FONGREENS (PRIVATE)
LIMITED

RCCI, Rawat, Rawalpindi
JAN 2025

ENVIRONMENTAL IMPACT ASSESSMENT

REPORT

ESTABLISHMENT/CONSTRUCTION OF PRODUCTION, PROCESSING, AND EXTRACTION UNIT OF CANNABIS/HEMP AND DERIVATIVES

Prepared By:

Hi-9 Sustainable Developers

Prepared For:

FonGreens (Private) Limited

Hi-9 Sustainable Developers

+92 321 8897173

FFICE NO. G 47 AL LATIF CENTER MAIN BOULEVARD GULBERG III LAHORE

Contents

List of Abbreviations

AQMS: Air Quality Monitoring System

AVR: Automatic Voltage Regulator

BOD: Biochemical Oxygen Demand

BTEX: Benzene, Toluene, Ethylbenzene, and Xylenes

CBD: Cannabidiol

CO_2: Carbon Dioxide

COD: Chemical Oxygen Demand

CSR: Corporate Social Responsibility

dB(A): Decibel (A-weighted)

DO: Dissolved Oxygen

EIA: Environmental Impact Assessment

EMP: Environmental Management Plan

EPA: Environmental Protection Agency

EPD: Environmental Protection Department

FSC: Forest Stewardship Council

FTE: Full-Time Equivalent

GHGs: Greenhouse Gases

GIS: Geographic Information System

GMP: Good Manufacturing Practices

GWP: Global Warming Potential

HAPs: Hazardous Air Pollutants

HC: Hydrocarbon

HPLC: High-Performance Liquid Chromatography

IEE: Initial Environmental Examination

ILO: International Labour Organization

ISO: International Organization for Standardization

LCA: Life Cycle Assessment

LEED: Leadership in Energy and Environmental Design

LPG: Liquefied Petroleum Gas

MSDS: Material Safety Data Sheet

MW: Megawatt

NOC: No Objection Certificate

NOx: Nitrogen Oxides

OHSAS: Occupational Health and Safety Assessment Series

OSHA: Occupational Safety and Health Administration

PCB: Polychlorinated Biphenyls

PM10: Particulate Matter ≤10 Microns

PM2.5: Particulate Matter ≤2.5 Microns

PPP: Public-Private Partnership

R&D: Research and Development

RMS: Risk Management System

SDG: Sustainable Development Goals

SOP: Standard Operating Procedure

SOx: Sulfur Oxides

TDS: Total Dissolved Solids

THC: Tetrahydrocannabinol

TSP: Total Suspended Particulates

VOC: Volatile Organic Compound

WHO: World Health Organization

WTP: Water Treatment Plant

Glossary

A

- **Air Emissions:** The release of pollutants, including gases and particulate matter, into the atmosphere as a result of industrial or natural processes.
- **Alternative Crops:** Crops grown as substitutes for traditional crops, often to diversify production and reduce environmental impacts. Hemp is considered an alternative to cotton due to its low resource requirements.
- **Ambient Air Quality:** The quality of outdoor air in the environment, typically measured by the concentration of pollutants like PM2.5, PM10, NOx, and SOx.
- **Anthropogenic Activities:** Human activities that contribute to environmental changes, such as industrial operations, agriculture, and urbanization.

B

- **Baseline Data:** Initial environmental and social data collected to understand the existing conditions of a project site before development begins.
- **Biodiversity:** The variety of life in a particular habitat or ecosystem, including species diversity, genetic diversity, and ecosystem diversity.
- **Biodegradable:** Materials that can decompose naturally by microorganisms, leaving no harmful residues in the environment.

C

- **Cannabinoids:** Active compounds found in cannabis/hemp plants, used for medical and therapeutic purposes. Examples include CBD (cannabidiol)
- **Cannabinol:** and THC (tetrahydrocannabinol).
- **Carbon Credit:** A tradable certificate representing one ton of carbon dioxide (CO_2) reduced, removed, or avoided. Projects that sequester carbon, like hemp cultivation, can generate carbon credits.
- **Carbon Sequestration:** The process of capturing and storing atmospheric CO_2 to mitigate climate change. Hemp acts as a natural carbon sink.
- **Clean and Green Technology:** Environmentally friendly technologies that reduce waste, pollution, and energy use during production processes.
- **Compliance:** Adherence to environmental laws, regulations, and standards set by governing authorities.

D

- **Distillate:** A purified cannabis extract obtained through distillation, containing concentrated cannabinoids.
- **Dust Suppression:** Techniques used to minimize dust emissions during construction or operational activities, typically involving water spraying or barriers.

E

- **Ecological Footprint:** A measure of human demand on natural resources relative to the Earth's capacity to regenerate those resources.
- **Effluent:** Liquid waste discharged from industrial or agricultural processes, which requires proper treatment to avoid environmental contamination.
- **Environmental Impact:** Hemp is an environmentally friendly plant that can help reduce carbon emissions, protect soil and support biodiversity. Hemp absorbs more CO_2 than most trees and other crops.
- **Environmental Impact Assessment (EIA):** A comprehensive study conducted to assess the environmental and social impacts of a proposed project and recommend mitigation measures.
- **Environmental Management Plan (EMP):** A structured plan that outlines measures to mitigate, monitor, and manage environmental impacts during a project's lifecycle.
- **Extraction Process:** The method used to separate desired compounds from raw materials. For this project, the supercritical CO_2 extraction process is employed.

F

- **Fugitive Emissions:** Unintended releases of gases or particulates from industrial processes, often occurring during handling or storage.
- **Flora and Fauna:** Plants and animals present in a specific ecosystem or region.

G

- **Greenhouse Gases (GHGs):** Gases like CO_2, CH_4, and N_2O that trap heat in the Earth's atmosphere, contributing to global warming.
- **Groundwater Quality:** The condition of water present beneath the Earth's surface, often evaluated for contamination levels and suitability for use.

H

- **Hemp:** A variety of the Cannabis (sativa / indica / hybrid) plant species grown for industrial uses, including textiles, biofuels, recreational and medicinal compounds.
- **Hydrology:** The study of water movement, distribution, and quality in the environment.

I

- **Isolate:** A pure form of a compound, such as CBD isolate, extracted from cannabis plants.
- **Industrial Hemp:** A variety of hemp cultivated for industrial purposes, with low THC (less than 0.3) content and high fiber or cannabinoid yields.

L

- **Life Cycle Assessment (LCA):** The evaluation of environmental impacts associated with all stages of a product's life, from raw material extraction to disposal.
- **Local Economy:** Economic activities and employment opportunities directly benefiting the nearby community of a project.

M

- **Mitigation Measures:** Actions taken to reduce or eliminate adverse environmental impacts of a project.
- **Monitoring Program:** A systematic process of observing, measuring, and analyzing environmental parameters to assess project compliance and performance.

P

- **Pollutants:** Substances that contaminate the environment, potentially causing harm to ecosystems, human health, or both.
- **Processing Unit:** A facility where raw materials are transformed into final products through industrial processes.

R

- **Recycling:** The process of converting waste materials into new products to reduce environmental impact and resource use.
- **Renewable Resources:** Natural resources that replenish over time, such as sunlight, wind, and hemp.

S

- **Supercritical CO_2 Extraction:** A method of extracting compounds using CO_2 at high pressure and temperature, resulting in a pure, eco-friendly extract.
- **Sustainable Development:** Development that meets current needs without compromising the ability of future generations to meet their own needs.

T

- **Terpenes:** Aromatic compounds found in cannabis and other plants, often contributing to their medicinal and flavor properties.
- **Total Suspended Particulates (TSP):** Particles suspended in air, typically originating from dust or emissions, which can affect air quality and health.

W

- **Waste Management:** Practices and procedures for handling, processing, and disposing of waste materials in an environmentally responsible manner.
- **Water Resource Management:** The planning, development, and management of water resources to ensure sustainable use.

Z

- **Zero Waste:** A philosophy that encourages the redesign of resource life cycles so that all products are reused or recycled, minimizing landfill waste.

Team Carrying out the EIA Study

Sr. No.	Designation	Name/Qualification	Experience
1	Chief Environmentalist/ Director/	**Mr. Iftikhar Ahmad** M.Phil. Environmental Science	11 years' experience as Environmentalist
2	M. Muneer	B.Sc Botany, Zoology, Chemistry, M.Sc Environmental Sciences	10 years' experience as Environmentalist
3	Environmentalist/ coordinator	**Mr. Muhammad Ahmad** B.S Environmental Sciences	0–1 year experience as Environmentalist
4	Environmentalist/ AEP	**Ms. Nageen Quyyum** B.S. Environmental Sciences	03 year' of experience as environmentalist
5	Environmentalist/ AEP	**Mr. Akhtar Ali** B.S. Environmental Sciences	0–1 year experience as Environmentalist
6	M. Mukarram Javaid	**MBA, Management Sciences**	12 years in the Field of Environmental Projects

Executive Summary

1. Title and Location of Project

Project Title: Establishment/construction of Production, Processing, and Extraction Unit of Cannabis/Hemp and Derivatives
Location: Plot No. 8 & 9, Street No. 8, RCCI Industrial Estate, Rawat, District Rawalpindi, Pakistan.

2. Name of the Proponent

Proponent Name: Brigadier Muhammad Ahsan, SI(M), (Retd)
Position: CEO
Company: M/s FonGreens (Private) Limited
Address: H. No. 184, Block B, DHA Phase 12 (EME Society), Lahore
Email: ceo.fongreens@fauji.org.pk

3. Name of the Organization Preparing the Report

Name: Mr. Mukarram Javaid
Consultant Company: Hi-9 Sustainable Developers
Address: Office No. G-47, AL-Latif Center, Main boulevard, Gullberg III, Lahore-Punjab
Cell No: 03218897173
Email: mukarram70@gmail.com

4. Brief Outline of the Proposal

Project Overview

The proposed project involves the establishment/construction of a **Production, Processing, and Extraction Unit for Cannabis/Hemp and its Derivatives**. This facility aims to leverage modern extraction technologies to produce high-quality cannabis/hemp products for pharmaceutical and medical applications.

Key Details

Aspect	Details
Land Requirement	**76,800** square yards
Extraction Capacity	- Crude Oil: 367,884 kg per annum - Distillate: 256,044 kg per annum - Isolate: 163,236 kg per annum
Estimated Cost	Approximately 6 billion PKR
Legal Binding	Schedule II (Project requiring EIA), Clause B (2) of the Punjab Environmental Protection Act-2022 (amended)

Process Description

The extraction process will utilize the **Supercritical CO_2 Extraction Method**, which includes the following steps:

The supercritical CO_2 extraction process is a sophisticated method with several vital stages. You should know each stage if you consider adopting this extraction process to improve your product's quality.

1. Preparation:

The first stage involves preparing the raw materials and CO_2 for extraction.

- **Preprocessing of cannabis:** The plant material is dried and ground to increase surface area and improve extraction efficiency. Proper drying and grounding are necessary to ensure the quality and overall yield of the extract.
- **CO_2 preparation:** CO_2 must be of high-purity. It requires specialized tanks to store CO_2 and prepare it for use in the extraction system. The purity of the CO_2 is essential to ensure a clean, contaminant-free extract.

2. Extraction Phase:

- **Loading the extraction vessel:** Well-dried and grounded cannabis raw material is loaded into the extraction chamber of the supercritical CO_2 extraction machine. The raw material is tightly packed as the density and uniformity are essential factors influencing extraction efficiency.
- **Setting extraction parameters:** Pressure and temperature of CO_2 are carefully controlled to achieve the desired supercritical state. The exact parameters maintained depend on the specific cannabinoid or terpene profile being targeted.
- **Flow of CO_2:** Supercritical CO_2 is pumped into the extraction chamber to penetrate the plant material, dissolving and carrying away target compounds. The flow rate must be maintained as it also affects the extraction efficiency and selectivity.

3. Post-Extraction:

- **Separation:** The CO_2-extract mixture is depressurized in the separation chamber once the compounds are dissolved. It causes CO_2 to return to a gaseous state and separate from the extracted cannabis oil.
- **Collection:** Post CO_2 separation, the extracted oil is collected in a separate chamber while the CO_2 is recycled back into the system. This recycling capability is one of the eco-friendly aspects of supercritical CO_2 extraction.

4. Purification:

- While the supercritical CO_2 extraction process results in highly pure cannabis oil, it still can contain unwanted lipids and waxes. Additional steps, such as winterization and distillation, may be employed to remove contaminants. Winterization involves dissolving the extract in ethanol and freezing it to precipitate out the waxes. Distillation is another purification method to refine the extract further and isolate specific compounds.
- Any residual CO_2 is wholly removed, ensuring a pure, solvent-free final product. This is typically achieved through time, heat, and vacuum processing.

5. Major Impacts

Environmental Impacts

- The Carbon credit gained through the cultivation of hemp will be a positive impact of this project.
- Potential emissions during construction and operational phases.
- Generation of waste materials from processing activities.
- Risk of water contamination from improper disposal practices.

Social Impacts

- Job creation opportunities for local residents in industrial, services and agricultural sectors.
- Possible changes in community dynamics due to increased economic activity in both the industrial and agricultural sectors.
- Enhancement of local healthcare options through domestic availability of cannabis-derived pharmaceuticals.

Economic Impacts

- Boost to the local economy through job creation and supply chain development.
- Contribution to national pharmaceutical requirements.
- Hemp derivatives export shall contribute towards national economy.
- Additionally, hemp will be used as the alternative or substitute for the cotton crop, that will be a major economic benefit.

1. Recommendations for Mitigation Measures

Impact Area	Mitigation Measures
Environmental	- Implement dust control measures during construction. - Establish waste management protocols. - Utilize eco-friendly construction materials.
Social	- Conduct community outreach programs to inform locals about the project benefits in the agriculture, services and industrial sectors. - Provide job training programs for local residents.

Economic	- Engage local suppliers in the procurement process. - Develop partnerships with local businesses for mutual benefit.

7. Proposed Monitoring

Monitoring Activities

To ensure compliance with environmental regulations and community standards, the following monitoring activities will be implemented:

Monitoring Aspect	Frequency	Responsibility
Environmental Assessments	Quarterly	Environmental Compliance Officer
Community Feedback Sessions	Bi-annually	Community Relations Officer
Compliance Reporting	Annually	Project Management Team

Reporting

Regular reports will be submitted to the Environmental Protection Department detailing:

- Environmental impact assessments.
- Community engagement outcomes.
- Compliance with mitigation measures.

This executive summary provides a brief overview of the proposed cannabis facility's objectives, processes, potential impacts, and necessary compliance measures aimed at ensuring environmental sustainability while positively contributing to the national / local economy and community welfare.

Chapter 1
Introduction

1.1 Purpose of the Report

This Environmental Impact Assessment (EIA) Report has been prepared as a mandatory requirement under the Punjab Environmental Protection Act, 1997 (Amended 2022), and subsequent regulations including the Punjab Environmental Protection Agency (EPA) Rules for Environmental Examination and Assessment. The primary objective of this report is to assess the potential environmental and social impacts of the proposed Establishment / construction of **Production, Processing, and Extraction Unit of Cannabis / Hemp and Derivatives** by M/s **FonGreens (Private) Limited** during its construction phase.

The purpose of this report is multi-faceted and aims to:

1. **Fulfill Legal and Regulatory Requirements:** The preparation and submission of an EIA report is a prerequisite for obtaining a No Objection Certificate (NOC) from the Environmental Protection Department. The proposed project falls under Schedule II (Projects Requiring EIA), Clause B (2) Chemical Manufacturing Units, including pharmaceuticals and cosmetics, of the Punjab Environmental Protection Act-2022 (Amended). This report ensures that the project adheres to environmental laws and guidelines, providing a transparent mechanism for regulatory oversight.
2. **Identify and Evaluate Potential Environmental Impacts:** The report identifies possible environmental impacts that the project may have during its construction and operational phases. These include:
    - Air and water pollution.
    - Soil contamination.
    - Impacts on local biodiversity.
    - Waste management challenges.
    - Social and economic implications for the local community.

    By comprehensively evaluating these impacts, the report provides a foundation for mitigating adverse effects and enhancing positive outcomes.

3. **Develop and Recommend Mitigation Measures:** An integral part of the EIA process is the formulation of effective mitigation measures. This report outlines:
    - Preventive strategies to minimize negative environmental impacts.
    - Remedial actions to address unforeseen environmental issues.
    - Strategies for the sustainable use of resources.

    These measures are aimed at ensuring that the project aligns with the principles of sustainable development.

4. **Facilitate Sustainable Development:** The report emphasizes the adoption of environmentally friendly practices in the project's design and construction. By integrating sustainability into its core objectives, the project seeks to:

- Minimize its environmental footprint.
- Promote renewable and clean technologies.
- Contribute to the local and national economy through innovative industrial practices and contribute towards claiming Carbon credits.

5. **Provide a Basis for Informed Decision-Making:** This report serves as a comprehensive document for decision-makers, including regulatory authorities, project proponents, and other stakeholders. By presenting detailed data on the project's scope, impacts, and mitigation strategies, the report enables informed decisions that balance development needs with environmental protection.
6. **Enhance Stakeholder Engagement:** The EIA process involves consultations with various stakeholders, including local communities, government agencies, and environmental experts. The report incorporates inputs from these consultations to ensure that the project addresses the concerns and expectations of all relevant parties.
7. **Demonstrate the Proponent's Commitment to Environmental Responsibility:** M/s FonGreens (Private) Limited, a wholly owned subsidiary of Fauji Foundation, is committed to upholding high environmental standards. This report reflects the proponent's dedication to implementing a clean and green industrial project that prioritizes environmental preservation and social welfare.

Key Components Addressed in the Report

The report covers a wide range of aspects to ensure a holistic evaluation of the project, including:

- **Baseline Environmental Conditions:** Assessment of the existing environmental and socio-economic conditions in the project area.
- **Impact Analysis:** Detailed examination of potential impacts on air quality, water resources, soil, biodiversity, and local communities.
- **Mitigation Plan:** Proposals for minimizing and managing environmental impacts during all project phases.
- **Environmental Management Plan (EMP):** A structured approach to monitoring and ensuring compliance with environmental standards.
- **Emergency Preparedness:** Strategies to address unforeseen environmental incidents or hazards.

Broader Implications of the Report

The preparation of this report is not merely a regulatory formality but a strategic tool for sustainable development. It underscores the proponent's vision of establishing a state-of-the-art, environmentally responsible cannabis / hemp processing unit that contributes to the pharmaceutical and medical sectors. Furthermore, the report highlights the social and economic benefits of the project, including job creation, technology transfer, and local economic growth.

By systematically addressing potential environmental challenges and proposing actionable solutions, this report aims to ensure that the proposed project is implemented in a manner that is both environmentally sustainable and socially beneficial.

1.2 Identification of Project and Proponent

The proposed project involves the establishment of a state-of-the-art Production, Processing, and Extraction Unit of Cannabis / Hemp and Derivatives to produce high-quality products for pharmaceutical and medical purposes. The proponent, **M/s FonGreens (Private) Limited**, is a wholly-owned subsidiary of Fauji Foundation, known for its contributions to industrial, economic, and social sectors in Pakistan. The project aligns with the proponent's commitment to innovation, sustainability, and community development.

Proponent Details:

- **Name: Brigadier Muhammad Ahsan, SI(M), (Retd)**
- **Designation:** CEO, M/s FonGreens (Private) Limited
- **Address:** H. No. 184, Block B, DHA Phase 12 (EME Society), Lahore
- **Email:** ceo.fongreens@fauji.org.pk

1.3 Details of Consultant

The Environmental Impact Assessment (EIA) Report has been prepared by **Hi-9 Sustainable Developers**, an environmental consultancy firm specializing in sustainable industrial and infrastructure projects. Hi-9 Sustainable Developers bring extensive expertise in conducting environmental assessments in compliance with national and international standards.

Consultant Details:

- **Name: Mr. Mukarram Javaid**
- **Consultant Company:** Hi-9 Sustainable Developers
- **Address:** Office No. 47, AL-Latif Center, Main boulevard, Gullberg III, Lahore-Punjab
- **Cell No:** 03218897173
- **Email:** mukarram70@gmail.com

1.4 Brief Description of Nature, Size, and Location of Project

The proposed project is the construction of a Production, Processing, and Extraction Unit of Cannabis / Hemp and Derivatives, located at **Plot No. 8 & 9, Street No. 8, RCCI Industrial Estate, Rawat, District Rawalpindi**. The facility is designed to process raw cannabis / hemp flowers into pharmaceutical-grade cannabinol and cannabinoids products through an advanced Supercritical CO_2 extraction process.

Key project details include:

- **Nature of Project:** Clean and green industrial unit for cannabis / hemp processing.
- **Total Area: 76,800** square yards.
- **Processing Capacity:**
    - Crude: 367,884 kg per annum.
    - Distillate: 256,044 kg per annum.

  - Isolate: 163,236 kg per annum.
- **Estimated Cost:** PKR 6 billion.
- **Location Characteristics:**
  - Situated in RCCI Industrial Estate, a designated industrial zone.
  - Does not encroach on forests, national parks, or environmentally sensitive areas.
  - Proximity to essential infrastructure such as roads and utilities.

The project's primary objective is to establish a sustainable production and extraction unit to meet the growing demand for cannabis / hemp derivatives in the pharmaceutical industry. Additionally, it aims to generate employment, enhance local economic activity, and set a benchmark for environmentally responsible industrial practices in Pakistan.

Screening
Determination of IEE or EIA Requirements

Screening is a critical step in the environmental assessment process, as it determines whether a project requires an Initial Environmental Examination (IEE) or a more comprehensive Environmental Impact Assessment (EIA). This determination is guided by the regulatory framework provided under the **Punjab Environmental Protection Act, 1997 (Amended 2022)** and the associated **Punjab Environmental Protection Agency (EPA) Regulations**.

Regulatory Framework

The Punjab Environmental Protection Agency categorizes projects into two schedules based on their potential environmental and social impacts:

Schedule I (Projects Requiring IEE):

- Includes projects with moderate environmental impacts.
- Focuses on less complex and localized impacts that can be mitigated with basic management measures.

Schedule II (Projects Requiring EIA):

- Applies to projects with significant, widespread, or long-term environmental and social impacts.
- Typically includes large-scale industrial, chemical, or infrastructure projects.

Screening of the Proposed Project

The proposed **cannabis / hemp processing and extraction unit by M/s FonGreens (Private) Limited** is classified under **Schedule II, Clause B (2)** of the Punjab Environmental Protection Agency Regulations, which pertains to **chemical manufacturing units, including pharmaceuticals and cosmetics**. This categorization necessitates the preparation of an **Environmental Impact Assessment (EIA)** due to the following considerations:

Nature of the Project:

- The project involves the industrial-scale extraction and processing of cannabinol / cannabinoids using chemical and Supercritical CO_2 Extraction-based technologies.
- Potential risks include chemical handling, waste generation, and emissions.

Scale and Magnitude:

- The project spans a total area of **76,800 square yards**, with significant production capacities for crude oil, distillate, and isolate.
- The scale of operations and the use of advanced technologies heighten the potential for environmental and social impacts.

Environmental Sensitivity:

- The proposed site is located in the **RCCI Industrial Estate, Rawat**, a designated industrial zone. However, its proximity to residential areas, water bodies, and

agricultural lands necessitates careful impact assessment to ensure compliance with environmental standards.

Potential Impacts:

- The project poses potential risks of:
  - Air and water pollution from emissions and effluents.
  - Soil contamination due to improper waste disposal.
  - Impacts on biodiversity, particularly due to chemical use and resource extraction.
- These impacts require comprehensive evaluation and mitigation strategies, which are integral to an EIA process.

Regulatory Compliance:

- As per the EPA's amended regulations, any project involving large-scale chemical manufacturing or pharmaceutical production falls under the **Schedule II category**.
- The proponent's commitment to sustainable practices further necessitates a detailed EIA to align with international environmental standards.

Conclusion

Based on the nature, scale, and potential impacts of the proposed cannabis / hemp processing and extraction project, it is evident that the project requires an **Environmental Impact Assessment (EIA)**. The EIA process will provide a robust framework to evaluate potential environmental and social impacts, engage stakeholders, and propose mitigation measures to ensure the project's sustainability and compliance with regulatory requirements.

By adhering to the screening requirements, M/s FonGreens (Private) Limited demonstrates its commitment to environmental stewardship and regulatory compliance, paving the way for an environmentally sustainable and socially responsible project.

Scoping

1. Spatial and Temporal Boundaries of Environmental Assessment

Spatial Boundaries

In the context of the M/s FonGreens (Private) Limited cannabis / hemp production, processing, and extraction project, the spatial boundaries for the environmental assessment are defined as follows:

- **Project Area (PA)**: This includes the specific footprint of the project, which encompasses all physical disturbances associated with construction, operation, and decommissioning activities. The PA is confined to **Plot No. 8 & 9, Street No. 8, RCCI Industrial Estate, Rawat, District Rawalpindi**, covering an area of **76,800 square yards**.
- **Local Study Area (LSA)**: The LSA extends beyond the PA to include areas where project-related effects (both direct and indirect) can be reasonably predicted or measured. For this project, the LSA encompasses a radius of approximately **5 kilometers** from the PA. This area is critical for assessing potential impacts on local communities, ecosystems, and infrastructure.
- **Regional Study Area (RSA)**: The RSA is broader and includes a larger geographic context for evaluating cumulative effects from the project in combination with other existing or planned developments in the region. It extends to cover significant portions of Rawalpindi District and surrounding areas where cumulative impacts may be observed.

Temporal Boundaries

The temporal boundaries for this environmental assessment are established based on the different phases of the project lifecycle:

- **Construction Phase**: This phase is anticipated to last approximately **18 months** from the start date, which will be contingent upon receiving all necessary approvals and permits. During this time, significant physical alterations to the site will occur.
- **Operation Phase**: Following construction, the operation phase is expected to commence and last for approximately **10-15 years**, during which the facility will actively produce and process cannabis products.

2. Important Issues and Concerns Raised During Consultation

During consultations with stakeholders - including local communities, regulatory bodies, and environmental groups - several important issues and concerns were raised:

- **Environmental Impact**: Stakeholders expressed concerns regarding potential impacts on local ecosystems, particularly related to water usage, waste management, and emissions during both construction and operational phases.
- **Community Health and Safety**: There were apprehensions about how the project might affect air quality and public health in nearby residential areas due to emissions or accidental releases during extraction processes.

- **Economic Opportunities**: While many stakeholders recognized potential job creation as a benefit of the project, there were calls for transparency regarding employment opportunities for local residents and equitable hiring practices.
- **Cultural Sensitivity**: Given that cannabis cultivation may raise cultural sensitivities in certain communities, stakeholders emphasized the need for respectful engagement with local traditions and practices.
- **Regulatory Compliance**: Concerns were raised regarding adherence to environmental regulations set forth by relevant authorities. Stakeholders requested assurance that all necessary permits would be obtained before project commencement.

3. Significant Impacts and Factors to be Determined

The environmental assessment will focus on identifying significant impacts associated with various components of the project. Key factors include:

- **Air Quality**: Analyzing emissions from construction activities and operational processes to determine their potential impact on local air quality standards.
- **Water Resources**: Assessing water usage for both extraction processes and facility operations, including potential impacts on local water bodies and groundwater resources.
- **Biodiversity**: Evaluating effects on local flora and fauna within both the PA and LSA, particularly any protected species or habitats that may be affected by construction or operational activities.
- **Socioeconomic Factors**: Examining how the project may influence local economies through job creation versus potential disruptions to existing livelihoods or community structures.
- **Cumulative Effects**: Considering how this project interacts with other existing or proposed developments in the region to assess overall cumulative impacts on environmental resources.

By addressing these spatial and temporal boundaries along with stakeholder concerns and significant impact factors, M/s FonGreens (Private) Limited aims to ensure a comprehensive understanding of potential environmental effects while promoting sustainable practices throughout its operations. The findings from this assessment will inform decision-making processes aimed at minimizing negative outcomes while maximizing benefits for both local communities and the environment.

Chapter 2
Consideration of Alternatives

The consideration of alternatives is a critical component of the Environmental Impact Assessment (EIA) process for the M/S FonGreens (Private) Limited project. This chapter outlines the evaluation of various alternatives related to site selection, design and technology, environmental practices, and economic considerations. The aim is to ensure that the chosen approach is optimal for achieving project objectives while minimizing environmental impacts.

1. Site Alternatives: Selection and Rejection Criteria

Site Alternatives

Given the specific requirements of the cannabis production and extraction facility, an exhaustive search for alternative sites was conducted. However, it was determined that there are no feasible alternative sites for this project due to the following reasons:

Regulatory Compliance: The selected site in the RCCI Industrial Estate is zoned for industrial use, which aligns with regulatory requirements for cannabis processing facilities. Other potential locations either do not meet zoning regulations or are located in sensitive areas that would not be suitable for such operations.

Infrastructure Availability: The chosen site benefits from existing infrastructure, including road access, utilities, and proximity to transportation networks essential for logistics. Alternative sites lacked similar infrastructure support, which would increase project costs and timelines.

Environmental Considerations: The current site does not fall within forests, national parks, or environmentally sensitive areas, making it an appropriate choice from an environmental perspective. Other potential sites were found to be in proximity to such areas, raising concerns about ecological impacts.

Rejection Criteria

The rejection criteria used during the site selection process included:

- Zoning restrictions that prohibit cannabis / hemp - related activities.
- Proximity to residential areas or sensitive ecological zones.
- Lack of adequate infrastructure to support operational needs.
- Increased risk of environmental degradation in alternative locations.

2. Design/Technology Alternatives: Selection and Rejection Criteria

Design/Technology Alternatives

For the extraction process, various technological approaches were considered. Ultimately, M/s FonGreens (Private) Limited has opted to utilize state-of-the-art extraction technology that includes:

Super critical CO_2 Extraction: This method is selected for its efficiency in preserving cannabinoid integrity while minimizing impurities. It is recognized for producing high-quality extracts suitable for pharmaceutical applications.

Wiped Film Molecular Distillation: This advanced technique allows for precise separation of cannabinoids / cannabinol based on boiling points, ensuring a high-purity final product.

Rejection Criteria

The following criteria were used to evaluate and reject alternative technologies:

- **Cost-effectiveness:** Technologies that required excessive capital investment or operational costs without a clear return on investment were dismissed.
- **Efficiency and Yield:** Methods with lower extraction yields or longer processing times were considered less favorable.
- **Environmental Impact:** Technologies that produced significant waste or emissions were rejected in favor of more sustainable options.

3. Environmental Alternatives: Selection and Rejection Criteria

Environmental Alternatives

In terms of environmental practices, M/s FonGreens Private Limited is committed to implementing sustainable practices throughout the project lifecycle. Key environmental alternatives considered include:

Waste Management Practices: Options for managing by-products and waste materials generated during extraction were evaluated. **The decision was made to implement a comprehensive recycling program that repurposes plant waste into biofuel or compost**.

Energy Sources: Renewable energy sources such as solar panels were considered to power facility operations partially. However, due to initial capital costs and feasibility concerns, **traditional energy sources will be supplemented with renewable energy sources like Solar panels and energy-efficient technologies instead**.

Rejection Criteria

The rejection criteria for environmental alternatives included:

- Available area restrictions and high initial capital costs that would not yield proportional long-term benefits.
- Lack of technical feasibility within the existing facility design and operational framework.
- Potential negative impacts on operational efficiency or product quality.

4. Economic Alternatives: Selection and Rejection Criteria

Economic Alternatives

Economic considerations play a vital role in determining the project's viability. Various economic alternatives were evaluated:

In-House Extraction vs. Toll Processing: The decision was made to establish an in-house extraction facility rather than outsourcing processing through toll processors. This choice allows M/s FonGreens Private Limited greater control over product quality, meeting international protocols of GMP and GACP Certifications and desired operational efficiency while reducing long-term costs associated with third-party services.

Investment in Advanced Technology: Investing in state-of-the-art extraction technology was prioritized over older methods that may have lower upfront costs but would result in higher operational expenses due to inefficiencies.

Rejection Criteria

The following criteria guided the evaluation of economic alternatives:

- Long-term cost implications versus short-term savings; options with higher long-term operating costs were rejected.
- Potential risks associated with outsourcing critical processes that could affect product quality and brand reputation.
- Financial viability based on market demand projections for cannabis products; alternatives lacking robust market potential were dismissed.

Conclusion

In conclusion, the consideration of alternatives for the M/s FonGreens (Private) Limited project has been thorough and systematic. The decision-making process has focused on selecting optimal site locations, advanced design technologies, environmentally responsible practices, and economically viable strategies. By committing to state-of-the-art technology and rejecting less feasible options, M/s FonGreens (Private) Limited aims to ensure a successful project outcome that aligns with both regulatory requirements (domestic and international) and community expectations while minimizing environmental impacts.

Chapter 3
Description of the Project

3.1 Objectives of the Project

The primary objectives of the **proposed establishment / construction of Production, Processing, and Extraction Unit of Cannabis / Hemp and Derivatives** are as follows:

1. **Enhancing the Pharmaceutical Sector:** The project aims to establish a state-of-the-art facility for production, processing and extracting cannabinol / cannabinoids for medical and pharmaceutical applications. The initiative supports national efforts to modernize and expand the pharmaceutical sector.
2. **Promoting Economic Growth:** By introducing an innovative industrial project, the initiative will contribute to the local and national economy. **It will create job opportunities, attract investments, and enhance export potential**.
3. **Sustainability and Resource Utilization:** The project is designed to employ advanced supercritical CO_2 extraction technology to ensure minimal environmental impact. By leveraging renewable resources and eco-friendly processes, the project aligns with global sustainability goals.
4. **Support for Medical Research:** The production of cannabinol / cannabinoids will aid in research and development for innovative medical treatments, including pain management and chronic disease therapies.

3.2 Location and Site Layout of the Project

Location: The proposed facility will be established at **Plot No. 8 & 9, Street No. 8, RCCI Industrial Estate, Rawat, District Rawalpindi**. This industrial estate is strategically located with access to major transportation networks, ensuring logistical efficiency for raw material supply and product distribution.

Site Layout: The facility spans an area of **76,800 square yards**, comprising:

- Production, Processing and Extraction units.
- Storage areas for raw materials and finished products.
- Administrative offices.
- Safety zones and waste management systems.

The detailed site layout plan, including the placement of key facilities, is annexed at the end of the report.

3.3 Land Use on the Site and Layout Plan

The project site is located within an industrial estate, specifically designated for industrial activities. The area has been zoned to accommodate facilities like manufacturing units and processing plants. Surrounding land uses include:

- **North:** Adjacent industrial facility
- **South:** Road Access
- **East:** Adjacent industrial facility
- **West:** Road Access

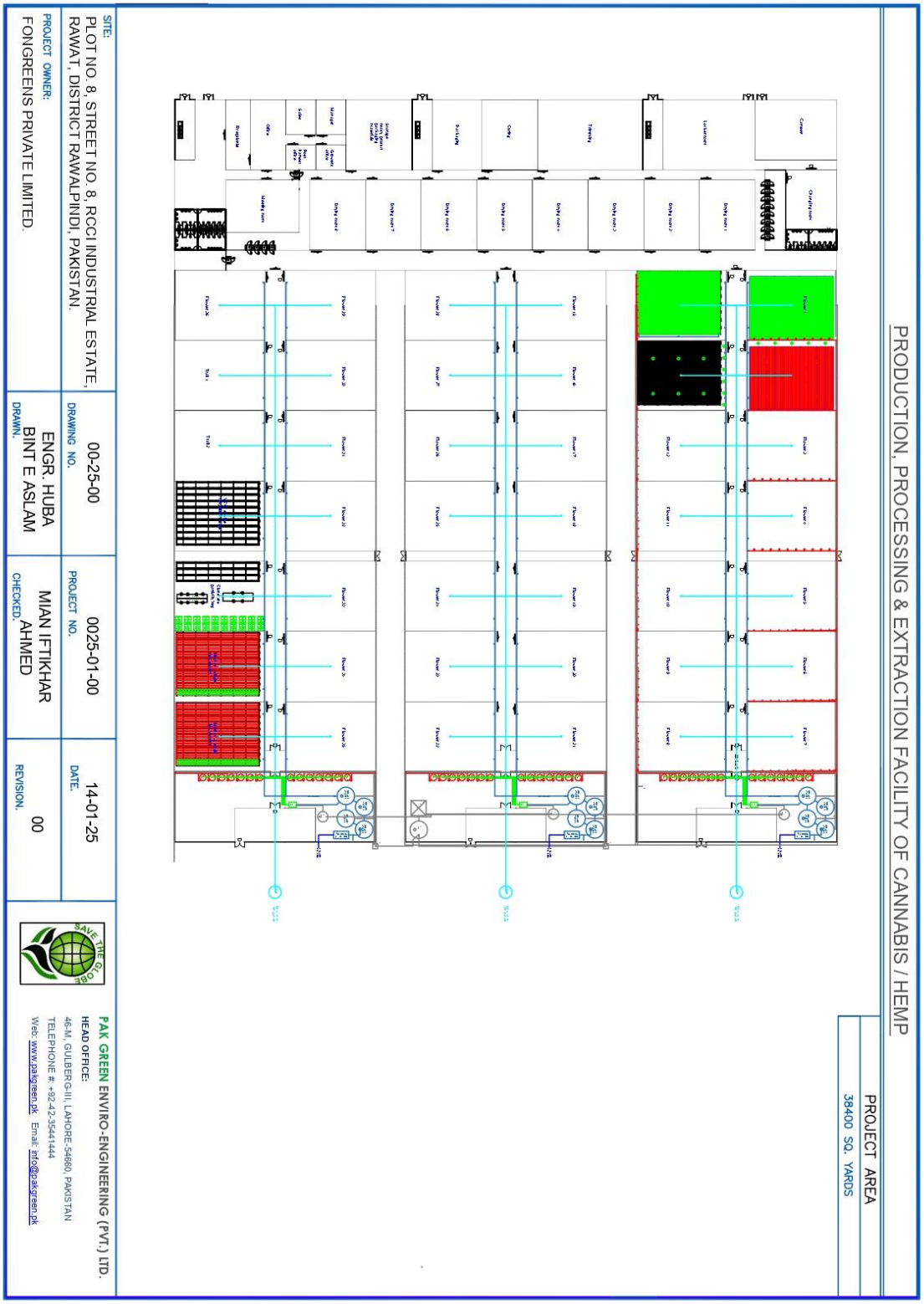
Land Coordinates:

33.5173512°N

73.2514752°E

The site's land use is fully compliant with local zoning regulations, and no residential or ecologically sensitive areas are within immediate proximity.

Lay out plan of M/s FonGreens (Private) Limited, Production, Processing and Extraction



Facility

3.4 Road Access

The site is accessible via well-maintained roads, ensuring smooth transportation of raw materials and products. Key access routes include:

- **Rawalpindi–Islamabad Expressway:** Provides direct connectivity to major cities.
- **Internal RCCI Roads:** Facilitate intra-estate logistics and easy access for suppliers and distributors.

The road infrastructure is capable of supporting the anticipated traffic load without causing congestion or adverse environmental impacts.

3.5 Vegetation Features of the Site

The project site is located in an industrial area with minimal natural vegetation. Current vegetation features include sparse growth of:

- Shrubs and grasses on undeveloped land.
- Planted trees along the estate's boundary for landscaping and dust control.

No significant ecological or biodiversity hotspots exist within or around the project site. The development plan includes provisions for landscaping and plantation to enhance the site's aesthetic and environmental quality.

3.6 Cost and Magnitude of Operation

The total estimated cost of the project is **PKR 6 billion**, from which 2-3% of the budget will be allocated for the environmental Management System.

The facility will operate with a processing capacity of:

- **Crude Oil:** 367,884 kilograms per year.
- **Distillate:** 256,044 kilograms per year.
- **Isolate:** 163,236 kilograms per year.

3.7 Schedule of Implementation

The project's implementation schedule spans **18 months** and includes the following phases:

1. **Planning and Design:** (Months 1–4)
    - Finalizing designs, layouts, and regulatory approvals.
2. **Construction:** (Months 5–12)
    - Site preparation, civil works, and infrastructure development.
3. **Equipment Installation:** (Months 13–15)

- Installation and calibration of processing units.

4. **Testing and Commissioning:** (Months 16–18)
   - System checks and trial runs.

3.8 Description of the Project

The M/s FonGreens (Private) Limited project aims to establish / construct a comprehensive Production, Processing, and Extraction Unit of Cannabis / Hemp and Derivatives, that adheres to modern environmental standards while meeting the pharmaceutical demands of the country. This section provides an in-depth description of the project's process flow, detailing each step involved in the extraction and refinement of cannabinol / cannabinoids from cannabis / hemp. The extraction process involves the following steps:

1. **Raw Material Preparation:**
   - Drying and shredding of cannabis / hemp plants to prepare them for extraction – Drying or Retting, Decortication, etc.
2. **Supercritical CO_2 Extraction:**
   - Using CO_2 as a solvent to extract cannabinol / cannabinoids.
3. **Winterization:**
   - Removing impurities such as waxes and fats from the crude extract.
4. **Distillation:**
   - Refining the extract to produce distillate with high cannabinol / cannabinoid purity.
5. **Isolation:**
   - Further processing to isolate specific cannabinoids like CBD or THC, etc.
6. **Packaging and Storage:**
   - Sealing finished products in compliance with pharmaceutical standards.

3.8.1 Technology:

The facility will employ **advanced CO_2 extraction technology** due to its efficiency, safety, and environmental benefits. This method ensures high yield and purity of cannabinol / cannabinoids while minimizing solvent loss.

3.9 Supercritical CO_2 Extraction Method

Abbreviated as $ScCO_2$, Supercritical CO_2 is the term used to refer to carbon dioxide gas that has been pressurized and heated to a point where it exhibits properties of both a liquid and a gas simultaneously. This unique property of CO_2 allows it to act as a highly efficient solvent for extracting compounds from plant material. To achieve the supercritical state, CO_2 is heated above 31.1°C (87.98°F) and pressurized above 73.8 bar (1,071 psi). Supercritical CO_2 is highly efficient in extracting cannabinol / cannabinoids and terpenes from cannabis plants.

3.9.1 The Science Behind Supercritical CO_2 Extraction

To put carbon dioxide in its supercritical state where it acts as both liquid and gas, its critical point (31.1°C and 73.8 bar) is exceeded using specialized equipment. In this state, supercritical CO_2 exhibits properties that make it ideal for extraction. These properties include:

1. The high density, which is similar to liquids, allows for the efficient dissolution of compounds

2. With increased solubility, supercritical CO_2 can dissolve a wide range of organic compounds
3. The low viscosity of supercritical CO_2 enables easy flow through plant material
4. It has high diffusivity penetrating deep into plant matter
5. Negligible surface tension allows for easy penetration of tiny pores
6. Supercritical CO_2 has high compressibility, implying its density can be easily manipulated for selective extraction
7. Higher thermal conductivity at this state enables efficient heat transfer during the process
8. The non-toxic nature of CO_2 makes it safe for both operators and consumers

All these properties make supercritical CO_2 a highly efficient solvent for extracting compounds from cannabis. As the CO_2 flows through the plant matter, it acts as a solvent, dissolving and carrying away desired compounds such as cannabinol / cannabinoids and terpenes. Due to easy manageability, the solvent properties of supercritical CO_2 can be fine-tuned by adjusting temperature and pressure. It makes selective extraction of specific compounds possible.

The science behind supercritical CO_2 extraction is rooted in thermodynamics and fluid dynamics. By manipulating the temperature and pressure, operators can easily alter the density and solvating power of the CO_2. It allows CO_2 to penetrate plant material more effectively than liquid solvents. Furthermore, its gas-like viscosity and diffusivity enable it to reach deep into the plant structure. Combining both states results in a more efficient extraction process than traditional methods.

3.9.2 How to Make Supercritical CO_2?

The supercritical CO_2 extraction process is a sophisticated method with several vital stages. You should know each stage if you consider adopting this extraction process to improve your product's quality.

1. Preparation:

The first stage involves preparing the raw materials and CO_2 for extraction.

- **Preprocessing of cannabis:** The plant material is dried and ground to increase surface area and improve extraction efficiency. Proper drying and grounding are necessary to ensure the quality and overall yield of the extract.
- **CO_2 preparation:** CO_2 must be of high-purity. It requires specialized tanks to store CO_2 and prepare it for use in the extraction system. The purity of the CO_2 is essential to ensure a clean, contaminant-free extract.

2. Extraction Phase:

- **Loading the extraction vessel:** Well-dried and grounded cannabis raw material is loaded into the extraction chamber of the supercritical CO_2 extraction machine. The raw material is tightly packed as the density and uniformity are essential factors influencing extraction efficiency.
- **Setting extraction parameters:** Pressure and temperature of CO_2 are carefully controlled to achieve the desired supercritical state. The exact parameters maintained depend on the specific cannabinoid or terpene profile being targeted.
- **Flow of CO_2:** Supercritical CO_2 is pumped into the extraction chamber to penetrate the plant material, dissolving and carrying away target compounds. The flow rate must be maintained as it also affects the extraction efficiency and selectivity.

3. Post-Extraction:

- **Separation:** The CO_2 - extract mixture is depressurized in the separation chamber once the compounds are dissolved. It causes CO_2 to return to a gaseous state and separate from the extracted cannabis oil.
- **Collection:** Post CO_2 separation, the extracted oil is collected in a separate chamber while **the CO_2 is recycled back into the system**. **This recycling capability is one of the eco-friendly aspects of supercritical CO_2 extraction**.

4. Purification:

- While the supercritical CO_2 extraction process results in highly pure cannabis oil, it still can contain unwanted lipids and waxes. Additional steps, such as winterization and distillation, may be employed to remove contaminants. Winterization involves dissolving the extract in ethanol and freezing it to precipitate out the waxes. Distillation is another purification method to refine the extract further and isolate specific compounds.
- Any residual CO_2 is wholly removed, ensuring a pure, solvent-free final product. This is typically achieved through time, heat, and vacuum processing.

Is CO_2 Extraction Solventless?

No, **CO_2 extraction** is not technically considered solventless. While it doesn't use traditional chemical solvents like butane or ethanol, it still uses **supercritical carbon dioxide (CO_2)** as a solvent to extract oils, cannabinol, cannabinoids, or other compounds from plant materials that make it a solvent based extraction method.

3.9.3 Supercritical CO_2 Extraction vs. Subcritical Extraction

CO_2 is used at a subcritical state for the extraction process as well. Thus, it is useful to understand the differences between supercritical CO_2 extraction and subcritical extraction.

Efficiency and Yield:

- Supercritical CO_2 extraction of cannabis generally offers higher efficiency and yields. **CO_2 has the highest solvating power in a supercritical state, making it ideal for high-throughput** commercial extraction operations.
- Subcritical extraction may have lower efficiency yields but is gentler due to lower heat and pressure. It makes **subcritical CO_2 extraction suitable for heat-sensitive compound extraction**, such as delicate terpenes or other volatile compounds.

Quality and Potency:

- Supercritical CO_2 extracts have higher potency due to more purity and thorough extraction of cannabinoids. This makes the process particularly beneficial for producing high-concentration products like vape oils or dabs.
- Subcritical extraction preserves certain terpenes and other volatile compounds, resulting in extracts with more complex flavor and aroma profiles. It is a preferable extraction method for producing products required for their therapeutic properties.

3.9.4 Applications in Various Products:

Due to the high concentration of the compounds, supercritical CO_2 extraction process is used for producing products such as:

- Vape Cartridges that have High potency (70-90% THC) and minimal residual terpenes.
- Concentrates such as wax crumble and shatter with high cannabinoid content (80-90%).
- Full-spectrum, high-potency tinctures.
- Capsules and pills for precise dosing of concentrated cannabinoids.
- High-potency creams and balms.

- Isolates such as pure CBD, THC, or other cannabinoid crystals (99% + purity).

Subcritical CO_2 extraction also produces the same variety of products but with different concentrations of terpenes. It includes:

- Full-spectrum tinctures that are rich in terpenes and minor cannabinoids.
- Aromatherapy products such as terpene-rich essential oil blends.
- Flavoring agents for food and beverage applications.
- Live resin products are famous in high-end vape cartridges and concentrates.
- Topicals such as whole-plant extracts for balms and salves.
- Edible ingredients that are often used in gourmet or artisanal cannabis edibles.
- Skincare products that require minor cannabinoids and terpene extracts, such as anti-aging creams, serums, and lotions.

Many producers combine both methods or adjust parameters within the supercritical range to produce desired products. The hybrid approach results in a high-potency extract that retains the full spectrum of the plant's compounds. Irrespective of the method used, the products produced are highly sustainable.

3.10 Equipment and Technologies Used for Supercritical CO_2 Extraction

The supercritical CO_2 extraction equipment consists of several essential components. As it is a significant investment decision, producers should understand the type of equipment, key elements, and technology available.

3.10.1 Types of Equipment:

1. **Extraction vessels:** These are the high-pressure chambers, generally made from stainless steel, where the cannabis material is placed. These heavy-duty vessels are designed to withstand the high pressures of supercritical CO_2 extraction.

2. **CO_2 pumps:** These are high-pressure pumps to circulate CO_2 through the system. These pumps are designed to achieve and maintain the pressures required for supercritical conditions.

3. **Separation vessels:** These stainless-steel chambers separate the extract from CO_2. These vessels are designed to facilitate the rapid phase transition of CO_2 from supercritical to gaseous state.

3.10.2 Key Components

- **Heating elements:** The purpose of these components is to maintain CO_2 at supercritical temperature (above 31.1°C). Supercritical CO_2 extraction equipment can include heating elements such as electric resistance heaters, heat exchangers (larger systems), and thermoelectric coolers (for precise temperature control). Such systems have PID (Proportional-Integral-Derivative) controllers and computerized temperature management to better control the temperature.

- **Pressure regulators:** These components maintain CO_2 at supercritical pressure (above 73.8 bar). This is achieved using back pressure regulators, dome-loaded pressure regulators, and electronic pressure controllers. Pressure regulators can have mechanical

spring-loaded designs or electronically controlled regulators, depending on your chosen equipment.

- **CO_2 recovery systems:** Recovery systems are used to recapture and reuse CO_2 after extraction and reduce operational costs and environmental impact. Condensers (to liquefy CO_2 gas), storage tanks (for recaptured CO_2), and purification systems (filters, molecular sieves) are part of the CO_2 recovery systems.

With the evolution of technology, innovations are taking place in supercritical CO_2 extraction machines for better efficiency and control. Innovations are being made for more precise temperature and pressure control systems, improved flow dynamics, and enhanced separation technologies. A modern supercritical CO_2 extractor has automation and digital control systems, allowing precise parameter management and consistent results. Additional features like touch screen interfaces and data logging capabilities help in process optimization and quality control.

3.11 Benefits of Using Supercritical CO_2 Extraction

The supercritical CO_2 extraction process offers several benefits over other methods of extraction. This method is preferred because of its:

Safety Aspects:

- CO_2 is non-toxic and non-flammable, even in a supercritical state. It makes it highly safe and reduces the risks associated with other solvents. CO_2 is safe for operators and the surrounding environment, reducing the need for extensive safety measures for flammable solvents.
- CO_2 is safer to store compared to volatile organic solvents. No special equipment or safety measures are required as CO_2 is inert at room temperature and pressure.

Environmental Impact:

- As CO_2 is recycled and reused in the extraction process, there is no wastage of the solvent. Also, the closed-loop system minimizes the environmental footprint of the extraction process.
- While supercritical CO_2 extraction does require energy for pressurization and temperature control, it is more energy efficient. Due to the purity of the end products, they don't have extensive post-processing or solvent recovery like other traditional methods.

Quality of the Final Product:

- Supercritical CO_2 extracts are known for their high purity and potency. The selectivity of the process allows for the extraction of desired compounds up to 95% pure.
- The extraction process can preserve a wide range of cannabinoids and terpenes. This makes it possible to obtain full-spectrum extracts.

3.11 Restoration and Rehabilitation Plans

The project incorporates robust restoration and rehabilitation measures to minimize its environmental footprint. These include:

1. **Landscaping and Plantation:**
   - Native trees and shrubs will be planted around the facility to enhance biodiversity and control dust.
2. **Soil Stabilization:**
   - Measures to prevent soil erosion during construction and operational phases.
3. **Waste Management:**
   - Implementation of a zero-waste policy, repurposing by-products, and ensuring proper disposal of non-recyclable materials.
4. **Decommissioning Plans:**
   - In the event of facility closure, plans will ensure site restoration to its original state or a condition suitable for alternate use.

By integrating these measures, the project aims to contribute positively to the local environment while achieving its industrial objectives.

Chapter 4
Description of the Environment

A clear understanding of the existing environmental conditions is fundamental for evaluating the potential impacts of the proposed project. This chapter provides an extensive overview of the baseline environmental resources and assesses the site's suitability for development.

4.1 Baseline Physical Environment

4.1.1 Climate and Meteorological Conditions

The project area, located in RCCI Industrial Estate, Rawat, District Rawalpindi, experiences a semi-arid climate. The following key climatic features define the region:

- **Temperature:** The area experiences hot summers with temperatures reaching up to 45°C and mild winters with temperatures occasionally dropping to 0°C.
- **Rainfall:** The annual average rainfall is approximately 800 mm, with the monsoon season occurring between July and September.
- **Wind Patterns:** Predominantly, winds flow from the west and southwest, with an average wind speed of 5-10 km/h.
- **Humidity:** Humidity levels fluctuate between 20% in summer and 80% in the rainy season.

4.1.2 Topography and Geology

The project site is characterized by relatively flat terrain, suitable for construction and industrial activities. The soil is primarily sandy loam with moderate compaction, providing a stable foundation for the facility. Geological investigations confirm no significant risk of subsidence or landslides.

4.1.3 Air Quality

Baseline air quality measurements, conducted by a certified laboratory, indicate that the area complies with the National Environmental Quality Standards (NEQS) for air pollutants. Key indicators include:

- **PM2.5:** 25 µg/m³ (NEQS: 35 µg/m³)
- **SO2:** 30 µg/m³ (NEQS: 120 µg/m³)
- **NOx:** 28 µg/m³ (NEQS: 80 µg/m³)

4.1.4 Water Resources

The primary water source in the vicinity is groundwater. Preliminary hydrological assessments indicate an adequate supply for industrial and domestic use. Water quality testing confirms compliance with drinking water standards.

Parameter	Description
Topography	The project site is generally flat with minimal undulations.
Climate	Semi-arid, with average temperatures ranging from 15°C to 35°C.
Air Quality	PM2.5 levels below permissible limits; monitored data shows good quality.
Noise Levels	Within acceptable levels (daytime: 55 dB; nighttime: 45 dB).
Soil Characteristics	Loamy soil with good fertility, pH range: 6.5-7.5.
Water Table	Depth at 25-30 meters; no contamination detected.

4.2 Baseline Ecological Environment

4.2.1 Flora

The site and its surroundings predominantly consist of scrub vegetation and hardy grass species. No significant forest cover or protected plant species were observed.

4.2.2 Fauna

Common fauna in the area includes:

- **Birds:** House sparrows, mynas, and kites.
- **Mammals:** Small rodents and occasional jackals.
- **Reptiles:** Garden lizards and common skinks.

No endangered or protected species were identified during ecological surveys.

4.2.3 Sensitive Ecological Features

The project site does not fall within or near any designated environmentally sensitive areas, including national parks, wildlife sanctuaries, or wetlands.

Parameter	Observations
Flora	Dominated by native species like neem, acacia, and grasses.
Fauna	Includes small mammals, reptiles, and birds such as sparrows and crows.
Protected Areas	No nearby forests, wetlands, or protected reserves.
Aquatic Life	Minimal, as there are no significant water bodies on-site.

4.3 Baseline Socioeconomic Environment

4.3.1 Demographics

The local population in Rawat comprises approximately 50,000 individuals, with a diverse socioeconomic composition. The literacy rate is 65%, and the majority are engaged in trade, manufacturing, and small-scale agriculture.

4.3.2 Infrastructure

The area is well-equipped with basic infrastructure, including:

- **Transportation:** Proximity to the Islamabad-Lahore Motorway and Grand Trunk Road.
- **Utilities:** Reliable electricity and water supply.
- **Health and Education:** Access to hospitals and schools within a 10 km radius.

4.3.3 Employment and Livelihood

The project is expected to generate significant employment opportunities, both during the construction and operational phases, benefiting the local community.

Parameter	Details
Population Density	Approximately 500 people per square kilometer.
Occupation	Predominantly agriculture, followed by small-scale businesses.
Education Levels	Literacy rate: 70%; access to schools and colleges nearby.
Healthcare Facilities	Basic healthcare available within 5 km; major hospitals 20 km away.
Cultural/Historical Sites	No significant sites within a 10 km radius.

4.4 Laboratory Reports

Comprehensive environmental analyses, conducted by an accredited laboratory, include:

4.4.1 Soil Testing

The soil at the project site has a neutral pH of 7.1, high permeability, and moderate organic content (3.5%), making it suitable for construction.

4.4.2 Groundwater Analysis

Key water quality parameters:

- **pH:** 7.4
- **Total Dissolved Solids (TDS):** 500 mg/L (within permissible limits)
- **Hardness:** 150 mg/L (within permissible limits)

4.4.3 Geo-Investigation

Geo-investigation confirms the soil's load-bearing capacity of 20 tons/m², adequate for industrial structures.

Test Conducted	Results Summary
Air Quality	PM10: 40 µg/m³, PM2.5: 20 µg/m³ (within limits).
Noise Levels	Daytime: 54 dB; Nighttime: 44 dB (below prescribed standards).
Water Quality	pH: 7.2, TDS: 500 mg/L; suitable for construction and use.
Soil Quality	pH: 7.1; Organic Matter: 2.5%; good for vegetation.
Geo-technical Survey	Soil bearing capacity: 150 kN/m²; suitable for construction.

4.5 Site Suitability

4.5.1 Compliance with Regulations

The site complies with all regulatory requirements, including the Punjab Environmental Protection Act 1997 (Amended 2022). It is not located in prohibited or environmentally sensitive areas.

4.5.2 Compatibility with Surroundings

The RCCI Industrial Estate is designated for industrial use, making the proposed project compatible with the surrounding land use.

4.5.3 Environmental Safeguards

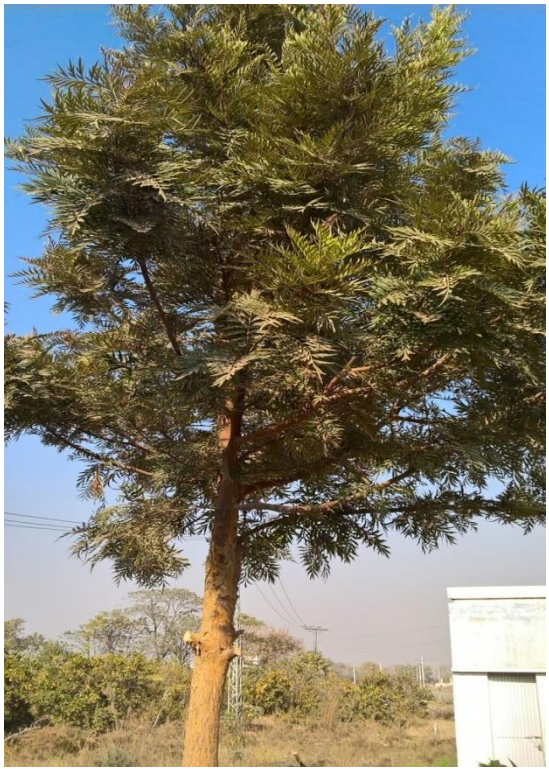
Potential risks to the environment, such as air emissions and wastewater discharge, are minimal and will be mitigated through advanced pollution control measures.

Evaluation Parameter	Observation/Conclusion
Prohibited Area	The site is not within any prohibited zones.
Environmental Sensitivity	No ecologically sensitive areas or critical habitats nearby.
Compatibility with Surroundings	Compatible with surrounding land use (industrial zone).
Infrastructure Suitability	Adequate road access, utilities, and space for expansion.
Risk Assessment	No significant environmental or safety risks identified.

Conclusion

The detailed assessment of the physical, ecological, and socioeconomic environment indicates that the project site is suitable for the proposed industrial activity. The availability of essential resources, compliance with environmental standards, and minimal ecological disturbance strengthen the case for proceeding with the project.

Flora and Fauna



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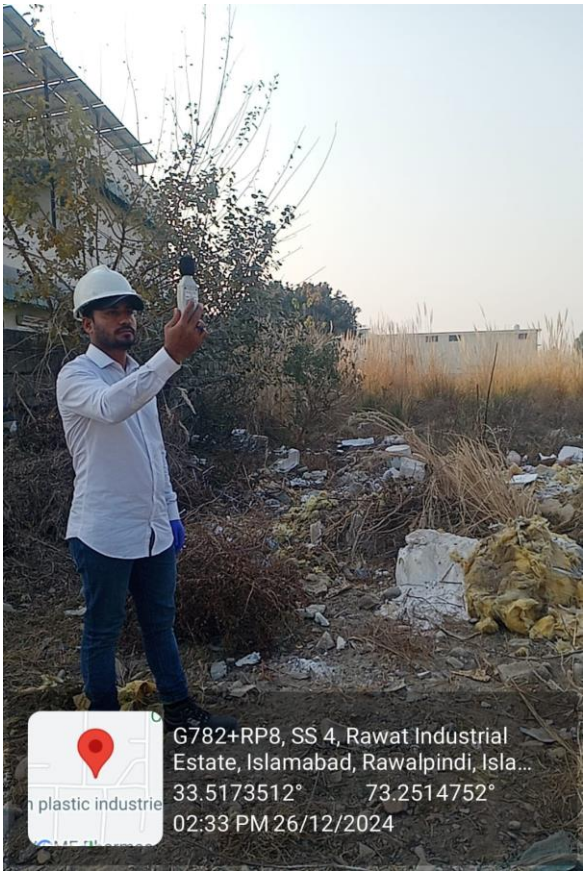


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Chapter 5
Impact Assessment

The impact assessment for the M/s FonGreens (Private) Limited project is a critical component of the Environmental Impact Assessment (EIA) process. This chapter outlines the methodologies employed for impact identification, characterizes the nature of potential impacts, and presents detailed checklists, tables, and graphs specific to this project.

1. Methodologies for Impact Identification

To systematically identify and assess potential environmental impacts associated with the cannabis production, processing, and extraction facility, several methodologies were employed:

Checklists

Checklists were developed to ensure comprehensive coverage of potential environmental impacts. These lists prompted consideration of various environmental parameters related to construction, operation, and decommissioning phases.

Environmental Impact Checklist for M/s FonGreen (Private) Limited's Project

Environmental Aspect	Considerations	Potential Impact (Yes/No)
Air Quality	Emissions from construction equipment	Yes
	Emissions from extraction processes	Yes
	Dust generation during construction	Yes
Water Resources	Water usage for extraction processes	Yes
	Potential contamination of local water bodies	Yes
Soil Quality	Soil disturbance during construction	Yes
	Potential contamination from waste disposal	Yes
Biodiversity	Impact on local flora and fauna	Yes
	Habitat disruption during construction	Yes
Noise Pollution	Noise from construction activities	Yes
	Operational noise from machinery	Yes
Socioeconomic Factors	Job creation in local communities	Yes
	Changes in local economic conditions	Yes

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	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 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

Matrices

Matrices were used to link specific project activities with their potential environmental impacts. This approach allows for a visual representation of the relationships between actions and consequences.

Impact Matrix for M/s FonGreens (Private) Limited Project

Project Activity	**Air Quality**	**Water Resources**	**Soil Quality**	**Biodiversity**	**Noise Pollution**
Construction	Moderate	Low	Moderate	Low	High
Operation	High	Moderate	Low	Moderate	Moderate
Decommissioning	Low	Low	Moderate	Low	Moderate

Networks

Network methodologies were utilized to illustrate cause-and-effect relationships between project activities and environmental impacts. This approach helps identify both direct and indirect impacts.

Impact Network Diagram

[Construction Activities]

↓

[Air Quality Impacts] ← [Dust Generation]

↓

[Water Resource Impacts] ← [Contamination Risk]

↓

[Soil Quality Impacts] ← [Disturbance]

↓

[Biodiversity Impacts] ← [Habitat Disruption]

↓

[Noise Pollution Impacts] ← [Operational Noise]

2. Characteristics of Impacts

The characteristics of identified impacts were assessed based on several criteria: nature, magnitude, extent and location, timing, duration, reversibility, and risk. Each characteristic is detailed below.

Nature

Positive Impacts:

Job creation for local residents.

Economic growth in the surrounding community.

Provision of high-quality pharmaceutical products.

Negative Impacts:

Potential air pollution from emissions during operation.

Water resource depletion due to extraction processes.

Soil contamination risks from waste disposal.

Magnitude

The magnitude of impacts was categorized as follows:

Minor: Temporary disturbances such as dust during construction.

Moderate: Emissions affecting local air quality during operations.

Significant: Long-term changes in land use or ecological balance due to facility operations.

Extent and Location

Impacts were assessed within:

Project Area (PA): Direct impacts within the facility boundaries.

Local Study Area (LSA): Indirect effects on surrounding communities within a 5 km radius.

Timing

Construction Phase: Immediate but temporary impacts during site preparation.

Operational Phase: Ongoing effects from emissions and resource use.

Decommissioning Phase: Short-term disturbances associated with dismantling facilities.

Duration

Short-term: Impacts lasting less than one year (e.g., construction noise).

Long-term: Effects persisting throughout the operational phase (e.g., air quality changes).

Reversibility

Reversible Impacts: Temporary disturbances such as noise can be mitigated post-construction.

Irreversible Impacts: Permanent changes in land use or ecosystem disruptions may occur.

Risk

Evaluating risks involved identifying low-probability but high-impact scenarios:

- Potential accidents during extraction leading to significant environmental damage.
- Long-term health risks associated with emissions if not properly managed.

Summary Table of Impact Characteristics

Characteristic	Description
Nature	Positive (job creation) / Negative (pollution)
Magnitude	Minor / Moderate / Significant
Extent & Location	Project Area / Local Study Area
Timing	Construction / Operational / Decommissioning
Duration	Short-term / Long-term
Reversibility	Reversible / Irreversible
Risk	Low probability but high impact scenarios

Conclusion

The impact assessment methodologies employed in this study provide a robust framework for identifying potential environmental consequences associated with the M/s FonGreens (Private) Limited project. By utilizing checklists, matrices, networks, and GIS tools, a comprehensive understanding of both direct and indirect impacts has been achieved. **The characterization of these impacts based on nature, magnitude, extent, timing, duration, reversibility, and risk will inform mitigation strategies aimed at minimizing negative outcomes while maximizing positive contributions to local communities and economies**. The findings from this assessment will be integral in guiding decision-making processes as the project progresses through its development phases.

Chapter 6
Environmental Management and Monitoring Program

6.1 Introduction

The Environmental Management and Monitoring Program (EMMP) plays an indispensable role in ensuring the sustainability and environmental responsibility of projects, especially those with a significant environmental footprint. It provides a structured approach to mitigating potential environmental impacts across the project lifecycle, including construction, operation, and decommissioning phases. For this project, the EMMP establishes guidelines and strategies for reducing adverse impacts and aligning project activities with regulatory and best practice frameworks.

The EMMP for this cannabis processing and extraction facility has been tailored to meet the unique environmental considerations of the project while ensuring compliance with the Punjab Environmental Protection Act (Amended 2022) and the Environmental Impact Assessment (EIA) Regulations. By addressing key environmental and social concerns, the program ensures that project operations remain environmentally sustainable and socially responsible.

Purpose of the EMMP

The primary purpose of the EMMP is to create a mechanism for monitoring, mitigating, and managing the environmental impacts of the project. This ensures compliance with local and international standards while maintaining harmony between economic growth and environmental preservation. The program is designed to:

- **Ensure regulatory compliance:** Adhering to legal requirements and environmental standards.
- **Reduce risks:** Proactively addressing potential adverse impacts.
- **Achieve sustainability:** Promoting resource conservation, waste minimization, and environmental restoration.
- **Enhance stakeholder engagement:** Maintaining transparency and accountability with stakeholders.
- **Promote adaptive management:** Ensuring the program evolves based on feedback, monitoring results, and emerging best practices.

Key Objectives

The EMMP seeks to achieve the following objectives:

1. **Compliance Assurance:** Adherence to environmental laws, regulations, and international standards throughout the project lifecycle.

2. **Impact Mitigation:** Identification and implementation of measures to mitigate negative environmental and social impacts.
3. **Monitoring Mechanisms:** Establishment of protocols to regularly monitor environmental performance and compliance.
4. **Resource Efficiency:** Optimization of resource utilization, including energy, water, and raw materials, while minimizing waste generation.
5. **Capacity Building:** Training project staff and stakeholders to promote environmental awareness and ensure effective implementation of the EMMP.
6. **Contingency Planning:** Development of response strategies to address unforeseen environmental incidents promptly.

Phases of the EMMP

The EMMP is designed to address the specific needs and challenges of each project phase:

- **Construction Phase:** Emphasis on minimizing soil erosion, air and water pollution, noise disturbances, and waste generation. Proper site preparation and adherence to environmental safeguards are prioritized.
- **Operational Phase:** Focus on managing emissions, monitoring energy and water usage, ensuring safe waste disposal, and maintaining compliance with regulatory standards.
- **Decommissioning Phase:** Includes restoration and rehabilitation plans to return the site to its natural state or repurpose it for sustainable use.

Dynamic and Adaptive Approach

The EMMP is a living document that evolves based on ongoing monitoring, stakeholder feedback, and advancements in environmental technologies and practices. Regular audits and reviews ensure that the program remains effective and relevant, allowing for adjustments in response to changing circumstances.

By integrating environmental management and monitoring into every aspect of the project, this program will contribute to achieving the project's sustainability objectives while fostering positive relationships with local communities and regulatory authorities.

6.2 Description of Proposed Mitigation Actions

Mitigation actions are an essential part of the Environmental Management and Monitoring Program (EMMP). They aim to reduce, prevent, or compensate for potential adverse environmental impacts arising from project activities. The proposed mitigation measures for this project have been developed based on an in-depth analysis of potential impacts identified during the Environmental Impact Assessment (EIA) process. These actions align with national environmental standards, regulatory requirements, and international best practices.

6.2.1. Mitigation for Air Quality Impacts

Air emissions during construction and operation can include dust, particulate matter, and gases from machinery, vehicles, and processing activities. The following measures are proposed:

- **Dust Suppression:** Regular watering of construction sites and unpaved roads to minimize dust emissions.
- **Equipment Maintenance:** Ensuring timely servicing of construction and operational machinery to reduce emissions.
- **Emission Control Devices:** Installing filters and scrubbers in the processing units to capture particulate matter and reduce gaseous emissions.
- **Greenbelt Development:** Establishing vegetative barriers and planting trees to act as natural air purifiers around the site.

6.2.2. Mitigation for Water Resource Impacts

Potential impacts on water resources include increased demand, contamination risks, and wastewater generation. The mitigation measures include:

- **Wastewater Treatment:** Installing a wastewater treatment plant to ensure all effluents meet regulatory discharge standards before being released or reused.
- **Water Conservation Measures:** Implementing water-efficient technologies and practices such as recycling and rainwater harvesting.
- **Spill Prevention:** Using containment systems for raw materials and chemicals to prevent accidental spills from contaminating groundwater or surface water.

6.2.3. Mitigation for Soil and Land Impacts

Construction activities and improper waste disposal can degrade soil quality. The proposed measures include:

- **Controlled Excavation:** Limiting the excavation area and ensuring proper storage and reuse of topsoil.
- **Waste Management:** Properly collecting and disposing of solid and hazardous waste in designated facilities.
- **Erosion Control:** Stabilizing slopes and using sedimentation controls to prevent soil erosion during construction.

6.2.4. Mitigation for Noise Impacts

Noise pollution from machinery, vehicles, and operations can disturb local communities and workers. Mitigation actions include:

- **Use of Noise Barriers:** Installing acoustic enclosures around high-noise equipment and processes.

- **Time Restrictions:** Limiting high-noise activities to daytime hours.
- **Regular Maintenance:** Ensuring proper maintenance of machinery to minimize noise levels.
- **Personal Protective Equipment (PPE):** Providing earplugs or earmuffs to workers exposed to high noise levels.

6.2.5. Mitigation for Waste Management

The project generates solid and liquid waste during both construction and operation phases. Mitigation measures include:

- **Waste Segregation:** Sorting waste at the source into recyclable, non-recyclable, and hazardous categories.
- **Recycling Initiatives:** Establishing mechanisms to recycle waste materials such as paper, plastic, and metals.
- **Hazardous Waste Handling:** Storing hazardous waste in secured containers and disposing of it at licensed facilities.

6.2.6. Mitigation for Biodiversity Impacts

Project activities may disturb local flora and fauna. Mitigation measures include:

- **Minimizing Habitat Disturbance:** Restricting activities to designated areas and avoiding ecologically sensitive zones.
- **Reforestation:** Planting native species to restore lost vegetation.
- **Wildlife Protection:** Implementing measures to protect local wildlife, such as avoiding work during breeding seasons and installing wildlife corridors if needed.

6.2.7. Mitigation for Socioeconomic Impacts

To ensure positive community engagement and minimize social impacts, the following actions are proposed:

- **Community Consultation:** Maintaining open communication with local communities to address concerns and incorporate feedback.
- **Employment Opportunities:** Prioritizing local labor for construction and operation to enhance socioeconomic benefits.
- **Infrastructure Development:** Supporting community infrastructure, such as roads or water supply systems, where feasible.

6.2.8. Emergency Response Planning

To manage unforeseen environmental incidents, a comprehensive emergency response plan will be implemented, including:

- **Spill Containment Kits:** Ensuring availability of spill kits for chemical leaks or accidental discharges.
- **Fire Safety Measures:** Installing fire extinguishers and developing fire evacuation plans.
- **Training Programs:** Conducting regular drills and training for workers on emergency response procedures.

6.3 Schedule for Implementation

The Environmental Management and Monitoring Program **(EMMP) will be implemented throughout the lifecycle of the proposed cannabis / hemp extraction and processing unit**. The schedule for implementation is divided into three phases: **Construction Phase, Operational Phase, and Post-Operation Phase**. Each phase will have specific environmental management and monitoring activities to ensure compliance with environmental standards, reduce impacts, and promote sustainability.

6.3.1 Construction Phase

The construction phase will involve site preparation, infrastructure development, installation of machinery, and facility setup. This phase is expected to last for approximately 12-18 months.

Key Activities:

- **Site Preparation and Excavation:** During the initial stage, environmental measures will focus on minimizing dust, noise, and soil erosion. Mitigation measures such as dust suppression techniques (e.g., water spraying) and noise control mechanisms (e.g. the use of mufflers on equipment) will be implemented.
- **Waste Management:** Construction waste will be segregated and disposed of in accordance with environmental regulations. A waste disposal plan will be developed, including the management of hazardous materials, if any, on-site.
- **Water Management:** Temporary stormwater drainage systems will be installed to manage surface runoff, preventing waterlogging or contamination.
- **Air Quality Monitoring:** Air quality monitoring will be conducted regularly to assess the concentration of particulate matter (PM10, PM2.5) and other pollutants in the construction area.

Schedule:

- **Month 1-3:** Site clearing and initial construction activities.
- **Month 4-6:** Installation of basic infrastructure and machinery setup.
- **Month 7-9:** Equipment installation and structural construction.
- **Month 10-12:** Site preparation and landscaping, ensuring environmental safeguards are in place.

- **Month 12-18:** Finalizing installation, conducting inspections, test run of the project and ensuring all environmental mitigation measures are operational.

6.3.2 Operational Phase

Once the construction is completed, the operational phase will commence. This phase will involve the actual processing and extraction of cannabinoids from cannabis and hemp. The operational phase is expected to last for the life of the project (20 - 30 years or more dependent on market trend).

Key Activities:

- **Emission Monitoring:** Continuous monitoring of air emissions will be conducted to ensure compliance with air quality standards, focusing on VOCs, CO_2, and particulate matter from the extraction and purification processes.
- **Water Quality Monitoring:** Regular monitoring of wastewater quality will be conducted to ensure that the effluent is within the prescribed limits for discharge. The wastewater treatment system will be operational throughout the lifetime of the project.
- **Noise Monitoring:** Noise levels will be regularly monitored to ensure that they remain within acceptable limits as per local noise regulations.
- **Waste Management:** A comprehensive waste management program will be in place to manage solid waste, such as plant material, packaging waste, and any hazardous waste resulting from the production process. This waste will be recycled or disposed of through licensed waste management contractors.

Schedule:

- **Year 1-3:** Initial startup operations, with frequent monitoring of environmental parameters.
- **Year 4-20:** Continuous operation with regular environmental checks and monitoring.
- **Year 20+:** Periodic reviews of operational procedures, with updates and improvements in the environmental management system as necessary.

6.3.3 Post-Operation Phase

The post-operation phase will focus on the decommissioning and rehabilitation of the site after the facility has been fully operational for its planned lifespan. This phase will address the environmental impacts associated with site closure.

Key Activities:

- **Decommissioning of Equipment:** The removal and disposal of plant equipment, machinery, and hazardous materials will be conducted in an environmentally responsible manner.
- **Site Rehabilitation:** The site will be restored by removing any pollutants and rehabilitating the land for future use.

Schedule:

- **Year 25+:** Decommissioning begins, environmental assessment of the site, waste removal, and site restoration.

6.4 Environmental Budget

The environmental budget for the proposed project will be allocated based on a percentage of the total project cost. Given that the project cost is estimated at **PKR 6 billion**, the environmental budget will be allocated at **2-4% of the total project cost**, which translates to an environmental budget of approximately **PKR 120 million to PKR 240 million**. This budget will be used to ensure that the Environmental Management and Monitoring Program (EMMP) is properly implemented and maintained, covering key areas such as monitoring, mitigation measures, equipment, and staffing.

6.4.1 Construction Phase Environmental Budget

The construction phase will involve a significant investment in environmental safeguards. The allocated budget will cover activities like dust control, noise management, waste disposal, and water quality management.

Item	**Cost Estimate (PKR)**
Dust Control Measures (water spraying, barriers)	10,000,000
Noise Mitigation (equipment maintenance, sound barriers)	8,000,000
Waste Management System (waste segregation, disposal)	6,000,000
Air Quality Monitoring (PM10, PM2.5)	5,000,000
Water Management (stormwater drainage systems, monitoring)	4,000,000
Environmental Staffing (site environmental officers, supervisors)	3,000,000
Total Construction Phase	**36,000,000**

6.4.2 Operational Phase Environmental Budget

During the operational phase, the environmental budget will focus on continuous monitoring, emission control, wastewater management, and waste disposal.

Item	**Cost Estimate (PKR)**
Emission Monitoring (CO_2, VOCs)	8,000,000
Wastewater Treatment and Monitoring	10,000,000
Noise and Vibration Monitoring	4,000,000
Solid Waste Management (recycling, disposal)	6,000,000

Water and Air Quality Control Equipment	7,000,000
Environmental Staffing (site supervisors, lab technicians)	5,000,000
Total Operational Phase	**40,000,000**

6.4.3 Post-Operation Phase Environmental Budget

The post-operation phase budget will primarily focus on decommissioning and land restoration.

Item	**Cost Estimate (PKR)**
Decommissioning (removal of machinery, waste disposal)	8,000,000
Site Rehabilitation (land restoration, replanting)	10,000,000
Environmental Audit and Assessment	4,000,000
Total Post-Operation Phase	**22,000,000**

6.4.4 Total Environmental Budget

The total environmental budget for the project, covering the construction, operational, and post-operation phases, will fall within the range of **PKR 120 million to PKR 240 million**, which is 2 - 4% of the total project cost (PKR 6 billion). This budget will ensure the successful implementation of all environmental management measures and monitoring activities throughout the lifecycle of the project. The environmental budget will be reviewed and adjusted as necessary to accommodate any unforeseen environmental challenges or improvements in technology.

6.5 Environmental Management Team and Their Roles and Responsibilities

The successful implementation of the Environmental Management and Monitoring Program (EMMP) requires a dedicated and skilled Environmental Management Team (EMT) to oversee all environmental aspects of the project. The team will consist of qualified personnel with expertise in environmental science, engineering, and regulatory compliance. The team will be responsible for ensuring that all environmental requirements are met, from construction through to the operational and post-operation phases of the project.

The structure of the Environmental Management Team is as follows:

6.5.1 Environmental Management Team Structure

The team will be led by the **Environmental Manager**, supported by various specialists and field officers. As these environmental management services will be outsourced from a third party. The team will work closely with the project's other departments to ensure that environmental considerations are integrated into every aspect of the project's lifecycle.

Key Positions in the Environmental Management Team:

1. **Environmental Manager**
2. **Environmental Compliance Officer**
3. **Environmental Monitoring Officer**
4. **Health, Safety, and Environmental (HSE) Officer**
5. **Waste Management Officer**
6. **Air Quality and Emissions Officer**
7. **Water Quality and Wastewater Officer**
8. **Environmental Field Supervisors**

6.5.2 Roles and Responsibilities of the Environmental Management Team

1. **Environmental Manager**
   Role: The Environmental Manager will be the lead on the Environmental Management and Monitoring Program and will report directly to the Project Manager and Proponent.
   Responsibilities:
   - Oversee the implementation of all environmental management and monitoring activities.
   - Ensure that all environmental laws, regulations, and standards are met, both during the construction and operational phases.
   - Lead the preparation and approval of environmental reports, including regular updates on the environmental status of the project.
   - Manage the environmental budget and allocate resources for the monitoring and mitigation measures.
   - Coordinate with external regulatory authorities (e.g., EPA) and ensure that any necessary permits or approvals are obtained.
   - Provide regular training for the team and all relevant stakeholders on environmental practices and requirements.
   - Serve as the point of contact for all environmental concerns related to the project.
2. **Environmental Compliance Officer**
   Role: The Environmental Compliance Officer will be responsible for ensuring that all aspects of the project comply with environmental regulations, both local and national.
   Responsibilities:
   - Review and ensure compliance with environmental laws, standards, and guidelines.

- Monitor compliance with the Environmental Management Plan (EMP) throughout all project phases.
- Conduct environmental audits and inspections to ensure that environmental control measures are properly implemented.
- Maintain up-to-date knowledge of all environmental laws and industry best practices.
- Prepare and submit compliance reports to relevant authorities, including any necessary corrective actions for non-compliance.
- Assist in the preparation of Environmental Impact Assessments (EIA) and Initial Environmental Examinations (IEE), as required.

3. **Environmental Monitoring Officer**
   Role: The Environmental Monitoring Officer will be responsible for monitoring environmental parameters, such as air quality, water quality, and noise levels, to ensure that project activities do not exceed permissible limits.
   Responsibilities:
   - Conduct regular sampling and monitoring of environmental media (air, water, noise, soil).
   - Maintain environmental monitoring equipment and ensure its proper calibration.
   - Analyze monitoring data and provide regular reports to the Environmental Manager.
   - Recommend corrective actions if any environmental parameters exceed the set thresholds.
   - Work closely with external laboratories, if necessary, for detailed analysis of samples.
   - Provide technical support to other team members in interpreting monitoring results.
4. **Health, Safety, and Environmental (HSE) Officer**
   Role: The HSE Officer will focus on the health and safety aspects of the project, ensuring that the project adheres to occupational health and safety standards in addition to environmental requirements.
   Responsibilities:
   - Develop and implement health and safety protocols for the construction and operational phases.
   - Conduct regular HSE audits and risk assessments to identify and mitigate potential hazards.

- Ensure that personal protective equipment (PPE) is available and used appropriately by all workers on-site.
- Facilitate health and safety training for all project personnel.
- Ensure the safe handling, storage, and disposal of hazardous materials and waste.
- Coordinate emergency preparedness and response procedures, including spill containment and first aid measures.
- Monitor the health and safety compliance of contractors and sub-contractors.

5. **Waste Management Officer**
   Role: The Waste Management Officer will be responsible for managing the waste generated during the construction and operational phases of the project.
   Responsibilities:
   - Develop and implement a comprehensive waste management plan, including waste segregation, recycling, and disposal procedures.
   - Monitor the types and quantities of waste produced on-site, ensuring proper categorization (hazardous vs. non-hazardous).
   - Ensure that all waste management activities comply with local environmental laws and regulations.
   - Coordinate the transportation and disposal of waste to licensed disposal sites.
   - Promote the reuse and recycling of materials where possible, minimizing the environmental impact of waste.

6. **Air Quality and Emissions Officer**
   Role: The Air Quality and Emissions Officer will be responsible for monitoring air quality and emissions from the extraction and processing operations.
   Responsibilities:
   - Conduct regular air quality monitoring, including testing for particulate matter (PM10, PM2.5), CO_2, VOCs, and other potential pollutants.
   - Ensure that all emissions from the facility comply with national and international air quality standards.
   - Implement measures to reduce air pollution, such as optimizing equipment and machinery to minimize emissions.
   - Analyze and interpret air quality data, preparing reports for regulatory authorities as necessary.

- Recommend and implement corrective actions if emissions exceed permissible levels.

7. **Water Quality and Wastewater Officer**
   Role: The Water Quality and Wastewater Officer will be responsible for ensuring that the facility's wastewater treatment systems are effective and that discharged wastewater complies with environmental regulations.
   Responsibilities:
   - Monitor water quality at the facility, including effluent from the extraction process.
   - Ensure that wastewater treatment processes are functioning properly and that treated water meets regulatory standards.
   - Regularly test water quality parameters (pH, biochemical oxygen demand (BOD), chemical oxygen demand (COD), turbidity, etc.).
   - Ensure that the facility has an effective water reuse and recycling program, where applicable.
   - Prepare reports on water quality and submit them to regulatory authorities, as required.
8. **Environmental Field Supervisors**
   Role: Environmental Field Supervisors will be responsible for overseeing the day-to-day environmental operations on-site and ensuring that all environmental measures are being implemented effectively.
   Responsibilities:
   - Monitor environmental control measures on the ground, including dust suppression, noise control, and waste management.
   - Report any environmental issues or violations to the Environmental Manager.
   - Conduct site inspections to ensure environmental safeguards are being followed.
   - Assist in the preparation of environmental documentation, including monitoring reports and compliance checks.
   - Provide guidance to construction and operational teams on best environmental practices.

6.5.3 Team Coordination and Communication

The Environmental Management Team will operate as a cohesive unit, with regular coordination meetings to discuss ongoing environmental issues, review monitoring data, and plan corrective actions. Clear communication between the Environmental Manager and team members will ensure

that all responsibilities are executed effectively, and that any environmental challenges are promptly addressed.

The team will also maintain continuous communication with the regulatory authorities to stay updated on any changes to environmental regulations and to submit required reports and documentation.

6.6 Proposed Monitoring Program to Assess Performance or Output of EMP

The monitoring program is a critical component of the Environmental Management Plan (EMP), designed to assess the effectiveness of the environmental mitigation measures, ensure compliance with regulations, and identify any potential adverse impacts resulting from the project's activities. This monitoring will help track the performance of the environmental safeguards, identify corrective actions if necessary, and ensure that the project maintains its commitment to sustainable practices.

6.6.1 Objectives of the Monitoring Program

The primary objectives of the proposed monitoring program are:

1. **Ensure compliance** with the environmental regulations and conditions set by the Environmental Protection Department (EPD) and other relevant authorities.
2. **Track the effectiveness** of the environmental management and mitigation measures outlined in the EMP.
3. **Identify deviations** from the expected environmental performance and trigger corrective actions when required.
4. **Document environmental performance** and ensure transparency in project operations.
5. **Evaluate long-term sustainability** and ensure that the project continues to meet environmental standards throughout its lifecycle.

6.6.2 Key Areas for Monitoring

The monitoring program will focus on the following key environmental aspects related to the project:

1. **Air Quality Monitoring:**
    - **Parameters to Monitor:**
        - Particulate matter (PM10, PM2.5)
        - Carbon dioxide (CO_2), nitrogen oxides (NOx), and sulfur dioxide (SO2)
        - Volatile Organic Compounds (VOCs)

- **Monitoring Frequency:** Monthly during the construction phase and quarterly during the operational phase.
- **Methodology:** Continuous ambient air quality monitoring using stationary air quality monitors and periodic sampling.

2. **Water Quality Monitoring:**
   - **Parameters to Monitor:**
     - pH levels, biochemical oxygen demand (BOD), chemical oxygen demand (COD)
     - Total suspended solids (TSS), turbidity, and heavy metals (e.g., lead, mercury)
   - **Monitoring Frequency:** Monthly during construction; quarterly during operation.
   - **Methodology:** Periodic sampling of effluent and wastewater at the treatment facility and on-site.
3. **Noise and Vibration Monitoring:**
   - **Parameters to Monitor:**
     - Noise levels (decibels, dB) and vibration levels (mm/s)
   - **Monitoring Frequency:** Monthly during the construction phase, quarterly during operation.
   - **Methodology:** Installation of sound level meters at key locations and periodic vibration analysis.
4. **Waste Management Monitoring:**
   - **Parameters to Monitor:**
     - Type, volume, and disposal methods of generated waste (hazardous and non-hazardous)
   - **Monitoring Frequency:** Monthly during construction and operational phases.
   - **Methodology:** Records of waste generated, segregated, and disposed of, along with tracking of recycling and reuse rates.
5. **Soil and Groundwater Monitoring:**
   - **Parameters to Monitor:**
     - Soil erosion, contamination, and heavy metals

- Groundwater quality (if any wastewater discharge affects groundwater sources)

- **Monitoring Frequency:** Biannually during construction and annually during operation.
- **Methodology:** Periodic sampling of soil and groundwater at selected monitoring wells.

6. **Biodiversity and Habitat Monitoring:**
   - **Parameters to Monitor:**
     - Flora and fauna species presence and abundance near the project site
     - Impact on local biodiversity
   - **Monitoring Frequency:** Annual monitoring during operational phase.
   - **Methodology:** Regular site surveys by ecologists to assess the impact on local wildlife and vegetation.
7. **Health and Safety Monitoring:**
   - **Parameters to Monitor:**
     - Worker health and safety incidents
     - PPE usage and adherence to safety protocols
   - **Monitoring Frequency:** Weekly during construction; quarterly during operation.
   - **Methodology:** Review of health and safety reports, accident logs, and safety inspections.

6.6.3 Performance Indicators

The success of the EMP will be evaluated based on specific **performance indicators** that will allow for the assessment of the environmental outcomes. These indicators include:

1. **Compliance with Environmental Standards:**
   - Percentage of regulatory limits adhered to (e.g., air quality, water quality, waste management).
   - Number of non-compliance incidents and corrective actions taken.
2. **Effectiveness of Mitigation Measures:**
   - Reduction in environmental impacts due to mitigation measures (e.g., dust suppression, wastewater treatment efficiency).

- Performance improvements over time (e.g., reduction in emissions, waste diversion).

3. **Environmental Awareness and Training:**
   - Percentage of staff and contractors trained on environmental management practices.
   - Effectiveness of communication and awareness campaigns among workers and local communities.
4. **Waste Diversion and Recycling:**
   - Percentage of waste recycled or reused compared to the total waste generated.
   - Reduction in waste sent to landfill.
5. **Water and Energy Efficiency:**
   - Water and energy consumption levels versus project goals for reduction.
   - Adoption of sustainable practices, such as rainwater harvesting and energy-efficient systems.

6.6.4 Monitoring Methods and Tools

The monitoring program will utilize various methods and tools to ensure comprehensive and accurate data collection, analysis, and reporting:

1. **Data Collection Tools:**
   - Environmental sensors for continuous monitoring of air and water quality parameters.
   - Sound level meters for noise and vibration monitoring.
   - Waste tracking software to document waste generation, disposal, and recycling efforts.
2. **Sampling and Laboratory Analysis:**
   - Periodic sampling of air, water, soil, and wastewater for laboratory analysis to assess the quality and compliance with environmental standards.
   - Third-party laboratories may be engaged to analyze specific parameters, ensuring independent verification.
3. **Field Inspections and Audits:**

- Regular site inspections and environmental audits will be conducted by the Environmental Management Team to identify issues and recommend corrective actions.
- Audits will assess the adequacy of environmental controls, adherence to the EMP, and compliance with permits.

4. **Reporting and Documentation:**
    - Monitoring data will be documented and analyzed to identify trends and potential areas for improvement.
    - The Environmental Manager will prepare quarterly and annual reports detailing the findings of the monitoring program, actions taken, and recommendations for further improvements.
    - Reports will be submitted to the Environmental Protection Department and other relevant authorities, as required.

6.6.5 Corrective Actions and Adaptive Management

If monitoring indicates that any environmental parameter exceeds the acceptable thresholds or that mitigation measures are not effective, immediate corrective actions will be taken. These actions could include:

- Adjustments to operational procedures or equipment.
- Implementation of additional mitigation measures or more stringent controls.
- Additional training for staff and contractors.
- Enhanced monitoring or more frequent inspections in areas of concern.

The monitoring program is adaptive in nature, allowing for ongoing improvements and adjustments to ensure the project's long-term environmental sustainability.

6.7 Proposed EMP Reporting and Reviewing Procedures

The effectiveness of the Environmental Management Plan (EMP) relies not only on its implementation but also on systematic reporting and reviewing procedures. These procedures ensure that the EMP's goals are being met, that corrective actions are taken when needed, and that all stakeholders are kept informed about the environmental performance of the project. The reporting and review processes will focus on continuous evaluation of environmental performance, the identification of emerging issues, and the implementation of corrective actions to ensure compliance and sustainability throughout the project lifecycle.

6.7.1 Reporting Procedures

To ensure transparency and accountability, regular reports on the performance of the EMP will be generated and reviewed. These reports will cover the progress of mitigation measures, monitoring results, compliance status, and any corrective actions taken.

1. **Internal Environmental Reports:**
    - **Frequency:** Monthly during the construction phase and quarterly during the operational phase.
    - **Content:** The reports will detail the monitoring results (e.g., air, water, noise, and soil quality), the status of environmental mitigation measures, compliance with regulatory requirements, and any deviations from the EMP.
    - **Responsible Parties:** The Environmental Manager and the designated environmental officers will compile the internal reports, ensuring accuracy and comprehensiveness.
    - **Distribution:** Internal stakeholders, including senior management and project teams, will receive the internal reports for review and action.
2. **Environmental Audit Reports:**
    - **Frequency:** Annually.
    - **Content:** A more comprehensive evaluation of the project's overall environmental performance, focusing on the effectiveness of the EMP, the accuracy of monitoring data, and the adherence to environmental regulations.
    - **Responsible Parties:** Independent environmental auditors may be engaged to carry out the audits. These auditors will review the environmental management activities, compliance with laws, and performance of mitigation measures.
    - **Distribution:** Audit reports will be submitted to senior management, the Environmental Protection Department (EPD), and other relevant authorities, as required.
3. **Compliance and Non-Compliance Reports:**
    - **Frequency:** As needed, based on monitoring results.
    - **Content:** Reports will highlight any non-compliance with environmental standards, project-specific conditions, or mitigation measures. Corrective actions and timelines for compliance will be clearly outlined in these reports.
    - **Responsible Parties:** The Environmental Manager will oversee the identification of non-compliance, and corrective actions will be proposed and monitored until full compliance is achieved.

- **Distribution:** The Compliance and Non-Compliance Reports will be sent to both internal stakeholders and the Environmental Protection Department.

4. **Ad-hoc Incident Reports:**
    - **Frequency:** As incidents arise.
    - **Content:** If an environmental incident occurs (e.g., a spill, pollution event, or accident), a report will be generated immediately. The report will detail the nature of the incident, the root cause, the actions taken to mitigate it, and any future preventive measures.
    - **Responsible Parties:** The Environmental Manager, in coordination with relevant teams, will be responsible for drafting these reports.
    - **Distribution:** Incident reports will be submitted to senior management, regulatory bodies, and other key stakeholders.

6.7.2 Reviewing Procedures

The reviewing procedure ensures that the EMP remains effective throughout the project lifecycle and that necessary adjustments are made to improve environmental performance. The review process will be conducted periodically, and the findings will inform corrective actions and updates to the EMP.

1. **Monthly EMP Review:**
    - **Frequency:** Monthly during the construction phase and quarterly during the operational phase.
    - **Responsible Parties:** The Environmental Manager, with input from the environmental team, will conduct internal reviews of the EMP's progress. The review will evaluate the implementation of the mitigation measures, the status of the monitoring program, and the overall environmental performance of the project.
    - **Review Focus:** The primary focus of the monthly review will be to identify any emerging environmental concerns, assess whether the mitigation measures are adequate, and ensure that the project remains compliant with regulatory requirements.
    - **Action Plan:** Based on the review, an action plan will be developed to address any deficiencies or areas for improvement. This plan will be updated regularly to ensure ongoing environmental compliance.
2. **Quarterly EMP Review with Stakeholders:**
    - **Frequency:** Quarterly.

- **Responsible Parties:** The Environmental Manager, in coordination with key stakeholders (e.g., project managers, contractors, and senior management), will organize quarterly review meetings to assess the progress of the EMP.
- **Review Focus:** The quarterly review will focus on key environmental performance indicators, such as air and water quality, waste management, energy consumption, and compliance with safety standards.
- **Stakeholder Involvement:** Senior management and external stakeholders, such as the Environmental Protection Department (EPD), may be invited to participate in the quarterly review to ensure external oversight and to address any concerns raised by the stakeholders.

3. **Annual EMP Review:**
   - **Frequency:** Annually.
   - **Responsible Parties:** The Environmental Manager, in consultation with the Environmental Management Team and external auditors, will carry out an annual review of the entire EMP.
   - **Review Focus:** The review will evaluate the long-term environmental performance, assess the cumulative impact of the project, and identify any changes in environmental laws or regulations that may necessitate revisions to the EMP.
   - **Outcome:** Based on the findings of the annual review, the EMP may be updated, and new mitigation strategies may be implemented. A comprehensive annual report summarizing the findings and recommendations will be prepared and submitted to senior management and the relevant regulatory authorities.
4. **Corrective Actions and Adaptive Management:**
   - **Frequency:** As required based on monitoring results and review outcomes.
   - **Responsible Parties:** The Environmental Manager will lead the development of corrective action plans when non-compliance or deviations from the EMP are identified.
   - **Action Plan:** Corrective actions will be implemented promptly, and their effectiveness will be monitored. The action plan will include deadlines, responsible parties, and required resources. Adaptive management practices will be employed to continuously improve environmental performance based on review findings.

6.7.3 Feedback Mechanism

The EMP reporting and reviewing process will incorporate a **feedback mechanism** to ensure continuous improvement. Feedback from internal reviews, external audits, stakeholder input, and environmental monitoring results will be used to update and refine the EMP. The feedback loop

ensures that lessons learned are integrated into the project's operations, improving future environmental performance and compliance.

By implementing a structured and comprehensive reporting and reviewing procedure, the project will ensure that the EMP remains effective, adaptive, and responsive to the environmental challenges and regulatory requirements throughout its life cycle. The goal is to achieve continuous improvement in environmental management, ensuring the project's long-term sustainability while meeting the needs of the local community and regulatory bodies.

Environmental Management and Monitoring Plan

Environmental Aspect	Mitigation Measure/Management Action	Monitoring Parameter	Monitoring Frequency	Responsible Party	Reporting
Air Quality	- Use dust suppression techniques (water spraying) during construction. - Regular maintenance of vehicles and machinery to minimize emissions.	- Particulate Matter (PM10, PM2.5) - CO_2 and NOx Emissions	- During construction phase: Weekly - During operational phase: Monthly	- Environmental Officer - Environmental Consultant	- Internal monthly report - Annual Environmental Audit
Water Quality	- Install wastewater treatment plant. - Recycle water where possible. - Monitor and control discharge to prevent contamination of nearby water bodies.	- Chemical Oxygen Demand (COD) - Biological Oxygen Demand (BOD) - pH levels - Total Suspended Solids (TSS)	- During construction phase: Monthly - During operational phase: Quarterly	- Environmental Officer - Water Treatment Facility Operator	- Internal monthly report - Annual Environmental Audit
Noise Pollution	- Limit noise-producing activities to designated working hours. - Use noise barriers and enclosures for machinery. - Regular maintenance of machinery to reduce noise.	- Noise level (dB) at construction site boundaries and sensitive receptors	- During construction phase: Weekly - During operational phase: Monthly	- Site Supervisor - Environmental Consultant	- Internal monthly report - Annual Environmental Audit

Waste Management	- Segregate, recycle, and dispose of waste according to regulatory guidelines. - Establish proper storage for hazardous materials. - Minimize the use of disposable materials.	- Waste generation rate - Waste disposal methods - Hazardous waste levels	- During construction phase: Weekly - During operational phase: Monthly	- Environmental Officer - Waste Management Team	- Internal monthly report - Annual Environmental Audit
Soil Quality	- Proper handling and storage of construction materials to prevent contamination. - Restore disturbed areas with vegetation post-construction.	- Soil pH - Heavy metals (Pb, Cr, As) - Organic matter content	- During construction phase: Monthly - During operational phase: Annually	- Environmental Officer - Soil Scientist	- Internal monthly report - Annual Environmental Audit
Ecosystem and Biodiversity	- Ensure no impact on sensitive habitats and wildlife. - Avoid tree cutting or habitat disruption. - Conduct biodiversity impact assessments.	- Flora and fauna inventory - Habitat quality assessments	- Pre-construction phase: Once - During construction: Quarterly	- Environmental Officer - Environmental Consultant	- Internal quarterly report - Annual Environmental Audit
Health and Safety	- Ensure proper PPE for workers. - Conduct health and safety training programs. - Ensure emergency response and first aid facilities are in place.	- Accident frequency rate - Incident reports - PPE usage compliance	- During construction phase: Daily - During operational phase: Monthly	- Health and Safety Officer - Site Supervisor	- Internal daily safety checklists - Quarterly health and safety report

Energy Consumption	- Implement energy-efficient equipment and processes. - Use renewable energy sources where possible.	- Energy consumption (kWh) - Percentage of renewable energy used	- During construction phase: Monthly - During operational phase: Quarterly	- Energy Manager - Operations Manager	- Internal quarterly report - Annual Environmental Audit
Chemical Handling	- Proper storage and labeling of chemicals used in the extraction process. - Safety protocols for chemical spill prevention and response.	- Chemical spill incidents - Hazardous chemical inventory	- During construction phase: Monthly - During operational phase: Quarterly	- Health and Safety Officer - Environmental Officer	- Internal monthly report - Annual Environmental Audit
Traffic and Transportation	- Designate traffic routes to minimize congestion. - Implement a vehicle maintenance schedule to reduce emissions. - Provide parking and storage facilities to reduce idle time.	- Traffic congestion reports - Vehicle emission levels	- During construction phase: Monthly - During operational phase: Quarterly	- Site Supervisor - Traffic Management Officer	- Internal monthly report - Annual Environmental Audit
Community Engagement	- Regular communication with local community regarding project progress. - Address any complaints or concerns raised by the local population.	- Number of community complaints - Stakeholder engagement activities	- During construction phase: Monthly - During operational	- Community Liaison Officer - Public Relations Manager	- Internal quarterly report - Annual Environmental Audit

			phase: Quarterly		
Sustainability and CSR	- Support local community initiatives and development programs. - Promote environmental awareness among employees and surrounding communities.	- Community programs initiated - Employee awareness programs	- During construction phase: Quarterly - During operational phase: Annually	- CSR Manager - Environmental Officer	- Annual CSR report - Internal quarterly report
Regulatory Compliance	- Ensure compliance with local, national, and international environmental regulations. - Conduct regular audits and inspections.	- Compliance audit reports - Regulatory non-compliance incidents	- During construction phase: Quarterly - During operational phase: Annually	- Environmental Compliance Officer - Environmental Consultant	- Internal quarterly report - Regulatory compliance report to EPA

Key Notes:

- **Frequency:** The monitoring frequency will vary depending on the specific aspect and stage of the project (construction or operation).
- **Responsible Party:** Clear responsibilities have been assigned for each environmental aspect to ensure proper implementation and monitoring.

- **Reporting:** The results from monitoring will be documented and reported regularly, ensuring transparency and facilitating corrective actions if required.

Chapter 7
Stakeholders Consultation

Introduction

Stakeholder consultation is a critical part of the Environmental Impact Assessment (EIA) process for any project. **For the proposed project by M/S FonGreens (Private) Limited, a series of consultations were held with various stakeholders from the local community, government agencies, and other relevant groups to gather their feedback on the project's potential social, economic, and environmental impacts**. The consultations aimed to provide a platform for stakeholders to voice their concerns, suggestions, and expectations regarding the project.

Methodology of Consultation

The EIA team conducted public consultations through group meetings and individual discussions. A Comprehensive questionnaire was developed in order to conduct the survey. The primary focus was to engage local communities and gather their perspectives on the proposed construction of the facility, its potential benefits, and any concerns related to environmental impacts. The consultations targeted stakeholders including local residents, government officials, and business owners from the surrounding area. Public discussions were held at various locations near the project site, and stakeholders from local communities, educational and health institutions, shops, and other facilities were consulted. The team also made initial visits to the project site and held reconnaissance meetings to understand the local context better.

Stakeholder Identification

A three-tier approach was adopted for stakeholder identification, which considered the various levels at which stakeholders could be impacted by the project. The stakeholders were classified at the provincial level (e.g., Environmental Protection Agency (EPA), Agriculture Department, Wildlife Department), district level (e.g., local government bodies), and village level (e.g., local residents, shopkeepers, school representatives, etc.). The consultations continued throughout the project lifecycle, ensuring that feedback was integrated into the environmental management plan. Regular engagement with these stakeholders is crucial to maintain transparency and responsiveness to their concerns.

Proponent's Environmental Management Team

M/s FonGreens (Private) Limited management assured that all necessary mitigation measures would be implemented to minimize any potential environmental impacts during the construction and operation phases of the project. The proponent's Environmental Management Team will oversee the adoption of these measures, including maintaining the aesthetics of the area and addressing concerns related to environmental degradation.

Responsible Authority

The responsibility for overseeing the implementation of the proposed mitigation measures lies with the management of M/s FonGreens (Private) Limited. The company is committed to adhering to

all environmental regulations and ensuring that the project's impact on the surrounding community and the environment is minimized.

Other Departments and Agencies

For the impact analysis, detailed meetings were held with local community leaders, educational institutions, health facilities, and NGOs. These discussions helped identify key issues related to the project and its potential effects. All relevant concerns were incorporated into the Environmental Management Plan to ensure a holistic approach to mitigating the project's impacts.

Environmental Practitioners and Experts

The team of environmental consultants from M/s Hi-9 Sustainable Developers. conducted site visits and consultations with stakeholders from nearby villages. They gathered information on the socio-economic impacts of the project and incorporated feedback from different professionals, including local business owners, farmers, teachers, and health professionals. The consultations with women were also conducted, although some hesitated to provide personal information due to social constraints.

Affected and Wider Community

No specific community was found to be directly affected by the project within the study area. The consultations with the local population revealed a general positive response toward the project. Stakeholders emphasized that the project could bring tangible benefits, such as job creation and local development, while ensuring that mitigation measures were taken to preserve the environment.

Consultation Findings

The results from the consultation meetings with stakeholders indicate a strong overall support for the project. The local community members expressed positive feedback regarding the project's potential to bring socio-economic benefits to the area, particularly in terms of employment opportunities and business growth. Many respondents felt that the construction of the project would improve the local infrastructure, contribute to social mobility, and increase the importance of the area.

However, there were also concerns raised regarding the potential environmental impacts, especially in relation to the potential effects on the area's aesthetic value and the environment. Some participants were worried about the impact on the scenic beauty of the area, but the project proponents assured that mitigation measures, such as land reclamation and maintaining the aesthetics of the area, would be implemented to address these concerns.

Stakeholder Feedback

The responses from stakeholders, summarized below, provide a more detailed picture of their views:

Sample Size

20 sample size 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

Two Different statistical software excel and SPSS have been used for the statistical analysis of the data collected during the visit of study site villages through questionnaires.

Results and Discussion

Gender

The consultations involved 20 respondents, including both 11 male and 9 female participants.

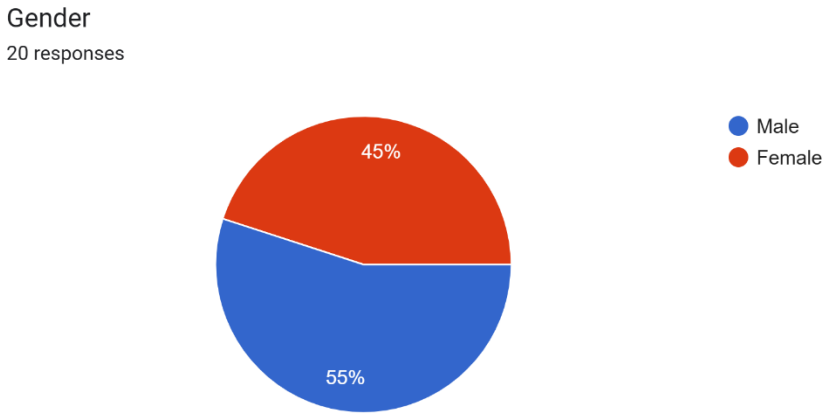

Figure 1: Gender of the Respondents

Project Support and Importance

The majority of the respondents (11), both male and female, expressed strong support for the proposed project. Most (9) agreed that the construction of the facility would increase the importance of the area, contributing to its overall growth and development. Participants were optimistic about the project's potential to raise the profile of the local community and enhance its standing within the region. The support for the project reflected a shared belief that it would bring significant benefits to the community.

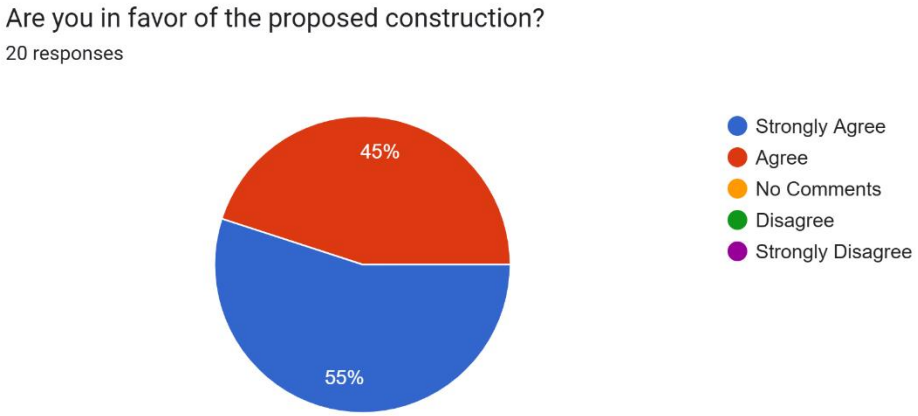

Figure 2: Respondents in favor of the Project

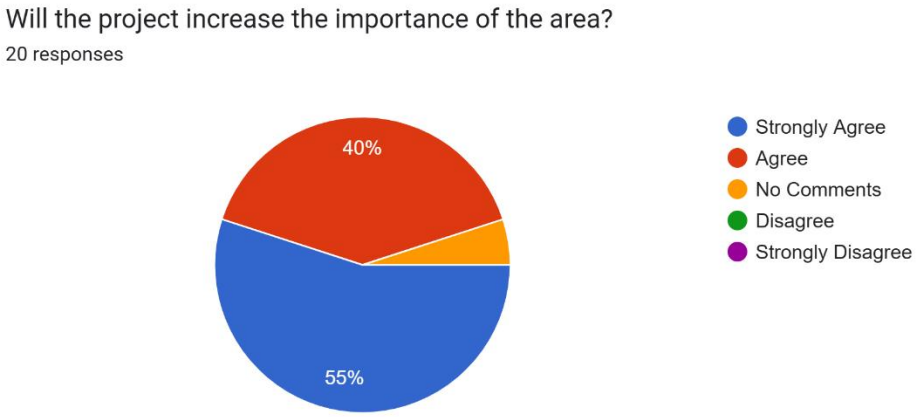

Figure 3: Respondents' Views on the Impact of the Project on the Importance of the Area

Improvement of Living Standards

While many respondents believed that the project would improve the living standards of the area, a few raised concerns. Approximately, 17 respondents strongly agreed or agreed that the project would result in better infrastructure, more employment opportunities, and improved services, which could enhance the overall quality of life. However, 3 individuals disagreed, possibly due to concerns over potential negative environmental impacts or uncertainties about the project's long-term benefits. Despite these reservations, the majority of the community seemed confident that the project would lead to better economic prospects.

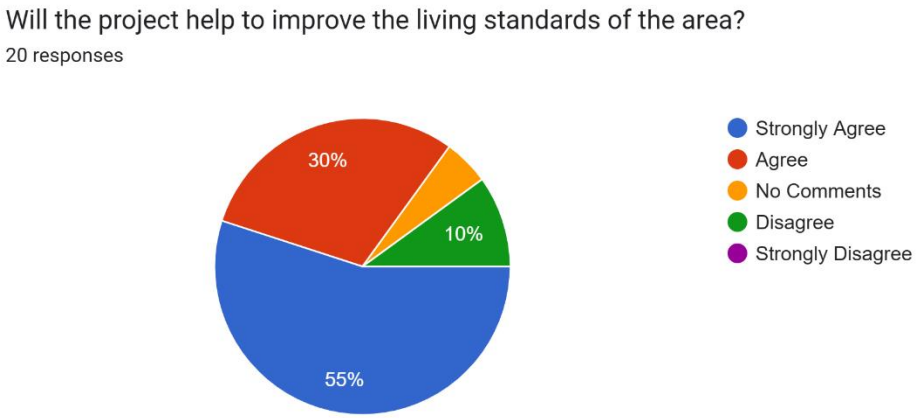

Figure 4: Respondents' Views on the Impact of the Project on the living standards of Area

Environmental Impact Concerns

When asked about the environmental impact of the project, responses were varied. 14 respondents strongly disagreed and 3 disagreed that the project would have any negative effect on the environment, 1 showed concern regarding its potential to disrupt area's aesthetic value. 2 responders were neutral and given no comments.

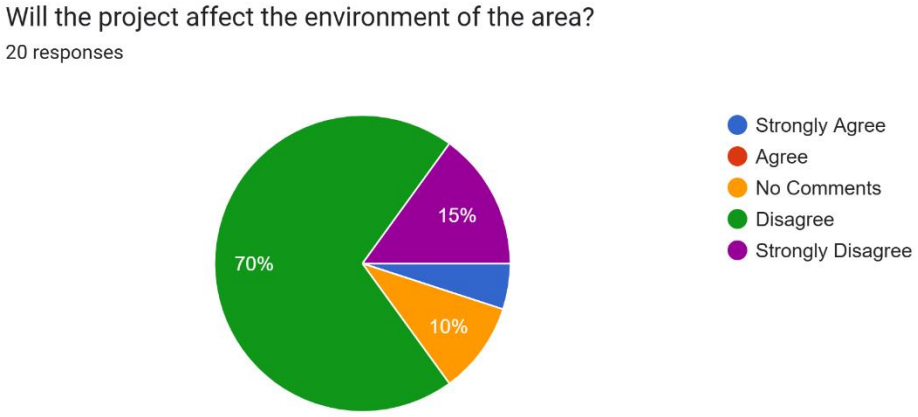

Figure 5: Respondents' Views on the Impact of the Project on the Environment of Area

Satisfaction with the Project

In terms of satisfaction, a substantial number of participants expressed their contentment with the project and its potential benefits. 18 respondents indicated their approval, citing the job creation and economic growth the project would bring. Their positive outlook on the project reflected their

anticipation of tangible improvements in their community. However, 2 individuals, were neutral regarding the project satisfaction.

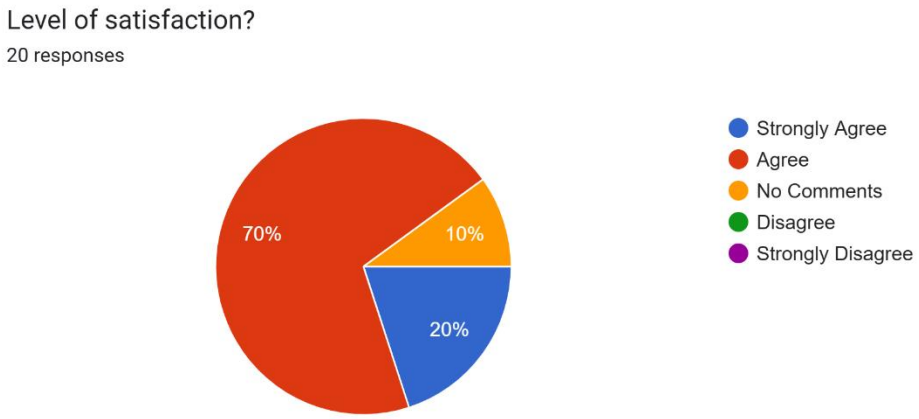

Figure 6: Respondents' Level of Satisfaction Regarding the Proposed Project

Conclusion

The stakeholder consultation process for the M/s FonGreens (Private) Limited project demonstrated strong support for the initiative from the local community, with a clear recognition of its potential to boost the area's economic development. While environmental concerns were noted, the project proponents have committed to implementing mitigation measures to address these issues and maintain local aesthetic and environmental values. Continuous engagement with stakeholders throughout the project's lifecycle is crucial to ensure that any emerging concerns are promptly addressed.

Chapter 8
Conclusion and Recommendations

8.1 Conclusion

The proposed project by M/s **FonGreens (Private) Limited**, involving the production, processing, and extraction of cannabinol / cannabinoids from cannabis / hemp, represents a significant step forward in promoting sustainable industrial practices and alternative medical solutions in Pakistan. This project not only fulfills a growing global demand for eco-friendly and renewable materials but also positions the country as a competitive player in the industrial hemp market.

The cultivation and use of hemp as the raw material for this project have substantial environmental benefits. **Hemp is recognized globally as a carbon-sequestering crop, capable of absorbing large amounts of CO_2 from the atmosphere. Its widespread cultivation as part of this project will contribute significantly to increasing the country's carbon credits, a critical factor in combating climate change and meeting international climate commitments**.

Additionally, hemp serves as a sustainable alternative to cotton. Unlike cotton, which is resource-intensive in terms of water and pesticides, hemp requires minimal water, fewer pesticides, and no synthetic fertilizers. This makes it a more environmentally friendly option for the production of textiles and other derivative products. By promoting hemp as a substitute for cotton, the project can reduce the environmental burden associated with traditional cotton farming while meeting the growing demand for natural fibers.

The Environmental Impact Assessment (EIA) has evaluated the project's potential environmental, social, and economic impacts during both construction and operational phases. The findings highlight that while certain risks are associated with air emissions, waste management, and resource use, these are manageable through effective mitigation measures. The robust Environmental Management and Monitoring Plan (EMMP) developed for the project provides a comprehensive framework for minimizing these impacts.

Key environmental and socio-economic benefits of the project include:

1. **Climate Change Mitigation:** Hemp cultivation will act as a natural carbon sink, helping to reduce greenhouse gas concentrations in the atmosphere.
2. **Water and Soil Conservation:** Hemp farming conserves water resources and improves soil health, reducing erosion and promoting sustainable agricultural practices.
3. **Economic Growth:** The project will create direct and indirect employment opportunities for local communities, boosting the regional economy.
4. **Reduction in Resource Dependency:** By offering a sustainable alternative to cotton and synthetic fibers, the project reduces dependency on environmentally harmful materials.
5. **Technological Advancement:** The implementation of supercritical CO_2 extraction technology ensures high efficiency, eco-friendliness, and minimal waste generation.

8.2 Recommendations

To maximize the project's benefits and minimize its environmental footprint, the following recommendations are provided:

1. **Adherence to Environmental Management Plan:**
    - Strict implementation of the mitigation and monitoring strategies outlined in the EMP.
    - Regular updates to the EMP to reflect advances in environmental technology and address unforeseen challenges.
2. **Promotion of Hemp Cultivation:**
    - Develop partnerships with local farmers to encourage the adoption of hemp farming practices.
    - Provide training and support to ensure sustainable cultivation methods are employed.
3. **Research and Development (R&D):**
    - Invest in R&D to improve hemp processing technologies and explore additional uses of hemp derivatives, including textiles, biodegradable plastics, and biofuels.
    - Collaborate with academic institutions to advance knowledge in industrial hemp applications.
4. **Community Engagement:**
    - Involve local communities in project activities through employment, training, and Corporate Social Responsibility (CSR) programs.
    - Maintain an open communication channel to address community concerns and enhance public acceptance of the project.
5. **Environmental and Economic Reporting:**
    - Regularly report on the project's carbon sequestration contributions and its economic impact, particularly in reducing dependence on water-intensive crops like cotton.
    - Highlight the project's role in increasing the country's carbon credits in line with international climate agreements.

8.3 Final Recommendation

This project represents a transformative opportunity for Pakistan to embrace sustainable practices, improve environmental resilience, and achieve economic progress. The dual benefits of hemp cultivation as a **carbon-sequestering crop** and an **eco-friendly alternative to cotton** make it a compelling initiative aligned with global environmental and industrial trends.

Based on the findings of this EIA, it is recommended that the project be approved subject to the implementation of the proposed EMP and compliance with all regulatory requirements. With its innovative approach, M/s FonGreens (Private) Limited has the potential to set a benchmark for sustainable industrial development and position Pakistan as a leader in the global industrial hemp market.

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7. The Punjab local Governmental ordinance, 2001.
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11. Punjab Environmental agency (review of IEE/EIA) regulation 2000 (Amended 2022).
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FONGREENS
(PRIVATE) LIMITED

Hi-9 Sustainable Developers
Lahore-Punjab

Annexure-A

Terms Of References

FONGREENS
(PRIVATE) LIMITED

FONGREENS

FONGREENS PRIVATE LIMITED

TEL : 051-5952738
EXTN: 1615
FAX: 5951707

AGREEMENT FOR HIRING SERVICES OF CONSULTANT TO CARRY OUT EIA ENVIRONMENTAL IMPACT ASSESSMENT AND OBTAIN NOC

This Agreement (hereinafter called the "Agreement") is made on the 28th day of the month of December 2024, to carryout EIA and seeking its approval for "M/s FonGreens (Private) Limited" to establish its Production, Processing and Extraction unit of Cannabis / Hemp and its derivatives on an area measuring 38400 Sq yards at Plot No. 8 & 9, St. No. 8, RCCI Industrial Estate, Rawat, Rawalpindi.

BETWEEN

M/s FonGreens (Private) Limited (hereinafter called the "Client" which expression shall, whenever context so permits, include its successors-in-office, representatives and assignees) on the one hand;

AND

M/s Hi-9 Sustainable Developers (hereinafter called the "Consultant" which expression shall, whenever context so permits, include its successors-in-office, representatives and assignees) on the other hand.

WHEREAS

The Client has requested the Consultant to provide consulting services for preparation of EIA and seeking its approval thereof from the Environment Protection Agency Punjab under his seal and signature on mutually agreed terms and conditions as under :-

NOW THEREFORE the parties hereto hereby agree as follows :-

1. The Client shall provide assistance and access to the information contained in feasibility study, layout plan and other project relevant documents as and when required by the consultant for performance of his obligations.

2. The client shall provide all available data maps and reports about the project including but not limited to Layout Plan of the Project, Layout Plan for water facilities and sewerage, Layout Plan for water treatment facilities and sewerage disposal system, Water and Gases Analysis Report from the approved laboratories of EPA Punjab, Noise Level and arrangements including NOC from respective regulatory body of existing drainage system or sewerage system.

FONGREENS

FONGREENS PRIVATE LIMITED

TEL : 051-5952738
EXTN: 1615
FAX: 5951707

3. The client will provide to the Consultants with letters of introduction and authorization and other documents as may be necessary to enable the Consultants to perform the services.

4. The Consultant shall carry out the services in accordance with the provisions of the agreement including :-

5. The Consultant shall prepare the Initial Environment Examination Report (IEE) and application file with due diligence in agreed time period and shall seek its approval from EPA Punjab under statutory requirements of the PEPA, 1997 (Amended 2012).

6. The consultant shall give the consultancy for the preparation of detailed management plan for enhancing the environmental conditions such as plantation, management of surface runoff, mitigation of socially adverse impact if any.

7. The consultant will review all the activities during construction phase to keep the pollutants with in NEQS.

8. The consultant shall examine the entire activities and list the details of activities likely to cause adverse impact during and after construction phase. The consultant shall suggest mitigation measures for all such activities during construction and post construction periods.

9. The consultant shall be responsible to respond to any objections, queries, or required clarification during review of the IEE by EPA, Punjab in the shortest possible time to ensure early clearance of IEE.

10. In accordance with the Clause 7 above, despite the issuance of NOC, the Consultant shall be responsible for monitoring of construction activities.

IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be signed in their respective names as of the day and year first above written.

For and on behalf of client: M/s FonGreens Private Limited	**For and on behalf of the consultant: Hi-9 Sustainable Developers**
CEO M/s FonGreens (Private) Limited (Brig Muhammad Ahsan, SI(M), Retd)	Authorized Representative Hi-9 Sustainable Developers (Muhammad Mukarram Javaid)

Registered Address: Fauji Towers, 68-Tipu Road Chaklala Cantt, Rawalpindi, Pakistan
Plant Address: Plot No. 8, Street No. 8, RCCI Industrial Estate, Rawat, District Rawalpindi
Email: supdt.fongreens@fauji.org.pk

Annexure-B

Approved Layout
and Google Earth
Map of Project

FONGREENS
(PRIVATE) LIMITED

Annexure-C

Land Documents by
RCCI/ Allotment
Letters

FONGREENS
(PRIVATE) LIMITED

RCCI INDUSTRIAL ESTATE RAWAT

ALLOTMENT CERTIFICATE

Serial No. 5229

Certified that

RH -197

M/s. Fauji Foundation.
68, Tipu Road, Chaklala, Rawalpindi Cantt.
Is here by Allotted Plot # 08, St. # N-8 Measuring 38400 sq yds
Type Industrial

(Allotment conditions overleaf)

(EJAZ MAHMOOD)
Managing Director
Crescent Developers (Pvt.) Ltd.
Khan Chamber, 60, Canning Road, Saddar, Rawalpindi, Pakistan.
UAN: 92-51-111-289-289, Fax: 92-51-5515779.
Email: renaissancedev@yahoo.com, http:// www.renaissancedev.org

Dated 10 March, 2023

RCCI INDUSTRIAL ESTATE RAWA

ALLOTMENT CERTIFICATE

Serial No. 5241

Certified that

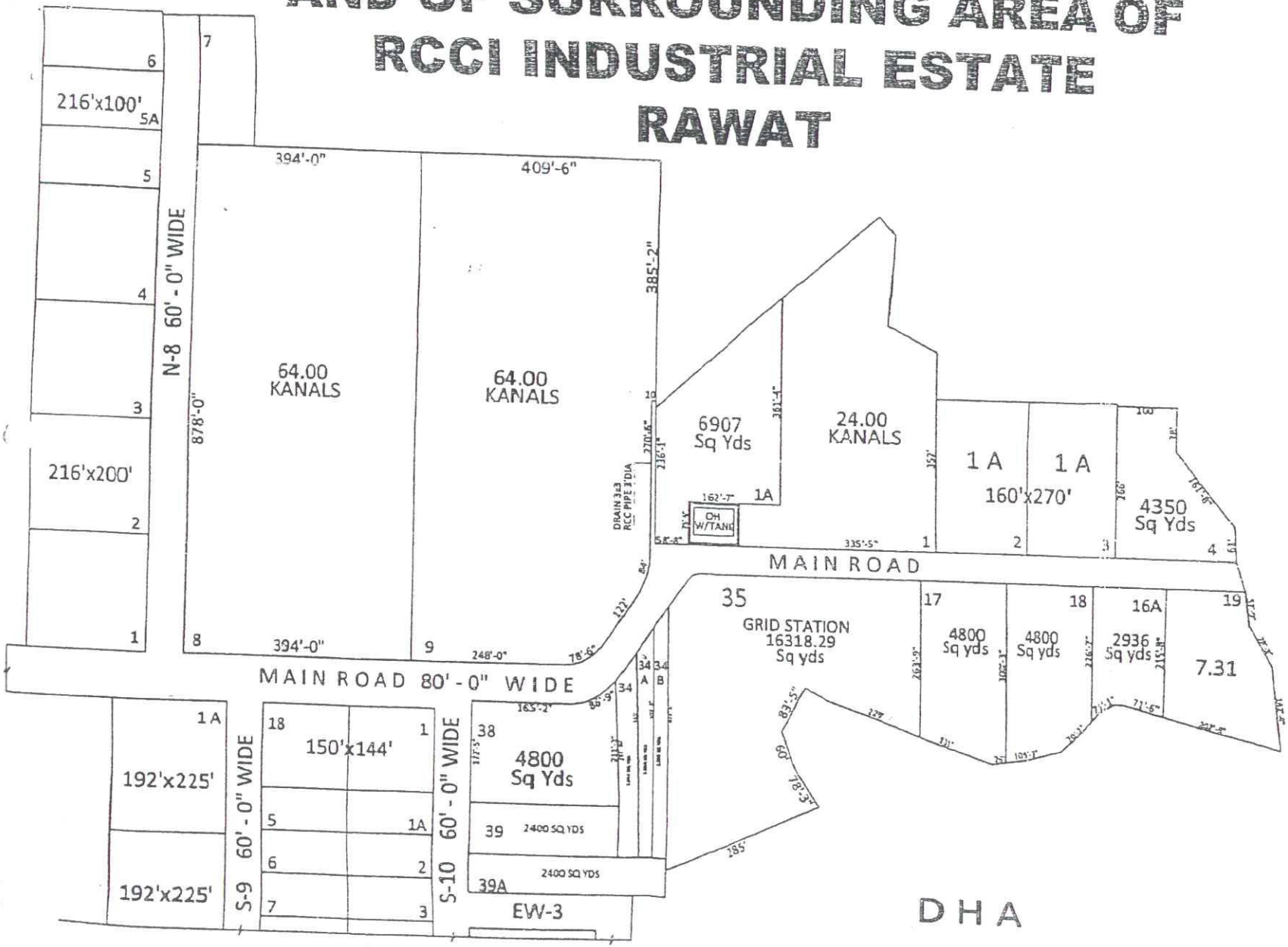
M/s. Fauji Foundation.
68, Tipu Road, Chaklala, Rawalpindi Cantt.
Is here by Allotted Plot # 09, St. # N-8 Measuring 38400 sq yds
Type Industrial

(Allotment conditions overleaf)

(EJAZ MAHMOOD)
Managing Director
Crescent Developers (Pvt.) Ltd.
Khan Chamber, 60, Canning Road, Saddar, Rawalpindi, Pakistan.
UAN: 92-51-111-289-289, Fax: 92-51-5515779.

Dated 10 March. 2023

PLAN FAUJI FOUNDATION PLOTS AND OF SURROUNDING AREA OF RCCI INDUSTRIAL ESTATE RAWAT



Annexure-D

Lab Reports &
validation Sheets

FONGREENS
(PRIVATE) LIMITE

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

2of7

Validation for Stack & Ambient Monitoring / Sampling

Emission Monitoring under CTM-34 or OTM-39				
Facility Name & Address Phone	FonGgreens (Pvt) Ltd.	Ambient Air & Boundary Wall Noise		
	RCCI industrial state Rawat Rawal Pindi			
Industry Category	Baseline			
Analyzer Model & Make : AQMS, Noise Meter				
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

Adil Javed - Pak Green Lab
Dated: 26-12-2024
Signature

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

3077

Validation for Wastewater & Drinking Water

Facility /Project Name & Address Phone	FonGgreens (Pvt) Ltd.	**Sampling Point** Ground Water	
	RCCI industrial state Rawat Rawal Pindi		

Waste Water (**WW**) Treatment facility Primary Secondary Tertiary NA		Drinking Water (**W**) Treatment Facility ----------	
Total WW collected Sample ..... NA		Total Collected Drinking water samples.....01	
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
	NA	NA	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
pH		AS 218	APHA 4500 B	Yes✓ NO	
Temp					
Cl					

Adil Javed - Pak Green Lab
Dated: 26-12-2024
Signature:

PAK GREEN ENVIRO-ENGINEERING (Pvt.) Ltd.
ISO/IEC 17025:2017 Accredited Testing Lab, ISO 9001:2015, ISO 14001:2015, ISO 45001:2018
Head Office: 46-M, Gulberg III, Lahore-Pakistan. Ph: +9242-35441444 Cell: 0303-4442334

EPA Certified

PGG/IMS/FF/159	Rev.#00	Rev date: 04-09-23

TEST REPORT

Ref #: PGL/LAB/2025-11721/GW **Issue date:** 31-Dec-24

Name of Industry/Client: FonGreens (Private) Limited
Site Location: Plot No. 8 St. No. 8 RCCI Industrial state Rawat Rawal Pindi
Nature of Sample: Ground Water
Sampling By: Pak Green Laboratories
Sample Code: GW-3641
Sample Source: Tap Water
Date of sampling: 26-Dec-24
Sample Receiving Date: 26-Dec-24
Testing Facility: Pak Green Laboratories
Testing Date: 26-Dec-24 to 31-Dec-24
Validated by EPA Representative: Muhammad Nadeem, RO EPA (Lab), Lahore

Results:

Sr No.	Parameters	Unit	WHO	PEQS	Method / Technique	Results
1.	Color	TCU	≤ 15	≤ 15	APHA-2120 C	0.000
2.	Taste	-	Non-Objectionable / Acceptable	Non-Objectionable / Acceptable	APHA-2160 C	Non-Objectionable
3.	Odor	-	Non-Objectionable / Acceptable	Non-Objectionable / Acceptable	APHA-2150 B	Non-Objectionable
4.	Turbidity	NTU	< 5	< 5	APHA-2130 B	0.30
5.	Total Hardness^	mg/L	-	<500	APHA-2340 C	200
6.	Total Dissolved Solids^	mg/L	< 1000	< 1000	APHA-2540 C	550
7.	pH^	-	6.5-8.5	6.5-8.5	APHA-4500-H^+ B	7.810 at 23.0°C
8.	Chloride (Cl^{-1}) ^	mg/L	250	< 250	APHA-4500-Cl^{-1}B	30
9.	Electrical Conductivity (EC)^	µS/cm	-	-	APHA-2510 B	831
10.	Sodium (Na)^	mg/L	-	-	APHA-3111 B	118.0237

.....End of Report.....

PEQS: Punjab Environmental Quality Standards **WHO: World Health Organization** **^ PNAC Accredited**
Remarks: All Parameters are in compliance with the PEQS Limit.
Terms & Conditions:

- Analysis was conducted on the request of project proponent for IEE/EIA Baseline study.
- Report cannot be used to comply with any complaint, EPO, or other court case.
- This report should be reproduced as a whole and not in parts.
- The values represent the sample conditions when sampling/monitoring was carried out.
- The Environmental Conditions while performing testing activities are (Temp=22.0-24.0°C) and (RH=42.8-56.6%)
- The Sampling was done as per the sampling and preservation protocol method APHA 1060-B&C
- The responsibility of the ethical use of the results reported in this report lies with the client.
- The leftover sample (if so available) shall be retained for fifteen days after the issuance of the report unless otherwise negotiated between the client and the laboratory.
- The report is not valid for any negotiations.
- Dually calibrated instruments were used during monitoring and testing activities.

Lab. Analyst	Chief Analyst	Laboratory Incharge

PNAC LAB 180 17025

TEST REPORT

Ref #: PGG/LAB/2024-11723/AA

Issue date: 31-Dec-24

Name of Industry/Client: FonGreens (Private) Limited
Site Location: Plot No. 8 St. No. 8 RCCI Industrial state Rawat Rawal Pindi
Nature of Monitoring: Ambient Air
Monitoring By: Pak Green Laboratories
Monitoring Instrument: AQMS
Monitoring Date: 26-Dec-24 to 27-Dec-24
Validated by EPA Representative: Muhammad Nadeem, RO EPA (Lab), Lahore

Results:

Parameters	CO	NO	NO_2	SO_2	PM_{10}	$PM_{2.5}$
	mg/m^3	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	ug/m^3	ug/m^3
Methodology	Non-Dispersive Infrared Absorption (NDIR)	Reduced Pressure Chemiluminescence (CLD)	Reduced Pressure Chemiluminescence (CLD)	UV fluorescence (UVF)	Integrated Sampling Technique	Integrated Sampling Technique
Results	1.90	4.72	24.81	32.49	165.9*	52.2*
PEQS for Ambient Air	05 8-Hrs	40 24-Hrs	80 24-Hrs	120 24-Hrs	150 24-Hrs	35 24-Hrs

.....End of Report.....

PEQS: Punjab Environmental Quality Standards
Remarks: Parameters with * are not in compliance with the PEQS Limit.
Terms & Conditions:

- Analysis was conducted on the request of project proponent for IEE/EIA Baseline study.
- Report cannot be used regarding compliance of any complaint, EPO or any other court case.
- This report should be reproduced pas a whole and not in parts.
- The responsibility of the ethical use of the results reported in this report lies with the client. Consequently, the laboratory is absolved of its responsibility for any claim that may result through the use by the client or others of the results appearing in this report.
- The left-over sample (if so available) shall be retained for fifteen days after the issuance of the report unless otherwise negotiated between the client and the laboratory.
- The report is not valid for any negotiations

Field. Analyst	Chief Analyst	Laboratory Incharge

TEST REPORT

Ref #: PGG/LAB/2024-11723/NL

Issue date: 31-Dec-24

Name of Industry/Client:	FonGreens (Private) Limited
Site Location:	Plot No. 8 St. No. 8 RCCI Industrial state Rawat Rawal Pindi
Nature of Monitoring:	Noise Level
Monitoring By:	Pak Green Laboratories
Monitoring Time:	Real Time
Monitoring Instrument:	Land TEK SL 5868-P
Monitoring Date:	26-Dec-24
Validated by EPA Representative:	Muhammad Nadeem, RO EPA (Lab), Lahore

Results:

Sr. No.	Locations	Equivalent Noise Level dB (A)
1.	Point-01: East Side	70.3
2.	Point-02: West Side	69.8
3.	Point-03: North Side	68.0
4.	Point-04: South Side	66.9
PEQS (Day Time Industrial Area)		**75 dB(A)**

..... End of Report.....

PEQS: Punjab Environmental Quality Standards
Remarks: Noise level at all points are in compliance with PEQs Limit.
Terms & Conditions:

- Analysis was conducted on the request of project proponent for IEE/EIA Baseline study.
- Report cannot be used regarding compliance of any complaint, EPO or any other court case.
- This report should be reproduced pas a whole and not in parts.
- The responsibility of the ethical use of the results reported in this report lies with the client. Consequently, the laboratory is absolved of its responsibility for any claim that may result through the use by the client or others of the results appearing in this report.
- The left-over sample (if so available) shall be retained for fifteen days after the issuance of the report unless otherwise negotiated between the client and the laboratory.
- The report is not valid for any negotiations.

Field. Analyst	Chief Analyst	Laboratory Incharge

Annexure-E

Company Registration, CNIC of Directors, witnesses and CEO/Proponent

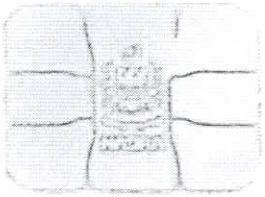
FONGREENS
(PRIVATE) LIMITE

PAKISTAN National Identity Card

ISLAMIC REPUBLIC OF PAKISTAN

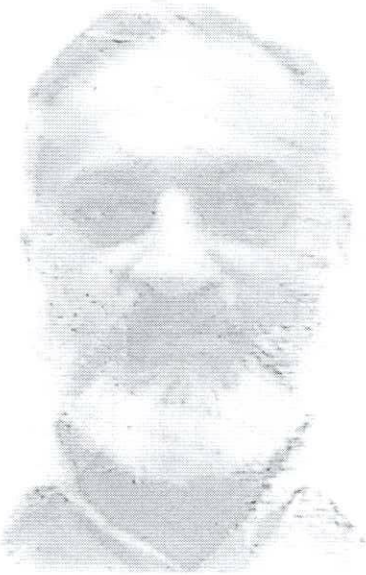
Name
Muhammad Ahsan

محمد احسن



Father Name
Muhammad Ahmad Bhatti

محمد احمد بھٹی



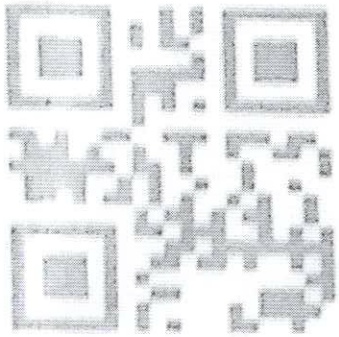
Gender	Country of Stay
M	Pakistan

Identity Number	Date of Birth
35202-3965698-9	28.07.1972

Date of Issue	Date of Expiry
21.05.2024	21.05.2034

Holder's

35202-3965698-9



503681385628
272-91-275931

Registrar Gener[illegible] Pakistan

[illegible] ملنے پر قریبی لیٹر بکس میں ڈال دیں

For Fun Greens

61101-6181319-1

آباد

مستقل مکان نمبر 5، شیٹ نمبر 11، بلاک [illegible]

آباد

51149E000012

گمشدہ کارڈ ملنے پر قریبی لیٹر بکس میں ڈال دیں

PAKISTAN National Identity Card

ISLAMIC REPUBLIC OF PAKISTAN

Name
Anwar Ali Hyder

انور علی حیدر

Father Name
Khawaja Bahadur Ali Hyder

خواجہ بہادر علی حیدر

Gender	Country of Stay
M	Pakistan
Identity Number	Date of Birth
61101-6181319-1	24.06.1963
Date of Issue	Date of Expiry
31.05.2021	Lifetime

Holder's Signature

For Foreigners

PAKISTAN National Identity Card

Name
Irfan Khan

عرفان خان

Father Name
Mohammad Sadiq

محمد صادق

Gender	Country of Stay
M	Pakistan

Identity Number	Date of Birth
35201-6921901-3	02.12.1972

Date of Issue	Date of Expiry
26.03.2024	26.03.2034

Holder's Signature

35201-6921901-3

511491001217
227-72-202597

گمشدہ کارڈ ملنے پر قریبی لیٹر بکس میں ڈال دیں

PAKISTAN National Identity Card

ISLAMIC REPUBLIC OF PAKISTAN

Name
Syed Bakhtiyar Kazmi

سید بختیار کاظمی

Father Name
Syed Akram Kazmi

سید اکرم کاظمی

Gender	Country of Stay
M	Pakistan

Identity Number	Date of Birth
61101-2169245-3	13.06.1963

Date of Issue	Date of Expiry
01.03.2021	Lifetime

Holder's Signature

61101-2169245-3

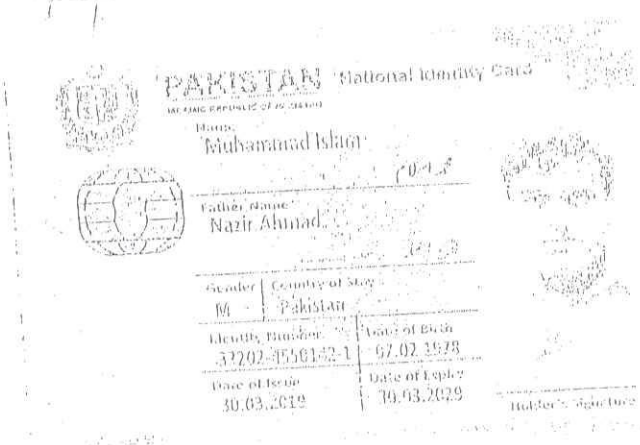
مستقل پتہ: مکان نمبر B-126، سٹریٹ نمبر 37، سیکٹر ایف ٹین
ون، اسلام آباد

مستقل پتہ: مکان نمبر 12، سٹریٹ نمبر 21، سیکٹر ایف سیون
ون، اسلام آباد

Registrar General of Pakistan

500062248577
101-63-519076

گمشدہ کارڈ ملنے پر قریبی لیٹر بکس میں ڈال دیں



PAKISTAN National Identity Card

ISLAMIC REPUBLIC OF PAKISTAN

Name
Muhammad Ishaq

Father Name
Nazir Ahmad

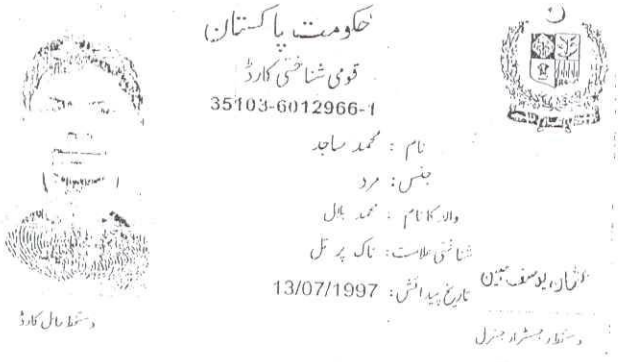
Gender	Country of Stay
M	Pakistan

Identity Number	Date of Birth
37202-3516142-1	07.02.1978

Date of Issue	Date of Expiry
30.03.2019	29.03.2029

Holder's Signature

گواہ



حکومت پاکستان

قومی شناختی کارڈ

35103-6012966-1

نام : محمد ساجد

جنس: مرد

والد کا نام : محمد بلال

شناختی علامت: ناک پر تل

تاریخ پیدائش: 13/07/1997

نثار یوسف تیئن

دستخط رجسٹرار جنرل

دستخط حامل کارڈ

گواہ

SECURITIES AND EXCHANGE COMMISSION OF PAKI

Business Centre at Head Office Islamabad

CERTIFICATE OF INCORPORATION

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

Corporate Unique Identification No. 0276604

I hereby certify that **FONGREENS (PRIVATE) LIMITED** i incorporated under the Companies Act, 2017 (XIX of 2017) and that th is Limited by **shares.**

Given at **Islamabad** this **Twenty Eighth** day of **November**, Two Tho and **Twenty Four**

SEAL OF REGISTRAR OF COMPANIES

https://leap.secp.gov.pk/#/verify-company-info/02

This is an electronically generated document and does not require a physical signature

Disclaimer: This certificate of incorporation is not a permission to accept deposits from the general public by offering fake jobs/investment packages and return thereon, indulge in leasing/ financing of vehicles and household products etc., MLM, Pyramid and Ponzi Schemes, Lottery Business, trading in forex and virtual currencies or any other unlawful business activities

Annexure-F

Form-I, Form-9,
Memorandum of
Association, Articles
of Association

FONGREENS
(PRIVATE) LIMITE

THE COMPANIES ACT, 2017 (XIX of 2017)

(PRIVATE COMPANY LIMITED BY SHARES)

Articles of Association

Of

FONGREENS (PRIVATE) LIMITED

THE COMPANIES ACT, 2017 (XIX of 2017)

(Private Company Limited by Shares)

ARTICLES OF ASSOCIATION

OF

FONGREENS (PRIVATE) LIMITED

1. The Regulations contained in Table 'A' to the First Schedule to the Companies Act, 2017 (the "Act") shall be the regulations of FONGREENS (PRIVATE) LIMITED (the "Company") so far as these are applicable to a private company.

PRIVATE COMPANY

2. The Company is a "Private Company" within the meaning of Section 2(1)(49) of the Act and accordingly:

(1) No invitation shall be made to the public to subscribe for the shares or debentures of the Company.

(2) The number of the members of the Company (exclusive of persons in the employment of the Company), shall be limited to fifty, provided that for the purpose of this provision where two or more persons hold one or more shares in the company jointly, they shall be treated as single member; and

(3) The right to transfer shares of the Company is restricted in the manner and to the extent herein appearing.

TRANSFER OF SHARES

3. A member desirous to transfer any of his shares shall first offer such shares for sale or gift to the existing members and in case of their refusal to accept the offer, such shares may be transferred to any other person, as proposed by the transferor member, with the approval of the Board of Directors.

DIRECTORS

4. The number of directors shall not be less than two or a higher number as fixed under the provisions of the Act. The following persons shall be the first directors of the Company and shall hold the office upto the date of First Annual General Meeting:

1. Lt. Gen. Anwar Ali Hyder (Retd)

2. Syed Bakhtiyar Kazmi

3. Brig. Irfan Khan (Retd)

We, the several persons whose names and addresses are subscribed below, are desirous of being formed into a company, in pursuance of these articles of association, and we respectively agree to take the number of shares in the capital of the company set opposite our respective names:

Name and surname (present & former) in full (in Block Letters)	NIC No. (in case of foreigner, Passport No)	Father`s/ Husband`s Name in full	Nationality(ies) with any former Nationality	Occupation	Usual residential address in full or the registered/ principal office address for a subscriber other than natural person	Number of shares taken by each subscriber (in figures and words)	Signatures
Fauji Foundation through Lt. Gen. Anwar Ali Hyder (Retd)	611016 181319 1	Not Required	Pakistan	Business	Fauji Towers, 68 Tipu Road, Chaklala, Rawalpindi, Punjab, Pakistan	49,997 (Forty Nine Thousand Nine Hundred Ninety Seven)	Electronically Signed
Lt. Gen. Anwar Ali Hyder (Retd)	611016 181319 1	Not Required	Pakistan	Business	House No. 5, Street 11, F-7/2, Islamabad, Pakistan	1 (One)	Electronically Signed

Name and surname (present & former) in full (in Block Letters)	NIC No. (in case of foreigner, Passport No)	Father`s/ Husband`s Name in full	Nationality(ies) with any former Nationality	Occupation	Usual residential address in full or the registered/ principal office address for a subscriber other than natural person	Number of shares taken by each subscriber (in figures and words)	Signatures
Syed Bakhtiyar Kazmi	611012-1692453	Not Required	Pakistan	Business	House No. 126B, Street 37, F-10/1, Islamabad, Pakistan	1 (One)	Electronically Signed
Brig. Irfan Khan (Retd)	352016-9219013	Not Required	Pakistan	Business	House No. 148, Street 5, Askari 13, Adyala Road, Rawalpindi, Punjab, Pakistan	1 (One)	Electronically Signed
		Total number of shares taken (in figures and words)				50,000 (Fifty Thousand)	

Dated the 15th day of November, 2024

THE COMPANIES ACT, 2017 (XIX of 2017)

(COMPANY LIMITED BY SHARES)

MEMORANDUM OF ASSOCIATION

1. The name of the company is FONGREENS (PRIVATE) LIMITED

2. The registered office of the Company will be situated in Punjab

3.(i). The principal line of business of the company shall be to cultivate, grow, collect, extract, process, produce, multiply, treat, distribute, sell and purchase (imports and exports) transform, develop and manufacture various types/kinds of cannabis and hemp plants or seeds or plant derivatives, or any other crops as may be permissible under the laws of Pakistan, sales of derivatives of the such plants for commercial, medical, or industrial purposes and public uses, or any other related activity as may be prescribed or otherwise to develop, store and distribute prescription and non-prescription drugs of all kinds from plants, seeds and plant derivatives, for pharmaceutical, herbal and nutraceutical purposes. To develop, establish, and construct, design for the scientific and non-scientific laboratories research centers, greenhouses, manufacturing (indoor and outdoor) and processing facilities etc. for the purpose

(ii). Except for the businesses mentioned in sub-clause (iii) hereunder, the company may engage in all the lawful businesses and shall be authorized to take all necessary steps and actions in connection therewith and ancillary thereto.

(iii). Notwithstanding anything contained in the foregoing sub-clauses of this clause nothing contained herein shall be construed as empowering the Company to undertake or indulge, directly or indirectly in the business of a Banking Company, Non-banking Finance Company (Asset Management Services, Leasing, Investment Finance Services, Investment Advisory Services, REIT management Services, Housing Finance Services, Private Equity and Venture Capital Fund Management Services, Discounting Services, Pension Fund Scheme Business, Micro Financing), Corporate Restructuring Company, Insurance Business, Modaraba management company, Stock Brokerage business, forex, Clearing House, Securities and Futures Advisor, Commodity Exchange, managing agency, business of providing the services of security guards or any other business as subject to license and restricted under any law for the time being in force or as may be specified by the Commission.

(iv). It is hereby undertaken that the company shall not:

(a). engage in any of the business mentioned in sub-clause (iii) above or any unlawful operation;

(b). launch multi-level marketing (MLM), Pyramid and Ponzi Schemes, or other related activities/businesses or any lottery business;

(c). engage in any of the permissible business unless the requisite approval, permission, consent or license is obtained from competent authority as may be required under any law for the time being in force.

4. The liability of the member(s) is limited.

5. The Authorized Capital of the Company is Rs. 10,000,000/- (Rupees Ten Million) divided into 1,000,000 (One Million) Ordinary shares of Rs. 10/- (Rupees Ten) each.

We, the several persons whose name and addresses are subscribed below, are desirous of being formed into a company, in pursuance of this memorandum of association, and we respectively agree to take the number of shares in the capital of the company as set opposite our respective name(s):

Name and surname (present & former) in full (in Block Letters)	NIC No. (in case of foreigner, Passport No)	Father`s/ Husband`s Name in full	Nationality(ies) with any former Nationality	Occupation	Usual residential address in full or the registered/ principal office address for a subscriber other than natural person	Number of shares taken by each subscriber (in figures and words)	Signatures
Fauji Foundation through Lt. Gen. Anwar Ali Hyder (Retd)	61101618 13191	Not Required	Pakistan	Business	Fauji Towers, 68 Tipu Road, Chaklala , Rawalpindi, Punjab, Pakistan	49,997 (Forty Nine Thousand Nine Hundred Ninety Seven)	Electronically Signed
Lt. Gen. Anwar Ali Hyder (Retd)	61101618 13191	Not Required	Pakistan	Business	House No. 5, Street 11, F-7/2, Islamabad, Pakistan	1 (One)	Electronically Signed
Syed Bakhtiyar Kazmi	61101216 92453	Not Required	Pakistan	Business	House No. 126B, Street 37, F-10/1, Islamabad, Pakistan	1 (One)	Electronically Signed
Brig. Irfan Khan (Retd)	35201692 19013	Not Required	Pakistan	Business	House No. 148, Street 5, Askari 13, Adyala Road, Rawalpindi, Punjab, Pakistan	1 (One)	Electronically Signed
		Total number of shares taken (in figures and words)				50,000 (Fifty Thousand)	

Dated the 15th day of November, 2024

THE COMPANIES ACT, 2017

THE COMPANIES REGULATIONS, 2024

[Section 14(1)(c),167 & 197 and Regulations 50,54 & 30]

PARTICULARS OF DIRECTORS AND OFFICERS,INCLUDING THE CHEIF EXECUTIVE,SECRETARY,CHIEF FINANCIAL OFFICER,AUDITORS,LEGAL ADVISER AND INCASE OF SINGLE MEMBER COMPANY,NOMINEE OF SOLE MEMBER OR OF ANY CHANGE THEREIN

PART I

1.1. CUIN (Registration Number) | 0 | 2 | 7 | 0 | [illegible] | 0 | 4 |

1.2. Name of the Company: FONGREENS (PRIVATE) LIMITED

1.3 Fee Payment Details 1.3.1 Challan No: 25274082 1.3.2 Amount (Rs.): 1100

PART-II

2. Particulars*

Present Name in Full	NIC No for Pakistani or NICOP No for overseas Pakistanis or Passport No in case of a foreigner	Usual residential address	Designation	Nationality	Bussiness Occupation n****(if any)	Date of present appointment or change	Mode of appointment / change /any other Remarks*****	Nature of directorship (nominee other)
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
2.1 New appointment/election								
Muhammad Ahsan	35202396 56989	H # 184, Block-B, Phase-12 (EME Society), DHA, Lahore,	Chief Executive	Pakistan	Service	28-12-2024	Appointed	

4.2 Name of Authorized Officer with designation/Authorized Intermediary (if appointed)	Anwar Ali Hyder	Chief Executive
4.3. Signatures	This is an electronically generated document and doesnt require a physical signature	
4.4. Registration No of Authorized Intermediary, if applicable		

4.5. Date

Day		Month		year			
0	9	0	1	2	0	2	5

Enclosure

1. Consent of each Director/Chief Executive upon their appointment/-reappointment/election on the prescribed appendix
2. Copy of nomination letter from the appointing authority in case the person is nominated under any of the provisions of the Act.
3. Copy of NOC/approval from concerned department (Ministries or Regulatory Authorities or SECP) is required for companies with licensing activities etc.
4. Consent of auditor, in case of appointment re-appointment of auditor
5. Copy of resignation letter (in case of resignation of a director or chief executive), duly signed by resigning director or chief executive, verified through an affidavit on stamp paper duly signed by the person who has signed this Form and attested by an oath commissioner and witnessed, be attached.
6. If the person appointed is a foreigner, please provide 9 sets of Bio-Data & valid Passport for onward submission to Ministry of Interior (MOI) for clearance along with undertaking in original
7. Sufficient evidence in case of removal/ death/disqualification of Director / Chief Executive may be attached.
8. Any other documents, as required by the registrar.
9. Original challan or other evidence of payment of fee specified in Seventh Schedule of the Act (not applicable in case of online filing)

Appendix to Form-9

THE COMPANIES ACT, 2017

THE COMPANIES REGULATIONS, 2024

[Section 167]

(Applicable in case of appointment or election of director(s) or Chief Executive)

CONSENT TO ACT AS DIRECTOR / CHIEF EXECUTIVE

1. Name of the Company	FONGREENS (PRIVATE) LIMITED

2. I, the undersigned, have consented to act as Director(s)/ Chief Executive of the above-named company pursuant to section 167 of the Companies Act, 2017, and certify that I am not ineligible to become Director(s)/ Chief Executive under section 153 or 177 of the Companies Act, 2017.

Name in full	Designation	Address	Occupation	NIC No or passport No in case of Foreign National	Signature
Muhammad Ahsan	Chief Executive	H # 184, Block-B, Phase-12 (EME Society), DHA, Lahore, Lahore, Punjab, Pakistan	Service	3520239656969	This is an electronically generated document and doesn't require a physical signature

Annexure-G

waste Water and
Approval by RCCI

FONGREENS
(PRIVATE) LIMITE

RCCI Industrial Estate Management Board

www.rcciindustry.com

No. /2025-357 January 23, 2025

To Fauji Foundation,
Fauji Towers, 68-Tipu Road, Chaklala Cantt
Rawalpindi

Subject **Provisional NOC – Cannabis / Hemp Project by M/s. FonGreens (Pvt) Ltd. at Fauji Foundation owned Plots No. 8 & 9, Street N-8 in RCCI Industrial Estate Rawat, Rawalpindi**

Dear Sir,

Fauji Foundation letter no. 3955/53/RCCI/RE dated 22 Jan 2025 refers.

1. We are in receipt of under reference letter where it is stated that M/s FonGreens (Private) Limited ("FPL"), a wholly owned company of Fauji Foundation ("FF") is planning to construct a production, processing and extraction unit for Cannabis / Hemp and derivatives under the name of M/s. FonGreens (Private) Limited at Plot No. 8 & 9, Street No. N-8 in RCCI Industrial Estate Rawat, District Rawalpindi.

2. Management Board of RCCI Industrial Estate has no objection for the construction of planned project by FPL on Plot No. 8 & 9, Street No. N-8 in RCCI Industrial Estate Rawat, provided it fulfills Pak-EPA's environmental requirement and is in compliance with all the prevailing rules and regulations of Government of Pakistan. It is pertinent to mention that upstream of ling Nalah Dadhocha Dam is planned whereby liaison with Small Dam Organization is advised.

Regards.

(Ch Nadeem A. Rauf)
Chairman

Copy to:-

Crescent Developers (Pvt) Ltd.,
Khan Chamber, Saddar Cantt, Rawalpindi.

Estate Manager,
RCCI Industrial Estate, Rawat

Crescent Developers (PVT) Limited

Khan Chamber, 60 Canning Road, Saddar, Rawalpindi. Pakistan
UAN: 92-51-111-289-289 ,Fax: 92-51-5515779
E-mail: renaissancedev@yahoo.com www.cres-dev.com

No. CDPL/FF
14 January 2025

To: Brig. Muhammad Ahsan, SI (M) (Retd),
CEO, FonGreens (Pvt) Ltd.,
Fauji Towers, 68-Tipu Road, Chaklala Cantt.
Rawalpindi.

Subject: **Environmental Approval – Sewage Characteristics.**

Your letter Case No. 1001 / FG / A dated 13 Jan 2025 refers.

To obtain NOC for water sewerage network utilization, you are requested to consult section 6.4.8 & 6.4.9 of RCCI Industrial Estate Building Bye Laws 2024 (copy serial no. 020 is attached for your reference). However, open masonry drain exist in the vicinity of Plot No. 8 & 9 of Fauji Foundation, for disposal of treated sewerage / industrial waste.

(M. Javed Khan Alpial)
Director Technical

Copy to:-

Estate Manager,
RCCI Industrial Estate.

RE Section, Fauji Foundation Head Office.

Annexure-H

Stake Holders
Consultation forms

FONGREENS
(PRIVATE) LIMITE

Public Consultation/ Stakeholder Participation Regarding EIA

"Proposed construction of cannabis / hemp and derivatives, production, processing and extraction unit under the name of M/S FonGreens (Private) Limited"

Name:

Residence:

Gender: [M] [F]

Qualification:

REMARKS

	Strongly agree	Agree	No comments	Disagree	Strongly disagree
Are you in favor of the proposed construction?	☑	☐	☐	☐	☐
Will the project increase the importance of the area?	☑	☐	☐	☐	☐
Will the project help to improve the living standards of the area?	☐	☑	☐	☐	☐
Will the project affect the environment of the area?	☐	☐	☐	☑	☐
Level of satisfaction?	☑	☐	☐	☐	☐

Signature of Interviewer

Public Consultation/ Stakeholder Participation Regarding EIA

"Proposed construction of cannabis / hemp and derivatives, production, processing and extraction unit under the name of M/S FonGreens (Private) Limited"

Name: فیروزہ

Residence: کوزنک

Gender: [x] M [ ] F

Qualification: میٹرک

REMARKS

	Strongly agree	Agree	No comments	Disagree	Strongly disagree
Are you in favor of the proposed construction?	☑	☐	☐	☐	☐
Will the project increase the importance of the area?	☑	☐	☐	☐	☐
Will the project help to improve the living standards of the area?	☐	☐	☑	☐	☐
Will the project affect the environment of the area?	☐	☐	☐	☐	☑
Level of satisfaction?	☑	☐	☐	☐	☐

Signature of Interviewer

Public Consultation/ Stakeholder Participation Regarding EIA

"Proposed construction of cannabis / hemp and derivatives, production, processing and extraction unit under the name of M/S FonGreens (Private) Limited"

Name: خالد خان

Residence: چک شیرزاد

Gender: [M] [F]

Qualification: میٹرک

REMARKS

	Strongly agree	Agree	No comments	Disagree	Strongly disagree
Are you in favor of the proposed construction?	☑	☐	☐	☐	☐
Will the project increase the importance of the area?	☑	☐	☐	☐	☐
Will the project help to improve the living standards of the area?	☑	☐	☐	☐	☐
Will the project affect the environment of the area?	☐	☐	☐	☑	☐
Level of satisfaction?	☑	☐	☐	☐	☐

Signature of Interviewer

Public Consultation/ Stakeholder Participation Regarding EIA

"Proposed construction of cannabis / hemp and derivatives, production, processing and extraction unit under the name of M/S FonGreens (Private) Limited"

Name: حضرت الدور

Residence: RWAT

Gender: ☒ M ☐ F

Qualification: میٹرک

REMARKS

	Strongly agree	Agree	No comments	Disagree	Strongly disagree
Are you in favor of the proposed construction?	☑	☐	☐	☐	☐
Will the project increase the importance of the area?	☑	☐	☐	☐	☐
Will the project help to improve the living standards of the area?	☐	☑	☐	☐	☐
Will the project affect the environment of the area?	☐	☐	☐	☐	☑
Level of satisfaction?	☑	☐	☐	☐	☐

Signature of Interviewer

Public Consultation/ Stakeholder Participation Regarding EIA

"Proposed construction of cannabis / hemp and derivatives, production, processing and extraction unit under the name of M/S FonGreens (Private) Limited"

Name: ماریہ خالد

Residence: ڈیفنس روڈ

Gender: [M] [F]

Qualification: ماسٹرز

REMARKS

	Strongly agree	Agree	No comments	Disagree	Strongly disagree
Are you in favor of the proposed construction?	☑	☐	☐	☐	☐
Will the project increase the importance of the area?	☑	☐	☐	☐	☐
Will the project help to improve the living standards of the area?	☐	☑	☐	☐	☐
Will the project affect the environment of the area?	☐	☐	☑	☐	☐
Level of satisfaction?	☑	☐	☐	☐	☐

Signature of Interviewer

Public Consultation/ Stakeholder Participation Regarding EIA
"Proposed construction of cannabis / hemp and derivatives, production, processing and extraction unit under the name of M/S FonGreens (Private) Limited"

Name: شہباز اسلم

Residence: PWD

Gender: [M] [F]

Qualification: B.S

REMARKS

	Strongly agree	Agree	No comments	Disagree	Strongly disagree
Are you in favor of the proposed construction?	☑	☐	☐	☐	☐
Will the project increase the importance of the area?	☑	☐	☐	☐	☐
Will the project help to improve the living standards of the area?	☐	☑	☐	☐	☐
Will the project affect the environment of the area?	☐	☐	☐	☑	☐
Level of satisfaction?	☑	☐	☐	☐	☐

Signature of Interviewer

Public Consultation/ Stakeholder Participation Regarding EIA

"Proposed construction of cannabis / hemp and derivatives, production, processing and extraction unit under the name of M/S FonGreens (Private) Limited"

Name:

Residence:

Gender: [M] [✓F]

Qualification:

REMARKS

	Strongly agree	Agree	No comments	Disagree	Strongly disagree
Are you in favor of the proposed construction?	✓				
Will the project increase the importance of the area?	✓				
Will the project help to improve the living standards of the area?		✓			
Will the project affect the environment of the area?				✓	
Level of satisfaction?	✓				

Signature of Interviewer

Public Consultation/ Stakeholder Participation Regarding EIA

"Proposed construction of cannabis / hemp and derivatives, production, processing and extraction unit under the name of M/S FonGreens (Private) Limited"

Name:

Residence:

Gender: [M] [F]

Qualification:

REMARKS

	Strongly agree	Agree	No comments	Disagree	Strongly disagree
Are you in favor of the proposed construction?	☑	☐	☐	☐	☐
Will the project increase the importance of the area?	☑	☐	☐	☐	☐
Will the project help to improve the living standards of the area?	☑	☐	☐	☐	☐
Will the project affect the environment of the area?	☐	☐	☐	☑	☐
Level of satisfaction?	☑	☐	☐	☐	☐

Signature of Interviewer

Public Consultation/ Stakeholder Participation Regarding EIA

"Proposed construction of cannabis / hemp and derivatives, production, processing and extraction unit under the name of M/S FonGreens (Private) Limited"

Name: ثناء حسین

Residence: راولپنڈی

Gender: M ☒ F

Qualification: B.S

REMARKS

	Strongly agree	Agree	No comments	Disagree	Strongly disagree
Are you in favor of the proposed construction?	☒	☐	☐	☐	☐
Will the project increase the importance of the area?	☒	☐	☐	☐	☐
Will the project help to improve the living standards of the area?	☒	☐	☐	☐	☐
Will the project affect the environment of the area?	☐	☐	☐	☐	☒
Level of satisfaction?	☒	☐	☐	☐	☐

Signature of Interviewer

Public Consultation/ Stakeholder Participation Regarding EIA

"Proposed construction of cannabis / hemp and derivatives, production, processing and extraction unit under the name of M/S FonGreens (Private) Limited"

Name: عمر فاروق

Residence: بیگ ٹاؤن

Gender: [✓] M [ ] F

Qualification: ایف اے

REMARKS

	Strongly agree	Agree	No comments	Disagree	Strongly disagree
Are you in favor of the proposed construction?	☑	☐	☐	☐	☐
Will the project increase the importance of the area?	☑	☐	☐	☐	☐
Will the project help to improve the living standards of the area?	☐	☑	☐	☐	☐
Will the project affect the environment of the area?	☐	☐	☐	☐	☑
Level of satisfaction?	☑	☐	☐	☐	☐

Signature of Interviewer

Public Consultation/ Stakeholder Participation Regarding EIA

"Proposed construction of cannabis / hemp and derivatives, production, processing and extraction unit under the name of M/S FonGreens (Private) Limited"

Name:

Residence:

Gender: ☒ M ☒ F

Qualification:

REMARKS

	Strongly agree	Agree	No comments	Disagree	Strongly disagree
Are you in favor of the proposed construction?	☒	☐	☐	☐	☐
Will the project increase the importance of the area?	☐	☒	☐	☐	☐
Will the project help to improve the living standards of the area?	☐	☒	☐	☐	☐
Will the project affect the environment of the area?	☐	☐	☐	☒	☐
Level of satisfaction?	☒	☐	☐	☐	☐

Signature of Interviewer

Public Consultation/ Stakeholder Participation Regarding EIA

"Proposed construction of cannabis / hemp and derivatives, production, processing and extraction unit under the name of M/S FonGreens (Private) Limited"

Name: اعزاز

Residence: مالاکنڈ

Gender: [M] [F]

Qualification: بی کام

REMARKS

	Strongly agree	Agree	No comments	Disagree	Strongly disagree
Are you in favor of the proposed construction?	☑	☐	☐	☐	☐
Will the project increase the importance of the area?	☑	☐	☐	☐	☐
Will the project help to improve the living standards of the area?	☐	☑	☐	☐	☐
Will the project affect the environment of the area?	☐	☐	☐	☑	☐
Level of satisfaction?	☑	☐	☐	☐	☐

Signature of Interviewer

Public Consultation/ Stakeholder Participation Regarding EIA
"Proposed construction of cannabis / hemp and derivatives, production, processing and extraction unit under the name of M/S FonGreens (Private) Limited"

Name: ام طارق

Residence: ڈھکی پٹھان موڑ

Gender: ☐ M ☑ F

Qualification: ماسٹرز

REMARKS

	Strongly agree	Agree	No comments	Disagree	Strongly disagree
Are you in favor of the proposed construction?	☑	☐	☐	☐	☐
Will the project increase the importance of the area?	☐	☑	☐	☐	☐
Will the project help to improve the living standards of the area?	☐	☑	☐	☐	☐
Will the project affect the environment of the area?	☐	☐	☐	☐	☑
Level of satisfaction?	☑	☐	☐	☐	☐

Signature of Interviewer

Public Consultation/ Stakeholder Participation Regarding EIA

"Proposed construction of cannabis / hemp and derivatives, production, processing and extraction unit under the name of M/S FonGreens (Private) Limited"

Name: عمران جاوید

Residence: سیوان گارڑن

Gender: [M] [F]

Qualification: ماسٹرز

REMARKS

	Strongly agree	Agree	No comments	Disagree	Strongly disagree
Are you in favor of the proposed construction?	☑	☐	☐	☐	☐
Will the project increase the importance of the area?	☐	☑	☐	☐	☐
Will the project help to improve the living standards of the area?	☐	☐	☑	☐	☐
Will the project affect the environment of the area?	☐	☐	☐	☐	☑
Level of satisfaction?	☑	☐	☐	☐	☐

Signature of Interviewer

Public Consultation/ Stakeholder Participation Regarding EIA
"Proposed construction of cannabis / hemp and derivatives, production, processing and extraction unit under the name of M/S FonGreens (Private) Limited"

Name: حنا رعارف

Residence: رواث

Gender: [M] [☒ F]

Qualification: بی ایس.

REMARKS

	Strongly agree	Agree	No comments	Disagree	Strongly disagree
Are you in favor of the proposed construction?	☒	☐	☐	☐	☐
Will the project increase the importance of the area?	☒	☐	☐	☐	☐
Will the project help to improve the living standards of the area?	☐	☐	☐	☒	☐
Will the project affect the environment of the area?	☐	☐	☐	☐	☒
Level of satisfaction?	☒	☐	☐	☐	☐

Signature of Interviewer

Public Consultation/ Stakeholder Participation Regarding EIA "Proposed construction of cannabis / hemp and derivatives, production, processing and extraction unit under the name of M/S FonGreens (Private) Limited"

Name: عثمان علی

Residence: پیر رضا لہ

Gender: [M] [F]

Qualification: ماسٹرز

REMARKS

	Strongly agree	Agree	No comments	Disagree	Strongly disagree
Are you in favor of the proposed construction?	☒	☐	☐	☐	☐
Will the project increase the importance of the area?	☑	☐	☐	☐	☐
Will the project help to improve the living standards of the area?	☐	☒	☐	☐	☐
Will the project affect the environment of the area?	☐	☐	☐	☐	☒
Level of satisfaction?	☑	☐	☐	☐	☐

Signature of Interviewer

Public Consultation/ Stakeholder Participation Regarding EIA "Proposed construction of cannabis / hemp and derivatives, production, processing and extraction unit under the name of M/S FonGreens (Private) Limited"

Name: فاطمہ شاہد

Residence: سیالہ

Gender: M ☒ F

Qualification: میٹرک

REMARKS

	Strongly agree	Agree	No comments	Disagree	Strongly disagree
Are you in favor of the proposed construction?	☒	☐	☐	☐	☐
Will the project increase the importance of the area?	☐	☒	☐	☐	☐
Will the project help to improve the living standards of the area?	☐	☒	☐	☐	☐
Will the project affect the environment of the area?	☐	☐	☐	☐	☒
Level of satisfaction?	☒	☐	☐	☐	☐

Signature of Interviewer

Public Consultation/ Stakeholder Participation Regarding EIA
"Proposed construction of cannabis / hemp and derivatives, production, processing and extraction unit under the name of M/S FonGreens (Private) Limited"

Name: زبیر جمال

Residence: جی ٹی روڈ، رواٹ

Gender: ☑ M ☐ F

Qualification: میٹرک

REMARKS

	Strongly agree	Agree	No comments	Disagree	Strongly disagree
Are you in favor of the proposed construction?	☑	☐	☐	☐	☐
Will the project increase the importance of the area?	☑	☐	☐	☐	☐
Will the project help to improve the living standards of the area?	☐	☑	☐	☐	☐
Will the project affect the environment of the area?	☐	☐	☐	☐	☑
Level of satisfaction?	☑	☐	☐	☐	☐

Signature of Interviewer

Public Consultation/ Stakeholder Participation Regarding EIA
"Proposed construction of cannabis / hemp and derivatives, production, processing and extraction unit under the name of M/S FonGreens (Private) Limited"

Name: عاقب خان

Residence: طربیلان روڈ

Gender: M ☐ F ☒

Qualification: M.S

REMARKS

	Strongly agree	Agree	No comments	Disagree	Strongly disagree
Are you in favor of the proposed construction?	☒	☐	☐	☐	☐
Will the project increase the importance of the area?	☐	☒	☐	☐	☐
Will the project help to improve the living standards of the area?	☒	☐	☐	☐	☐
Will the project affect the environment of the area?	☐	☐	☐	☐	☒
Level of satisfaction?	☒	☐	☐	☐	☐

Signature of Interviewer

Public Consultation/ Stakeholder Participation Regarding EIA
"Proposed construction of cannabis / hemp and derivatives, production, processing and extraction unit under the name of M/S FonGreens (Private) Limited"

Name: علی رضا

Residence: روات کلر سیداں روڈ

Gender: [M] [F]

Qualification: B.S

REMARKS

	Strongly agree	Agree	No comments	Disagree	Strongly disagree
Are you in favor of the proposed construction?	☑	☐	☐	☐	☐
Will the project increase the importance of the area?	☑	☐	☐	☐	☐
Will the project help to improve the living standards of the area?	☐	☑	☐	☐	☐
Will the project affect the environment of the area?	☐	☐	☐	☑	☐
Level of satisfaction?	☑	☐	☐	☐	☐

Signature of Interviewer