and removal of construction debris to an approved dump site. • The construction waste will be disposed on approved landfill site from Punjab-EPA • The organic waste produced during site clearing should be mechanically mulched and composted at the site and used for landscaping. • Arrangements should be made for regular garbage collection and removal of sewage from the construction site	CC	SC and BA	• SC have to ensure that the site waste management plan is properly implemented
05	Traffic Disturbance due to additional Construction Vehicles	• During the construction phase traffic control measurement will be	CC	SC and BA	• Timings of the construction vehicles

Sr. no.	Anticipated impacts	Mitigation measures	Responsibility		Actions/Monitoring parameters/Monitoring methods
			Execution	Monitoring	
		implemented. All raw materials will be transported to the site at night time due to at night time traffic flow very low in the project area.			
Ecological Environment					
06	Loss and Damage of Natural Vegetation (No Tree will be lost but only shrubs will be)	About 200-300 native plants will be planted at all the available open spaces in the project area. As almost significant amount of open area will be used for the landscaping, so it will enhance the natural features of the area.	CC	SC and BA	SC to verify that plantation plan is properly implemented.
07	Threats to aquatic life due to construction and liquid waste disposal	The impact will be mitigated by construction of temporary fences with construction management practices to prevent accidental damage to the water resources.	CC	SC and BA	- SC to verify the fences - Regular Monitoring of Surface water
Social Environment					
07	Issues to Local Population due to influx of construction workers	- Preference to be given to locals for construction work - Local suppliers for machineries and construction materials to be given preference - Local transporters to be preferred for transportation of machinery/material - The Contractor should warn the workers not to involve in any theft	CC	SC and BA	Employment records of contractors

Sr. no.	Anticipated impacts	Mitigation measures	Responsibility		Actions/Monitoring parameters/Monitoring methods
			Execution	Monitoring	
		activities Effective construction control should be done by the contractors by management of heavy vehicles and machinery operation			
Operational phase					
09	During operation phase, noise levels are not expected to exceed current baseline measurements. However, expected noise sources with their impacts are discussed here. Sources of noise pollution: - Raw material and finished goods loading/unloading - Vehicle movements - Operation of machines - Impact on workers - Hearing damage - Stress and fatigue - Communication difficulties	- Modify machinery or processes to reduce noise emissions. This can involve installing noise-reducing equipment, using vibration isolation techniques, or enclosing noisy machinery. - Implement policies and procedures to limit exposure time or distance from noise sources. This may include rotating workers or providing quiet areas for breaks. - Provide workers with suitable hearing protection devices, such as earplugs or earmuffs, which should be worn in areas with high noise levels. - Ensure machinery and equipment are properly maintained to minimize noise emissions caused by mechanical issues or wear and tear. - Educate workers about the risks associated with noise exposure,	BA	Punjab-EPA	Effective noise management protocols should be implemented

Sr. no.	Anticipated impacts	Mitigation measures	Responsibility		Actions/Monitoring parameters/Monitoring methods
			Execution	Monitoring	
		proper use of PPE, and encourage reporting of any concerns or issues			
	The operations of dehydration of fruits, vegetables, and spices can have potential impacts on air quality due to the release of particulate matter, volatile organic compounds (VOCs), and odorous emissions. These impacts can affect both the environment and human health. However, there are several mitigation measures that can be implemented to reduce these impacts. Some potential impacts are discussed here: • Dehydration processes often involve the generation of fine particles, which can contribute to air pollution and respiratory issues. • VOCs released during the dehydration process can contribute to the formation of ground-level ozone and can have detrimental effects on air quality and human health. • The dehydration process can	• Install particulate matter collection systems such as cyclones, fabric filters, or electrostatic precipitators to capture and remove particulate matter from the exhaust air. • Optimize drying processes to minimize the generation of fine particles, such as adjusting temperature and airflow parameters. • Implement enclosed drying systems or use ventilation systems to capture and treat VOC emissions. • Install activated carbon adsorption systems or thermal oxidizers to remove VOCs from the exhaust air. • Implement odor control measures such as biofilters, activated carbon filters, or chemical scrubbers to remove odorous compounds from the exhaust air. • Employ good housekeeping practices to reduce spills and leaks that can contribute to odorous emissions. • Optimize drying processes to reduce	BA	Punjab-EPA	• Regular Monitoring of Ambient Air quality & Indoor Air Quality

Sr. no.	Anticipated impacts	Mitigation measures	Responsibility		Actions/Monitoring parameters/Monitoring methods
			Execution	Monitoring	
	generate strong odors, which can cause nuisance issues for nearby communities •Energy consumption during dehydration processes can contribute to greenhouse gas emissions and air pollution if generated from fossil fuel sources.	energy consumption by using efficient equipment and controlling temperature and humidity conditions. • Consider renewable energy sources, such as solar or biomass, for powering drying operations. • All equipment and vehicles used during the project should be properly tuned and maintained in good working condition. • Monitoring of Ambient air parameters (Particulate matter, SO_x, NO_x) emissions should be carried out on regular basis to ensure compliance with the PEQS. • Regular checks for O & M (operations & maintenance)			
11	During the operations of dehydration of fruits, vegetables, and spices, there are potential occupational safety impacts that can affect the health and well-being of workers. •Slips, Trips, and Falls: Wet or slippery floors, cluttered work areas, or uneven surfaces can	• Ensure proper housekeeping practices, including regular cleaning and drying of floors, removing obstacles, and maintaining clear and organized work areas. • Use anti-slip mats or flooring in areas prone to wetness. • Provide proper lighting to enhance visibility and reduce the risk of	BA	Punjab-EPA	• Regular inspection of OHS at plant side • Trainings for workers related to workplace safety

Sr. no.	Anticipated impacts	Mitigation measures	Responsibility		Actions/Monitoring parameters/Monitoring methods
			Execution	Monitoring	
	increase the risk of slips, trips, and falls, leading to injuries. • Improper use of machinery, lack of training, or malfunctioning equipment can result in injuries, including cuts, burns, or entanglement. • Repetitive motions, awkward postures, or lifting heavy loads can lead to musculoskeletal disorders (MSDs) and physical strain. • Workers may be exposed to chemicals, such as cleaning agents, pesticides, or fumigants, which can cause skin irritation, respiratory issues, or long-term health effects. • Electrical malfunctions, improper wiring, or flammable materials can pose fire hazards and electrical shocks • Working in high-temperature environments during the dehydration process can lead to heat-related illnesses, including heat exhaustion or heatstroke.	accidents. • Provide comprehensive training to workers on the safe operation of machinery and equipment. • Regularly inspect and maintain equipment to identify and address any potential hazards or malfunctions. • Implement lockout/tagout procedures to control hazardous energy sources during maintenance or repair activities. • Implement job rotation or breaks to minimize prolonged exposure to repetitive tasks. • Provide appropriate personal protective equipment (PPE) such as gloves, goggles, respirators, or protective clothing. • Implement safe handling and storage practices of fruits, vegetables & Spices. • Regularly inspect and maintain electrical systems to identify and address potential hazards. • Store flammable materials in designated areas away from ignition sources, following proper storage and			

Sr. no.	Anticipated impacts	Mitigation measures	Responsibility		Actions/Monitoring parameters/Monitoring methods
			Execution	Monitoring	
		handling procedures. • Provide appropriate fire detection and suppression systems, such as fire extinguishers, sprinklers, or alarms, and conduct fire drills periodically. • Provide adequate ventilation, cooling systems, or air conditioning in work areas to reduce heat stress. • Encourage workers to stay hydrated and provide access to drinking water.			
12	During the operations of dehydration of fruits, vegetables, and spices, there are potential impacts associated with solid waste generation. Here are some potential impacts: • Dehydration processes can generate organic waste such as peels, cores, or residual plant material. Improper disposal of organic waste can lead to odor, pests, and environmental pollution • Dehydrated fruits, vegetables, and spices often require packaging materials, such as plastic bags or containers.	• Implement waste segregation practices to separate organic waste from other types of waste. • Compost organic waste to reduce its volume and convert it into a valuable resource. • Use dedicated collection bins for organic waste and ensure regular collection and proper disposal according to local regulations. • Explore opportunities for recycling or repurposing organic waste, such as animal feed production or biogas generation • Optimize packaging design to minimize material usage and choose recyclable or biodegradable	BA	Punjab-EPA	• Proper Solid Waste Management plan should be executed and implemented.

Sr. no.	Anticipated impacts	Mitigation measures	Responsibility		Actions/Monitoring parameters/Monitoring methods
			Execution	Monitoring	
	Improper management of packaging waste can contribute to landfill waste and environmental pollution.	packaging options whenever possible. - Implement waste reduction strategies, such as using bulk packaging or promoting the use of reusable containers. - Establish recycling programs to collect and recycle packaging waste, ensuring proper segregation and disposal. - Educate employees about proper waste management practices, including the importance of recycling and reducing packaging waste.			
13	Dehydration processes typically require water for washing, rinsing, or steam generation. Improper water management can lead to excessive water consumption and wastewater generation.	- Implement water conservation measures, such as using water-efficient equipment, recycling water, or capturing and reusing condensate. - Monitor water usage and identify opportunities for optimization and reduction. - Treat and recycle wastewater where feasible, following local regulations and best practices. - Regularly inspect and maintain water management systems to prevent leaks and ensure efficient use.	BA	Punjab-EPA	- Water consumption should be documented for Water conservation. - Wastewater should be tested regularly.

CC	Construction Contractor
SC	Supervision Consultant
BA	Blume Agri Private Limited
EPA	Environmental Protection Agency

48. ENVIRONMENTAL BUDGET

The cost which is required to effectively implement the mitigation measures is important for the sustainability of the Project in operation stage of the Project. Management will allocate 2% of total cost as Environmental Budget for meeting the environmental and sustainability purposes.

Sr. No.	Description	Cost Estimated (PKR)
1	First Aid	4,480,000
2	Electrical safety & Safety signs	10,080,000
4	PPEs	3,360,000
5	Plantation	1,120,000
6	Maintenance	5,600,000
7	Miscellaneous	3,360,000
7Total Cost		28,000,000

49. SCHEDULE OF IMPLEMENTATION

Table 7-3, Schedule for Implementation of Environmental Budget

HSE training	On quarterly basis
Maintenance and management of environment	On regular basis
Maintenance of equipment	On regular basis
Restoration	As per requirement
Plantation	During the operation phase
Strategic planning to cope with any emergency situation	As per policy
Formulate the disaster management plan to cope with natural disaster	As per policy

Implementation of all these parameters will be included in the environmental budget. Any equipment failure will not be included in this budget.

50. PROPOSE EMP REPORTING AND REVIEWING PROCEDURE

All the precautionary measures are suggested in EMP to minimize the pollution creating by construction and operation of project. Reporting and reviewing procedure is following:

- EIA Report & File Submission
- SIR Letter
- Review of EIA Report
- Issuance of Query letters by EPA
- Submission of satisfactory replies of Query Letter
- Public hearing

- Expert committee meeting and presentation
- DG EPA meeting and Presentation
- NOC issuance
- Proper Follow up of case from submission to Issuance of NOC

51. PROPOSED ENVIRONMENTAL MONITORING

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

7.1.2 Ambient Air

Quarterly monitoring for ambient air should be conducted during construction & operational activities of the project and report should be submitted to EPA Punjab.

7.1.3 Noise

Quarterly monitoring for noise level should be maintained periodically during construction & operational phases of the project and report should be submitted to EPA Punjab.

7.1.4 Water Quality

Quarterly monitoring of water quality should be conducted during construction & operational phases of the project and report should be submitted to EPA Punjab.

Table 7-4, Schedules of Proposed Monitoring

Env. Components	Project Stage	Parameters	Standards	Monitoring			Institutional Responsibility
				Location	Frequency	Duration	
Ambient Air Quality Monitoring	Construction	PM10, SO2, NO2, CO, SPM, O3	PEQS	Project site	Twice during construction	As per approved testing method	Contractor through approved monitoring lab
	Operation	PM10, SO2, NO2, CO, SPM, O3	PEQs	Project site	Quarterly	As per approved testing method	Through approved third party/monitoring lab
Noise Level Monitoring	Construction	Noise levels on dB(A) scale	PEQs	Project site	Twice during construction	Reading to be taken at 15seconds interval for 15 minutes every hour and then averaged	Contractor through approved monitoring lab
	Operation	Noise levels on dB(A) scale	PEQs	Project site	Annually	Reading to be taken at 15seconds interval for 15 minutes every hour and then averaged	Through approved third party/monitoring lab
Ground Water Quality/ Drinking Water Quality & Wastewater Quality	Construction/ operation	Groundwater Quality (as per PEQS)	PEQs	Ground water	Quarterly	As per approved testing method	Through approved third party/monitoring lab

Note: Environmental Monitoring data log book should be maintained by the project proponent

SECTION - 8: STAKEHOLDERS AND PUBLIC CONSULTATION

The consultation process with various stakeholders of Asian team has been carried out to involve community and other stakeholders at earlier stages. Information dissemination during public consultation is fundamental to successful conclusion of the Project. This chapter describes the objectives and details of the consultative process adopted; its outcome and the conclusions drawn thereafter.

Public consultation has been done during the planning and design phases of the Project with Government departments, line agencies, NGOs and affected persons of the Project area; concerns and suggestions thereafter have been taken into account and included where appropriate. The consultative process to date has been effective in addressing the concerns over the Project Operational impacts.

52. OBJECTIVES OF CONSULTATION

Public consultation plays a vital role in studying the effects of any development project on stakeholders and in its successful implementation and execution. It affords an opportunity to exchange knowledge with those who as members of the society are concerned with the Project, immediately or remotely. Referring particularly to a Project related to environmental assessment, involvement of public is all the more essential, as it leads to better and more acceptable decision-making.

The objectives of the stakeholder and public consultation conducted in Project Area were;

- To apprise the Project community and stakeholders about Project interventions and potential impacts,
- To record the community concerns and recommendations regarding the project;
- To address/incorporate those recommendations in the Project design to the extent possible and;
- To share the mitigation measures with the local communities.

53. PROPONENTS ENVIRONMENTAL MANAGEMENT TEAM

HSE Team will be taking charge of the proposed project. They will be managing health and safety issues as well as issues to employees and locals.

54. RESPONSIBLE AUTHORITY

The EPA shall be the responsible authority for reviewing, site inspection and provision of environmental approval for the project.

55. CONSULTATIVE ASPECT

The project involves stakeholders from various segments of the society, who have direct or indirect interest in the developmental activity. The Environment

and Social team have endeavoured to hold consultative sessions with a number of prominent stakeholders (Project Proponent, Government departments, line agencies, NGOs and affected persons of the Project Area) to evince their views on the project and their opinions, suggestions, understanding on various issues and concerns. The consultations aimed specifically at:

- Dissemination of Project information through discussions, education and liaison.
- Eliciting the comments and feedback on the project.
- Documentation of information narrated by the stakeholders.
- Documentation of mitigation measures proposed by the stakeholders.
- Incorporation of public concerns and their addresses in the EIA/ EMMP.

56. IDENTIFICATION OF MAIN STAKEHOLDERS’ DEPARTMENT AND AGENCIES

There are two types of stakeholders related to the project i.e. primary and secondary stakeholders. Primary stakeholders are those which are directly affected by the Project activities and secondary stakeholders are those which are affected indirectly.

The project has direct impacts on any individual; therefore, so 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.

57. ENVIRONMENTAL PRACTITIONERS AND EXPERTS

Team of Asian Consulting Engineer visited the project site, had discussion with stakeholders and consulted with the local people of nearby to evaluate the project socio-economic impacts. People of the area belong to different professions like mostly belong to employment, own businesses, doctors, some of them communicated but according to social value of the area they mostly hesitate to communicate comfortably. People provide the massive

information about the project and have positive remarks regarding the project development.

The Asian team have endeavoured to hold consultative sessions with a number of prominent stakeholders (Project Proponent, Government departments, line agencies, NGOs and affected persons of the Project Area) to evince their views on the project and their opinions, suggestions, understanding on various issues and concerns. The consultations aimed specifically at:

- Dissemination of Project information through discussions, education and liaison.
- Eliciting the comments and feedback on the project.
- Documentation of information narrated by the stakeholders.
- Documentation of mitigation measures proposed by the stakeholders.
- Incorporation of public concerns and their addresses in the EIA/EMMP.

58. AFFECTED AND WIDER COMMUNITY

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 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 project. The outcome of whole consultation process was very encouraging. The following issues were discussed during Informal Meetings with local representatives:

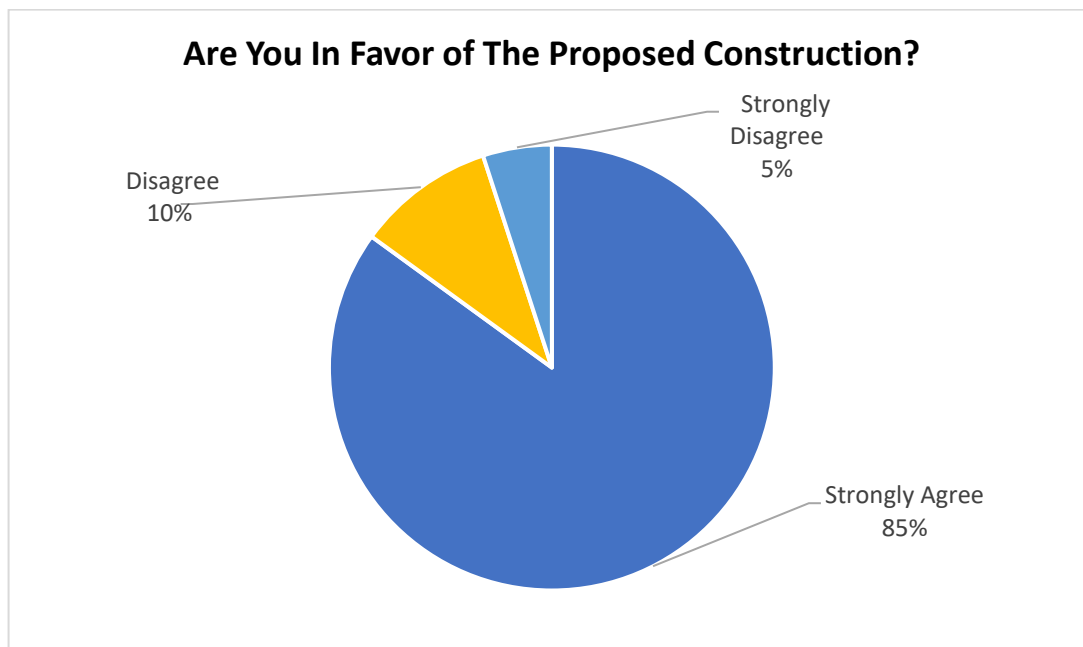
- a. Brief Description of the Project
- b. Current economic condition in the area
- c. Suggestions for improvement in the current industrial system and all activities related to industry
- d. Perceptions about the project
- e. Perceived impacts of the project

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 project.

59. SURVEY ANALYSIS RESULTS

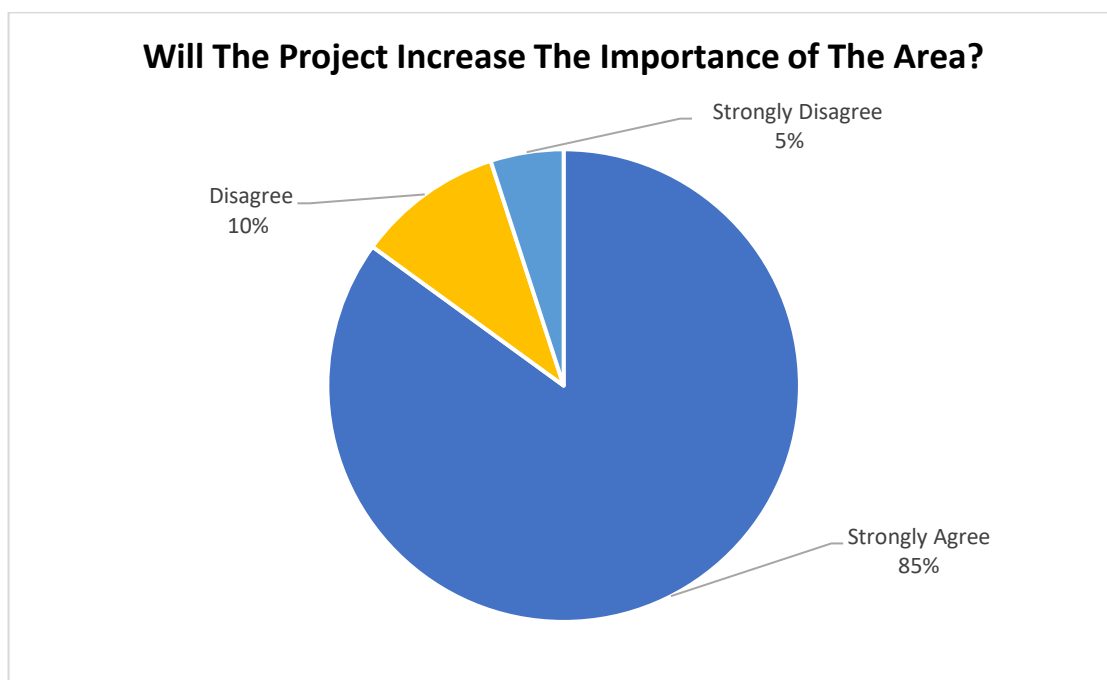
8.1.1 People Favor of proposed construction

85% of the people strongly agreed with the construction of the industry in this area and only 10% disagreed and 5% strongly disagreed.



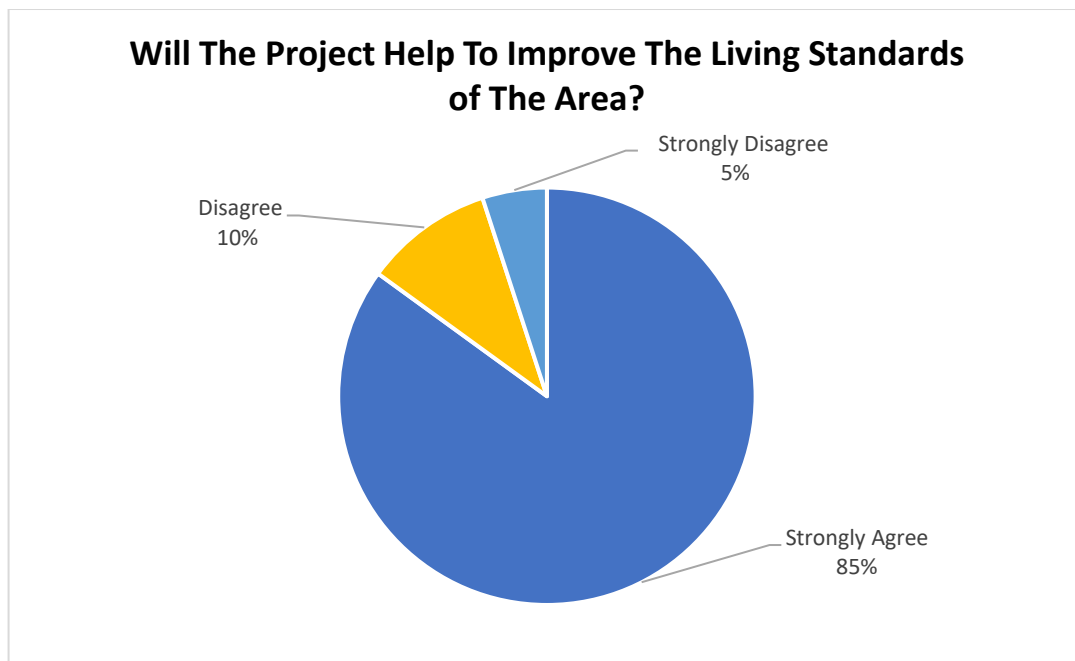
8.1.2 Increase in significance of the project area

85% of the people strongly agreed with the construction of the industry will increase the importance of the project area and only 10% disagreed and 5% strongly disagreed.



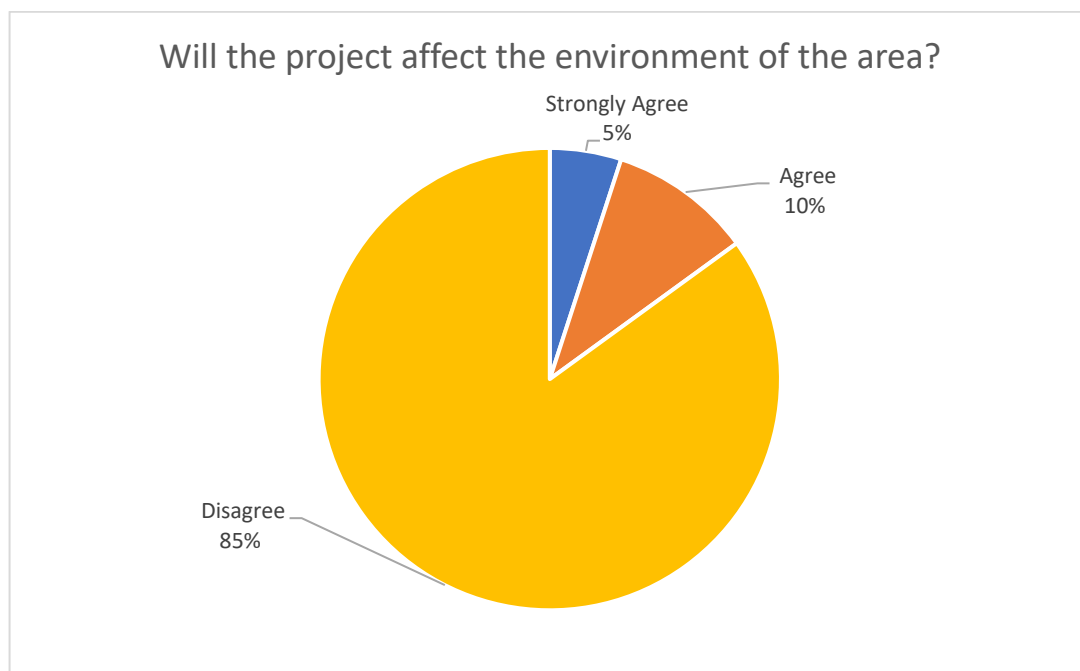
8.1.3 Increase in significance of the project area

85% of the people strongly agreed with the construction of the industry will improve the living standards of the project area and only 10% disagreed and 5% strongly disagreed.



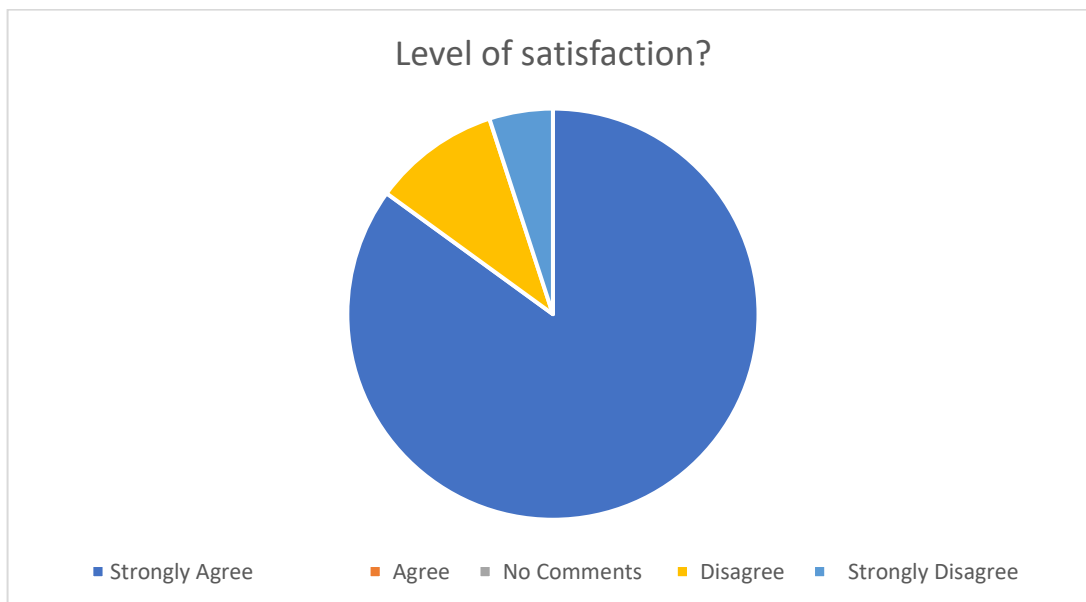
8.1.4 Effect on the Environment

5% of the people strongly agreed with the construction of the industry will affect the environment of the project area, only 10% agreed and 85% strongly disagreed.



8.1.5 Level of satisfaction

85% of the people strongly agreed that they are satisfied with the construction of this industry, only 10% disagreed and 5% strongly disagreed.



60. SUMMARY OF ISSUES RAISED BY AFFECTED AND WIDER COMMUNITY

A summary of the key issues raised by stakeholders and how these are being addressed by Project Proponent is provided in **Table 8-1** below.

Table 8-1, Summary of issues and commitments by Proponent

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. Max. persons according to the requirement 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 accommodate.

Issue	Aspect/ Concern raised by Stakeholders	Project Proponent Commitments
Health & safety	Health and safety issues may be arising due to industrial and constructional activity.	All possible safety measures will be taken during operation and construction phase. Blume Agri Pvt Limited will designate teams for HSE concern emergency equipment like fire extinguishers, spill kits, water hydrant system, effective use of PPEs and first aid are already well managed.
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.	Proponent has main focus that they will all the material regarding construction 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 nearby residents. Environmental degradation during construction.	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 community.	Implementation of consultation in relation to water use, recycle and development of the Participatory Environmental Monitoring Program.



Socio-Economic Survey with locals nearby project site

SECTION - 9: CONCLUSION & RECOMMENDATIONS

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

61. CONCLUSION

The report presents Environmental Impact Assessment (EIA) of "Construction of Blume Agri Pvt. Limited." . Main objective of said project is to meet the growing demand & export of dehydrated Fruits, vegetables and spices.

EIA of Said Project is performed according to guidelines of EPA. It includes description of the project, description of the environmental baselines, potential environmental impacts and suggested mitigation measures. An implementation mechanism for mitigation measures in the form of an Environmental Management Plan is included in the study.

Baseline physical, biological and socio-economic and cultural data and information was collected from a variety of primary and secondary sources, including field surveys, review of relevant literature and online publications. The collected data was used to organize profiles of the physical, biological and socio-economic environments, likely to be affected by the project. Communities were consulted as per public consultation processes including women, men and institutional stakeholders. The aim of public consultation was to assure the quality, comprehensiveness and effectiveness of the EIA; as well as to ensure that the views and opinions of the local people were adequately taken into account in the decision-making process.

The performed EIA showed all anticipated impacts (both positive and negative), associated with the project. Appropriate mitigation measures as explained in the environmental study will strengthen the environment and promote sustainable development.

Based on overall assessment of the environmental impact of the project, it is concluded that the economic benefit from the project is not at the cost of environment. The project construction and operation activities can potentially impact the natural resources of the area. These adverse impacts can be largely reduced by implementing the appropriate mitigation measures which has been discussed in this report.

The potential impacts during construction phase includes soil erosion and degradation, soil and water contamination, ambient air quality deterioration caused by the exhaust emission and kicked up dust, noise pollution, damage to local infrastructure, safety hazards, very less loss to the wildlife and natural vegetation and public health concerns for the nearby communities.

The significant environmental management issues during operation phase include Safety hazard, Public Health and Nuisance, air and dust pollution, sewage disposal, solid waste and noise pollutions, vehicular traffic and water consumption.

On the basis of the overall impact assessment, more specifically, nature and magnitude of the residual environmental impacts identified during the present EIA, it is concluded that the proposed project is unlikely to cause any significant, long-lasting impacts on the social, physical and biological environment of the area, provided that the proposed activities are carried out as mentioned in this report, and the mitigation measures and EMP included in this report are completely and effectively implemented.

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

62. RECOMMENDATIONS

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

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

The present EIA report is enough to meet the administrative and legal framework. After the complete study of the project, it is concluded that project will not have significant adverse impacts on the nearby community and on environment. Overall, the project will have positive impacts on the local population and country as a whole. Therefore, it is requested for the environmental approval for the subject project.

SECTION - 10: REFERENCES

- <https://www.epa.gov/sites/production/files/2015-10/documents/njmc-wpp-2.pdf>
- Schedule I of Punjab Environmental Protection Act 1997 (Amended 2012)
- section 12 of Punjab Environmental Protection Act 1997 (Amended 2012)
- Pakistan Environmental protection act 1997
- Punjab Environmental Protection Act 1997 (Amended 2012)
- Guideline for the Environmental Assessment
- Regulations of Environmental Assessment, Regulations 2000
- National Conservation Strategy- Pakistan
- Guideline for the public consultation
- National Resettlement Policy and Ordinance
- National Environmental Quality Standards (Self-monitoring and reporting by the industry)
- Labor laws
- Canal and Drainage Act, 1873
- National Environmental Policy 2005.
- The Land Acquisition act, 1894
- The Punjab local Governmental ordinance, 2001.
- Meteorological data from meteorological department and website
- Pakistan Biosafety rules 2005
- Pakistan Environmental agency (review of IEE/EIA) regulation 2000.
- Punjab Portal (<http://www.punjab.gov.pk/attock>)
- Attock Chamber of Commerce Industries (<http://www.acci.org.pk/Attock.html>)
- Sectorial Guideline for environmental reports, industrial states
- Pakistan Environmental Protection ordinance (PEPO), 1983
- OSHAS 1800 for health and safety

SECTION - 11: GLOSSARY

Words	Dictionary
Mitigation	The action of lessening in severity or intensity
Legislation	law enacted by a legislative body
Compliance	Acting according to certain accepted standards
Flora	All the plant life in a particular region or period
Fauna	All the animal life in a particular region or period
Demarcated	Separate clearly, as if by boundaries
Screening	The display of a motion picture
Substitutions	An event in which one thing is substituted for another
Regulations	An authoritative rule
Stakeholders	A person or organization with an interest or concern in something
Vulnerable	Susceptible to attack

ANNEXURES

ANNEXURE - A: LIST OF ABBREVIATION

PEPA	Punjab Environmental Protection Act
NEQS	National Environmental Quality Standards
PEQS	Punjab Environmental Quality Standards
WAPDA	Water and Power Development Authority
EMP	Environmental Management plan
WWTF	Waste Water Treatment Facility
Pak-EPA	Pakistan Environmental Protection Agency
W.H. O	World Health Organization
PET	Punjab Environmental Tribunal
SWM	Solid Waste Management
CSR	Corporate Social Responsibility
MSWs	Municipal Solid Wastes
TMA	Town Municipal Authority
KVA	Kilo Volt Ampere
PPEs	Personal protective equipment's
PM	Particulate matter

ANNEXURE - B: TORS

TERM OF REFERENCES

These terms of references are being submitted for the subject EIA study under Clause 5 (f) of policy and procedure for the filing, review and approval of environmental assessment. These TORs of EIA have been prepared by the environmental consultants, in consultation with the project proponent. Proposal and TORs for the EIA accepted by Blume Agri Private Limited.

Introduction of Project

The project deals with the Construction of Blume Agri Private Limited for the Dehydration of fruits, vegetables & Spices under the name M/S Akbari Blume Agri Private Limited, the proposed multi-food processing line will have the capacity to process initially 10 tons per day of fruits and vegetables such as apples, bananas, plums, apricots, peaches, onions, garlic, red chillies, tomatoes, and leafy vegetables (mint, coriander, spinach etc.) Initially comprising of one process line further lines are to be added as per business requirements

Cost of Project:

The capital cost of the project will be about PKR 1.4 billion.

Area of the Project:

Total area of industry is 8 Acres. And covered area of project of 1st phase is 3.1 Acres, Covered Area (Future Expansion) is 2.4 Acres.

Name of Proponent

Mr. Mustapha Yousaf is the project Proponent.

Environmental Consultant & Client

Blume Agri Private Limited has appointed the Asian Consulting Engineers, as the Consultant for the subject project to conduct the EIA. Asian Consulting Engineers will be called as “Consultant” and Blume Agri Private Limited as the “Client”.

Objective of the EIA study

The Objective of study includes Compliance of section 12 of PEPA 1997 (Amended 2012), PEQS and fulfilment of HSE conditions.

Purpose of the EIA

The key objectives of the EIA are to:

- Document the ecological and socioeconomic baseline conditions of the study area and the affected communities
- Inform and obtain input from stakeholders, (e.g., governmental authorities, the public, and indigenous communities) and capture their relevant issues and concerns

- Assess in detail the environmental, social, and health impacts that would result from the project
- Suggestion of environmental and social mitigation measures to identified environmental Impacts
- Develop the EMPs as discussed above, based on the mitigation measures developed in the EIA.
- Meet the requirements or recommendations of the applicable National Environmental Laws and Guidelines

SCOPE OF SERVICES

EIA for the subject project is construction of Blume Agri Private Limited, Sheikhupura.

Accordance with:

1. The Punjab Environmental Protection Act, 1997 (amended 2012) and the
 - Various guidelines developed by the Punjab Environmental Protection Agency
 - Pakistan Environment Protection Agency Guidelines
 - Guidelines of Labor & Human Resource Department
 - Punjab Local Government Guidelines
 - Punjab Food Authority Guidelines
2. Methodology for carrying out this study
 - Project Description
 - Site Selection
 - Project Alternatives
3. Process Description
 - Detailed review of the processes
 - Design Parameters
 - Process flow chart
 - Details related top Plant and Equipment
4. Environmental profile of the environmental study area
 - Climatology
 - Geographical features
 - Geological and Hydrological features
 - Historical review
 - Land Use
 - Ecology, i.e., Flora and Fauna etc.
5. Analysis of EPA required environmental parameters
 - Sampling for Air, Water, and Noise Level

- Ambient Air Quality will be monitored at the existing project site by using certified instruments/methods to check the concentration of pollutants in ambient air before construction.
 - Groundwater quality of the area will be checked through analysing EPA Smart Parameters. 2-3 representative samples will be collected to check the groundwater quality by using certified sampling techniques and analysis procedures.
 - Noise Level will be monitored at 5 to 6 localities at existing project site
6. Investigate Socio-Economic and Socio-Environmental aspects and cultural values within and around the operating facility
 - Administrative Set up
 - Cultural and Social Values
 - Social Cohesion
 - Interviews from different groups
 7. Development activities and Waste Management
 8. Identify and evaluate major environmental impacts
 9. Identify mitigation measures and develop Environmental Management and Monitoring plan
 10. Conclusions based on the study conducted for this EIA.

EIA PROCEEDING

1. All other requirements, as set forth by
 - The Punjab Environmental Protection Act, 1997 (Amended 2012) and the
 - Various guidelines developed by PEPA
 - Any other legal requirements existing within Pakistan
2. 1-2 Site Visits for data acquisition
3. Environmental Monitoring
4. Preparation of Lab Analysis Report
5. Preparation of Environmental Impact Assessment (EIA)
6. Submission of all EIA report in office of DG EPA Punjab
7. Conduction of Public Hearing of EIA
8. Briefing & Presentation at the site to District Officer/Inspector for Environmental Management.
9. Reply to technical Environmental Objections/Review
10. Presentation in the office of DG EPA, Punjab
11. Issuance of NOC

CLIENT RESPONSIBILITY

We expect the following inputs from the clients:

- As soon as the Proposal is accepted, the Consultants will request for the nomination of senior officer to be nominated as Coordinator who will be responsible for all coordination activities as required by the Consultants and to whom the Consultants will refer for information and assistance. All correspondence between the Consultants and the CUENT will be routed through the coordinator.
- Asian will require free access to all relevant information available with the Client.
- Assess and identify major potential issues and impacts particularly those which may have influence on design, construction and operation at any stage.
- The report developed for the CUENT shall be the property of the CUENT and the Consultants shall adhere to confidentiality morally as well as legally.
- Client will provide relevant documents as:
 1. Signed application on company letter head (pattern will be provided)
 2. Undertaking on Rs. 100/- Stamp Paper (pattern will be provided)
 3. Affidavit on Rs. 100/- Stamp Paper (pattern will be provided)
 4. Copy of CNIC of proponent
 5. Signature on Schedule IV (pattern will be provided)
 6. Layout Map of the project
 7. Other NOCS/ Certificate's from other concerned departments (if any)
- Project proponent will provide the Bank Drafts of amount of Rs. 30,000/- in favor of D.G. EPA Punjab which is review fee for EIA.
- If any legal litigation arises from stakeholders during the preceding of EIA, the consultant will not be responsible for the delay in the approval process due to legal litigation.

Signature:

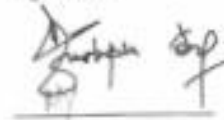


Ms. Nimra Nawaz

Environment Specialist

Date: 4-July-2023

Signature:

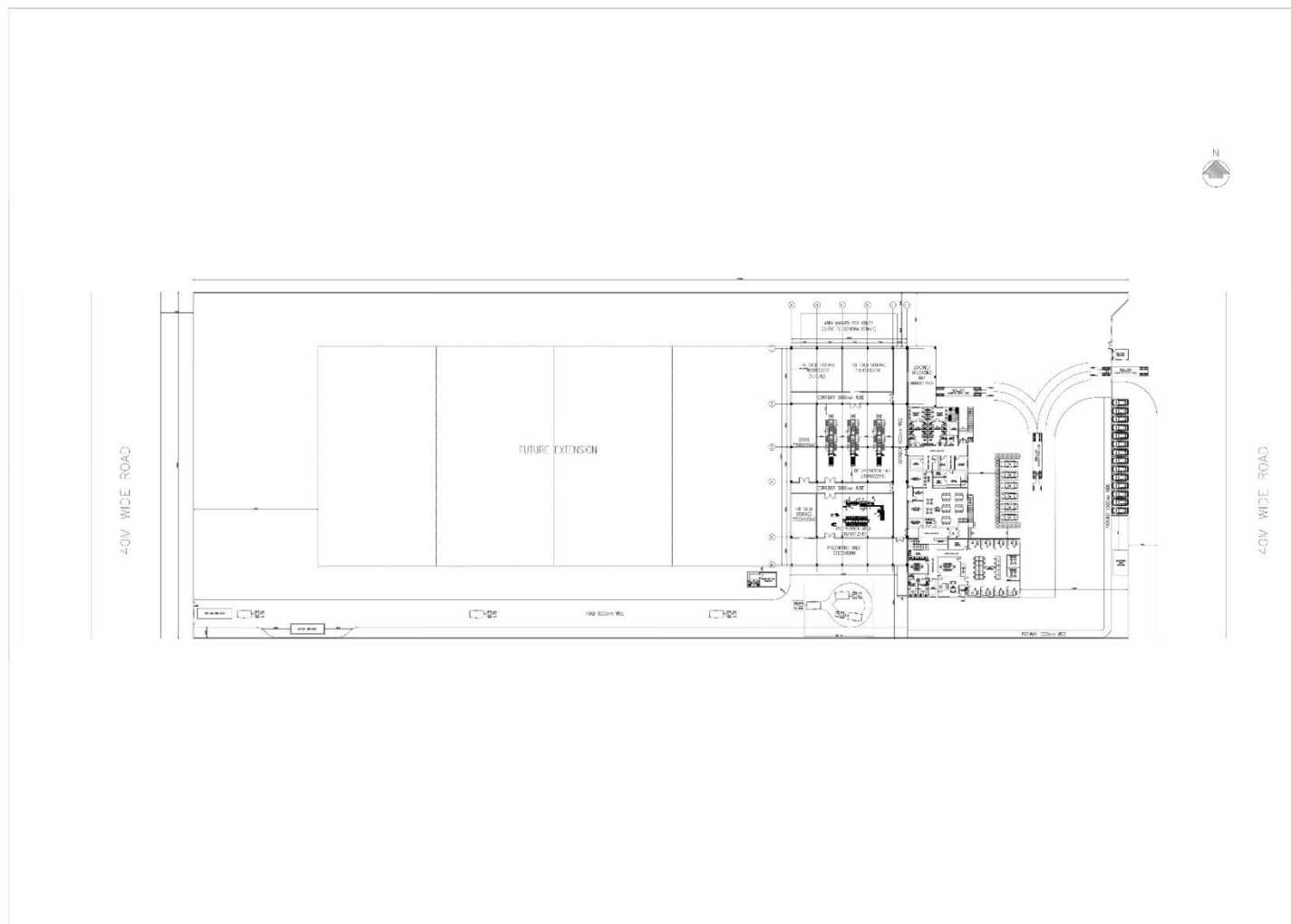


Mustapha Yousaf

Proponent

Date: 4-July-2023

ANNEXURE - C: LAYOUT & GOOGLE MAP OF PROJECT



ANNEXURE - D: LAND OWNERSHIP DOCUMENT



PUNJAB INDUSTRIAL ESTATES
DEVELOPMENT AND MANAGEMENT COMPANY
A Company setup under Section 42 of the Companies Ordinance, 1984 (now Companies Act, 2017)



PIE/QABP/185/1146
May 17, 2023

M/s BLUME AGRI (PVT.) LTD.
Through its CEO, Mr. Mustapha Yousaf,
Descon Headquarter 18-Km, Ferozepur Road,
Lahore.

CONDITIONAL POSSESSION OF PLOT NUMBER 89-B, 90-B, 99-B & 100-B QAUID-E-AZAM
BUSINESS PARK (QABP)

Dear Sir,

Please contact with the Project Director of Quaid-e-Azam Business Park in connection with the possession of the Plot No. 89-B, 90-B, 99-B & 100-B measuring 8.0 Acres situated at Quaid-e-Azam Business Park. Layout plan is enclosed as Annexure-A.

This Conditional Possession Letter is issued on the conditions mentioned in the Agreement for Conditional Possession of Plot enclosed as Annexure-B.


M. Shafiq ur Rehman
Company Secretary

A copy is forwarded to Project Director, Quaid-e-Azam Business Park with the request to please hand over the possession of Plot No. 89-B, 90-B, 99-B & 100-B to its Allottee M/s BLUME AGRI (PVT.) LTD. The attached possession slip may please be returned to Marketing Department after doing the needful.

Note.

Please do not proceed with excavation of boundary wall without prior demarcation by QABP Site Staff. Any damage done to the utilities due to your negligence will be borne by you and follow PIEDMC approved front boundary wall design.

Head Office: Commercial Area (North) Sundar Industrial Estate, Sundar Raiwind Road, Lahore.
Tel: 042-35297203-6, Fax: 042-35297207, UAN: +92-42-111-743-743
Website: www.pie.com.pk E-Mail: info@pie.com.pk
An Approved Non Profit Organisation U/S 2(36) of Income Tax Ordinance 2001



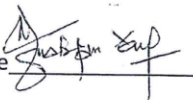
POSSESSION SLIP

Certify that I have taken over possession of Plot No. 89-B, 90-B, 99-B AND 100-B measuring 27,000 Sq.M from the Project Director of Quaid-e-Azam Business Park to day the 23 - MAY - 2023.

The dimension of the plot is: - Coordinated plan along with dimensions is attached.

Taken Over by:

Signature of the Allottee



Name of the Allottee MUSTAPHA XVCAF

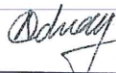
CNIC No. 35202-2495703-7

Handed Over by:

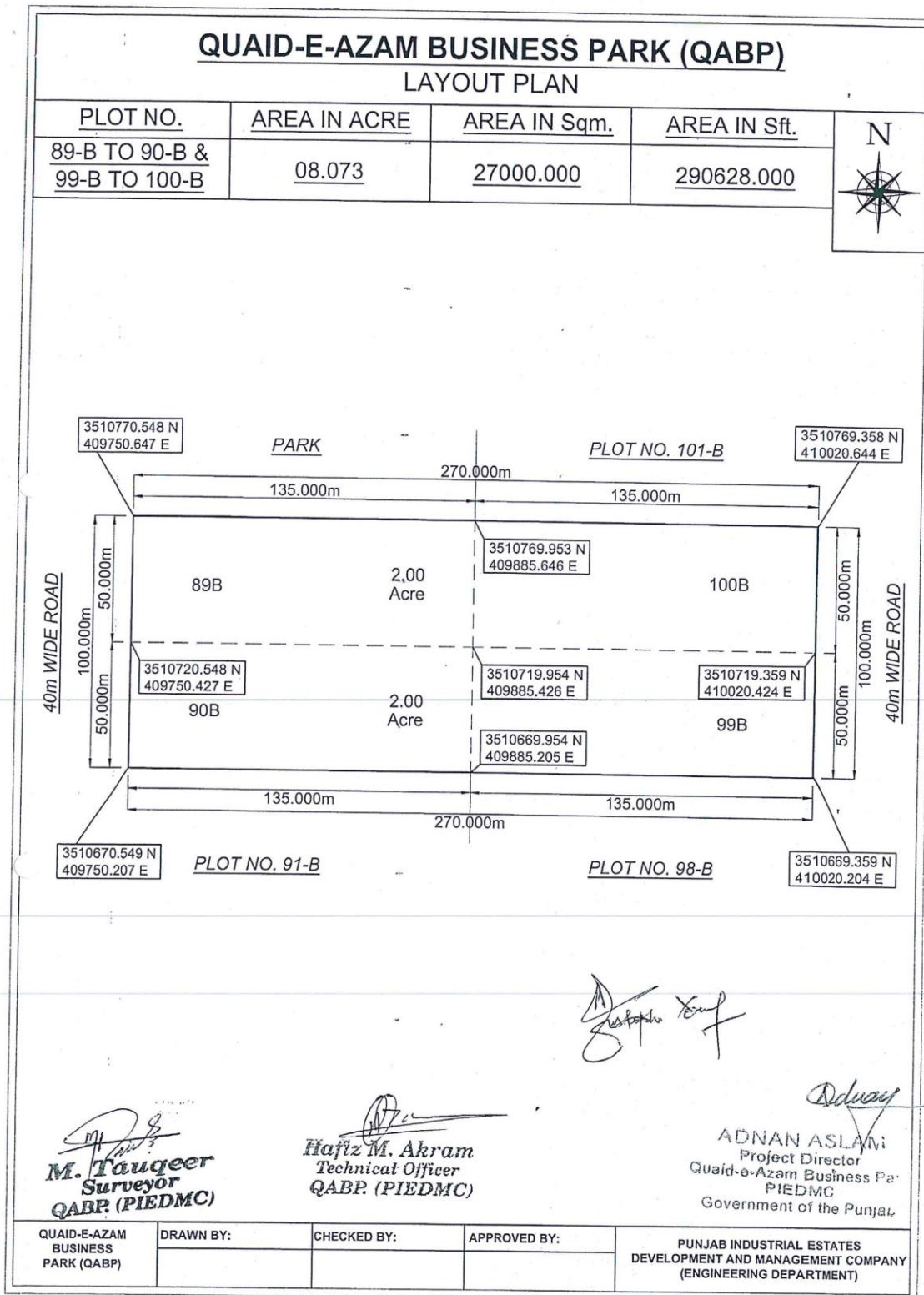
Signatures



Name Hafiz M. Akram
Technical Officer
QABP (PIEDMC)



Project Director
Quaid-e-Azam Business Park
PIEDMC



ANNEXURE - E: EIA TEAM

Sr. No.	Team Member	Position Held	Qualifications
1	Aleem Butt	Chief Environmentalist Team Leader-ESIA	M.Phil. Environmental Sciences, Government College University (GCU) Lahore M.Sc. Environmental Sciences, Punjab University (PU), Lahore NEBOSH, Lead Auditor
2	Noman Ashraf	Environmental Specialist	M.Phil. Environmental Sciences, Government College University (GCU) Lahore PGD, Environmental Law University of the Punjab, Lahore
3	Nimra Nawaz	Environmental Specialist	M.Phil. Environmental Sciences, University of Engineering and Technology (UET) Lahore
4	Ayesha Rasheed	Environmentalist	BS Hons Environmental Sciences, Government College University (GCU) Lahore
5	Hafsa Mehmood	Environmentalist	BS Environmental Sciences The University of Lahore
6	Asma Butt	Sociologist	M.Sc. Sociology, university of the Punjab
7	Engr. Umair Tallat	Sr. Field Engineer	M.S. Environmental Engineering, NUST Islamabad
8	Muhammad Abbas	Field Officer	M.S. Environmental Sciences, PU Lahore

ANNEXURE - F: LAB REPORTS OF ENVIRONMENTAL MONITORING



BASELINE ENVIRONMENTAL MONITORING & ANALYSIS REPORT

CONSTRUCTION OF BLUME AGRI PVT. LTD

- Ambient Air Monitoring
- Noise Level Monitoring
- Groundwater Analysis

Reference No. AES-ENV-BA-41/2023

Dated: 14 June, 2023

Asian Environmental Services Pvt. Ltd.
has prepared this report as per prerequisites of client.
Any other individual using the content of this document shall do so at their own liability.
The client is responsible for lawful usage of this reported data.

Document No. AES/LMS/FRM-115, Date of Issue 07 July, 2022, Revision No. 00



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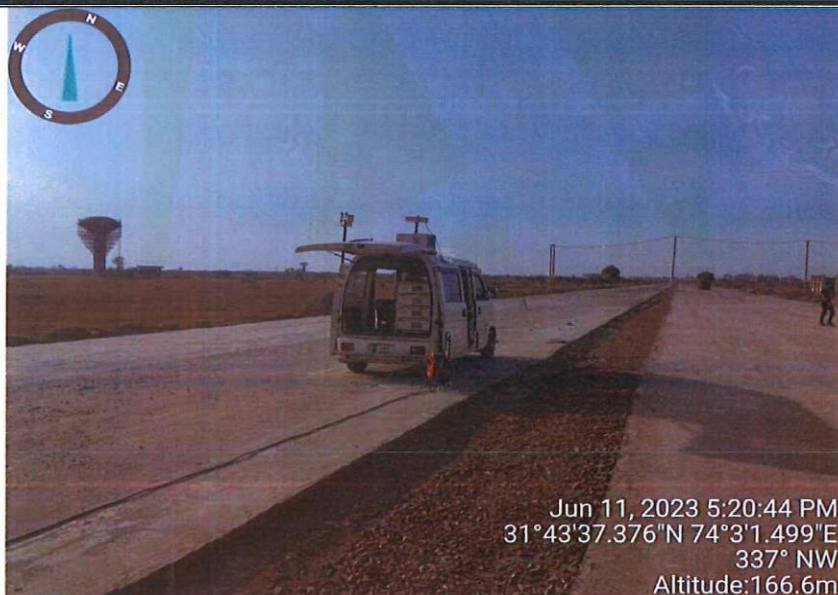
Email: info@asianenvirolab.com



Location for Ambient Air Monitoring-01

ROAD SIDE

Sheikhupura, Punjab



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Ambient Air Monitoring Report

Monitoring Details

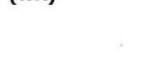
Reference Number	AES-ENV-BA-41-2023-AA-01	Monitoring Point	Road Side, Sheikhupura, Punjab.
Date of Monitoring	11-06-2023 to 12-03-2023	Monitoring Coordinates	31°43'37.37" N 74°3'1.49" E
Validation Officer	Mr. Ajmal (Research Officer, Punjab EPA)		

Sr. No.	Time	CO (mg/m ³)	NO (µg/m ³)	NO ₂ (µg/m ³)	NO _x (µg/m ³)	SO ₂ (µg/m ³)
1	11:00	1.57	23.16	27.14	50.23	41.16
2	12:00	1.41	22.89	29.34	52.16	42.04
3	13:00	1.30	22.13	28.52	50.58	44.06
4	14:00	1.43	21.88	26.72	48.53	41.70
5	15:00	1.28	21.06	27.39	48.38	40.84
6	16:00	1.19	21.32	26.01	47.27	40.34
7	17:00	1.16	19.95	25.23	45.11	39.49
8	18:00	1.14	19.79	23.54	43.28	36.06
9	19:00	1.13	19.64	23.26	42.84	37.94
10	20:00	1.07	20.16	23.93	44.03	34.51
11	21:00	1.01	18.63	21.08	39.65	33.93
12	22:00	0.97	18.19	22.24	40.38	31.40
13	23:00	0.90	17.88	19.72	37.55	30.79
14	00:00	0.83	15.93	18.99	34.88	28.90
15	01:00	0.77	16.91	18.74	35.60	26.34
16	02:00	0.76	16.26	20.88	37.09	25.46
17	03:00	0.70	15.70	22.26	37.91	23.97
18	04:00	0.68	16.24	22.13	38.31	23.15
19	05:00	0.72	18.82	22.59	41.35	25.17
20	06:00	0.79	17.63	24.75	42.33	26.58
21	07:00	0.88	19.97	23.12	43.03	28.21
22	08:00	0.98	21.25	25.11	46.30	31.43
23	09:00	1.11	21.61	27.14	48.69	31.90
24	10:00	1.20	22.07	27.37	49.37	33.93
Average Concentration		1.04	19.54	24.05	43.54	33.30

Monitored By



Reviewed By
(TM)



Approved By
(QM/Chief Chemist)



Page 2 of 5

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Ambient Air Monitoring Report

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Date of Monitoring	11-06-2023 to 12-03-2023	Monitoring Coordinates	31°43'37.37" N 74°3'1.49" E
Validation Officer	Mr. Ajmal (Research Officer, Punjab EPA)		

Parameters	Units	Monitoring Duration	LDL	Average Obtained Concentration	PEQS	Remarks
Nitrogen Dioxide (NO ₂) *	µg/m ³	24Hours	1.00	24.05	80.0	Optimal
Nitrogen Oxide (NO)*	µg/m ³	24Hours	1.00	19.54	40.0	Optimal
NO _x *	µg/m ³	24Hours	1.00	43.54	120.0	Optimal
Sulphur Dioxide (SO ₂) *	µg/m ³	24Hours	1.00	33.30	120.0	Optimal
Carbon Monoxide (CO)*	mg/m ³	24Hours	0.01	1.04	05.0	Optimal
Particulate Matter (PM ₁₀) *	µg/m ³	24Hours	1.00	79.21	150.0	Optimal
Particulate Matter (PM _{2.5}) *	µg/m ³	24Hours	1.00	19.90	35.0	Optimal
Total Particulate Matter (TSP)	µg/m ³	24Hours	1.00	147.91	500.0	Optimal

*Parameters are approved from Punjab Environment Protection Agency.

Abbreviations:

LDL= Lower Detection Limit

PEQS= Punjab Environmental Quality Standards

µg/m³ = Micro Gram per Meter Cube

Remarks:

Optimal = Compliance with Permissible Range

Marginal = Close to Extreme Edge

High = Exceeds from Permissible Range

Low = Less Than Permissible Range



Reviewed By
(TM)

Approved By
(QM/Chief Chemist)

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Ambient Air Monitoring Report

Monitoring Details

Reference Number	AES-ENV-BA-41-2023-AA-01	Monitoring Point	Road Side, Sheikhupura, Punjab.
Date of Monitoring	11-06-2023 to 12-03-2023	Monitoring Coordinates	31°43'37.37" N 74°3'1.49" E
Validation Officer	Mr. Ajmal (Research Officer, Punjab EPA)		

Sr. No.	Time	Ambient Temperature °C	Wind Direction	Wind Velocity m/s	Humidity %	Pressure (mm of Hg)
1	11:00	39	SW	4.08	41	759
2	12:00	40	SW	3.18	40	759
3	13:00	41	SW	4.28	43	760
4	14:00	41	SW	3.38	45	753
5	15:00	41	SW	3.18	46	763
6	16:00	42	SW	3.58	46	764
7	17:00	41	N	3.78	47	765
8	18:00	40	N	3.88	53	756
9	19:00	37	N	3.08	51	758
10	20:00	35	N	3.28	55	759
11	21:00	34	N	2.88	56	760
12	22:00	29	S	4.08	58	761
13	23:00	28	S	3.28	59	764
14	00:00	27	S	3.18	53	761
15	01:00	27	S	2.98	51	655
16	02:00	26	S	3.08	55	757
17	03:00	24	S	2.88	56	756
18	04:00	24	NE	3.28	49	763
19	05:00	25	NE	3.48	48	765
20	06:00	29	NE	3.58	49	757
21	07:00	33	NE	2.78	49	755
22	08:00	34	NE	2.98	48	754
23	09:00	37	NE	3.58	50	755
24	10:00	40	NE	3.78	39	756

Monitored By

Reviewed By
(TM)

Approved By
(QM/Chief Chemist)

Page 4 of 5

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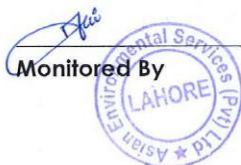


Email: info@asianenvirolab.com



Noise Monitoring Report

Monitoring Details			
Reference Number	AES-ENV-BA-41-2023-AA-01	Monitoring Point	Road Side, Sheikhupura, Punjab.
Date of Monitoring	11-06-2023 to 12-03-2023	Monitoring Coordinates	31°43'37.37" N 74°3'1.49" E
Validation Officer	Mr. Ajmal (Research Officer, Punjab EPA)		
Sr. No.	Time	Noise dB(A)	PEQS
1	11:00	66	Day Time
2	12:00	62	
3	13:00	61	
4	14:00	63	
5	15:00	62	
6	16:00	64	
7	17:00	59	
8	18:00	58	
9	19:00	59	
10	20:00	57	
11	21:00	53	
12	22:00	49	Night Time
13	23:00	48	
14	00:00	46	
15	01:00	47	
16	02:00	45	
17	03:00	46	
18	04:00	47	
19	05:00	43	
20	06:00	49	
21	07:00	53	Day Time
22	08:00	58	
23	09:00	62	
24	10:00	62	



Reviewed By
(TM)

Approved By
(QM/Chief Chemist)

Page 5 of 5

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GROUND WATER ANALYSIS REPORT

Sample Detail

Reference No.	AES-ENV-BA-41/2023-GW-25	Reporting Date	14-06-2023
Nature of Sample	Ground Water	Sampling Method Reference	AES/LMS/QSP-014
Grab/Composite	Grab	Sample Collected by	AES
Sampling Date	11-06-2023	Sample Receiving Date	12-06-2023
Analysis Completion Date	14-06-2023	Lab Temp & Humidity	25.2°C & 51 %
Ambient Temperature & Humidity at the Time of Sampling			39°C & 33%
Sample ID	AES-ENV-GW-25/2023	Sampling Location	Pumping Motor
Client Details	Blum Agri, Sheikhupura, Pakistan.	Validation Officer	Mr. Ajmal (Research Officer, Punjab EPA)



Ground Water Analysis Results					
Parameter	Analysis Method	PEQS	Result	MU (CL95%)	Remarks
Lab Analysis					
Color*	SMWW 2120 C	≤ 15 TCU	0	N.A.	Optimal
Taste*	SMWW 2160 C	Non-Objectionable	Non-Objectionable	N.A.	Optimal
Odor*	SMWW 2150 B	Non-Objectionable	Non-Objectionable	N.A.	Optimal
Turbidity*	SMWW 2130 B	< 5 NTU	0	N.A.	Optimal
Total Hardness (as CaCO ₃)**	SMWW 2340 C	< 500 mg/L	148	± 2.07	Optimal
Total Dissolved Solids (TDS)**	SMWW 2540 C	< 1000 mg/L	853	± 9.18	Optimal
pH**	SMWW 4500 H+ B	6.5-8.5	7.62	± 0.049	Optimal
Aluminum (Al)	SMWW 3111 B	≤ 0.2 mg/L	<0.005	N.A.	Optimal
Antimony (Sb)	SMWW 3114 B	≤ 0.005 mg/L	<0.005	N.A.	Optimal
Arsenic (As)	SMWW 3114 B	≤ 0.05 mg/L	<0.005	N.A.	Optimal
Barium (Ba)	SMWW 3113 B	0.7 mg/L	0.0035	N.A.	Optimal
Boron (B)	SMWW 3113 B	0.3 mg/L	0.02	N.A.	Optimal
Cadmium (Cd)	SMWW 3113 B	0.01 mg/L	0.006	N.A.	Optimal
Chloride (Cl) **	SMWW 4500 Cl- B	< 250 mg/L	58	± 1.38	Optimal
Chromium (Cr)	SMWW 3113 B	≤ 0.05 mg/L	<0.004	N.A.	Optimal
Copper (Cu)	SMWW 3111 B	2.0 mg/L	0.164	N.A.	Optimal
Cyanide (CN)*	SMWW 4500 CN- F	≤ 0.05 mg/L	0	N.A.	Optimal
Fluoride (F)*	SMWW 4500 F- D	≤ 1.5 mg/L	0.60	± 0.61	Optimal
Lead (Pb)	SMWW 3114 B	≤ 0.05 mg/L	<0.005	N.A.	Optimal
Manganese (Mn)	SMWW 3113 B	≤ 0.5 mg/L	0.015	N.A.	Optimal
Mercury (Hg)	SMWW 3114 B	≤ 0.001 mg/L	<0.001	N.A.	Optimal
Nickel (Ni)	SMWW 3113 B	≤ 0.02 mg/L	0.02	N.A.	Optimal
Nitrate (NO ₃) *	SMWW 4500 NO ₃ - B	≤ 50 mg/L	0	N.A.	Optimal
Nitrite (NO ₂) *	SMWW 4500 NO ₂ - B	≤ 3.0 mg/L	0	N.A.	Optimal
Selenium (Se)	SMWW 3114 B	0.01 mg/L	<0.01	N.A.	Optimal
Residual Chlorine (Cl ₂) *	SMWW 4500 Cl- B	0.5 mg/L	0	N.A.	Optimal

my
14-06-2023

Document No. AES/LMS/FRM-115, Date of Issue 07 July, 2022, Revision No. 00



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Email: info@asianenvirolab.com



GROUND WATER ANALYSIS REPORT

Sample Detail

Reference No.	AES-ENV-BA-41/2023-GW-25	Reporting Date	14-06-2023
Nature of Sample	Ground Water	Sampling Method Reference	AES/LMS/QSP-014
Grab/Composite	Grab	Sample Collected by	AES
Sampling Date	11-06-2023	Sample Receiving Date	12-06-2023
Analysis Completion Date	14-06-2023	Lab Temp & Humidity	25.2°C & 51 %
Ambient Temperature & Humidity at the Time of Sampling			39°C & 33%
Sample ID	AES-ENV-GW-25/2023	Sampling Location	Pumping Motor
Client Details	Blum Agri, Sheikhupura, Pakistan.	Validation Officer	Mr. Ajmal (Research Officer, Punjab EPA)



Ground Water Analysis Results					
Parameter	Analysis Method	PEQS	Result	MU (CL95%)	Remarks
Phenolic Compounds (as Phenols) *	SMWW 5530 D	NGVS	0	N.A.	-
Zinc (Zn)	SMWW 3113 B	5.0 mg/L	0.040	N.A.	Optimal
Microbiological Analysis					
Total Coliforms*	SMWW 9222 B	0 CFU/ 100 mL	0	N.A.	Optimal
Fecal Coliforms *	SMWW 9222 D	0 CFU/ 100 mL	0	N.A.	Optimal

*Parameters are approved from Punjab Environment Protection Agency.

**Parameters are accredited from Pakistan National Accreditation Council.

The reported expanded uncertainty is based on combined standard uncertainty multiplied by a coverage factor k=2, providing a coverage probability of approximately 95%.

Abbreviations:

PEQS = Punjab Environment Quality Standards
TCU = True Color Unit
NTU = Nephelometric Turbidity Unit

SMWW = Standard Methods for the examination of Water and Wastewater
N.A. = Not Available
MU = Measurement Uncertainty

CFU = Colony forming Unit
NGVS = No Guideline Value Set

Remarks:

Optimal = Compliance with Permissible Range
Low = Less Than Permissible Range

Marginal = Close to Extreme Edge

High = Exceeds from Permissible Range

Report Disclaimer

- The remaining portion of the sample (s) will be disposed off after 15 days after the issuance date of report from the laboratory unless otherwise instructed (Condition Apply).
- This report shall not be reproduced in part/parties.
- The provided results relate only to the sample provided/collected.
- Values reflect the testing results; decision for usage of report totally depends on client.

Analyzed By
14-06-23
LAHORE

Reviewed By
(TM)
14-06-2023

Approved By
(QM/Chief Chemist)
14-06-2023

-----End of Report-----

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ANNEXURE - G: PROJECT IMPACT MATRIX

Project Impact Matrix																																
Environment Component → ↓ Project Component	Physical, Ecological and Social Environment																															
	Land Acquisition	Downstream Water Users	Air Quality	Noise	Soil Contamination	Aesthetic	Liquid and Solid Waste	Material Quarries and Borrow Pits	Surface Water	Irrigation Water	Wastewater	Soil	Flora	Fauna	Livestock Grazing	Fishery	Mobility of Locals	Cultural Issues	Water Ponds	Gender Issues	Health & Safety of Workers	Archeological/Historical and Religious Sites	Security Situation	Human Health	Ground Water	Agriculture	Drinking Water	Livelihood	Employment Opportunities	Economic Uplift		
A. Planning & Design Phase	1	2	3	4	5	8	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
Site Selection	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	0	0		
Topography survey	0	0	-1	0	-1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Geological investigation	0	0	-1	0	-1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Seismic investigation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Land Acquisition	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
B. Construction Phase	1	2	3	4	5	8	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
Clearing of land, Digging and excavation	0	0	-1	-2	-1	-3	-1	-3	0	0	0	-1	-1	-1	-2	0	-2	0	0	0	-1	0	0	0	0	0	0	0	1	3		
Storage of material	0	0	0	0	-1	0	-1	0	0	0	0	-1	-1	0	0	0	-1	0	0	0	-1	0	0	0	0	0	0	0	0	0	0	
Loading and hauling	0	0	-1	-1	-2	-1	-1	0	0	0	0	0	0	0	0	0	0	-2	0	0	-1	0	0	0	0	0	0	0	0	0	0	

Construction of Access Road	0	0	-2	-2	-1	-1	-1	0	0	0	0	-2	-1	-1	-1	0	-1	-1	0	-1	-1	0	0	0	0	0	0	0	0	1	1
Construction Camps	0	0	0	-1	-1	-2	-2	-1	0	0	-1	-1	-1	-1	-1	0	-1	-1	0	-1	-1	0	0	0	0	0	0	0	0	0	0
Crushing	0	0	0	-2	-1	-2	-2	0	0	0	0	0	-1	-1	0	0	0	0	0	0	-1	0	0	0	0	0	0	0	0	0	0
Use of Heavy Machinery	0	0	-1	-2	-1	0	0	0	0	0	0	0	-1	-1	0	0	0	0	0	0	-1	0	0	0	0	0	0	0	0	0	0
Wastewater Disposal	0	0	0	0	-1	0	1	0	0	0	1	-2	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	0	-2	0	0	
Solid Waste Disposal	0	0	0	0	-1	-2	-2	0	0	0	0	-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	0	0
Leakages & Spillage of Oil	0	0	0	0	-2	0	-2	0	0	0	-2	0	-1	-1	0	0	0	0	0	0	-1	0	0	0	0	0	-1	-1	0	0	0
C. Operational Phase	1	2	3	4	5	8	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Transportation of raw materials	0	0	-2	-2	-1	-1	-1	0	0	0	0	-1	0	0	0	0	-1	-1	-1	0	-2	-1	0	-2	-1	-1	0	1	3	3	
Production Process	0	0	-2	-2	-1	-2	-1	0	0	0	-1	-1	0	0	0	0	0	-1	0	-1	-2	-1	-2	0	0	0	0	-1	3	3	
Storage	0	0	-2	-2	-1	-2	-1	0	0	0	-1	-1	0	0	0	0	0	-1	0	-1	-2	-1	-2	-1	0	0	0	-1	3	3	
Transportation of Final Product	0	0	-2	-2	-1	-1	-1	0	0	0	0	-1	0	0	0	0	-1	-1	-1	0	-2	-1	0	-2	-1	-1	0	1	3	3	
												Beneficial				Impact Significance		Adverse		0 Insignificant or no impact											
												1				Low		-1													
												2				Medium		-2													

Category	Low	High	Mid
1	0	High	-3

ANNEXURE - H: SCREENING CHECKLIST

Adverse Impact ☐, Significant Adverse ☐, Beneficial Impact ☐,
Highly Beneficial ☐, No Impact ☐

Sr. No.	Main Environmental Parameters	Baseline Conditions	With Project			
			During Construction without Mitigation	During Operation without Mitigation	During Construction with Mitigation	During Operation with Mitigation
1	Atmosphere					
A	Ambient Air	0	--	--	-	-
B	Primary Pollutants	0	--	--	-	-
C	Secondary Pollutants	0	-	--	0	-
D	Noise	0	--	--	-	-
E	Vibration	0	-	0	-	-
2	Climate					
A	Temperature	0	0	-	0	-
B	Precipitation	0	0	0	0	0
C	Relative Humidity	0	0	0	0	0
E	Evaporation	0	0	0	0	0
3	Water Resources					
A	Surface Water	0	0	0	0	0
	Rivers	0	0	0	0	0
	Streams	0	0	0	0	0
	Springs	0	0	0	0	0
	Wetland	0	0	0	0	0
	Flow	0	0	0	0	0

Sr. No.	Main Environmental Parameters	Baseline Conditions	With Project			
			During Construction without Mitigation	During Operation without Mitigation	During Construction with Mitigation	During Operation with Mitigation
	Quality	0	0	0	0	0
	Usage	0	0	0	0	0
	Sediments	0	0	0	0	0
	Chemicals	0	0	0	0	0
	Pollution	0	0	0	0	0
	Erosion	0	0	0	0	0
B	Ground Water					
	Sources	0	-	-	0	-
	Depth	0	-	-	-	-
	Quantity	0	-	-	-	-
	Potential Extraction	0	-	-	-	-
	Usage	0	-	-	-	-
	Domestic Supply	0	0	0	0	0
	Industrial Water Supply	0	0	--	0	-
	Irrigation	0	0	0	0	0
	Hydropower Generation	0	0	0	0	0
	Quality	0	-	-	0	-
4	Land Resources					
A	Topography	0	-	0	0	-
B	Soil	0	-	0	0	-
C	Major Land use	0	0	0	0	0
5	Ecological Environment					

Sr. No.	Main Environmental Parameters	Baseline Conditions	With Project			
			During Construction without Mitigation	During Operation without Mitigation	During Construction with Mitigation	During Operation with Mitigation
A	Terrestrial Ecology	-	--	0	-	+
	Flora	-	--	0	-	+
	Fauna					
B	Aquatic Ecology	0	--	0	-	0
	Aquatic Flora	0	--	0	-	0
	Aquatic Fauna	-	--	0	-	+
	Fisheries	0	0	0	0	0
C	Wildlife	0	-	0	0	0
D	Forestry	0	0	0	0	0
E	Beneficial Plants and Animals	0	0	0	0	+
F	Endangered Species	0	0	0	0	0
6	Socio-economic Environment					
A	Institutional and Administrative Setup	0	0	0	0	+
B	Demography	0	0	0	0	0
C	Gender issues	0	-	-	0	0
D	Social Equity	0	0	0	0	0
E	Settlement Patterns	0	-	0	0	0
F	Land Holdings & Titling	0	0	0	0	++
G	Common Resource Rights	0	0	0	0	0
H	Fish	0	0	0	0	0

Sr. No.	Main Environmental Parameters	Baseline Conditions	With Project			
			During Construction without Mitigation	During Operation without Mitigation	During Construction with Mitigation	During Operation with Mitigation
I	Wood	0	0	0	0	0
J	Grazing	0	0	0	0	0
K	Fodder	0	-	0	-	0
L	Domestic Energy and Fuel	0	0	0	0	0
M	Domestic Water Supply	0	0	0	0	0
N	Sanitation	0	-	0	0	0
O	Health	0	-	--	0	-
P	Waterborne Disease	0	0	0	0	0
Q	Common Diseases	0	-	--	0	0
R	Mental Health	0	-	-	0	0
S	Human Nutrition	0	0	0	0	0
T	Education & Literacy	0	0	0	0	0
U	Cultural & Historical Sites	0	0	0	0	0
V	Religious Sites	0	0	0	0	0
W	Aesthetics	0	-	-	0	-
X	Landscape	0	-	-	0	-
Y	Livelihood	0	--	0	0	-
Z	Agriculture	0	0	0	0	0
	Livestock	0	0	0	0	0
	Forestry	0	0	0	0	0
	Fisheries	0	0	0	0	0

Sr. No.	Main Environmental Parameters	Baseline Conditions	With Project			
			During Construction without Mitigation	During Operation without Mitigation	During Construction with Mitigation	During Operation with Mitigation
	Industry	0	0		++	++
	Other Cash Income	0	+	+	+	++
7	Transport, Infrastructure & Communication					
A	Roads	0	-	-	0	-
B	Tracks	0	-	-	0	-
C	Bridges	0	0	0	0	-
D	Pedestrian Tracks	0	-	+	0	
E	Navigation	0	0	0	0	0
F	Energy and Power	0	-	-	0	-
G	Telecommunication	0	0	0	0	++
8	Natural Risks and Hazards					
A	Earthquake	0	0	0	0	0
B	Landslides	0	0	0	0	0
C	Storms	0	0	0	0	0
D	Floods	0	0	0	0	0
E	Erosion	0	0	0	0	0
F	Drought	0	0	0	0	0
G	Human Disease	0	--	--	-	-
H	Pollution	0	--	--	-	--
I	Social Instability	0	0	0	0	+
J	Economic Instability	0	0	+	0	++

Sr. No.	Main Environmental Parameters	Baseline Conditions	With Project			
			During Construction without Mitigation	During Operation without Mitigation	During Construction with Mitigation	During Operation with Mitigation
K	Political Instability	0	0	0	0	0
9	External Constraints	0	0	0	0	0
A	Upstream Constraints	0	0	0	0	0
B	Upstream Impacts	0	0	-	0	0
C	Downstream Constraints	0	0	-	0	0
D	Downstream Impacts	0	0	0	0	0

ANNEXURE - I: OTHER DOCUMENTS

SECURITIES AND EXCHANGE COMMISSION OF PAKISTAN
Company Registration Office

CERTIFICATE OF INCORPORATION

[Under section 16 of the Companies Act, 2017 (XIX of 2017)]

Corporate Unique Identification No. 0202430

I hereby certify that **BLUME AGRI (PRIVATE) LIMITED** is this day incorporated under the Companies Act, 2017 (XIX of 2017) and that the company is limited by shares.

Given at Lahore this Twenty First day of May, Two Thousand and Twenty Two

SECP

SEAL OF REGISTRAR OF COMPANIES
SECP

CERTIFIED TO BE TRUE COPY
27/5/22
DEPUTY REGISTRAR OF COMPANIES
COMPANY REGISTRATION OFFICE
LAHORE

Tariq Rasheed
Deputy Registrar

QR CODE

https://eservices.secp.gov.pk/eServices/ControllerServlet?request_id=VERIFY_ONLINE_INCORP_CERT&id=0202430

ANNEXURE - J: SOCIO ECONOMIC SURVEY

**Public Consultation/ Stakeholder Participation regarding EIA
of
Blume Agri PVT. LTD**

Name:					
Residence:					
Age:					
Gender: ☐ ☐					
Qualification:					
Profession:					
REMARKS					
	Strongly Agree	Agree	No Comments	Disagree	Strongly Disagree
Are you in favor of the proposed construction?	☐	☐	☐	☐	☐
Will the project increase the importance of the area?	☐	☐	☐	☐	☐
Will the project help to improve the living standards of the area?	☐	☐	☐	☐	☐
Will the project affect the environment of the area?	☐	☐	☐	☐	☐
Level of satisfaction?	☐	☐	☐	☐	☐

Signature of Interviewer

Public Consultation/ Stakeholder Participation regarding EIA
of
Blume Agri PVT. LTD

Name:	Muhammad Iqbal				
Residence:	Sheikhupura				
Age:	41				
Gender:	☒	☐			
Qualification:	8 th				
Profession:	Farmer				
REMARKS					
	Strongly Agree	Agree	No Comments	Disagree	Strongly Disagree
Are you in favor of the proposed construction?	☐	☐	☐	☒	☐
Will the project increase the importance of the area?	☐	☐	☐	☒	☐
Will the project help to improve the living standards of the area?	☐	☐	☐	☒	☐
Will the project affect the environment of the area?	☒	☐	☐	☐	☐
Level of satisfaction?	☐	☐	☐	☒	☐

Muhammad Iqbal

Signature of Interviewer

Public Consultation/ Stakeholder Participation regarding EIA
of
Blume Agri PVT. LTD

Name:	Mubammad Hassan.				
Residence:	Sheikhupura				
Age:	32				
Gender:	☒ ☐				
Qualification:	Bachelors				
Profession:	Employee				
REMARKS					
	Strongly Agree	Agree	No Comments	Disagree	Strongly Disagree
Are you in favor of the proposed construction?	☒	☐	☐	☐	☐
Will the project increase the importance of the area?	☐	☒	☐	☐	☐
Will the project help to improve the living standards of the area?	☐	☒	☐	☐	☐
Will the project affect the environment of the area?	☐	☐	☐	☒	☐
Level of satisfaction?	☒	☐	☐	☐	☐

H. M. Hassan
Signature of Interviewer

Public Consultation/ Stakeholder Participation regarding EIA
of
Blume Agri PVT. LTD

Name:	Aiman Ijaz				
Residence:	Sheikhupura				
Age:	29				
Gender:	☐ Male ☒ Female				
Qualification:	DVM				
Profession:	Employee				
REMARKS					
	Strongly Agree	Agree	No Comments	Disagree	Strongly Disagree
Are you in favor of the proposed construction?	☐	☒	☐	☐	☐
Will the project increase the importance of the area?	☒	☐	☐	☐	☐
Will the project help to improve the living standards of the area?	☒	☐	☐	☐	☐
Will the project affect the environment of the area?	☐	☐	☐	☒	☐
Level of satisfaction?	☐	☒	☐	☐	☐


Signature of Interviewer

Public Consultation/ Stakeholder Participation regarding EIA
of
Blume Agri PVT. LTD

Name:	Saad Bukhari				
Residence:	Sheikhupura				
Age:	25				
Gender:	☒ M ☐ F				
Qualification:	M.Phil				
Profession:	Employee				
REMARKS					
	Strongly Agree	Agree	No Comments	Disagree	Strongly Disagree
Are you in favor of the proposed construction?	☒	☐	☐	☐	☐
Will the project increase the importance of the area?	☒	☐	☐	☐	☐
Will the project help to improve the living standards of the area?	☒	☐	☐	☐	☐
Will the project affect the environment of the area?	☐	☐	☐	☒	☐
Level of satisfaction?	☒	☐	☐	☐	☐

Signature of Interviewer

Saad

Public Consultation/ Stakeholder Participation regarding EIA
of
Blume Agri PVT. LTD

Name:	Ali Akram.				
Residence:	Sheikhupura				
Age:	65				
Gender:	☒ Male ☐ Female				
Qualification:	Bachelors				
Profession:	Employee				
	REMARKS				
	Strongly Agree	Agree	No Comments	Disagree	Strongly Disagree
Are you in favor of the proposed construction?	☒	☐	☐	☐	☐
Will the project increase the importance of the area?	☒	☐	☐	☐	☐
Will the project help to improve the living standards of the area?	☒	☐	☐	☐	☐
Will the project affect the environment of the area?	☐	☐	☐	☒	☐
Level of satisfaction?	☒	☐	☐	☐	☐

Signature of Interviewer



Public Consultation/ Stakeholder Participation regarding EIA
of
Blume Agri PVT. LTD

Name:	Younas Chaudhry				
Residence:	Sheikhupura				
Age:	26				
Gender:	☒ Male ☐ Female				
Qualification:	Bachelors				
Profession:	Employee				
REMARKS					
	Strongly Agree	Agree	No Comments	Disagree	Strongly Disagree
Are you in favor of the proposed construction?	☒	☐	☐	☐	☐
Will the project increase the importance of the area?	☒	☐	☐	☐	☐
Will the project help to improve the living standards of the area?	☒	☐	☐	☐	☐
Will the project affect the environment of the area?	☐	☐	☐	☒	☐
Level of satisfaction?	☒	☐	☐	☐	☐

Signature of Interviewer

Younas Chaudhry

Public Consultation/ Stakeholder Participation regarding EIA
of
Blume Agri PVT. LTD

Name:	Mabeen Sheikh				
Residence:	Sheikhupura				
Age:	45				
Gender:	☒ M ☐ F				
Qualification:	Masters				
Profession:	Worker				
REMARKS					
	Strongly Agree	Agree	No Comments	Disagree	Strongly Disagree
Are you in favor of the proposed construction?	☐	☒	☐	☐	☐
Will the project increase the importance of the area?	☐	☒	☐	☐	☐
Will the project help to improve the living standards of the area?	☐	☒	☐	☐	☐
Will the project affect the environment of the area?	☐	☐	☐	☒	☐
Level of satisfaction?	☐	☒	☐	☐	☐



Signature of Interviewer

Public Consultation/ Stakeholder Participation regarding EIA
of
Blume Agri PVT. LTD

Name:	Rashid Khan				
Residence:	Sheikhupura				
Age:	35				
Gender:	☒ M ☐ F				
Qualification:	Intermediate				
Profession:	Worker				
REMARKS					
	Strongly Agree	Agree	No Comments	Disagree	Strongly Disagree
Are you in favor of the proposed construction?	☒	☐	☐	☐	☐
Will the project increase the importance of the area?	☐	☒	☐	☐	☐
Will the project help to improve the living standards of the area?	☐	☐	☐	☒	☐
Will the project affect the environment of the area?	☐	☐	☐	☒	☐
Level of satisfaction?	☐	☒	☐	☐	☐


Signature of Interviewer

Public Consultation/ Stakeholder Participation regarding EIA
of
Blume Agri PVT. LTD

Name:	Agira				
Residence:	Sheikhupura				
Age:	26				
Gender:	☐ ☒				
Qualification:	MBA				
Profession:	Employee				
REMARKS					
	Strongly Agree	Agree	No Comments	Disagree	Strongly Disagree
Are you in favor of the proposed construction?	☒	☐	☐	☐	☐
Will the project increase the importance of the area?	☒	☐	☐	☐	☐
Will the project help to improve the living standards of the area?	☒	☐	☐	☐	☐
Will the project affect the environment of the area?	☐	☐	☐	☒	☐
Level of satisfaction?	☒	☐	☐	☐	☐


Signature of Interviewer

Public Consultation/ Stakeholder Participation regarding EIA
of
Blume Agri PVT. LTD

Name:	Shaukat Ali				
Residence:	Sheikhupura				
Age:	43				
Gender:	☒	☐			
Qualification:	Matric				
Profession:	Gardner				
REMARKS					
	Strongly Agree	Agree	No Comments	Disagree	Strongly Disagree
Are you in favor of the proposed construction?	☐	☐	☐	☒	☐
Will the project increase the importance of the area?	☐	☐	☐	☒	☐
Will the project help to improve the living standards of the area?	☐	☐	☐	☒	☐
Will the project affect the environment of the area?	☐	☒	☐	☐	☐
Level of satisfaction?	☐	☐	☐	☒	☐


Signature of Interviewer

Public Consultation/ Stakeholder Participation regarding EIA
of
Blume Agri PVT. LTD

Name:	Munawar Hussain				
Residence:	Sheikhupura				
Age:	35				
Gender:	☒ M ☐ F				
Qualification:	Matric				
Profession:	Rickshaw Driver				
REMARKS					
	Strongly Agree	Agree	No Comments	Disagree	Strongly Disagree
Are you in favor of the proposed construction?	☐	☐	☐	☒	☐
Will the project increase the importance of the area?	☐	☐	☐	☒	☐
Will the project help to improve the living standards of the area?	☐	☐	☐	☒	☐
Will the project affect the environment of the area?	☐	☒	☐	☐	☐
Level of satisfaction?	☐	☐	☐	☒	☐


Signature of Interviewer

Public Consultation/ Stakeholder Participation regarding EIA
of
Blume Agri PVT. LTD

Name:	Imran Asghar				
Residence:	Sheikhupura				
Age:	35				
Gender:	☒ M ☐ F				
Qualification:	Bachelors				
Profession:	Engineer				
REMARKS					
	Strongly Agree	Agree	No Comments	Disagree	Strongly Disagree
Are you in favor of the proposed construction?	☒	☐	☐	☐	☐
Will the project increase the importance of the area?	☒	☐	☐	☐	☐
Will the project help to improve the living standards of the area?	☐	☒	☐	☐	☐
Will the project affect the environment of the area?	☐	☐	☐	☒	☐
Level of satisfaction?	☐	☒	☐	☐	☐

Signature of Interviewer

Public Consultation/ Stakeholder Participation regarding EIA
of
Blume Agri PVT. LTD

Name:	Shumaila Naveed				
Residence:	Sheikhupura				
Age:	29				
Gender:	☐ Male ☒ Female				
Qualification:	Bachelors				
Profession:	Teacher				
REMARKS					
	Strongly Agree	Agree	No Comments	Disagree	Strongly Disagree
Are you in favor of the proposed construction?	☒	☐	☐	☐	☐
Will the project increase the importance of the area?	☒	☐	☐	☐	☐
Will the project help to improve the living standards of the area?	☐	☒	☐	☐	☐
Will the project affect the environment of the area?	☐	☐	☐	☒	☐
Level of satisfaction?	☒	☐	☐	☐	☐

Signature of Interviewer

Public Consultation/ Stakeholder Participation regarding EIA
of
Blume Agri PVT. LTD

Name:	Muhammad Usman				
Residence:	Sheikhupura				
Age:	19				
Gender:	☒ ☐				
Qualification:	Matric				
Profession:	Shopkeeper				
REMARKS					
	Strongly Agree	Agree	No Comments	Disagree	Strongly Disagree
Are you in favor of the proposed construction?	☒	☐	☐	☐	☐
Will the project increase the importance of the area?	☒	☐	☐	☐	☐
Will the project help to improve the living standards of the area?	☒	☐	☐	☐	☐
Will the project affect the environment of the area?	☐	☐	☐	☒	☐
Level of satisfaction?	☒	☐	☐	☐	☐

Signature of Interviewer

M. Usman

**Public Consultation/ Stakeholder Participation regarding EIA
of
Blume Agri PVT. LTD**

Name: <u>Aiman Ijaz</u>					
Residence: <u>Sheikhupura</u>					
Age: <u>29</u>					
Gender: ☐ Male ☒ Female					
Qualification: <u>DVM</u>					
Profession: <u>Employee</u>					
REMARKS					
	Strongly Agree	Agree	No Comments	Disagree	Strongly Disagree
Are you in favor of the proposed construction?	☐	☒	☐	☐	☐
Will the project increase the importance of the area?	☒	☐	☐	☐	☐
Will the project help to improve the living standards of the area?	☒	☐	☐	☐	☐
Will the project affect the environment of the area?	☐	☐	☐	☒	☐
Level of satisfaction?	☐	☒	☐	☐	☐

Signature of Interviewer



Public Consultation/ Stakeholder Participation regarding EIA
of
Blume Agri PVT. LTD

Name:	Muhammad Babar				
Residence:	Sheikhupura				
Age:	27				
Gender:	☒ M ☐ F				
Qualification:	Masters				
Profession:	Businessman				
REMARKS					
	Strongly Agree	Agree	No Comments	Disagree	Strongly Disagree
Are you in favor of the proposed construction?	☒	☐	☐	☐	☐
Will the project increase the importance of the area?	☐	☒	☐	☐	☐
Will the project help to improve the living standards of the area?	☒	☐	☐	☐	☐
Will the project affect the environment of the area?	☐	☐	☐	☒	☐
Level of satisfaction?	☒	☐	☐	☐	☐

Signature of Interviewer



Public Consultation/ Stakeholder Participation regarding EIA
of
Blume Agri PVT. LTD

Name:	Muhammad Azam.				
Residence:	Sheikhupura				
Age:	38				
Gender:	☒ ☐				
Qualification:	8 th				
Profession:	Gardner				
REMARKS					
	Strongly Agree	Agree	No Comments	Disagree	Strongly Disagree
Are you in favor of the proposed construction?	☐	☐	☐	☒	☐
Will the project increase the importance of the area?	☐	☐	☐	☒	☐
Will the project help to improve the living standards of the area?	☐	☐	☐	☒	☐
Will the project affect the environment of the area?	☐	☒	☐	☐	☐
Level of satisfaction?	☐	☐	☐	☒	☐

Signature of Interviewer



Public Consultation/ Stakeholder Participation regarding EIA
of
Blume Agri PVT. LTD

Name:	Nazia Bibi				
Residence:	Sheikhupura				
Age:	28				
Gender:	☐ ☒				
Qualification:	Matric				
Profession:	Worker				
REMARKS					
	Strongly Agree	Agree	No Comments	Disagree	Strongly Disagree
Are you in favor of the proposed construction?	☒	☐	☐	☐	☐
Will the project increase the importance of the area?	☒	☐	☐	☐	☐
Will the project help to improve the living standards of the area?	☒	☐	☐	☐	☐
Will the project affect the environment of the area?	☐	☐	☐	☒	☐
Level of satisfaction?	☒	☐	☐	☐	☐

Signature of Interviewer

(Signature)

Public Consultation/ Stakeholder Participation regarding EIA
of
Blume Agri PVT. LTD

Name:	Muhammad Khawar				
Residence:	Sheikhupura				
Age:	30				
Gender:	☒ M ☐ F				
Qualification:	Bachelors				
Profession:	Employee				
REMARKS					
	Strongly Agree	Agree	No Comments	Disagree	Strongly Disagree
Are you in favor of the proposed construction?	☐	☒	☐	☐	☐
Will the project increase the importance of the area?	☐	☒	☐	☐	☐
Will the project help to improve the living standards of the area?	☐	☒	☐	☐	☐
Will the project affect the environment of the area?	☐	☐	☐	☒	☐
Level of satisfaction?	☐	☒	☐	☐	☐

Signature of Interviewer

Khawar

Public Consultation/ Stakeholder Participation regarding EIA
of
Blume Agri PVT. LTD

Name:	Rania Hafeez.				
Residence:	Sheikhupura				
Age:	31				
Gender:	☐ ☒				
Qualification:	Bachelors				
Profession:	Hotel Management.				
REMARKS					
	Strongly Agree	Agree	No Comments	Disagree	Strongly Disagree
Are you in favor of the proposed construction?	☐	☒	☐	☐	☐
Will the project increase the importance of the area?	☒	☐	☐	☐	☐
Will the project help to improve the living standards of the area?	☐	☒	☐	☐	☐
Will the project affect the environment of the area?	☐	☐	☐	☒	☐
Level of satisfaction?	☒	☐	☐	☐	☐

Signature of Interviewer