2024

ENVIRONMENTAL IMPACT ASSESSMENT REPORT

M/S 3A Cosmoceutics

Plot No.545, Sundar Industrial Estate, Raiwind Road, Lahore,

Prepared By:
Environmental Services Pakistan Private Limited (ESPAK)
Contact: 042-35154012, 0312-0849999
Office No. 731, Block 2, Sector D1, Shahjilani Road Township Lahore

EXECUTIVE SUMMARY

TITLE & LOCATION OF THE PROJECT

Subject project for which this Environmental Impact Assessment (EIA) Study has been conducted is the Proposed Establishment of Nutraceutical and Cosmetic unit under the name of M/s 3A Cosmoceutics located at Plot No.545, Sundar Industrial Estate, Raiwind Road, Lahore**,** over an area of 44326.64 SFT while covered area of plot is 42574 SFT.

PROJECT CAPACITY:

The production capacity of each product is given below:

Sr.no	**Products**	**Production Capacity/Month**
1	Tablet	4 million/ month (can be blistered/Packed in bottles)
2	Soft Gel	4 Lac/month
3	Capsule	4 million/ month
4	Dry Milk Powder	100k Tin packs/month
5	Cream	1 lac tubes/month
6	Shampoo	1 lac /month
7	Lotion/Serums	1 lac /month
8	Dry suspension	2 Lac/month

CATEGORY OF THE PROJECT:

The said Project; i.e., Proposed Establishment of Nutraceutical and Cosmetic unit falls under Schedule-II category B (Manufacturing and Processing), Clause 2 (Chemical manufacturing unit, including pharmaceuticals and cosmetics), under Punjab Environmental protection (Review of IEE/EIA) Regulations, 2022, hence such projects require submission of EIA

Report to obtain Environmental Approval, under Section 12 of Punjab Environmental Protection Act 1997. TORs of the study under clause 5 (f) of policy and procedure for the filing, review and approval of environmental assessment are annexed as **Annexure-A** with this EIA report.

LOCATION

Subject unit is located at Plot No.545, Sundar Industrial Estate, Raiwind Road, Lahore.

The Location Coordinates are:

- **31°17'30.14"N**
- **74° 9'32.35"E**

Project land coordinates are as follows:

North = Open Plot

South = Access Road

East = Access Road

West = Industrial Unit

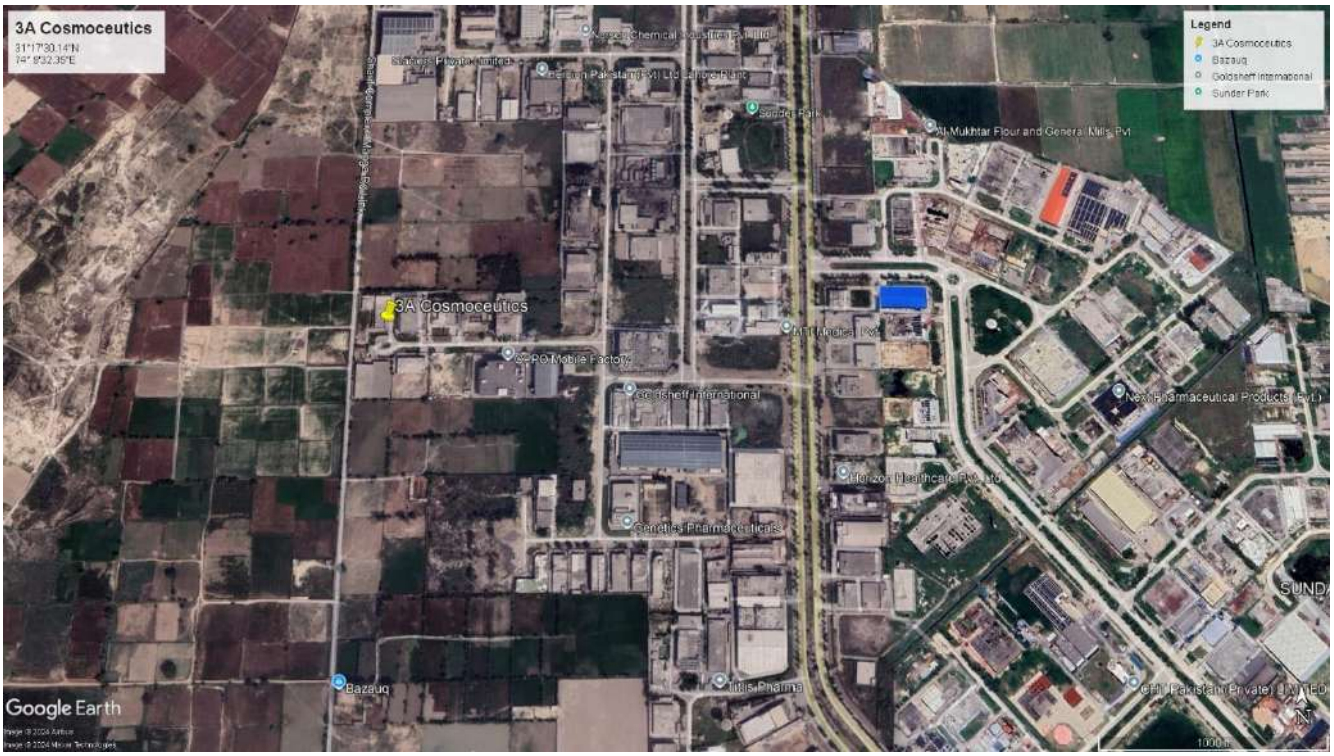

Figure: Aerial View of The Said Project

NAME OF THE PROPONENT

Name: Mr. Akbar Ali

CNIC#: 35202-2477885-9

Mailing Address: Plot No.545, Sundar Industrial Estate, Raiwind Road, Lahore

For further details, CNIC of the proponent and other relevant documents are attached with this report as **Annexure B.**

NAME OF ORGANIZATION PREPARING THE REPORT:

Environmental Services of Pakistan (ESPAK)., as independent consultants, has been appointed by the proponent to conduct Environmental Impact Assessment Study.

Company office address: Office No. 731, Shah Jilani Road, Block 2 Sector D1 Lahore.

Contact No: 0312-0839999

For detail company profile see the Chapter # 1 "Introduction

STUDY TEAM

#	Name of Team Members	Designation	Qualification
1	Maham Ahsan	Environmentalist	M.S Environmental Science
2	Ali Ramzan	Environmentalist	B.S Environmental Sciences
3	Asma Akram	Environmentalist	M.S Environmental Science
4	Taha Nadeem	Environmentalist	B.S Environmental Sciences
5	Shahzad Ahmad Khan	Project Manager	MBA Marketing

A BRIEF OUTLINE OF THE PROPOSAL

Name of the project:	Proposed Establishment of Nutraceutical and Cosmetic unit under the name of M/s 3A Cosmoceutics
Location of the project:	Plot No.545, Sundar Industrial Estate, Raiwind Road, Lahore
Proposed Area:	Total area of the plot is 44326.64 SFT while covered area of plot is 42574 SFT.
Nature of Project:	Nature of the project is Proposed establishment of Nutraceutical and Cosmetic unit for production of

<table>
<tr><td></td><td>including tablets, soft gels, capsules, creams, Shampoo, lotions/ Serum, dry milk, and dry suspension
1. Tablets
2. Capsules
3. Soft gels
4. Creams
5. Shampoo
6. Lotions/ Serum
7. Dry Milk Powder
8. Dry Suspension</td></tr>
<tr><td>Cost of the project:</td><td>The estimated cost of the proposed project is Approx. 50 million rupees.</td></tr>
<tr><td>Project process:</td><td>The process cycle of medicine production is based on Granulation, Compression/Encapsulation and Packing (Blister Packing). The process cycle of cosmetic production is based on Raw Material Dispensing, Mixing, pH Adjustment and Cooling and Stabilization.</td></tr>
<tr><td>Production capacity</td><td>The production capacity of each product in said unit is given below:

<table>
<tr><th>Sr.no</th><th>Products</th><th>Production Capacity/Month</th></tr>
<tr><td>1</td><td>Tablet</td><td>4 million/ month (can be blistered/Packed in bottles)</td></tr>
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<tr><td>5</td><td>Cream</td><td>1 lac tubes/month</td></tr>
<tr><td>6</td><td>Shampoo</td><td>1 lac /month</td></tr>
</table>
</td></tr>
</table>

	7	Lotion/Serums	1 lac /month
	8	Dry suspension	2 Lac/month
Power Requirement:	Power requirements of the project is being fulfilled by WAPDA with transformer of 360 K.W has been installed to full fill the energy requirement.		
Labor/ Workforce:	During Operation: 20-25 persons (approximately).		
Water Requirement:	During the operational phase of the project approx. 1728$m^{3/}$day water will be required for project process and domestic purposes.		
Solid waste:	During operation: 360-400 kg/day domestic and project related waste.		

THE MAJOR IMPACTS

In order to identify all the activities associated with the project during operation phase with potential to cause adverse environmental impacts and harm a thorough review has been conducted. Project does not have any significant adverse impacts on the nearby community and on environment. Overall, the project has positive impacts on the local population and country as a whole. Moreover, area for plantation is also reserved for air purification within the project vicinity.

Table: Summary of Environmental impacts of the project during the project activities and their mitigation measures

Potential Impact	Criteria for determining Significance	Key Mitigation Measures
Solid waste Management— If solid waste will not be managed properly, it may cause negative impacts	Solid waste may produce in result of machinery installation e.g. wasted parts of machinery, wasted screws, nails and bolts. But most of the solid waste will be of domestic type.	Machinery installation waste should be sold in scrap as it can be used by steel and iron industry. Domestic waste should be disposed of properly, handed over to contractors, placed in bins; Proper solid waste management plan should be devised and implemented.

Waste water - water used for washing purposes	PEQS parameters	Waste water should be treated in the Effluent treatment plant and then disposed of in the nearest drain.
Noise- Noise may be generated during fitting and installation activities (drilling etc) and from generators at the project site; which may be a nuisance for the workers as well as neighbors	OSHA standards	Activities generating high levels of noise should be minimized at the project site. If the noise level will exceed the permissible limits with reference to Punjab Environmental Quality Standards and OSHA standards, following recommendations are suggested to take action against the high noise levels: • Ear muffs and ear plugs are recommended in case of high noise levels. • Rubber wounds should be placed underneath the generator to avoid the vibration.

Socioeconomic impacts—Inter-cultural differences between the project staff from other areas and the local community may arise due to the subject project. Positive socioeconomic impacts due to increased infrastructure, employment opportunities and economic growth.	No community complaints are expected. Increased employment facilities Increased infrastructure	Training of the non-local project staff on local culture and norms; Avoidance of unnecessary interaction of local population with the non-local project staff. Employment opportunities should be provided to the local people.

Table: Summary of Environmental impacts of the project during the construction phase of project and their mitigation measures

Potential Impact	Key Mitigation Measures
Dust Emissions- Particulate matter emissions during production activities can affect the air quality in the working area and be a nuisance for the workers' health. Gaseous emissions from site generators can result in deterioration of ambient air quality of the outdoor environment.	PPEs i.e. masks should be provided to workers during the working hours. Proper ventilation will be provided in the working area. Vehicles to use for the transportation of materials should be properly tuned. Monitoring should be conducted as per EPA PEQS Rules on regular intervals.

Machinery Noise- Working of machinery can be a nuisance for the workers in the working area.	PPEs i.e. ear muffs will be provided to workers in case of high noise.
Health & Safety Issues- Health and Safety issues e.g. Cuts and Injuries may be caused during the machinery handling.	Proper training of the staff should be conducted on regular basis to avoid the accidents and training record will be maintained by the management. First aid measures should be provided at the workplace. HSE policy will be formulated and implemented by management. Use of PPEs will be ensured during project activities.
Discharge of wastewater- The discharge of untreated wastewater can be a negative impact.	No wastewater will be disposed of into drain without having treatment in wastewater treatment plant. After treatment wastewater will be disposed of into nearest drainage system of Sundar Industrial Estate. Compliance of PEQS for Municipal and Liquid Industrial Effluents will be ensured. Monitoring will be conducted as per PEQS and reports will be submitted to EPA as per Rule (if required)
Solid waste management- Improper solid waste management may cause health problems and aesthetic issues	Waste bins will be placed at suitable areas at unit and contract will be made with EPA approved contractor for hazardous waste disposal. Domestic waste should be handed over to local contractors for safe disposal of the waste.
Groundwater—The increased withdrawal of groundwater for the project will affect the groundwater resources of the project area	No impact on the community groundwater needs is envisaged as a result of the project (ensured by management)

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**

  Monitoring for ambient air should be conducted during operational activities of the project and report should be submitted to EPA Punjab.

- **NOISE**

  Regular monitoring for noise level should be maintained periodically during operation phases of the project and report should be submitted to EPA Punjab as per rule.

- **WATER QUALITY**

  Regular monitoring of water quality should be conducted during operational phases of the project and report should be submitted to EPA Punjab. Record should be maintained regarding the underground water pump and consumption.

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

CHAPTER # 1

INTRODUCTION

This Section of the report provides an overview of the rational of the Project, objective of project, requirement of the project, purpose of the report and approach adopted to conduct the Environmental Impact Assessment Study.

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). The other relevant regulations and guidelines considered while preparing this EIA report include:

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

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

IDENTIFICATION OF THE PROJECT AND PROPONENT

The proponent has been submitting this EIA report, the said project is proposed and the proponent wants to get Environmental approval for said unit under the name of M/s 3A Cosmoceutics.

PROPONENT:

Name: Mr. Akbar Ali

CNIC#: 35202-2477885-9

Mailing Address: Plot No.545, Sundar Industrial Estate, Raiwind Road, Lahore.

For further details, CNIC of the proponent and other relevant documents are attached as **Annexure-B.**

DETAILS OF CONSULTANT

Environmental Services of Pakistan (ESPAK)., as independent consultants, has been appointed by the proponent to conduct Environmental Impact Assessment Study.
Company office address: Office No. 731, Shah Jilani Road, Block 2 Sector D1 Lahore.
Contact No: 0312-0839999

BRIEF DESCRIPTION OF NATURE, SIZE AND LOCATION OF PROJECT

Subject project is Proposed Establishment of Nutraceutical and Cosmetic unit by M/s 3A Cosmoceutics at Plot No.545, Sundar Industrial Estate, Raiwind Road, Lahore. Total area of the plot is 44326.64 SFT While covered area of plot is 42574 SFT. The estimated cost of the project is Approx. 50 million rupees. The process cycle of medicine production is based on Granulation, Compression/Encapsulation and Packing (Blister Packing). The process cycle of cosmetic production is based on Raw Material Dispensing, Mixing, pH Adjustment and Cooling and Stabilization.

LOCATION

Subject unit is located at Plot No.545, Sundar Industrial Estate, Raiwind Road, Lahore
The Location Coordinates are:

- **31°17'30.14"N**
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Project land coordinates are as follows:

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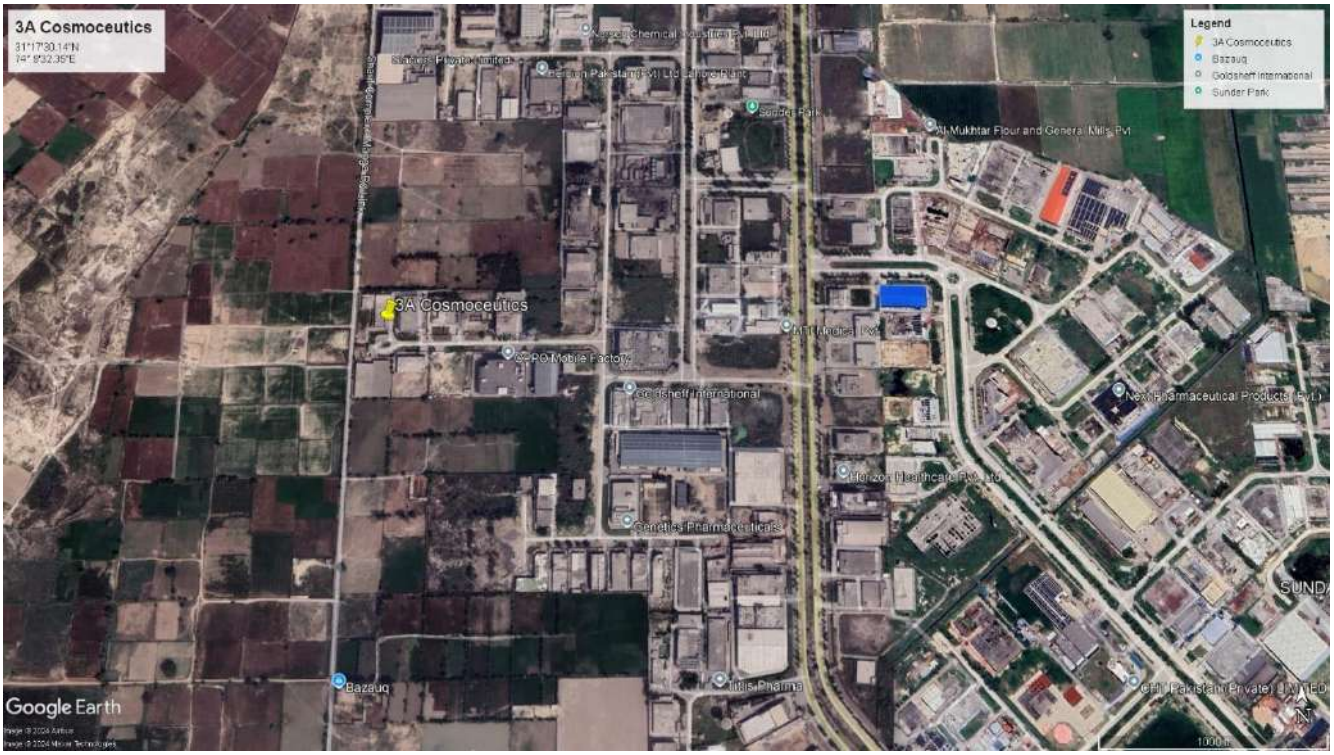

Figure 1: Aerial view of the project site

SCOPING

SPATIAL AND TEMPORAL BOUNDARIES OF ENVIRONMENTAL ASSESSMENT

The project falls in Industrial area of district Sundar. This project spans at the area of 44326.64 SFT while covered area of plot is 42574 SFT. Various Industrial Units are already present around the vicinity of the project corridor. The main road along with the project site is Sharif Complex Manga Road. The following map shows the spatial and temporal boundaries of the project. For further details, Google earth map of the project on A3 page is attached as **Annexure-E** and layout as **Annexure C** with the report.

IMPORTANT ISSUES AND CONCERNS RAISED DURING CONSULTATION

Important issue and concerns raised by the community during consultation include the impact of waste water released from the treatment plant that may impact the nearby community. The Proponent ensured that process related and domestic wastewater is generated from the said unit that is treated in septic tanks first that is within limits of the PEQS and then disposed of into the nearest drain of Sundar. Hence will not cause any issues to the community. The community was also concerned about employment for local people. The proponent made sure

that maximum job opportunities for plant management and unit operation are provided to the residents.

SCREENING

The said Project; i.e., Proposed Establishment of Nutraceutical and Cosmetic unit falls under Schedule-II category B (Manufacturing and Processing), Clause 2 (Chemical manufacturing unit, including pharmaceuticals and cosmetics), under Punjab Environmental protection (Review of IEE/EIA) Regulations, 2022, hence such projects require submission of EIA Report to obtain Environmental Approval, under Section 12 of Punjab Environmental Protection Act 1997.

CHAPTER # 2

ANALYSIS OF ALTERNATIVES

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

THE NO PROJECT ALTERNATIVE

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

LOCATION/SITE ALTERNATIVES

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

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

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

ALTERNATIVE SITE

No Alternative site has been considered due to insignificant environmental impacts. The proposed site fulfills the site selection criteria of Drug Regulatory of Pakistan, Ministry of health.

REASONS OF REJECTION

The reasons of rejection of this site are:

- High cost of land
- Nearby human settlements
- Due to the ownership conflict of surrounding land
- No proper communication facility
- Fauna & Floral Species are present at this site in abundance.

MODIFIED CONSTRUCTION TECHNOLOGY ALTERNATIVES

The proponent has purchased an existing, constructed building to serve as the base for the proposed project. In order to meet the specific requirements of the project, additional alterations and upgrades will be implemented. These modifications will adapt the building to fulfill all operational and regulatory needs essential for the successful execution of the project.

TECHNOLOGY ALTERNATIVES

The company imported brand new machinery from renowned international manufacturers of the world as well as from local market. Machinery is based on latest available technology to produce high quality medicines. The machines are having pollution remove technologies built in. Therefore, it the best option to use that technology.

CHAPTER # 3

DESCRIPTION OF THE PROJECT

TYPE AND CATEGORY OF THE PROJECT:

Subject project is Proposed Establishment of Nutraceutical and Cosmetic unit under the name of M/S 3A Cosmoceutics located at Plot No.545, Sundar Industrial Estate, Raiwind Road, Lahore. The process cycle of medicine production is based on Granulation, Compression/Encapsulation and Packing (Blister Packing). The process cycle of cosmetic production is based on Raw Material Dispensing, Mixing, pH Adjustment and Cooling and Stabilization. The total cost of the proposed unit is 50 million rupees and Total area of the plot is 44326.64 SFT while covered area of plot is 42574 SFT. The production capacity of each product is given below:

Sr.no	Products	Production Capacity/Month
1	Tablet	4 million/ month (can be blistered/Packed in bottles)
2	Soft Gel	4 Lac/month
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4	Dry Milk Powder	100k Tin packs/month
5	Cream	1 lac tubes/month
6	Shampoo	1 lac /month
7	Lotion/Serums	1 lac /month
8	Dry suspension	2 Lac/month

The project falls under category of Chemical Projects mentioned in Schedule-II, Category (B), Clause (2) of Punjab Environmental protection (Review of IEE/EIA) Regulations, 2022,

hence such projects require submission of EIA Report to obtain Environmental Approval, under Section 12 of Punjab Environmental Protection Act 1997.

OBJECTIVES OF THE PROJECT

Objectives of the construction of the subject project are:

- To establish the business for the proponent.
- To contribute to the national economy of the country.
- Compensate to help poverty by providing employment.

LOCATION AND SITE LAYOUT OF THE PROJECT:

Subject unit is located at Plot No.545, Sundar Industrial Estate, Raiwind Road, Lahore.

The Location Coordinates are:

- **31°17'30.14"N**
- **74° 9'32.35"E**

Project land coordinates are as follows:

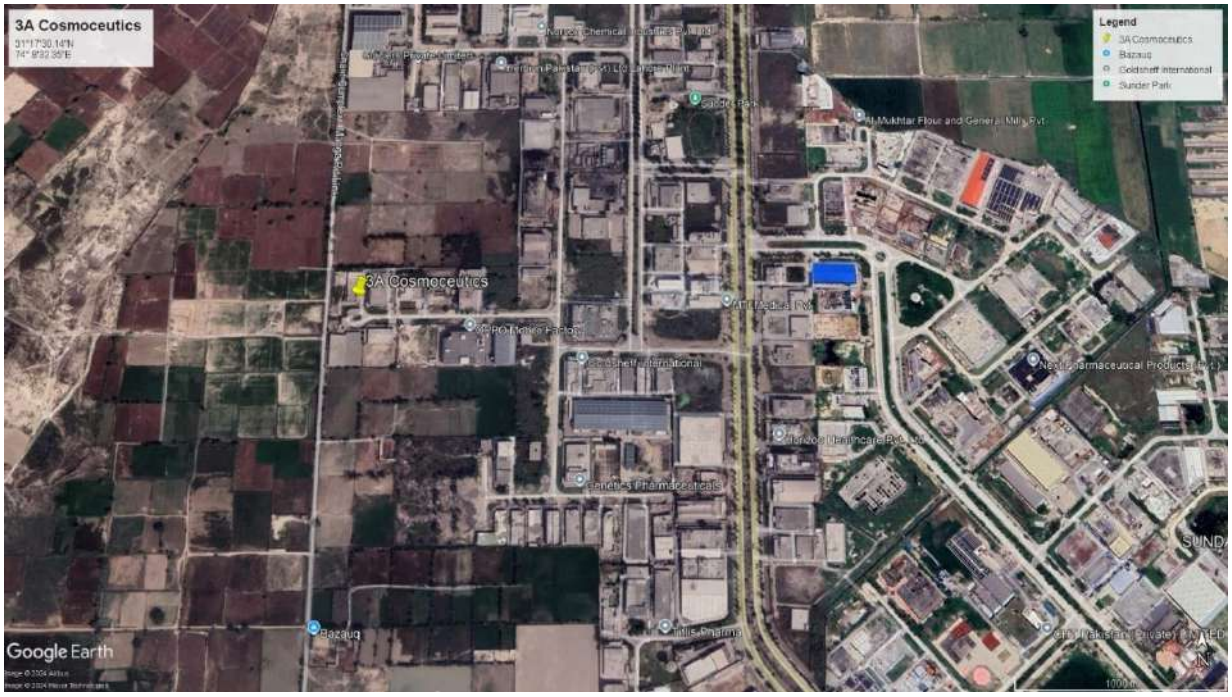
North = Open Plot

South = Access Road

East = Access Road

West = Industrial Unit

For further details, layout map of the project is attached as **Annexure C**.



LAND USE ON SITE

Subject project is proposed establishment of Nutraceutical and Cosmetic unit. Area of the unit is industrial because unit is present at Sundar Industrial Estate.

ROAD ACCESS

Sharif Complex Manga Road is present on to access the project, because subject project is present in Sundar Industrial Estate.

VEGETATION FEATURES OF THE PROJECT

The project does not have any significant vegetation features because surrounding of the area is clear.

COST AND MAGNITUDE OF THE OPERATION

Subject project is the Proposed Establishment of Nutraceutical and Cosmetic unit in district Lahore. The Cost of proposed project is 50 million rupees, which will include the cost of machineries, purchasing of raw material, its processing in unit and provision of electricity. There are no other associated activities with regard to the subject project.

SCHEDULE OF IMPLEMENTATION

The project site is Proposed Establishment of Nutraceutical and Cosmetic unit

DESCRIPTION OF THE PROJECT:

The subject project for which this Environmental Impact Assessment Study has been conducted is Proposed Establishment of Nutraceutical and Cosmetic unit under the name of M/S 3A Cosmoceutics at Plot No.545, Sundar Industrial Estate, Raiwind Road, Lahore. The project activities involve the manufacturing of tablets, soft gels, capsules, creams, Shampoo, lotions/ Serum, dry milk, and dry suspension, over an area of 44326.64 SFT While covered area of plot is 42574 SFT.

DETAILED PROCESS

The said project is Proposed Establishment of Nutraceutical and Cosmetic unit located at Plot No.545, Sundar Industrial Estate, Raiwind Road, Lahore. Proponent has acquired an already constructed building situated. The property was previously owned and registered under the name of Sox links International. The acquisition process, including the transfer of ownership, has been completed, and Proponent is now the official owner of the building. Sundar industrial estate possession letter and transfer Letter is attached as **Annexure-B**.

The process cycle of production is based on Granulation, Compression/Encapsulation and Packing (Blister Packing). The process cycle of cosmetic production is based on Raw Material Dispensing, Mixing, pH Adjustment and Cooling and Stabilization. The water is used for line washing purpose. The process related wastewater is treated through the wastewater treatment facility. About 20-man power is required during operation phase of this said unit. The said project will have modem air cleaning system (Heating Ventilation and Air Conditioning System) for control of dust and vapors during operation phase.

COMPONENTS OF SAID PROJECT:

- Tablets
- Capsules
- Soft gels
- Creams
- Shampoo
- Lotions/ Serum
- Dry Milk Powder
- Dry Suspension

RAW MATERIAL:

Materials used in the Said industry given below:

1. Vitamin B2 (Riboflavin)
2. Vitamin B6 (Pyridoxine HCl)
3. Niacinamide / Vitamin B3
4. Vitamin C (Ascorbic Acid)
5. Calcium
6. Magnesium
7. Iron
8. Zinc
9. Folic Acid
10. Vitamin A
11. Beta-carotene
12. Vitamin E
13. Vitamin B12
14. Vitamin D3

The list of raw materials is attached as **Annexure-G** with this report.

PRODUCT DETAIL:

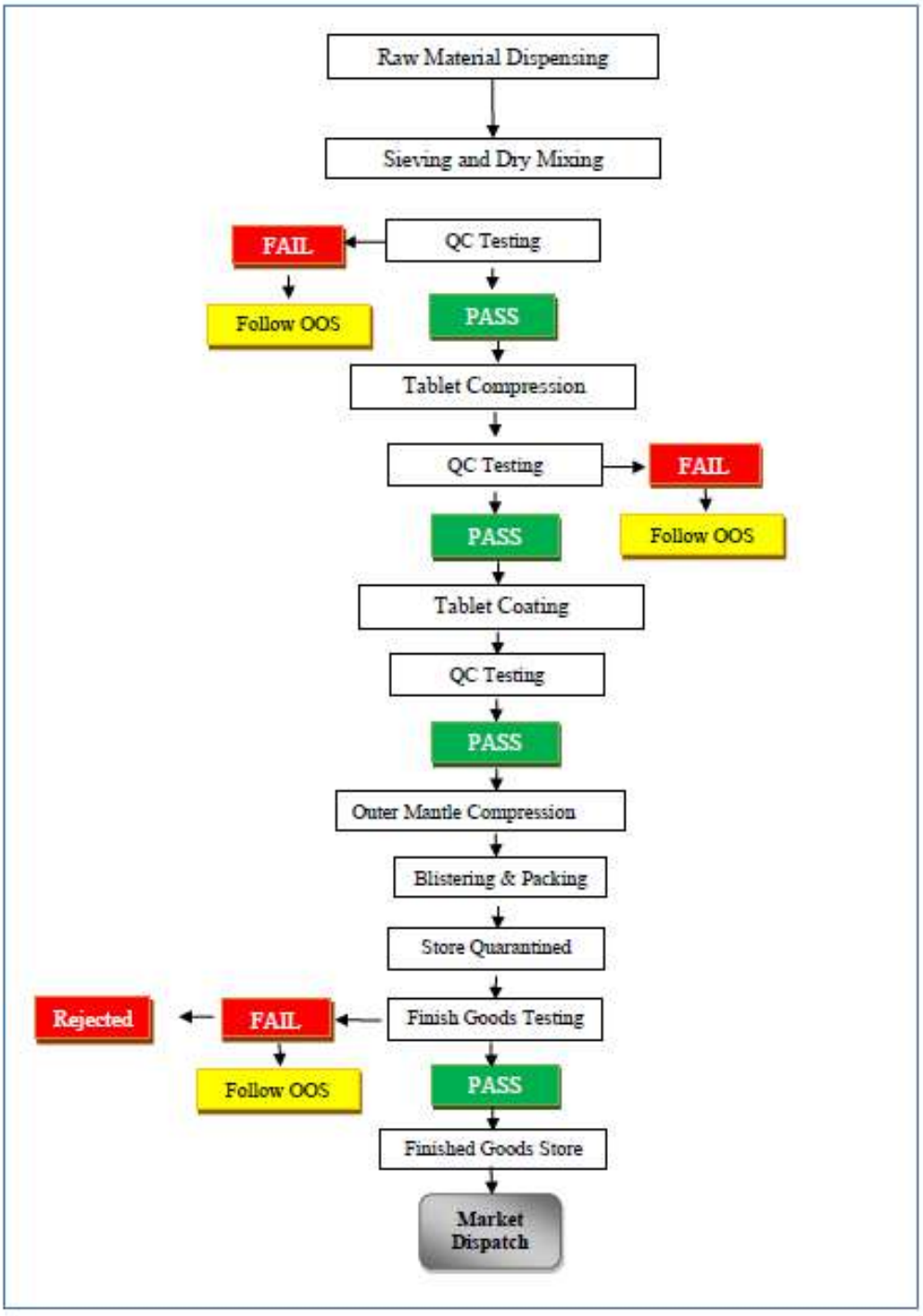
Product detail of 3A Cosmoceutics is as follows**.**

FINAL PRODUCTS
• Tablets
• Capsules
• Soft gels
• Cream
• Shampoo
• Lotions/ Serum
• Dry Milk Powder
• Dry Suspension

PROCESS FLOW:

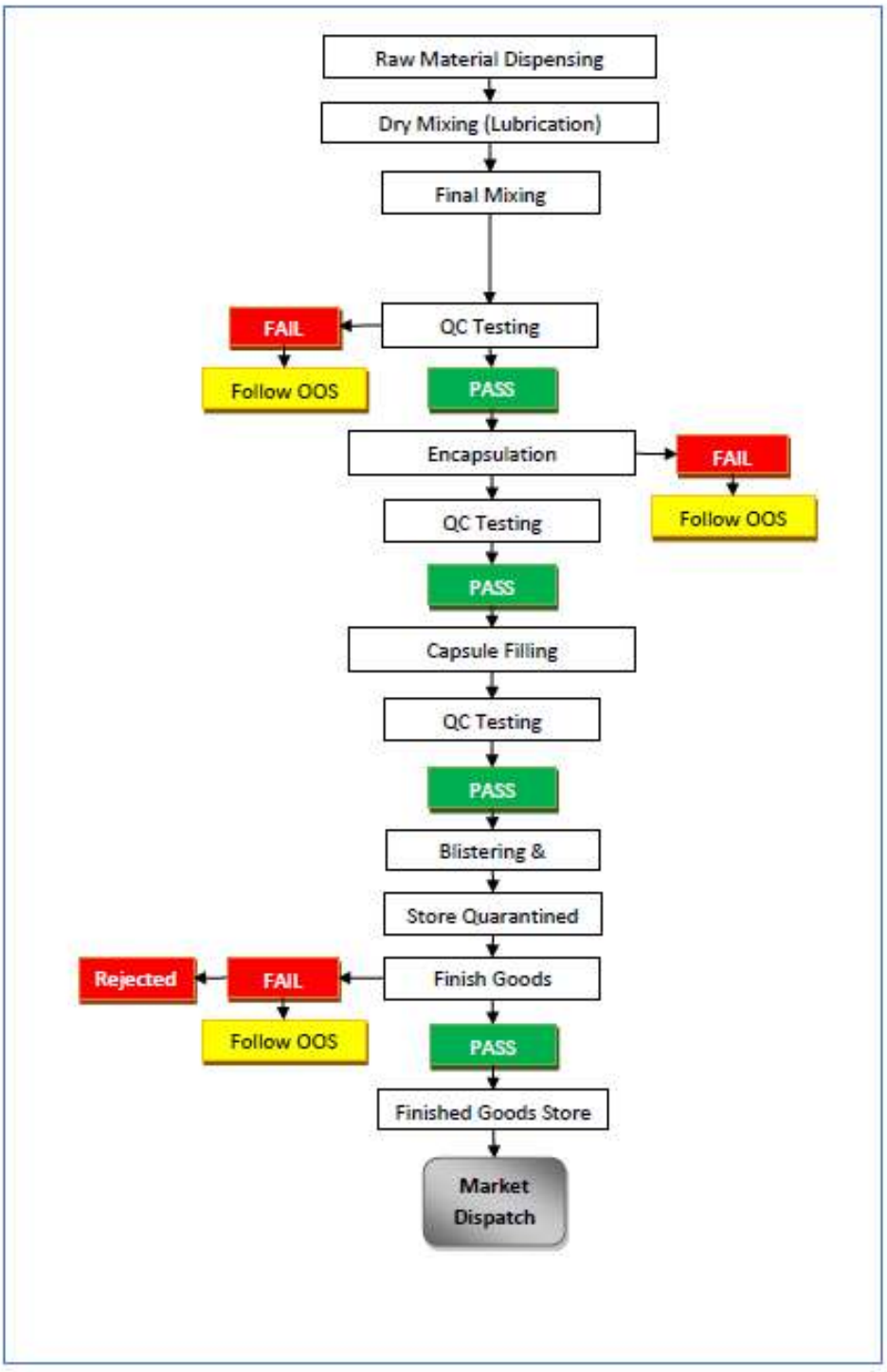
FLOW PROCESS OF TABLET MANUFACTURING:

FLOW CHART OF TABLET

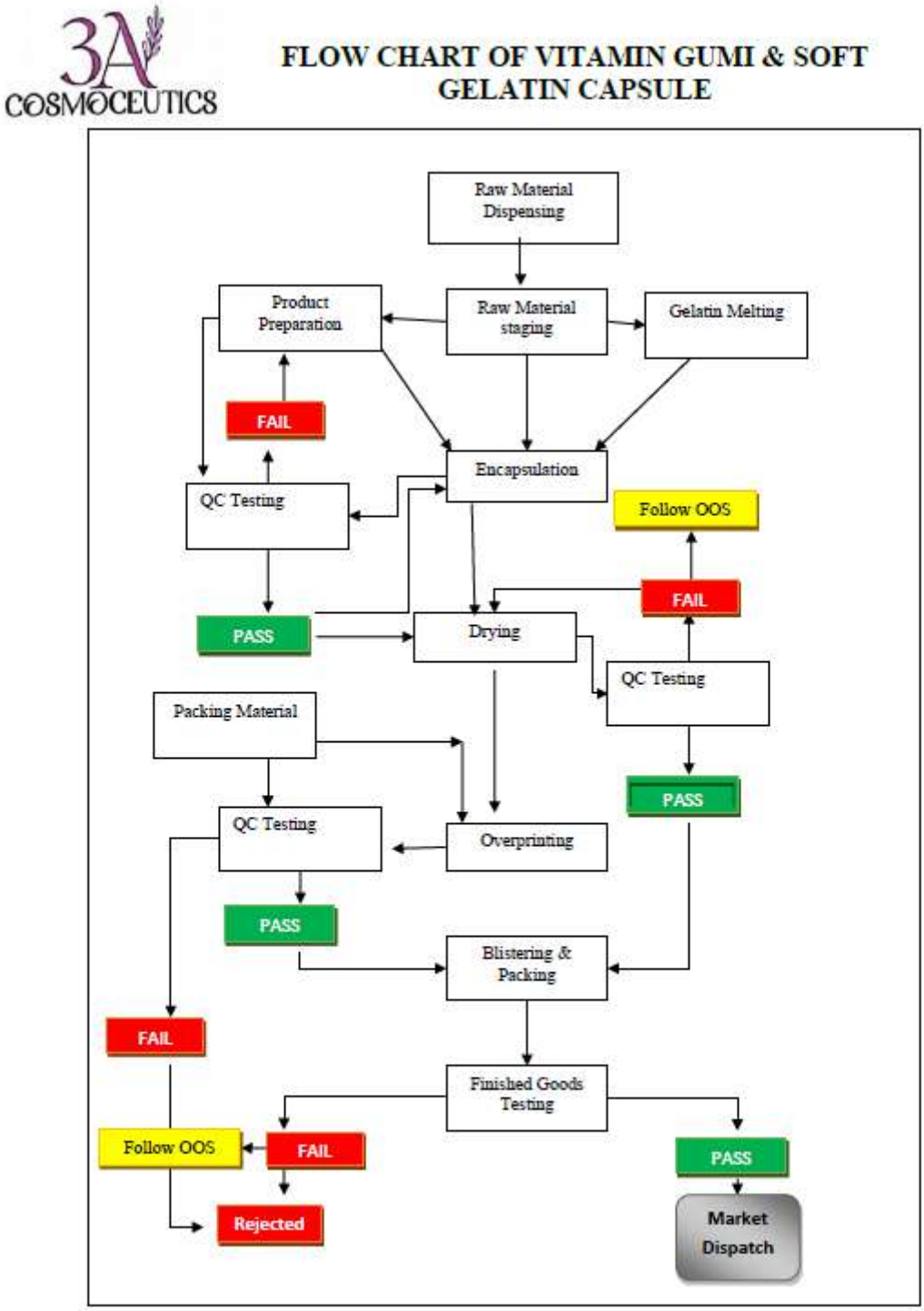


FLOW PROCESS OF CAPSULES MANUFACTURING

FLOW CHART OF CAPSULE

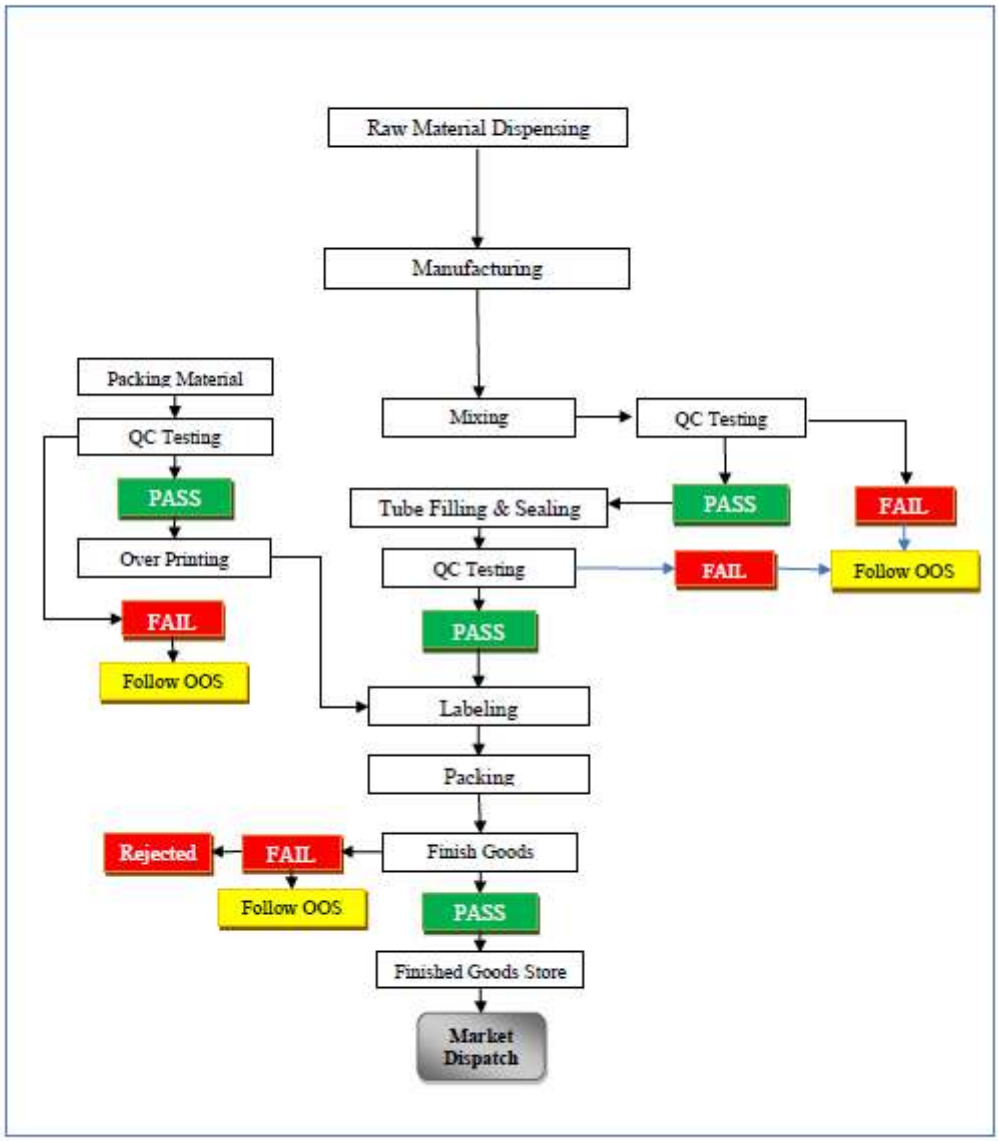


FLOW PROCESS OF SOFT GELS MANUFACTURING:



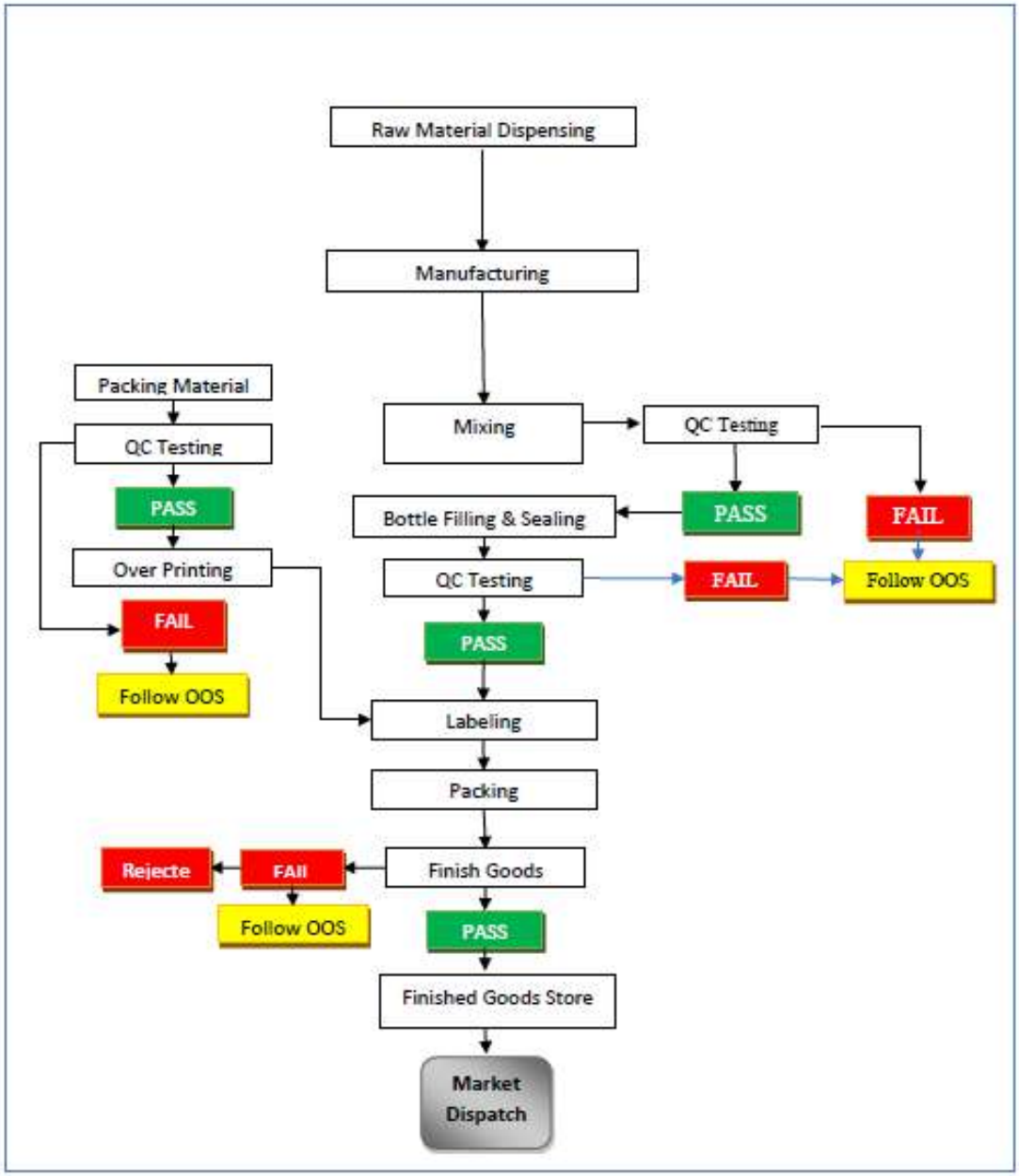
FLOW PROCESS OF SHAMPOO & CREAM MANUFACTURING:

FLOW CHART OF SHAMPOO & CREAM



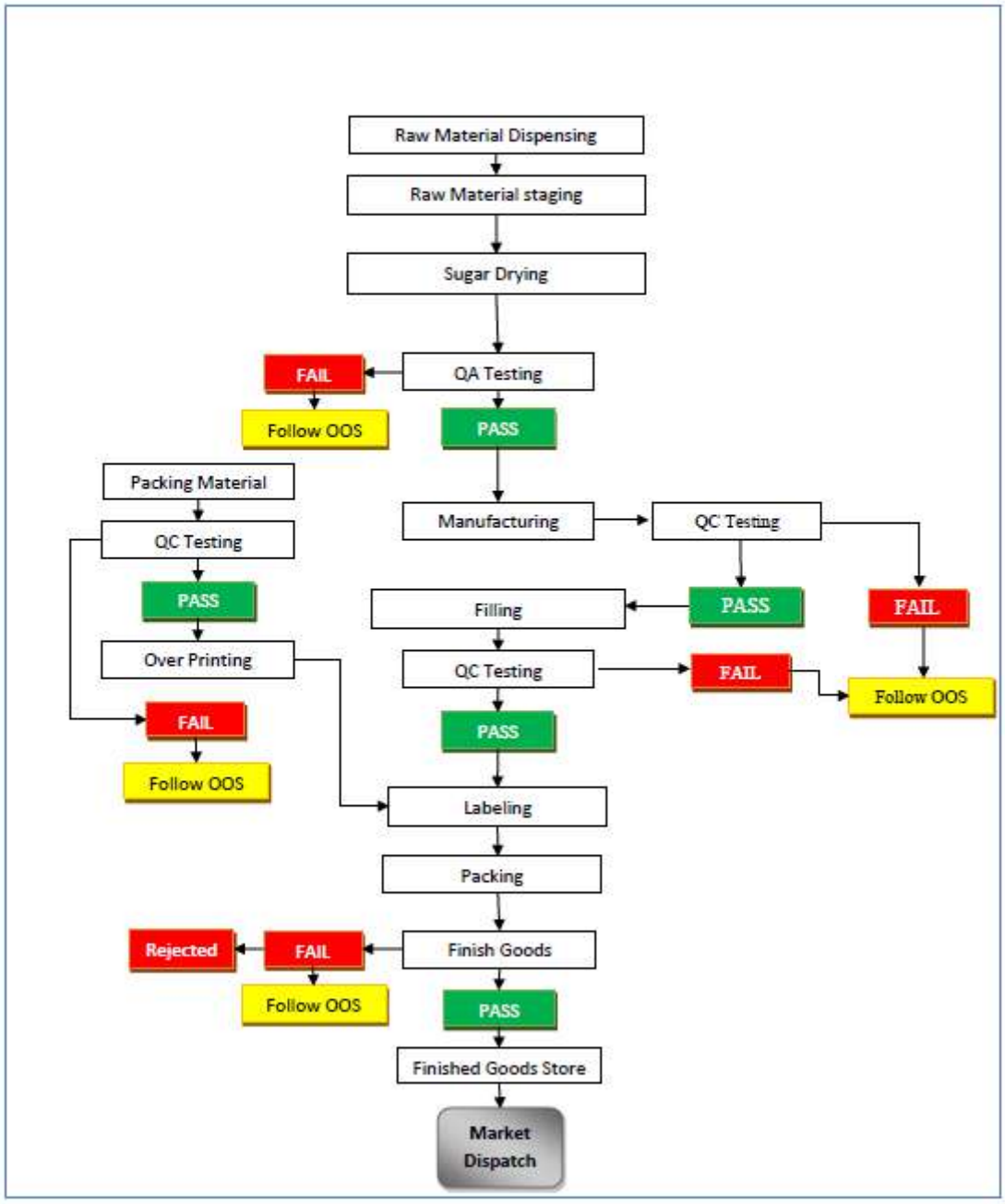
FLOW PROCESS OF LOTIONS/ SERUM MANUFACTURING:

FLOW CHART OF LOTION / SERUM



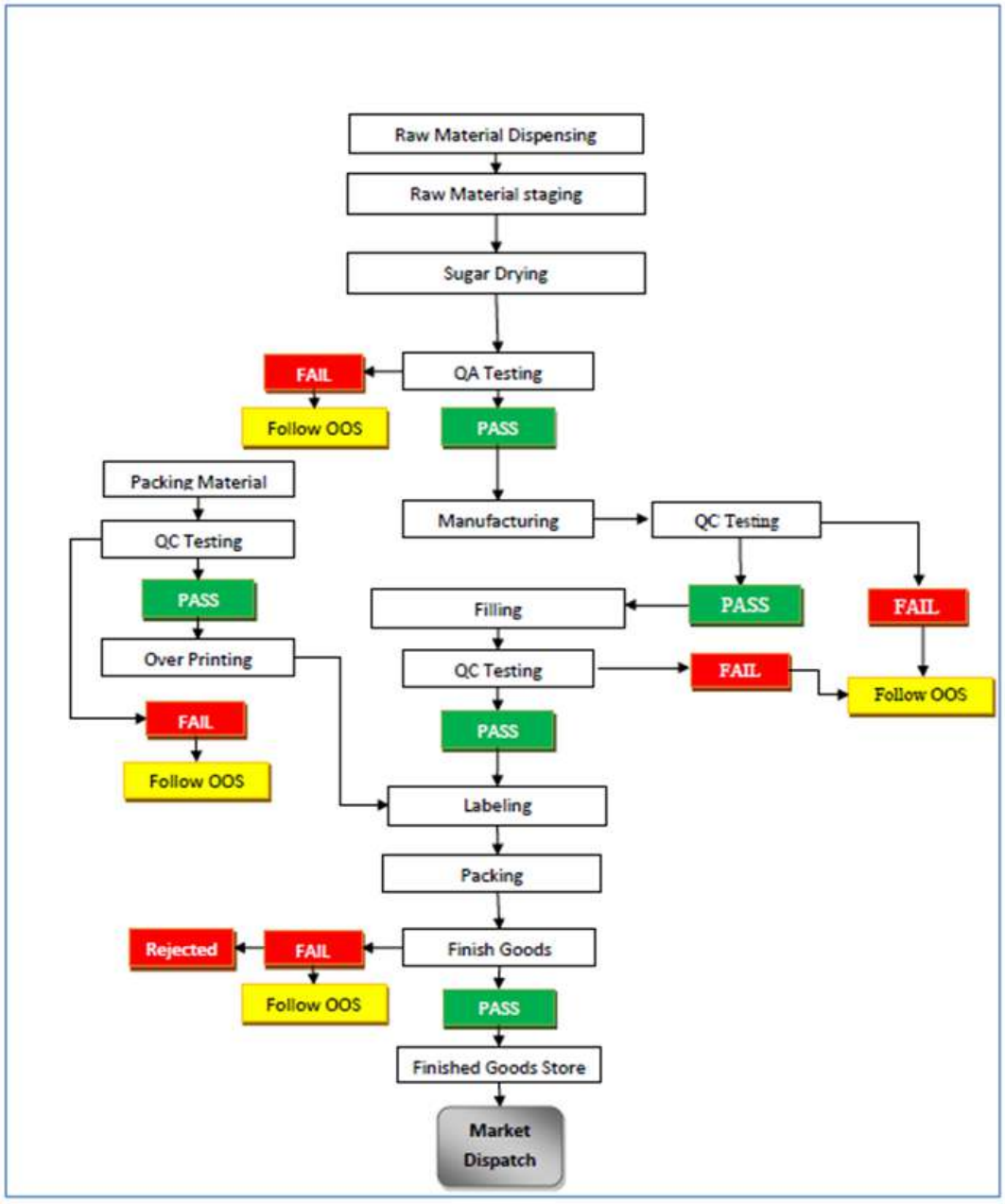
FLOW PROCESS OF DRY MILK POWDER MANUFACTURING:

FLOW CHART OF DRY POWDER MILK



FLOW PROCESS OF DRY SUSPENSION MANUFACTURING:

FLOW CHART OF DRY POWDER



Flow charts of the manufacturing of different products of M/S 3A Cosmoceutics are attached as **Annexure-H**.

WATER REQUIREMENTS:

During the operational phase of the project water will be used according to requirement. Also, domestic wastewater will be generated from the site.

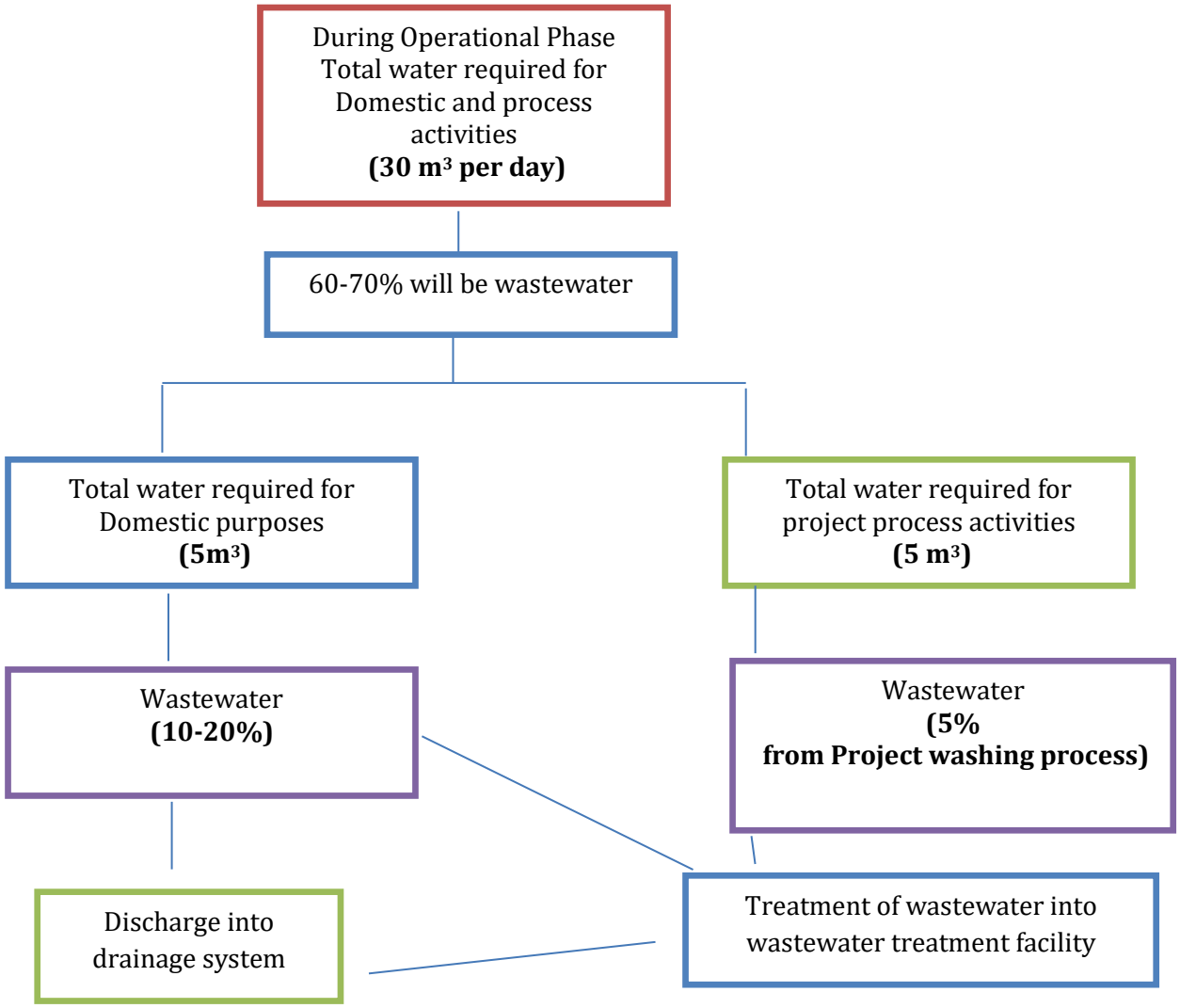
WASTE WATER TREATMENT:

60-70% of the used water is the waste water which is treated through the wastewater treatment facility. After treatment wastewater is dispose of in nearby drain of Sundar industrial estate. And no wastewater is disposed of into local drain without having treatment.

WASTEWATER DRAIN:

The project site is located at Sundar Industrial Estate. After the treatment the wastewater is disposed of in the nearby drain.

Estimated Water Balance:



Estimated water balance

SOLID WASTE:

According to an estimate, approx. 560 kg/day domestic and project related solid waste produced during the operation phase of the project (based on solid waste generation rates of 0.45 kg/capita/day urban waste generation). Project related waste is handed over to local contractor.

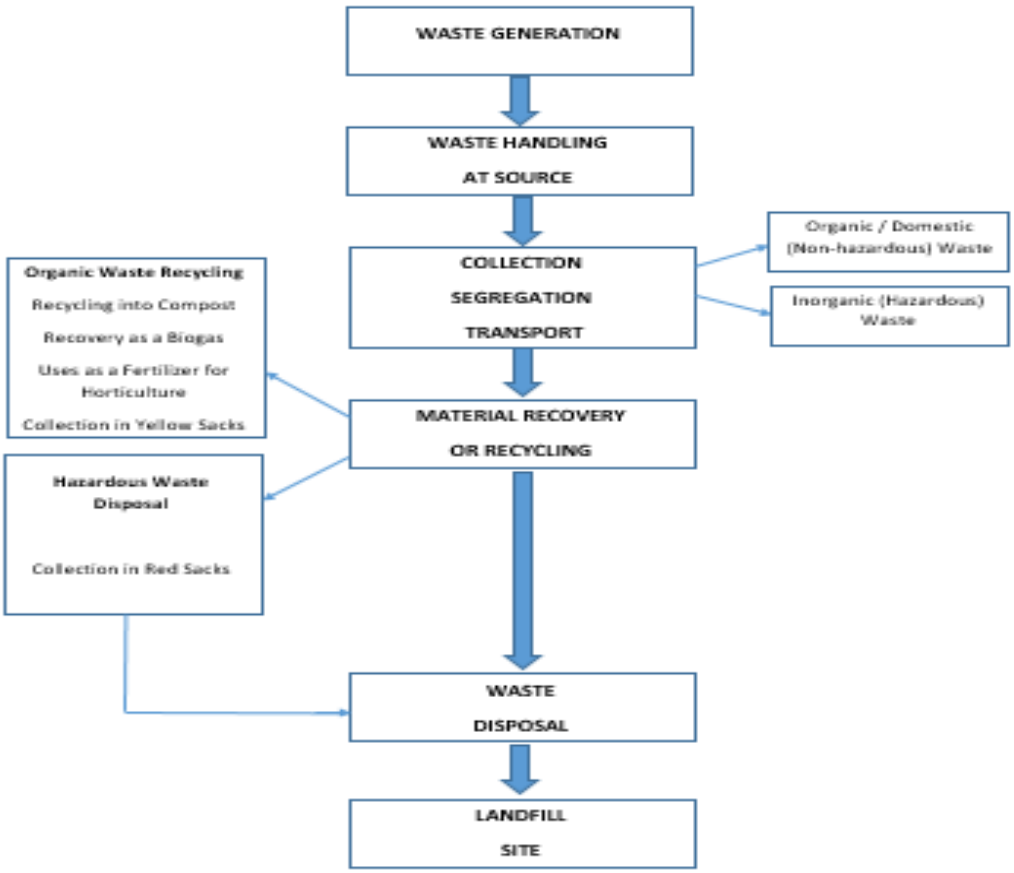
SOLID WASTE MANAGEMENT SYSTEM/PRACTICES

The Solid waste is managed in proper way by following operations:

- Placement of separate waste bins for domestic and project related waste in all working halls and designated points.
- Collection of waste from all the working halls at one designated point by the sanitary workers on daily basis.
- Collected waste is handed over to the solid waste contractors for its final disposal, from this point.

FLOW CHART OF SOLID WASTE MANAGEMENT PLAN:

SOLID WASTE MANAGEMENT FLOW DIAGRAM



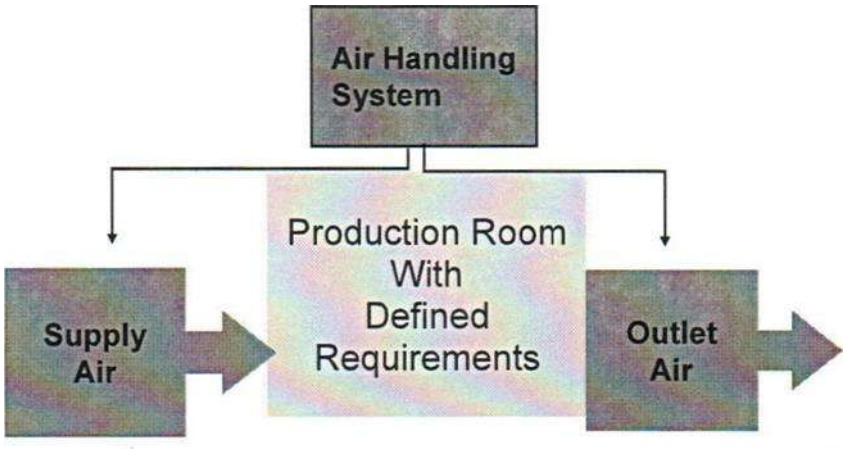
VENTILATION SYSTEM FOR MAINTENANCE OF INDOOR AIR QUALITY:

Roof overhangs, window size and placement, and overall building shape is designed in a way to ensure good ventilation. The placement of porches, garages, trees is also be ensured throughout the project activities.

TREATMENT SYSTEM FOR INDOOR AIR QUALITY:

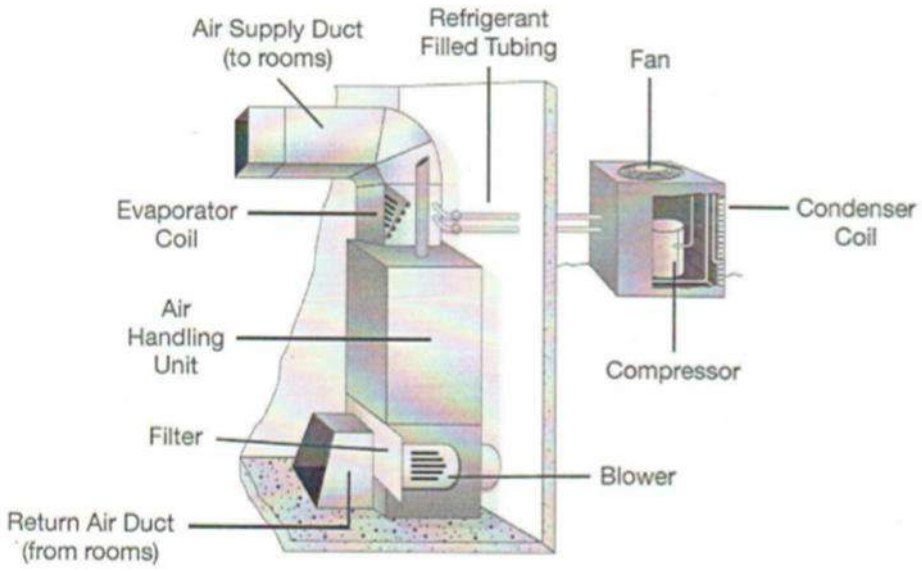
The manufacturing process environment is critical for product quality in nutraceutical and cosmetic units. It depends on following factors.

- Light
- Temperature
- Humidity
- Air movement
- Microbial contamination
- Particulate contamination
- Uncontrolled environment can lead to product degradation



HEATING VENTILATION AND AIR CONDITIONING SYSTEM (HVAC):

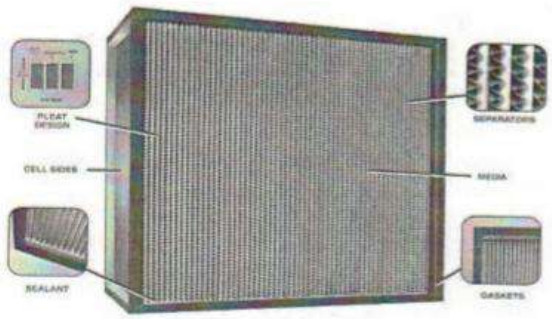
This system is used to provide heating and cooling services to buildings. HVAC is an important part of residential structures such as single-family homes, apartment buildings, hotels and senior living facilities, medium to large industrial and office buildings such as skyscrapers and hospitals, on board vessels, and in marine environments, where safe and healthy building conditions are regulated with respect to temperature and humidity, using fresh air from outdoors. Ventilation is the process of exchanging or replacing air in any space to provide high indoor air quality which involves temperature control, oxygen replenishment, and removal of moisture, odors, smoke, heat, dust, airborne bacteria, carbon dioxide, and other gases. Ventilation removes unpleasant smells and excessive moisture, introduces outside air, keeps interior building air circulating, and prevents stagnation of the interior air. The said unit have HVAC system in Production area.it maintained the temperature and air quality of process area during winter and summer season.



P.P: View of HVAC system diagram

HEPA Filter:

High-efficiency particulate matter arresting or high-efficiency particulate air, is a type of filter. It can remove vide range of airborne contaminants, including fine dust, smoke and vapors. Aluminum filter along with HEPA filter is installed before air duct with removal efficiency 99.99%.it captured fine dust, air born contaminants and vapors.



P.P: View of HEPA Filter

MITIGATION MEASURES TO CONTROL THE EMISSIONS OF GENERATORS:

i) Firstly, usage of the generator made up of latest and environment friendly technology is being ensured at the unit.

ii) Standard fuel is being used in the generator.

iii) Proper and regular tuning of the generator is done.

iv) Double glazed glass and thick walls canopy of the generators has been installed which will limit the emissions of the noise.

All these measures will ensure the PEQS compliance of generators and emissions will not exceed the limits.

PARKING AREA

Parking area has been made available within the unit for cars, motorcycles, trucks etc.

PERSONAL PROTECTIVE EQUIPMENT:

Following PPEs are provided to the workers in the unit:

- Dust Mask
- Ear Plugs
- Safety Boots
- Safety Gloves
- Safety Belt
- Helmet
- Goggles

TYPES OF PPES USED DURING OPERATIONAL ACTIVITIES

Protection	Occupational Hazards	PPEs
Head Protection	Falling objects, inadequate height clearance, and overhead power cords	Helmets with or without electrical protection
Hand protection	Hazardous material, cuts or lacerations, vibrations, extreme temperatures	Synthetic or Rubber gloves, leather, insulating material etc.
Eye and face protection	Flying particles, molten metal, liquid chemicals, gases or vapors, light radiation	Glasses, shield protective, etc.
Hearing protection	Noise, ultra sound	Hearing protectors like ear plugs, ear muffs
Respiratory protection	Dust, fogs, fumes, gases, smokes, vapors, oxygen deficiency	Facemasks or air supply

Body protection	Extreme temperatures, hazardous materials, biological agents, cutting and laceration	Aprons, insulating clothing etc. of appropriate materials

The unit is secured with the presence of security guards round the clock which improves the security of the project site and also in its vicinity.

INDUSTRIES:

Project is present in Industrial area and many industries are present around the unit.

POWER SOURCES AND TRANSMISSION:

Estimated power requirements of the unit are provided by WAPDA.

AVAILABLE FACILITIES

Available facilities at unit are:

- Electric supply from WAPDA
- Solid Management (SWM)
- Line and cellular telephone facilities
- Water supply, sewerage disposal and drainage systems

RESTORATION / REHABILITATION PLAN

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

All measures are undertaken for ensuring occupational safety, security and clean environment in the project area. Ornamental trees and flower plants are planted on inside peripheral of the unit premises to restore the land.

GOVERNMENT APPROVALS REQUIRED BY THE PROJECT:

All the approvals had been obtained by the project proponent.

CHAPTER # 4

DESCRIPTION OF ENVIRONMENT

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

PHYSICAL ENVIRONMENT:

TOPOGRAPHY & GEOGRAPHY

The geography of Lahore comprises the various features relating to the land and climate of Lahore, Pakistan. Lying between 31°15′—31°45′ N and 74°01′—74°39′ E, Lahore is bounded on the north and west by the Sheikhupura District, on the east by Wagah, and on the south by Kasur District. The Ravi River flows on the northern side of Lahore. Lahore city covers a total land area of 1014 km² and is still growing.

The topography of the site is almost flat and slopes upward gently from north to south i.e. moving upwards when reaching the canal and vice versa.

Lahore is the capital of Pakistan's largest province, Punjab; with a population exceeding 10 million, it is a megacity and ranked as the country's second largest metropolis (after Karachi). Collectively, it is also the fifth largest city in South Asia and the 26th largest city in the world in terms of population. As a major urban center of Pakistan, it was graded in 2008 as a city with high sufficiency to become a Gamma world city

LAND-USE

The land use of the Project Area is mainly industrial as it is industrial estate. Also, it is surrounded by industrial area.

GEOLOGY AND SOILS

The agro-ecological zones of the country are presented in Exhibit-3.1. The project site falls under Zone-IV (b); the zone generally comprises sandy loam, and clayey loam.

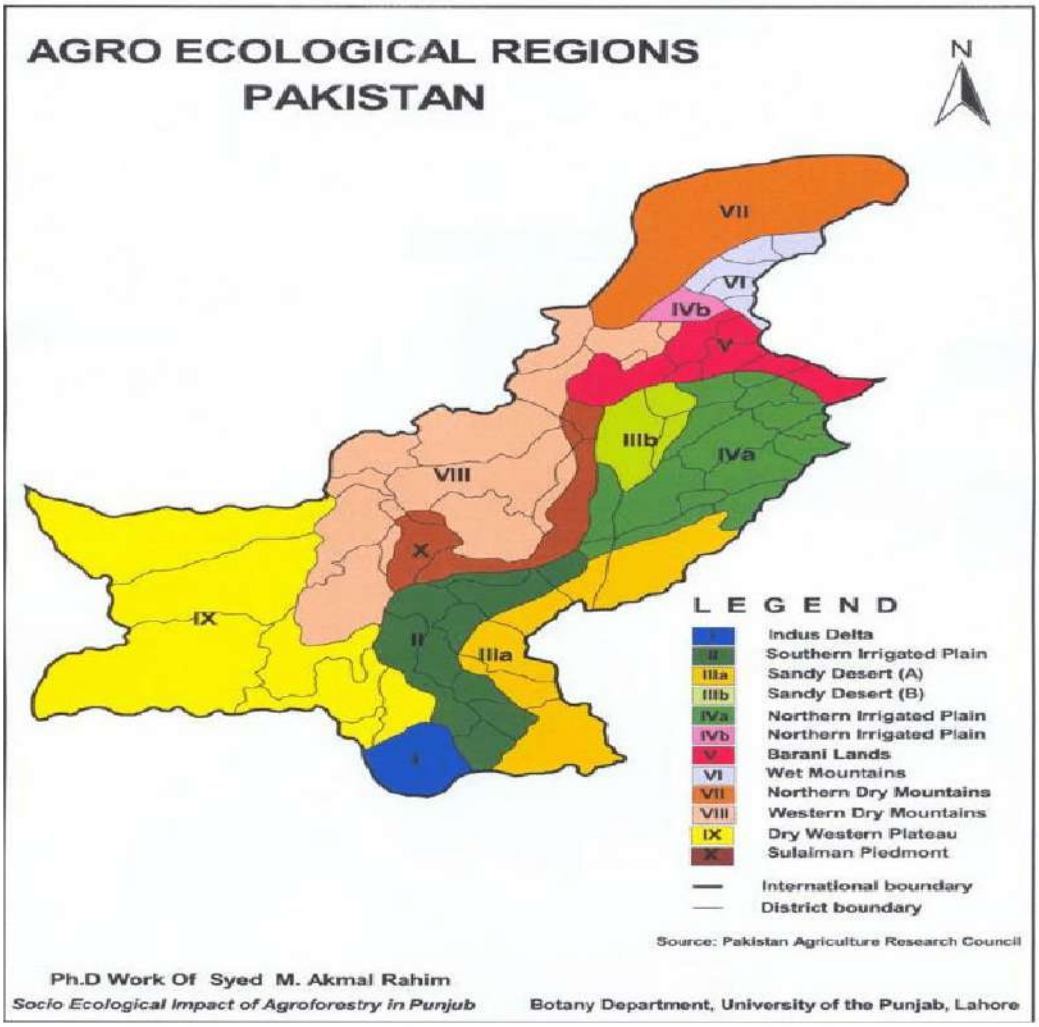


Figure 0-1: Agro-ecological zones of the country

Lahore plains are most probably underlain by the Potwar stratigraphy, but it would be deeply eroded. The geotechnical properties and mineralogical composition of the soil, das established during various studies / boring of tube wells for water supply by WASA/LDA confirm that the Lahore soil is composed of silty clay. The major mineral composition for Lahore soil is Quartz, Muscovite and Clinochlore, which shows that the alluvial deposit received sediments from metamorphic origin.

In general, subsurface stratigraphy at the site consists of three basic lithological units as given below:

- Lean Clay/Silty Clay
- Sandy Silt/Silt
- Silty fine Sand/fine Sand

These soils are the alluvial deposits of the recent geologic times. The subsurface stratigraphy is as discussed below:

- The first soil unit of brown silty clay/lean clay forms the topsoil cover at the site at all the locations and generally continues to a depth of 1 .0 m-3.5m below top of ground. This stratum contains trace fine sand and trace to little concretions at places. It is present in a soft to a stiff state of consistency and has low to medium plasticity.

- The second soil unit of brownish grey sandy silt/silt underlies the upper silty clay/ lean clay stratum. This layer has a thickness of 1.0 to 3.0m and is present in a firm state.

- The third soil unit of brownish grey non-plastic fine silty sand underlies the silt/silty sand stratum. It is present in a loose to medium-dense state.

The lithological distribution of soils consists of slightly cohesive, generally firm to stiff silty clay lean clay from 1.0 to 3.5m depth, followed by firm to stiff sandy silt/silt of 1.0 to 3.0m thickness in turn followed by medium dense silty fine sand. Groundwater is present at a depth of 4.5 to 5.0m below top of ground.

The subsurface generally appears suitable for supporting light to medium loads through spread foundations placed at 1.0 to 2.0m depth. Besides, some isolated weak spots are also expected, which will require special measures to be adopted.

SEISMOLOGY

Earthquake is generated by tectonic process in the upper part of the earth called lithosphere, which is divided into several rigid parts called “Plates”. Due to the movements of these plates, stress build up takes place and result in the deformation of the crustal mass.

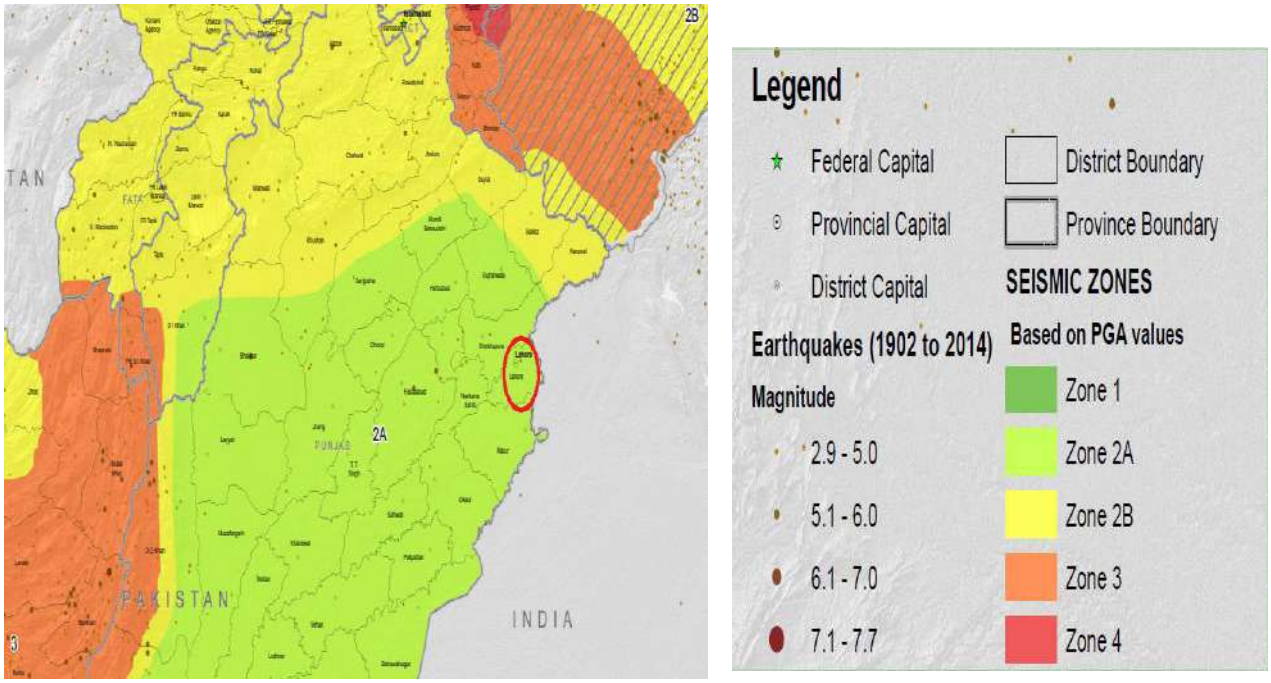
On the basis of Peak Ground Acceleration (PGA) values obtained through Pakistan Seismic Hazard Assessment (PSHA), Pakistan is divided into 5 seismic zones in line with the Uniform Building Code (UBC) 1997.

The boundaries of these zones are defined on the basis as shown in Table 4-1

Table 0-1: Probabilistic Ground Acceleration (PGA) Values of Seismic Zones of Pakistan

Horizontal Zone	PGA (g)
1	0.05-0.08
2A	0.08-0.16
2B	0.16-0.24
3	0.24-0.32
4	>0.32

As per Building Code of Pakistan (BCP) 2007 (Seismic Provisions), the proposed Project falls entirely in the zone 2A, which is the regions of moderate seismic risk (Figure). Hence all the applicable provisions related to Soil and Foundations, Structural Design Requirements and with the Structural Concrete of BCP should be considered in the design of the structures.



CLIMATE

TEMPORAL DIVISION OF THE COUNTRY

The temporal division of the country is exhibited below:

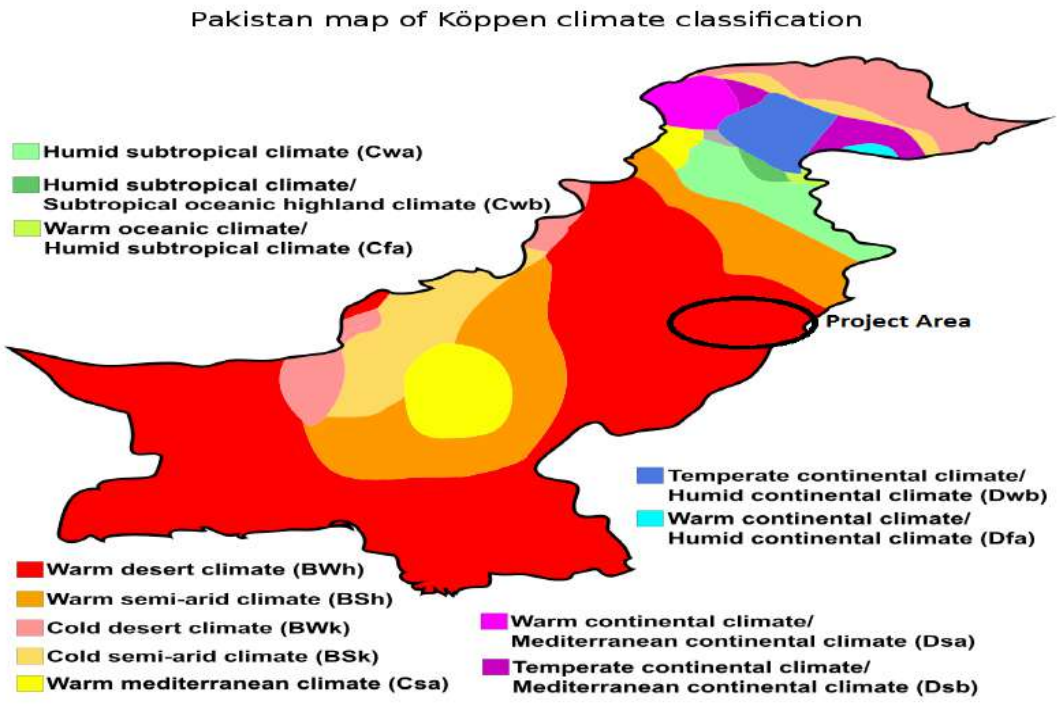


Figure 0-2: Temporal Division of Country

It is noted from the above map that the project site falls under hot long summers and mild short winters.

TEMPERATURE

MEAN MAXIMUM TEMPERATURE

The mean maximum annual temperatures in the country are presented in Exhibit-3.2. It is noticed that the city of Lahore falls under 25-30-degree Centigrade temperature. As such, the location is in a relatively cooler area than southern part of the country.

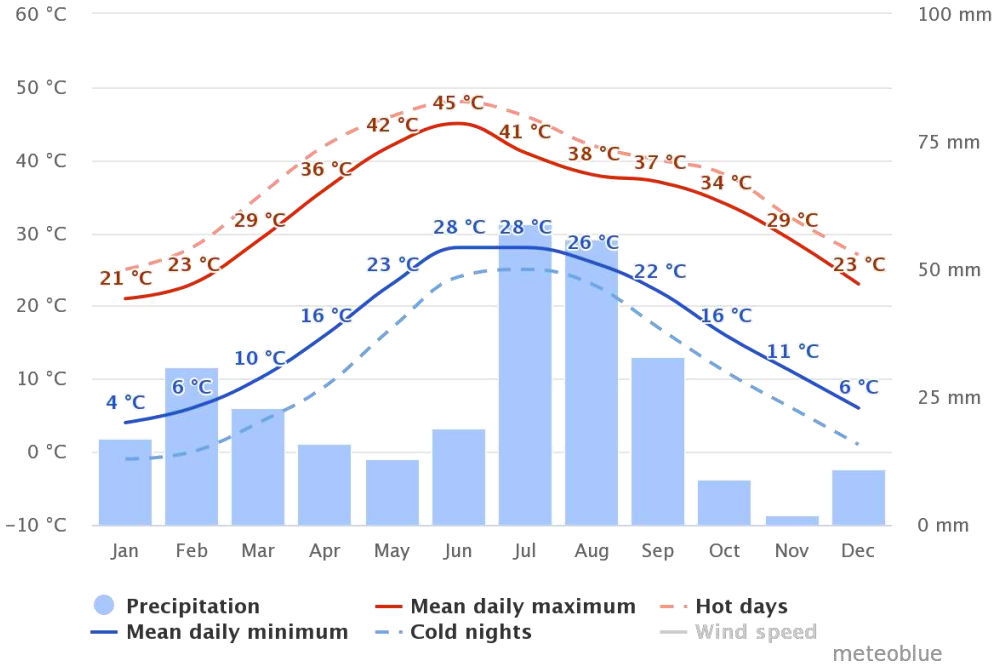


Figure 0-3: Mean and Maximum Temperatures

RAINFALL

Lahore mainly receives its rainfall during the monsoon season from June till September, and in winter season from December till February. The highest-ever annual rainfall in Lahore was recorded in 2011 when 1,576.8 millimeters (62.08 in) of rainfall was recorded. Lahore received below normal rains in 2009 and normal rains in 2007 and 2010. The following is the Annual rainfall in Lahore since 2007 based on data from the Pakistan Meteorological Department.

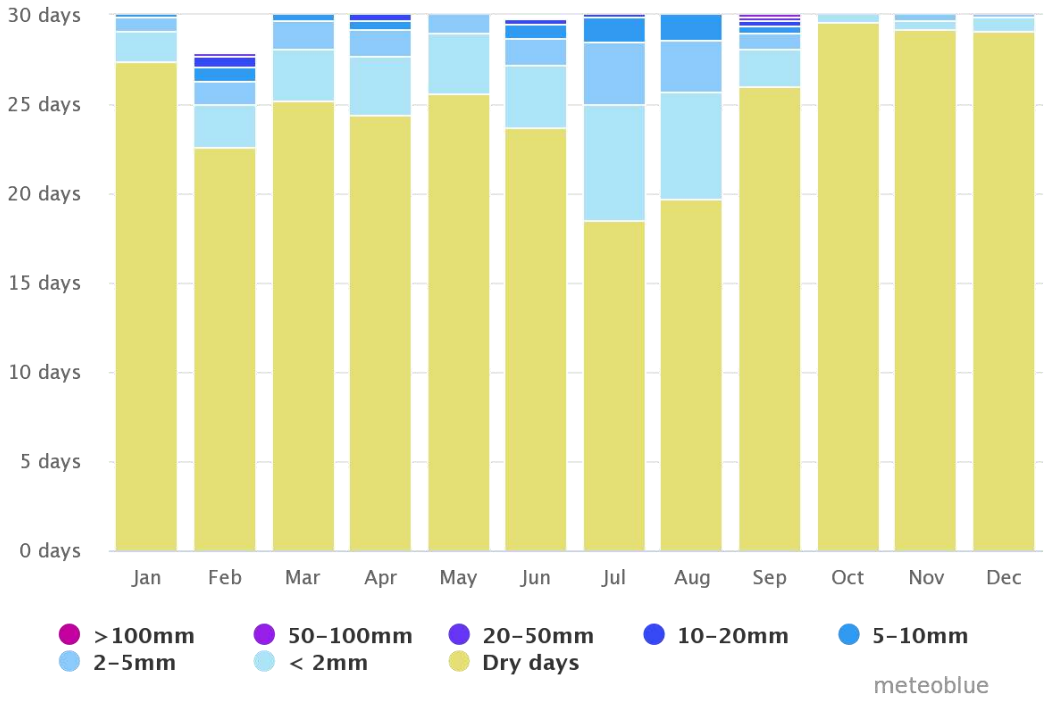


Figure 0-4: Rainfall Amount

WIND DIRECTION

60% days of the year are calm and 33% days have mean speed of 1-3 knots. Only 6% day's exhibit speed of 4-6 knots and higher. Wind directions are from north-west and south-east during summer and winter respectively. Summer winds bring monsoon rains.

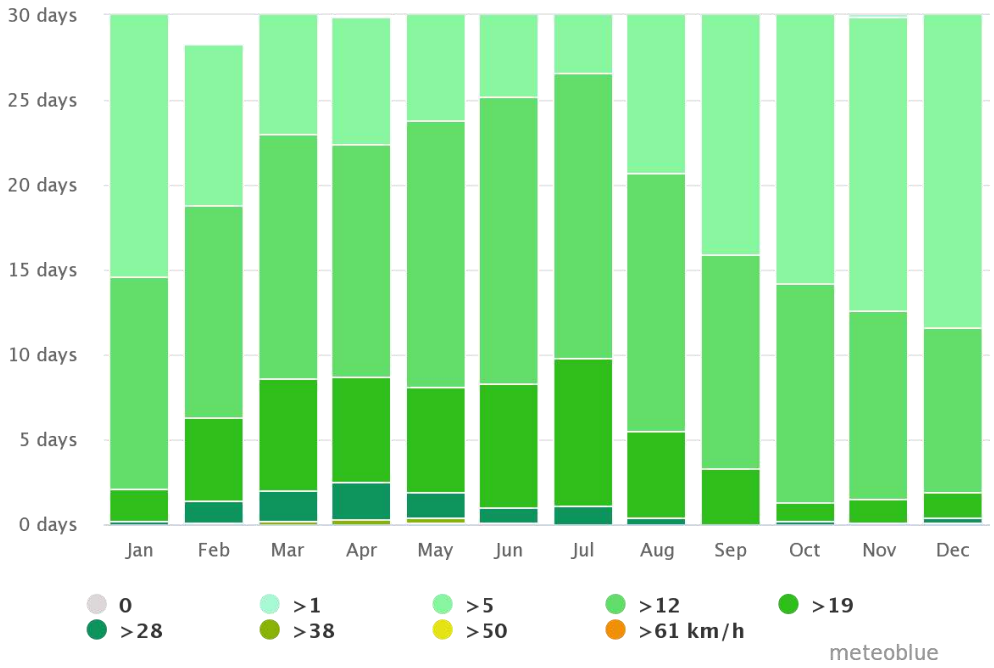


Figure 0-5: Wind Direction

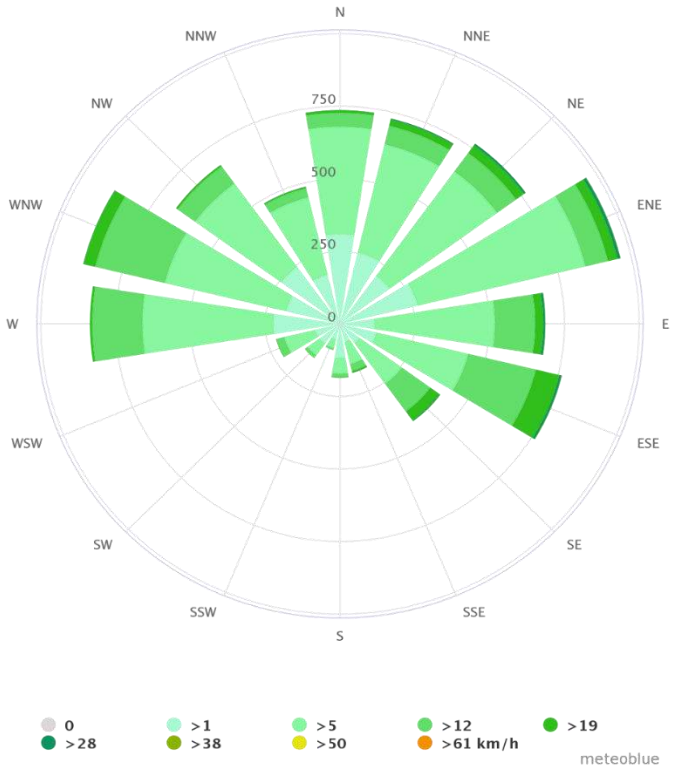


Figure 0-6: Wind Rose

WATER RESOURCES

SURFACE WATER

No rivers exist in the vicinity; however, storm water drains cross the route for disposal into the Ravi River. Water from River Ravi, flowing on the northwestern side of the city of Lahore, is being used for other purposes other than drinking purposes. River Ravi receives almost all the municipal/ industrial wastes from the city of Lahore. The potential value as a recreational water body and breeding place for fish is threatened by the municipal and industrial pollution.

GROUND WATER

Ground water quality is fresh (defined as acceptable in terms of its salinity). Raw water abstracted from the deep tube wells is believed to be essentially bacteria free. The water quality in the upper 50 meters zone of subsoil is generally brackish.

For city's drinking purposes water is abstracted from groundwater aquifer by means of tube wells located throughout the city. The quality of water is generally adequate for direct consumption. About 83% of city population is consuming groundwater for drinking purposes.

Groundwater is available at a depth ranging between 15 to 23m below the natural surface level. Deep groundwater from a depth of about 210m in the vicinity of the Project Area is being extracted for meeting the domestic and commercial water demands in nearby areas.

Adequate quantity of good quality groundwater is available below a depth of 50m. Water consumption varies significantly and its variation as of industrial units. Usual water consumption pattern for industrial units and data collected from the prospective industrialist will form basis for total water demand.

According to Master Plan-2030 for the city of Lahore, the mean average decline in ground water is about 2.03 feet per year. It is noted that ground water is at a greater depth in the central part of the city where abstraction is more than the re-charge and close to surface waters i.e. Ravi River and Canal, the situation is in the reverse order.

ECOLOGICAL ENVIRONMENT

This section describes the biodiversity existing ecosystem and existing ecological conditions in the Project AOI. This section also enlists the fruit and non-fruit trees (forest trees), wildlife species and identifies those that need protection.

FLORA

Lahore, the city of gardens is heart of Pakistan. The city has seen the heydays of the Mughals, Sikhs and the British; all left their footprints on the history and cultural mosaic of the city. Resultantly Lahore is a treasure-trove of monuments, historical relics and remains which these nations have left in this historical metropolis of Punjab.

Though an ancient city; over the years Lahore has considerably expanded. However, along these modern additions, the ancient monuments, old gardens, trees, graveyards and traditional bungalows having attached gardens, large expanses of lawn and old roadside trees some of them can still be seen, are gradually disappearing. These green areas and old endemic trees of Lahore are home to many resident bird species as well as many summer, winter and transit migrants. So, Lahore is also very important due to its ecological conditions.

FAUNA

Common birds found in the area are crows and sparrows. Domestic animals are seen grazing in the agricultural land as well as on the project site. Chirping birds are having their nests at the well grown trees that are providing a natural habitat for the birds. Some squirrels, parrot, rats, weaver, sparrows are also found in the area.

Different species of reptile and amphibians such as lizards and frogs are also found. Various bird species known to occur in the area include myna, bulbul, crow and sparrow.

CURRENT SOCIO-ECONOMIC CONSIDERATIONS

GENERAL

This section deals with the social conditions of the Project Area. During the desk/ office study, available reports/ documents were comprehensively studied. During the field survey interviews with the residents, shopkeepers, students, pedestrians, drivers, and hospital employees were held and observations were taken after giving due consideration to the desk/ office study results.

ADMINISTRATIVE SETTINGS

The project area falls in Lahore City of the Lahore District. District Co-ordination Officer is the highest ranked administrator of the district. For the collection of revenue and administration, the districts are subdivided into Tehsils. Local governments also administer the area through Union Councils and Tehsils. The total area of the district Lahore is 2,300 square kilometers.

DEMOGRAPHICS

The total population of Lahore District was 6,318,745 as enumerated in March 1998 with an intercensal percentage increase of 78.3 since March 1981 when it was 3,544,942 souls. The average annual growth rate of population in the district during intercensal period 1981-1998 was 3.5 percent. The total area of the district is 1772 square kilometers, which gives population density of 3,566 persons per square kilometer as against 2000 persons observed in 1981 indicating a fast growth rate of the district.

RELIGION

The population of the district is predominantly Muslims i.e. 93.9 percent. The next higher percentage is of Christians with 5.8 points followed by Ahmadis 0.2 percent. While other minorities like Hindu etc.

PUBLIC TRANSPORT

Lahore is one of the most accessible cities of Pakistan. In addition to the historic Grand Trunk Road (G.T. Road), a Motorway (M-2) was completed in 1997 from Lahore to Islamabad. The government has built underpasses to ease congestion and prevent traffic jams, and according to official figures, Lahore has the highest number of underpasses in Pakistan.

RAILWAYS

The Pakistan Railways headquarters is located in Lahore. Pakistan Railways provides an important mode of transportation for commuters and connects distant parts of the country with Lahore for business, sight-seeing, pilgrimage, and education. The Lahore Central Railway Station, built during the British colonial era, is located in the heart of the city.

RURAL – URBAN MIGRATION

The total number of life time in-migrants in Lahore district was 1,034,848 or 16.4 percent of the population of the district. Of total life time in-migrants 890,427 persons settled in the towns. Of total district migrant's 71.7 percent came from other districts of the Punjab, 10.1 percent were from Sindh, NWFP and Baluchistan, 1.3 percent from Azad Kashmir and Northern Areas while remaining 16.9 percent were Pakistanis who repatriated from other countries. There were only 11 migrants whose birth place was not reported.

INDUSTRIAL IMPORTANCE

After Karachi, Lahore is the biggest industrial area in Pakistan. There has been a steady expansion of industries in and around Lahore since independence. There are many large industrial units in the district. These units manufacture cotton, woolen and silk cloths, carpets and rugs, textile products, lather and rubber foot wears, wearing apparel, pharmaceutical goods, soap, iron and steel products, heating, plumbing and lighting equipment, hardware, miscellaneous fabricated products, agriculture machinery, engines and turbines, textile machinery, printing machinery, metal working machinery, pumps and compressors, household machinery, water generators, motor generators, transformers, electric fans, communication equipment, cycles and rickshaws. There are also a good number of printing

and publishing units and body building workshops. Besides, there are units of canning and preservation of food, edible oils, beverages, metal and wood furniture, rubber products, chemicals, glass products, repair of railway equipment, toys, stationary etc.

The proposed site is situated at Sunder Industrial Estate – Lahore. The project area is surrounded by industrial units.

CHAPTER # 5

SCREENING OF POTENTIAL ENVIRONMENTAL IMPACTS & THEIR MITIGATION MEASURES

The following chapter describes the overall possible impacts of project on the physical, biological and socioeconomic environment because of operational phases and mitigation measures to minimize the significance of the possible impacts up to an acceptable level. The anticipated impacts related to project location, design, and operational phases have been assessed and mitigation measures are provided accordingly.

IDENTIFICATION OF ALL IMPACTS:

All the impacts related to the subject project due to the project location, during the operational phase have been identified and their mitigation measures have been suggested in Chapter # 4, Screening of potential environmental impacts and mitigation measures.

METHODOLOGIES FOR IMPACT IDENTIFICATION:

The methodology adopted for impact evaluation includes the Project Impact Evaluation Matrix.

PROJECT IMPACT EVALUATION MATRIX

The impact Evaluation matrix was developed by placing project activities on x-axis and different environmental parameters likely to be affected by the project actions grouped into categories i.e. Physical, Biological and Socio-Economic Environment. For the impact assessment, project impact assessment matrix is used by dividing the project action into different phases operation phase. A project impact evaluation matrix is attached in next section of this chapter.

The evaluation of impacts has been carried out on the basis of developing matrix, in which impacts have been rated on the basis of their significance. For rating impacts significance following criterion has been developed;

NA – Not Available
O – Insignificant (No or minimal impact)
LA – Low Adverse (Short term, reversible or less damage to environment)
MA- Medium Adverse (Long term reversible damage to environment)

HA – High Adverse (severe irreversible adverse damage to the environment)

LB – Low Beneficial (Short term benefits or less beneficial to the environment)

MB – Medium Beneficial (Long term benefits to environment)

HB – High Beneficial (Continuous benefits to environment)

	Physical Environment							Biological Environment		Socio-Economic Environment						
Environmental Component / **Project Activities**	Topography & Drainage	Soil Quality	Landscape	Surface water quality	Ground water quality	Air quality	Noise	Flora	Fauna	Agricultural Land	Health & Safety	Disruption of Public Utilities	Employment	Population Disturbance	Social Disorder	Cultural Values	Traffic Management
Transportation of raw material/ products	MA	MA	MA	MA	O	MA	HA	LA	MA	O	HA	LA	B	MA	LA	O	HA
Production process	O	O	O	HA	MA	MA	MA	O	O	O	HA	HA	HB	O	O	LA	O
Washing process	O	O	O	LA	HA	O	O	LA	LA	LA	LA	HA	B	O	O	O	O
Operation of boilers	O	O	O	LA	HA	MA	MA	O	O	O	HA	HA	HB	O	O	O	O
Operation of generators	O	O	O	O	LA	HA	MA	O	O	O	HA	LA	HB	O	O	O	O
Water consumption	LA	O	LA	HA	HA	O	O	LA	LA	LA	LA	HA	B	LA	O	O	O
Wastewater generation	HA	MA	MA	MA	MA	LA	O	MA	MA	MA	HA	LA	B	LA	LA	O	O
Storage of raw materials/ dyes	O	O	O	O	O	O	O	O	O	O	LA	O	B	O	O	O	O

Social activities	O	O	LB	B	B	B	B	B	B	HB	HB	B	HB	HB	HB	HB	O
Public welfare	O	O	B	B	B	B	B	B	B	HB	HB	HB	HB	HB	HB	HB	LB
Economic activities	LB	O	B	B	B	B	B	B	B	B	HB	B	B	B	B	B	LB
Employment	O	O	O	O	O	O	O	O	O	O	B	B	HB	B	B	B	LB
Infrastructure improvement	LB	MB	HB	B	B	B	B	HB	LB	HB	HB	B	HB	B	B	B	B

Legend:

O=Negligible/No impacts B=Beneficial LA=Low Adverse MA=Medium Adverse HA=High Adverse

IMPACT ANALYSIS AND PREDICTION:

In order to evaluate the socioeconomic and environmental impacts, filed surveys are extremely essential. In addition to the surveys at the preliminary stage, consultation with the community and their active participation plays a vital role in successful implementation of the project. For the impact analysis and predictions following methods were adopted:

CONSULTATIONS/ CASE STUDIES:

To study the impacts of the project on physical and biological environment, site visits were conducted by the environmental practitioners and experts and possible physical and biological impacts which may arise due to the subject project were identified through consultations and case studies and their mitigation measures were suggested accordingly.

MEETINGS:

For the identification of the social impacts of the project, meetings and group discussions were held with the local people, stakeholders, nearby residents and passerby because social acceptability of the project and the area is a key to success. Consultation with the stakeholders is a tool for managing two-way communication between the project proponent and the affected public. Its goal is to improve decision making and built understanding by actively involving individuals, groups and organizations, which have stake in the project. This involvement increases project's long-term viability and enhances its benefits to locally affected people and other stakeholders.

To identity the different types of stakeholders and ascertain their perceptions about the project, an initial environmental examination was conducted. Informal group discussions were also held as an additional tool for obtaining feedback from the stakeholders that are being discussed in the following.

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

- Selection of the stakeholders for consultation, reconnaissance of the project site and initial discussions with the neighboring factory workers, villagers, shopkeepers, drivers etc.

- Environmental consultants and social specialists and documenting the opinions of the stakeholders expressed during the meetings etc.

CHARACTERISTICS OF IMPACTS

ENVIRONMENTAL IMPACTS DUE TO PROJECT LOCATION

Project is present in the industrial area of the District Lahore. No nearby human settlement exists within the radius of 500 meter. Unit is proposed establishment of Nutraceutical and Cosmetic unit, and unit/ area does not fall in the category of sensitive area and no environmentally sensitive localities exist within radius of study area. The only issue which can arise due to the location of the subject project could be the issue of traffic congestion due to transportation of the construction material at the project site. If the project proponent maintains HSE conditions and comply with the PEQS limits than, there will not be any significant impacts of the project on the environment.

If the mitigation measures are effectively implemented, the residual impact of the Subject project activities on the area's geophysical environment is expected to be insignificant.

Impact significance: Low or may be positive

Nature of impact: Direct

Duration: Long-term

Timing: Operation phase

Reversibility: NA

Likelihood: Low (unlikely),

Consequences: Mild or may be positive

MITIGATION MEASURES FOR LOCATION PHASE IMPACTS

- Project site have good road infrastructure and efficient road infrastructure already exists there that is used currently to access the site and there is no issue of the road congestion due to the wide, good and paved road.
- Location can be considered as the positive impact due to utilization of the product in the same District.
- The project has provided the jobs to the residents as well as to those from the suburban areas.

ENVIRONMENTAL IMPACTS DUE TO THE PROJECT DESIGN

The current project is present in Sundar industrial estate. Area for parking, waste water treatment facility and solid waste management will be present within unit. Firefighting plan, health & safety plan, tree plantation plan, emergency response plan is incorporated during the operation phase of the project.

RESIDUAL IMPACT:

The residual impact of project activities for the land acquisition & resettlement of the area is expected to be insignificant.

The residual effects are summarized below:

Nature of impact: direct

Timing: Planning stage

Duration: not applicable

Likelihood: Nil

Consequences: no change

Impact significance: Not significant

MITIGATION MEASURES:

If any resettlement involve, proponent must consult the affected persons and incorporate their interests and demands.

CHANGES IN LAND USE:

The current land use of the area is mainly industrial. Project is expected to increase land use value particularly near the main road creating easy economic and employment opportunities for locals.

RESIDUAL IMPACT:

The residual impact of project activities on land use of the area is expected to be insignificant.

The residual effects are summarized below:

Nature of impact: direct

Duration: not applicable

Likelihood: Nil as it is not involving any constructional activity that may cause change in land use

Consequences: no change

Impact significance: Not significant

ENVIRONMENTAL IMPACTS DURING THE CONSTRUCTION PHASE

Impacts related to the construction phase of the subject project are discussed below:

IMPACTS ON THE PHYSICAL ENVIRONMENT

SOIL EROSION AND POLLUTION

There is a possibility of soil erosion and pollution to occur during construction phase of the project. The clearing of vegetation could lead into soil erosion when the cleared land is exposed to natural agents such as wind and surface run-off. Removal of top soil after site clearance by agents such as wind, rain water, and surface run off is a likely action to occur. Similarly, accidental oil spills from construction equipment and discharge of wastewater to the environment might accelerate soil pollution to some extent. Oil spills may infiltrate into soil causing soil pollution and later water pollution during rainy season.

However, this impact is localized around machinery, maintenance areas or garage and areas of concentrated activities. Severity of impact is localized with low intensity due to the nature of project, which shall require minimum number of people during construction and shall not require heavy construction equipment. It is expected that the impacts will be low, local, and they will occur mostly during the construction stage (short term).

AIR POLLUTION

Air pollution is quite likely to occur during construction phase. This is due traffic and other equipment using fossil fuels that release hydrocarbons and other gases including carbon dioxide, nitrous oxides, Sulphur oxides, and particulate matters which may pollute the air. Likewise, activities like land clearing, vehicle movement, excavations for buildings foundations, construction drive ways and landscaping may generate dust especially during the dry season.

Other sources of air pollution will occur due to decomposition and/or burning of the cleared vegetation and dust from gravel drive ways. The level of air pollution originating from the above-mentioned sources are expected to be low, localized and short term. No serious impacts are expected on people and the environment as whole.

SURFACE WATER POLLUTION

No surface water entity i.e., stream, canal, river is present in the vicinity of the subject project so there is no impact of subject project on the surface water.

IMPACTS ON BIOLOGICAL ENVIRONMENT

IMPACTS ON FLORA

The clearance of most vegetation during construction to leave space for construction of proposed unit and other building facilities and access roads will bring negative impacts to flora population. But the building for proposed project is already constructed proponent will do some additional alterations so no such impacts occur. Moreover, direct exposure to nitrous oxides (NOx) may cause growth inhibitions in plants to some extent. No special plant species of international conservation importance was recorded at proposed site. The impacts are therefore considered of low significance.

IMPACTS ON FAUNA

The nature of the site has not attracted several organisms to find refuge in the area although some including different types of birds, reptiles, amphibians and invertebrates are found. The clearance of vegetation and presence of noisy machinery, trucks and workforce will create unfavorable environment for most of these organisms while crawling organisms will eventually vanish following construction of paved surface.

However, the Fauna will not be affected as the alteration of proposed project will be done within the constructed building.

IMPACTS ON SOCIOECONOMIC ENVIRONMENT

WORKERS ACCIDENTS AND HAZARDS DURING CONSTRUCTION

Construction workers are prone to accidents resulting from construction activities. These accidents may have acute or chronic impacts depending on nature, severity and intensity. In this regard, construction and mobilization activities of the proposed unit could result into accidental injuries and hazards, etc. which could negatively impact the workforce.

Because of the intensive engineering and construction activities including erection and fastening of roofing materials, metal grinding and cutting, concrete work, steel erection and welding among others, construction workers will be exposed to risks of accidents and injuries. At times, such injuries may be from accidental falls from high elevations, injuries from hand tools and construction equipment cuts from sharp edges of metal sheets and collapse of building sections among others.

VIBRATION AND NOISE

The level of noise and vibration are likely to increase during the construction phase. The noise will be mainly come from vehicles and equipment operation during construction activities as well as people working on the project construction. This is a short-term impact and it will be felt mostly around construction sites and its peripherals.

There will be no drilling activities or involvement of heavy or high noise machinery. For residential areas located within 20 km from the Project site boundary, it is predicted that the construction phase and operation of the proposed project will not pose any significant and the annoyance level is within the “no to little” impact category.

Considering technological advancement in construction industry, it is anticipated that machinery and equipment to be used during construction will be modern, versatile, and quieter than the old ones. It is also likely that they will require fewer numbers of operators reducing noise from workers. Therefore, the levels of noise and vibrations are anticipated to be within the tolerable limits, short term and localized. In view of the above and the fact that construction will concentrate on non-residential area, no significant impact is anticipated and the impact can be highly mitigated.

EMPLOYMENT OPPORTUNITIES

On the other hand, the proposed project will have, during construction phase, potential positive impact to the local community through provision of employment. It is expected that maximum people will be employed during construction phase. Employment will be in form of managers, skilled labors as well as unskilled laborers. Therefore, apart from employment benefits accruing to local people other national and international experts are likely to be employed by the project especially at senior positions.

INCOME GENERATION AMONG SUPPLIERS

During construction phase, the proposed project plan to source most construction materials from local and/or national sources including cement, iron sheets, steel bars, pipes, etc, from local shops. This demand therefore, will create market for local people and/or elsewhere in the country engaged in supplying construction materials leading to significant positive economic benefits to suppliers on short term basis.

IMPACTS ON SECURITY

The presence of laborers and expensive construction equipment, machinery and materials in the sites could potentially pose a security risk at the project site. Furthermore, offenders may capitalize on increased movement during construction and anonymity created by the construction activities to carry out criminal activities in the site and surrounding areas. This impact is likely probable due to low security measures from the fact the site is slightly far from police station(s) that could otherwise prevent criminal activities around the project site.

Accordingly, the impacts on the area's security are considered to be of medium significance. Therefore, appropriate security measures should be provided at the site through fencing, security checks/screening of workers and their guests and 24 hours security watch by expert security men (normally privately contracted) to prevent such criminal activities from happening at the site.

MITIGATION MEASURES

PROTECTION OF FLORA

In order to protect plant species from potential negative impacts, the proponent shall ensure that:

- The contractor is responsible for informing all employees about the need to prevent any harmful effects on natural vegetation on or around the construction site as a result of their activities;
- Clearing of natural vegetation is kept to a minimum;
- Unnecessary removal, damage and disturbance of natural vegetation are prohibited;
- Re-vegetation of the proposed project site is undertaken;
- Indigenous trees are planted around project area to enhance natural habitat

As the proposed project will be done within the building that is constructed so no such impacts occur.

LAND DEGRADATION AND SOIL EROSION CONTROL

Potential negative impacts on land and soils shall be mitigated by ensuring that:

- The contractor implements erosion control measures as an on-going exercise;
- During construction, the contractor protects all areas susceptible to erosion by installing necessary temporary and permanent drainage works as soon as possible and by taking any other measures necessary to prevent storm water from concentrating in streams and scouring slopes, banks, etc.
- Any tunnels or erosion channels developed during the construction or maintenance period shall is backfilled and compacted and the areas restored to a proper condition;
- Areas where construction activities have been completed and where no further disturbance would take place are rehabilitated through re-vegetation;
- Ground clearance is minimized and if possible concentrated only to the specific building foundation areas, and only when it is necessary;
- Prompt reclamation of exposed soils is done;
- Construction during long rains period should be done with caution to avoid soil from being washed away;
- Topsoil excavated from buildings foundations is stored for re use on other areas like rehabilitations of quarries.

SOIL AND WATER POLLUTION MEASURES

Measures to mitigate soil and water pollution impacts during construction phase shall ensure that:

- Concrete mixing directly on the ground is prohibited and only be undertaken on impermeable surfaces;
- Concrete batching activities are located in an area of low environmental sensitivity;
- All runoff from batching areas is strictly controlled, cement-contaminated water is collected, stored and disposed of at an approved site;

- Contaminated water storage facilities are not left to overflow and appropriate protection from rain and flooding are implemented;
- Unused cement bags are stored out of the rain where runoff won't affect it;
- Used (empty) cement bags are; collected, stored in weatherproof containers to prevent windblown cement dust and water contamination, not to be used for any other purpose and shall be disposed of on a regular basis via the solid waste management system;
- All excess concrete is removed from site upon completion of concrete works and disposed of whilst preventing washing of the excess concrete into the ground;
- Entrance or accidental spillage, of solid matters, contaminants, debris and other pollutants and wastes into surface and ground water is prevented;
- Awareness of employees to prevent unnecessary oil spills and protection of environment in their daily duties is promoted; and
- All excess aggregate is removed from site and properly disposed.

WASTE MANAGEMENT

To ensure that solid waste is properly managed and potential negative impacts are mitigated, the contractor shall ensure that:

- All facilities are maintained in a neat and tidy condition. Measures to reduce the negligent behavior with regard to the disposal of all refuse are taken, bins, containers and refuse collection facilities for later disposal are provided at all places of work;
- Solid waste may be temporarily stored on site in a designated area prior to collection and disposal;
- Waste storage containers are covered, tip-proof, weatherproof and scavenger proof;
- No burning, on-site burying or dumping of waste shall occur;
- Inert construction rubble and waste materials are disposed of by burying in the borrow pits or a designated site;
- All excavated materials, debris from construction works are not to be stockpiled or deposited near or on-stream banks or other watercourse perimeter where they can be washed away by high water or storm runoff or can any way enter to water sources itself;

- Metal refuse bins or equivalent plastic refuse bins, all with lids, are provided to all buildings;

- Domestic refuse is collected and removed from all facilities at least twice per week and transported to the approved refuse disposal site in covered containers or trucks;

- Used oil, lubricants, cleaning materials, etc. from the maintenance of vehicles and machinery are collected in holding tanks and sent back to the supplier;

- Runoff from fuel depots / workshops / machinery washing areas and concrete batching areas is collected into a conservancy tank and disposed of designated site

AIR QUALITY CONTROL

The contractor shall ensure air quality by undertaking the following measures:

- Ensure that the generation of dust is minimized and implement a dust control program to maintain a safe working environment, minimize nuisance for surrounding residential areas/dwellings and protect damage to natural vegetation, crops, etc.;

- Exposed soil and material stockpiles shall be protected against wind erosion and the location of stockpiles shall take into consideration the prevailing wind directions and locations of sensitive receptors;

- To minimize the pollution caused by dust generation during the construction stage, water will be sprinkled on the construction site and on drive ways as frequently as possible;

- To minimize exhaust fumes, machinery and equipment shall not be running when not in use while ensuring that they regularly serviced; and

- Construction vehicles and machinery shall be equipped with pollution-control devices to minimize emissions

VIBRATION AND NOISE CONTROL:

Vibration and noise produced by construction work will be manages as follows:

- The contractor shall strive to keep noise generating activities to a minimum;

- The contractor shall restrict all operations that result in undue noise disturbance to local communities and/or dwellings (e.g. drilling etc.) to daylight hours on weekdays;

- The contractor shall inform in advance any local communities and/or residents that could be disturbed by noise generating activities such as drilling or compacting and shall try to keep such activities to a minimum;

- The contractor shall be responsible for compliance with the relevant legislation with respect to noise;

- Provision of earplugs and earmuffs to the workers working in high peak noises during the construction stage;

- Use of modern low noise machinery and vehicles is recommended;

- Activities that may involve noises and vibration should be withheld at night especially close to human dwellings.

LANDSCAPE AND TOPOGRAPHY

As construction activities are very likely to lead to negative impact on landscape and topography at project site, such impacts will be brought to a minimum by executing the following measures:

- Planting of appropriate indigenous trees, grass cover and other vegetation types on project area should be encouraged so as to enhance scenic beauty of the area; and

- Removal and proper disposal of construction debris need to be affected after completion of construction works and shall not be stockpiled or deposited near or on water sources or other watercourse perimeter where they can be easily be washed away by high water or storm runoff or can any way enter these sources.

OCCUPATION HEALTH AND SAFETY MEASURES

The following safety measure should be observed during the construction stage:

- Provision of health and safety induction course to all workers;

- Instilling proper code of conduct and work ethics among construction workers and ensure that they are observed;

- Provision of Personal Protective Equipment (PPE) to all workers and enforce their use;

- Installing first aid kit and hire trained personnel to provide first aid;

- Reporting to OSHA within 24 hours of occurrence of any accident or near miss which can cause fatal or permanent disability; and
- Workers should be educated on their own safety and safety of others;
- For covid-19 prevention it is recommended:
- Workers are well-trained to practice and implement social distancing.
- No one is allowed to enter the premises of the project site without wearing proper mask.
- Personal hygiene practices are ensured and labor is trained for it by the contractor and the management of the unit.
- The proponent/contract provides masks to all the construction workers on daily basis and sanitizers are available at specific points of the project site.

IMPACT SIGNIFICANCE OF ECOLOGICAL IMPORTANCE

NATURAL VEGETATION

Project activities do not impose any potential impact on the area's natural vegetation and plantation.

ASSESSMENT OF IMPACT:

A significant impact will be interpreted if unnecessary or excessive removal and burning of plants for fuel wood is observed.

Nature of impact: Direct

Duration: long term

Timing: construction phase

Reversibility: irreversible

Likelihood: moderate

Consequences: Mild, as no rare plant species are not present in the project area.

Impact significance: significant

MITIGATION MEASURES:

The following mitigation measures will reduce any impact on vegetation:

- Do not park vehicles on green belts/ grass
- Unnecessary damage to vegetation will strictly be avoided.
- Proponent will plant trees and other species after construction phase

RESIDUAL IMPACT:

Given the current state of the vegetation, and proper implementation of the proposed mitigation measures, slightly significant residual impact on the natural vegetation of the area is anticipated.

FAUNA

The fauna including wildlife species do not exist at the project site**.**

Nature of impact: Direct

Duration: short term

Timing: construction phase

Reversibility: not applicable

Likelihood: low

Consequences: Nil, as no rare plant species are not present in the areas.

Impact significance: not significant

RESIDUAL IMPACT:

Given the current state of the fauna there is no significant residual impact on the wild life of the area.

SOCIAL IMPORTANCE

Following parameters were adapted for the assessment of the well-being of the poor people near the project site that are used to assess the social, economic, and cultural impacts of the project.

MITIGATION MEASURES:

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.

Nature of impact: Direct

Duration: Short term

Timing: construction phase

Reversibility: reversible

Likelihood: low

Consequences: low, as it links the main Road and vehicles will rarely use the sub roads

Impact significance: slightly significant

CULTURAL ISSUES:

Induction of outside workers in the Contractor's labor may cause cultural issues with the local community as the local community is very sensitive about their cultural values. Also, theft problems to the local community may arise by the labor force and vice versa.

MITIGATION MEASURES:

Good relations with the local communities will be promoted by encouraging contractor to provide opportunities for skilled and unskilled employment to the locals, as well as on-the-job training in construction for young people. Project manager will restrict his staff to mix with the locals to avoid any social problem.

Contractor will keep the copies of Computerized National Identity Cards (CNIC) of his workers and will warn them not to involve in any theft activities. And if anyone would involve, he will have to pay heavy penalty. Similarly, at the time of employment contractor has to take care that the workers should be of good repute. The contractor camp will be properly fenced and main gate will be locked at night with a security guard to check the theft issues.

Contractor will also be the responsible for the sensitivity towards the local customs and traditions.

Nature of impact: Direct

Duration: Short term

Timing: construction phase

Reversibility: reversible

Likelihood: low

Consequences: low, if project proponent implements mitigation measure, its impact will be low

Impact significance: slightly significant

ACCIDENT RISKS:

Unmonitored construction activities may create an accident risk for the local residents particularly children and labor force.

MITIGATION MEASURES:

Contractor must have first aid kits along with the medical officer in the field if a minor injury takes place, but for an unfortunate accident service of nearby hospitals will be availed. Routine medical check-ups of all the field staff including unskilled labor need to be conducted by a qualified doctor.

Training of the workers should be arranged regarding safety procedures, environmental awareness, equipping all construction workers with PPEs, safety boots, safety helmets, ear plugs, gloves and protective masks. Monitoring must be carried out to check for the sustainable use of PPEs.

Nature of impact: Direct

Duration: Short term

Reversibility: not applicable

Likelihood: moderate

Consequences: moderate, as complete trainings and mitigation measure have been planned.

Impact significance: significant

PRIVACY ISSUES:

Disturbance may happen to the privacy of women residing in the work area when workers will work at height.

MITIGATION MEASURES:

Contractor must take care for the privacy of residents, especially women near the working area.

Nature of impact: Direct

Duration: Short term

Reversibility: reversible

Likelihood: low

Consequences: low, as contractor will take care of the matter

Impact significance: slightly significant

SHARING OF RESOURCES:

During the operational phase of the project, workers will share the common resources like potable water, fuel, wood. It may create conflicts between work force and local population.

MITIGATION MEASURES:

The contractor will be required to maintain a close friendly relationship with the local communities to ensure that there may not be any conflict related to common resources utilization. He must get permission of the local population before using their common sources of water and other resources.

Nature of impact: Direct

Duration: Short term

Timing: construction phase

Reversibility: reversible

Likelihood: low

Consequences: low, it the terms & conditions will be followed and mitigation measures have been employed

Impact significance: significant

NOISE PROBLEMS:

Residents of the area and neighbors may face the problems of noise during the construction and operations phase.

MITIGATION MEASURES:

Plant machinery is to be designed to meet noise levels of about 55-60dB(A) at the boundary walls of the plant site as against the permissible levels of 85 dB(A) of the NEQS Pakistan. Most of the machinery is to be installed within constructed areas which will further curtail the

noise levels because of the buffer/accousting function of the walls. Additionally, the area of the plant provides enough separation distances from the surroundings beyond its four walls. All these factors ensure noise levels to remain within the NEQS limits. Accordingly, noise levels will not have any adverse impacts on the environment around.

Nature of impact: Direct

Duration: Short term

Reversibility: reversible

Likelihood: Moderate

Consequences: Moderate, project contractor will follow the safety guidelines & NEQS

Impact significance: significant

MOBILIZATION ISSUES:

During the construction phase, the general mobility of the local residents and their livestock in and around the study area is likely to be hindered.

MITIGATION MEASURES:

It will be the responsibility of project contractor and drivers to follow the speed limits in the area.

Nature of impact: Direct

Duration: Short term

Timing: construction phase

Reversibility: reversible

Likelihood: low

Consequences: low, as it links the main Sharif Complex Manga Road to the access road of the project site and vehicles will rarely use the sub roads

Impact significance: slightly significant

ENVIRONMENTAL STANDARDS

TOPOGRAPHY:

The project will not change the topography of the area as proponent committed to sustainable development of project. The infrastructure of the area will be maintained after the construction activities.

RESIDUAL IMPACT:

The residual impact of project activities on the topography of the area is expected to be insignificant.

The residual effects are summarized below:

Nature of impact: direct

Timing: construction Phase

Likelihood: Nil

Consequences: no change

Impact significance: Not significant

LAND ACQUISITION RESETTLEMENT:

One of the major impacts includes acquisition of land from the land owners and the resulting displacement of their families and disturbances in the livelihood of the affected persons (AP) in the project area. But present project is present in industrial area and is the property of M/s 3A Cosmoceutics and do not involve any type of land acquisition and resettlement activity.

RESIDUAL IMPACT:

After implementing the mitigation measures listed above, the residual impact of the solid waste/ sludge is expected to be insignificant.

ENVIRONMENTAL IMPACTS DURING OPERATION STAGE

AIR QUALITY POTENTIAL IMPACT:

Air emissions from project-related activities are likely to include:

- Dust raised on dirt tracks by project-related vehicles.

- Combustion products (nitrogen oxides, sulfur dioxide, particulate matter, carbon monoxide, and volatile organic compounds) from vehicles used for project-related activities.

ASSESSMENT OF IMPACT

1) DUST EMISSIONS:

Dust emissions caused by vehicular traffic on dirt track are an important concern, primarily when such traffic passes near community settlements. Dust emissions cause the amount of particulate matter in the air to increase, and thus become a health concern. Dust clouds also reduce road visibility, creating a traffic hazard.

2) GASEOUS EMISSIONS:

Emissions produced by vehicles and equipment will be similar to those produced by generators in terms of the resulting pollutants (SO_2, NO_X, PM, etc.). However, the extent to which they are produced will be kept considerably lower, since much smaller engines are used in vehicles and construction machinery.

Nature of impact: Direct

Duration: long term

Timing: operation/ construction

Reversibility: irreversible

Likelihood: moderate as mitigation measures ensured that air pollution remains within acceptable limits.

Consequences: moderate, as pollutant levels in the ambient air is well within acceptable limits.

Impact significance: moderate, based upon low likelihood and mild to moderate consequence.

MITIGATION MEASURES

None of the potential effects discussed above are expected to exceed acceptable limits.
The mitigation measures given below will further reduce their impact, and ensure that they remain within acceptable limits.

- All equipment and vehicles used during the project is properly tuned and maintained in good working condition in order to minimize exhaust emissions.

- Vehicle speed will be reduced on track passing through or close to shops
- Imposing speed limits and encouraging more efficient journey management reduce the dust emissions produced by vehicular traffic. Water is sprinkled where necessary to contain dust emissions.
- Management make sure process is environmentally friendly.

RESIDUAL IMPACT:

After implementing the mitigation measures listed above, the residual impact of the proposed activities on ambient air quality is expected to be low.

NOISE LEVEL:

Noise may be a major concern during the operation phase. It can be generated from the machinery used during operational activities. Generators can be another source of noise pollution.

Nature of impact: Direct

Duration: long term

Timing: operation

Reversibility: Not applicable

Likelihood: moderate

Consequences: slightly significant, if above mentioned mitigation measure will be strictly followed

Impact significance: moderate, based upon low likelihood and mild to moderate consequence.

MITIGATION MEASURES:

- Keep the traffic load aligned and minimum during working hours of project
- Machinery and vehicles must be well tuned and maintained
- Impose the limits on unnecessary use of horns
- Safety signs must be displayed and public & drivers must be well aware of them
- Do not work in night time.

RESIDUAL IMPACT:

After implementing the mitigation measures listed above, the residual impact of the noise level will be slightly significant.

CONCLUSION

Management of M/s 3A Cosmoceutics has to achieve the following goals.

- Identification of regulatory requirements that apply to the project activities in the context of environmental protection.
- Identification of the environmental features of the project area and the likely impact of the project on the environment,
- Recommendation of appropriate mitigation measures that management will incorporate into the project implementation to minimize all adverse environmental impacts.
- Baseline environmental and socioeconomic information collection from a variety of sources, including field surveys.

The impacts of project in area will be insignificant, provided the generic mitigation measures proposed in this report are implemented.

After assessing the project activities and investigating the project area, it is concluded that, if the activities are undertaken in this report, and the recommended mitigation and environmental management measures are adopted, the project will not result in any long-term or significant impacts on the local community or the environment.

HEALTH:

People from the project area regularly travel to other cities, and thus cannot be considered isolated from the rest of the country. They are regularly exposed to illnesses common to urban populations, and have similar levels of immunity. The project is therefore very unlikely to lead to an epidemic of any sort among local communities.

MITIGATION MEASURES:

Regular medical check-ups of all the workers need to be conducted to ensure the health of workers and local population.

Nature of impact: Indirect

Duration: Long term

Timing: operation phase

Reversibility: reversible

Likelihood: moderate

Consequences: low to moderate, it may cause disturbance or spread of disease in the area if mitigation measure will not have followed

Impact significance: significant

SAFETY:

Project activities could become a hazard as it is located in populated area local people, especially children, are likely to gather around to watch the activity. The other safety issue is that of traffic, especially along access roads close to settlements. To reduce the hazards, the following mitigation measures will be implemented:

- Local people will be informed in advance when work is about to start in an area.
- This may result in people keeping young children away from work areas.
- Machinery will never be left unattended.
- Safe driving practices will be adopted, particularly while passing through settlements.

Nature of impact: Direct

Duration: long term

Timing: construction / operation phase

Reversibility: irreversible

Likelihood: moderate to high

Consequences: moderate if all safety measure will be taken care

Impact significance: Significant

SOLID WASTE/ SLUDGE MANAGEMENT:

Proper solid waste management system is necessary for the prompt, timely and efficient disposal of solid waste & sludge for the reduction of its impacts. Impacts due to solid waste & sludge are expected to be temporary and minor in nature.

Nature of impact: Direct

Duration: Short term

Timing: operation

Reversibility: Not applicable

Likelihood: Low (unlikely) as mitigation measures will ensure that Solid waste management will be efficient

Consequences: Mild, as it will be removed from site within few hours

Impact significance: Low, based upon low likelihood and mild to moderate consequence.

MITIGATION MEASURES:

- Planning of solid waste disposal sites with reasonable distance from the human settlements
- A minimum distance of 1 km should be maintained between the solid waste disposal site and nearest human settlement
- Devise plan & develop guidelines for the safe handling, storage & disposal
- Sludge must not be placed at the site after cleaning of wastewater treatment tank
- PPEs are strongly recommended for workers for the handling of sludge.

POTENTIAL POSITIVE IMPACTS:

The project is envisaged to have followed major positive impacts;

EMPLOYMENT OPPORTUNITIES:

Establishment of M/s 3A Cosmoceutics help in generating new jobs for the local population. The requirement of Managers, Engineers, Workers, technicians, skilled and unskilled labor etc. generate employment opportunities. It is estimated about 20-25 persons employed during operational phase. Hence, there is large number of employment opportunities especially for the locals of the district.

INCREASE IN BUSINESS:

With the influx of laborers for the proposed project, there will be more opportunities for small scale business such as small food cafes etc.

IMPROVED INFRASTRUCTURE:

Establishment of M/s 3A Cosmoceutics improved the infrastructure of the area as proponent has incorporated aesthetic values and regeneration of site in its planning stage.

ECONOMIC BENEFITS:

M/s 3A Cosmoceutics is a nutraceutical and cosmetic unit and it is a great investment for the economy of our country. In the long run it will positively impact not only the local population but also the economy of Pakistan.

Main environmental issues associated with Project operation are as follows.

- Health and safety issues for workers may arise during the project process e.g., Particulate matter may be generated during the project process, which may cause the health issues for the workers and noise of machinery can also be a negative impact on the health of workers.
- Waste water due to domestic and process activities.
- Fire due to short circuits and other activities.
- Solid waste generation due to domestic and project related activities.
- Noise pollution from generator and other machinery.
- Health hazards including the electricity hazards.
- Emissions will be generated from working of generators.
- Sludge from wastewater treatment facility will be generated.
- Vehicle access is required especially for transportation. The site is well served with the road network. Heavy traffic will be allowed only during tight time during operational phase. The traffic issues at any stage of project life cycle will not arise.

Impact significance: moderate to high or may be negative

Nature of impact: direct

Duration: Long-term

Timing: operational phase

Reversibility: NA

Likelihood: moderate to high

Consequences: moderate to high or may be negative

RECOMMENDATIONS

- Safety of workers should be ensured through proper training and PPEs must be ensured during the working hours.
- Wastewater treatment facility should be constructed within the premises of the unit.
- A well design firefighting system will be constructed to cope with fire situations in the subject project.

- Solid waste bins should be regularly cleaned and solid waste must be handed over to contractor.
- Sludge from the wastewater treatment facility will be handed over to the certified contractors.
- Noise levels should not exceed the PEQS.

POTENTIAL ENVIRONMENTAL ENHANCEMENT MEASURES

The said project is installed with all precautionary measures to enhance and safe the environment. Following necessary measures will be adopted during operational phase of the project:

- Sprinkling of water will be done on dusty roads and tracks.
- PPEs will be provided during operation activity.
- Domestic solid waste will be disposed-off properly.
- Machinery will never be left unattended.
- Efforts should also be made to discuss traffic conditions so that regular traffic is not disturbed. Transporters engaged for the project would be forced to adhere to the load specifications of the access road. No overloading would be allowed in any case.
- Safety signs and boards are placed during operation.
- Machinery will be kept maintained.
- Waste water will be treated through waste treatment system that will be installed within the premises of the subject project.
- Proper SOPs will be followed with proper schedule along with the HSE conditions.
- Area will be restored with native plants. A proper tree plantation plan will be formulated to save the environment.
- Solid waste will be handed over to contractors and agreement will be made.
- Noise will be controlled by adopting proper measures.
- Firefighting equipment's and system will be installed.
- Hygienic conditions will be ensured and proper quality will be maintained by quality control testing.
- First aid facilities will be made available.

PURPOSE OF MITIGATION MEASURES

WHAT IS THE PROBLEM I.E. IN TERMS OF "MAJOR ENVIRONMENTAL IMPACTS" WHICH MAY ARISE BY THE SUBJECT PROJECT ACTIVITY?

The major impacts may arise by the subject project could be particulate matter & dust, noise, solid waste and wastewater. Other impacts are of minor importance. These impacts will arise during operation but precautionary measures will be adopted prior to start the activity, during the activity and post activity.

WHEN THE PROBLEM WILL OCCUR AND WHEN IT SHOULD BE ADDRESSED?

Any impact that would arise due to the subject project activity is already addressed on site. Trainings are conducted on site prior to start work while other precautionary measures will also be adopted to make the project safe and environmentally friendly.

WHERE AND HOW THE PROBLEM SHOULD BE ADDRESSED?

HSE manager/environmental manager along with site manager is appointed to assess any impact that could be arisen during operation phase. He would be responsible to address the problem and to mitigate it.

WHYS OF ACHIEVING MITIGATION MEASURES

IMPROVED MONITORING AND MANAGEMENT PRACTICES:

Management of M/s 3A Cosmoceutics shall take appropriate measures to provide pollution free and safe environment during the project activity by implementing improved management practices and monitoring techniques suggested in EMP.

COMPENSATION IN MONEY TERMS:

M/s 3A Cosmoceutics adopted such plan that will assure the minimum impact on the environment and health by implementing proper mitigation measures.

REPLACEMENT, RELOCATION AND REHABILITATION:

M/s 3A Cosmoceutics has already developed Restoration/ reclamation or tree planation plan to restore the project area. Maximum Plantation is done with native species within the building, along the boundary wall and along the road side if directed by EPA. Also, in-front of main area, horticulture plan will be formulated and area for this will be kept reserved.

CHAPTER # 6

ENVIRONMENTAL MANAGEMENT AND MONITORING PROGRAM

PURPOSE AND OBJECTIVES OF THE EMP:

The primary objectives of the EMP are to:

- Facilitate the implementation of the mitigation measures identified in the EIA.
- Define the responsibilities of the project proponent.
- Define a monitoring mechanism and identify monitoring parameters in order to:

1. Ensure the complete implementation of all mitigation measures.
2. Ensure the effectiveness of the mitigation measures.
3. Provide a mechanism for taking timely action in the face of unanticipated environmental situations.
4. Identify training requirements at various levels.

MANAGEMENT APPROACH:

The overall responsibility for compliance with the environmental management plan rests with the project proponent.

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.

INSTITUTIONAL CAPACITY

The overall responsibility for compliance with the environmental management plan rests with the project proponent. He appointed HSE/Project Manager of relevant qualification. HSE/Project Manager act as Environmental Manager and managed 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 Officer
- In-Charge Administration

- Supervisor of project

SCHEDULE OF IMPLEMENTATION

Training for the management and workers on environmental aspects of the project are arranged on biannually basis during the operational phase of the project. It is imparted by a team of experienced trainers.

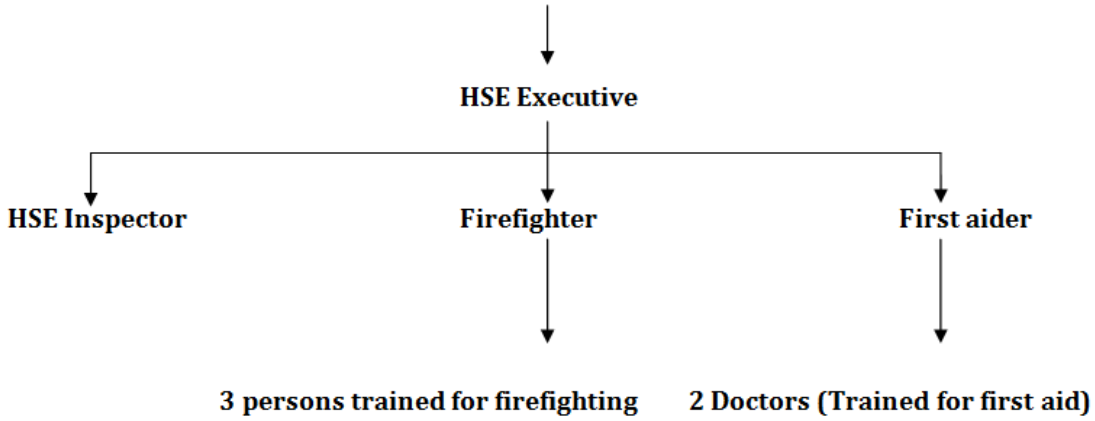


Figure: Institutional Capacity for the implementation of EMP

Management hired or appointed HSE officer before the initiation of work at the project site. HSE officer will be 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: Training Program

Sr. No.	Description of program	Personnel involved	Time/ duration
1)	General HSE Training	Trainers and whole production facility staff	Regularly as planned by HSE Manager
2)	Instrument use/ workplace specific items	Trainers and whole production facility staff	Regularly as planned by HSE Manager

3)	PPEs use and safe work practices at work site.	Trainers and whole production facility staff	Regularly as planned by HSE Manager
4)	Reporting and investigating accidents/ incidents	Trainers and whole production facility staff	Regularly as planned by HSE Manager
5)	Emergency procedures	Trainers and whole production facility staff	Regularly as planned by HSE Manager
6)	Medical and first aid	Trainers and whole production facility staff	Regularly as planned by HSE Manager
7)	Health and safety promotion	Trainers and whole production facility staff	Regularly as planned by HSE Manager

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

The HSE Manager will train all workers & staff in basic sanitation and health care issues (e.g., how to avoid malaria, dengue 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 Manager is responsible to conduct Training on regularly basis regarding health & safety, hygiene, firefighting and first aid.

TRAINING OF WORKERS:

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

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

1. Handling of Machineries in a safe way
2. Use of PPEs
3. Maintenance of vehicles and submission of Environmental Monitoring Reports
4. Maintenance of Water Consumption records
5. Testing of water and waste water and submission of Environmental Monitoring Reports
6. Placement of safety signs/boards
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 HSE manager.

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**

  Monitoring for ambient air should be conducted during operational activities of the project and report should be submitted to EPA Punjab.
- **NOISE**

Regular monitoring for noise level should be maintained periodically during operation phases of the project and report should be submitted to EPA Punjab as per rule.

- **WATER QUALITY**

  Regular monitoring of water quality should be conducted during operational phases of the project and report should be submitted to EPA Punjab. Record should be maintained regarding the underground water pump and consumption.

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

RESPONSIBILITY OF EMP

Overall responsibility for implementation of EMP is of project proponent. He has appointed an HSE/Project Manager of relevant qualification. HSE/Project Manager acts as Environmental Manager and manage all HSE condition at the PEQS.

EQUIPMENT MAINTENANCE DETAIL

The subject project is Proposed Establishment of Nutraceutical and Cosmetic unit under the name of M/s 3A Cosmoceutics. The company will maintain the records for Health Safety & Environment and will hire HSE manager to check and deal with the HSE issues. The company shall maintain PPEs, medical facilities, firefighting Equipment's as fire buckets, fire hydrants and fire extinguishers and records for their periodic filings or replacement.

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.

Company has allocated the Environmental Budget annually for the Training, maintenance and management of Environment that will include filling and maintenance of equipment's, restoration, plantation, and availability of PPEs, strategic planning to cope with any emergency situation and formulate the disaster management plan to cope with natural disaster. Any equipment or devices failure or replacement will not be included in this budget.

HSE training	On regular basis
Maintenance and management of environment	On regular basis
Maintenance of equipment	On regular basis

Availability of PPEs	During production hours
Strategic planning to cope with any emergency	As per policy
Formulate the disaster management plan to cope with natural disaster	As per policy

ENVIRONMENTAL MANAGEMENT PLAN OF M/s 3A COSMOCEUTICS

Sr. #	Aspects	Impact & Mitigations to be taken			
		Impacts	**Mitigation measures Construction/Operation**	**Responsibility**	**Monitoring**
			AMBIENT AIR QUALITY		
1.	Air Quality	Production machinery Flue gas emissions from machinery and generators	Air emissions-controlled devices must be installed to control the air pollution. For generators, small scrubbers should be installed. Air quality monitoring is recommended on regular base Open disposal and burning of solid waste in the premises of building should be strictly banned. Pollution abatement technologies regarding air pollution will be adopted. Emissions inspection and monitoring should be done on regular basis	HSE Department	Environmental Consultant/EPA PUNJAB

NOISE & VIBRATION					
2.	Noise	The major sources of the noise are production related machinery. Noise from generators (if any)	Personal Protective Equipment PPEs including Ear muffs, Ear plugs and other noise abating equipment will be provided to the workers and other staff. Sound proof room should be built for generator (if any) to control the noise.	HSE department	Environmental Consultant/ EPA PUNJAB
HEALTH AND SAFETY					
3.	Health and safety	Health & safety issues of workers and nearby community	Trainings of the workers is recommended for health & safety, first aid and firefighting. Proponent must provide First aid facilities to workers in case of any injury or accident. Safe drinking water must be provided to workers, staff, and poor people of the area. Water consumption records should be maintained. Provision of Proper PPEs must be ensured at workplace. Assembly point and exit points must be available at workplace. Electric wires, D. Bs must be kept covered & closed to avoid any electric hazards. Smoking or any drugs should be prohibited during	HSE Department	Environmental Consultant/ EPA

			working hours or performing work. Safety signs & boards will be placed at the time of construction activity. Security guards will be appointed at the construction site.		
WASTE WATER					
4.	Waste water	Domestic waste water. Minor wastewater from production activities. Spread of diseases, underground water contamination.	Domestic waste water is being drained out in industrial estate drain after treated in septic tanks An appropriately designed septic tank is being used to treat sewage/waste water to achieve PEQS. Periodic cleaning of septic tank is recommended.	HSE department	Environmental Consultant
SOLID WASTE GENERATION					
5.	Solid Waste Generation	Aesthetic degradation, foul smell etc. Solid waste generation from the machinery installation and production activities, domestic and process sources	A solid waste management plan should be formulated to deal with the proper disposal of solid waste, supervised by HSE Manager. Waste segregation is recommended at the source. Industrial ecology practices will be adopted wherever possible. 7 R's of sustainability is recommended Hazardous waste should be disposed in separate bins	HSE Department	Environmental Consultant/ EPA PUNJAB

			and handed over to EPA approved contractors. Waste produced from building alteration/renovation should be sold to local market.		
ODOR					
6.	Odor	Odor may produce from raw material and during product manufacturing	Raw material should be covered to reduce odor Face masks must be provided to the workers and employees on production floor	HSE Department	Environmental Consultant/ EPA PUNJAB
ENERGY REQUIREMENT					
7.	Energy requirement	Resource depletion	Do not waste the energy/electricity when there is no need of it. Use energy efficient and ecofriendly equipment Use energy saving appliances Conduct and maintain records for energy audits Do not leave the appliances in running when there is no need It is recommended to save and conserve the energy and adopt energy efficient technologies in the factory.	HSE Department	Environmental Consultant/ EPA PUNJAB
SOCIO ECONOMIC IMPACTS					
8.	Language	Change in cultural language	Maximum employment of Local people is	Proponent	NA

			recommended to preserve the local cultural language. It will help in communication with the local people to resolve any emerging issue near the project area		
9.	Education	Change in social behavior and economic gains	School and colleges exist in the area. The project proponent will initiate an educational awareness program with the coordination of the local people.	Proponent	NGO survey
10.	Health	Social performance of the individuals in the area	The project proponent will assist the local impacted community for the improvement of health services Health clinic must be established for the project workers.	Proponent	Proponent
11.	Culture and norms of the area	Change in culture by the influx of nomadic people	Maximum local employment should be ensured to preserve the culture of the area	Proponent	NGO survey/Environmental Consultant
12.	Sewage and waste disposal	Diseases caused by improper sanitation	Subject project will uplift the economic status of the nearest human settlements. Awareness program will be initiated regarding the disposal of waste.	Proponent/ local NGO	NGO survey/ Environmental Consultant

CHAPTER # 7

STAKEHOLDERS PARTICIPATION

Social acceptability of the project and the area is a key to success. Consultation with the stakeholders is a tool for managing two-way communication between the project proponent and the affected public. Its goal is to improve decision making and built understanding by actively involving individuals, groups and organizations, which have stake in the project. This involvement increases project's long-term viability and enhances its benefits to locally affected people and other stakeholders.

In order to evaluate the socioeconomic and environmental impacts, filed surveys are extremely essential. In addition to the surveys at the preliminary stage, consultation with the community and their active participation plays a vital role in successful implementation of the project. To identity the different types of stakeholders and ascertain their perceptions about the project, an initial environmental examination was conducted. Informal group discussions were also held as an additional tool for obtaining feedback from the stakeholders that are being discussed in the following pages.

OBJECTIVES OF CONSULTATION

Public consultation plays a vital role in studying the effects of the project on the stakeholders and in the successful implementation and execution of the said project. Public involvement is a compulsory feature of environmental assessment, which leads to better and more acceptable decision making. The objective of the consultation with stakeholders is to help verify the environmental and social issues that have been presumed to arise and to identify those which are not known or are unique to the construction of the said unit.

The important general objectives of the consultation process are:

- Information dissemination, education and liaison;
- Identification of problems and needs;
- Collaborative problem solving;
- Reaction, comment and feedback on proposed project;
- Documenting mitigation measures proposed by the stakeholders;

METHODOLOGY OF CONSULTATION:

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

- Selection of the stakeholders for consultation, reconnaissance of the project site and initial discussions with the neighboring industry workers, villagers, shopkeepers, drivers etc.

- Environmental consultants and social specialists and documenting the opinions of the stakeholders expressed during the meetings etc.

PROPONENT

Possible impacts and mitigation measures related to the subject project were discussed with the project proponent and management. They assured to take all suggested mitigation measures to control any discrepancy arose by the project and to make the project environment friendly.

RESPONSIBLE AUTHORITY

Management of M/s 3A Cosmoceutics is the responsible authority to take all measures prior to start the activity.

ENVIRONMENTAL PRACTITIONERS AND EXPERTS

Team of M/s Environmental Services of Pakistan (ESPAK) visited the project site, had discussions with stakeholders and consulted with the local people of nearby and other villages to evaluate the project socio-economic impacts. People of the area belong to different professions like mostly belong to employment, own businesses, doctors, some in abroad, in Army, teaching, in agriculture, etc. Women were also consulted for their point of view regarding the betterment of the area by this project, some of them communicated but according to social value of the area they mostly hesitate to communicate comfortably and get pictured. People provide the massive information about the project and have positive remarks regarding the project development

OTHER DEPARTMENTS AND AGENCIES

For the impact analysis detailed meetings were held with the management of M/s 3A Cosmoceutics local community, education institutes, health institutes and hospitals. Issues

were discussed that may affect the environment and also the implementation of said project. All possible mitigation measures were considered and incorporated in the Environmental Management Plan.

Scoping sessions, focused group discussion and way side consultations were held with the relevant stakeholders in the area. The purpose of such consultations is to obtain the feedback from the relevant persons.

AFFECTED & WIDER COMMUNITY

There is no affected community present in the radius of our study area. ESPAK team has consulted with the inhabitants of the different villages. They provided positive remarks regarding the subject project and in the favor of the subject activity for the said plant. Stakeholder's participation Performa's and socioeconomic questionnaire were get filled by the inhabitants to evaluate the project socio-economic impacts. List of respondents and socioeconomic questionnaires are attached as **Annexure-M** with the report.

Categories of stakeholders interviewed in the project area:

Sr. No.	Stakeholder Category
1.	Neighboring factory workers.
2.	Nearby residents
3.	Shopkeepers.
4.	Drivers.

In addition to the above categories, authorities of administrative and educational institutions, commerce and Investment Department (C&I), Environmental Protection Department (EPD) etc. were also consulted for more effective participation and appraisal of the said project.

ISSUES DISCUSSED:

Following issues were discussed during the stakeholder consultation:

- Overall activities of the project;
- Possible impacts on natural vegetation, air, land and properties;

- Possible mitigation measures;
- Benefits of the project specifically for the local people.

SAMPLE SIZE

Sample size of 30 respondents was selected by the Team of consultants for conducting the socioeconomic survey. Women were also consulted for the said survey; some of their names are mentioned in the above list of respondents while most of them were not willing to give personal information.

STATISTICAL ANALYSIS

SPSS 19.0 has been used for the statistical analysis of the data collected during the visit of study site villages through questionnaires.

RESULT & DISCUSSION

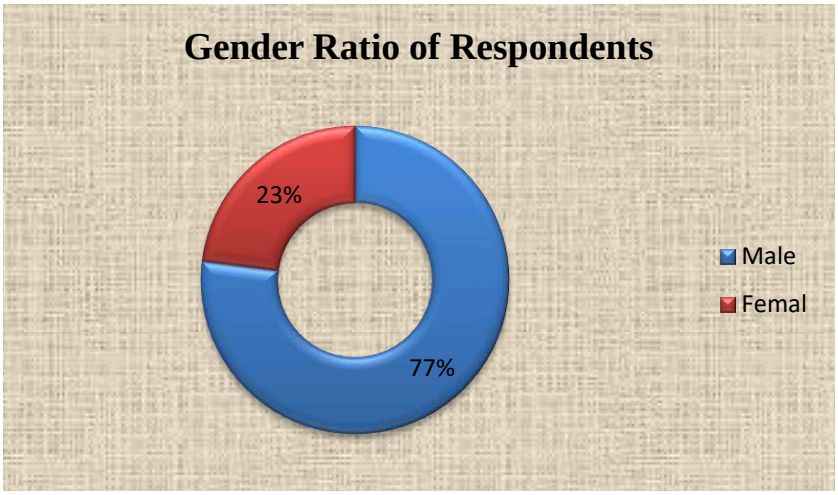


Figure 7: Gender Ratio of Respondents

DISCUSSION

In the sampled population, 77% respondents were male while 23% respondents were female. The number of female respondents is less as compared to male respondents because according to the social binding female hesitates to respond or communicate comfortably.

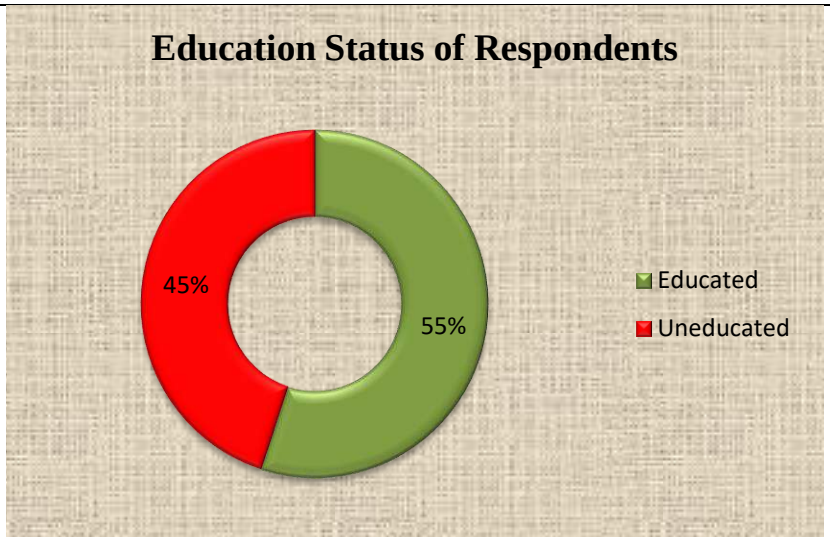


Figure 8: Education Status of Respondents

DISCUSSION

In the sampled population, 55% respondents were educated while 45% were uneducated. So, according to the survey overall education status of the area is good.

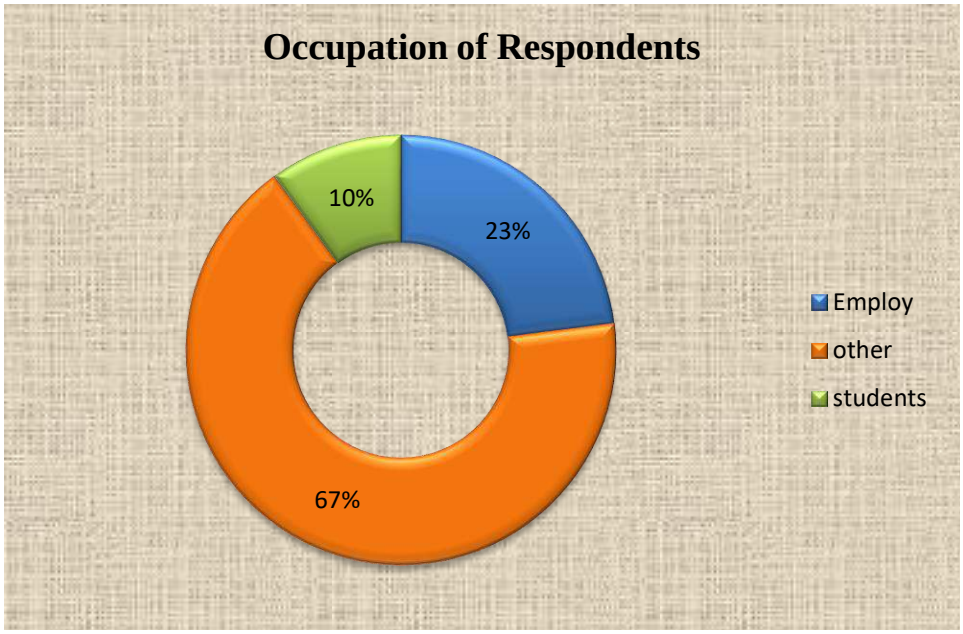


Figure 9: Occupation of Respondents

DISCUSSION

According to above graphical representation, source of income of majority of the respondents in the area was mainly employee in the private and government sectors. In the sampled

population, 10% were students while all other respondents' source of income was business man, farmers, doctors and teachers.

Figure 10: Ratio of people satisfied with Said Project

DISCUSSION:

As per survey, 82% people were satisfied with the said project and they gave positive remarks about the Nutraceutical and cosmetic Unit. They were hopeful to get job over there. While 9% respondents had no opinion regarding the project and 9% respondents were not satisfied with the said industrial unit due to their concerns regarding the pollution and no preference to local people for jobs.

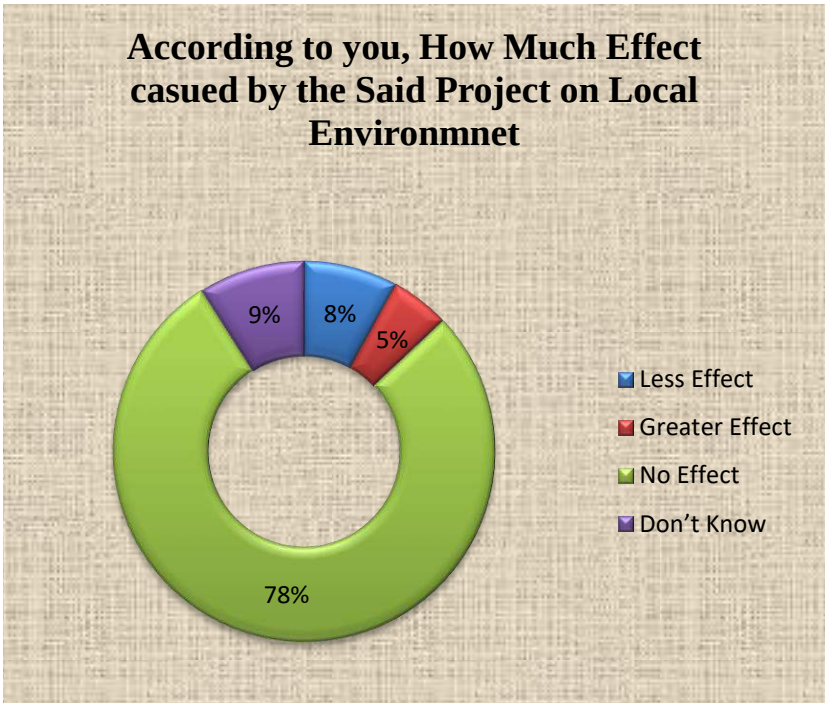


Figure 11: Ratio of Respondents having different views regarding Impact on Environment

DISCUSSION:

As per survey, 78 % respondents remarked that the subject project will not cause much effect on the environment while 9% respondents had no point of view regarding the project activity, 8% respondents remarked that subject activity will have less effect on the environment of area and only 5% remarked that operational activity will have greater effect on the environment of the area.

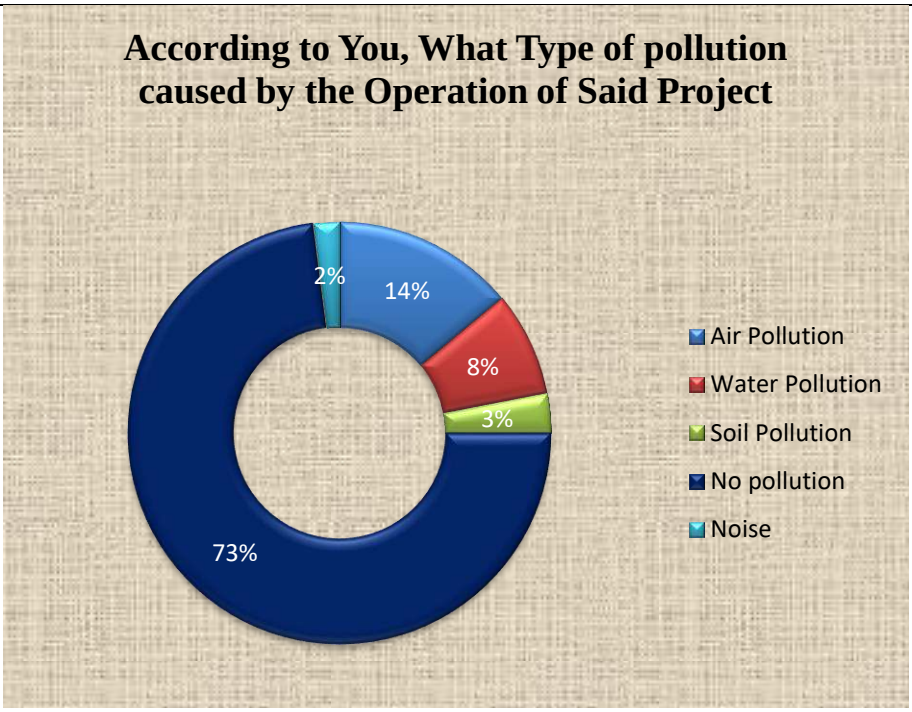


Figure 12: Types of Pollution cause by the Said Project

DISCUSSION

When the people were asked that according to you, what type of pollution was caused by the subject project, 14% people said that project is the cause of higher air pollution, 3% said that project is the cause of soil pollution due to its activities. 8% said that it is the cause of water pollution, 2% said that it is the cause of noise pollution while 73% of the sampled population said that project is not causing any pollution according to their point of view.

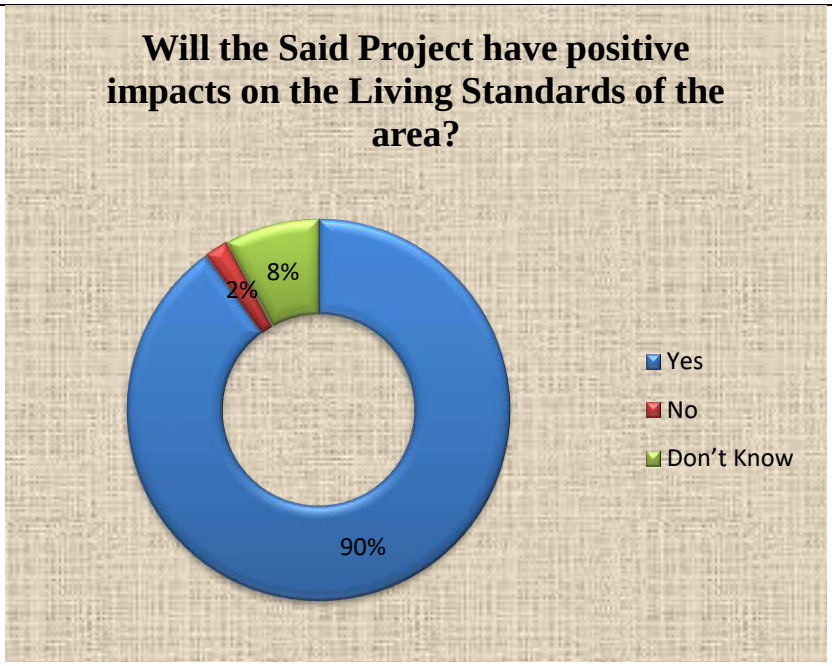


Figure 13: Effect of Said Project on the Living Standard of people

DISCUSSION:

When people were asked that "Will the said industrial unit have positive impacts on the living standards of the area?", 90% respondents said that subject project will enhance the living standard and income level of the area, 2% said that there will be no effect on the living standards and income level while only 8% respondents had no remarks regarding the subject project.

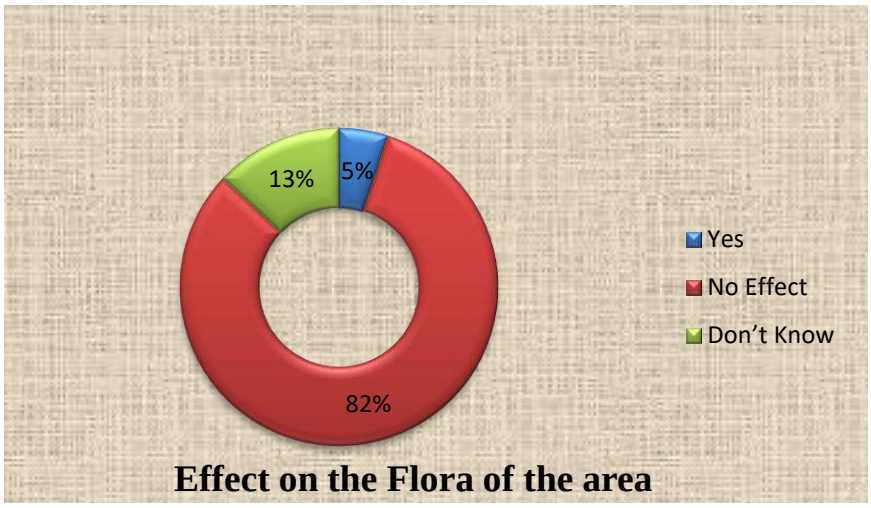


Figure 14: Effect of Said Project on Flora

DISCUSSION

When the people were asked "is the project affect the Flora of the area?" 82% of the respondents remarked that the project have no effect on the plants by the operation of the said project, 5% said that said project is not affecting the plant species of the area and 13% gave no comments regarding the question.

FINDINGS OF THE OVERALL DISCUSSION:

- It will enhance the socio-economic conditions/values of the area.
- Project will increase revenue generation for the Government.
- It will create employment opportunities.
- Local people will be given preference for employment in the proposed project.

There is no significant additional load on the existing infrastructure i.e. utilities of water, telephone, electricity etc. due to the development of the said project.

FINDINGS OF THE OVERALL DISCUSSION:

- It will enhance the socio-economic conditions/values of the area.
- Project will increase revenue generation for the Government.
- It will create employment opportunities.
- Local people will be given preference for employment in the proposed project.
- Construction of the project will be completed in the designated timeframe to limit adverse impacts of construction.
- There will be no significant additional load on the existing infrastructure i.e. utilities of water, telephone, electricity etc. due to the development of the proposed project.

CHAPTER # 8

CONCLUSION AND RECOMMENDATIONS

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

CONCLUSIONS

- The EIA study reveals that the project is economically viable, socially acceptable and environment friendly.
- It will generate additional jobs during operation phases.
- The proponent has committed to implement the project in the environment friendly manner.
- M/s 3A Cosmoceutics intends to register the project with local Government.
- M/s 3A Cosmoceutics has prepared and implemented very comprehensive Emergency Preparedness and Response Standard Operating Procedures.
- M/s 3A Cosmoceutics has prepared and implemented very comprehensive Security and Fire Fighting Standards Operating Procedures.

RECOMMENDATIONS

- In view of the comprehensive screening process and findings of the present study there is no need of conducting further investigations.
- Tree plantation inside the unit and near the unit is recommended.
- The untreated wastewater will not be reused for irrigating the vegetation and lawns.
- High standards of bio-security and safety will be enforced during operation stage. Safety of the workers will be top priority for the management.
- The management of M/s 3A Cosmoceutics will continue to assist the local communities as a corporate/social responsibility.
- The present EIA report is enough to meet the administrative and legal framework. Therefore, the environmental approval may be accorded for the present project.

ANNEXURE-A

TERM OF REFERENCES (TORS)

TERMS OF REFERENCES (TORS)

ENVIRONMENTAL IMPACT ASSESSMENT REPORT

OF M/S 3A COSMOCEUTICS
LOCATED AT PLOT NO.545, SUNDAR INDUSTRIAL ESTATE, RAIWIND ROAD, LAHORE

TERM OF REFERNCES

These terms of references are being submitted for the subject EIA study under 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.

Introduction of project:

Subject project for which this Environmental Impact Assessment study has been conducted is Proposed Establishment of Nutraceutical and Cosmetic unit under the name of M/s 3A Cosmoceutics located at Plot No.545, Sundar Industrial Estate, Raiwind Road, Lahore, over an area of 44326.64 SFT while covered area of plot is 42574 SFT. The estimated cost of the proposed project is Approx. 50 million rupees. The production capacity of each product in said unit is given below:

Sr.no	**Products**	**Production Capacity/Month**
1	Tablet	4 million/ month (can be blistered/Packed in bottles)
2	Soft Gel	4 Lac/month
3	Capsule	4 million/ month
4	Dry Milk Powder	100k Tin packs/month
5	Cream	1 lac tubes/month
6	Shampoo	1 lac /month
7	Lotion/Serums	1 lac /month
8	Dry suspension	2 Lac/month

Cost of Project:

The estimated cost of the proposed project is Approx. 50 million rupees.

Area of the Project:

Total area of the plot is 44326.64 SFT while covered area of plot is 42574 SFT.

Name & Address of proponent

Name: Mr. Akbar Ali

Environmental Consultant & Client

Proponent has appointed the Environmental Services Pakistan Pvt Ltd (ESPAK), as the Consultant for the subject project to conduct the EIA. M/S Environmental Services Pakistan Pvt Ltd (ESPAK), will be called as "Consultant" and M/s 3A Cosmoceutics as the "Client".

Objective of the EIA study

The Objective of study includes Compliance of section 12 of PEPA 1997 (Amended 2012) & PEQS.

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
- Identify environmental and social mitigation measures to address the impacts identified
- 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

1. Review of existing regulatory framework
    - 1.1 Laws and Regulations
    - 1.2 National and International Guidelines and Policy
    - 1.3 Guidelines of Labor & Human Resource Department
    - 1.4 Punjab Local Government Ordinance
2. Methodology for carrying out this study
    - 2.1 Project Description
    - 2.2 Site Selection
    - 2.3 Project Alternatives
3. Process Description

3.1. Detailed review of the processes

3.2 Design Parameters

3.3 Details related to Plant and Equipment's

4. Environmental profile of the environmental study area

4.1 Climatology

4.2 Geographical features

4.3 Geological and Hydrological features

3.5.4 Historical review

3.5.5 Land Use

3.5.6 Ecology, i.e. Flora and Fauna etc.

3.6 Analysis of EPA required environmental parameters

3.6.1 Sampling for Air, Water, and Noise Level

3.7 Investigate Socio-Economic and Socio-Environmental aspects and cultural values within and around the operating facility

3.7.2 Cultural and Social Values

3.7.4 Interviews from different groups

3.8 Development activities and Waste Management

3.9 Identify and evaluate major environmental impacts

3.10 Identify mitigation measures and develop Environmental Management and Monitoring plan

3.11 Conclusions based on the study conducted for this EIA

3.12 1-2 Site Visits for data acquisition

3.13 Environmental Monitoring plan

3.14 Preparation of Lab Analysis Report

3.15 Preparation of Environmental Management Plan EMP

3.16 Briefing & Presentation to the Expert Committee in the EPA Punjab.

3.17 Reply to technical Environmental Objections/Review

3.18 Presentation in the office of DG EPA, Punjab (if required)

CLIENT RESPONSIBILITY

- Proponent will be responsible to nominate a senior officer 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 CLIENT will be routed through the Coordinator
- Consultants will require free access to all relevant information available with the Client
- The report developed for the CLIENT shall be the property of the CLIENT and the Consultants shall adhere to confidentiality morally as well as legally.
- Client will provide relevant documents as:
    - Signed application on company letter head
    - Pay Order in favor of DG EPA as review fee 30,000/-
    - Undertaking on Stamp Paper as per EPA Format
    - Affidavit on Stamp Paper as per EPA Format
    - Copy of CNIC of proponent
    - Dually filled and Sign Schedule IV
    - Details of firefighting Equipment's
    - Layout Maps of the project
    - Other NOCS/Certificates from other concerned departments (if any)
    - Any other relevant documents/details required by the consultant.

Signatures: _____

Environmental Consultant

Environmental Services Pakistan

(ESPAK) Lahore

Signatures:

Client: Akbar Ali

M/s 3A Cosmoceutics

ANNEXURE-B

CNIC & OTHER DOCUMENTS

PAKISTAN National Identity Card

ISLAMIC REPUBLIC OF PAKISTAN

Name
Akbar Ali
اکبر علی

Father Name
Muhammad Sharif
محمد شریف

Gender	Country of Stay
M	Pakistan

Identity Number	Date of Birth
35202-2477885-9	03.09.1965

Date of Issue	Date of Expiry
12.11.2022	Lifetime

54595

Holder's Signature

For EPA Only

35202-2477885-9

موجودہ پتہ: چک نمبر 451 ای بی، لاٹ ڈھنی والی، بوریوالا، ضلع وہاڑی

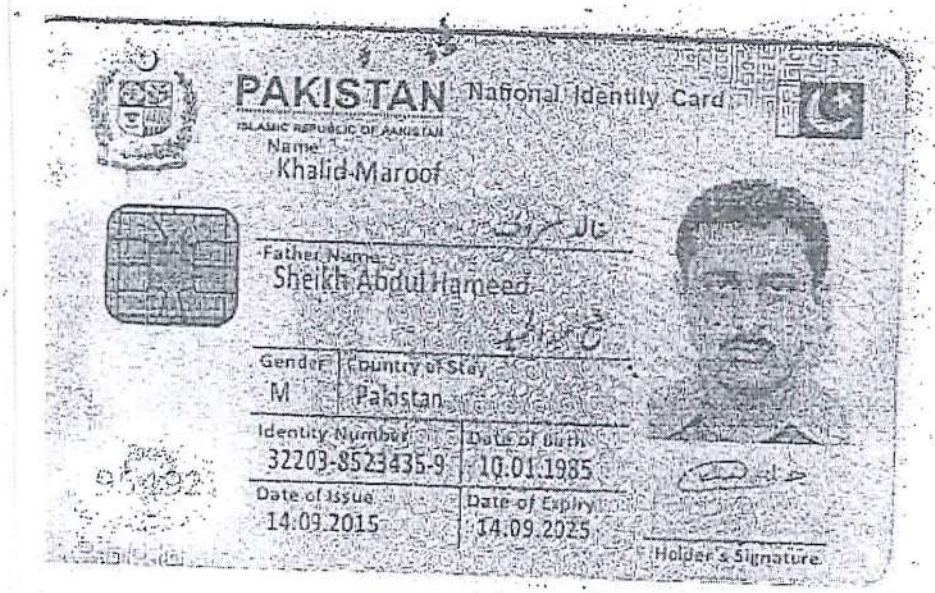
مستقل پتہ: پی سی ایس آئی آر سوسائٹی فیز 1، مکان نمبر 89، بلاک اے، [illegible]

Registrar General of Pakistan

7700044944440
324-65-197641

Only For EPA

گمشدہ کارڈ ملنے پر قریبی لیٹر بکس میں ڈال دیں



PAKISTAN National Identity Card

ISLAMIC REPUBLIC OF PAKISTAN

Name
Khalid Maroof

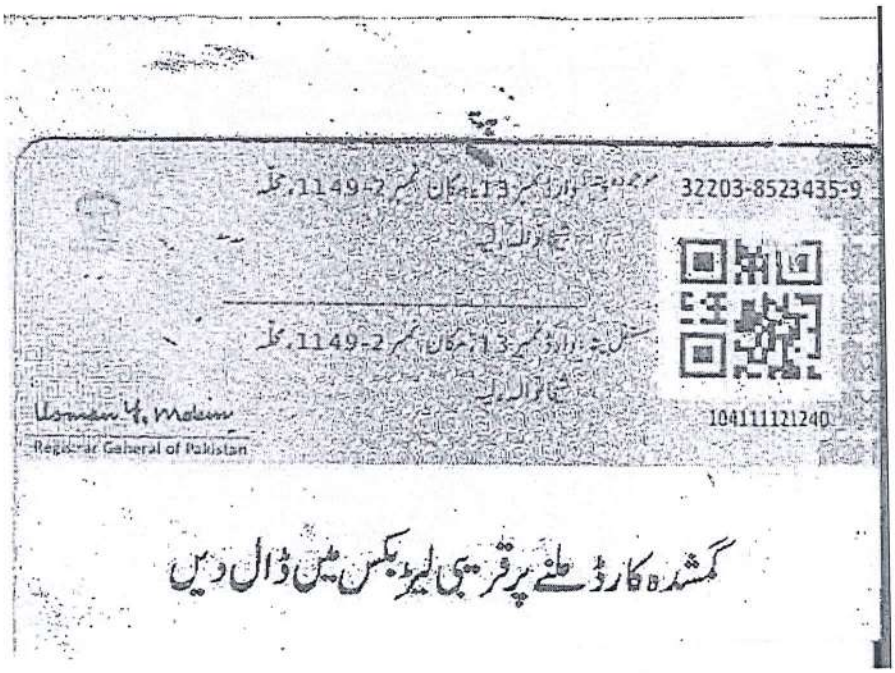
Father Name
Sheikh Abdul Hameed

Gender	Country of Stay
M	Pakistan

Identity Number	Date of Birth
32203-8523435-9	10.01.1985

Date of Issue	Date of Expiry
14.09.2015	14.09.2025

Holder's Signature



32203-8523435-9

104111121240

Usman Y. Mobin
Registrar General of Pakistan

کمشدہ کارڈ ملنے پر قریبی لیٹر بکس میں ڈال دیں

PAKISTAN National Identity Card

ISLAMIC REPUBLIC OF PAKISTAN

Name
Sheikh Muhammad Dawood
شیخ محمد داؤد

Father Name
Noor Muhammad
نور محمد

Gender	Country of Stay
M	Pakistan

Identity Number	Date of Birth
32203-2092754-5	04.06.1973

Date of Issue	Date of Expiry
01.10.2020	01.10.2030

Holder's Signature

322[illegible]-209775
[illegible] وارڈ نمبر 13 ، محلہ شیخانوالہ [illegible]

مستقل پتہ وارڈ نمبر 13 ، محلہ شیخانوالہ [illegible]

Usman Y. Mobin
Registrar General of Pakistan

10411133904
316-91-24028

گمشدہ کارڈ ملنے پر قریبی لیٹر بکس میں ڈال دیں

Board Of Management
Sundar Industrial Estate

BOM/SIE/PL/1394
October 15, 2024

3A Cosmoceutics,
through its Sole Proprietor, Akbar Ali,
SPL, House 82, R-1, Muhammad Ali Johar Town, Lahore.

SUBJECT: POSSESSION LETTER OF PLOT NUMBER 545

Dear Sir,

This is with reference to your request dated: **August 30, 2024**, regarding subject matter. Please contact the Site Engineer of Sundar Industrial Estate in connection with possession of the **Plot No. 545.**

15/10

SENIOR ESTATE ENGINEER
BOM-SIE
Dy. Manager SCD:.....
Dy. Manager OSM:.....
Asst. Manager P&C:.....
Superintendent Officer:.....
Dairy # 602 Dated 15-10-24

Thanking you,

15/10/24

Secretary
Board of Management
Sundar Industrial Estate

BOARD OF MANAGEMENT ★ SUNDAR INDUSTRIAL ESTATE ★ Sundar Industrial Estate Secretary

A copy is forwarded to Mr. Kashif Tanveer, Site Engineer (0317-9998124), with the request to please hand over the possession of Plot No. 545 SIE to its Allottee 3A Cosmoceutics, **through its Sole Proprietor, Akbar Ali.** The attached possession slip may please be returned after doing the needful.

Note.
This Possession Letter is issued with the approval of Competent Authority of PIEDMC/BOM-SIE.

Please do not proceed with the excavation of boundary wall without supervision of the site representative. Any damage done to the utilities without supervision will be borne by you.

Gate No.2 Sundar, Raiwind Road, Lahore.
Phone: 042-35297291-3, Fax: 042-35297080
Email:info@sie.com.pk, Web: www.sie.com.pk
(A Company set up Under Section 42 of the Companies Ordinance,1984(Now Companies Act, 201

ject: **Transfer Letter of Industrial Plot No. 545, Sundar Industrial Estate, Rai Road, Lahore.**

Reference to the transfer application dated:16-08-2024 on the subject matter.

ustrial Plot No. 545, measuring **4,005.69 Sq. M,** situated at Sundar Industrial Estate, S wind Road, Lahore, has now been transferred in your name on the same terms and condi t was held by the original Allottee.

Allotment Rights have been transferred as following: -

m: **M/s. Soxlinks International,** House No.67-A, Shah Jamal Lahore.

Akbar Ali son of Muhammad Sharif, having CNIC No.35202-2477885-9, resident House No.89, Block-A, PCSIR Society Phase-1, Lahore

CHIEF EXECUTIVE OFFICER
PUNJAB INDUSTRIAL ESTATES
DEVELOPMENT AND MANAGEMENT
COMPANY

. & Date even

opy is forwarded to **M/s. Soxlinks International,** House No.67-A, Shah Jamal Lahore.

ANNEXURE-C

LAYOUT MAP OF PROPOSED SITE

ANNEXURE-D

LAB REPORTS (AIR, NOISE, WATER)

ENVIRONMENTAL PROTECTION AGENCY
GOVERNMENT OF THE PUNJAB
National Hockey Stadium, Gate No. 08
Gaddafi Stadium Complex, Lahore

Validation for Stack & Ambient Monitoring / Sampling

Validation # 1833-A
Issue Date: 23-10-2024

Emission Monitoring under CTM-34 or OTM-39				
Facility Name & Address Phone	**M/S 3A Cosmoceutics.**	**No of Stacks /Sampling Point** **Ambient Air & Noise (01)**		
	Plot # 545,Sundar Industrial Estate, Raiwind Road Lahore			
Industry Category	Baseline Study			
Analyzer Model & Make	AQMS			
Average stack emission Values of CO, NOx (in mg/nM3)				
Excess Air / Excess Oxygen (%age):-				
Analyzer exposed for Ramp-Up phase to the sample gas for 5 minutes		Yes	NO	NA
Analyzer flow rate and EC temperature monitored during calibration and testing		Yes	No	NA
Test Data Phase of sample gas recorded with 15 second interval		Yes	No	NA
All key requirements to ensure QA/QC complied for said EPA approved Method		Yes	No	NA
Particulate Matter (PM) Monitoring / Sampling under USEPA Method 5 / 17				
Model & Make of Iso-kinetic PM Assembly				
The PM sampling train is complete as per Method 5 & 17		Yes	No	NA
Leak Test performed prior to sampling		Yes	No	NA
Field data Sheet for PM Sampling filled during PM sampling		Yes	No	NA
Data for determining of "K" factor & DGM "Y" Factor filled during sampling		Yes	No	NA
All method key requirements during sampling were compiled to ensure QA/QC		Yes	No	NA
Filter of Particulate matter is suitable for metal Testing		Yes	No	NA
SOx sampling as per Method 8 (Thorin Indicator Method)				
The right absorbent solution are available for SOx Sampling		Yes	No	NA
The equipment is capable to maintain flow rate @ 2.0LPM or as per method 8 requirement		Yes	No	NA
Sampling for SOx is performed as per method		Yes	No	NA
Ambient Air Quality Monitoring by Automatic Monitors for CO, O3, SO2, NOx, PM2.5 & PM10				
In case of continuous monitoring at a site, One Point QC Check Single analyzer & zero/span check is performed every 14 days.		Yes	No✓	NA
The CE of NOx analyzer is ensured to be maintained within 96% - 104.1%		Yes	No✓	NA
Zero/span check is performed prior to starting ambient monitoring		Yes✓	No	NA
All key requirements for Critical & Operational Criteria for ambient air monitoring by automatic monitors were compiled during monitoring		Yes✓	No	NA
The measuring techniques of monitors comply PEQS		Yes✓	No	NA
Ambient Air Sampling of SPM, PM10, Pb by High Volume Sampler				
In case of Sampling for SPM through samplers, the flow rate of sampler comply PEQS (1.1m3/min).		Yes✓	No	NA
Calibration of Sampler performed prior to sampling		Yes✓	No	NA
Vehicular Emissions & Noise Measurement				
Sampling of Vehicle emissions and noise measurement have been performed as per method and SOPs		Yes✓	No	NA

Remarks (if Any):-

Signature

MUHAMMAD NADEEM
RESEARCH OFFICER
ENVIRONMENT PROTECTION
AGENCY PUNJAB LAHORE

Monitoring Date

22-10-2024

Signature
Assistant Analyst
Mehmood Aslam

ENVIRONMENTAL PROTECTION AGENCY
GOVERNMENT OF THE PUNJAB
National Hockey Stadium, Gate No. 08
Gaddafi Stadium Complex, Lahore

Validation for Wastewater & Drinking Water

Validation # 1833-B

Issue Date: 23-10-2024

Project / Unit Name with Address and contact details	**M/S 3A Cosmoceutics.**	**Sampling Point GW (01)**
	Plot # 545,Sundar Industrial Estate, Raiwind Road Lahore	
Name of Private Lab	**Environmental Services Pakistan (Espak).**	

~~Waste Water (WW) Treatment facility~~ Primary Secondary Tertiary ~~NA~~ — ~~Drinking Water (W) Treatment Facility~~ Chemical RO ~~NA~~

~~Total WW collected Sample .....~~ — ~~Total Collected Drinking water samples.....~~

Sample Tag for testing parameter is assigned on sample container	Yes	NO	NA
Sample is preserved properly for each testing parameter	Yes	NO	NA
Sample size is adequate for testing the target parameters	Yes	NO	NA
Wastewater Flow Measurement performed to ensure sample representativeness	Yes	NO	NA

No. of Waste Water outlets	Waste Water Flow m^3/hr from each outlet (**Optional**)	Water intake m^3/hr (**Optional**)	Water Mass balance complied during sampling (**Optional**)	**Sample Type** GROUND WATER
			Yes No	Grab✓ Composite

Parameter	Matrix W	Matrix WW	Container	Sample Size	Preservation	Yes	NO	NA
Coliform, Total or Fecal	✓	—	Sterile Container	100 mL	Refrigerate 6 C	✓		
Coliform, Total or Fecal,Chlorinated Water	✓	—	Sterile Container	100 mL	0.008% Thiosulphate & cooled 6 C	✓		
Color, Turbidity	✓	—	P,G	500 mL	Cool 6 C	✓		
Hardness, Total	✓	—	P,G	500ml	HNO3 to pH<2	✓		
Nitrogen, Nitrate + Nitrite, Phenolic Compounds, ~~Oil & Grease, COD, NH3~~	✓	—	P,G	2000 mL	H2SO4 to pH < 2, Cool 6C	✓		
Metals, General	✓	—	P,G Rinsed 1.1 HNO3	500 mL	HNO3 to pH < 2	✓		
Cyanide, Total	✓	—	P,G	500 mL	NaOH to pH > 12, Cool 6C	✓		
Pesticides, General	—	—	Glass	1 Liter	Cool 6 C	—	—	—

Field Parameters*

Field parameter		pH meter, Model Make	Measurement Method	Calibrated in Field	Measured value
				Yes NO	
pH					
Temp					
Cl					

Signature

MUHAMMAD NADEEM
RESEARCH OFFICER
ENVIRONMENT PROTECTION
AGENCY PUNJAB LAHORE

Monitoring Date
22-10-2024

Signature
Assistant Analyst
Mehmood Aslam

ENVIRONMENTAL SERVICES PAKISTAN

ESPAK

CHEMICAL ANALYSIS TEST REPORT (AMBIENT AIR)

Reference Number: ESPAK/00982P/24/AA/08155/00863 **Date:** 04/11/2024

Name of Industry/Client: 3A Cosmoceutics

Address: Plot No.545, Sundar Industrial Estate, Raiwind Road, Lahore

Validation Officer: Muhammad Nadeem, Research Officer

Nature of Sample: Ambient Air

Monitoring Location: Mid Point of Plant (GPS: 31.291764°N 74.159052°E)

Date of Sample Collection: 28/10/2024

Sample Collected/Sent By: Mehmood Aslam, Analyst (Field), ESPAK

Grab / Composite: Continuous - 24 Hours

Date of Completion of Analysis: 29/10/2024

S. No	Parameters	Limit Values (PEQS-24 Hours)	Concentration	Method / Equipment Used	Remarks
1	Carbon Monoxide (CO)	5 mg/m³ (8 Hours)	0.6 mg/m³	Non Dispersive Infrared Absorption (NDIR)	Within Prescribed Limits
2	Sulfur Dioxide (SO_2)	120 µg/m³	8.9 µg/m³	UV Fluorescence (UVF)	Within Prescribed Limits
3	Ozone (O_3)	130 µg/m³ (1 Hour)	18.5 µg/m³	Non Dispersive UV Absorption	Within Prescribed Limits
4	Oxides of Nitrogen as NO	40 µg/m³	10.8 µg/m³	Chemiluminescence Detection	Within Prescribed Limits
5	Oxides of Nitrogen as NO_2	80 µg/m³	20.9 µg/m³	Chemiluminescence Detection	Within Prescribed Limits
6	Particulate Matter $PM_{2.5}$	35 µg/m³	28.2 µg/m³	Particulate Sensor	Within Prescribed Limits
7	Particulate Matter PM_{10}	150 µg/m³	135 µg/m³	Particulate Sensor	Within Prescribed Limits
8	Suspended Particulate Matter (SPM)	500 µg/m³	175 µg/m³	High Volume Sampler (HVS)	Within Prescribed Limits

PEQS: Punjab Environmental Quality Standards for Ambient Air, 2016

Note:

- **The report should be reproduced as a whole and not in parts.**
- **The responsibility of the ethical use of this report lies with the client.**
- **The values represent sample conditions when monitoring/testing was carried out.**
- **The report data is not intended to be used legally by the client.**

1. **Sample Analyzed By:** Mehmood Aslam, Analyst (Field)
2. **Name of Chief Analyst with Seal:** Muhammad Arfan
3. **Signature of Incharge of the Environmental Laboratory:**

Name: Imran Malik
General Manager
Date: 04/11/2024

Environmental Services Pakistan ESPAK Tel:+924235154012-17

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

Lahore Office
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Gulberg Greens,
Islamabad, Pakistan.
Tel: +92 (51) 5915060

Peshawar Office
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Dean's Trade Center
Sadar Cantt,
Peshawar, Pakistan.
Tel: +92 312 0849999

www.espak.com.pk info@espak.com.pk

NOISE MONITORING REPORT

Reference Number: ESPAK/00982P/24/N/08156/00859 **Date:** 04/11/2024

Name of Industry/Client: 3A Cosmoceutics

Address: Plot No.545, Sundar Industrial Estate, Raiwind Road, Lahore

Validation Officer: Muhammad Nadeem, Research Officer

Nature of Sample: Noise

Date of Sample Collection: 28/10/2024 **Grab / Composite:** Continuous-24 Hours

Sample Collected/Sent By: Mehmood Aslam, Analyst (Field), ESPAK

Date of Completion of Analysis: 29/10/2024

Method/Equipment Used: Sound Level Meter

S. No	Measurement Point	Limit Values (PEQS)	Noise Level in dB(A) Leq	Remarks
1	Mid Point of Plant (GPS: 31.291764°N 74.159052°E) - Day time	65 dB(A)	63 dB(A)	Within Prescribed Limits
2	Mid Point of Plant (GPS: 31.291764°N 74.159052°E) - Night time	55 dB(A)	52 dB(A)	Within Prescribed Limits

PEQS: Punjab Environmental Quality Standards for Noise in Commercial Area, 2016 Day Time Hours (6:00 am to 10:00 pm) Night Time Hours (10:00 pm to 6:00 am)

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1. **Sample Analyzed By:** Mehmood Aslam, Analyst (Field)
2. **Name of Chief Analyst with Seal:** Muhammad Arfan
3. **Signature of Incharge of the Environmental Laboratory:**

Name: Imran Malik
General Manager
Date: 04/11/2024

Environmental Services Pakistan ESPAK Tel:+92(42)35154012-17

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

CHEMICAL ANALYSIS TEST REPORT (GROUND WATER)

Reference Number: ESPAK/00982P/24/GW/08157/00893 **Date:** 04/11/2024

Name of Industry / Client: 3A Cosmoceutics

Address: Plot No.545, Sundar Industrial Estate, Raiwind Road, Lahore

Validation Officer: Muhammad Nadeem, Research Officer

Nature of Sample: Groundwater from Bore

Date Sample Received: 29/10/2024 **Grab / Composite:** Grab

Date of Sample Collection: 28/10/2024

Sample Collected / Sent By: Mehmood Aslam, Analyst (Field), ESPAK

Date of Completion of Analysis: 04/11/2024

S. No	Parameters	Limit Values (DW-PEQS)	Concentration	Method / Equipment Used	Remarks
1	Total Coliforms	----	ND	SMWW 9222 B	-----
2	Fecal Coliform Bacteria	Must not be detectable in any 100 mL sample	ND	SMWW 9222 H	Within Limits
3	E. Coli	Must not be detectable in any 100 mL Sample	ND	SMWW 9222 H	Within Limits
4	Taste	Non Objectionable / Acceptable	Acceptable	Organoleptic	Within Limits
5	Odor	Non Objectionable / Acceptable	Acceptable	Organoleptic	Within Limits
6	pH*	6.5-8.5	7.4	SMWW 4500H^+B	Within Limits
7	Turbidity	<5 NTU	1.9 NTU	SMWW 2130B	Within Limits
8	Color	≤15 TCU	ND	SMWW 2120 C	Within Limits
9	Total Dissolved Solids (TDS)*	<1000 mg/L	439 mg/L	SMWW 2540C	Within Limits
10	Total Hardness as $CaCO_3$*	<500 mg/L	362 mg/L	SMWW 2340C	Within Limits
11	Residual Chlorine	0.2-0.5 mg/L	ND	SMWW 4500-Cl G	----
12	Chloride (as Cl^-)*	<250 mg/L	41 mg/L	SMWW 4500Cl^-B	Within Limits
13	Fluoride (F^-)*	≤1.5 mg/L	0.1 mg/L	U.S. EPA 9214	Within Limits
14	Cyanide (CN^-)	≤0.05 mg/L	ND	SMWW 4500 CN^- F	Within Limits
15	Nitrate (NO_3^-)	≤50 mg/L	1.0 mg/L	SMWW 4500NO_3^-B	Within Limits
16	Nitrite (NO_2^-)	≤3 mg/L	ND	SMWW 4500NO_2^-B	Within Limits
17	Phenolic Compounds (as Phenols)	NGVS	ND	SMWW 5530 C	----
18	Aluminum (Al)	≤0.2 mg/L	ND	SMWW 3111	Within Limits
19	Antimony (Sb)	≤0.005 mg/L	ND	SMWW 3111	Within Limits
20	Arsenic (As)	≤0.05 mg/L	ND	SMWW 3114 B	Within Limits
21	Barium (Ba)	0.7 mg/L	ND	SMWW 3111	Within Limits
22	Boron (B)	0.3 mg/L	ND	SMWW 4500-B B	Within Limits

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Sadar Cantt,
Peshawar, Pakistan.
Tel: +92 312 0849999

www.espak.com.pk info@espak.com.pk

CHEMICAL ANALYSIS TEST REPORT (GROUND WATER)

Reference Number: ESPAK/00982P/24/GW/08157/00893 **Date:** 04/11/2024

Name of Industry / Client: 3A Cosmoceutics

S. No	Parameters	Limit Values (DW-PEQS)	Concentration	Method / Equipment Used	Remarks
23	Cadmium (Cd)	0.01 mg/L	ND	SMWW 3111	Within Limits
24	Chromium (Cr)	≤0.05 mg/L	ND	SMWW 3111	Within Limits
25	Copper (Cu)	2.0 mg/L	ND	SMWW 3111	Within Limits
26	Lead (Pb)	≤0.05 mg/L	ND	SMWW 3111	Within Limits
27	Manganese (Mn)	≤0.5 mg/L	ND	SMWW 3111	Within Limits
28	Mercury (Hg)	≤0.001 mg/L	ND	SMWW 3112	Within Limits
29	Nickel (Ni)	≤0.02 mg/L	ND	SMWW 3111	Within Limits
30	Selenium (Se)	0.01 mg/L	ND	SMWW 3114 B	Within Limits
31	Zinc (Zn)	5.0 mg/L	0.1 mg/L	SMWW 3111	Within Limits

DW-PEQS: Drinking Environmental Quality Standards for Drinking Water Quality, 2016
SMWW: Standard Methods for the Examination of Water and Waste Water, American Public Health Association, American Water Works Association, Water Environment Federation
USEPA: United States Environmental Protection Agency
NGVS: No Guideline Value Set
ND: Not Detected

- Laboratory tests and measurements were carried out at 25 ± 5 °C and ≤ 75 % Relative Humidity conditions unless required otherwise.
- Uncertainty of Measurement (UoM) data will be provided on request, where available. The statement of conformity, if provided in the report, is based on the decision rule of simple acceptance or rejection with equal shared risk due to measurement uncertainty.

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- **The report data is not intended to be used legally by the client.**
- **Only parameters marked with asterisk (*) are ISO 17025:2017 accredited.**

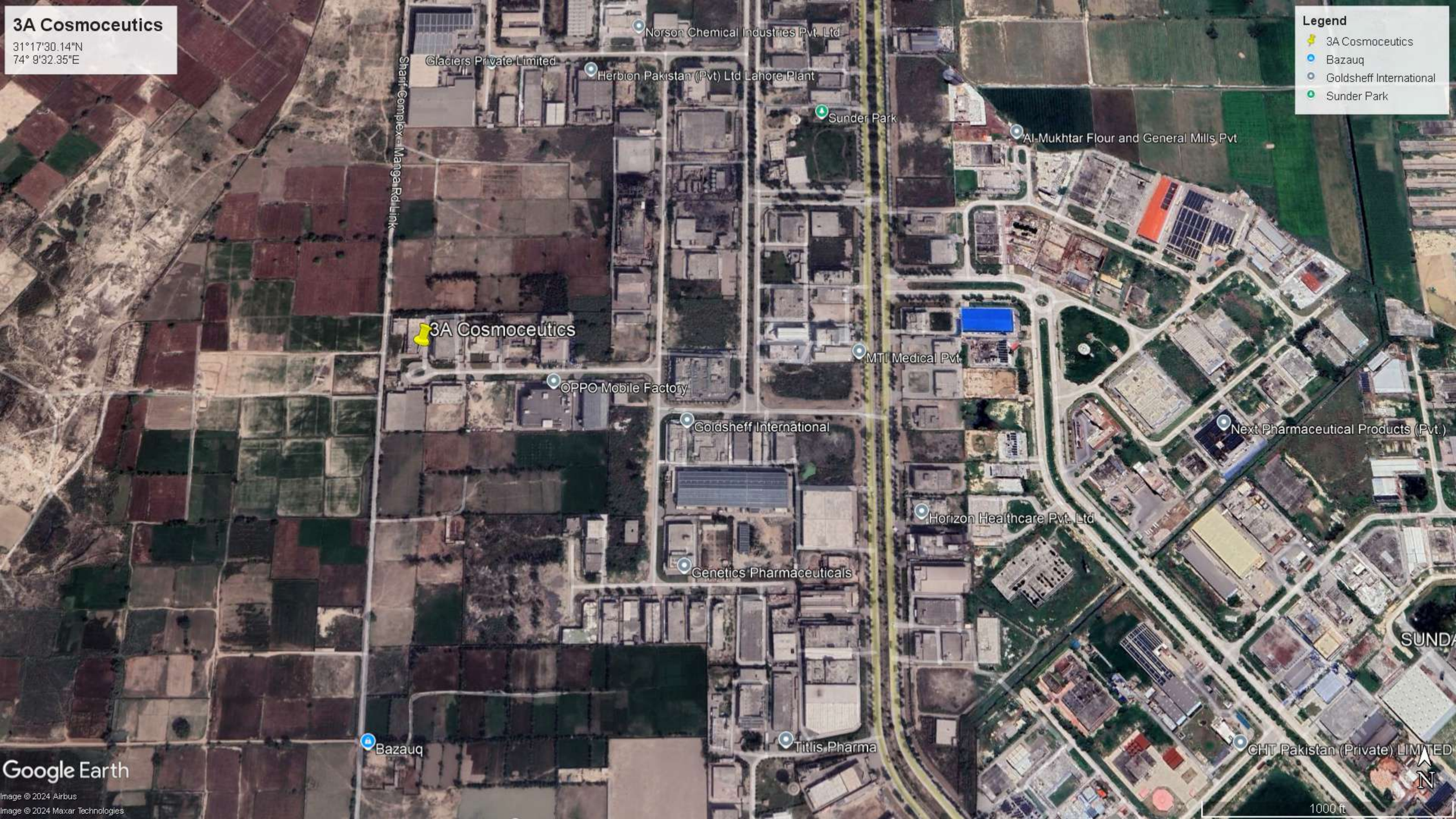
1. **Sample Analyzed By:** Nageen Arshad (Analyst (Chemical)); Riaz Ahmad (Analyst (Chemical)); Muhammad Shahid (Analyst (Chemical)); Khizra Bano (Analyst (Microbiology)); Samahir Khalid (Analyst (Chemical))
2. **Name of Chief Analyst with Seal:** Muhammad Arfan
3. **Signature of Incharge of the Environmental Laboratory:**

Name: Imran Malik
General Manager
Date: 04/11/2024

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

ANNEXURE-E

GOOGLE EARTH MAP


3A Cosmoceutics
31°17'30.14"N
74° 9'32.35"E
Legend
3A Cosmoceutics
Bazauq
Goldsheff International
Sunder Park
Norson Chemical Industries Pvt. Ltd
Glaciers Private Limited
Herbion Pakistan (Pvt) Ltd Lahore Plant
Sharif Complex - Manga Rd Link
Sunder Park
Al-Mukhtar Flour and General Mills Pvt
3A Cosmoceutics
MTI Medical Pvt
OPPO Mobile Factory
Goldsheff International
Next Pharmaceutical Products (Pvt.)
Horizon Healthcare Pvt. Ltd
Genetics Pharmaceuticals
Bazauq
Titlis Pharma
CHT Pakistan (Private) LIMITED
Google Earth
Image © 2024 Airbus
Image © 2024 Maxar Technologies
1000 ft
N

ANNEXURE-G

LIST OF RAW MATERIALS

List of Raw Material

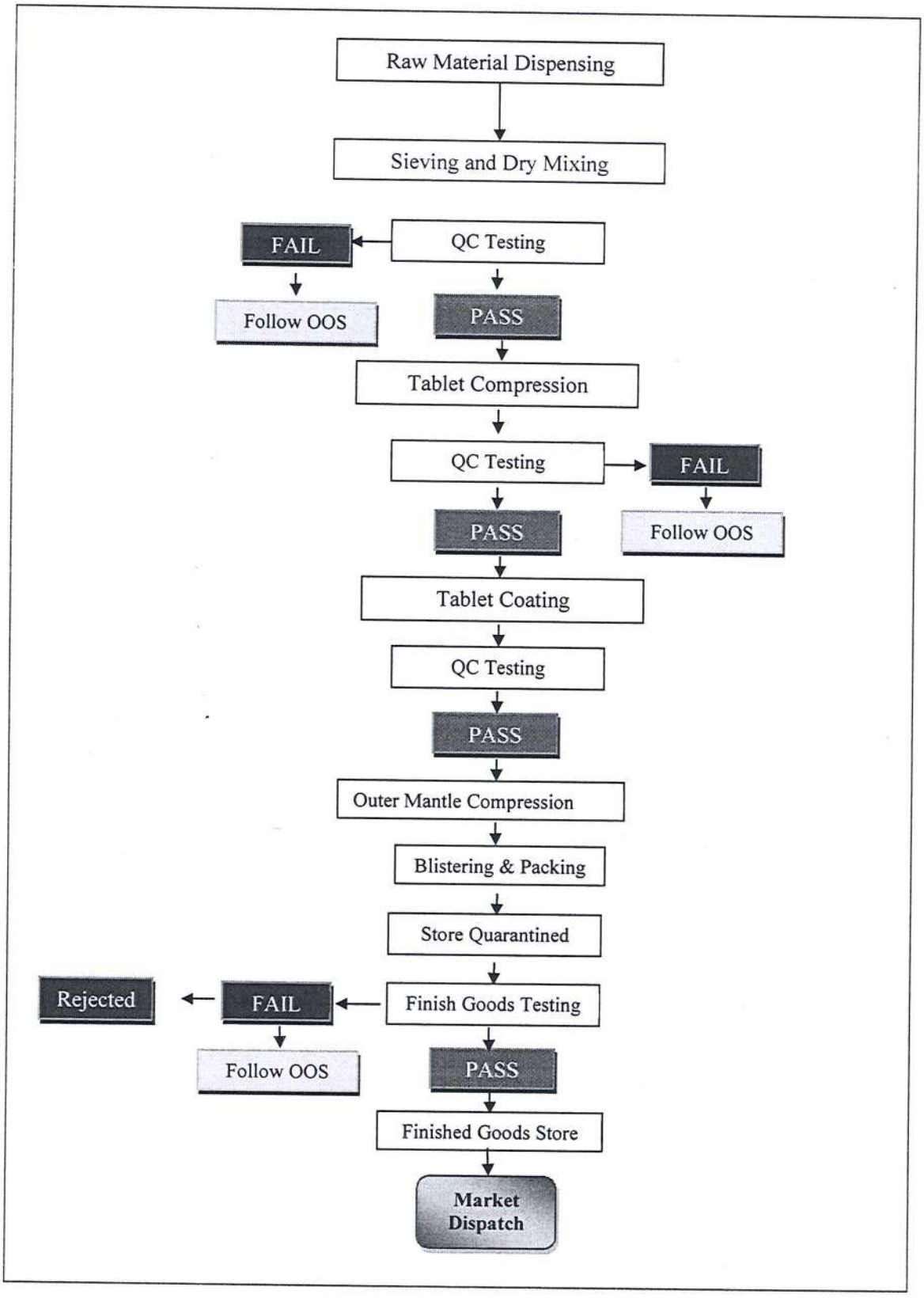
1. Vitamin B2 (Riboflavin)
2. Vitamin B6 (Pyridoxine HCl)
3. Niacinamide / Vitamin B3
4. Vitamin C (Ascorbic Acid)
5. Calcium
6. Magnesium
7. Iron
8. Zinc
9. Folic Acid
10. Vitamin A
11. Beta-carotene
12. Vitamin E
13. Vitamin B12
14. Vitamin D3

ANNEXURE-H

FLOW PROCESS

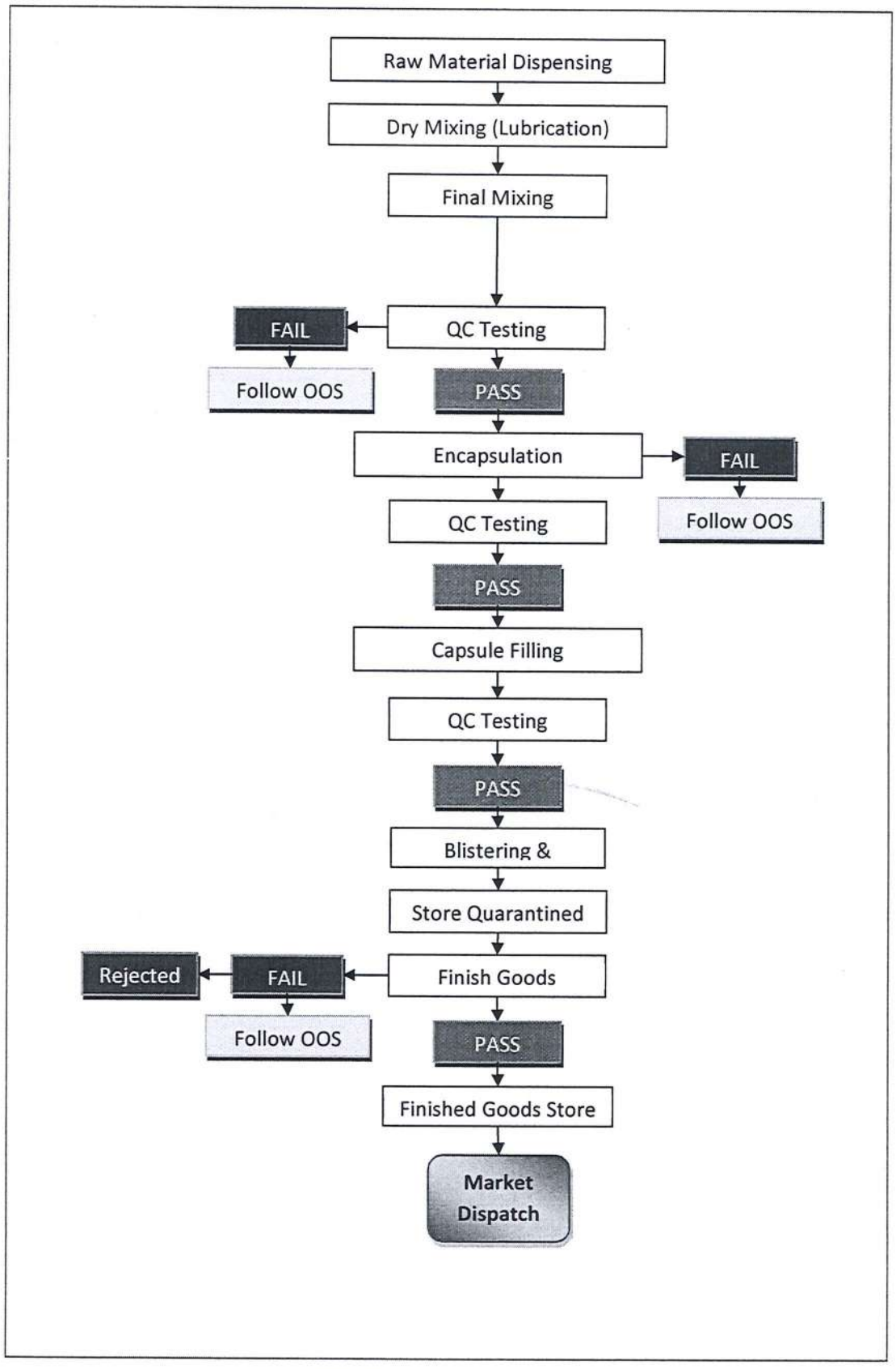
3A COSMOCEUTICS

FLOW CHART OF TABLET



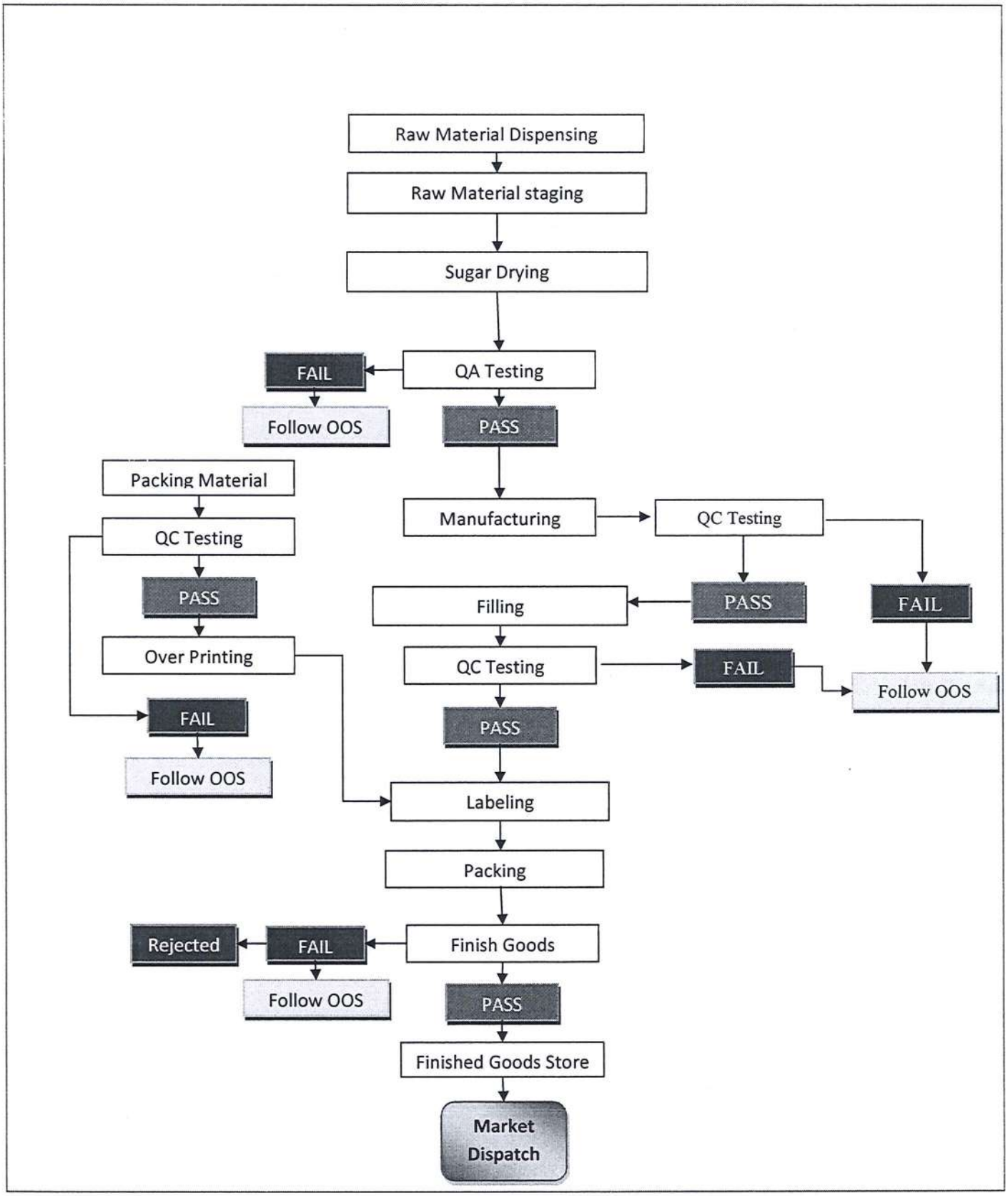
3A COSMOCEUTICS

FLOW CHART OF CAPSULE



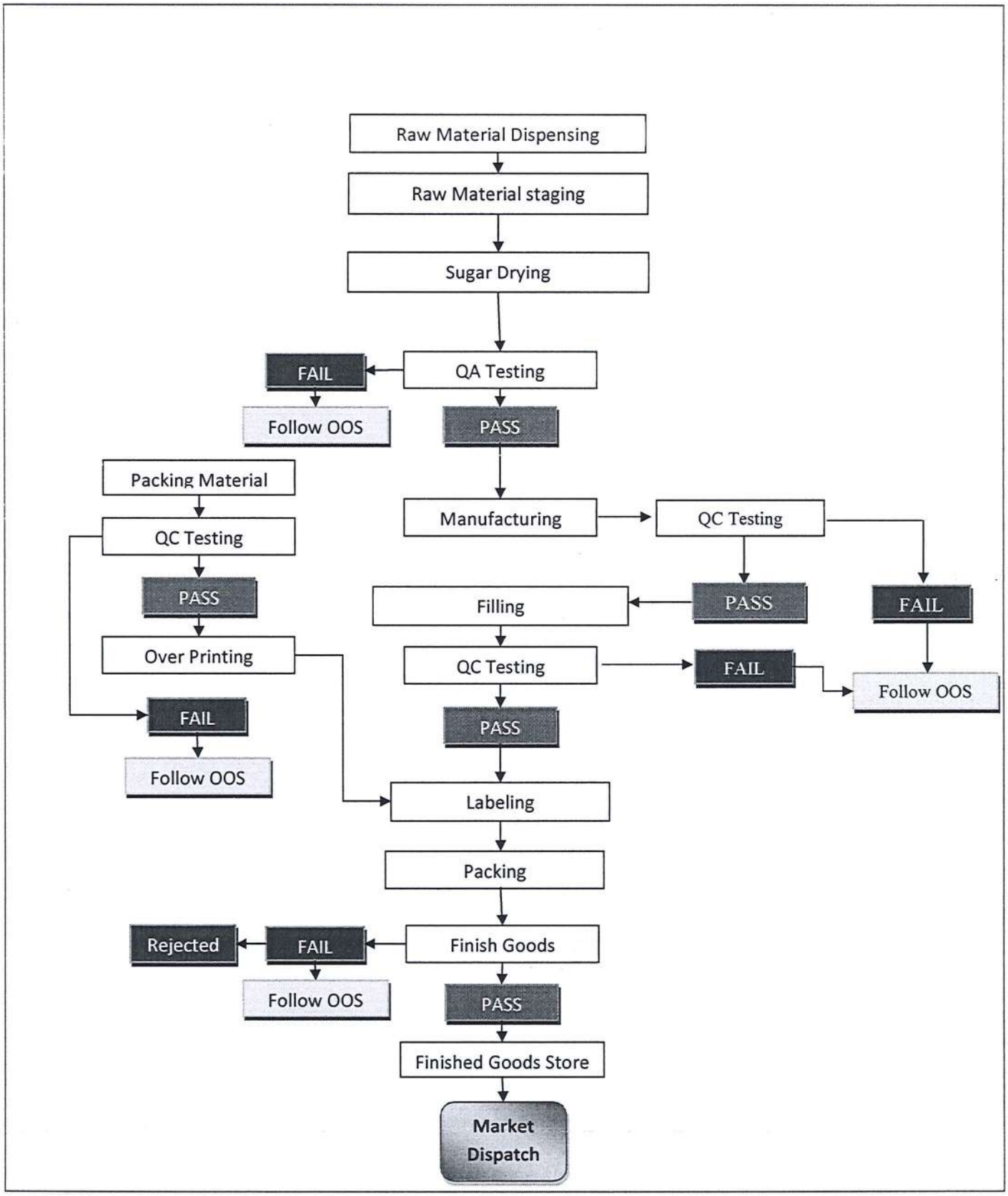
3A COSMOCEUTICS

FLOW CHART OF DRY POWDER MILK



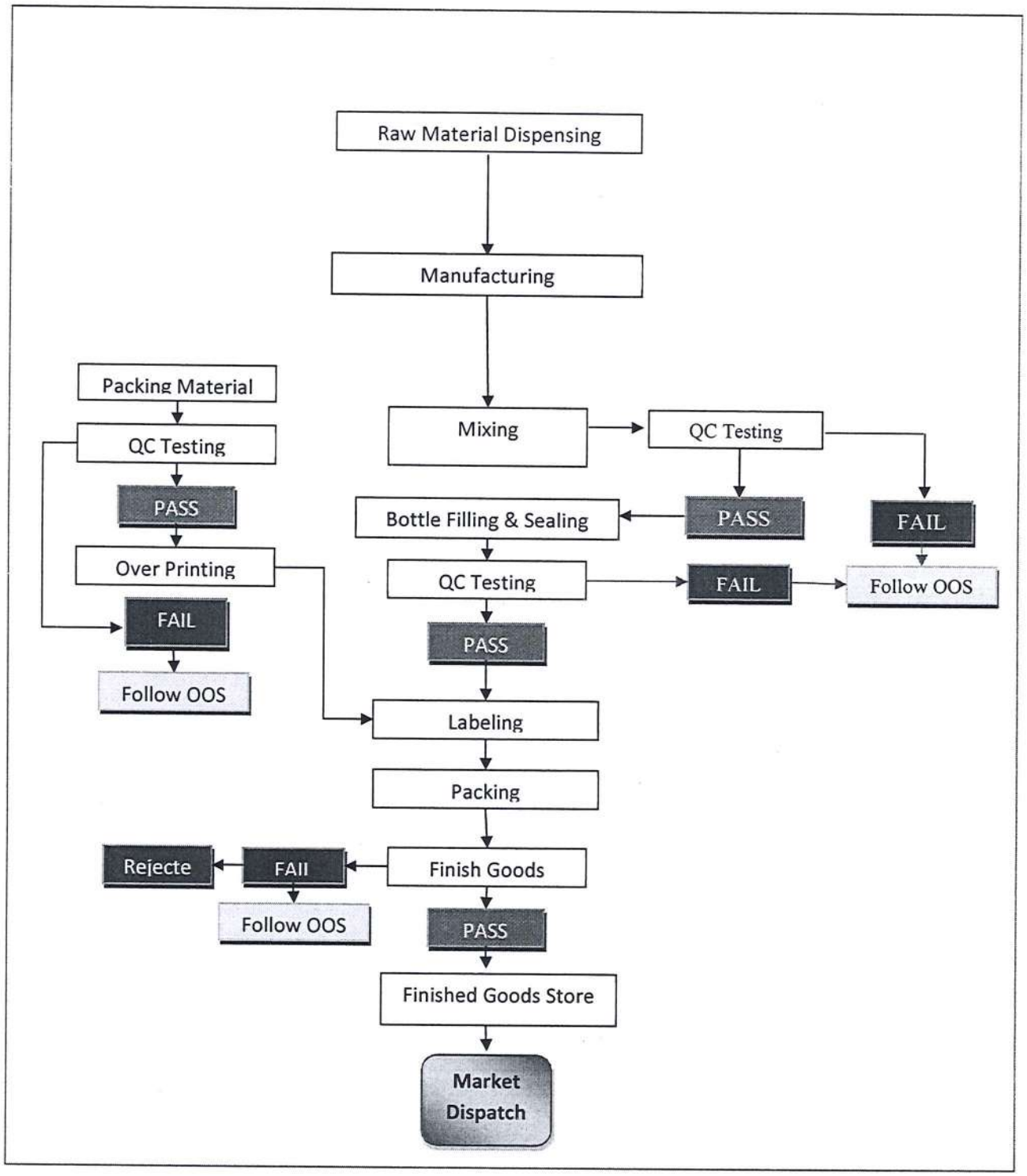
3A COSMOCEUTICS

FLOW CHART OF DRY POWDER



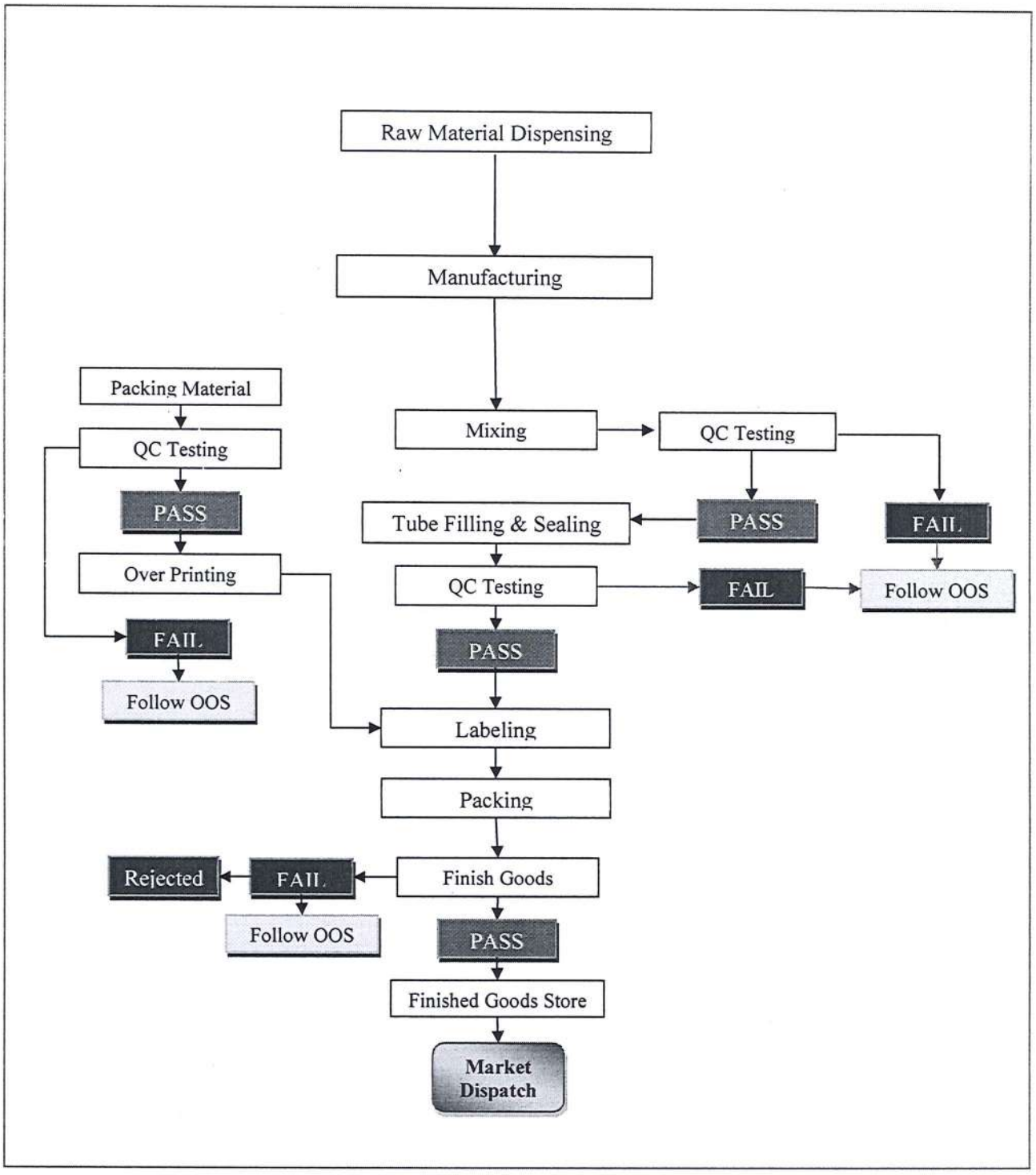
3A COSMOCEUTICS

FLOW CHART OF LOTION / SERUM



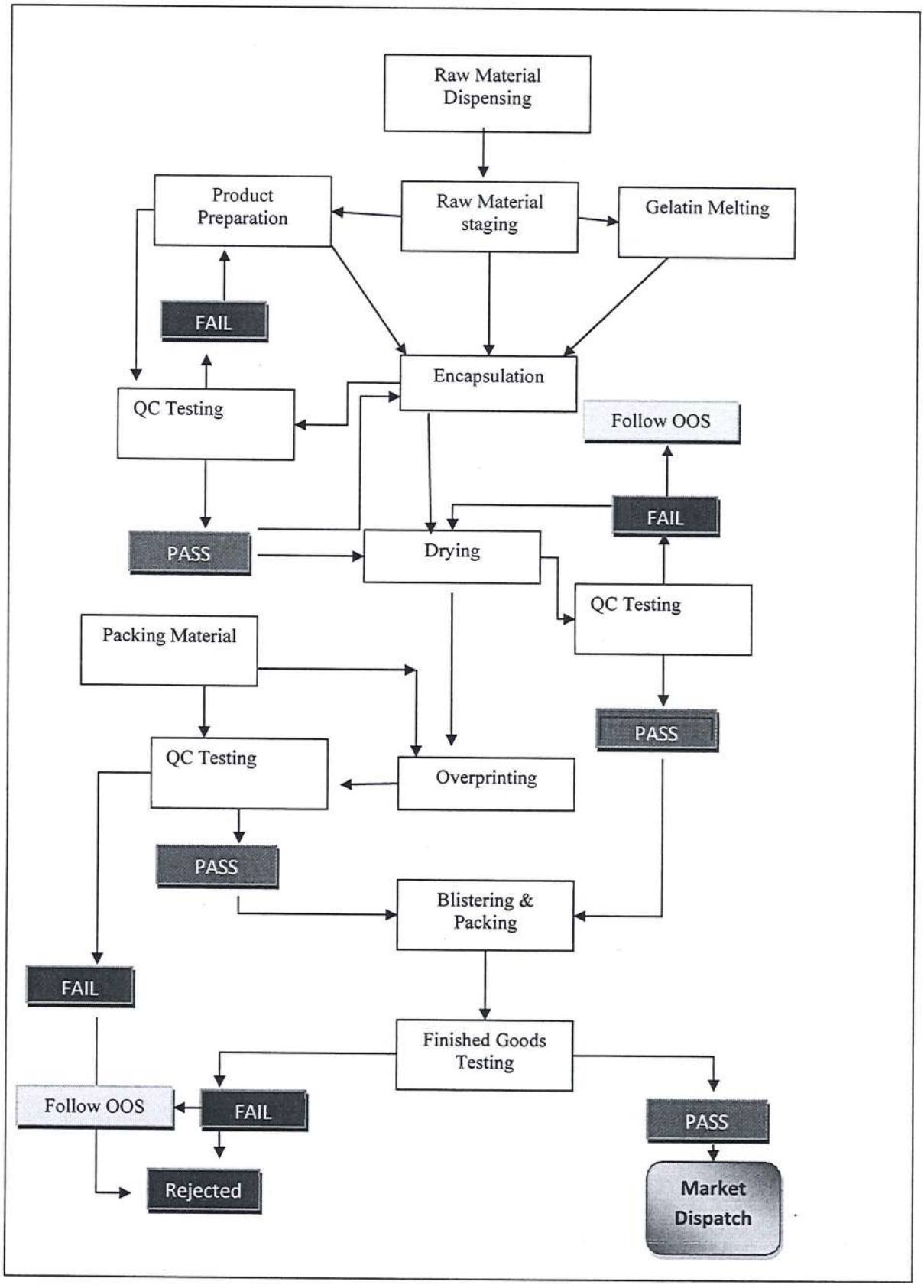
3A COSMOCEUTICS

FLOW CHART OF SHAMPOO & CREAM



3A COSMOCEUTICS

FLOW CHART OF VITAMIN GUMI & SOFT GELATIN CAPSULE



ANNEXURE-I

STAKEHOLDER' CONSULTATION FORMS

PUBLIC CONSULTATION / STAKEHOLDER PARTICIPATION REGARDING EIA OF "CONSTRUCTION OF NUTRACEUTICAL AND COSMETIC UNIT"

Name: Noor Muhammad

Residence: Lahore

CNIC:

Gender: ☑Male ☐Female

Qualification: B.A

Profession: Factory Manager

	Strongly Agree	Agree	No Comments	Disagree	Strongly Disagree
Are you in favor of project?	☐	☑	☐	☐	☐
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?	☐	☑	☐	☐	☐
Will the project affect the plant species of the area?	☐	☐	☐	☑	☐
Will the project cause any type of pollution in the area?	☐	☐	☐	☑	☐

Signature of Interviewed

Signature of Interviewer

PUBLIC CONSULTATION / STAKEHOLDER PARTICIPATION REGARDING EIA OF "CONSTRUCTION OF NUTRACEUTICAL AND COSMETIC UNIT"

Name: Luqman

Residence: Raiwind Road

CNIC:

Gender: ☑ Male ☐ Female

Qualification: Primary

Profession: Factory Worker

	Strongly Agree	Agree	No Comments	Disagree	Strongly Disagree
Are you in favor of project?	☑	☐	☐	☐	☐
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?	☐	☑	☐	☐	☐
Will the project affect the plant species of the area?	☐	☐	☐	☑	☐
Will the project cause any type of pollution in the area?	☐	☐	☐	☐	☑

Signature of Interviewed Luqman

Signature of Interviewer

PUBLIC CONSULTATION / STAKEHOLDER PARTICIPATION REGARDING EIA OF "CONSTRUCTION OF NUTRACEUTICAL AND COSMETIC UNIT"

Name: Qasim

Residence: Raiwind Road

CNIC:

Gender: ☑ Male ☐ Female

Qualification: M.S

Profession: Teacher

	Strongly Agree	Agree	No Comments	Disagree	Strongly Disagree
Are you in favor of project?	☑	☐	☐	☐	☐
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?	☑	☐	☐	☐	☐
Will the project affect the plant species of the area?	☐	☐	☐	☑	☐
Will the project cause any type of pollution in the area?	☐	☐	☐	☑	☐

Signature of Interviewed

Signature of Interviewer

PUBLIC CONSULTATION / STAKEHOLDER PARTICIPATION REGARDING EIA OF "CONSTRUCTION OF NUTRACEUTICAL AND COSMETIC UNIT"

Name: M. Jamshed

Residence: Islampura

CNIC:

Gender: ☑ Male ☐ Female

Qualification: Matric

Profession: Factory Worker

	Strongly Agree	Agree	No Comments	Disagree	Strongly Disagree
Are you in favor of project?	☑	☐	☐	☐	☐
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?	☑	☐	☐	☐	☐
Will the project affect the plant species of the area?	☐	☐	☐	☑	☐
Will the project cause any type of pollution in the area?	☐	☐	☐	☐	☑

Signature of Interviewed

Signature of Interviewer

PUBLIC CONSULTATION / STAKEHOLDER PARTICIPATION REGARDING EIA OF "CONSTRUCTION OF NUTRACEUTICAL AND COSMETIC UNIT"

Name: Kamal

Residence: Raiwind Road

CNIC:

Gender: ☑ Male ☐ Female

Qualification: M.Com

Profession: Banker

	Strongly Agree	Agree	No Comments	Disagree	Strongly Disagree
Are you in favor of project?	☑	☐	☐	☐	☐
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?	☑	☐	☐	☐	☐
Will the project affect the plant species of the area?	☐	☐	☐	☑	☐
Will the project cause any type of pollution in the area?	☐	☐	☐	☐	☑

Signature of Interviewed

Kamal

Signature of Interviewer

PUBLIC CONSULTATION / STAKEHOLDER PARTICIPATION REGARDING EIA OF "CONSTRUCTION OF NUTRACEUTICAL AND COSMETIC UNIT"

Name: Ushashan

Residence: Raiwind

CNIC:

Gender: ☑Male ☐Female

Qualification: Matric

Profession: Shopkeeper

	Strongly Agree	Agree	No Comments	Disagree	Strongly Disagree
Are you in favor of project?	☐	☑	☐	☐	☐
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?	☐	☑	☐	☐	☐
Will the project affect the plant species of the area?	☐	☐	☐	☑	☐
Will the project cause any type of pollution in the area?	☐	☐	☐	☑	☐

Signature of Interviewed

Signature of Interviewer

PUBLIC CONSULTATION / STAKEHOLDER PARTICIPATION REGARDING EIA OF "CONSTRUCTION OF NUTRACEUTICAL AND COSMETIC UNIT"

Name: Sajid

Residence: Raiwind Road

CNIC:

Gender: ☑Male ☐Female

Qualification: Primary

Profession: Shopkeeper

	Strongly Agree	Agree	No Comments	Disagree	Strongly Disagree
Are you in favor of project?	☑	☐	☐	☐	☐
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?	☑	☐	☐	☐	☐
Will the project affect the plant species of the area?	☐	☐	☐	☑	☐
Will the project cause any type of pollution in the area?	☐	☐	☐	☑	☐

Signature of Interviewed Sajid

Signature of Interviewer

PUBLIC CONSULTATION / STAKEHOLDER PARTICIPATION REGARDING EIA OF "CONSTRUCTION OF NUTRACEUTICAL AND COSMETIC UNIT"

Name: Sadat

Residence: Raiwind Road

CNIC:

Gender: ☑Male ☐Female

Qualification: F.A

Profession: Factory worker

	Strongly Agree	Agree	No Comments	Disagree	Strongly Disagree
Are you in favor of project?	☐	☑	☐	☐	☐
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?	☑	☐	☐	☐	☐
Will the project affect the plant species of the area?	☐	☐	☐	☑	☐
Will the project cause any type of pollution in the area?	☐	☐	☐	☑	☐

Signature of Interviewed

Sadat

Signature of Interviewer

PUBLIC CONSULTATION / STAKEHOLDER PARTICIPATION REGARDING EIA OF "CONSTRUCTION OF NUTRACEUTICAL AND COSMETIC UNIT"

Name: Mustafa

Residence: Rawind Road

CNIC:

Gender: ☑Male ☐Female

Qualification: Matric

Profession: Factory Worker

	Strongly Agree	Agree	No Comments	Disagree	Strongly Disagree
Are you in favor of project?	☑	☐	☐	☐	☐
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?	☑	☐	☐	☐	☐
Will the project affect the plant species of the area?	☐	☐	☐	☑	☐
Will the project cause any type of pollution in the area?	☐	☐	☐	☑	☐

Signature of Interviewed

Signature of Interviewer

PUBLIC CONSULTATION / STAKEHOLDER PARTICIPATION REGARDING EIA OF "CONSTRUCTION OF NUTRACEUTICAL AND COSMETIC UNIT"

Name: Khan Muhammad

Residence: Lahore

CNIC:

Gender: ☑ Male ☐ Female

Qualification: Matric

Profession: Factory Manager

	Strongly Agree	Agree	No Comments	Disagree	Strongly Disagree
Are you in favor of project?	☐	☑	☐	☐	☐
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?	☐	☑	☐	☐	☐
Will the project affect the plant species of the area?	☐	☐	☐	☑	☐
Will the project cause any type of pollution in the area?	☐	☐	☐	☑	☐

Signature of Interviewed

Signature of Interviewer

ANNEXURE-J

LIST OF ABBREVIATIONS

LIST OF ABBREVIATIONS

W & D	Works and Development
OSHA	Occupational Safety and Health Administration
EPA Punjab	Environmental Protection Agency, Punjab
EIA	Environmental Impact Assessment
IEE	Initial Environmental Examination
PEQS	Punjab Environmental Quality Standards
PEPA	Punjab Environmental Protection Act
TORs	Term of references
WAPDA	Water And Power Development Authority

ANNEXURE-K

GLOSSARY

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

ANNEXURE-L

STUDY TEAM

#	Name of Team Members	Designation	Qualification
1	Maham Ahsan	Environmentalist	M.S Environmental Science
2	Ali Ramzan	Environmentalist	B.S Environmental Sciences
3	Asma Akram	Environmentalist	M.S Environmental Science
4	Taha Nadeem	Environmentalist	B.S Environmental Sciences
5	Shahzad Ahmad Khan	Project Manager	MBA Marketing

ANNEXURE-M

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REFERENCES

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