EXECUTIVE SUMMARY

1. Title of the Project

This report presents the findings of the Environmental Impact Assessment (EIA) study of Iman Heights.

2. Location of the Project

The said project is located at Ratti Gali Opposite Usmania Madrasa, Nathia Gali Road, District Murree.

3. Name of the Proponent

The proponent of said project is Hafeezu Rehman S/O Yar Mast Khan R/O Phase-3, Hayatabad, House No. 150, street No. 10, Sector K-3, Peshawar.

4. Name of the Organization Preparing Report

To comply with IEE/IEE regulations 2022 as per Punjab Environmental Protection (Amendment) Act (PEPA) 2012, the owner of Iman Heights has entrusted the ***EcoRise Consults***.

Company office address: *99/Burj Al-Saeed Plaza Room #110, Main Ferozepur Road, Ichra, Lahore.*

Phone: *+92 3287570417*

Email: *ecoriseconsults25@gmail.com*

5. A Brief Outline of the Proposal

The proponent intends to construct Proposed Apartment building with the name of Iman Heights located at Ratti Gali Opposite Usmania Madrasa, Nathia Gali Road, District Murree. The proposed project comprises of A, B and C blocks. The area of block-A is 2 Kanals, area of block-B is 4 Kanals and area of block-C is 3.6 Kanal. The total area of the said plot is 9.6 Kanals in which basement, ground floor and 1st Floor to 4th Floor apartment buildings will be constructed. Apartment Building construction not only improves the living standards of the public but also contributes towards the overall economic growth. The construction sector is linked with more than 40 industries and thus has multiple effects on the economy. Moreover, given the situation of Pakistan, a continuous growth in population and a huge housing shortage faced by most cities, the demand for such apartment buildings is highly unlikely to slow down. The proper vehicular parking area has been left by the proponent inside the project vicinity. Proper Vehicular parking area will be provided for Cars & Motorbikes. The emergency exit stairs & doors will be present to overcome the potential negative impacts in case of emergency situations. Fire

Hydrants & Fire Extinguishers will also be present to minimize the potential negative impacts in case of emergency fire. Smoke Detectors will be installed by the proponent to mitigate negative impacts in case of accidental fire. Recharging Pit will also be present for recharging the ground water table. Sewerage water will be disposed of to the drain Sanitary workers will be hired by the management for proper collection of solid waste. Final disposal of the solid waste will be done in accordance with the Municipal Corporation Murree facilities.

The scope of the current EIA study aims at collection and scrutinization of data related to physical, biological and socio-economic environment of the project area and to prepare the baseline environmental profile. It also aims at the identification, prediction and evaluation of the possible environmental impacts of the proposed project on its immediate surroundings on both short and long-term basis. Based on the nature and levels of those impacts, appropriate mitigation measures are proposed in this EIA Report. This is the legal requirement to submit before and approve the EIA of the said project from Environmental Protection Agency (EPA) according to Section 12 of Punjab Environmental Protection (Amendment) Act, 2012, which states that:

"No proponent of a Project shall commence construction or operation unless he has filed with the Provincial Agency an IEE/EIA, where the Project is likely to cause an adverse environmental effect, an environmental impact assessment, and has obtained from the Provincial Agency approval in respect thereof."

6. Methodology

The study was conducted in accordance with Environmental Protection Agency (EPA), Government of Pakistan (GOP) Guidelines, 2000. The study was based on both primary and secondary data and information. Discussions were held with stakeholders, community representatives and a wide range of local residents. The main purpose of this approach is to obtain a fair impression on the people's perceptions of the project and its environmental impacts.

To accomplish the job in time and to produce a quality report, a proper methodology was adopted as follows:

- Meetings and discussions were held among the members of the IEE consulting team, design engineers and proponent. This activity was aimed at achieving a common ground of understanding of various issues of the study.

- Planning was carried out to assess data requirements and their sources; time schedules and responsibilities for their collection; logistics and facilitation needs for the execution of the data acquisition plan.
- Primary and secondary data were collected through observations during the field survey, environmental monitoring in the field, concerned departments and published materials to establish baseline profile for physical, biological and socio- economic conditions.
- The impacts of the project on the physical, biological and socio-economic environment prevalent in the project area were visualized at the design, construction and operational phases.
- The adequate mitigation measures and implementation mechanisms were proposed so that the proponent could incorporate them beforehand in the design phase.

7. Project Impacts and Recommendations for their Mitigation

Table given below shows the project impacts; related with construction and operation of the Project. Accordingly, mitigation measures have also been proposed to manage the environment and for sustainable development.

Table – E.1: Project Impacts and their Mitigations Measure

Possible Impact	Impact Magnitude	Proposed Mitigation Measures
CONSTRUCTION PHASE		
Dust emissions likely to occur during the excavation of the top soil and	Minor/Short Term	– Watering all active construction areas when necessary. – Cover all trucks hauling soil, sand and other loose materials or require all trucks to maintain at least two feet of freeboard. Pave, apply water when necessary, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites. – Sweep daily (with water sweepers) all paved access roads, parking areas and staging areas at construction sites. – Fast growing trees will be planted around the project area to act as a wind breaker to reduce the particulate matter. – Provision of PPEs to workers
Oil spills from machines to be used on site and vehicles.	Minor/Short Term	– The contractor will control the dangers of oil spills during construction by maintaining the machinery in specific areas designed for this purpose hence will not be a serious impact as a result of the construction.
Noise pollution due to the moving machines (mixers, tippers, communicating workers) and	Minor/Short Term	– Install portable barriers to shield compressors and other suffice stationary equipment where necessary. – Use quiet equipment (i.e. equipment designed with noise control elements).

Possible Impact	Impact Magnitude	Proposed Mitigation Measures
incoming vehicles		Install sound barriers for pile driving activity. – Limit pickup trucks and other suffice equipment, observe a common sense approach to vehicle use, and encourage workers to shut off vehicle engines whenever possible.
Workers accidents and hazards during construction.	Minor/Long Term but reversible	– Provision of appropriate and adequate Personal Protective Equipment (PPE) to employees. – Enforcement and proper use of PPE by all construction workers. – Provision of appropriate tools, equipment and machinery in sound working conditions to employees. – Proper arrangement of lighting to reduce accidents. – Development of clear policies on treatment of injured personnel.
Dust and air pollution	Minor/Short Term	– Vehicles travelling to and from the construction site must adhere to speed limits so as to avoid producing excessive speed limits – A speed limit of 30km/hr must be adhered to on all dirt roads – Access and other cleared surfaces including backfilled tranches must be dampened whenever possible and especially in dry and windy conditions to avoid excessive dust – Vehicles and machinery are to be kept in good working order and to meet manufacturers specifications for safety, fuel consumption etc

Possible Impact	Impact Magnitude	Proposed Mitigation Measures
OPERATIONAL PHASE		
Noise Noise is one of the major environmental impacts that may results during operation from this Residential Apartment. • Electric motors and other equipment • Generators	Moderate/Long Term	– No installation of loudspeaker/amplifier/woofer/noise generating equipment outside the building (within the open area). – No noisy activities such as dancing, bar activities, events carried out outside the hall building, in case it would represent a nuisance to the surrounding environment – Soundproofing of the office building, as applicable – Appropriate management measures to abate noise from traffic and associated activities. – Within residential settings, the hours of operations should be determined by the respective Local Authority depending on context of site and nature of activity proposed.
Water Quality – Only domestic wastewater generation will result from this Proposed project from sanitary uses during operation phase.	Minor/Long Term	– There will be proper treatment mechanism of wastewater produce from this office so it has no considerable impact on environment. – The domestic wastewater generated will be treated properly through the septic tank. After treatment it will finally be discharged into the nearby drain present
Solid waste	Minor/Long Term	Store solid waste in lidded waste bins

Possible Impact	Impact Magnitude	Proposed Mitigation Measures
– Activities within the Proposed project generate significant volumes of solid wastes. For example, cooking activities could generate both organic and non-organic solid wastes. . Solid waste produce during the operation phase will comprise of domestic solid waste such as paper, rags & food waste		– Implementation of waste management program consisting of reduce, reuse and re-cycling of materials – Systematic collection and protected storage of waste – Waste disposal at appropriate and designated site

8. Proposed monitoring

Ambient Air Monitoring

Regular Monitoring for ambient air should be conducted during construction and operation phase as per PEQS rules and report should be submitted to EPA Punjab on annually basis.

Noise

Regular Monitoring for noise level should be recorded periodically during construction and during operation phase it should be conducted on regular basis and report should be submitted to EPA Punjab.

Water Quality

Regular Monitoring for ground water should be conducted during construction and operation and report should be submitted to EPA Punjab. Record should be maintained regarding.

Sr No.	Parameters	Monitoring Schedule
1	Ambient Air Monitoring (NO_x, Co_x, So_x, VOCs, PM_{10})	Regularly
2	Noise Level	Regularly
3	Water Quality	Regularly

GLOSSARY

Words	Dictionary
Domestic wastewater	Wastewater from sanitary uses
Residential	For living of people
Economically viable	Suitable in monetary terms
Endangered species	Which will extinct in near future
Threatened species	Those in danger of extinction
Aesthetic beauty	Scenic beauty of the area
Ambient	Surrounding of all sides
Topography	Physical features of the site
Silence zone	Where transmission/sound cannot be received
Anticipated Impacts	Expected Impacts
Baseline	Conditions prevailing at the time of study or before initiation of any project
Environment Budget	Monetary assets reserve for Environmental activity
Evaluation	Assessment
Fauna	Variety of Animals found in an area
Flora	Variety of Plants found in an area
Million	10,00,000
Mitigation Measures	Measures aimed to curtail or entirely control an adverse impact or to compensate some loss or cause additional improvements
Orientation Session	Direction Session

Nuisance	Annoyance
pH	Negative log of hydrogen ion concentration
Potential Issue	Problems likely to arise
Proposed Project	Planned activity
Residual Impacts	Impacts left behind after implementation of the mitigation measures
Significant	Important

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Screening:

The proponent intends to develop Apartments building with the name of Iman Heights, located at Ratti Gali Opposite Usmania Madrasa, Nathia Gali Road, District Murree.

According to the Punjab Environmental Protection Act 1997 (Amended 2012) and its interpretation as per Review of IEE & EIA Regulations, 2022 for filling, review and approval of environmental assessments, the construction/development of this Proposed project falls in the category of projects mentioned in ***Schedule II, Category I "All Projects located in Environmentally Sensitive Areas***

Further, the client is required to fulfill the legal requirements of the Section-12 of the Punjab Environment Protection Act 1997(Amended 2012).

INTRODUCTION

1.1 Project Background

Proposed project construction not only improves the living standards of the public but also contributes towards the overall economic growth. The construction sector is linked with more than 40 industries and thus has multiple effects on the economy. Moreover, given the situation of Pakistan, a continuous growth in population and a huge housing shortage faced by most cities, the demand for houses is highly unlikely to slow down. There is a rapid growth in urbanization and the continuous struggle towards better quality of life. Consequentially, as a first step towards higher standards of living, the housing sector experiences growth. Living is the basic and fundamental human need, yet millions are caught in the struggle to have a roof over their head. Pakistan is faced with a chronic shortage of housing against a backdrop of a rapidly rising population. Most recent estimates identify a national shortage of 7.9 million houses. The need of the hour is to exploit the hidden potentials of the housing and construction sector, which is very well recognized to generate maximum employment opportunities for less skilled labor force, reducing poverty and raising the standards of public living

1.2 Scope of the Study

The scope of this EIA study aims at collection and scrutinization of data related to physical, biological and socio-economic environment of the project area and to prepare the baseline environmental profile. It also aims at the identification, prediction and evaluation of the possible environmental impacts of the proposed project on its immediate surroundings on both short and long-term basis. Based on the nature and levels of those impacts, appropriate mitigation measures are proposed in this EIA Report.

1.3 Study Objectives

The specific objective of the EIA study includes the following:

- Collection and scrutinization of data related to physical, biological and socio-economic environment of the project area and to prepare baseline environmental profile;
- Identification, prediction and evaluation of potential environmental impacts of the proposed project;
- Suggesting mitigation measures to minimize the adverse impacts of the project; and
- Preparation of an Environmental Management Plan (EMP).

1.4 Purpose of the Report

An Environmental Impact Assessment (EIA) study report has been prepared to identify and assess the significant environmental impacts likely to occur due to proposed project construction along with environmental impact statement followed by appropriate Environmental Management Plan. IEE of this proposed project has been carried out in order to conform to the requirements of the **Punjab Environmental Protection Act, 1997, amended in 2012 under section 12** of which no development activity can be initiated anywhere in Punjab without filing before the designated government agency an Environmental Impact Assessment or an Environmental Impact Assessment, as may be required and having an NOC for construction and operation.

The purpose of this EIA is to predict all the probable adverse environmental impacts and plan adequate mitigation measures for eliminating, controlling or compensating them and drafting the complete institutional framework for their implementation.

1.5 Identification of the Proposed Project and Proponent

The project owned by Hafeezu Rehman S/O Yar Mast Khan. According to the Punjab Environmental Protection Act 1997 (Amended 2012) and its interpretation as per Review of IEE & EIA Regulations, 2022 for filling, review and approval of environmental assessments, the construction/development of this Proposed project falls in the category of projects mentioned in ***Schedule II, Category I "All Projects located in Environmentally Sensitive Areas.***

Further, the client is required to fulfill the legal requirements of the Section-12 of the Punjab Environment Protection Act 1997(Amended 2012).

1.6 Detail of Environmental Consultants

This EIA study has been carried out by EcoRise Consults. This company comprises environmental engineers, Senior Environmentalists, chemical engineers and botanists. The companies address and contact information is as follow:

Office: 99/Burj Al-Saeed Plaza Room #110, Main Ferozepur Road, Ichra, Lahore.

Phone: 03287570417 ***Email: ecoriseconsults25@gmail.com***

Table 1: Detail of team conducting EIA study with qualification and position in team.

Name	Qualification	Position in the EIA/IEE Team
Shahid Iqbal	MSc (Environmental Science) PU Lahore	Project Incharge And Supervisor
Ali Naeem	MSc (Environmental Engineering) UET-Lahore	Team Leader and Coordinator (Author of the Report)
Muhammad Gulzaib Afzal	B.sc Environmental Engineering (UET Lahore)	Environmental Engineer
Sadaqat Ali	LLB (Islamia University Bahawalpur)	Research Associate (Author of the Report)

**Only the main roles of the team members are given. However, their role was not restricted to these, rather it also includes many other studies in their respective fields in the context of this EIA studies.*

1.7 Brief Description of Nature, Size and Location of Project

Title of the Project

This report presents the findings of the Environmental Impact Assessment study of project.

Location of the Project

The said project is located at Ratti Gali Opposite Usmania Madrasa, Nathia Gali Road, District Murree.

A Brief Description of the Project

The proponent intends to construct Proposed Apartment building with the name of Iman Heights. The proposed project comprises of A, B and C blocks. The area of block-A is 2 Kanals, area of block-B is 4 Kanals and area of block-C is 3.6 Kanal. The total area of the said plot is 9.6 Kanals in which basement, ground floor and 1st Floor to 4th Floor apartment buildings will be constructed, located at Ratti Gali Opposite Usmania Madrasa, Nathia Gali Road, District Murree.

Scoping:

SPATIAL AND TEMPORAL BOUNDARIES OF ENVIRONMENTAL ASSESSMENT

Project site is open land currently. After its development with time nature of area will change from open land to residential building. Already many resorts & hotels are being developed near around.

IMPORTANT ISSUES AND CONCERN RAISED DURING CONSULTATION

During consultation it was observed that maximum of people was in favor of project and following issues and concerns were raised which have also been discussed in length in Chapter 9 Stakeholder Consultation:

- Locals should be preferred for the job opportunities.
- Wastewater should be treated prior to final disposal.
- Solid waste should be managed effectively by adopting the standard practices of the area.
- Cleanliness of the area should be ensured.
- An effective EMMP should be designed and enforced with true spirit.
- Health of the workers should be ensured.
- Workers should be hired from local community.
- Indigenous tress around the facility should be planted to control air pollution.

SIGNIFICANT IMPACTS AND FACTORS TO BE DETERMINED

Main impacts and factors to be determined are;

- Site Security
- Traffic Management
- Hygiene management
- Community impacts
- Control Air emissions
- Job opportunities for locals
- Confined noisy activities
- Resource conservation
- Avoid excessive water consumption
- Energy efficient techniques must be adopted
- Proper site restoration after construction

1.9) Structure of the Report

Section 1: Introduction briefly presents the project background, objectives, methodology and need of the IEE study.

Section 2: Description of the Project furnishes information about the location of the proposed Project, cost and size of the project, its major components and alternatives considered for the proposed project to select at the preferred alternative for detailed environmental assessment.

Section 3: Environmental Baseline Profile establishes baseline conditions for physical, biological and socio-economic conditions prevalent in the project area.

Section 4: Screening of Potential Environmental Impacts and Mitigation Measures identifies, predicts and evaluates impacts of the project activities during the construction and operation stages and deals with the measures proposed to mitigate potential environmental impacts of the proposed project.

Section 5: Environmental Management and Monitoring Plan outlines institutional arrangements for the implementation of the proposed mitigation measures, training needs of the staff for implementation of the mitigation measures, monitoring requirements and monitoring cost.

Section 6: Conclusions and Recommendations provide the outcome of the study and major observations of EIA and suggestions for environmental management and pollution control.

Section 7: References.

DESCRIPTION OF THE PROJECT

3.2 Type and Category of the Project

The said project is owned by Hafeezu Rehman S/O Yar Mast Khan. According to the Punjab Environmental Protection Act 1997 (Amended 2012) and its interpretation as per Review of IEE & IEE Regulations, 2022 for filling, review and approval of environmental assessments, the construction/development of this project falls in the category of projects mentioned in ***Schedule II, Category I "All Projects located in Environmentally Sensitive Areas.***

For EIA, of PEPA, Regulations, 2022, require Environmental Impact Assessment (IEE). Further, the client is required to fulfill the legal requirements of the Section-12 of the Punjab Environment Protection Act 1997(Amended 2012).

3.3 Objectives of the Project

- To Provide the people luxury & comfortable residence
- To take up less space on the site & lowers the impact of land costs on living space prices and leaves room for infrastructure, green space and community space on the ground
- To create job opportunities for the locals
- To raise the socioeconomic status of the area

3.4 Alternatives

From the point of view of locating a project the features, which are considered extremely important, are:

- Availability of suitable land.
- Availability of required utilities and infrastructure
- Road access to the site
- Optimum investment requirement for the development of the infrastructure.

3.4.1 Do Nothing Alternative

Do-nothing alternative is not feasible due to the following reasons

- The said project is going to be located on land which was already owned by the proponent.
- The presence of facilities for upgrading living standard of public is not only a basic human right it is also critical for socio-economic development.
- Withdraw the opportunity of employment for the locals. The said project will provide direct employment to many people.

3.4.2 Technology Alternatives

One modern and state of the art Apartments will be constructed. The *said Proposed* project will be built according to the applicable Best Available Techniques (BAT) defined for similar buildings.

The proposed site is to be located in an area which is devoid of any biodiversity including forestry, wildlife, migratory birds, game reserves (flora and fauna), or protected species of fauna & flora; fishery or aquatic biology; watershed. There is no cultural or any other heritage in the project area.

The said location was determined to be the most convenient location in proximity to the market and domestic supply chain. The selected site has least environmental & social impacts.

3.5 Location and Site Layout of the Project

3.5.1 Location of the Project

Location of the Project

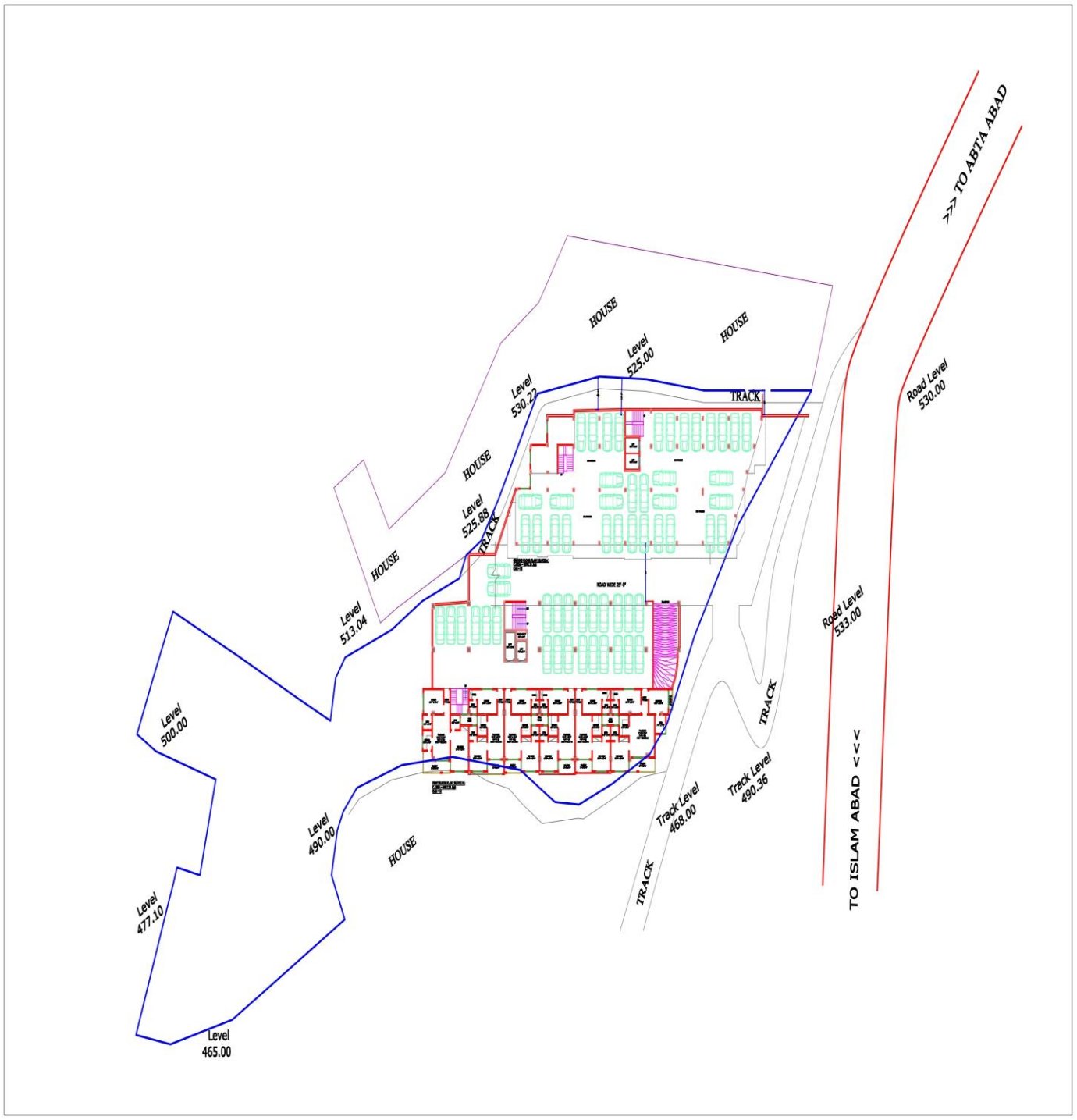
The said project is located at Ratti Gali Opposite Usmania Madrasa, Nathia Gali Road, District Murree.

The project is surrounded by the following:

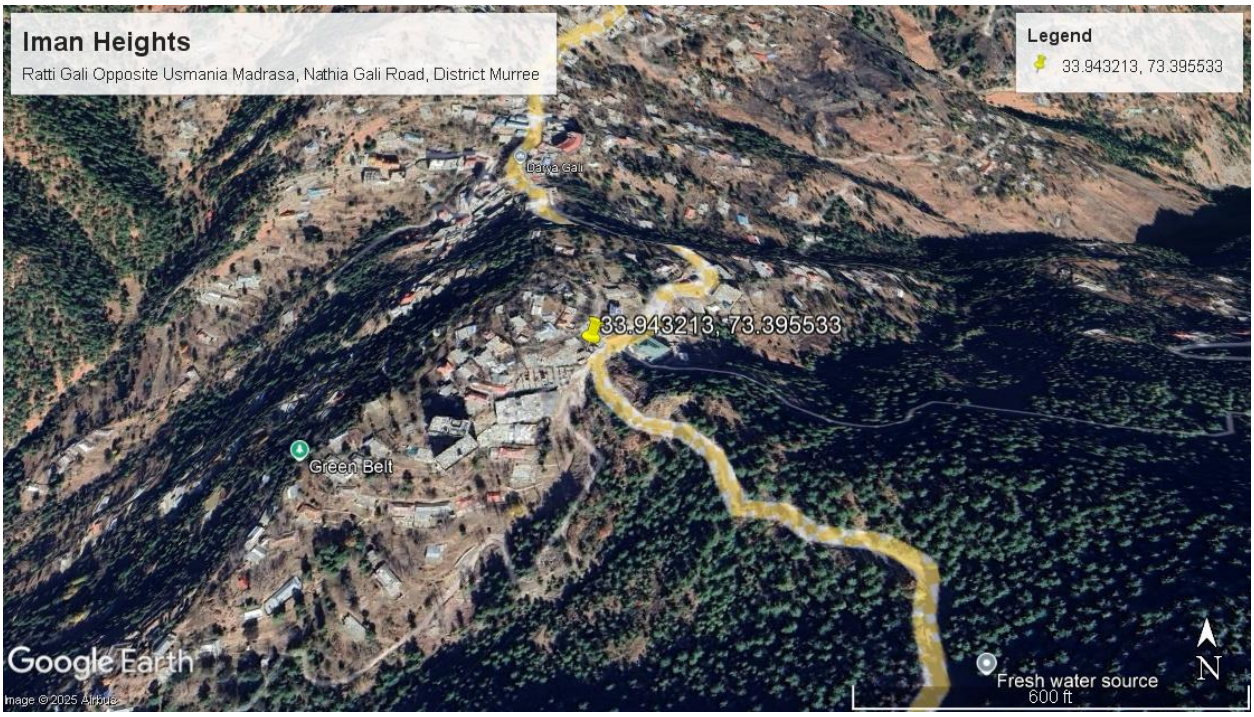
North	Open/Building
South	Access Road
East	Road
Right	Building

3.5.2 Layout Plan of the Project

Layout map of the project site is annexed at the end of the EIA Report



Iman Heights -Key Plan:



Google Map of Project site

3.6 Road access

Main roads and markets are in easy and close access of the project site. The said Proposed project is situated on Alioat Road.

3.7 Project Administrative Jurisdiction

The proposed project lies in the District Murree in Punjab Province.

3.8 Vegetation Features of the Site

Land is clear and there are no plants or vegetation on site. Significant or well-shaped trees and shrubs are not present on the project site. There is neither the biologically important or endangered species of plant were present and nor the plant or vegetation of any significance stands at the site to be dismantled. However, various local plants will be grown at the project site in the open areas and grounds.

3.9 Cost and Magnitude of the Project

The total cost of the project would be around PKR 450 million. The project includes the site survey, geotechnical investigations, site clearing work, infrastructure work, structural work, electrical and mechanical works and Activities of construction includes the following:

a) Demarcation of the Area for various facilities

b) Infrastructure works (Pathways, water supply, sewerage and drainage, gas, electrical works etc.)

c) Installation of street lights

d) Plantation of plants and grass

3.10 Schedule of Implementation

a- Phase-I (Start-up Phase)

Phase -1 is the start-up phase, which involves construction of boundary wall around the entire site. Most of the NOC's from various departments are in approval process and this report has been prepared to obtain NOC from EPA Punjab. It will take 2-3 months.

b- Phase-II (Main implementation Phase)

In phase II, required accessories & machinery will be purchased. During this phase, will be brought on site and installed. It will take 3 months.

c- Phase-III (Wrap-up Phase)

Phase-III is the wrap-up phase. In this phase, all outstanding activities will be completed, required staff will be recruited, and contracts with suppliers and purchasers will also be signed after which the operational phase finally commenced. It will take 3 months.

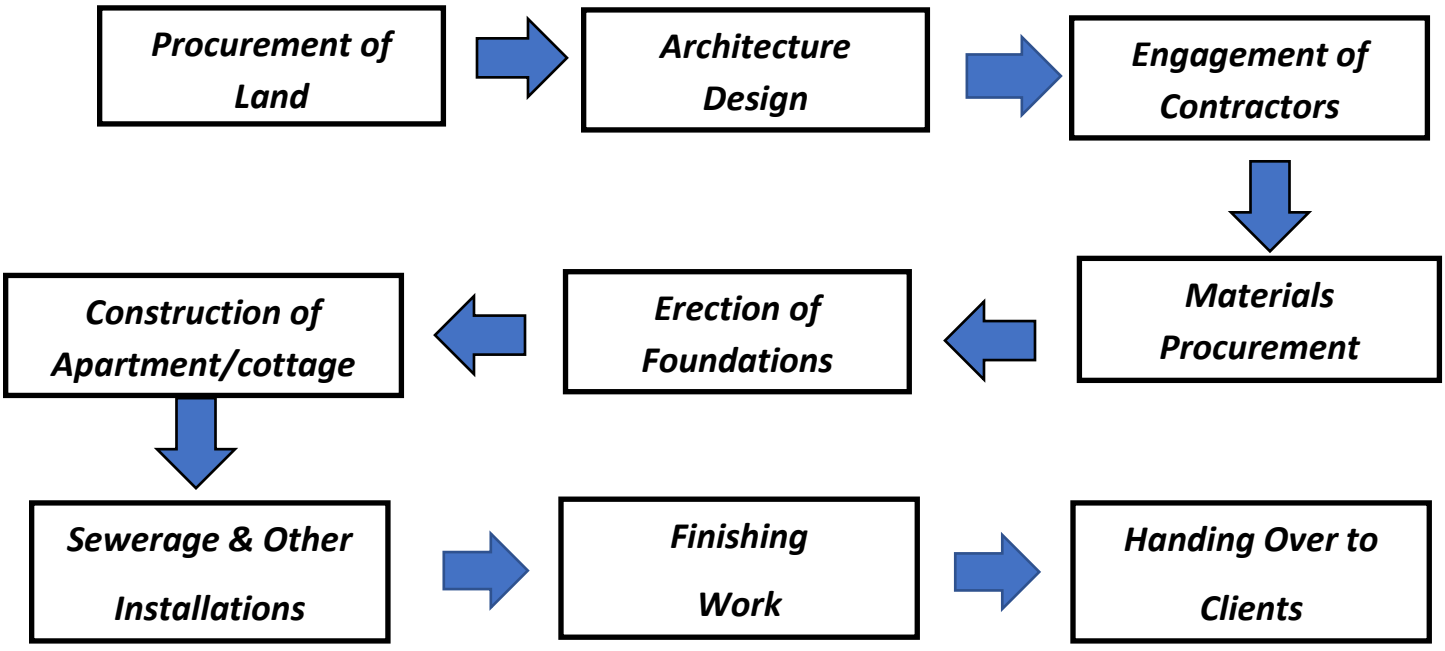
3.11 Description of the Project:

The proponent intends to construct Proposed Apartment building with the name of Iman Heights located at Ratti Gali Opposite Usmania Madrasa, Nathia Gali Road, District Murree. The proposed project comprises of A, B and C blocks. The area of block-A is 2 Kanals, area of block-B is 4 Kanals and area of block-C is 3.6 Kanal. The total area of the said plot is 9.6 Kanals in which basement, ground floor and 1st Floor to 4th Floor apartment buildings will be constructed. Apartment Building construction not only improves the living standards of the public but also contributes towards the overall economic growth. The construction sector is linked with more than 40 industries and thus has multiple effects on the economy. Moreover, given the situation of Pakistan, a continuous growth in population and a huge

housing shortage faced by most cities, the demand for such apartment buildings is highly unlikely to slow down. The proper vehicular parking area has been left by the proponent inside the project vicinity. Proper Vehicular parking area will be provided for Cars & Motorbikes. The emergency exit stairs & doors will be present to overcome the potential negative impacts in case of emergency situations. Fire Hydrants & Fire Extinguishers will also be present to minimize the potential negative impacts in case of emergency fire. Smoke Detectors will be installed by the proponent to mitigate negative impacts in case of accidental fire. Recharging Pit will also be present for recharging the ground water table. Sewerage water will be disposed of to the drain Sanitary workers will be hired by the management for proper collection of solid waste. Final disposal of the solid waste will be done in accordance with the Municipal Corporation Murree facilities.

The emergency exit stairs & doors will be present to overcome the potential negative impacts in case of emergency situations. Fire Hydrants & Fire Extinguishers will also be present to minimize the potential negative impacts in case of emergency fire. Smoke Detectors will be installed by the proponent to mitigate negative impacts in case of accidental fire. Recharging Pit will also be present for recharging the ground water table.

The following is the process flowchart:



The scope of the current EIA study aims at collection and scrutinization of data related to physical, biological and socio-economic environment of the project area and to prepare the baseline environmental profile. It also aims at the identification, prediction and evaluation of the possible environmental impacts of the proposed project on its immediate surroundings on both short and long-term basis. Based on the nature and levels of those impacts, appropriate mitigation measures are proposed in this EIA Report. This is the legal requirement to submit before and approve the IEE of the said project from Environmental Protection Agency (EPA) according to Section 12 of Punjab Environmental Protection (Amendment) Act, 2012.

3.12 Restoration and rehabilitation plans

There exists no human settlement on the selected project site to be displaced owing to the commencement of the Project. No structure of any significance stands at the site to be relocated or dismantled. Land is already under proponent's ownership, and no fresh land is to be occupied; hence, no relocation or restoration and rehabilitation is required.

3.13 Features of the project

The proponent wants to establish this Proposed project for improving the living standards of the public but also contributes towards the overall economic growth

Following are the main features of the:

3.14 Supplies

a) Water supply

The underground water of this area is fit for drinking and domestic proposes. The said project intended to install his tube wells for the extraction of the groundwater's.

b) Electricity

Source of power will be wapda mainly. For backup system proponent is intended to install his own stand by electricity generators as well.

c) Manpower

On the proposed project site 20 workers will be present daily throughout the construction period of proposed project. While during operational phase 10 workers will be hired by the management.

d) Fire Fighting Arrangements

The fire hydrants & fire extinguishers will be used for overcoming the hazard of fire. Furthermore Smoke detector will be installed by the proponent.

3.15 Management of Wastewater

Only municipal wastewater will be generated, which will be collected through sewerage system and it will be disposed of to nearby drain after treatment through septic tank.

3.16 Solid Waste Management

Waste generated during construction would include mostly construction material (mainly steel and wood), empty cement bags, excavated earth and general packaging waste. Waste will be stored within the site until transfer to the waste disposal site. Domestic solid waste & remaining of food waste during operation phase will be collected at solid waste collection point and from that point it will be disposed off at designated site of Municipal Corporation Murree.

3.17 Government Approvals

Management has applied for Environmental Approval and after getting Environmental Approval, they will apply for other required approvals.

DESCRIPTION OF THE ENVIRONMENT

4.1 General

For any development project, the prevailing environmental conditions need to be assessed prior to the preliminary stages of planning, designing and execution of the project. Identification of physical, ecological and social aspects of environment and collection of relevant data is essentially important for the evaluation of impacts as well as for the suggestion of adequate mitigation measures which forms the basis of the Initial Environmental Impact Examination exercise.

The existing environmental conditions of the proposed project have been considered with respect to physical, biological and socio-economic aspects. Information has been collected from variety of sources, including published literature, field observations and surveys conducted specifically for this project have been analyzed for this study.

4.2 Methodology

For baseline data collection, following sequences of various techniques has been adopted. These techniques were chosen because of their pragmatic application in very short span of time.

1. Reconnaissance survey;
2. Field investigations/ Surveys;
3. Meteorological analysis;
4. Environmental analysis (air, noise and water quality surveys);
5. Collection and review of secondary environmental and social data; and
6. Basic parameters collection from published sources.

4.2.1 Reconnaissance Survey

Reconnaissance survey of the project site was conducted on June 23, 2025 for the collection of preliminary information about the flora, fauna and existing human intervention along with ecological characteristics. Reconnaissance survey helped us to delineate the ecological habitats and to explore the diversified ecological rich environment.

This information has become the baseline information for the detailed survey that specifically targets those areas which are going to be affected by the implementation of the proposed project. As a result of this survey, basic plants and animals' families were identified that actually prevailing in the associated habitats.

4.3 Physical Environment

4.3.1 Topography

Murree is a mountain resort city, located in the Galyat region of the Pir Panjal Range, within the Muree District of Punjab, Pakistan. It forms the outskirts of the Islamabad-Rawalpindi metropolitan area, and is about 30 km (19 mi) northeast of Islamabad. It has average altitude of 2,291 metres (7,516 ft). The British built this town during their rule to escape the scorching heat in the plains of Punjab.

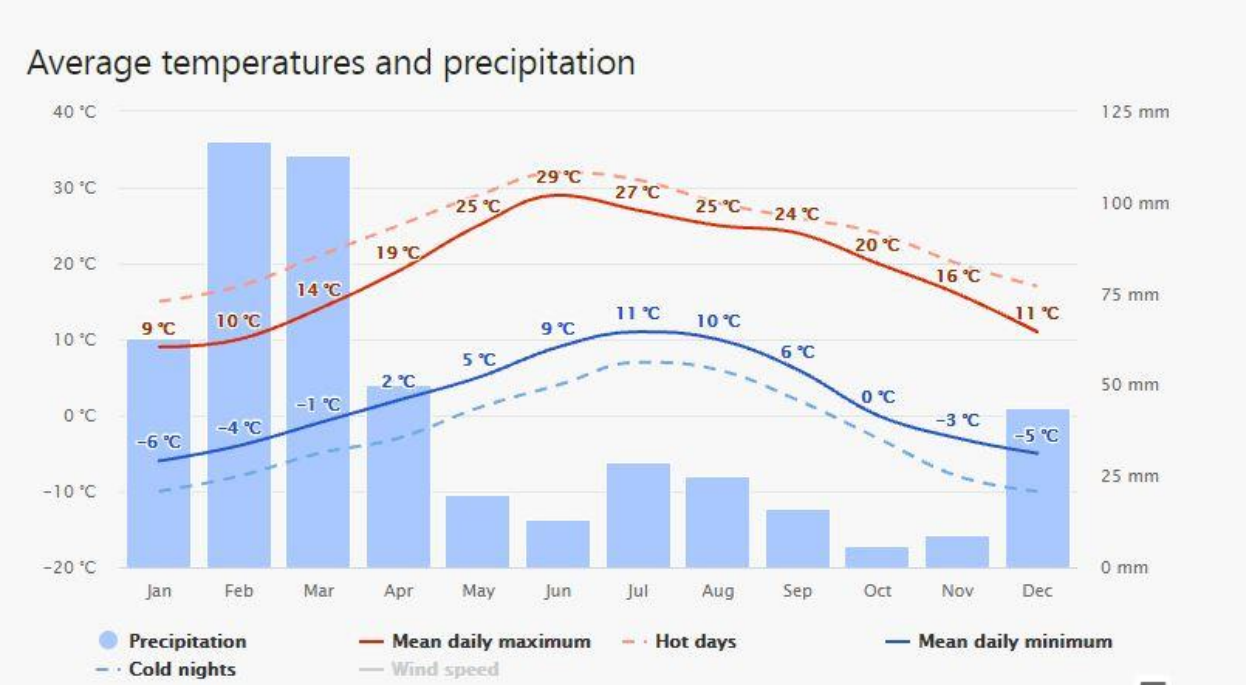
4.3.2 Soil

Soils at altitudes ranging from 700 to 3000 m in the Murree Hills of northeast Pakistan have been examined in terms of pedogenesis and erosion. Organic accumulation varies with vegetation type and density, and the level of biological activity in the soil. Weathering is evidenced by iron release and dissolution of calcareous materials, but the development of weathering-differentiated soil profiles is limited due to slope instability and restricted water availability. Profile differentiation in terms of translocation of fines and sesquioxides is limited probably for the same reasons and also, at lower altitudes, because of alkaline conditions. The soils are classified as Entisols and Inceptisols, with more acid forms predominating above about 2000 m and alkaline forms below this altitude. Rates of soil erosion are estimated to be around 150 t ha−1 y−1 on average in higher altitude areas of recent deforestation, and around 50–75 t ha−1 y−1 in areas of overgrazing at lower altitude.

4.3.3 Climate

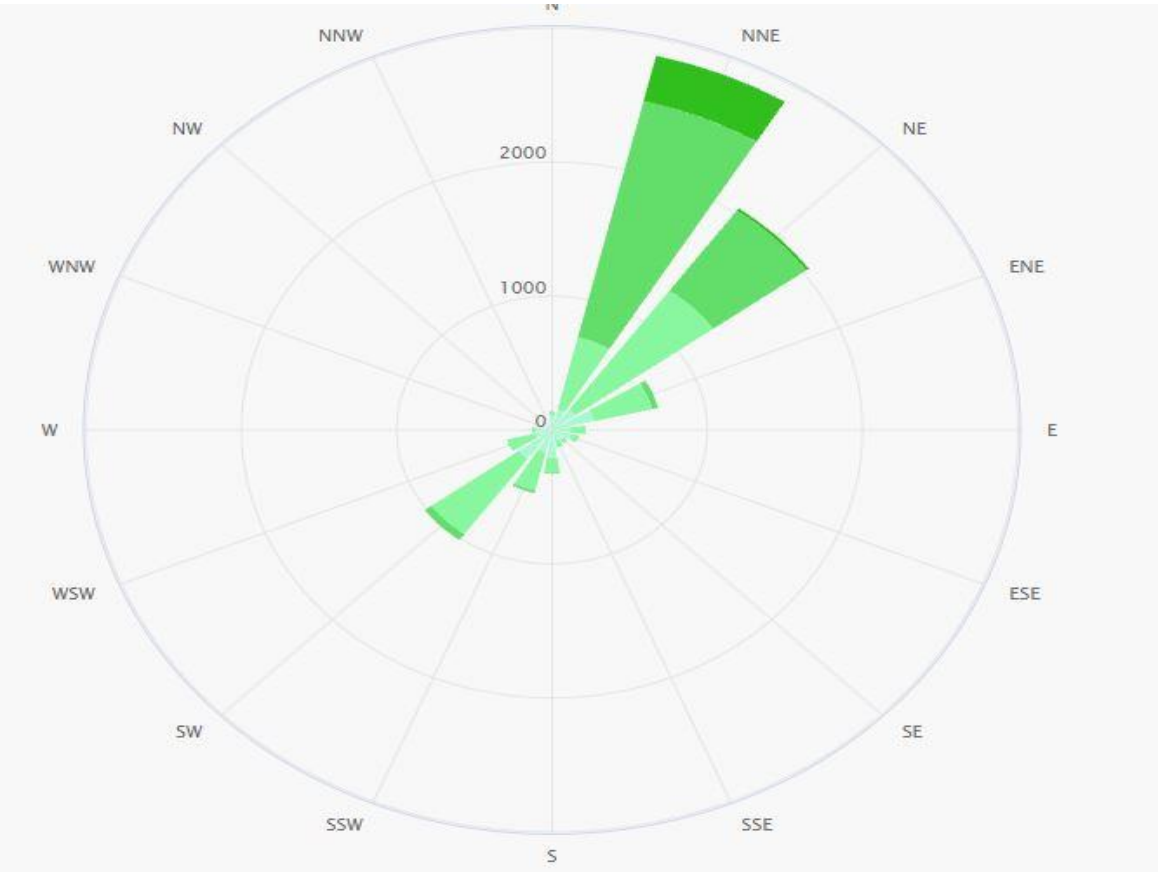
Murree features a monsoon influenced subtropical highland climate (Cwb) under the Köppen climate classification. It is situated in the outer Himalayas, retaining high altitude. This

type of area has cold, snowy winters, relatively cool summers with drastically escalated rain, in relation with lower altitudes, and frequent fog. Precipitation is received year round, with two maxima, first one during winter and second one at summer, July–August. Total mean precipitation annually is 1,904 mm (75.0 in).Murree receives around 62.6 inches (1,590 mm) of snow per year according to a 13-year data. Heavy snowfall starts in January and February



4.3.3.1 Temperature

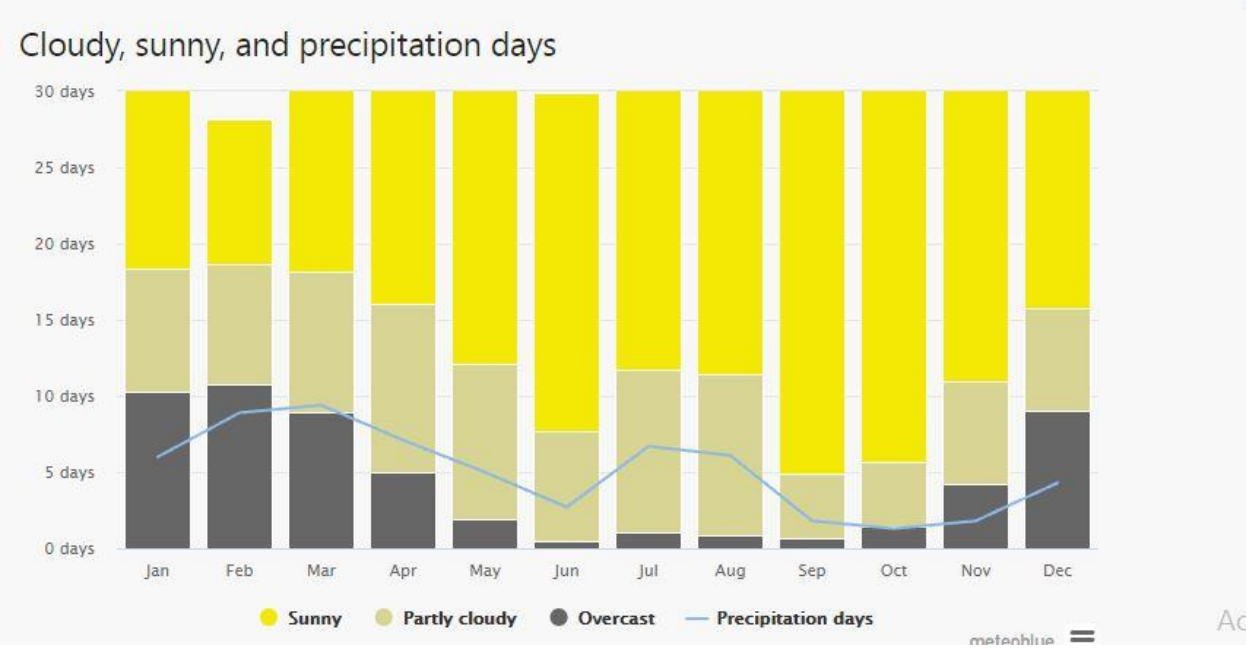
The climate of the project area is hot in summer and cold in winter. May and June are the hottest months with maximum temperature reaching 40.4°C. January is the coldest month with minimum temperature falling to 5.9°C. The summer season starts towards the end of April and continues till September. The winter begins in November and lasts till February. The spring season exists during March and April and is pleasant.



Wind Rose Murree

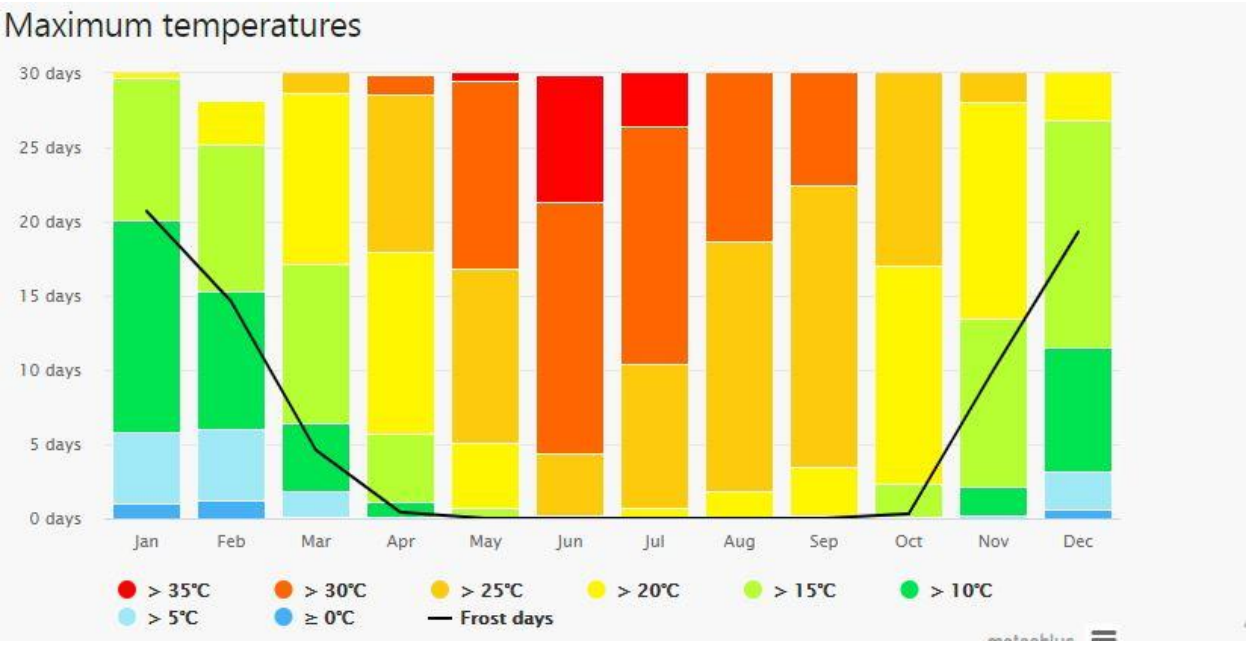
4.3.3.2 Humidity

Annually relative humidity for this area has been worked out as 70.34%. The maximum recorded humidity for the district is 82.9% in December while the minimum humidity is 45.7% in May.



4.3.3.3 Precipitation

The average annual rainfall is 666 mm. Most of the rain occurs during monsoon in summer which often results in flooding of the nearby water drain and canal. The groundwater level is improved toward the end of the season in September and October.



4.3.4 Ambient Air Quality

In the project area, Particulate Matter (SPM & PM10) and Oxides of Nitrogen (NOx), Sulphur Dioxide (SO2) and Carbon Monoxide (CO) are the major air pollutants. Traffic on road is the main source of air pollutants including NOx, SO2, CO, PM, HCs, smoke, etc. Factories and industries are also contributing to the pollution in the district

4.3.5 Ambient Noise

A common form of noise pollution is from transportation, principally motor vehicles. Other sources are car alarms, office equipment, construction work, audio entertainment systems, loudspeaker etc.

4.3.6 Ground Water

Natural springs, the only water source for Murree Town's rural residents. In Murree city, water comes from two main sources: Doonga Gali Hazara and Harnoi.

4.3.7 Geology

The Murree Formation is a part of the Miocene molasse sequence of the Peshawar Basin and consists of a series of alternating beds of sandstone, siltstone and shale with subordinate marls and conglomerates. In the present study Murree Formation lies at the Southern margin of Peshawar Basin, Jena Kor area, FR Peshawar.

4.3.8 Land Use

Murree is a mountain resort city, located in the Galyat region of the Pir Panjal Range, within the Muree District of Punjab, Pakistan. It forms the outskirts of the Islamabad-Rawalpindi metropolitan area, and is about 30 km (19 mi) northeast of Islamabad. It has average altitude of 2,291 metres (7,516 ft). The British built this town during their rule to escape the scorching heat in the plains of Punjab

The Leh River separates the city from the cantonment (permanent military station), and a satellite town has been built on the Murree Road. Murree is an important administrative, commercial, and industrial centre. Its industries include locomotive works, gasworks, an oil refinery, sawmills, an iron foundry, a brewery, and cotton, hosiery, and textile mills; it also produces shoes, leather goods, pottery, newsprint, and tents.

4.4 Ecological Environment

A detail of ecological account of the Project and Study Area is given below:

4.4.1 Flora

The area in which the project site is located was once covered with native vegetation, mostly consisting of trees like Kikar (*Acacia nilotica*) and Shisham (*Dalbergia sissoo*). With the onslaught of civilization and industrialization, this vegetation was cleared for agricultural, commercial or industrial land use purposes. The current ecological details of the area in general and study area in particular are given below:

Trees

A field study related to the identification of tree species in the study area was also conducted. A vast majority of trees were observed in the localities visited as well as open fields. These are Tali/Sheeshum (*Dalbergia sissoo*), Kikar (*Acacia nilotica*), Safeda (*Eucalyptus cinerea*), Neem (*Azadirachta indica*), Papaya (*Carica papaya*), Bottle Brush (*Callistemone citrinus*) and Borh (*Ficus bengalensis*).

A tabular comparison is given hereunder to explicit frequency of each species in three zones of study area:

List of Trees Identified in the Project Area

Sr. No	Common Name	Scientific Name
1	Tali/Sheshum	*Dalbergia sissoo*
2	Kikar	*Acacia nilotica*
3	Safeda	*Eucalyptus cinerea*
4	Neem	*Azadirachta indica*
5	Piple	*Ficus religiosa*
6	Papaya	*Carica papaya*
7	Shree	*Acacia greggii*

Grasses

A number of grass species were identified. These are Crow Foot Grass (*Dactyloctenium aegyptium*), Dabri Grass (*Dichanthium annulatum*) and Indian Dab (*Cynadone dactylone*).

Grasses in Study Area

Different types of grass species were also identified outside the project site during our visits to the nearer localities, these species include Dabri Grass (*Dichanthium annulatum*), Lesser Bulrush (*Typha angustifolia*) and Indian Dab (*Cynadone dactylone*).

Frequency (of occurrence) of these species in different zones of the study area is as under

Sr. No	Common Name	Scientific Name
1	Indian Dab	*Cynadoned actylone*
2	Dabri Grass	*Dichanthium annulatum*
3	Lesser Bulrush	*Typha angustifolia*

List of Grasses Identified in the Project Area

Herbs and Shrubs

A large number of herbs and shrubs species were identified in the area. Among these species, the most dominant were Jangli Booti (*Parthenium hysterophorus*), Bathu (*Chenopodium album*) and Ak (*Calotropis procera*). Frequency of these species in different zones of the study area is as under:

List of Herbs and Shrubs Identified in and Around the Project Area

Sr. No	Common Name	Scientific Name
1	JangliButi	*Parthenium hysterophorus*
2	Puth canda	*Achyran thesaspera*
3	Bathu	*Chenopo diumalbum*

4	Ak	*Calotropis Procera*
5	Bhang	*Canibus sativa*

Medicinal Plants

A number of medicinal plants in the area were identified which are AK (*Calotropis procera*), Amaltas (*Cassia fistula*), Pilak, Jangli kashni and Itsit (*Boerhavia diffusa*).

List of Medicinal Plants Identified in the Project Area

Sr. No	Common Name	Scientific Name
1	Aak	*Calotropis procera*
2	Amaltas	*Cassia fistula*
3	Itsit	*Boerhavia diffusa*
5	Bhang	*Canibus sativa*

Ornamental Plants

During our ecological survey to the nearby localities, a number of ornamental plants were identified at some houses and Deras, which are listed in table below.

List of Ornamental Plants Identified in and Around the Project Area

Sr. No	Common Name	Scientific Name
1	Bottle Brush	*Callistemone citrinus*
2	Araucaria	*Araucaria heterophylla*
3	Bougainvillea	*Bougainville aspectabilis*
4	Milkwood pine	*Alostonia scholaris*

Vegetables

Vegetables in around and Project Site

No vegetables are grown in or around proposed project site.

Vegetables in Study Area

Some important of these are Phool Gobhi/cauliflower (*Brassica oleracea Ver. botrytis*), Band Gobhi (*Brassica oleracea Ver. capitate*) Turnip, Raddish (*Raphanus sativus*), Carrot (*Daucus carota*), Bhindi, Tomato (*Lycopersicum esculentum*), Vegetable Marrow (*Cucurbita pepo*), Baingan, etc.

List of vegetables Identified in and Around the Project Area

Sr. No	Common Name	Scientific Name
1	Bangun	*Solanum melongena*
2	Bhendi	*Abelmoschus esculentus*
3	Karela	*Momordica charantia*
4	Phool Gobhi	*BrassicaoleraceaVer. Botrytis*
5	Raddish	*Raphanus sativus*
6	Tomato	*Lycopersicum esculentum*
7	Marrow	*Cucurbitapepo*

Agriculture

The soil of the area is quite suitable for all kinds of vegetation including fodder, orchards, vegetables and other seasonal crops. The pattern mainly consists of wheat-rice system, while other agriculture practices include the cultivation of sugarcane, Maize, etc.

Farm Traction Power

Tractor is the sole source of farm traction power. No farmer was found using animal traction power. There was significant variation in tractor ownership across farm size groups.

However, more than half of the farmers owned tractor while rest were hiring the services for land preparation.

4.4.2 Fauna

The area provides healthy environment for the growth and reproduction of a diverse nature of fauna. A short description is given in the following paragraphs

Mammals

Mammals within project site

During our survey to the proposed project site, some mammals were identified evidently while some were reported by the workers like Cats (*Felis catus*), Rats (*Rattus rattus*) and Squirrel (*Sciurus carolinensis*).

Mammals in Study Area

The wild and common or domesticated mammals found in the study area are Dogs (*Canis familiaris*), Cats, House Rats (*Rattus rattus*), Bats, Horses (*Equus caballos*), Donkeys (*Equus africanus asinus),* Mules, Buffaloes, Cows (*Heracleum lanatum*), Goats (*Copra hircus*) and Sheep.

List of Mammals Present in and Around the Project Area

Project Site		Study Area	
Common Name	**Scientific Name**	**Common Name**	**Scientific Name**
Cat	*Felis catus*	Cats	*Felis catus*
Rat	*Rattus rattus*	Dogs	*Canis familiaris*
Squirrel	*Sciurus carolinensis*	Cows	*Heracleum lanatum*
-	-	Goats	*Copra hircus*
-	-	Horses	*Equus caballos*
-	-	Donkeys	*Equus africanus asinus*
-	-	Sheep	*Ovis aries*

Reptiles

Reptiles within Project Site

No reptiles were identified within the project site

Reptiles in Study Area

Above reptiles were also seen in study area in localities and field. The most common reptiles include Snakes, Pakistani Cobra (*Naja naja karachiensis*), Lizards, Varanis (Goh/large lizard), Spiders and Scorpions, etc.

List of Reptiles Present in and Around the Project Area

Common Name	Scientific Name
Lizards	*Lacertilia*
Spiders	*Araneae*
Scorpions	*Pandinus Imperator*
Pakistani cobra	*Naja naja karachiensis*
Goh/large lizard	*Varanis*

Amphibians

A number of Amphibians found in the tract include Common Frog (Rana tigrina), Common Toad (Bufo bufo) and Tortoise (Chitra indica).

List of Amphibians Present in and Around the Project Area

Project Site		Study Area	
Common Name	**Scientific Name**	**Common Name**	**Scientific Name**
Common Frog	*Rana tigrina*	Common Frog	*Rana tigrina*
Common Toad	*Bufo bufo*	Common Toad	*Bufo bufo*
-	-	Tortoise	*Chitra indica*

Birds

Different types of birds' species were identified within the project site. The bird's species identified in these areas include House Sparrow (*Passer domesticus*), House Crow (*Corvus splendens*), Common Mynah (*Acredotheres tristis*), Tatiri (*Vanellus indicus*), Cheel, Bagle, Bulbul (*Pycnon tus cafer*), Parrots (*Psittacula krameri*), Pigeons (*Columbia livia*), Dove (*Stigmetopelia senegalensis*), Surkhab, Ullu, etc. are also seen in the area.

List of Birds Present in and Around the Project Area

Sr No.	Project Site		Study Area	
	Common Name	**Scientific Name**	**Common Name**	**Scientific Name**
1	House Sparrow	*Passer domesticus*	Parrots	*Psittacula krameria*
2	House Crow	*Corvus splendens*	House Sparrow	*Passer domesticus*
3	Common Mynah	*Acredotheres Tristis*	House Crow	*Corvus splendens*
4	Tatiri	*Vanellus indicus*	Common Mynah	*Acredotheres tristis*
5	Pigeons	*Columbia livia*	Tatiri	*Vanellus indicus*
6	-	-	Pigeons	*Columbia livia*
7	-	-	Dove	*Stigmetopelia Senegalensis*
8	-	-	Bulbul	*Pycnon tus cafer*
9	-	-	Cheel	*Milvus migrans*

Wildlife Sanctuaries and Game Reservoirs

No wild life sanctuary or game reservoir is located in the vicinity of the project area or in the project influenced area.

Rare or Endangered Species

There are no rare or endangered species in the study area.

4.5 Socioeconomic Environment

Human settlements are symbol of typical haphazard rural growth based on ill planned developmental procedures showing common indicators of all the unorganized procedure of rural settlement of the province. These localities were developed on need oriented basis. No bye-laws, rules and obligations necessary for human settlement, construction or expansion and infrastructure development were considered. These localities are also the picture of stereotype rural residential areas which lack basic amenities, improper roads, and poor drainage system, deteriorating hygienic and sanitary conditions causing bad effects on human health.

Objectives of the Study

The main objectives of socio- economic study of the project area were:

- To furnish appropriate information about the baseline socio-economic conditions
- To identify and assess significant social impacts of the Project activities on the surrounding area and people
- To propose suitable means for probable mitigation of the significant adverse social impacts

An Overview of Socio-economic Conditions

This section describes the status of overall socio-economic baseline conditions prevailing in the study area. It deals with various socio-economic and cultural aspects of the community including income, employment, professions, basic facilities, education and health, social structure, culture, women's status, traditions, ethnics, sectarian status and residential needs of the local people.

Area represents lacking some basic amenities of an urban area. Improper social structure, deprived status of youth and aged are common social factors in the area.

4.5.1 Analysis of Socio-economic Conditions

This section presents a locality-wise analysis of existing status of various socioeconomic parameters such as income, employment, basic facilities, education, health, recreation, migration, conflicts, ethnic status, role of women, professions, residential conditions, etc.

4.5.1.1 Sources of Income

The livelihood of residents of murree is dependent on tourism while rural areas dependent on agriculture.

4.5.1.2 Basic Facilities

Basic facilities like electricity, roads, transport etc. are present in almost every area of the MUREE but are disorganized and mismanaged. Civic amenities like markets are not available in some of the slum areas.

4.5.1.3 Educational Facilities

Murree is the part of an administrative center of Murree Tehsil which is located near by the Islamabad-Murree Highway under the subdivision of Rawalpindi district in Punjab Province. There are various educational institutions that are doing their best to increase the literacy rate in this region by providing excellent educational services for the community of Murree.

Colleges/Universities in Murree such as Cadet College Murree, Chinar Army Public School & college, Cadet College Lower Topa are offering different courses for the students. The students who are located in Murree and want to get the admission for their career education then they can choose their aspiration.

Among the list of colleges/Universities in Murree the educational institutions are offering leading educational services for the students. Numerous other educational government and private institutions are also certifying their role in education zone to develop the vigorous nation.

Colleges/Universities in Murree are offering their unique educational services for the students to build the healthy sound mind nation. You can see the list of educational institutes from here just in one place

4.5.1.4 Medical Facilities

The proper health care facilities are present in the area for both male and female population.

4.5.1.5 Recreational Facilities

Murree is a itself mountain resort city, located in the Galyat region of the Pir Panjal Range, within the Muree District of Punjab, Pakistan. It forms the outskirts of the Islamabad-Rawalpindi metropolitan area, and is about 30 km northeast of Islamabad. It has average altitude of 2,291 metre

4.5.1.6 Types of Community

The main religion in Murree is Muslim – mostly Sunni or Shia- which makes up 94% of the population. The remaining 6% are nearly all Christians. There are also a small number of minority religions such as Sikh and Hindu.

4.5.1.7 Types of Family

The joint/extended family system is generally prevailing among people of the whole area; however, nuclear family system is also observable in the area.

4.5.1.8 Ethnic Status

The Murree Hills are held by the Dhund, Dhanyal, Kethwal and Jasgam.

4.5.1.9 Status of Women Literacy

A vast majority of the females of the Study Area are illiterate which shows very low educational trend among females; however, young females have high literacy rate showing positive trend in female education.

4.5.1.10 Decision Making Authority

Majority of the females have no authority in decision-making process regarding their life. This shows non-participation of the females in decision-making process regarding the females and other issues.

4.5.1.11) Role of Women

Role of female is conventional and traditional. Most of the females are engaged in housekeeping. However, females also perform outdoor activities and duties. Females are supposed to be responsible to perform all the family activities and are involved in all types of family functions.

4.6 Quality of Life Values

If we specifically talk about the project area then majority of the people has to adopt seasonal occupation to supplement their income due to low-income level and inconsistent income opportunities. People are educated and doing jobs as per their profession and many are industrialists as well. Majority of the people are working as labors and many do their own common business (shopkeepers). The locals of this are provided with basic facilities like electricity, roads, transport etc. but are disorganized and mismanaged. If we talk about educational facilities then education up to master level are available in almost all the localities and are easily approachable. The proper health care facilities are present in the area for both male

and female population. Open and level fields of the localities are used as playgrounds by the youth.

It was observed that being the members of a typical/traditional blend of rural and urban community, almost all the old people are very conservative in their life style. People practice their traditional, social and cultural values strictly in all walks of life. The joint/extended family system is generally prevailing among people of the whole area; however, nuclear family system is also observable in the area.

4.7 Lab Reports of Environmental Analysis

Testing of different parameters has been done by proponents. The copies of lab reports of different environmental parameters are given in annexure

4.8 SITE SUITABILITY:

The present site for project is under the ownership of proponent. All commodities are at a suitable distance from project site as they will not impacted by the construction and operational activities even locals will get more benefits and job opportunities. No replacement, relocation and rehabilitation are required for the development of proposed project.

All facilities of infrastructure, electricity, roads, and communication facilities are present in current location. ***The project site is devoid of flora & fauna having significant importance.***

ENVIRONMENTAL IMPACT ASSESSMENT

5.1 Methodology for Impact Identification

10. Identification of all impacts:

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

11. Methodologies for impact identification:

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

12. 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 (Construction phase and operation phase). A project impactevaluation 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)

CONSTRUCTION PHASE																
	Physical Environment							Biological Environment		Socio-Economic Environment						
Environmental Component / Project Activities	Topography & Drainage	Soil Quality	Landscape	Surface water Quality	Ground water quality	Air quality	Noise	Flora	Fauna	Agricultural Land	Health & Safety	Disruption of Public Utilities	Employment	Population Disturbance	Social Disorder	Cultural Values	Traffic Management
Placement of construction machinery on site	LA	LA	MA	LA	O	O	O	MA	LA	MA	LA	O	O	MA	LA	LA	HA
Parking of heavy vehicles	LA	O	LA	O	LA	O	O	LA	O	LA	LA	O	O	MA	MA	MA	HA
Transportation of raw construction material	LA	MA	MA	LA	O	HA	HA	MA	HA	LA	HA	O	MB	HA	HA	LA	HA
Temporary storage of raw material	LA	LA	LA	MA	LA	MA	O	LA	O	LA	LA	O	LB	LA	O	O	HA
Loading and unloading of raw material	LA	LA	MA	MA	O	HA	MA	LA	LA	LA	MA	LA	MB	HA	LA	O	MA
Labour camping on site	O	O	LA	LA	O	O	LA	LA	O	LA	LA	HA	O	HA	MA	MA	O
Storage of oil and fuel	LA	MA	LA	LA	O	LA	O	LA	LA	LA	MA	O	LB	O	O	O	O

Extraction of ground	O	O	O	O	MA	O	O	MA	O	MA	LA	HA	O	O	LA	O	O
Water																	
Construction material mixing/ preparation	LA	MA	LA	LA	LA	LA	HA	O	O	O	HA	HA	HB	MA	LA	MA	O
Welding/ cutting and steel fix ring process	O	O	O	O	O	MA	HA	O	O	O	HA	O	HB	MA	LA	LA	O
Shuttering/ beams	O	O	O	O	O	MA	HA	O	O	O	HA	LA	HB	MA	MA	MA	O
Building roofing	O	O	O	O	LA	MA	MA	O	O	O	HA	LA	HB	MA	LA	LA	O
Operation of generators	O	O	O	O	O	HA	HA	O	O	O	HA	LA	HB	LA	LA	O	O
Excavation	HA	MA	MA	LA	LA	HA	HA	MA	LA	O	HA	O	HB	LA	O	O	O
Water tank/ pond on site for temporary storage	O	O	O	LA	LA	O	O	O	B	O	LA	LA	B	LA	O	O	O

Legend:

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

Social activities	O	O	LB	B	B	B	B	B	B	HB	HB	B	HB	HB	HB	O
Public welfare	O	O	B	B	B	B	B	B	B	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=HighAdverse

13. Impact analysis and prediction:

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

14. Consultations/ case studies:

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

15. Meetings:

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

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

The EIA team carried out public consultations at various locations around the Project Site. The stakeholder's consultation during this phase of the work targeted the project

area, administrative and private offices, Govt. offices, shops, etc. near the Project area:

- Selection of the stakeholders for consultation, reconnaissance of the project site and initial discussions with the neighboring villagers, shopkeepers, drivers etc.
- Environmental consultants and social specialists and documenting the opinions of the stakeholders expressed during the meetings etc.

16. Characteristics of impacts:

17. Impact assessment criteria:

The impacts were assessed in the light of criteria given as under:-

- Magnitude or degree of impact
- Time and duration of impact
- Likelihood of impact occurrence
- Sensitivity of impact
- Risk related to impact

18. Potential Positive Impacts:

The project is envisaged to have following major positive impacts;

19. Employment opportunities:

The Proposed project will help in generating new jobs for the local population. The requirement of Managers, Engineers, Workers, technicians, skilled and unskilled labor etc. will generate employment opportunities. It is estimated about 20 persons will be employed during operational phase and about 18-20 persons will work during construction phase. Hence, there is large number of employmentopportunities especially for the locals of the district.

20. Increase in Business:

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

21. Improved Infrastructure:

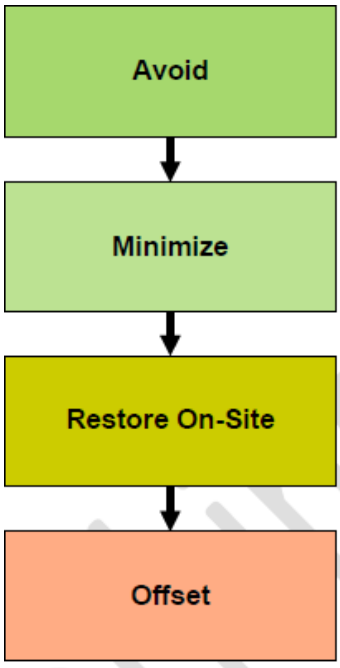
Construction of Proposed project will improve the infrastructure of the area as proponent has incorporated aesthetic values and regeneration of site in its planning stage.

22. Economic benefits:

Construction of Proposed project is in the area; it is a great investment for the economy of our country. In the long run it will positively impact not only the local population but also the economy of Pakistan. It will provide standard living to the tourists.

23. Mitigation assessment criteria:

The Mitigation Hierarchy establishes a structure to guide development and application of measures to mitigate impacts on environmental values and associated components. The term "mitigation" applies to four steps, or levels, in the mitigation hierarchy:



24. General principles

1. Maintaining the integrity and natural functions and processes of ecosystems, and the resilience of ecosystems, is prerequisite to sustainable use of natural resources, and essential to maintaining ecosystem goods and services over time.
2. The mitigation hierarchy is applied in order of priority as follows:
    a. Avoid
    b. Minimize
    c. Restore On-Site
    d. Offset (Off-Site or On-Site)
3. Generally, the "higher" the priority of the environmental value and associated component, the more protective the mitigation measures.
4. For an action or measure to be considered "mitigation", a party must accept responsibility for implementation of appropriate mitigation measures, and there must be certainty that the mitigation measures will be carried out.
5. Implementing mitigation measures can help resolve issues that may delay or prevent a project or activity.

25. General considerations

1. Which environmental values and associated components will be impacted by the project or activity? (This will be determined from the output of the environmental impact assessment, i.e., the Environmental Impact Assessment and Mitigation Plan)
2. Have the criteria being used to determine relative priorities amongenvironmental values and associated components?
3. Have mitigation measures for impacts on environmental values and associated components, at all scales, been considered?
4. What is the current condition of each environmental value and associated component actually present within the footprint and area of influence of the project or activity?
5. Can impacts on one or more environmental values or associated components be more fully mitigated than impacts on other environmental values and associated

components?

6. Are there multiple environmental values and associated components with conflicting management needs and potential conflicts that need to be considered?
7. Is sound guidance available and being used, e.g., are best management practices (BMPs) and guidelines available for affected environmental values and associated components?
8. Is there opportunity to collaborate with other proponents that may have interest in overlapping mitigation measures?

Characterization of Impacts

Impacts were characterized on the basis of following parameters:

- Nature
- Duration
- Magnitude
- Spatial Boundaries
- Extent
- Reversibility

The impacts characterization for the project has been given in Table 6-1.

Impact Characteristics	***Air Quality***	***Health***	***Water Quality***	***Flora & Fauna***
Nature	No Impact	Indirect	Indirect	Positive
Magnitude	Low	Low	Moderate	Low
Extent/location	Surroundings	Project area	Surroundings	Surroundings
Timing	Construction & operation	Construction & operation	Operation	Operation
Duration	Intermittent	Short term	Continuous	Continuous
Reversibility	Irreversible	Reversible	Irreversible	Reversible
Likelihood (risk)	Uncertainty	Probability	Probability	Probability
Significance	Global	Local	Regional	Regional

Table 6-1 Characterization of Impacts

Environmental Component	Impacts		Nature of Impact		Duration			Spatial Boundaries			Likelihood			Reversibility	
	Positive	Negative	Direct	Indirect	Short Term	Intermediate	Long term	Local	National	Global	Low	Moderate	High	Reversible	Irreversible
Water Resources	Nil														
Acid Mine Drainage	Nil														
Land Resources	■		■				■	■				■			■
Air Quality		■	■		■			■			■			■	
Climate Change	Nil														
Noise		■	■		■			■			■			■	
Solid waste		■	■		■			■			■			■	
Wastewater		■	■		■			■			■			■	
Flora & Fauna	■		■				■	■				■			■
Community Amenity		■		■	■			■			■			■	
Afforestation	■		■				■	■				■			■
Local Economy, Community Development and Employment	■		■			■		■				■		■	
Resettlement	Nil														
Health & Safety		■	■			■		■				■			■

SCREENING OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

This section discusses the project's potential environmental impact on the area's geomorphology, soil, water resources, air, biological resources and socioeconomic condition and, where applicable, identifies mitigation measures that will reduce, if not eliminate, its adverse impact. The assessment carried out in this section is based on potential impacts on overall environmental receptors within the project area.

Objectives of screening out all possible impacts and then providing their mitigation measures are:

- To find different alternatives and ways of carrying out the project activities.
- To enhance the Environmental and Social benefits of proposal.
- To avoid, minimize and remediate adverse impacts.
- To ensure that residual adverse impacts are kept in acceptable limits

Impact Analysis and Prediction

In order to give correct categorization to the present project Rapid Environmental Assessment Procedure was followed. It revealed that there some major impacts of the project have identified which will be controlled by adopting proper mitigation measures. These impacts are mainly attributed to solid waste & noise during the operational phase of this institute but most of the impacts are projected as moderate/minor impacts although project has many positive impacts on local public and economy. Proposed project will adopt proper procedures to carry out the operation in environmental-friendly way.

Meetings:

For the impact analysis and predictions detailed meetings were held with the proponent, management of Proposed project and with other stakeholders. Issues were discussed that may affect the environment and also the implementation of proposed project. All possible mitigation measures were considered and incorporated in the Environmental Management Plan.

Consultations

Scoping sessions, focused group discussion and way side consultations were held with the relevant stakeholders, inhabitants of the villages, shopkeepers and workers in the area. These included local educational institutes, health departments, public representatives and local

residents. The purpose of such consultations is to obtain the feedback from the relevant persons.

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

- ***Project location***
- ***Project design***
- ***Construction stage***
- ***Operation stage***

Environmental Parameters

5.1 Environmental impacts due to Project Location

This section discusses the project's potential environmental impact on the area's geomorphology, soil, water resources, air, biological resources and socioeconomic condition and, where applicable, identifies mitigation measures that will reduce, if not eliminate, its adverse impact. The assessment carried out in this section is based on potential impacts on overall environmental receptors within the project area.

Objectives of screening out all possible impacts and then providing their mitigation measures are:

- To find different alternatives and ways of carrying out the project activities.
- To enhance the Environmental and Social benefits of proposal.
- To avoid, minimize and remediate adverse impacts.
- To ensure that residual adverse impacts are kept in acceptable limits

Project Location

The said project is located at Ratti Gali Opposite Usmania Madrasa, Nathia Gali Road, District Murree.

The proponent has selected the site owing to the following reasons:

- The site is undisputed and under the ownership of the proponent.
- There is no fauna flora (particularly belonging to an endangered species) on the site
- Main road network runs in front

5.2 Impacts Associated with Design Phase

At the design phase, considerable impact can occur on land, soil, topography, ground water, and on people of the area. The design has sought to minimize any environmental potential impacts by ensuring that the project should be in according to the environmental standards. The design to be used for Proposed project is state-of-art and environmentally friendly.

Mitigation Measures at Design Phase

At design phase special attention should be given to the design of the project in the sense that it has been designed in such a way as to cause minimum disruption and deterioration of environment and surroundings. However, in pre-construction phase a management system should be provided at design level so impacts can be reduced. Design of the said *Proposed project* will be adhere to all standard technical requirements in order to avoid adverse impacts on environment and human health. There will not be any environmental problems at any stage from design stage to its operational stage. The project is to be designed in a way that it guarantees all out compliance with the Punjab Environmental Quality Standards (PEQS). The Proponent intends to construct the unit on modern lines, meeting International Standards, with incorporation of new Technology. The design, if maintained and operated in an environment-friendly manner, is expected to cast positive impact on the Environment and will not pose any adverse impact or threat on any component of the Environment.

5.3 Impact during construction / development phase

The potential environmental impacts of the proposed project at site and surrounding area during the development / construction phase are described as follows:

Mitigation

All the foundations of the structure will be designed to withstand even moderate to large earthquakes. For seismic hazard analysis updated structural and seismic evaluations will be consulted.

5.3.1.2 Impact on Soil

Impact

During construction phase the soil quality may be affected due to very soffice amount of discharges during vehicle and equipment maintenance and leakage from equipment's and vehicles. The impact is not significant.

Mitigation

Any spill if occur will be immediately clean up. If the problem of water logging occurs during development phase the area will be immediately reclaimed. The impact is not significant. Depending on the nature of the material, location of spill and quality of spill, soil can get contaminated. Low permeable membrane should be present at the bottom of vehicles. Proper tuning of vehicles is also necessary. Due to mitigation measures, the overall impact on soil during construction phase is minor.

5.3.1.3 Impacts on Air Quality

Following potential impacts on air quality may occur during construction phase.

(a) Emission of Dust and Particulate Matter

During the development/construction vehicles and machinery will be employed. These will generate some dust and smoke temporarily. During construction phase due to continuous operation of machinery and movement of heavy trucks and vehicles can generate gaseous emissions and can have a slight adverse effect on the surrounding environment. Combustion exhaust from vehicles and construction equipment's during construction phase can affect ambient air quality of project area.

Mitigation

All vehicles, machineries, equipment and generators used during construction activities should be in good working condition, properly and be properly maintained in order to minimize exhaust emissions. This impact is classified to be short term, reversible and limited, as it will only occur during the excavation activities. Also, these impacts are expected to be contained within the site boundaries. For dust sprinkling of water is done to avoid dust.

5.3.1.4 Solid Waste

Impact

The solid waste generated during the construction phase of Project can pose a health hazard, pollute soil, surface and ground water if not managed properly. A significant impact will be interpreted if the waste management is not carried out properly; which may effect to health of workers, pollution of soil, surface or groundwater.

Mitigation

The Potential sources of solid waste from operational activities include excavated material, construction waste, food waste, plastics, and paper. Dumping of excavated waste will be done at a designated site approved by Municipal Corporation Murree, and it will be ensured minimum degradation to the soil around the Project area. Construction waste will also be disposed off as per Municipal Corporation Murree procedures. Other generated solid waste comprises of a domestic waste. Waste storage bins will be installed. The waste from these bins will be collected by the sanitary workers. The waste will be disposed off in accordance with the procedures of Tehsil Municipal Administration. No significant impact on the environment is anticipated from solid waste generation at the project site as the solid waste is managed efficiently.

5.3.1.5 Noise and Vibration

Impact:

When the construction work is undertaken, constant rattle of heavy machinery will raise the noise level in the Project Area. This noise and vibration will affect directly the residents of nearby areas. Noise due to the construction will be a minor negative impact.

Mitigation

Mitigation measures mentioned below will be adopted to minimize the noise pollution. Those measures include, but are not limited to the following:

- Selection of up-to-date and well-maintained plant or equipment with reduced noise levels ensured by suitable in-built dampening techniques or appropriate muffling devices.

- Confining of excessively noisy areas and limiting the work to normal working hours in the day;

- Providing the construction workers with suitable hearing protection like ear cap, or earmuffs and training them in their use; and

- Regular checkups and maintenance of the construction equipment, and oiling and greasing of the noise making mechanical parts.

5.3.1.6 Traffic Congestion and Disturbance to People

Impact

During the construction phase, the movement of heavy machinery and transportation of raw material and equipment may cause traffic congestions. As a result, the daily activities of the people of nearby localities as well as of the visitors may be disturbed, which will require proper mitigation measures. This will be a moderate negative impact.

Mitigation

During construction, following mitigation measures will be followed:

- Observation of timing by the vehicles carrying construction material of infrastructure to cause minimum disturbance to traffic on existing road. The construction equipment and machinery must be stationed in the boundary premises to avoid the traffic congestion on the main Road.

- Transportation of raw material and heavy machinery will be done early in the morning; and

- There will be coordinated planning of traffic movement by the Traffic Police and the Transport Department in accordance with the construction program with advance warnings to the affected residents and road users.

- All the machinery will stay inside the periphery of project so it will not cause disturbance in the traffic.

5.3.1.7 Workers' Safety

Impact

During construction phase minor and severe injuries to workers due to operation activities may occur. The construction activities impose certain negative impacts on health and safety of the workers and public in case of unsafe and/or unfavorable working conditions. Mitigation measures will be required to minimize health and safety related negative impacts of the project. This will be a minor negative impact.

Mitigation

Mitigation measures will be required to minimize health and safety related negative impacts of the project. This will be a minor negative impact.

Implementation of the following measures will ensure health and safety of the workers and the public during the construction phase:

- Construction workers will be provided with proper safety equipment such as helmets, goggles, masks, etc.;
- Formal emergency procedures will be developed for construction site in case of an accident. First aid kits and other necessary equipment will be kept available at site along with the list of emergency phone numbers to be contacted in case of any emergency/accident;
- The safety of the public at all stages of the construction will be ensured through appropriate public education and safety measures such as use of sign boards, barriers and flags; and Proper illumination will be provided at night.

Proposed Mitigation Measures during Construction / Development Phase

The potential negative impacts during construction and operational stage of the project should be mitigated to an acceptable level. Following environmental protection measures are adopted to eliminate adverse environmental impacts or to reduce them to an acceptable level within the legislative and regulatory framework. The proposed mitigation measures are listed below:

- Appropriate waste disposal mechanism should be followed during the construction phase. The construction waste would be disposed in a manner that does not contaminate surface or groundwater.
- The construction waste generated will be used for earth filling within the project site premises.
- The Contractor needs to make sure that their machinery and equipment are properly tuned and serviced and there is no leakage of oil from construction equipment's and machineries.
- Contractor should give assurance of quality of machineries and equipment's which will be used during excavation and construction process.
- All vehicles, machineries, equipment and generators used during construction activities should be in good working condition and be properly maintained in order to minimize exhaust emissions.

- Construction labor must be trained in safety procedures for all relevant aspects of construction
- Helmets or hard hats should be worn by workers at all time of work and everywhere on the Project Site.
- Regular checks should be carried out to ensure that the contractor is following safe working procedures and practices.
- Workers should be provided with personal protective equipment's (PPE's) such as safety jackets, ear plugs or ear muffs, special boots and dust masks.
- Use of up-to-date and well-maintained machineries or equipment with reduced noise level.
- Confining excessively noisy work to normal working hours in the day, as much as possible.
- Providing construction workers with suitable hearing protection like ear cap, or ear muffs and training them in their use.
- Ear muffs or ear caps should also be provided to those people living in nearby area.

5.4 *IMPACTS DURING OPERATIONAL PHASE:*

The anticipated impacts related to the proposed project have been studied for operational stage and is discussed as follows:

1.4.1 Noise:

Noise is one of the major environmental impacts that results from the operation of this educational institute. The three sources of noise that are associated with the operation of this Proposed project are: -

- Parking and movement of vehicles
- Electric motors and Generators

These are the impacts that could be the cause of adverse environment. It mainly disturbs the peace of people and mainly to elder people.

Mitigation:

- Appropriate management measures to abate noise from traffic and associated activities.
- Planation will be done which act as a noise barrier and minimize the impact of noise.

- There will be also prohibition on the use of horns in the Proposed project without any necessity.

5.4.2 Air Quality

During operational stage of this office building, the continuous operation of generators & ACs may affect air quality. During operational stage of the Proposed project the continuous operation of air conditioners and generators etc. may deteriorate the quality of air if not managed properly. However emissions from vehicles can also cause impact on environment. Increase in traffic volume during office/school starting and closing times will also deteriorate the air quality.

Mitigation:

- The generators will be used having inbuilt technology to control emissions. Regular monitoring and checks will be performed to ensure the compliance with the regulations.
- Plantation will be provided on the main entrance of the Proposed project which will minimize the impacts of the emissions and add significant aesthetic beauty to the area. It will generate fresh oxygen. Regular monitoring and checks will be performed to ensure the compliance with the regulations. Generators, air conditioners will be properly tuned and maintained to minimize the exhaust emissions. An air quality monitoring and improvement plan will be developed to keep the air pollution levels from generators, air conditioners etc. within the limits of Punjab Environmental Quality Standards (PEQS).

5.4.3 Wastewater

Wastewater generated on-site arises from domestic purposes and washing of premises. Wastewater from washing of premises may be contaminated with detergents and solid suspended solids, which if discharged without treatment will potentially pollute watercourses. The domestic waste water will be produced from sanitary uses in this Commercial Building. It would deteriorate the surface and ground water quality if not treated properly. If wastewater is not properly treated, then the environment and human health can be negatively impacted.

Mitigation

There will be proper treatment mechanism of wastewater produce from this Proposed project so it has no considerable impact on environment. The domestic wastewater generated will be treated properly through the septic tank. The sewerage will be collected into disposal area and from that area it will be disposed of in municipal committee sewerage system.

5.4.3 Solid Waste

Impact

Activities within the Proposed project premises may generate significant volumes of solid wastes. For example, cooking activities could generate both organic and non-organic solid wastes. These wastes require proper handling and disposal as they may give rise to sanitary nuisances, such as odors, flies, rodents and other pests. Solid waste produce during the operation phase of the Proposed project will comprise of domestic solid waste such as paper, rags & *food waste*. It could disturb the scenic beauty of the area & may spread diseases if not managed properly.

Mitigation

- All putrefying wastes should be stored in leak/ rodent proof and airtight containers under chilled conditions until removal for disposal.
- Suffice waste storage bins will be installed inside the boundary wall for the collection of domestic solid waste. The waste from these bins will be collected by the sanitary workers and will shift it to a marked solid waste collection point. The food waste produced from this Proposed project will be disposed off properly at designated site of district council.
- No significant impact on the environment is anticipated from solid waste generation at the project site as the generated solid waste is managed efficiently.

5.4.4 Safety Hazards

Safety hazards in these Proposed project facilities are generally associated with fire. The fire can pose a serious risk to human health & life in case of any accident.

Mitigation Measures

Fire extinguishers will be installed by the proponent in this Proposed project for overcoming the risk associated with the fire hazard. The emergency exit stairs & doors will be present to overcome the potential negative impacts in case of emergency situations. Fire Hydrants & Fire Extinguishers will also be present to minimize the potential negative impacts in case of emergency fire. The Fire extinguishers will be present to overcome the hazard of fire in case of any accident. The adequate ventilation will be provided to avoid any kind of smoke hazard.

For the facility renovation /expansion activities, a site-specific Environmental Management Plan (EMP) will be prepared for each facility or a cluster of facilities. This EMP

will include the site- specific mitigation measures to address safety hazards associated with the renovation/rehabilitation activities.

5.4.5 Vehicular Parking:

Impact

Traffic to and fro the site may cause traffic congestion or excessive noise potentially leading to complaints. Narrow roads/ accesses create traffic jams and inconveniences to other road users specially the inhabitants.

Mitigation:

The proper vehicular parking area has been left by the proponent inside the project vicinity. Furthermore the following mitigation measures will be implemented:

- Existing and proposed access roads will be capable of adequately serving the traffic generated and should be according to norm in order to allow two way traffic.
- Provision will be made for adequate parking, loading and unloading facilities.
- Car parking areas will not be permitted alongside main roads or other busy roads.
- The environment and amenity of the area will not be compromised through traffic or parking problems as well as dust and exhaust nuisances.
- Access for Disabled Persons - The improvement of access and provision of facilities to ease the passage of mobility impaired people will be considered as an integral part of the design.

5.4.6 Poor housekeeping (rodents, birds, flies, odor and sanitary nuisances):

Poor housekeeping of the project premises can result in the proliferation of rodents, birds, flies, odor and sanitary nuisances. Odors may be released from organic solid waste as well as from inappropriate storage and disposal of wastes. Abatement measures should be taken to avoid such nuisances.

Mitigation:

- The premises will be kept clean and tidy at all times with good housekeeping and proper ventilation.
- The building and facilities of the educational institute must satisfy the sanitary requirements.
- Provision of extractors and hoods to reduce odors from frying and other cooking operations

- Installation of bait stations/ traps to control pests and rodents.

5.4.7 *Eco-friendly Measures and Sustainability*

The design, construction and maintenance of buildings have a tremendous impact on energy consumption, water consumption, productivity and health of people and nature. Best environment friendly practices and initiatives need to be adopted during the construction and operation of this Commercial Building , such as:-

- Adoption of sustainable building designs (provision of sunshades/ awnings to prevent heating of the buildings, provision of double glazed openings to promote insulation for buildings, esp. with metal roof).
- Provision of adequate green spaces /areas, planting of trees/ ornamentals on site.
- Renewable energy source (solar water heaters and photovoltaic cells); energy efficient appliances (fridges, ovens, Air Conditioners); energy-saving devices (LED lamps).
- Waste segregation for recycling and composting.
- Rain water harvesting for washing of premises.

5.5 Potential Environmental Enhancement Measures

Tree plantation and cropping within the premises have been planned by the proponent for environmental enhancement. The Proponent will also make arrangements for protection and maintenance of trees.

Names of Trees, Plants etc.

The following plants are recommended for this project, however other trees will be consulted with gardening experts and other endangered trees will also be planted.

Local Name	Scientific Name
Cono Tree	*Conocar pieceo*
Arabic Gum tree	*Acacia nilotica*
Golden Shower tree	*Casia Fistula*
Indian Beech tree	*Pongamia Pinata*

Kachnar	*Bauhinia variegata*
Jasmine	*Jasminum*
Lilly	*Lilium*
Lotus	*Nelumbo Nucifera*
Rose	*Rosa Indica*

Excavation for planting shall include plant pits and planting beds. The minimum depths of plant pits or beds shall be measured from Premises the grade. Plants beds and pits shall be tested for drainage before planting by filling with water twice in succession. Conditions permitting the retention of water in planting the beds or pits for more than 24 hours shell be brought to the attention of the Architect. If rock, underground construction, obstructions, tree roots or other obstructions are encountered in the excavation of plant pits, alternate locations may be select by the architect. The contractor shall be responsible for all damages resulting from any neglect and failure to comply with this requirement.

Following excavation planting pits, the pits shall be back filled with the sweet soil mixture as specified. Three day prior to planting, the pits shall then be filled with water for consolidation of soil. The dimensions of the panting pits are as follows:

A. Trees: 3x3x3
B. Shrubs: 2x2x2
C. Hedges: trenching 2wide x'2 deep of required length.
D. Creepers and vines: 2wide x 2 deep of required length.
E. Edges and flowers beds: 'fill flower box with sweet soil as per the Architect's drawings. For seasonal flowers, the beds are to have the minimum of 12" sweet soil and 4" 'manure.

Planting areas and plants shall be protected all times against trespassing and damage of all kinds for the duration of maintenance period. If any plants become damage or injured, they

shall be treated or replaced. Protection shall also include all temporary protections fences and barriers. all signs and all other work incidental to proper maintenance.

ENVIRONMENTAL MANAGEMENT & MONITORING PROGRAM

Proposing the mitigation measures for the negative environmental (physical, biological and socio-economic) impacts arising from the various project activities is not the only responsibility of the proponent; rather the proponent is liable to provide a complete plan showing in-depth details of how the activities will be managed in a way to keep environment undisturbed or in a state receiving least burden from the project construction and operation. This plan; called as the "environmental management plan" not only states the mitigation measures of the negative environmental impacts but also makes some person or authority responsible for carrying out that mitigation measure. Having an EMP in an IEE binds the specified people for taking the indicated mitigation measure.

An environmental management plan is a project or site-specific plan developed to ensure that all the necessary measures are identified and implemented in order to protect the environment and to meet the environmental legislations.

6.1 Institutional Capacity

It is the responsibility of the management of the project to ensure that monitoring of air, water, soil and noise are being carried out efficiently and properly maintain the records of monitoring in order to access the environment quality. There should be precise recording and maintenance of all information generated during the monitoring. The management must hire a person to look over the monitoring. It is also the responsibility of management to ensure that all mitigation measures are being implemented to eradicate the possible adverse environmental impacts. For capacity building, all the employs should be given awareness about the environment and what should be their roles to protect the environment. Hired workers should be aware of the safety procedures and what to be done in emergency situations. Lectures should be given on environment safety twice a year. Training should be conducted yearly or twice a year to cope with emergency situations. The management must ensure that environment management plan is properly carried out. The EMP aims to ensure that

- Site activities are well managed
- All environmental safeguards are carried out correctly
- Adverse impacts on environment are minimized
- The biodiversity of the site is conserved or enhanced

- All relevant legislation is complied with
- The project is monitored for environmental impacts

Local workers will be hired during operation phase and one person from management should be there in order to implement EMP for construction phase. There will be 10-15 workers during construction phase and 8-10 workers will be hired during operational phase of the project. There will be a contractor who will head the workers in construction phase and supervisor will head the workers during operational phase. It is the responsibility of management that contractor and supervisor should implement safety procedures of health and environmental safety.

6.2 Training Schedules

The whole staff will be given training on different things like:

1- Health Safety & Environment Awareness Session

This training would be for whole Office staff and it would be done once in every 6 months.

2- Emergency Preparedness Training

This training would be arranged once in a quarter of every year by hiring consultant firm. This training would be helpful to ready the employees to handle any kind of emergency situation.

3- Fire Safety

This training would be for whole staff and it would be done once in every 6 months

6.3 Summary of Impacts and Mitigation Measures

When all impacts are considered, the impacts of highest significance are those that will affect the natural environment. Although there will be a number of social impacts of high significance, the majority of the impacts on social conditions are of moderate significance. Furthermore, it is clear from the description of the existing environment in project that the disruption to social conditions and the existing social impacts are already of very moderate, and the project will not add any substantially new negative impacts to those that are already present.

The positive economic impact of the project is highly significant, and the revenue from taxation that will accrue to government provides resources that can be used to significantly improve the conditions in the region in particular and Pakistan in general. The economic benefit

to the local economy is also significant, since the project will not only support several hundred employees directly, but it will also support significantly more of their dependents. It is estimated that, on average, each employee will support five to six dependents or family members. This should result in a general improvement in standards of living in the study area and provides an alternative livelihood.

The summary of overall impacts and their mitigation measure is given below:

ASPECTS	POTENTIAL IMPACTS/RISKS	PROPOSED MITIGATION MEASURES
Construction phase Impacts & their Mitigation		
Changes in land value	Economic losses/gains	Minor positive
Seismic Hazard	Damage due to earth quake	Selection of a design for structure that must be safe against earthquakes
Change of Land use	Site will be developed in open land	Plantation will be done in the open areas and grounds of the project site
Traffic Movement	Movement of vehicles may result in traffic disruption if proper parking facilities are not provided.	Adequate parking facilities will be provided for the construction machinery and tractor-trolleys bringing the material into the Project Area
Additional load on Existing Utilities	Additional load on ground water, sewerage system, electricity, solid waste system	All the effects and mitigations of these utilities have already been covered in previous sections and no any problem will create due to load on existing facilities
Disposal of Construction Waste/Excavated Material	Dumping of construction wastes / excavated material in the surrounding area may limit use of land	Management of Construction activities in a way to ensure minimum degradation to the soil around the Project area and dumping of excavated waste will be done at a designated site approved by MUNICIPAL CORPORATION MURREE,
Air Quality	Dust produced due to construction activity can affect the health of employees and residents in the surrounding areas	Use of dust suppression techniques like water sprinkling etc. will be made to minimize the effect of dust. Construction workers will be provided with masks for protection against the inhalation of dust. Regular monitoring of all vehicles, equipment, and machinery used for construction. All vehicles, machinery, equipment and generators used during

		construction activities will be kept in good working condition and properly tuned and maintained in order to minimize the exhaust emissions.
Noise and Vibration	Noise pollution due to increased construction machinery operation	Selection of up-to-date equipment and machinery with reduced noise levels ensured by suitable in-built damping techniques; Regular checkups and maintenance of the construction equipment; and use of appropriate muffling devices
Relocation of Utilities	No relocation of any public utilities are involved	No Impact
Traffic Management	Disturbance to routine traffic moving on the road.	Observation of timing by the vehicles carrying construction material to cause minimum disturbance to traffic on Road. Construction equipment and machinery will be stationed in the boundary premises to avoid the traffic congestion on the approach road
Poverty Alleviation	Construction of this Commercial Buildingwill generates the employment opportunities to the population living in the surrounding areas.	Minor positive
Sanitation and Waste disposal facilities at Project site	Health risks	All the solid waste will be collected by cold store unit management and will be disposed off in accordance with the regulations of district council.
Workers' Safety and Hygienic conditions	Health risks in case of Unsafe and/or unfavorable work conditions	Enforcement of work safety measures such as wearing safety goggles, protective masks and boots and fixing of cautionary signs at designated sites.
OPERATIONAL PHASE IMPACTS & MITIGATION:		
Noise	The four sources of noise that are associated with the operation of a Commercial Building are:-	➢ No installation of loudspeaker/amplifier/woofer/noise generating equipment outside the building (within the open area).

	• Loud music • Parking and movement of vehicles • Electric motors and other equipment • Walking and shouting by people gathered around the premises of the hall	➢ No noisy activities such as dancing, bar activities, events carried out outside the hall building, in case it would represent a nuisance to the surrounding environment ➢ Soundproofing of the multi-purpose hall, as applicable. Appropriate management measures to abate noise from traffic and associated activities. ➢ Within residential settings, the hours of operations should be determined by the respective Local Authority depending on context of site and nature of activity proposed.
Solid Waste	Activities within site generate significant volumes of solid wastes. For example, cooking activities could generate both organic and non-organic solid wastes.	➢ All putrefying wastes should be stored in leak/ rodent proof and airtight containers under chilled conditions until removal for disposal. ➢ Small waste storage bins will be installed inside the boundary wall. The food waste produced from this project will be disposed off properly at designated site of district council present at the distance of 3KM away from the residential area. ➢ No significant impact on the environment is anticipated from solid waste generation at the project site as the generated solid waste is managed efficiently.
Vehicular Parking	Traffic to and fro the site may cause traffic congestion or excessive noise potentially leading to	The proper vehicular parking area has been left by the proponent inside the project vicinity. Furthermore the following mitigation measures will be implemented:

	complaints. Narrow roads/ accesses create traffic jams and inconveniences to other road users specially the inhabitants.	➢ Existing and proposed access roads will be capable of adequately serving the traffic generated and should be according to norm in order to allow two way traffic. ➢ Provision will be made for adequate parking, loading and unloading facilities. ➢ Car parking areas will not be permitted alongside main roads or other busy roads. ➢ The environment and amenity of the area will not be compromised through traffic or parking problems as well as dust and exhaust nuisances
Groundwater Depletion	Prolonged water consumption may in the long run lower/deplete the underground water table.	• Workers of this project will be trained in water conservation measures such as use of water efficient/ economy appurtenances and reuse of wastewater for gardening.
Wastewater Generation	Wastewater from washing of premises may be contaminated with detergents and solid suspended solids, which if discharged without treatment will potentially pollute watercourses.	• There will be proper treatment mechanism of wastewater produce from the unit so it has no considerable impact on environment. • The domestic wastewater generated will be treated properly through the septic tank. After treatment it will finally be discharged into the nearby drain.
Safety Hazards	Safety hazards in the project facilities are generally associated with fire & natural hazard	➢ Fire extinguishers will be installed by the proponent in this proposed project for overcoming the risk associated with the fire hazard. ➢ Strictly following standard operating procedures for loading and unloading and

		proper use of personal protective equipment (PPE) particularly gum boots, dust mask is of foremost importance to avoid safety hazards associated with loading and unloading.
Poor Housekeeping	Poor housekeeping of the halls can result in the proliferation of rodents, birds, flies, odor and sanitary nuisances. Odors may be released from cooking as well as from inappropriate storage and disposal of wastes	➢ The premises will be kept clean and tidy at all times with good housekeeping and proper ventilation. ➢ The building and facilities of the hall must satisfy the sanitary requirements. ➢ Provision of extractors and hoods to reduce odors from frying and other cooking operations ➢ Installation of bait stations/ traps to control pests and rodents.
Socio- economic Impact	Employment opportunities for the local people. Raising of the socio-economic status of the area	Major positive

8.6 Proposed EMP Reporting and Reviewing Procedures

An effective mechanism to store and communicate environmental information during the project is an essential requirement of an EMP.

8.6.1 Meetings

As environment is multidisciplinary subject with environmentalist having a dynamic role therefore Environment Officer would be considered as integral part in both constructional and operational team. Participation of Environment Officer in daily morning meeting and any other special meeting is mandatory. Besides internal meeting

HSE Engineer/Environment Officer is also responsible to conduct meeting with local in keeping administration in liaison.

8.6.2 Changes-Record Register

A change-record register will be maintained at the site, in order to document any changes in project design. These changes will be handled through the change management mechanism.

6.4 Equipment's Maintenance Details

There is no as such machinery usage involves in this project but All the mechanical equipment such as generators etc will be cleaned on regular intervals of time, like on every month, and necessary maintenance will be done.

6.5 Cost Breakup of Environmental Budget

A total of 1000,000 rupees will be assigned for environmental budget. Tree plantation will be done from this budget. This budget can be increased in case of any requirement.

Sr. No	PROJECT ACTIVITIES	ALLOCATED BUDGET
1	Water Sprinkling	150,000 PKR
2	Personal Protective Equipment's (PPEs)	150,000 PKR
3	Safety & awareness Board	150,000 PKR
	Fire safety	150,000
4	Sanitation and Waste disposal facilities, Solid Waste Bins	200,000 PKR
5	Tree Plantation	200,000 PKR
6	**Total Amount**	**100,000 PKR**

6.6 Organizational Structure & Responsibilities

The organizational structure for the Environment Management Plan is outlined below:

Primary Responsibilities

The administration is primary responsible for implementing EMP within this project construction and operational phase

Operational Management and Control

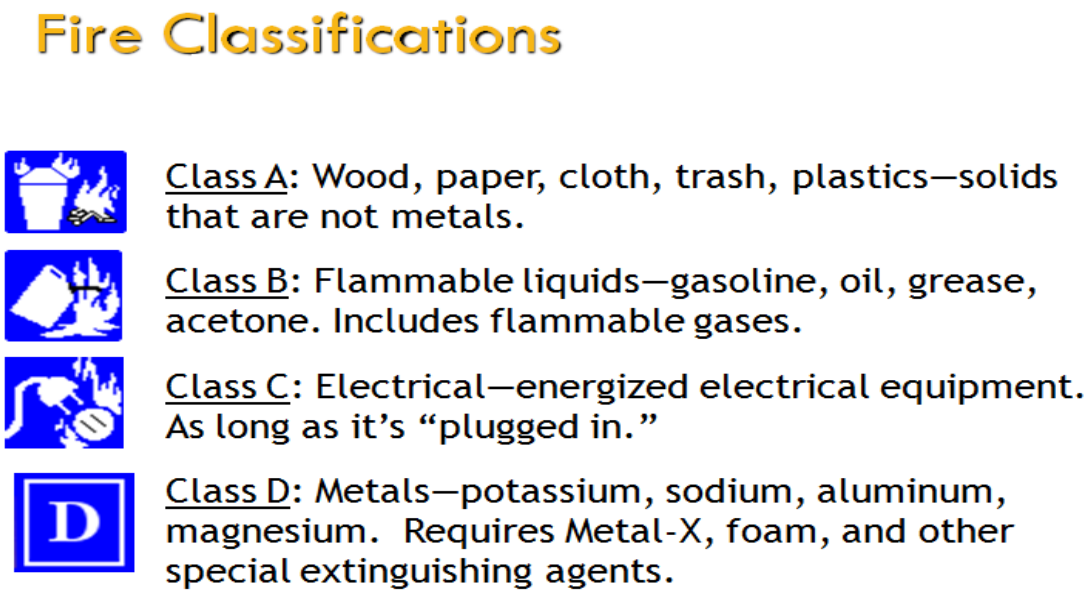
Conducting the operational activities in the environmentally sound manner will be the responsibility of the administration.

Supervision and Monitoring

Senior Supervisor will be responsible for all environmental issues and for the implementation of EMP.

Fire Fighting Plan

Fire can be of different types depending on the material which catches fire and every different type of fire has different method to handle it. The classification of fire is given below:



Proposing the mitigation measures for the negative environmental (physical, biological and socio-economic) impacts arising from the various project activities is not the only responsibility of the proponent; rather the proponent is liable to provide a complete plan showing in-depth details of how the activities will be managed in a way to keep environment undisturbed or in a state receiving least burden from the project construction and operation. This plan; called as the "environmental management plan" not only states the mitigation measures of the negative environmental impacts but also makes some person or authority responsible for carrying out that mitigation measure. Having an EMP in an IEE binds the specified people for taking the indicated mitigation measure.

CONSULTATION, PARTICIPATION AND DISCLOSURE

7. INVOLVEMENT OF STAKEHOLDERS/PUBLIC CONSULTATION

7.1 GENERAL

This section describes the regulatory policy, planning and current practices of project proponent pertaining to the stakeholder engagements and outcomes of stakeholder consultation process initially done as part of the EIA Report. The feedback from communities and other stakeholders directly or indirectly affected by the project is collected so that it may be used to adjust and improve the project's design, planning, implementation and help the implementation structure ensuring that the project is both environmentally and socially sound. The consultation process was carried out in accordance with the requirements of the Punjab Environmental Protection Act and Government of Pakistan on public consultation.

The objectives of this process were;

- To disseminate information on the project and its expected impact, long-term as well as short-term, among primary and secondary stakeholders,
- To gather information on relevant issues so that the feedback received could be used to address these issues at an early stage of the project,
- To determine the extent of the negative impacts of different project activities and suggest appropriate mitigation measures.

7.2 IDENTIFICATION OF STAKEHOLDERS

There are two types of stakeholders, i.e.

a. Primary stakeholders
b. Secondary stakeholders

7.2.1 Primary Stakeholders

The primary stakeholders are the initial stakeholders, such as affected persons, general public and women residing in the project area. Accordingly, the consultations / focus group discussions were made with all primary stakeholders for sharing of information about the proposed project and expected impacts and understanding about the concerns by category of stakeholders.

7.2.2 Secondary Stakeholders

The secondary stakeholders are the representatives of Government Departments/Agencies involved in the planning, design, implementation and operation of the project, including various government departments such as District Administration, EPA, WAPDA.

7.3 STAKEHOLDER ENGAGEMENTS PLANNING

A two fold stakeholder engagement is planned and carried out for the proposed project as following:

(a) Stakeholder Consultation during the Preparation of EIA Report:

The consultation with the primary and secondary stakeholders has been conducted initially during the preparation of the EIA Report, details of which have been given in the subsequent paragraph at 10.4.

(b) Stakeholder Consultation / Public Hearing during the Approval of the project:

The proponent is bound to complete as a regulatory obligation by the Environment Protection Agency (EPA), Punjab to conduct such Consultative Event known as "Public Hearing" under Section 12(4) of Punjab Environment Protection Act, 2012. This process shall be carried out during the review of the project to get the Environmental approval from the EPA, Punjab, Pakistan.

During this process following activities shall be carried out.

i. The proponent shall cause to be published, in any English or Urdu national newspaper, a public notice mentioning therein the type of project, its exact location,
ii. The public notice issued shall fix a date, time and place for public hearing of any comments on the project or its EIA. The date fixed for public hearing shall not be earlier than 07 days from the date of publication of the notice.
iii. The EPA shall also ensure the circulation of the EIA to the concerned Government Agencies and solicit their comments thereon.
iv. All comments received by the EPA from the public or any Government Agency shall be collated, tabulated and duly considered by it before its decision for approval.

7. 4 STAKEHOLDER CONSULTATION PROCESS

The overall strategy for stakeholder's consultation is as follows:

a. Table - 9.1: Process of Stakeholder Consultation

Stakeholders	Purpose of Consultations	Methodology	Stage
Primary Stakeholder	• Information gathering and data collection. • Information sharing about the project (disclosure) • Opinion seeking (concerns and expectations) • Grievance redress	• Focus Group Discussions • Household surveys • Formal and informal Community meetings	• Base line Study Impact Assessment
Secondary Stakeholder	• Participation in the development process • Information gathering • Authentication and validation of the development processes • Verification of the record	• One on one meetings • In-depth interviews	• During the EIA preparation • On need basis during the project implementation and

Stakeholder consultation for this project was planned during the preparation of EIA Report. In first step during the scoping, which has already taken place, consisted of meetings with individuals, groups, relevant organizations and government departments, which are in some way linked to the project and therefore considered stakeholders. The meetings were conducted to inform stakeholders about the project and how it may affect their lives/activities, and to record their concerns, whether real or perceived. Through the use of various tools the study team tried to involve the stakeholders in active decision-making. The results of this exercise are described below, where mitigation measures have been developed addressing the pertinent stakeholder concerns.

Public Consultations:

The consultations were made with the local community to share the information about the project and record their concerns/ feedback associated with project.

7.4.1 Concerns Regarding the Project:

During the field survey, people were asked about their views regarding the said Project. In general, local community has positive attitude towards this said Project that this will help to improve the development of the area.

7.4.2 Major Stakeholders identified

In the Project Area, all the possible stakeholders were identified during the survey. Following is the list of potential stakeholders in the Project Area

- Local residents Teachers
- Shop owners
- Office Workers Laborers
- Pedestrians
- Mosque users.
- Transport users
- Environmental Experts
- Responsible authority & other departments

Issues Discussed

Following issues were discussed during the stakeholder‘s consultation:

- Overall activities of the project and their possible impacts.
- Possible impacts on natural vegetation, flora and fauna
- Possible mitigation measures;
- Beneficial factors and involvement opportunities of the local people in the set of activities of Project; and
- Management of traffic during construction and operational phase of the project.

7.5.1 General

Majority of stakeholders appreciated the project and taken it as a necessary step towards the current situation of waste problems. Few people had some reservations regarding the noise that may also be a factor for nearby residences due to increase in traffic

7.5.3 Socio Economic

Expectations about employment opportunities and community development were extremely high among all stakeholders.

7.6 PRIMARY STAKEHOLDERS CONSULTATION

Apart from gathering of quantitative data through household survey of the area of influence of the project and survey of local community to share the information about the project and record their concerns/ feedback associated with this project. In this context, nearest community shared their view point regarding the assessment especially procedure for entering their concerns/ grievances, employment opportunities, and implementation of the project.

7.6.1 Topics for Discussion

The topics discussed in the consultations were:

- Employment and livelihoods of communities.
- Gender and women issues
- Contractor's camp and access
- Environmental issues during construction and operation of project
- Company responsibility for employment, etc

7.7 PROPONENT

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

7.8 THE RESPONSIBLE AUTHORITY

The project Building Management shall be the responsible authority to take all measures prior to start the project and during operation.

7.9 OTHER DEPARTMENTS AND AGENCIES

For the impact analysis detailed with the management, local community, educational institutes etc

Environmental Experts & Other Departments Discussion:

Discussion has been made with locals. They were very much interested for this project to be constructed in the Murree District. Regular monitoring of emissions will be practiced to comply with the PEQS. Better management of wastes (especially solid waste & wastewater) involving proper collection and disposal,

7.8 Affected and Wider Community

There is no affected community present in the area of proposed project. Consultant's team has consulted with the inhabitants of different villages. The remarks of people are positive regarding the project and people foresee positive impacts like employment opportunities, business, development of the area etc.

7.11. COMMUNITY CONCERNS

7.11.1. Project Approval

The community consultations demonstrated that goodwill towards the project proponents indeed exists; approval for project activities by the communities was evident. The consultations were considered a good gesture and appreciated, especially by the men and women. This project will provide employments to the local as well as non-local poor community in its construction as well as in operational stages.

7.8.1. Resettlement/ Relocation

The proposed site is located on the land already owned by proponents of the project. Therefore, no issue of the resettlements is there.

7.8.3. Local Employment

Communities in the project area emphasized that local poor community should be given priority when employing people for various project-related works and activities according to their skills

7.8.4. Interaction with Local Community

Non-Local work force coming in the project area that will not be aware of the local customs and norms, may result in conflicts with the local community, keeping in mind the sensitive law and order situation and culture of the area.

Consultation Areas:

Nathia Gali Road

List of People Consulted:

Sr. No.	Name of Respondent	Education Status	Age	Occupation
1	Gul Khan	Graduation	22	Student
2	M.Saddiq	Undergraduate	20	Intern
3	Sohail	B.sc	40	Employee
4	Attiq	Primary	38	Driver
5	Saeed Rasool	Nil	35	Labor
6	Iqra Batool	Intermediate	28	Employee
7	Syed Nasir Khan	B.A	30	Employee
8	Waqif Shah	Middle	32	Shopkeeper
9	Hikmat Shah	Matric	37	Guard
10	Salma Bashir	Nil	40	Nil
11	Zainab Bashir	Intermediate	18	Student
12	Jahanzeb	Matric	24	Guard
13	Rasheed Khan	Middle	40	Driver
14	Shaheen Idrees	Matric	27	Worker

15	Sabir Khan	Nil	33	Labour
16	Alam Noor	B.Com	24	Employee
17	Ali Rehman	Intermediate	21	Salesman

Stakeholders Consultation

S #	Participant	Designation	Concerns/Remarks
Responsible Authority			
1	Abdul Salam	Insp Environment Murree	• Environmental enhancement measures such as; Tree plantation, monitoring and safety should be ensured • Septic Tank should be constructed • Preventive measures should be adopted to avoid any unfortunate incident • Tree plantation must be ensured
Other Departments			
1	Azhar Jajja	Local Govt (LGCD)	• There is no endangered/indigenous species • However, plantation should be done to enhance environment
Proponent's Environment Management Team			
1	Proponent and Environment Management Team	MD project	• Local employment will be ensured during construction phase • Tree plantation will be done to make project environment friendly • No waste will be dumped improperly • Quality will be ensured
Environmental Practitioners and Experts			
1	M. Shehzad	PhD. Environment	• Health and safety arrangements must be provided • All type of waste should be managed to avoid nuisance
Affected and Wider Community			

1	Mr. Zohaib	Local NGO	• Local employment should be ensured • Proponent shall work for betterment of community

Awareness Regarding the Project

Out of total 30 respondents, 56% knew about the project whereas 44% were not aware of the project planning and implementation.

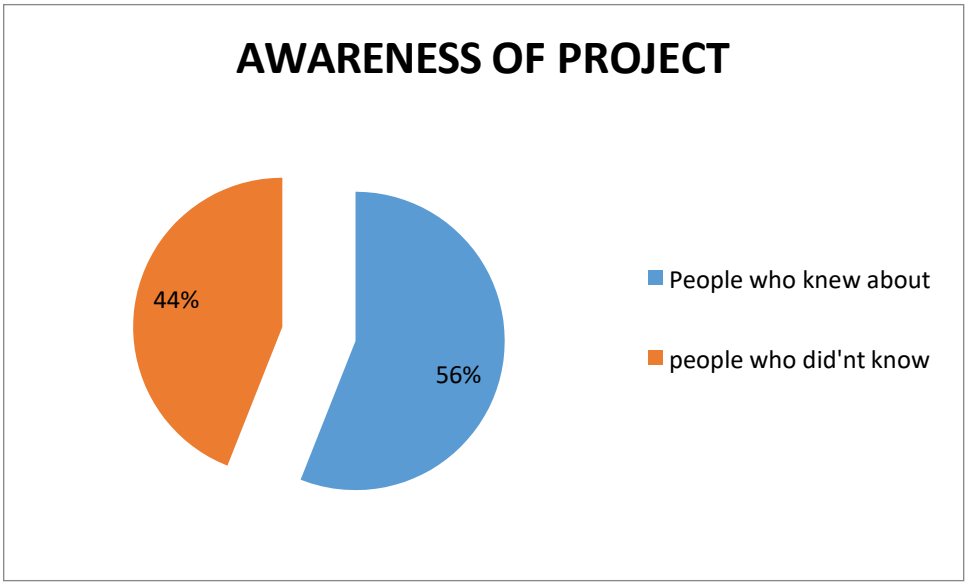
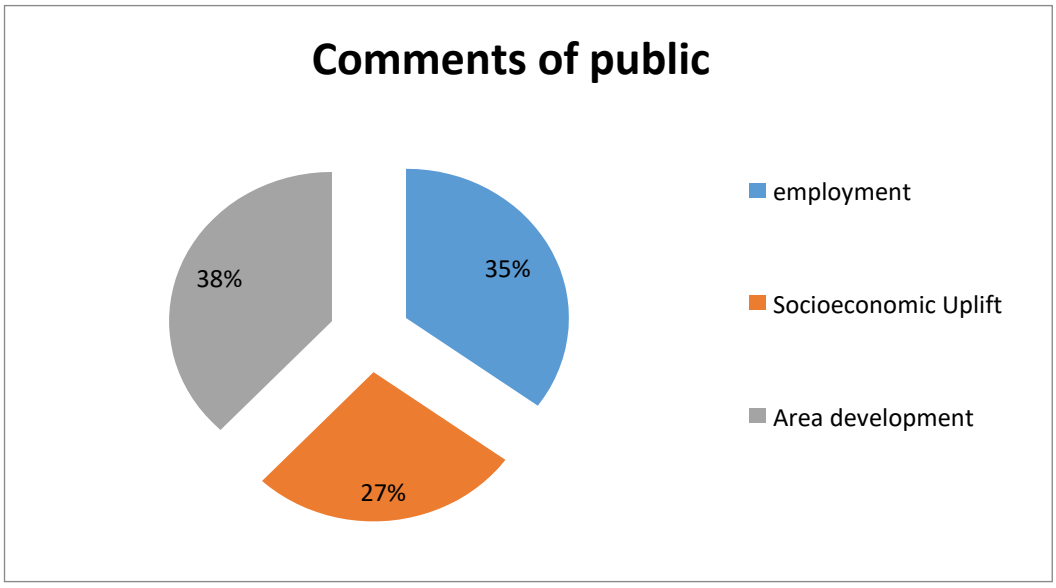


Figure 6-6: Awareness of project

2.1.1 Acceptability of the Project

Majority of the respondents, 99% favored the construction of the project keeping in view its importance. People had following comments regarding project:


Comments of public
35%
27%
38%
employment
Socioeconomic Uplift
Area development

ENVIRONMENT MANAGEMENT PLAN

Aspects	Potential Impacts/Risks	Proposed Mitigation Measures	Responsibility
CONSTRUCTION PHASE			
Changes in land value	Economic losses/gains	Minor positive	Proponent
Seismic Hazard	Damages due to earth quake	Selection of a design for structure that must be safe against earthquakes	-
Change of Land use	Site will be developed in open land	Plantation will be done in the specified areas of this Proposed project Premises	Proponent
Traffic Movement	Movement of vehicles may result in traffic disruption if proper parking facilities are not provided.	Adequate parking facilities will be provided for the construction machinery and tractor-trolleys bringing the material into the Project Area	Contractor
Additional load on Existing Utilities	Additional load on ground water, sewerage system, electricity, solid waste system	All the effects and mitigations of these utilities have already been covered in previous sections and no any problem will create due to load on existing facilities	Proponent
Disposal of Construction Waste/ Excavated Material	Dumping of construction wastes / excavated material in the surrounding area may limit use of land	Management of Construction activities in a way to ensure minimum degradation to the soil around the Project area and dumping of excavated waste will be done at a designated site approved by MUNICIPAL CORPORATION MURREE,	Proponent
Air Quality	Dust produced due to construction activity can affect the health of employees and residents in the surrounding areas	Use of dust suppression techniques like water sprinkling etc. will be made to minimize the effect of dust. Construction workers will be provided with masks for protection against the inhalation of dust.	Contractor

		Regular monitoring of all vehicles, equipment, and machinery used for construction. All vehicles, machinery, equipment and generators used during construction activities will be kept in good working condition and properly tuned and maintained in order to minimize the exhaust emissions.	
Noise and Vibration	Noise pollution due to increased construction machinery operation	Selection of up-to-date equipment and machinery with reduced noise levels ensured by suitable in-built damping techniques; Regular checkups and maintenance of the construction equipment; and use of appropriate muffling devices	Contractor
Relocation of Utilities	No relocation of any public utilities are involved	No Impact	-
Traffic Management	Disturbance to routine traffic moving on the road.	Observation of timing by the vehicles carrying construction material to cause minimum disturbance to traffic on Road. Construction equipment and machinery will be stationed in the boundary premises to avoid the traffic congestion on the approach road.	
Poverty Alleviation	Construction of this Proposed project will generate the employment opportunities to the population living in the surrounding areas.	Minor positive	Proponent
Sanitation and Waste disposal facilities at Project site	Health risks	All the solid waste will be collected by Proposed project workers and will be disposed-off in accordance with the regulations of district council.	Contractor
Workers' Safety and Hygienic conditions	Health risks in case of Unsafe and/or unfavorable work conditions	Enforcement of work safety measures such as wearing safety goggles, protective masks and boots and fixing of cautionary signs at designated sites.	Contractor

OPERATIONAL PHASE:			
Noise	Noise is one of the major environmental impacts that results from the operation of Proposed project. The following are the main sources • Parking and movement of vehicles • Electric motors and other equipment	➢ Soundproofing of the walls, as applicable ➢ Appropriate management measures to abate noise from traffic and associated activities. ➢ Tree plantation at specified areas	Proponent/Management
Vehicular Parking	Traffic to and fro the site may cause traffic congestion or excessive noise potentially leading to complaints. Narrow roads/ accesses create traffic jams and inconveniences to other road users specially the inhabitants.	The proper vehicular parking area has been left by the proponent inside the project vicinity. Furthermore the following mitigation measures will be implemented: ➢ Existing and proposed access roads will be capable of adequately serving the traffic generated and should be according to norm in order to allow two way traffic. ➢ Provision will be made for adequate parking, loading and unloading facilities. ➢ Car parking areas will not be permitted alongside main roads or other busy roads. ➢ The environment and amenity of the area will not be compromised through traffic or parking problems as	Proponent/Management

		well as dust and exhaust nuisances.	
Solid Waste	Activities of People within the Proposed project Premises may generate significant volumes of solid wastes. Cooking activities within Proposed project cafes could generate both organic and non-organic solid wastes. . Solid waste produce during the operation phase of the project will comprise of domestic solid waste such as paper, rags & *food waste*	➢ All putrefying wastes should be stored in leak/ rodent proof and airtight containers under chilled conditions until removal for disposal. ➢ So office waste storage bins will be installed inside the boundary wall for the collection of domestic solid waste. The waste from these bins will be collected by the sanitary workers and will shift it to a marked solid waste collection point. The food waste produced within Proposed project premises will be disposed off properly at designated site of MUNICIPAL CORPORATION MURREE. ➢ No significant impact on the environment is anticipated from solid waste generation at the project site as the generated solid waste is managed efficiently.	Proponent/ Management
Groundwater Depletion	Prolonged water consumption may in the long run lower/deplete the underground water table.	➢ Workers & staff of the Office Building will be trained in water conservation measures such as use of water efficient/ economy appurtenances and reuse of wastewater for gardening.	Management
Waste water	There is only domestic wastewater generation from this Proposed project from	➢ There will be proper treatment mechanism of wastewater produce from the unit so it has no	

Generation	sanitary uses during operation phase.	considerable impact on environment. ➢ The domestic wastewater generated will be treated properly through the septic tank. After treatment it will finally be discharged into nearby drain.	Proponent/ Administration
FIRE & Safety HAZARD	Safety hazards in the Commercial Buildings are generally associated with fire & Earthquakes	➢ Fire extinguishers will be installed by the proponent in this Proposed project for overcoming the risk associated with the fire hazard. ➢ The emergency exit stairs & doors will be present to overcome the potential negative impacts in case of emergency situations. Fire Hydrants & Smoke Detector will also be present to minimize the potential negative impacts in case of emergency fire. The adequate ventilation will be provided to avoid any kind of smoke hazard. An Emergency Response Plan for earthquakes and manmade disasters will be developed by the Management. Emergency Response Plan will be implemented in close consultation with the Fire Fighting Department, Bomb Disposal Squad and Paramedics.	Proponent/ Management
Poor Housekeeping	Poor housekeeping of the Proposed project can result in the proliferation of rodents, birds, flies, odor and sanitary	➢ The premises will be kept clean and tidy at all times with good housekeeping and proper ventilation. ➢ The building and facilities of the hall & premises	Proponent/ Management

	nuisances. Odors may be released from cooking as well as from inappropriate storage and disposal of wastes.	must satisfy the sanitary requirements. ➢ Provision of extractors and hoods to reduce odors from frying and other cooking operations ➢ Installation of bait stations/ traps to control pests and rodents.	

Reporting

Sr. No		Detail
5.1	Clear reporting style supported by maps or other descriptive details	The said instructions have been followed in this report.
5.2	Specific term of references should be present in report	This is attached with this report.
	Appendices Glossary	This is attached with this report.
	1- List of Abbreviations	This is attached with this report.
	2- List of individuals or organizations consulted along with their written feed back	This is attached with this report.
	3- Sources of data and full list of all reference material used	This is attached with this report.
	4- Terms of references for environmental reports	This is attached with this report.
	5- List of names, qualifications and roles of team members carrying out the IEE/IEE study	This is given at Page 15 of this report.

Annexure

REFERENCES

- SMEDA pre-feasibility report for establishment of Commercial Building
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- Guidelines for Public Consultation
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- Pakistan Biosafety Rules 2005
- Pakistan Environmental Protection Act, 1997
- Pakistan Environmental Protection Agency (Review of IEE/IEE) Regulations, 2022.
- The Land Acquisition Act, 1894
- The Punjab Local Government Ordinance, 2001
- Punjab Environmental Protection (Amendment) Act, 2012

LIST OF ABBRIVIATIONS

CO	Carbon monoxide
CO_2	Carbon dioxide
NFPA	National Fire Protection Association
SO_2	Sulphur Dioxide
°C	Degree Celsius
PM10	Particulate Matter >10
EIA	Environmental Impact Assessment
EMMP	Environment Management & Monitoring Plan
EMP	Environmental Management Plan
EPA	Environmental Protection Agency
EPD	Environment Protection Department
PEQS	Punjab Environmental Quality Standards
SPM	Suspended Particulate Matter
HSE	Health Safety and Environment
UDT	Urban Development and Tourism
SEP	Standard Engineering Practices
ERP	Emergency Response Plan
SWM	Solid Waste Management
IEE	Initial Environmental Examination
Km	Kilometer

CUM	Cubic Unit per Meter
GWT	Ground Water Table
Ltd.	Limited
HC	Hydrocarbon
Mm	Millimeter
NEQS	National Environmental Quality Standards
No.	Number
NOC	No Objection Certificate
NO_x	Oxides of Nitrogen
PA	Protected Area
PEPA, 1997	Pakistan Environmental Protection Act, 1997
PEPA, 2012	Punjab Environmental Protection (Amendment) Act, 2012
PEPO	Pakistan Environmental Protection Ordinance
PKR	Pakistani Rupees
PM	Particulate Matter
PPEs	Personal Protective Equipment's
Pvt.	Private
SFT	Square Foot
SOPs	Standard Operation Procedures
SO_x	Oxides of Sulphur
MUNICIPAL CORPORATION MURREE	Town Municipal Authority

WAPDA	Water and Power Development Authority
WASA	Water and Sanitation Agency
WHO	World Health Organization

LIST OF EIA STUDY TEAM WITH QUALIFICATION AND POSITION IN TEAM.

Name	Qualification	Position in the EIA/IEE Team
Shahid Iqbal	MSc (Environmental Science) PU Lahore	Project Incharge And Supervisor
Ali Naeem	MSc (Environmental Engineering) UET-Lahore	Team Leader and Coordinator (Author of the Report)
Muhammad Gulzaib Afzal	B.sc Environmental Engineering (UET Lahore)	Environmental Engineer
Sadaqat Ali	LLB (Islamia University Bahawalpur)	Research Associate (Author of the Report)

SOCIAL SURVEY FORM

Questionnaire for the project of

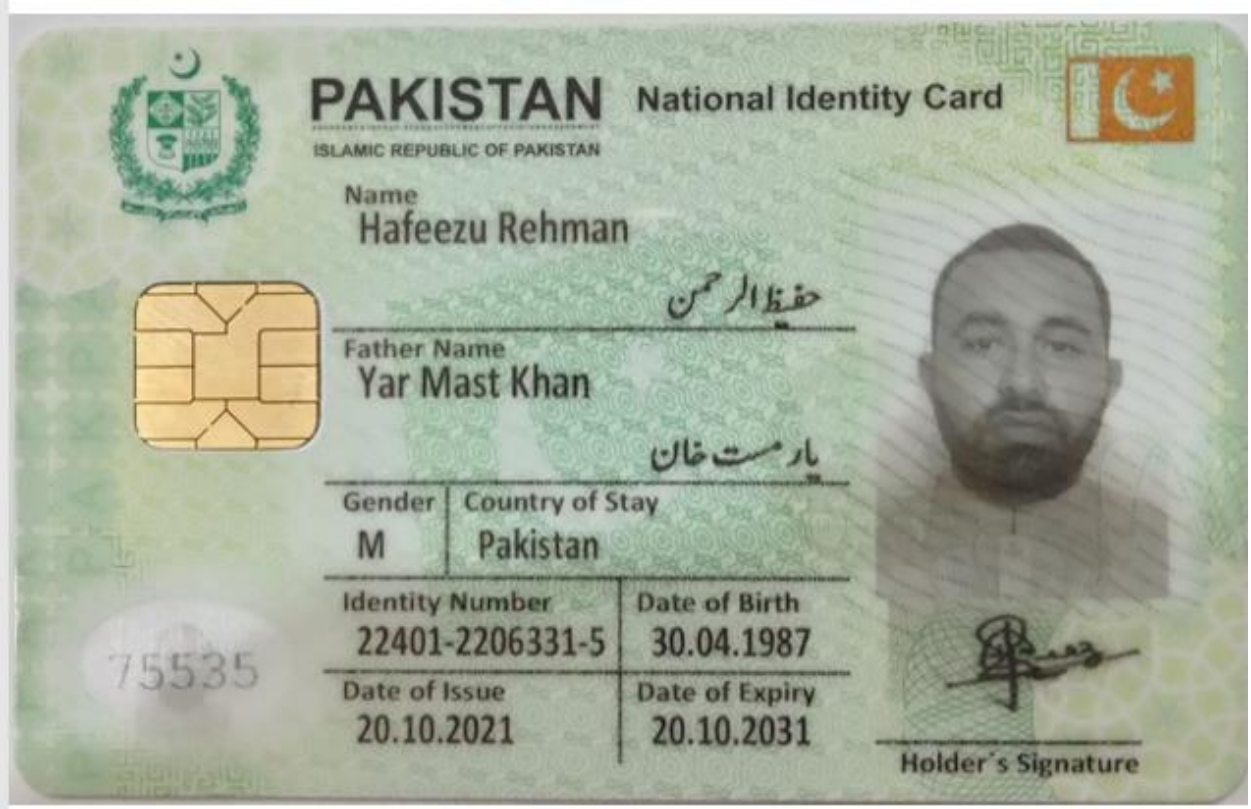
"Iman Heights"

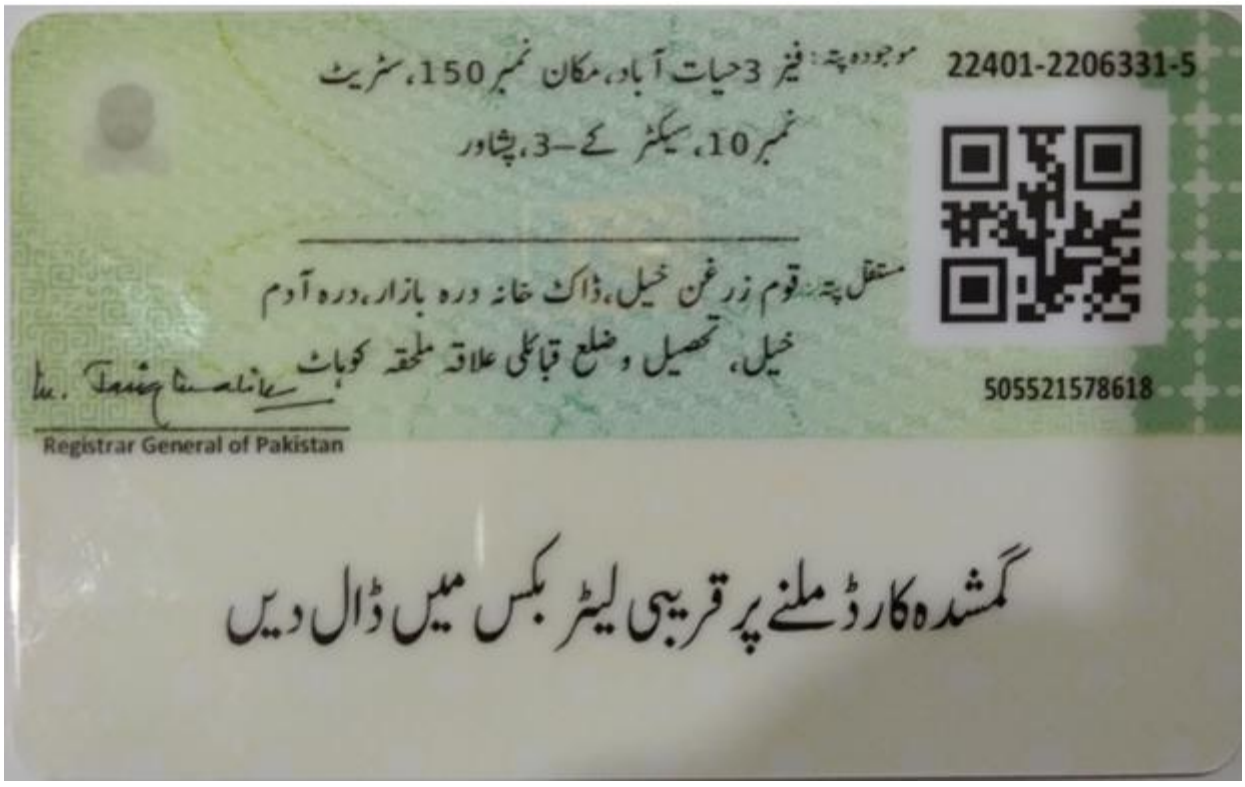
STAKE HOLDER'S INFORMATION:

1	Name	
2	Father's Name	
3	CNIC Number (Optional)	
4	Age	Years
5	Gender	Male Female
6	Qualification	Under matric Matriculation Graduate Post graduate
7	Marital status	Married Single
8	Employment status	Employed Unemployed
9	Income group	Below Rs: 10000 / month Between 10000- 200000 Above Rs: 30000 / month
10	Do you know/aware about said project establishment at proposed location	Yes No
11	Should it be done?	Yes No
12	What social change it will result?	Improvement No change Deterioration
13	What economical change it will result?	Improvement

			No change Deterioration
14	What environmental change it will result?	Without precautionary measures	Improvement No change Deterioration
		If adequate precautionary measures are adopted	Improvement No change Deterioration
15	Your suggestions to care for Environment		
16	Any other suggestion for benefit of the community?		

Signature:_____


PAKISTAN National Identity Card
ISLAMIC REPUBLIC OF PAKISTAN
Name
Hafeezu Rehman
حفیظ الرحمن
Father Name
Yar Mast Khan
یار مست خان
Gender
M
Country of Stay
Pakistan
Identity Number
22401-2206331-5
Date of Birth
30.04.1987
Date of Issue
20.10.2021
Date of Expiry
20.10.2031
75535
Holder's Signature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22401-2206331-5
مستقل پتہ: قوم زرغن خیل، ڈاک خانہ درہ بازار، درہ آدم خیل، تحصیل و ضلع قبائلی علاقہ ملحقہ کوہاٹ
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Registrar General of Pakistan
گمشدہ کارڈ ملنے پر قریبی لیٹر بکس میں ڈال دیں