ENVIRONMENTAL IMPACT ASSESSEMENT REPORT

FOR

RENEWAL OF MINING LEASE OF COAL [NO.ML-CKL-II-COAL (61)] NEAR VILLAGE DILJABBA, DISTRICT CHAKWAL

BY: M/S KAMRAN COLLIERIES

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ACRONYMS

M/S	Messer
KC	Kamran Collieries
ISO	International Organization for Standardization
PEQS	Punjab Environmental Quality standards
PEQSAA	Punjab Environmental Quality standards for Ambient Air
NSDWQ	National Standards for Drinking Water Quality
PEQSN	Punjab Environmental Quality standards for Noise
PEPA	Pakistan Environmental Protection Act
Ppm	Parts per million
HSE	Health, Safety and Environment
ID	Initial depreciation allowance
EUAD	Environment and Urban Affairs Division
IUCN	International Union for Conservation of Nature
PPC	Pakistan Penal Code
RAP	Resettlement Action Plan
WWF	World Wide Fund for Nature
CITS	Convention of International trade Endangered Species
GHG	Green House Gas
AEM	Air Emission Modeling
CFB	Circulating Fluidized Bed
BOD5	Biochemical Oxygen Demand
COD	Chemical Oxygen Demand
pH	Pressure of Hydrogen
ESS	Environmental and Social Soundness
SSS	Special Status Species
SMART	Self-Monitoring and Reporting by Industry
PEPC	Punjab Environmental Protection Council

MOU	Memorandum of Understanding
CEO	Chief Executive Officer
CITES	Convention of International Trade Endangered Species
EA	Environmental Approval
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EMP	Environmental Monitoring Plan
EPA	Environmental Protection Agency
EPO	Environmental Protection Order
GOP	Government of Pakistan
IEE	Initial Environmental Examination
EIA	Environmental Impact Assessment
IUCN	International Union for Conservation of Nature
LAA	Land Acquisition Act
MoE	Ministry of Environment
NCS	National Conservation Strategy
NEPRA	National Electric Power Regulatory Authority
PEQS	National Environment Quality Standard
NGO	Non-Government organization
NOC	No-Objection Certificate
OFA	Over Fire Air
P&D	Planning and Development
Pak- EPA	Pakistan Environmental Protection Agency
Pak-EPC	Pakistan Environmental Protection Council
PC	Public Consultation
PCSIR	Pakistan Council of Scientific and Industrial Research
PEPA	Pakistan Environmental Protection Act
PEPC	Punjab Environmental Protection Council
PM	Particulate Matter
POPs	Parenting Organic Pollutants

Punjab EPA	Punjab Environmental Protection Agency
PEP(A)A	Punjab Environmental Protection (Amendment) Act
RAP	Resettlement Action Plan
TES	Threatened, Endangered and Special Status Species
UET	University of Engineering and Technology
WAPDA	Water and Power Development Authority

Glossary	
Discrepancies	A difference between conflicting fact, claims or opinions
Proponent	The person who proposes or intends to undertake a project
Effluent	Any material in solid, liquid or gaseous form or combination thereof being discharged from industrial activity or any other source and includes a slurry, suspension or vapor
Mitigation	The action of lessening in severity or intensity
Evaluated	Estimate or determine the nature, value, quality, ability, extent or significance
Legislation	Law enacted by a legislative body
Aspects	A distinct feature or element in a problem
Compliance	Acting according to certain accepted standards
Flora	All the plant life in a particular region or period
Fauna	All the animal life in a particular region or period
Demarcated	Separately clearly, as if by boundaries
Screening	The display of a motion picture
Substitutions	An event in which one thing is substituted
Regulations	An authorized rule
Stakeholders	A person or organization with an interest or concern in something
Annunciation	A formal public statement
Rehabilitation	The conversion of waste land into land suitable for use of habitation or cultivation

EXECUTIVE SUMMARY

1. Background

M/s Kamran Collieries owns a mining lease of Coal ML-CKL-II-Coal(61) near Village Diljabba in District Chakwal. It was Granted to the Company in 1986 and was renewed on 18.10.2006 for period of 15 years with effect from 18.10.2006 to 17.10.2021 under rule 134 of the Punjab Mining Concessions Rules 2002.

The Company is in the coal producing business, headquartered in in Islamabad and is planning to renew the above said coal mining lease situated near Village Diljabba, District Chakwal in the province of Punjab

The firm is well renowned for their best quality coal production and are well maintained with Environmental standards & safety. The main utilization of coal from the area is for brick kilns industry of the Punjab and is being sold in the markets of Nearby cities like Sargodha, Mandi Bahuiddin, Gujrat, Faisalabad, Sheikhupura, Lahore, Kasur, Gujranwala, Sialkot etc. The Kamran Collieries management has a clear vision for its social responsibility towards the society in which it operates.

The Company now intends to renew its mining lease No ML-CKL-II-Coal(61) for coal, situated near Village Diljabba, District Chakwal**.** The detail of the areas is as under:

Sr No	Mining lease No	Acers	Initial Grant	First Renewal	Second Renewal
1	ML-CKL-II-Coal (61)	599.42	1986	18.10.2006	Pending

The lease allotment letter(first renewal) is attached as **Annex-V.**

2. Title and Location of the Project:

2.1 Title

The title of the project is “Environmental Impact Assessment (EIA) for Renewal of ML-CKL-II-Coal (61) near Village Diljabba, District Chakwal for getting NOC from the

Environment Department and subsequent Renewal of Mining Lease under Rule 134 of Small-Scale Mining of Punjab Mining Concession Rules 2002.

2.2 Location

The mining areas for the proposed project is located near Village Diljabba, District Chakwal, where from the coal will be excavated after renewal of already grant of mining leases by the Directorate General of Mines & Minerals, Punjab. The coordinates of the project area of Coal are as under:

ML-CKL-II-Coal (61) Area Coordinates

Survey of Pakistan Topo sheet # 43 H/1

Points	Easting (M)	Northing (M)
A	3222923.056	968102.202
B	3224531.726	969710.872
C	3224531.726	967488.368
D	3224002.558	966959.2



Fig 1: Location of the Project



Fig 2: Site of the Proposed Project for UG Coal Mining



Fig 3: Coal Stockyard Site of the Proposed Project

3. Name of the Proponent

M/s Kamran Collieries

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Partnership Deed Certificate of the Kamran Collieries is attached as **Annex-VI.**

Name of the organization/Consultants preparing the EIA Report:

A team of experts comprising Environmental scientists and Geologist along with certified environmental lab paid visits to the project site and held discussion on the issues relating to the environment to verify the baseline data and necessary technical and development information about the project.

The following team remained engaged for preparation and reviewing of this Report:

- Mr. Muhammad Kashif — Chief Environmentalist
- M/S Pak Green — EPA certified laboratory
- Mr. Waqar-ul-Hassan Warriach — Geologist.

4. Brief Outline of the proposal

M/S Kamran Collieries has a mining lease of Coal wherein 04 coal mines are installed and which is producing 1 to 2 tons of coal per day. This lease period has been expired on 21.02.2021 and due to ban imposed by the Mines & Minerals department Govt of the Punjab on renewal, the applicant was unable to submit its EIA report. Now the Mines department made it mandatory to submit EIA report in EPA Punjab. Therefore, application is being submitted for grant of NOC of Environment which may be produced in Mines Department for renewal of mining lease under Small Scale Mining for coal for area measuring 599.42 acres, situated near Village Diljabba, District Chakwal. This area of the proposed project is part of Eastern Salt Range in District Chakwal and is about 35 kilometers in South-East of Chakwal City.

This report is being prepared to meet the regulatory requirement of the Directorate General of Mines & Minerals, Punjab, Poonch House, Multan Road, Lahore, under the Punjab Mining Concession Rules 2002 for Small Scale Mining.

“According to the Punjab Mining Concession Rules-2002 a condition is given wherein the proponent on expiry, surrender or determination of this lease, shall have to deliver the premises and all mines in proper and workable state, save in respect of any working as

to which restore the surface of land and all buildings and ither structures not belonging to the proponent which may have damaged in the course of mining.;

Fulfill the requirement of this Condition of allotment letter of the Punjab Mining Concession Rules -2002; there is no concept of the small scale mining without having submitted an Environmental Impact Assessment (EIA) duly approved by EPA in terms of the Environmental Protection Act, 1997."

Therefore, this EIA report has been prepared and is being submitted to the Environmental Protection Agency (EPA), Punjab, for issuance of No Objection Certificate (NOC)/EA (Environmental Approval) under section 12.

Description of the project

The management desires the renewal of mining leases of Coal from the Directorate General of Mines and Mineral, Punjab first and then obtain permission for its mining from EPA-GOP from the lease. Later, multiple mines will be set up at appropriate site inside the granted mining lease. To meet the increasing demand of coal and to contribute in the development of country, this project is being proposed. Following are the quantities of the coal being produced from 04 presently installed mines:-

Installed Mine	Quantity (Tons)/Day	Installed Mine	Quantity (Tons)/Day
Mine no.2	01	Mine no.4	01
Mine no.3	01	Diljabba 1	1 to 2

The coal from the above said area will be extracted in a recommended and environment friendly way and transported to the market for energy purpose of industry.

6.1 List of processes involved in Mining process/operation

- Development of underground min working faces
- Drilling with drilling machines and blasting with state-of-the-art blasting techniques by adopting detonating cord initiation system

- Excavation, loading, transportation
- Loading and unloading
- Transportation to the market

6.2 Equipment to be used for Coal Mining

Sr. No	Item
1	Diesel Generator 2 KV (Brand Yanmar)
2	Diesel Generator 6 KV(Brand Goden)
3	Mining Picks
4	Air Compressor PDS 125 (Brand Airman
5	Air pressure Drills
6	Pneumatic jack hammers
7	Electric rotary drills/auger drills
8	Mining pumps head 200 ft. to discharge 100 gal/min.
9	Ventilation fans
10	Ventilation tube 2000 ft
11	G.I. Pipe sizes from 2” to 2 x 1/2” with fittings
12	Shovels
13	Safety lamps
14	Picks
15	Hammers
16	Handheld carts
17	tents
18	Helmets
19	Shoes
20	Gloves

6.3 Major Impacts and Recommendation for Mitigation Measures:

Identification of negative impacts and their assessment through scoring have been done. Their negative impacts, mitigation measures and implementation agencies are also described in the report.

The mining in the area will be planned and developed after grant of renewal pf mining lease. There is no construction activity involved at this stage of the project, so no mitigation measures will be taken regarding construction activity. The impacts are limited

to the operation stage of the project which may include change in land use, change in topography, loss of flora and fauna, generation of noise and dust, change of drainage pattern and Health and Safety issues.

The impacts and their mitigation during the operation phase are briefly described below:

6.3.1 Land Use

The present land use of the proposed project is vacant and barren land because of no availability of water in the area. This land will be used for mining operation and its mineral resources will be processed to produce coal. The land use will be shifted from barren land to the mining one. This change in land use will portray positive impacts on the area.

6.3.2 Topography

Major impact on topography of the proposed project is negligible which is permanent and irreversible. These changes may accompany the changes in flora and fauna and pattern of vegetation of the proposed area. After excavation of surface limestone and clay/shale for the proposed coal mine site, the topography of the project will be changed forever. But this change is not likely to effect the social, environmental or economical pattern of the area. The effect may be mitigated through plantation of same pattern as exists on the present site.

6.3.3 Tree Cutting:

There are no trees or bushes worth mentioning on the proposed project site. However, shrubs of no economic importance exist. The cutting of small shrubs will have no notable impact on the project area. The impact is minor negative. However, it will be mitigated through plantation of native shrubs and plants to restore the area in the existing condition.

6.3.4 Impacts on Flora & Fauna

There are no valuable plants in the project area as the project area is of dry rocks where no water source is available. Few trees and bushes are present which will be cut down before mining process.

Mitigation Measure:

The number of plants and trees will be planted after the completion of mining process.

6.3.5 Bhuna Nullaha Water Quality:

Bhunna Nalla/River is at distance of about 1.5 KM from the mining sites therefore, water quality of Nullaha water will not be affected.

6.3.6 Groundwater Quality and Level:

No water is used in mining process; however, small amount of water is required for drinking, washrooms and sprinkling which will be taken from the nearest water pond & Nullaha hence no impact on ground water quality is foreseen during operation of this project.

6.3.7 Surface water Quality:

No major surface water source is available in the project area. However, storm drains and streams exist in the project area which carry water during the rainy season whereas, these channels remain dry for most of the year. During mining process, the water sources will be kept intact, and no material will be thrown or dumped into these seasonal water courses.

Mitigation Measure:

The flow of water in the channels remains unchanged on account of mining operation. No water channel will be disturbed during mining process.

6.3.8 Land Utility/Productivity:

After the mining operation the land will be available for other purposes and will be planted with trees. 100s of indigenous trees will be added every season to the mining area. Impact will be highly positive.

6.3.9 Micro Climatic Changes:

After mining of the coal, massive plantation will be carried out to improve local climatic conditions to some extent. Impact will be highly positive.

6.3.10 Air Quality

The air quality will not be affected during mining process. However, during mining of coal and their loading into trucks, small quantities of dust will be generated. So, its impact is moderately negative. State of the art bag filter will be available at site to control dust. Following measures would be adopted to reduce the dust:-

- Sprinkle water at the site. Water bowser to remain present at site throughout loading operation.
- Use protective devices against dust.
- Avoid working on windy days.
- Control speed of vehicles.
- Reduction of drop distances.
- Dispersion of suspended dust particles in the atmosphere due to unutilized capacity of the environment and high temperate, wind speed, solar insolation and bare hilly terrain.

6.3.11 Noise

Noise will be generated from the machinery to be used during mining process.

Mitigation Measure:

- Use of the machinery compliant with PEQS for noise of 80 dB (A)
- Proper maintenance of vehicles and equipment
- Use ear mufflers/plugs and other gadgets

- Effective traffic control.
- Dilution of the noise level by the immense carrying capacity of the site ecosystem
- The low noise machinery will be used for mining operation.
- Regular maintenance of machinery and equipment
- Provision of Ear Muffs for the workers

6.3.12 Health and Safety

The possibilities of accidents cannot be ruled out during any operation.

Following mitigation measures will be adopted to reduce the hazards during mining:

- Protective equipment like helmet, gloves, safety shoes and masks will be provided to the site workers.
- Training of workers on health and safety before and during mining process.
- Provision of first aid facilities for workers at site and for meeting the emergency needs of workers.
- Establishment of Health and Safety setup for provision of safe working environment for the employees and for implementing and monitoring various procedures adopted for the safety at site.
- Display of sensitizing material for the workers on issues of safety.
- Avoid working in rainy days.

6.4 Impacts on Socio-Economic/Human Environments

6.4.1 Population:

Population will be increased due to project activity, thus becoming the source of income. Highly positive impact is envisaged.

6.4.2 Land Lease:

As the mineral resources belong to Provincial Government and are leased out, so significant amount of revenue will be generated. Overall impact is major positive.

6.4.3 Social Cohesion/Attitude:

With availability of more financial resources land employment for the people, it is likely to exhibit more cohesion among themselves. Impact is minor positive.

6.4.4 Health:

No regular settlement exists in the project area therefore no impact on health is foreseen. However, the workers at the mining sites will be provided with proper safety gadgets (PPE's).

6.4.5 Education:

On improvement of income level, people will send their children to educational institutions. Impact is Moderate positive.

6.4.6 Income Levels:

The project has High positive impact on the income levels of the locals. The people of other parts of the country will also take benefit from this project.

6.4.7 Employment:

Coal mining operation will provide jobs to persons of many categories. Impact is moderate positive.

6.4.8 Resettlement:

The project is not involving any dislocation of the local people as regards the coal mine sites. Impact is high positive.

6.4.9 Resettlement of Affectees:

There is no requirement of resettling even of a single person. Therefore, impact will be highly positive.

6.5 Conclusion and Recommendations

On the basis of findings of this **EIA** study, it is concluded that operation of coal mining does not have any significant adverse impacts on the local population or any segment of environment and by implementation of above provided recommendations and mitigation measures the environmental conditions will be further improved.

Therefore, it is requested that the NOC/EA in respect of Mining Leas of Coal No. ML-CKL-I-COAL(61) measuring over **599.42** acres area, may please be issued by the Environment Protection Agency, Govt. of the Punjab, Lahore so that it may be provided to the Directorate General of Mines and Minerals, Punjab, Poonch House, Multan Road, Lahore.

1.0 INTRODUCTION

1.1 INTRODUCTION

2 M/s Kamran Collieries owns a mining lease of Coal ML-CKL-II-Coal(61) near Village Diljabba, District Chakwal. It was Granted to the Company in 1970 and was renewed on 12.9.2001 for period of 20 years with effect from 22.02.2001 to 21.02.2021. The Company is in the coal producing business, headquartered in Village Diljabba, District Chakwal is planning to renew the above said coal mining lease situated near Village Diljabba, Tehsil Choaha Saiyden Shaha, District Chakwal in the province of Punjab.

3 The firm is well renowned for their quality coal production and are well maintained with Environmental standards & safety. The main utilization of coal from the area is for brick kilns industry of the Punjab and is being sold in the markets of Nearby cities like Sargodha, Mandi bahuiddin, Gujrat, Faisalabad, Sheikhupura, Lahore, Kasur, Gujranwala, Sialkot etc.

4 The M/s Kamran Collieries management has a clear vision for its social responsibility towards the society in which it operates.

5 The Company now intends to renew its mining lease No ML-CKL-II-Coal(61) for coal, situated near Village Diljabba , District Chakwal**.** The detail of the areas is as under:

Sr No	Mining lease No	Acers	Initial Grant	First Renewal	Second Renewal
1	ML-CKL-II-Coal (61)	599.42	1970	22.2.2001	Pending

1.2 Purpose of the Report

The main objective of the EIA study is to comply with the regulatory requirements under PEPA, 2012. Section 12 of the Act states that no proponent can start construction until get environmental approval from EPA. Through this EIA study the environmental and

social impacts are identified which are likely to occur due to the coal mining and to suggest mitigation measures to minimize the likely negative impacts.

Another obligation of the activity is Punjab Mining Concession Rules 2002. According to these Rules a condition is laid down in allotment letter wherein the proponent on expiry, surrender or determination of this lease, shall have to deliver the premises and all mines in proper and workable state, save in respect of any working as to which restore the surface of land and all buildings and ither structures not belonging to the proponent which may have damaged in the course of mining.;

Fulfill the requirement of this Condition of allotment letter of the Punjab Mining Concession Rules -2002; there is no concept of the Small Scale Mining without having submitted an Initial Environmental Examination (IEE) or Environmental Impact Assessment (EIA) duly approved by EPA in terms of the Environmental Protection Act, 1997."

Therefore, this EIA report has been prepared to comply with the regulatory requirement of EPA for issuance of No Objection Certificate (NOC)/EA (Environmental Approval) under section 12.

The report deals with various stages of coal mining and its onward transportation to the market for use in energy generation.

The repot has been prepared in line with the requirements of the "Guidelines for the Preparation and Review of Environmental Reports (December 1997/2000).

For achieving the above objectives, the study was mainly divided into following sections:

- Identification of all requirements as set forth by Pakistan Environmental Protection Act. 1997 and the Guidelines for preparation of EIA reports, etc.
- Study of existing regulatory framework in Pakistan with reference to the developmental projects;

- Study of Guidelines for the preparation of EIA reports;
- Collection and scrutinizing data related to physical, ecological and socio-economic, and physical recourses of the project area;
- Evaluation of data and identification of significant environmental impacts;
- Identification of necessary mitigation measures to minimize the negative impacts; and Preparation of an Environmental Management Plan.

1.3 Identification of the Project and the Proponent

1.3.1 Identification of the Project

The proposed project is for the mining of coal spreading over 599.42 acres situated near Village Diljabba, District Chakwal, about 35 kilometers in south-east of Chakwal city, which will be used for coal production in future.

The proposed area is accessible through Chakwal-Jhelum Road via village Diljabba, District Chakwal, connected through a black top single road.

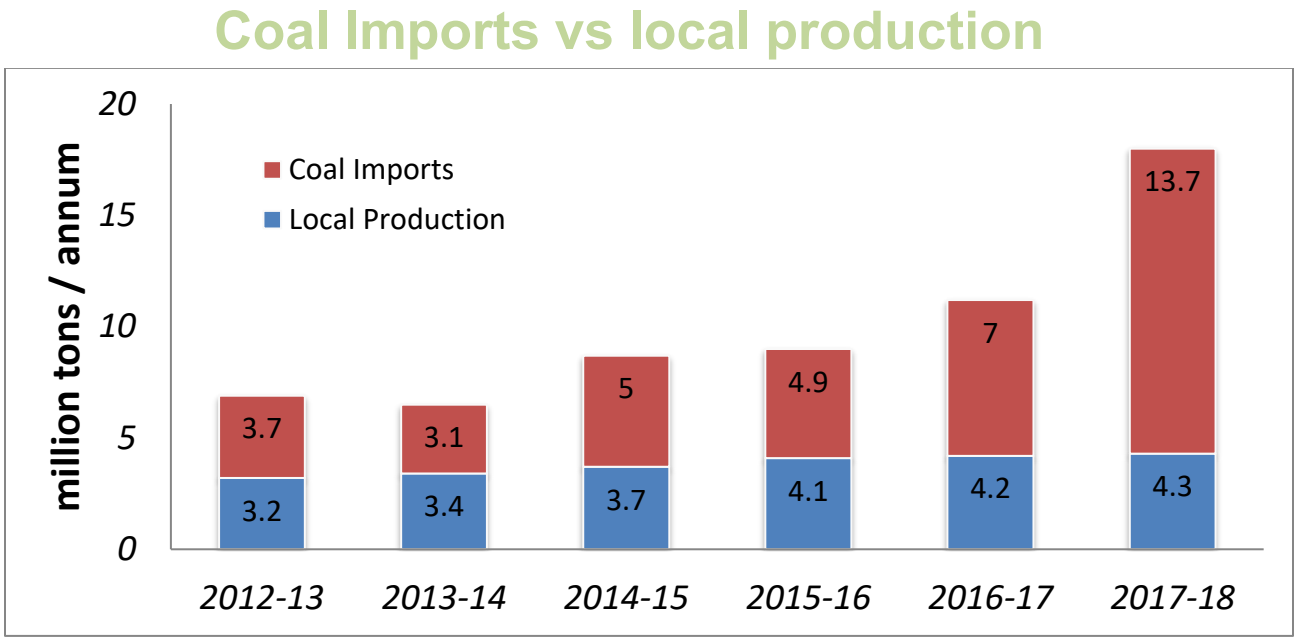
The abovementioned areas are part of Sakaser/nammal Formation for limestone and Patala Formation for Coal which are located in EasternSalt Range in District Chakwal. According to the available geological maps, published by Geological Survey of Pakistan and physical visits, the areas have excellent potential of coal. This resource of coal is planned to be used for production and its onward supply to the energy sector of the country by the M/s Kamran Collieries, after renewal of already granted mining lease of Coal from the Directorate General of Mines & Minerals, Punjab, the firm will install new mines at the suitable site in this area.

Due to extensive requirement of energy, the consumption of coal in the country is likely to boost up. Presently 4.3 Million tons (Source: Energy Year Book 2018) of coal is being produced in Pakistan. There will be requirement of further good quality coal which will be met through installation of new mines in the country. Therefore, the renewal of granted

mining lease of coal under small scale mining are being requested to the Directorate General of Mines & Minerals, Punjab, a part of that activity.

Table 1.1: Coal Consumption in Pakistan

Actual Coal Consumption (million tones / annum)							
Sector	**2011-12**	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**	**2017-18**
Brick Kiln	3.1	2.7	2.7	3	3.3	2.7	3.9
Cement	4.2	3.9	3.6	5.2	5.5	7.5	9.6
Power *	0.1	0.3	0.2	0.5	0.2	0.9	4.4
Total	7.4	6.9	6.6	8.7	9	11.2	18



It can be seen from above graph that coal imports are increasing while local production is below demands. In 2019 coal imports jumped to 20 million tpa. (~1.7 Billion USD). Coal demand can keep growing considering cement sector planned expansions (source: Dawn 8.1.19) (Ref: Pakistan Energy year book 2018 published by HDIP). Considering this

scenario, M/s Kamran Collieries (the applicant company) coal mining project is the need of hour, which would help to reduce Pakistan's coal import bill burden.

1.3.2 Identification of the project proponent/contact person

M/s Kamran Collieries

Corresponding Person: Muhammad Saleem Khan s/o Sardar Dalo Khan

House no. 4(old 109-H), Luqman Hakeem Road, sector G-6/3, Islamabad.

Ph: 92-03335466122; 03460720216
Email: sardar.salim960@gmail.com

Partnership Deed Certificate is attached as **Annex-VI.**

1.4 Details of the Environmental Consultants Team

Details of the Environmental Team who participated in the preparation of the EIA report are given hereunder:

Table 1.2: Showing details of the consultants who participated in the preparation of the EIA report:

Name and position of the EIA team member	**Qualification and brief experience**	**Position in the EIA Team and Role**
Mr. Muhammad Kashif.	1-MS Environmental Sciences. 2-BSc mining Engineer	Team Leader
Mr. Waqar-ul-Hassan Warriach	MS.C Geology; M.Phill Earth Sciences	Geology and technical details of the project.
Pak-Green Environmental Lab	Chemist and Senior chemist	Sampling and analysis of air, noise and water samples at site.

Only the main roles of the team members are given. However, their role was not restricted to these only; rather it also includes many other studies in their respective fields as required by the matrix of this proposal.

1.5 Brief Description of the Nature, Size and Location of the Project

As described earlier, the project is for getting the coal production from the mining lease located near Diljabba, District Chakwal.

1.5.1 Nature of the Project

The proposed project is for coal mining of coal resources near Village Diljabba, District Chakwal, located about 30 kilometers in south-east of Kallar Kahar M-2 Interchange in District Chakwal. It falls under category of mining and mineral processing at serial no D (1) in Schedule I of IEE/EIA Regulations 2000. Exact cost of the project is not known (approximately 459.91 Millions) but it is expected to be more than 100 million rupees. Therefore, it is classified as EIA project in the meanings of IEE/EIA Regulations

M/s Kamran Collieries has a plan to install a Coal Mines for production of coal in the already granted area, in future. Therefore, renewal of granted mining lease for coal at the proposed site is being requested to Government of Punjab.

1.5.2 Size of the Project

The proposed mining area of Coal spread over 599.42 acres situated near Village Diljabba, District Chakwal, about 35 kilometers in south-east of Chakwal city. About 8-10 tons of coal is expected to be produced daily from this site. The sites have a sufficient potential of coal for production of 05 tons per day from each mine and if the proponent succeed to run its present mines where he has invested on infrastructure then @ of this 10 ton/day production would be possible to mine. At this rate 300 tons per month production would be possible and in one year the proponent would produce 3600 Tons of coal. It is estimated that coal resources of the areas will be sufficient for more than 50 years @of 10 TPD production capacity.

1.5.3 Location of the Project

The area of coal mining lease is part of Eastern Salt Range situated near Village Diljabba, District Chakwal. Kallar Kahar is in the West of the proposed site at about 60 Km. Diljabba

is located at 5 Km in the North-west of the project site and Choaha Saiyden Shah city is situated at 30 Km in the Southwest of the project site.



Figure 1.2: Project Location (Courtesy Google)

Chapter 2

DISCUSSION OF PROPOSAL AND CURRENT LAND USE AND POLICIES

2.1 Regulatory framework

Government of Pakistan is facilitating investment, both local and foreign, in liberalization and industrialization in the country, as a policy of the Government is well reflected from following initiatives:

2.1.1 Deregulation of the economy

Deregulation is the prioritized policy of the Government of Pakistan. Under same policy, there is a systematic movement towards deregulation of the economy and privatization of the state owned companies.

2.1.2 Import policy

Import policy has been largely liberalized to great extent through the provision of various incentives. And it is being further liberalized at a quicker pace. There is an increased reliance on development of the industrial sector and enhancement of international trade.

2.1.3 Infrastructure facilities

In order to facilitate fast industrialization, basic infrastructure facilities like roads network, fuel, water and power supply, means of transportation and communications etc., are being improved/developed speedily.

2.1.4 Incentives

In order to maintain Pakistan's competitiveness in international markets and support viability of local and foreign investments in the country, the following incentives are available equally to both the foreign and the local investors:

a- Initial depreciation allowance (IDA),
b- Amortization
c- Normal tax rates.

2.2 Legal Framework

The capability of regulatory institutions for environmental management largely, ensures the success of environmental assessment for ensuring that development projects are environmentally sound and sustainable. For decision-making and policy formulation in the

environmental and conservation issues, the institutional framework, as it exists in Pakistan, is described below.

2.3 EIA/IEE REQUIREMENTS

2.3.1 General

The environment in both the urban and rural areas of the country has been adversely affected during the three decades (1950-80) due to industrialization, high population growth rates, improper civic amenities, low literacy and the low per capita income of the general masses. Factors such as migratory trends from the rural to urban centers and virtually non-existent laws regulating the quality of the environment, contributed to the worsening of the situation. The result is that at present the poor air quality situation in the urban centers is compounded by acute pressure on resources of drinking water, wastewater disposal, sanitation system and roads. The situation in the rural areas is even worse as far as public health facilities (i.e. drinking water, liquid and solid waste disposal) are concerned. The indiscriminate use of farm pesticides and chemicals for agricultural purposes have also contributed to general degradation of the environment.

Number of laws have been enacted by the Government of Pakistan from time to time to regulate the public practice regarding land use, water use, land reclamation and drainage, forestry, wildlife, archaeological and historical properties, public health, energy, etc. However, the milestone of Pakistan environmental law and regulation is Ordinance No. XXXVII, "Control of Pollution and Preservation of Living Environment", enacted on December 1983. This was made effective from February 1984 with the establishment of the Pakistan Environmental Protection Council (PEPC), headed by the Prime Minister of Pakistan or his/her nominee and the Pakistan Environmental Protection Agency (PEPA), headed by an appointed Director General. PEPC is a policy making body, while PEPA has the responsibility for establishing environmental quality standards and implementing and enforcing the Ordinance. In order to assist the PEPA, Provincial Environmental Protection Agencies have also been established.

Pakistan’s Environmental Policy is based on participatory approach to achieving objectives of sustainable development through legally, administratively and technically

sound institutions. The Pakistan Environmental Protection Act was enacted on 6th December 1997 to provide for the protection, conservation, rehabilitation and improvement of environment, for the prevention and control of pollution, and promotion of sustainable development. The Act particularly focuses on implementation of Council's policies, delegation of powers to government agencies, enforcement of national Environmental Quality Standards, introduction of EIA/IEE review procedures/system, regulatory regime for hazardous substances/wastes, resource generation through establishment of Provincial Sustainable Development Fund and levy of Pollution Charge and providing appellant forum for environmental cases.

2.3.2 National Environmental Regulatory/Legal Requirements:

After the 18th Amendment to the Constitution of The Islamic Republic of Pakistan-1973, the regulation & management of environment has been delegated to the provinces. The Federal Ministry of Environment has been abolished and instead the Ministry of Climate Change was created which controls: Pakistan Environmental Protection Council; Pakistan Environmental Protection Agency. Since the amendment in the Constitution of Pakistan, all provincial Environmental Protection Agencies are working in their respective jurisdictions independently.

The Pakistan Environmental Protection Agency, sometimes known as Pak-EPA, is an executive Government agency of Pakistan managed by the Ministry of Climate Change (formerly Ministry of Environment). The agency is charged with protecting human health and the environment by writing and enforcing regulation based on laws passed by Parliament. The Pakistan Environmental Protection Act was passed in 1997 by the Parliament repealing the Pakistan Environmental Protection Ordinance 1983. The agency was established under the 1983 Ordinance and saved in the 1997 Act. The agency is led by an appointed director-general, who is appointed by the Prime Minister on the advice of the Minister for Environment.

2.3.3 National Conservation Strategy (NCS) - Pakistan

The National Conservation Strategy (NCS) – Pakistan, as approved by the Federal Cabinet in March 1992, is the guiding document on the environmental issues in the

country (Ref. EUAD/IUCN, 1992). The NCS outlines the country's primary approach towards encouraging sustainable development, conserving natural resources, and improving efficiency in the use and management of resources.

The NCS has 68 specific programs in 14 core areas in which policy intervention is considered crucial for the preservation of Pakistan's natural and physical environment. The core areas that are relevant in the context of the envisaged project are pollution prevention and abatement, restoration of supporting forestry and plantations, and preservation of cultural heritage. A mid-term review of the achievements, impacts and prospects of Pakistan's NCS was undertaken between years 1999 - 2000.

The Government of Pakistan promulgated "Pakistan Environmental Protection Act" in 1977. Two organizations, the Pakistan Environmental Protection Council (Pak-EPC) and the Pakistan Environmental Protection Agency (Pak-EPA), are primarily responsible for administering the provisions of the Act. The Pak-EPC oversees the functioning of the Pak-EPA. Among its major members include representatives of the Federal and Provincial Governments especially the Provincial Environmental Protection Agencies, industry, non-governmental organizations, academia, environment experts, Federation of Chamber of Commerce and Industry and the private sector.

2.3.4 Pakistan Penal Code (1860)

The Pakistan Penal Code usually called PPC is a penal code for all offences charged in Pakistan. Pakistan Penal Code is a general criminal law, applies all over the country, and contains specific provisions on the subject. Thus it prohibits mischief by killing or maiming animals, or damaging works of irrigation or a river or a road or a bridge or drain or firing explosive substances with intent to cause damage. The Code also prohibits public nuisance by acting negligently to spread the infection of disease or disobeying quarantine rule or causing adulteration of food or drink or drug, or fouling water or making the atmosphere noxious to health etc.

2.3.5 Pakistan Environmental Protection Act, 1997

The promulgation of the Environmental Protection Ordinance, 1983 was the first codifying legislation to the issue of environmental protection. Later, the Government passed the Pakistan Environmental Protection Act (PEPA), 1997, which is the basis of IEE/EIA studies carried out for the projects in Pakistan.

PEPA, 1997 is a fairly comprehensive legislation and provides protection, conservation, rehabilitation and improvement of the environment. It contains concrete action plans and programs for the prevention of pollution and promotes sustainable development. The salient features of the law are:

- It covers the air, water, soil, marine and noise pollution including pollution caused by motor vehicles.
- The Act provides Punjab Environmental Quality standards (PEQS) for wastewater, air emissions and noise.
- Law provides clear cut guidelines for IEE/EIA for various projects as per their magnitude and anticipated impacts.
- Law also empowers Federal Government to issue notices and to enforce them for the protection of the environment.

For the effective implementation of the provisions of PEPA, 1997, Pakistan Environmental Protection Agency, headed by a Director General was constituted. On the same pattern, Provincial Environmental Protection Agencies (EPA's) were created in all the provinces. Environmental Tribunals were also constituted according to PEPA, 1997.

The Punjab Environmental Protection (Amendment) Act-2012 covers aspects related to the protection, conservation, rehabilitation and improvement of the environment and the prevention, control of pollution and promotion of sustainable development. The Punjab Environmental Protection (Amendment) Act [PEPA] 2012 establishes complete regulatory and monitoring bodies, policies, rules, regulations and Punjab Environmental Quality standards. To ensure enforcement, the act establishes regulating bodies i.e.

Punjab Environmental Protection Council (PEPC) and responsible bodies i.e. Punjab Environmental Protection Agency (Punjab EPA) at Provincial level. The act extends to the whole of Punjab Province.

Punjab -EPA has the power to arrest without warrant any person against whom reasonable suspicion exists of his having been involved in an offence under the [PEP(A) A] 2012, and enter, inspect and search without warrant any premises, vehicle or vessel. It also provides for seizing any plant, machinery, equipment, vehicle or substance, record or document. [PEP(A) A] 2012 also provides the power to summon and enforce the attendance of any person and issuance of Environmental Protection Order, PO 16, an Environmental Protection Order (EPO), in relation to a person who is contravening a provision of the [PEP(A) A] 2012.

2.3.6 Policy and Procedures for the Filing, Review and Approval of Environmental Assessments

This document sets out the key policies and procedural requirements. It contains a brief policy statement on the purpose of environmental assessment and the goal of sustainable development and requires that environmental assessment be integrated with feasibility studies. It also defines the jurisdiction of the Federal and Provincial EPA's. It lists down the responsibilities of the proponent and states the duties of responsible authorities. It provides schedules of reports that require either an IEE or EIA.

2.3.7 Guidelines for the preparation and review of Environmental Reports (November 1997/2000)

These guidelines are descriptive documents regarding the format and content of IEE/EIA reports to be submitted to EPA for "No-Objection Certificate (NOC)/Environmental Approval (EA)". Following are the major areas, which are covered by these guidelines:

- The EIA report (scope, alternatives, site selection, format of EIA report)
- Assessing impacts (identification, analysis and production, baseline data, significance)

- Mitigation and impact management (and preparing an environmental management plan)
- Reporting (drafting style, main features, shortcomings, other forms of presentation)
- Review and decision making (role, steps, remedial options, checks and balances)
- Monitoring and auditing (systematic follow up, purpose, effective data management)
- Project Management (inter-disciplinary teams, programming and budgeting)

2.3.8 Guidelines for Public Consultations

These guidelines deal with possible approaches to public consultation (PC) and techniques for designing an effective program of consultation that reaches out to all major stakeholders and ensures the incorporation of their legitimate concerns in any impact assessment study. These guidelines cover:

- Consultation, involvement and participation of Stakeholders
- Techniques for public consultation (principles, levels of involvements, tools, building trust)
- Effective public consultation (planning, stages of IEE/EIA where consultation is appropriate)
- Consensus building and dispute resolution
- Facilitation involvement (including the poor, women, building community and NGO capacity

2.3.9 National Environmental Quality Standards (NEQS)-1993, Amended August 2000

The National Environmental Quality standards (NEQS) were first promulgated in 1993 and have been amended in August 2000.

The following standards are specified therein:

- Maximum allowable concentrations of pollutants (32 parameters) in municipal and liquid industrial effluents discharged to inland waters, sewage treatment facilities, and the sea (three separate sets of numbers)

- Maximum allowable concentrations of pollutants (16 parameters) in gaseous emissions from the industrial sources

The Guidelines for "Self-Monitoring and Reporting" (SMART) for the industry as approved by the Pakistan Environmental Protection Council (PEPC).

2.3.10 Punjab Environmental Quality Standards for Ambient Air- November- 2010

The Ministry of Environment, Government of Pakistan vide its Notification, Islamabad, the 18th October, 2010 under S.R.O. 102 (1)/2010 established standards which provide the maximum allowable limits, in the ambient air, of Sulphur Dioxide (SO_2), Oxides of Nitrogen as (NO_x) and as (NO), Suspended Particulate Matter-(SPM), Respirable Particulate Matter-PM_{10}, Respirable Particulate Matter-$PM_{2.5}$, Lead and Carbon Monoxide (CO)

2.3.11 Punjab Drinking water policy, 2011

The vision of the Government of the Punjab is provision of safe drinking water of an adequate quantity at an affordable cost through equitable, efficient and sustainable services to all citizens by 2020. In order to translate this vision into reality, the Government of Punjab shall introduce measures to ensure sector reforms, political consensus, judicious need based resource allocations and effective stakeholder/ community partnerships.

The key objectives of the policy to achieve the vision include:

i. Improving the standards of the public health through provision of improved services backed up by a legal, regulatory and binding framework.

ii. Laying down a roadmap for mobilization of the resources required to ensure provision of drinking water to all by the target timeline, assigning a priority to unserved and under-served areas of Punjab.

iii. Focusing on the capacity building of local governments and Private-Public Partnership to improve the operation and maintenance of water supply schemes.
iii. Focusing on the capacity building of local governments and Private-Public Partnership to improve the operation and maintenance of water supply schemes.

iv. Mobilizing demand for improved water supply through a communication campaign, which takes cognizance of conservation, demand management, and contamination issues.

v. Facilitating the introduction and institutionalization of an effective Monitoring and Evaluation System, which includes performance benchmarking in service delivery.

vi. Ensure protection and conservation of water resources. vii. Serving basis for the development of sector strategies, both for urban and rural water sector, to translate policy principles into action.

Provincial/ National Standards Drinking Water Quality

Sr. No.	Parameters	Standard values for Pakistan (mg/l)	WHO (mg/l)
1	Aluminum (Al)	≤ 0.2	0.2
2	Ammonium (NH3)	-	1.5
3	Antimony (Sb)	≤ 0.005	0.02
4	Arsenic (As)	≤ 0.05	0.01
5	Barium (Ba)	0.7	0.7
6	Boron (B)	0.3	0.3
7	Cadmium (Cd)	0.01	0.003
8	Chloride (Cl)	< 250	250
9	Chromium (Cr)	≤ 0.05	0.05
10	Copper (Cu)	2	2
11	Cyanide (CN)	≤ 0.05	0.07
12	Fluoride (F)	≤ 1.5	1.5
13	Iron (Fe)	-	0.3

Sr. No.	Parameters	Standard values for Pakistan (mg/l)	WHO (mg/l)
14	Lead (Pb)	≤ 0.05	0.01
15	Manganese (Mn)	≤ 0.5	0.5
16	Mercury (Hg)	≤ 0.001	0.001
17	Molybdenum (Mo)	-	0.07
18	Nickel (Ni)	≤ 0.02	0.02
19	Nitrate (NO_3)	≤ 50	50
20	Nitrite (NO_2)	≤ 3	3
21	Selenium (Se)	0.01	0.01
22	Silver (Ag)	-	NS
23	Sodium (Na)	-	200
24	Sulphate (SO_3)	-	250
25	Residual Chlorine	0.2-0.5	-
26	Zinc (Zn)	5.0	3.0
27	Color	≤ 15 TCU	≤ 15 TCU
28	Taste	Non-Objectionable/ Acceptable	Non-Objectionable/ Acceptable
29	Odor	Non Objectionable/ Acceptable	Non Objectionable/ Acceptable
30	Turbidity	< 5 NTU	5 NTU
31	Total hardness	< 500 mg/l	-
32	TDS	< 1000	<1000
33	pH	6.5-8.5	6.5-8.5

2.3.12 Punjab Environmental Quality Standards for Noise - November 2010

The Ministry of Environment, Government of Pakistan vide its Notification, Islamabad, and 18th October, 2010 under S.R.O. 102(1) /2010 established standards for Noise.

These standards are based on Category/zone i.e. residential area, Commercial area, Industrial area and Silence zone. The limiting values for day and night have also been fixed for all categories/zones.

2.3.13 Sectorial Guidelines for Environmental Reports:

These guidelines identify the key environmental issues that need to be assessed as well as mitigation measures and project alternatives to be considered in the actual IEE/EIA. These guidelines include:

Sector overview of the industry and the processes

- Potential impacts on the environment
- Mitigation measures
- Monitoring and reporting
- Management and training
- Checklist of likely environmental impacts and mitigation measures

2.3.14 Guidelines for Sensitive and Critical Areas:

These guidelines identify sensitive and critical areas in Pakistan, in relation both to the natural environment and the cultural aspects.

2.3.15 National Resettlement Policy and Ordinance:

At this point, the only legislation relating to land acquisition and compensation is the Land Acquisition Act (LAA) of 1894. Following a national consultative process, a national resettlement policy and a related ordinance were drafted. The draft policy and the ordinance are presently being reviewed by the provinces and have yet to be approved and notified by the government. The salient applicable features of the Draft Resettlement Policy are given below:

- The Pak-EPA will be responsible for both environment-related as well as resettlement-related matters,

- The responsibilities for implementation at a provincial level are to be delegated to the concerned provincial EPAs with overall control of the provincial Planning and Development (P&D) Departments.

- All categories of 'loss' arising from development projects that entail resettlement, need to be addressed: these include not only loss of land, built-up property, other infrastructure, and crops and trees, but also loss of income, job opportunities, and access to natural resources, etc.

- Vulnerable groups whose issues need to be addressed in particular include: women, children, destitute persons, tribal communities, squatters, those with usurper rights, and landless groups.

- There should be a special emphasis on consultation with affected groups when preparing a Resettlement Action Plan (RAP).

The provisions of the Draft Resettlement Policy are consistent with the requirements of the World Bank OD 4.30 on involuntary resettlement.

2.3.16 Forest Act, 1927

All India Forest Act, 1927 was adopted by the Government of Pakistan, which was subsequently implemented by the respective provinces. Basically, the law was enacted to conserve and protect the forest resources of the country for sustainable development. It lays down Rules and Regulations for exploitation of various categories of forests such as reserved, protected or unclassified. Further, the Act spells out the licensing method for timber cutting, grazing, hunting etc. It also gives the details of magisterial powers of Forest Department officers and penalties for offences committed with regard to forest resources and products.

2.3.17 Industrial Relation Ordinance, 2002

The ordinance has been promulgated to amend, consolidate and rationalize the law relating to formation of trade unions, regulation and improvement of relations between employers and workmen and avoidance and settlement of any differences or disputes

arising between them Pakistan's labour laws trace their origination to legislation inherited from India at the time of partition of the Indo-Pak subcontinent. The laws have evolved through a continuous process of trial to meet the socio-economic conditions, state of industrial development, population and labour force explosion, growth of trade unions, level of literacy, Government's commitment to development and social welfare. To meet the above named objectives, the government of the Islamic Republic of Pakistan has introduced a number of labour policies, since its independence to mirror the shifts in governance from martial law to democratic governance.

While Article 18 of the Constitution affords every citizen with the right to enter upon any lawful profession or occupation, and to conduct any lawful trade or business, the Industrial and Commercial Employment (Standing Orders) Ordinance was enacted in 1968 to address the relationship between employer and employee and the contract of employment. The Ordinance applies to all industrial and commercial establishments throughout the country employing 20 or more workers and provides for security of employment. In the case of workers in other establishments, domestic servants, farm workers or casual labour engaged by contractors, their labour contracts are generally unwritten and can be enforced through the courts on the basis of oral evidence or past practice.

The Constitution of Pakistan contains a range of provisions with regards to labour rights found in Part II: Fundamental Rights and Principles of Policy.

- **Article 11** of the Constitution prohibits all forms of slavery, forced labour and child labour;
- **Article 17** provides for a fundamental right to exercise the freedom of association and the right to form unions;
- **Article 18** proscribes the right of its citizens to enter upon any lawful profession or occupation and to conduct any lawful trade or business;

- **Article 25** lays down the right to equality before the law and prohibition of discrimination on the grounds of sex alone;

- **Article 37(e)** makes provision for securing just and humane conditions of work, ensuring that children and women are not employed in vocations unsuited to their age or sex, and for maternity benefits for women in employment.

2.3.18 Punjab Industrial Relations Bill, 2010

In December 2010 Punjab Assembly passed new legislation that will govern the formation of trade unions, relations between industries and their workers, and the process for the settlement of labour disputes.

2.3.19 Industrial Relations Ordinance 2011 Promulgation

The Government has promulgated Industrial Relations Ordinance 2011. The Ordinance has been approved by the President on the Advice of the Prime Minister. The Government has promulgated Industrial Relations Ordinance, 2011 in view of the current legal vacuum created due to deletion of the concurrent Legislative List through the 18th Constitutional Amendment. The Industrial Relations has also been transferred to the Provinces which have promulgated provincial laws to regulate industrial relations. However, there is no law in place to deal with Industrial Relations in the Islamabad Capital Territory or in respect of national level trade federations and for resolutions of trans-provincial industrial issues. The Parliament has yet to promulgate the Ordinance as law.

2.3.20 Other Relevant Laws

Some of the other relevant laws and legislations are listed below:

- Canal and Drainage Act, 1873

- The Explosives Act, 1884

- The Fire Wood and Charcoal (Restriction) Act, 1964

- Motor Vehicles Ordinance, 1965

- The West Pakistan Regulation and Control of Loudspeaker and Sound Amplifier Ordinance, 1965
- Agriculture Pesticides Ordinance, 1971
- The Antiquities Act, 1975

2.3.21 National Electric Power Regulatory Authority (NEPRA) Act 1997

The NEPRA Act was approved by Parliament and signed into law in December 1997. It seeks to create an autonomous, independent regulatory authority, which will be solely responsible for the power sector. It will be responsible for the oversight of the power sector and will exercise control through its power to license power generation, transmission and distribution. It will regulate tariffs for all these activities. It will perform its functions through transparent processes to be enshrined in rules that are being framed in a transparent manner through appropriate rules.

2.3.22 Power Policy 1998

The revised power policy was implemented in 1998. The objective and intentions of the Government of Pakistan (GOP) to new policy is to move towards the creation of a competitive power market in Pakistan. It proposes to do so by restructuring and privatizing the existing thermal power generation, the power transmission and distribution functions and assets of existing public sector utilities (WAPDA/KESC), by the creation of a fully autonomous regulatory authority, the National Electric Power Regulatory Authority (NEPRA), and through its future IPP policy.

The salient features of the Policy are;

- The basis for selection of private power project will be minimum levelled tariff through International Competitive Bidding. Variable tariffs over the life of the project will be permitted under terms specified prior to bidding. The process of selection will involve pre-qualification, issuance of a Request for Reports (RFP), bidding and evaluation of bids against bid criteria clearly laid out in the RFP.

- It is recognized that without a proper feasibility study for a particular site-specific hydel or indigenous coal based project, it will not be possible to invite competitive bids and receive firm offers. Thus, detailed feasibility studies for such projects will be prepared before bids are invited.

- Hydel projects will be implemented on a Build-Own-Operate-Transfer (BOOT) basis; to be transferred to the province in which it is situated at the end of the concession period, and thermal projects on a Build-Own-Operate (BOO) basis.

- Competitive Tariffs will comprise an Energy Purchase Price and a Capacity Purchase Price with adequate provisions for escalation.

2.3.23 Provincial Local Government Ordinances, 2001

These ordinances, issued following the devolution process, establish regulations for land use, the conservation of natural vegetation, air, water, and land pollution, the disposal of solid waste and wastewater effluents, as well as matters related to public health and safety.

2.3.24 Factories Act, 1934

There is no independent legislation on occupational safety and health issues in Pakistan. The main law, which governs these issues, is the Chapter 3 of Factories Act, 1934. All the provinces, under this act, have devised Factories Rules. The Hazardous Occupations Rules, 1963 under the authority of Factories Act is another relevant legislation. These rules not only specify some hazardous occupations but also authorize the Chief Inspector of Factories to declare any other process as hazardous.

The other related laws are:

- Workmen Compensation Act, 1923
- Provincial Employees Social Security Ordinance, 1965
- West Pakistan Shops and Establishments Ordinance, 1969

- Boilers and Pressure Vessels Ordinance, 2002

Chapter 3 of the Act has general provisions on health and safety at the workplace. Provincial governments are allowed to make rules under this Act and inspectors under this Act also have discretion in defining the rules. Chapter 3 talks about various safety arrangements. This list is being provided just to show how meticulously labor law covers these issues.

- Cleanliness
- Disposal of wastes and effluents
- Ventilation and temperature
- Dust and fume
- Artificial humidification.
- Overcrowding
- Lighting
- Drinking water
- Latrines and urinals
- Spittoons
- Precautions against contagious or infectious disease
- Compulsory vaccination and inoculation
- Power to make rules for the provision of canteens
- Welfare officer
- Precautions in case of fire
- Fencing of machinery
- Work on or near machinery in motion
- Employment of young persons on dangerous machines
- Striking gear and devices for cutting off power

- Self-acting machines
- Casing of new machinery
- Prohibition of employment of women and children near cotton openers
- Cranes and other lifting machinery
- Hoists and lifts
- Revolving machinery
- Pressure plant
- Floors, stairs and means of access
- Pits, sumps, opening in floors, etc.
- Excessive weights
- Protection of eyes
- Power to require specifications of defective parts or tests of stability
- Safety of building, machinery and manufacturing process
- Precautions against dangerous fumes
- Explosive or inflammable dust, gas, etc.
- Notice of certain accidents

2.3.25 Mines Act (Mining labour code) 1923

Deals with safety and welfare of mines labour.

2.3.26 Explosives Rules 2010

Deals with storage and transportation of explosives

2.3.27 Punjab Mining Concession rules 2002

Deals with leases

2.4 Pakistan Environmental Protection Act, 1997, amended 2012

Pakistan Environment Protection Act (PEPA) 1997 is the basic legislative tool empowering the Government of Pakistan to frame regulations for protection of the

environment. The Act is applicable to a broad range of issues and extends to air, water, soil, marine and noise pollution, as well as to the handling of hazardous waste. Penalties have been prescribed for those contravening the provisions of the Act. Key features of the law applicable to the M/s Kamran Collieries:

- Section 11(1) states that “subject to the provisions of this Act and the rules and regulations made there under, no person shall discharge or emit or allow the discharge or emission of any effluent, waste, air pollutants or noise pollutants in an amount, concentration or level which is in excess of the National Environmental Quality Standards” The Pakistan Environmental

  - Protection Agency (PAK-EPA), the body mainly responsible for enforcing the PEPA 1997, has published National Environmental Quality Standards (NEQS).
- Section 12(1) requires that “no proponent of a project shall commence construction or operation unless he has filed with the provincial agency an Initial Environmental Examination (IEE) or where the Project is likely to cause an adverse environmental effect on Environmental Impact Assessment (EIA) and has obtained from the federal agency approval in this respect”.
- Section12(2)(b) requires that the federal agency shall review the environment impact assessment report and accord its approval subject to such conditions as it may deem fit to impose, or require that the environmental impact assessment be resubmitted after such modifications as may be stipulated, or reject the Project as built up contrary to environmental objectives. For the M/s Kamran Collieries, it is required that an EIA report be submitted to the Concerned EPA (EPD Punjab) and approval attained before undertaking any operational activity.
- Section 14 states that: “subject to provision of this Act no person shall generate, collect, consign, transport, treat, dispose of, store, handle, or import any hazardous substance except (a) under a license issued by the government agency and in other law for the time being in force, or of any international treaty, convention, protocol, code, standard, agreement or other instrument to which Pakistan is a party”. Enforcement of this clause requires the PAK-EPA to issue regulations regarding licensing procedures and to define the hazardous substance

In order to accomplish effective implementation of the provisions of PEPA 1997, the PAK- EPA was constituted, headed by the Director General, with its head office located in Islamabad. On the same lines, EPAs/EPD has been created in all the four provinces of the country as well as Azad Jammu & Kashmir (AJK).

2.5 Pakistan Environmental Protection Agency Review of Initial Environmental Examination (IEE) and Environmental Impact Assessment (EIA) Regulations, 2000.

The Pakistan Environmental Protection Agency (PAK-EPA), under the process conferred upon it by the Pakistan Environmental Protection Act (PEPA 1997), provides the necessary details on the preparation, submission, and review of the Initial Environmental Examination (IEE) and the Environmental Impact Assessment (EIA). Categorization of Projects for IEE and EIA is one of the main topics of the Regulations. Projects have been classified on the basis of the expected degree and magnitude of environmental impacts and included in different schedules contained in the Regulations. The Projects listed in Schedule-II are generally major projects likely to have adverse environmental effects; they also include Projects in environmentally sensitive areas. The impact of such Projects may be irreversible and could lead to the significant changes in land use and the social, physical and biological environmental parameters.

Projects falling under Schedule-I of these regulations require an IEE Report while projects falling under Schedule-II require an EIA for the issuance of NOC by the concerned agency prior to the construction of the Project

According to schedule I, category D (1) of review of IEE/EIA regulations 2000, “A project is require to submit an EIA if the project is commercial exaction of minerals with total cost of more than Rs.100 million”. But the proposed project does fulfill the requirement of above mentioned category as its expected cost is more than 100 million rupees, so it has to be submit an EIA for its approval.

2.5.1 Punjab Environmental Protection (Amendment) Act, 2012

After 18th Constitutional Amendment in the Constitution of Pakistan, the Federal Ministry of Environment has been dissolved and subject of environment has been handed over

to provinces. EPA Punjab has formulated its own act. The major content of the act is same as of PEPA, 1997. Minor amendments/changes have been made viz.

- The Name of Act has been changed into “Punjab Environmental (Amendment) Act, 2012”.
- For the words “Federal Government”, wherever occur, the word “Government” shall be substituted;
- For the words “Federal Agency”, wherever occur, the words “Provincial Agency” shall be substituted; and
- For the word “National”, wherever occurs, the word “Punjab” shall be substituted. All the other clauses, sub-clauses, sections and sub-sections are almost same.

2.5.2 Screening for Environmental Assessment

As per the provisions of Environmental Protection Act, 1997 it is mandatory to conduct the environmental assessment before executing the projects. Environmental Impact Assessment (EIA) is the process of identifying, predicting, evaluating and mitigation of the biophysical, social and the relevant effects of development project prior to major decisions to be taken and commitments made. IEE/EIA provides assessment of possible positive or negative impacts that a proposed project may have on the environment. Hence, IEE/EIA is used as a decision aiding tool rather than decision making tool. The projects can categorize in any of the following categories.

- Category A: If the project likely to have significant environmental impacts that are sensitive, diverse or unprecedented. These impacts may affect an area broader than the communities benefiting from infrastructure investments.
- Category B: If the projects potential adverse environmental impacts on human populations or environmentally important areas are less adverse than those of Category A projects. These impacts are site-specific; few if any of them are irreversible; and in most cases mitigation measures can be designed more readily than for Category A projects.
- Category C: If the project is likely to have minimal or no adverse environmental impacts. Once the project is assessed and determined as Category C, no further action would be required. Some examples of Category C projects include:

Education (i.e. capacity-building, etc., not including school construction) Family planning etc.

For selected and prioritized feasibility proposals, environmental impact assessment is being submitted as per World Bank guidelines and as per the EPA rules. While conducting environmental assessment of the proposed projects the potential impact of the activities in each sub project on the flora, fauna, cultural and archeological sites, physical environment, water and other associated issues is to be determined. The impact on the fauna and flora are more important as they affect the habitat, soil, water, physical environment and social and economic dynamics for the communities.

2.6 INSTITUTIONAL SETUP FOR ENVIRONMENTAL MANAGEMENT

The apex environmental body in the country is the Pakistan Environmental Protection Council (PEPC), which is presided by the Chief Executive of the Country. Other bodies include the Pakistan Environmental Protection Agency (Pak-EPA), provincial EPAs.

The EPAs were first established under the 1983 Environmental Protection Ordinance; the PEPA 1997 further strengthened their powers. The EPAs have been empowered to receive and review the environmental assessment reports (IEEs and EIAs) of the proposed projects and provide their approval (or otherwise).

The proposed project would be located in the Punjab Province. Hence, in case the environmental and social impacts will be serious the EIA report will be sent to the Punjab EPA for review and approval. In other case the report will be sent to Punjab EPA for information.

2.7 ENVIRONMENTAL PROTECTION DEPARTMENT PUNJAB

The Govt. has also established the Environmental Protection Department (EPD), Punjab, to exercise the powers and perform the functions assigned to it under the provisions of the Act and rules and regulations made accordingly. The organizational structure of the EPA headed by the Secretary Environment is given in Figure 2.1 below;

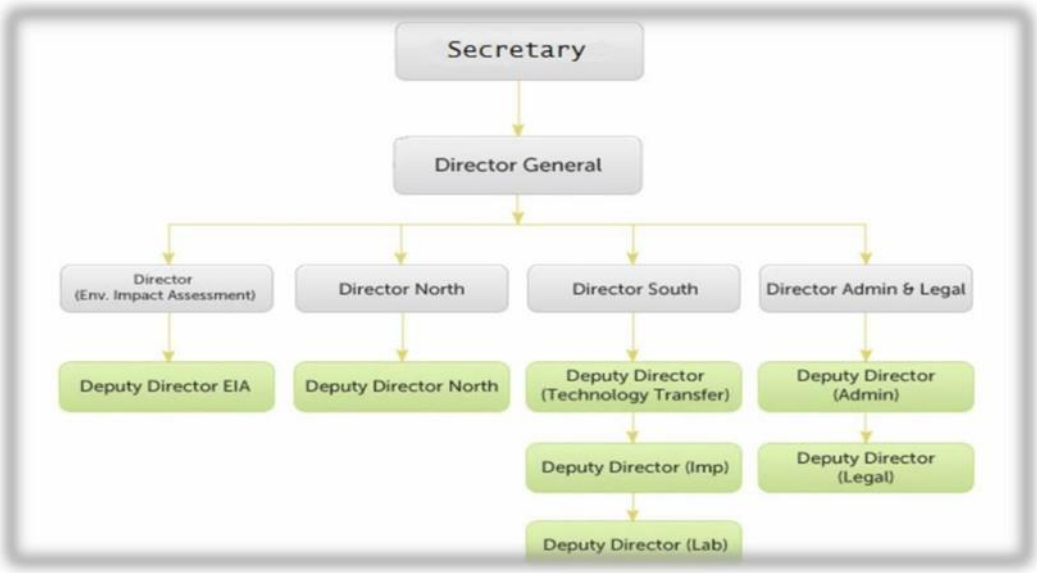


Figure 2-1: Organizational Structure of EPD Punjab

The major functions of the Environment Protection Department (EPD) includes:

- Administer and implement the provisions of Environment Protection Department and the rules and regulations made there under;
- Prepare and establish the Punjab Environmental Quality Standards with approval of the Council and Enforcement;
- Take measures to promote research and development of science and technology which may contribute to the prevention of pollution, protection of the environment and sustainable development;
- identify the needs for, and initiate legislation in various sectors of the environment;
- Provide information and guidance to the public on environmental matters;
- Specify safeguards for the prevention of accidents and disasters which may cause pollution.
- Encourage the formation and working of non-government, community and village organizations to prevent and control pollution and promote sustainable development.
- Take all necessary measures for protection, conservation, rehabilitation and improvement of the environment, and for prevention and control of pollution, and Promotion of sustainable development.

2.7.1 National Environmental Quality Standards (Certification of Environmental Laboratories) Regulations, 2000.

Powers under section 6(1) (k) of PEPA 1997 for certification of environmental laboratories have been delegated to the Provinces, which can continue to exercise the same. As mentioned above, any change in these Regulations can only be made after Provincial EPAs have been duly authorized in this behalf by Acts of the Provincial Assemblies. Pak EPA will continue to exercise these powers for laboratories situated within the ICT.

2.7.2 Environmental Tribunal Rules, 1999 (notified on 18th March, 2000)

Terms and conditions of the Chairperson and Members of the Environmental Tribunals and other provisions of these Rules remain unaffected by the 18th Amendment.

2.7.3 Environmental Samples Rules, 2001.

Powers under clauses (f), (g), (h), (i) and (j) of section 7 relating to supply of information, search, taking and testing of samples, and confiscation etc. have been delegated to the Provinces and may continue to be exercised till amended after enactment of Provincial laws.

2.7.4 National Environmental Quality Standards (Self-Monitoring and Reporting by Industry) Rules, 2001.

These Rules relate to submission of Environmental Monitoring Reports to the Federal Agency, i.e. Pak EPA. Although powers under clauses (e) and (f) of section 6 relating to preparation, revision and enforcement of the National Environmental Quality Standards (NEQS) stand delegated to the Provinces, the Rules require modification to permit filing of the Reports with the Provincial EPAs also. This can be done after necessary amendment in section 33, as mentioned above.

2.7.5 Pollution Charge for Industry (Calculation and Collection) Rules, 2001

These Rules provide Guidelines for calculation and collection of the pollution charge payable by an industrial unit under section 11 for discharges or emissions at levels in excess of the NEQS /established standards. While section 11 needs to be amended to

empower Provincial Governments to levy the charge, the Rules refer to, and require action by, the Provincial EPAs, and therefore can be applied without any immediate modification.

2.7.6 Pakistan Biosafety Rules, 2005.

These Rules provide for establishment of National Biosafety Committee, Technical Advisory Committee and Institutional Biosafety Committee and grant of licenses by Pak EPA for dealing with living modified organisms etc. Appropriate amendments are required to adapt the provisions in the light of devolution, including empowering of the Provincial EPAs.

2.7.7 Hospital Waste Management Rules, 2014.

These Rules lay down detailed procedures to be followed by every hospital / health care and biomedical facility for disposal of waste. Separate Hospital Waste Management Advisory Committees have been constituted for the ICT and the Provinces. Minimal amendment is required: Rule 25 has to be modified to allow the Provincial Government to exempt any class of hospitals in the Province and the Federal Government to exempt any class of hospitals in the ICT.

2.7.8 Control of Water Pollution

The following measures could be taken to control water pollution:

a) Legislation: For effective control of water pollution, legal provisions regarding water pollution should be enforced by the concerned offices.

b) Prohibition: Besides reserving separate water supplies for livestock, the following prohibition should be enforced to avoid contamination of the main sources of drinking water.

i. Bathing and washing of clothes in canals
ii. Discharging untreated or treated domestic, commercial and industrial sewerage in water bodies.
iii. Judicious Use: Pesticide (Preferably less stable) and fertilizer should be very judiciously used to avoid chemical pollution of water through agriculture farm run-off.

2.7.9 National Resettlement Policy

To resettle and compensate people displaced by the development projects, the GOP has issued the Project Implementation and Resettlement of Affected Persons Ordinance, 2001. National Resettlement Policy was promulgated in March 2002. Pakistan Environmental Protection Agency has also issued the National Resettlement Policy Implementation Guidelines in October 2002.

2.7.10 Land Acquisition Act 1894

The present general law for acquisition of land for public purposes, the “Land Acquisition Act” was introduced in 1894. This Act is the principal statute laying down the framework for the exercise of the right of eminent domain of the State. The land acquired under the Act is vested in the Province and is only thereafter that the Province may transfer it to someone else.

In addition to the provisions of the Act, regulations setting out the procedure for land acquisition have been provided in the “Land Acquisitions Rules, 1983”. These rules are applicable in the province of Punjab.

Key features of the Land Acquisition Act 1894 are:

1. Under Section 4, it causes the publication of a preliminary notification notifying that the land is needed for a public purpose. This permits entry, survey and investigation of the land in question by an authorized Government servant. He shall pay compensation for any damage caused by such entry.
2. Under Section 5, a formal notification is issued that the particular land is needed for a public purpose. This notification is published in the official Gazette and the Collector is required to cause public notice to be given of the substance of the notification. Issuance of Section 5 has to take place not later than one year after notification of Section 4.
3. Any person interested in any land which has been notified under Section 5 may, within thirty days after the issue of the notification, object to the acquisition of the land under Section 5-A. The Collector shall hear the objection, make necessary inquiries and submit a report within 90 days to the appropriate government authority. This authority must announce his decision which shall be final, within 90 days, otherwise the objection

shall be deemed to have been admitted and the acquisition proceedings will come to an end.

4. When the Provincial Government is satisfied, after considering the report, if any, made under Section 5-A, that any particular land is required for a public purpose, a declaration to that effect shall be made by an authorized officer of the Provincial government under Section 6. This should follow within six months of the publication of the Section 5 notification.

5. After the declaration under Section 6, the Commissioner shall “direct the Collector to take order for the acquisition of the land” under Section 7.

6. The Collector has then (Section 8) to cause the land to be marked out, measured and planned (if this was not done after Section 4).

7. Under Section 9, the Collector gives notice to all interested people that the Government intends to take possession of the land and if they have any claims for compensation that they be made to him at an appointed time.

8. Section 10 delegate’s power to the Collector to record statements of persons possessing any interest in the land or any part thereof as co-proprietor, sub-proprietor, mortgagee, and tenant or otherwise.

9. Section 11 enables the Collector to make inquiry into “measurements, value and claim and issue the final award.” Included in the award is the land’s true area, his view of what compensation is warranted, and the appointment of that compensation to all interested people.

10. Though this section is the one that contains the final award, there are two other sections (Section 23 and Section 24) which appear as later sections in the Act but which chronologically actually take place prior to Section 11. This is because these two sections pertain to compensation and the criteria to be followed (Section 23) or not to be followed (Section 24) in arriving at appropriate compensation.

11. Section 23 includes such items as the market value of the land at the time of notification of Section 6, and various damages that may have been sustained at the time possession was taken.

12. Matters to be neglected in awarding compensation (Section 24) include such items as the degree of urgency which led to the acquisition, any disinclination of the person

interested in the land to part with it, any expected increase in value of the land from its future use, etc. When the collector has made an award under Section 11, he will then take possession under Section 16 and the land shall thereupon vest absolutely in the Government, free from all encumbrances.

13. Section 18 pertains to persons still dissatisfied with the award who may request the collector to refer the case to the Court for determination and decision. This does not affect the taking possession of the land.

14. In cases of emergency, where the Board of Revenue considers it expedient to take possession of any land at any time before an award under Section 11 has been made, it shall notify this fact in writing to the Collector intimating in addition the date by which the land is required by it.

15. Under Section 17, the Collector can, after causing a notice to this effect to be served on the person or persons interested in the land, take possession of the land subject to the liability of any amount which may be incurred on account of the acquisition.

Following Acts are also on record with respect to Land Resource:

- Land Reforms Act, 1977
- Land Reforms Regulations, 1972
- Land Improvement Loans Acts, 1883
- Transfer of Property Act, 1882

Valuation of Land Compensation

Under Section 23, the matters to be considered in determining compensation are as follows:

Market value of the land

1. Damage sustained by the person interested by taking of any standing crops or trees.
2. Damage sustained by persons at the time of the Collector's taking possession of the land.
3. Damage sustained by the persons at the time of acquisition of land injuriously affecting his other property, movable or immovable, o If compelled to change his residence or place of business, the reasonable expenses incurred for such

change, o Damage resulting from diminution of profits of land from declaration to actual taking possession by the Collector.

4. Furthermore, an additional sum of fifteen percent of the market value of the land is to be paid in consideration of the compulsory nature of the acquisition.
5. Paragraph 61 of the Standing Order 28 provides guidelines for determination of the market value, including consulting “respectable people who are disinters.

Land for Land Compensation

Under the Act, the person whose land is being acquired cannot be compelled against his wishes to accept compensation in any form other than cash. However, Section 31 of the Act provides that the collector can, instead of awarding cash compensation in respect of any land, make any arrangement with a person having an interest in such land, including the grant of other lands in exchange. Where practically feasible, and if the PAP so desire, a formal consensus agreement will be entered into with those PAPs losing land opt to pay part of their cash compensation for land made available by the collector.

Time Frame for Payment of Compensation

The Land Acquisition Act provides that, when the Collector has made an award under Section 11, the Collector shall before taking possession of the land, tender payment of the full amount of compensation awarded by him to the persons entitled thereto under the award. Thus, the compensation will be paid to the PAPs prior to possession of the land being taken by the implementing agency.

If the persons entitled to compensation under the award shall not consent to receive it, or if there be any dispute as to the title to receive the compensation or as to the appointment, the Collector shall deposit the amount of compensation in the Court to which a reference under Section 18 would be submitted.

2.8 ENVIRONMENTAL PROTECTION AGENCY, PUNJAB GUIDELINES

The Pakistan Environmental Protection Agency (Pak-EPA) is meant for the enforcement of environmental laws in Pakistan. They have delegated powers to provincial environmental protection departments/agencies for review, approval and monitoring of environmental assessment projects. As regards the proposed Project, the EPA Punjab will be responsible for reviewing the report, issuing Environmental Approval and

overall/broad based monitoring of the proposed Project activities to ensure compliance with the Environmental Management Plan. Under the Punjab Local Government Ordinance, 2001, District Officers (Environment) are responsible to deal with environmental issues at the district level. National Reconstruction Bureau has formulated the following rules of business for district environment offices:

- To regulate motor vehicles subject to the provisions of the Pakistan Environmental Protection Act, 1997 and the rules and regulations made thereunder;
- To ensure, guide and assist the proponents of new projects in submission of Initial Environmental Examination (IEE)/ Environmental Impact Assessment (EIA) to the D.G, EPA for approval;
- To ensure implementation of environmental protection and preservation measures in all development projects at the district level and to sensitize government agencies on environmental issues;
- To identify the needs for legislation in various sectors of the environmental matters;
- To provide information and guidance to the public on environment;
- To encourage the formation and working of non-governmental organizations, to
- prevent and combat pollution and promote sustainable development; and
- To undertake regular monitoring of projects and to submit progress reports to the DG, EPA for publication in the annual Report.

2.9 ENVIRONMENTAL PROTECTION AGENCY'S ENVIRONMENTAL AND SOCIAL GUIDELINES

The Federal EPA has prepared a set of guidelines for conducting environmental assessments. The guidelines derive from much of the existing work done by international donor agencies and NGOs. The package of regulations, of which the guidelines form a part, includes the PEPA 1997 and the NEQS. These guidelines are listed below;

- Guidelines for the Preparation and Review of Environmental Reports,
- Guidelines for Public Consultation,
- Guidelines for Sensitive and Critical Areas,
- Sectorial Guidelines.

It is stated in the Pakistan Environmental Protection Agency Review of IEE and EIA Regulations, 2000 that the EIA or IEE must be prepared, to the extent practicable, in accordance with the Pakistan Environmental Protection Agency Environmental Guidelines.

2.10 PROVINCIAL SUSTAINABLE DEVELOPMENT FUND (UTILIZATION) RULES, 2003).

These Rules prescribe procedure for filing, appraisal and sanction of project proposals for utilization of financial assistance from the Fund. As action is to be taken by the Provincial EPAs/ government departments, no immediate amendment is required.

2.10.1 Provincial Sustainable Development Fund Board (Procedure) Rules, 2001)

Management of the Fund established under section 9 of PEPA 1997 has been entrusted to a Board constituted under section 10, comprising of officers and non-official nominees of the Provincial Government. The Rules relate to functioning of the said Board and remain unaffected.

2.11 PUNJAB ENVIRONMENTAL PROTECTION ACT, 2012

The Punjab Environmental Protection Act, 1997 (amended 2012) is the basic legislative tool at the provincial level after the devolution of power 18th amendment, empowering the provincial government to frame regulations for the protection of the environment. The act is similar in nature to the Pakistan Environmental Protection act and refers to the Pakistan Environmental Protection Agency Review of IEE and EIA regulations as the primary guideline for preparation of environmental safeguards instruments. The regulatory powers and implementation responsibilities are now designated in the province to the Punjab Environmental Protection Agency.

2.12 PUNJAB WILDLIFE (PROTECTION, PRESERVATION, CONSERVATION AND MANAGEMENT) ACT, 1974

This law was enacted to protect the province's wildlife resources directly and other natural resources indirectly. It classifies wildlife by degree of protection, i.e., animals that may be hunted on a permit or special license, and species that are protected and cannot be hunted under any circumstances. The Act specifies restrictions on hunting and trade in animals, trophies, or meat. The Act also defines various categories of

wildlife protected areas, i.e., National Parks, Wildlife Sanctuaries, and Game Reserve. The project activities will have to be carried out in accordance with this Act. In particular, no activities will be carried out inside any protected areas defined under the Act.

2.13 PUNJAB IRRIGATION AND DRAINAGE AUTHORITY ACT, 1997

This Act aims to implement the strategy of the Government of Punjab for streamlining the Irrigation and Drainage System; to replace the existing administrative setup and procedures with more responsive, efficient and transparent arrangements; to achieve economical and effective operation and maintenance of the irrigation, drainage and flood control system in the Province; and to make the irrigation and drainage network sustainable on a long-term basis and introduce participation of beneficiaries in the operation and management.

2.14 PUNJAB LOCAL GOVERNMENT ACT 2013

It is expedient to establish an elected local government system to devolve political, administrative and financial responsibility and authority to the elected representatives of the local governments; to promote good governance, effective delivery of services and transparent decision making through institutionalized participation of the people at local level; and, to deal with ancillary matters; It is enacted as follow:

1. This Act may be cited as the Punjab Local Government Act 2013.
2. It extends to the whole of the Punjab except the Cantonment areas or any other area excluded by the Government by notification in the official Gazette.
3. It shall come into force on such date as the Government may, by notification, appoint and different dates may be appointed for coming into force of different provisions of this Act.

2.15 PUNJAB MINING CONCESSION RULES-2002

2.15.1 Procedure for Grant of Mining Concessions

According to Presidential Order 8 of Act 1961 and clause 61 of Land Revenue Act 1967 the rights of all minerals including sand and stone are invested to Government of the Punjab. The Province of Punjab exercised its powers and obligations under the Punjab Mining Concession Rules 2002 framed under the regulation of Mines and Oilfields and Minerals Development (Government Control) Act, 1948 to accommodate the locals for

the exploitation of minerals resources on small scale and at the same time contemplate the grant of mining concessions to the foreign entrepreneurs for under taking mega mineral projects falling in the category of large scale mining in Punjab. Under the existing Rules, there is a lot of difference between large scale and small scale mining. The large scale mining can be any mega project either undertaken by the foreign investors or by the local entrepreneurs, involving investment of Rs. 300 million or more in Pakistan currency. All the local chemical and cement manufacturing companies are in the category of large scale mining. The term small scale mining is confined to any mining project in which investment is for an amount less than Rs. 300 million in Pakistan currency. The short term leases for Minor Minerals i.e., Ordinary sand, sandstone, siltstone, slate stone, tuff, basalt & gravel etc. are granted through open auction and are regulated under Punjab Mining Concession Rules, 2002.

Procedures for Grant of Mining Concessions

Small Scale Mining

Minor Scale Mining

Large Scale Mining

2.15.2 Procedure for Grant of Concession Names of Titles Their Acreage Fees etc. under the Chapter of Small Scale Mining of the Punjab Mining Concession Rules 2002

The following Mineral titles subject to Punjab Mining Concession Rules 2002 may be granted for the purpose of Small Scale Mining namely:

Prospecting License

Mining Lease

Of the above mentioned two titles Prospecting License and Mining Lease are the most popular and common titles granted by this Directorate. The procedure for the grant of these concessions is as follows:

2.15.3 Prospecting License

(Rule 118—129 Punjab Mining Concession Rules, 2002 are applicable) an individual / Company under rule 16 of Punjab Mining Concession Rule, 2002 may apply for grant Prospecting License by submitting the following documents:

Application Form duly complete in all respects.

An original Callan of Rs.15, 000/- as application fee.

In case of a company or Limited companies proper evidence of paid-up capital of Rs.1.4 Million duly verified by the relevant authority not older than one year furnished along with Memorandum and Articles of Association clearly showing the list of Directors, Authorized and paid-up capital

In case of individual financial status and detail of technical resources be attached

15 copies of the sketch plan of the applied for area

Comprehensive Geological description of the applied for area, estimated expenditures, Anticipated effects on the environment and measures taken for its prevention

Period not exceeding three years for which the PL License is required

An application for the Prospecting License shall not be granted to an applicant if the applicant is in default at the time of the application,

On receipt of the application completed in all respects by the in charge One Window Operation of the Directorate in Headquarters' office during office hours an acknowledgment is issue to the applicant (Individual / Company).

Further process on the application is done by the Mining Concession Branch which is as follows:

An Original challan of application fees removed by the Accounts Branch of the Directorate and the endorsement is provided.

An overloading sketch plan clearly showing the earlier applied for / granted areas for different minerals over the instant applied for area is prepared by the drawing branch of the Directorate.

An inspection report is called for from the concerned regional / sub office of the Directorate about the suitability and simultaneous working the applied for minerals with other minerals on the same area applied by different parties.

On receipt of the requisite inspection report on facts, the subject case is placed before the Mines Committee Small Scale Mining (Comprised upon a number of 8 members notified by the Government having Director Mines & Minerals as Licensing Authority / Chairman) along with its Working Paper showing all facts and figures of the case in detail regarding its grant.

Mines Committee considers such cases and decides whether the Prospecting License is granted, or the applications are rejected

Offer letter for the granted area or the rejection letter as per decision taken by the Mines Committee Small Scale Mining is issued under certain Terms & Condition for compliance

On receipt of the compliance made by the applicant a formal allotment letter along with used terms & condition of the Prospecting License is issued over the offered area is issued to the applicant

Work order is issued to the applicant after the necessary compliance regarding acceptance of the granted area, demarcation certificate and development schemes etc.

2.15.4 Mining Lease

Rules 130—140 Punjab Mining Concession Rules, 2002 are applicable) an application for the grant of mining Lease only be made by a body corporate formed by or under a law for the time being enforce in Pakistan by submitting the following documents:

An application Form duly complete in all respects.

An original Challan of Rs.15,000/- as application fee.

In case of limited company proper evidence of paid up capital of Rs.1.4 Million duly verified relevant authority not older than one year shall be furnished along with Memorandum and Articles of Association clearly showing the list of Directors, Authorized and paid-up capital.

15 copies of the sketch plan of the applied for area.

Technological report of mining treatment possibilities. detailed plans for development and operation of the Mine and the programme of proposed Mining operation including for cost of: The date by which the applicant intends to work for profit. The capacity of production and scale of operations.

The anticipated overall recovery of ore and mineral products: and the nature of the products. Be accompanied by an environmental impact assessment in terms of the Environmental Protection Act 1997 and shall identify the extent of any adverse effect which the plan for development and operation of the mine and the carrying out of the programme of proposed mining operations would be likely to have on the environment and on any monument or relic in the area over which the lease is required, and proposals for eliminating or controlling that effects.

Present proposals for the prevention of pollution, the treatment and disposal of wastes, the safeguarding, reclamation and rehabilitation of land disturbed by mining operations, the protection of rivers and other sources of water and for monitoring and managing of any adverse effect of mining operations on the environment.

Identify and particular risks (whether to health or otherwise) involved in mining the minerals or group of minerals which it is proposed to mine, and proposals for their control or elimination.

Give or be accompanied by statement giving a detailed forecast of capital investment, operating costs and revenues and the anticipated type and source and extent of financing.

Be accompanied by a statement giving particulars of expected infrastructure requirements.

State the period for which the lease is required

2.17 CANAL AND DRAINAGE ACT, 1873

The Canal and Drainage Act (1873) prohibits corruption or fouling of water in canals (defined to include channels, tube wells, reservoirs and watercourses), or obstruction of drainage. This Act will be applicable to the construction and O&M works to be carried out during the proposed project.

2.18 ANTIQUITY ACT, 1975

The Antiquities Act of 1975 ensures the protection of cultural resources in Pakistan. The Act is designed to protect ‘antiquities’ from destruction, theft, negligence, unlawful excavation, trade and export. Antiquities have been defined in the Act as ancient products of human activity, historical sites, or sites of anthropological or cultural interest,

and national monuments. The law prohibits new construction in the proximity of a protected antiquity and empowers the Government of Pakistan to prohibit excavation in any area that may contain articles of archeological significance.

Under this Act, the project proponents are obligated to:

- Ensure that no activity is undertaken in the proximity of a protected antiquity, and
- If during the course of the project an archeological discovery is made, it should be protected and reported to the Department of Archeology, Government of Pakistan, for further action.
- This Act will be applicable to the construction and O&M works to be carried out during the proposed project.

2.19 PROCEDURE FOR IEE/EIA APPROVAL

This section describes the procedures required for obtaining NOCs for IEE /EIA from concerned authorities and for working in sensitive and critical areas.

a) Classification of the Project;
b) Submission of IEE/EIA;
c) Issuance of NOC.

Detailed process for obtaining NOC according to PEPA-1997 is as follows;

Classification of the Project

The proposed project requires an IEE/EIA in accordance with Schedule-II of PEPA-1997.

Submission of IEE/EIA

Under Section 12 of the PEPA 1997, a project falling under any category specified in Schedule-II, requires the proponent to file an IEE /EIA with the Federal EPA or provincial agency for obtaining the NOC. After preparation of IEE /EIA report, ten hard copies and two electronic copies need to be submitted to the concerned agencies. In the case of this Project, EPD Punjab based in Lahore will be the main government agency responsible for the issuance of an N.O.C.

Issuance of N.O.C

Within ten working days of the filling of the IEE/EIA; the concerned agencies will confirm that the document submitted is complete for the purpose of review. During this time,

should the concerned agency require the proponent to submit any additional information, it will return the IEE/EIA to the proponent for revision, clearly listing those aspects that need further discussion. Subsequently, the concerned agency should make every effort to complete an IEE review within 45 days and an EIA review within 90 days of filing and finally issue conditional NOC having validity of three years. The NOC process for IEE/EIA is given in **Fig 2.1** below;

2.4 Applicable International Environmental and Occupational Safety and Health Laws and Regulations

2.20 International and National Non-Governmental Organizations

International and national Non-Government Organizations (NGOs), such as the International Union for Conservation of Nature and Natural Resources (IUCN) and the World Wide Fund for Nature (WWF), have been active in Pakistan for some time. Both of these NGOs have worked closely with the governments at the federal as well as provincial levels and have positively contributed to the cause of environment. They have played significant role with regard to the formulation of environmental and conservation policies. And last but not the least, another the most prominent NGO namely “Sustainable Development Policy Institute (SDPI) “has also played very significant role in upholding the cause of environmental protection in Pakistan.

Environmental NGOs have been particularly active in the advocacy for promoting sustainable development approaches. Most of the government’s environmental and conservation policies, even at the provincial and federal levels, has been formulated in consultation with these leading NGOs, who have also been involved in drafting new legislation on conservation.

2.20.1 International Framework

For the assessment of the environmental impacts of the proposed project on air, water and noise according to the international legal framework, this report has also incorporated the requirements of the "Pollution Prevention and Abatement Handbook" by the World Bank Group- effective July 1998.

Within this handbook, different guidelines are mentioned for the purpose of assessing industrial facilities with respect to their environmental compliance. In the present case, the guidelines for new thermal power plants are applicable for the preparation of the environmental impact assessment.

2.20.2 Environment Related Relevant International Agreements in Pakistan's Context

Pakistanis a party to the following treaties and agreements in furtherance of its environmental goals and program.

Treaty	Pakistan Status
Convention on the Protection of Ozone Layer on Dec 18, 1992.	Ratified
The Amendment to Montreal Protocol on Substance that Depleting Ozone layer	Signed
UN Framework Convention on Climate Change on June 13, 1992	Signed
Convention on the Continental Shelf on October 31, 1958	Signed
The Convention on High Seas on October 31, 1958	Signed
Convention on the Fishing and Conservation of the living Resources of the High Seas on October 1958.	Signed
The UN Convention on Law of the Sea on December 10, 1982	Signed
The Convention on Territorial Sea and the Contagious Zone and the Agreement for the establishment of Network of Aquaculture Centers in Asia and the Pacific	Signed

The Convention on Wetlands of the International Importance on July 23, 1976	Ratified
The Convention on protection of the World Cultural and Natural Heritage on July 23, 1976	Ratified
The Convention on International Trade in Endangers Spice of Wild Fauna and Flora	Signed
The Convention on Conservation of Migratory Species of Wild Animal on Dec 01, 1987	Signed
The Convention on Biological Diversity in 1994 and became party to the CBD, Convention duly recognizes the intrinsic value of biological diversity, genetic, social, economic, cultural, educationist, recreational and esthetic values of biodiversity and its components	Ratified
The International Plant Protection Convention.	Signed
The Plant Protection Agreement for Area & pacific region	Signed
The Agreement for the establishment of a convention for controlling the desert lost in eastern region of its Distribution Area in South East Asia	Signed
The Treaty Banning Nuclear Weapon Test in the Atmosphere, in Outer Space and under Water on March 3, 1988	Signed
The International Convention on Oil Pollution Preparedness Response and Corporation	Signed

The Convention on Prohibition of Military or any other Hostile Use of Environmental Modification Techniques and Accession of Feb 27, 1986	Acceded
Pakistan became a party to Montreal Protocol by Ratifying the protocol and its London amendment on Dec 18, 1982. The subsequent amendments known as Copenhagen Amendment which, accelerate the phase out for rectified in Jan 1995.	Signed
Convention of International trade Endangered Species (CITES)	Signed
World Heritage Convention	Signed
Ramsar Convention	Signed
United Nation Convention to Combat Ozone Depletion (CCD). The convention signed and ratified in 1996	Signed
Stockholm Convention for Phasing out Parenting Organic pollutants (POPs) in 2001.	Signed

Chapter 3

Description of the Project

3.1 Description of the project

The coal resources of Patala Formation in the Salt Range are deltaic and swampy in nature of their deposition and have good potential to be used for meeting the local energy need. In These resources an area of ML-CKL-I-Coal(61) was granted to M/s Kamran Collieries under Small Scale Mining. Now the applicant company intends to renew this area and from this the proponent, will produce Coal for energy needs of the industry.

3.2 Raw Material

The necessary raw material which will be produced is Coal. The project site will be used to mine the above said material to supply the coal to the local energy market. The project will include the underground mining of the raw material which includes Coal.

The following processes will be conducted at the proposed site:

3.3 Processes involved in Underground Mining process/operation

Coal seams are mostly sedimentary deposits which extend over large areas. The original storage was flat. By tectonic shifts, coal deposits can also be moderately inclined up to steep and are be interrupt by geological disturbances. Seam thicknesses can vary, but usually on a gradual basis. Worldwide seams can vary from less than 1 m thick up to over 100 m. From which thickness a seam can be exploited depends on many mining factors. Seams with a thickness of 0.5 m as in Salt Range can already be mineable. The seams in Salt range are generally extensive over large areas but can be broken-up by discontinuities like geological disturbances.

The overall sequence of activities in modern mining is often compared with the five stages in the life of a mine: • prospecting • exploration • development • exploitation • re-cultivation. Prospecting and exploitation are precursors to actual mining and are linked and sometimes combined. Geologists and mining engineers often share responsibility for these two stages - geologists more involved with the former, mining engineers more with the latter. Likewise, development and exploitation are closely related stages and are the main task of the mining engineer. Closure and re-cultivation of the mine site has become a necessary part of the mine life cycle because of the demands for a cleaner environment

and stricter laws regulating the abandonment of a mine. The overall process of developing a mine with the future use of the land is termed sustainable development.

Mining can be structured in several main steps like firstly exploration (i.e. evaluation of the resource) takes place, followed by planning and development process including scheduling before excavation or mining begins. The initial task is to gain access to the seam from the surface by some means (shafts, drifts, etc.). Once access has been gained into the coal seam, working areas are developed by mining a series of roadways (or "headings"). The roadways need to be stable for long periods (some for the whole life of the mine) and in most mines this means supports need to be installed to reinforce the roof and in many mines, the sides and sometimes even the floor strata. This support work is an expensive process, primarily due to the extent of manual handling and operation involved. These roadways are tunnels, if not totally within the seam, usually different in shape (rectangle, arch, circular profile). The shape and the support of roadways should be of a size which is stable (i.e. they will not crush out) for the existing strata/stress conditions and for any future altered conditions caused by further excavation. In thin seams as Salt Range they may be partly driven in roof or floor strata. The height is chosen influenced by the sufficient space for work and equipment to be transported. The above process is referred as "development". Provided the pillars remain stable, this type of mining will not give rise to subsidence at the surface. In some mines or parts of mines first development workings is the only type of mining permitted. For this reason, other methods of mining have been developed to remove large blocks of coal between areas of development workings. This stage of mining is known as "second workings" or "pillar extraction". Usually, the coal from these large blocks is extracted while retreating from a boundary back to the main mine access and the roof strata is allowed to collapse into the cavity formed, such an area of collapsed roof being known as a goaf. Longwall mining is one method of pillar extraction which is now the most common method. This way of mining is partially already used in Salt Range and will be recommended for this project. Before longwall mining methods had been developed to operate satisfactorily in most conditions, a lot of pillar extraction was carried out using by hand, half mechanized or continuous miners, and such methods are still in use in places for a variety of reasons.

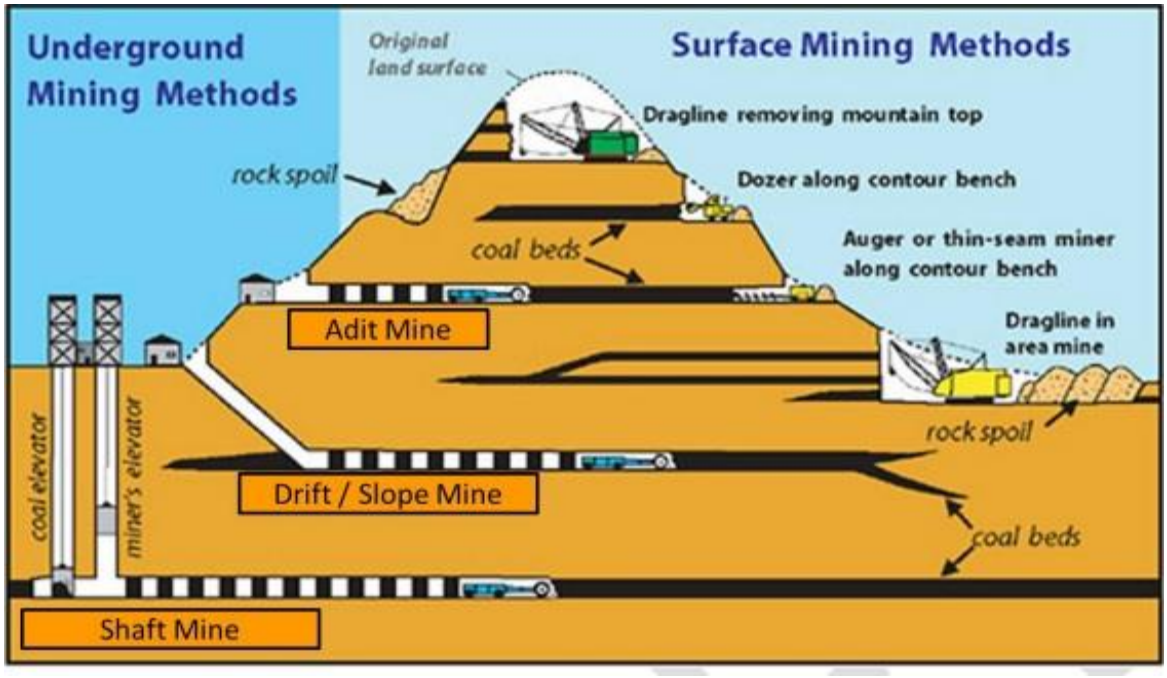


Figure 1:Pictorial view of Different Underground mining Methods

3.3.8 Mine Development & Blasting Methodology

Excavation methods for drifts are likely to be the same whether straight or with a change of direction. There are 2 methods which have been used: Conventional drill, blast and muck-out the most relevant method for Salt Range conditions. There would be variations in equipment used, often from contractors' preference or equipment availability, and also dependent on the grades involved, but the basic drill, blast and muck-out process is the same in all cases.

High quality explosives/accessories will be used for blasting. State of the art rock blasting techniques by adopting detonating cord initiation system is in practice. It is a high-speed fuse which explodes, rather than burns, and is suitable for detonating high explosives. The velocity of detonation is sufficient to use it for synchronizing multiple charges to detonate almost simultaneously even if the charges are placed at different distances from the point of initiation.

To address the environmental concern of blasting, there is very little blasting vibration and shock wave as our blasting activity is not regular and on large scale. Moreover, our

mine sites are away from the populated area and there is no structure in range of lease area. Therefore, blasting effects are very minimum, well in the safe limits and not harmful to any nearby structures and lives.

3.3.9 Drilling Pattern:

The production of coal is mostly from underground as the overlying limestone strata are low to medium hard and well jointed. Whereas drilling is being carried out where some hard rocks come in the way. The state-of-the-art drill machines are being used for production and development drilling.

Proper safety precautions are enforced during drilling operation. A team of high skilled driller, drill helper, fitter and compressor attendants will be deputed for drilling operation.

3.3.10 Transportation of Material during Mine Development:

The term "development" is normally used to refer to the drive of all first workings roadways, whether main roadways or setting –out pillar areas ready for secondary extraction. Development in most mines is carried out by a number of separate development "units" each consisting of a full set of equipment (cutting machines, face transport equipment for coal and materials, roof support equipment and ventilation equipment) usually manned by more or less fixed crews on each shift. It is common for several units to be operating more or less independently at several locations to support one or more longwall panels. In some mines, which do not operate with longwall equipment, a development unit may become the secondary extraction unit having completed the first workings for a panel. Equipment In first step of mining development was carried out by hand working (i.e. digging with pick or jackhammer and shovel), usually assisted by the use of explosives to dislodge most of the coal. Roof support was constructed by hand, setting up timber props and bars. Rail tracks were extended to the face and coal was hand loaded into skips, mostly donkey drawn at that stage.

Over the years mechanization will be gradually introduced, including (not necessarily in order):

- Powered (e.g. compressed air) drills for drilling blasting holes, usually rotary/percussive

- Powered (electric or compressed air) loaders to pick up the broken coal or waste and load into skips

- Replacement of donkeys by locomotives (battery or diesel powered)

- Development of roof bolts (hand held, compressed air operated)

- Rotary roof bolting using mobile roof bolting machines

- Coal cutters which could cut a narrow channel into the coal ahead of the development face to provide a second free face for explosives to break the coal into smaller pieces Replacement of coal transport in rail skips with conveyor belts, shuttle cars being used to bridge the gap between face and belt end Continuous miners allow a continuous cutting of drifts. Though there are many variations in design, continuous miners mostly consist of five main elements:

- A central body to carry all other components mounted on some type of drive mechanism to provide mobility (most commonly caterpillar tracks).

- A "cutting head" usually rotating drum(s) and/or chains with cutting picks attached

- A loading mechanism to pick up cut coal and deliver it into the central part of the machine

After the completion of blasting activity, a supervisor will depute the loading machines. The incharge will see the condition of roads, loading unloading cycle of each of the cart, safety measures at loading point and at unloading of coal at stockyard, regular cleaning of loading area and haulage road will be carry out.

3.3.11 Excavation, Loading and Transportation of Coal from underground to the Stockyard

Coal haulage is the business of transporting coal from the face to surface and an important part of logistic. It’s to differ between transports of coal • inside face area • in roadways • in inclines • hoisting in shafts.

Coal haulage inside face area in modern is almost exclusively by AFC`s and outside the face area by conveyor belts, combined in some mines with bulk winding. Some mines used rail transport with trains of wagons, hauled by various means. The decision for a haulage system depends very often from the age of the mine. Older mines used often railroads and in new mines are mostly used conveyor belts for coal transport. It must be taken into account that conveyor belts are not suitable for material transport., so a separate transport system must be installed for the material transport. Both systems are technically fully developed. The main difference is the continuous haulage with conveyor belt and discontinuous haulage with the railroad. Rail has the advantage to be able to drive in curves. This has an influence on different needs of loading stations and bunker in underground. Conveyor belts have been in use for many years with improvements taking place over the years in drive control, idler life and reliability, pulley design, belt cleaning, monitoring, signaling, tensioning, etc. Construction methods and materials used in manufacture of the belting itself have also undergone considerable improvement – it should be noted that any conveyor belting used underground must be of fire resistant and anti-static material. These improvements have resulted in high capacity and high powered belts being available. This has a cost involved, not only for the larger, higher capacity equipment but for the electronic control and signaling equipment and expertise involved. A high standard of installation and maintenance is also required, the effect of poor standards becoming more serious as belt power and speed increases. Locomotives are available for different drives (electric, diesel fuel and some kind high pressured air).

All methods of coal mining can be carried out both conventionally and mechanically. Conventional mining techniques consist of cutting, picking, drilling, blasting, loading and transporting made as periodic operations. In any case, the mining method should be carried out as planned and not by chance.



Drilling in Rock Burden



Mining Coal Seam with Pickets



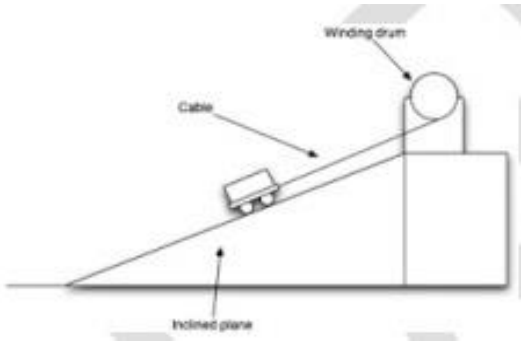
Roadways



Animal Haulage for underground Coal



Coal Stockyard



Coal Haulage through semi-mechanized





Fig 3.3: Manual & Semi mechanized method & Equipment to be used in the proposed project

3.3.12 Location and accessibility

The proposed Lease area for M/s Kamran Collieries is accessible at 35 km from Chakwal City on Chakwal-Jhelum road in Chakwal District. The road is 30 feet wide metaled road. The condition of this access road is very good. However, the passage through the hills leads to the site needs to be paved.

3.3.13 Coal Resources in The Project Area

As the project is mining of Coal, according to the geological investigations of the study area carried out by Geological Survey of Pakistan and US Geology Department, suitable deposits of Coal are present here, however, sufficient coal resources are available in the project area.

The coal is available in Patala Formation which underlies the Nammal/Sakaser Limestone in this project area. The chemical analysis shows that coal is of good quality and is suitable for energy generation.

3.3.13.1 Composition of Coal

Coal is by definition an energy mineral that contains carbon as a major defining unit for its classification into Peat, Lignite, Bituminous, Subbituminous and Anthracite. Higher the rate of carbon the higher is the rank of coal. The coal of the Salt range is Bituminous to subbituminous in its energy content and same quality of the coal exist in the proposed project area. The laboratory analysis from the sample taken from two different coal mines installed in the project area is as under:-

Table: Showing chemical analysis of the Coal

Sr. No.	Sample Identification	ADL (%) ARB	Inherent Moisture (%) ADB	Total Moisture (%) ARB	VM (%) ADB	Ash (%) ADB	Fixed Carbon (%) ADB	Total Carbon (%)	Sulfur (%) ADB	GCV (Kcal/Kg) ADB
1	Diljabba-1	5.05	1.99	6.93	40.52	**15.37**	42.12	85.40	6.70	6416.00
2	Mine-2	5.52	0.71	6.19	38.67	**17.15**	43.47	80.2	7.7	6096.00

3.3.14 Water:

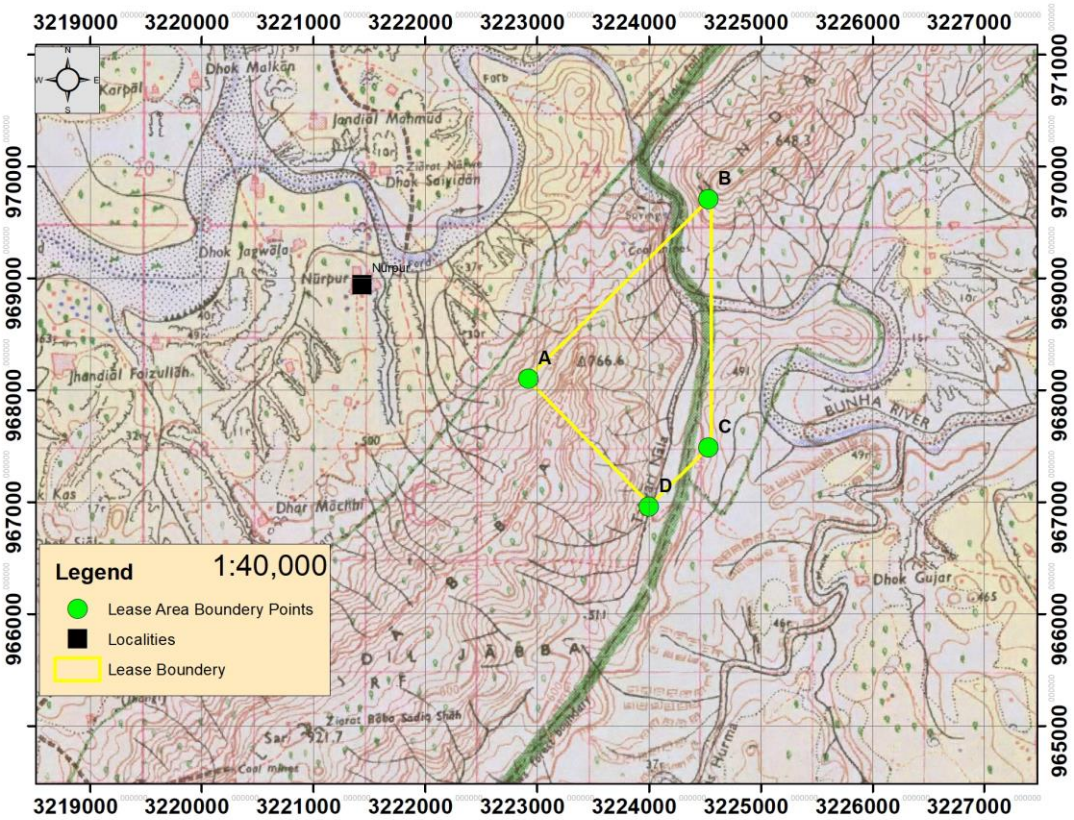
There are different sources of getting the water for coal mining operations in the salt Range are in use which may be categorized as under:-

1. Pond/Spring/Nullaha.
2. Rain water.
3. Water Bowsers

The main problem of the people of the Salt Range area is drinking water. However, there is no population exist in this project area. The water table of the project area is very deep so the water for employed labor to drink is brought manually and for sprinkling is being brought through water bowsers from the nearby Nullaha, namely Bhunna which is running in 1.5 km in Nort of the Project site. Presently no hydrological study is available for the project area. It will be conducted, if required, after confirmation of the renewal of the lease.

Drinking water is the major issue in that area. At the project site water is only required for the drinking at mining area. At the project site usually 08 to 12 persons work there during operation of underground mining. The local water resources are limited, therefore, water for this site will be brought from water bowsers from nearby water storage structures.

Nearby Water Channels(Bhunna River) Map of the Proposed Project(Annex-XII)



Local stream which collects rain water of the area.

3.3.15 Hours of operation:

The mining operates for about 10-12 Hours daily depending upon production requirements as well as continuation of coal seam thickness. Usually coal is produced about 1 to 3 Tons/days.

3.4 The status of the proposal in the project cycle (Pre-feasibility, feasibility or detailed design)

The project is in under Renewal stage and waiting for the approval from the Punjab Government.

According to the Rule 87 of the Punjab Mining Concession Rules-2002; the accompanied by an environmental impact assessment in terms of the Environmental Protection Act 1997 (amended 2012) and shall identify the extent of any adverse effect which the plan

for development and operation of the mine and the carrying out of the programme of proposed mining operation would be likely to have on the environment and on any monument or relic in the area over which the lease is required, and proposal for criminating or controlling that effect. Therefore, this EIA report has been generated for issuance of NOC by the EPA, Punjab regarding coal mining operations to fulfill the above legal requirements.

3.5 Description of the Planning, Design and Implementation Stages

3.5.1 Planning for renewal

The project is in planning for renewal stage for applying to government of Punjab for renewal of mining lease of Coal. This EIA report is required for submission to the Directorate General of Mines and Minerals and later on for approval of EPA.

3.5.2 Design

The project is underground mining of the coal. The Coal will be excavated and transported from mines. Underground coal faces will be developed for the excavation of coal. Excavated coal will be loaded into Haulage or animal hauliging for shifting to coal stockyard and subsequently transported to the open market through trucks as per the requirement. The stock of coal will be maintained at stockyard and will be utilized as per requirement of the market.

3.5.3 Implementation

After the renewal of already granted mining leases to M/s Kamran Collieries, the Phase programme development Plan will be conducted. Thereafter installation and operation of the mines will take place. In this way almost three years will be required after renewal of this mining lease to start the mining process.

3.6 Type, and category of the project

The project aims at Small Scale mining for Coal for getting the raw materials to meet the demand of coal in the brick kiln market. So the M/s Kamran Collieries authorities have decided to establish coal mines in the project area.

According to Schedule I, category D(1) of Review of IEE/EIA Regulations 2000, “A project is require to submit an EIA if the project is Commercial extraction of minerals with total cost of more than Rs.100 million”. But the proposed project does not fulfill the requirement of above mentioned category as its expected cost is less than 100 million rupees, so it has to be submit an EIA/IEE for its approval from EPA.

3.7 Objectives of the project:

M/s Kamran Collieries desires renewal of granted mining lease from the Directorate General of Mines and Minerals, Punjab first and then get permission for its excavation from EPA-GOP for getting its raw materials (Coal) from the granted lease. To meet the increasing demand of energy and to contribute in the development of country, this project is being proposed.

3.8 Alternative considered realistically (in detail) and reason for their rejection

Coal Production involves underground mining from the granted titles which can only be carried out within the allotted boundary limits as pe PMC Rules 2002. The area is rich in coal. Therefore, the natural reserves will be utilized for coal production. The feasibility study shows that sufficient quantity of coal is present in this area which will be enough for next many decades to mine.

At the time of initial inspection of the area & its subsequent grant to the proponent everything was considered including the suitability of the site for the coal mines to be installed. Therefore, there is no need to reconsider the alternatives. According to experts the area is ideal for coal mining. No cultivation of crops are near to it. And this area is easily accessible through road so that the transportation of mined out coal will be very easy. If another new site is selected it will require a lot of additional sources for feasibility study of land and mineral reserves, geological surveys, roads, electricity etc. in addition to all, Mines and Mineral Department has already granted this area to the proponent and they have not any objection on these coal mines sites. Any other option may have negative effects of financial, ecological biodiversity and social.

For success of a project, major considerations include demand for the product; availability of funds; procurement of technology, equipment; availability of manpower, raw materials, power & other utilities which are equally important for an environmental aspect.

All these factors will be considered thoroughly and in conclusion it is decide that the project will be viable in the prospect of its essential requirements as listed above. In energy generation industry availability and suitability of coal is of prime importance. Of the many sites explore, the suitable quality of coal in the required quantity is found at the present site, selected for the project.

3.9 Location and site layout of the project

3.9.1 Location of the Project

The proposed project area is located near Village Diljabba, District Chakwal, which is accessible through metaled road from Chakwal city towards south on Chakwal-Jhelum road.



Figure 3.5 Google Map of Project Site

Pictures of proposed site:





Fig 3.6: Site View

3.9.2 Site Layout of the Project:

The project is underground coal mining; therefore, no industrial installation is going to be made except excavation of coal through manual & semi mechanized mining methods. The Boundary Coordinates of the project area are as under; Furthermore, in this project area presently installed coal mine coordinates are also given hereunder, however these locations may be changed in future depending upon planning for coal mining, however these coal mines coordinates will fall within the project boundary coordinates(lease Boundary)

Table 1: Project (Lease) Boundary Coordinates

Points	Easting (M)	Northing (M)
A	3222923.056	968102.202
B	3224531.726	969710.872
C	3224531.726	967488.368
D	3224002.558	966959.2

Table 2: Currently Installed Mines Coordinates

Mine Name	**Easting**	**Northing**
Mine no.2	3223770.45	967346.08
Mine no.3	3223603.76	967524.68
Mine no.4	3224080.01	967520.71
Diljabba 1	3223909.36	967111.93

Site layout map of the proposed project is attached at **Annex. IV.**

3.10 Land use on the site

The land of the project site is a sparse and barren and vacant land where trees are very sparse and herbs & shrubs are dominant which make no economic value of the area. The coal mines will be underground and will have no serious impact on the surface land use of the area. There are no any kind of activities carrying out there at this time. The area has rich amount of coal which is in subsurface. The granted lease area has area coverage of 599.42 Acers and all of this area is mountainous/hilly terrain. The vegetation on the proposed site is dry tropical thorn forests. The scrub forests provide protective cover to the soils and are source of water, fuel wood and fodder for the local communities.

Land use Map of the Project (Lease) area alogwith its surrounding Land use is attached as **Annexure-VII.**

3.11 Road Access:

The proposed site is about 35 km in South-West of Chakwal City on Chakwal-Jhelum Road. The major road is 30 feet wide & metaled. A Semi-metaled minor road leads from Village Diljabba towards the Project (Lease) Area. The condition of the road is good. Although the Tack continues southwards and connects the Area with foothills but the movement of loaded trucks towards foothills is not possible. All the loaded trucks with coal from the lease area travel towards Diljabba from the Project Site.

The Road Access Map is attached as **Annex-VIII**.

3.12 Vegetation features of the site

The area is the mono conditional and there is mountainous land alongwith sparse vegetation cover. In north side of the Proposed site area, contain agricultural lands and South-west side contain Forest land. Rest of the area is rich in Limestone underneath the coal bearing Patala Formation. The tree founded on the project site is jungle Kikar, shrubs, and Herbs like Achyranthes aspera. There are only herbs and shrubs around the proposed area. It is very ideal place to establish the coal mines sites here. Because there is no problem relating to vegetation around the project area. Jaal, Peelu, Tulha, Karenh Chungaan etc. are the species found in foothills and hills of the project area.

Picture of Vegetation over Proposed Project Area:





Fig 3.7: Pictures of Herbs and Shrubs scattered in proposed area

3.13 Cost and magnitude of the operation:

The project is a coal mining area whose revenue generation for government is difficult to calculate at this stage however the Directorate General of Mines & Minerals, a body working under Mines & Minerals Department, Government of Punjab will receive the royalty on each ton of produced Coal. On average 2 tons of coal is expected to be produced daily and at this rate four mines on average may produce 8 tons daily. Mines and Mineral Department will charge 60 rupees per ton for coal. About 1,72,800/ rupees are expected to generate per year in terms of royalty which will be received by the government.

Apart from that, capital cost, machinery & equipment cost, mine development cost, land & buildings and pays & allowances cost is involved in mining of coal. Therefore, the cost of the project is approximately less than 100 million PKR.

The cost of the project is attached as **Annexure-XV.**

3.14 Schedule of implementation

The NOC issued by the EPA on the basis of this EIA study will be submitted to Mines and Mineral department for allotment/Renewal of the mining area. The exact date of allotment is difficult to mention at this stage. After allotment/renewal of the excavation of mines will be started after issuance of environmental approval. Thereafter installation of new mines and operation will take place. In this way almost three years will be required after allotment of this area to start the mining process.

3.15 Description Process Flow Chart/Steps

The following steps are involved in this project:

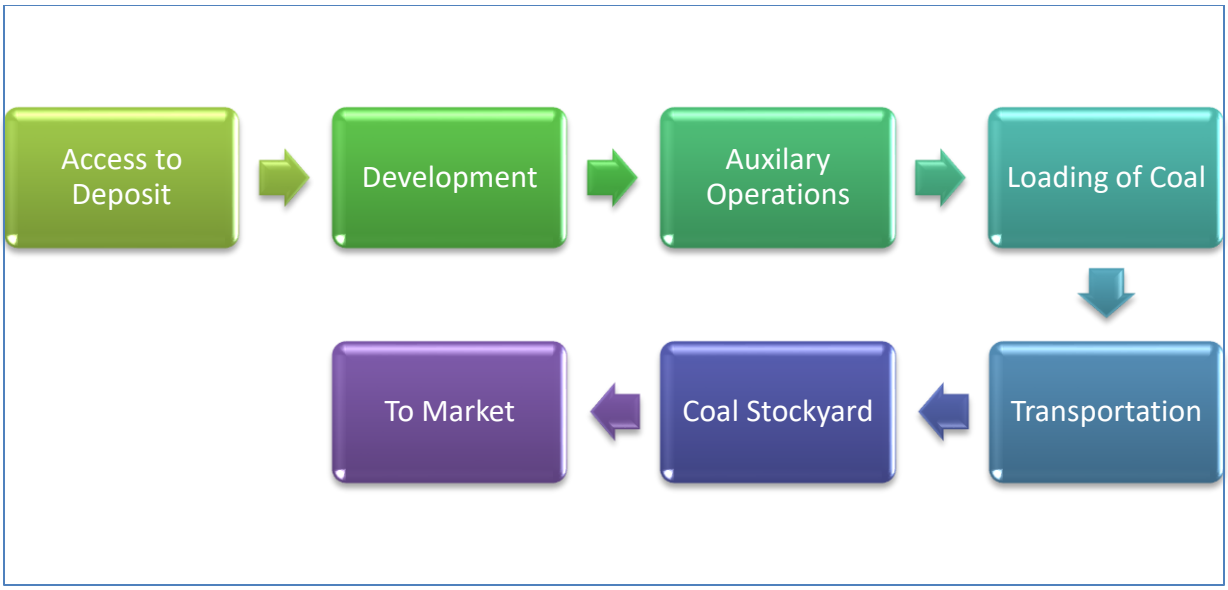


Fig 3.8: Description Flowchart

3.16 Restoration and Rehabilitation Plans

- Underground mining will be adopted. Rain water in the surface are will be reserved in the pits. This water will recharge the underground water.

- The mining area will be rehabilitated according to the following rehabilitation plan.

3.16.1 Salient Features of Rehabilitation Plan:

3.16.1.1 Objective:

To return the land to conditions capable of supporting agriculture, forestry and other uses.

Components:

3.16.2.1 Recycling of Overburden of coal strata

This material will be used for filling goaf areas lying in underground coal mines, low lying areas and construction of unpaved tracks.

Control of Erosion and Runoff:

Soil erosion and runoff will be minimized by suitable management of slopes, leveling of recovered land and plantation of trees and shrubs.

3.16.2.3 Upbringing of Natural Habitats/Ecosystems:

The natural local environment will be maintained as far as possible by the least disturbance of soil other than mining operation and plantation of native fauna.

Compliance with the PEQS:

Compliance with the PEQS will be strictly observed regarding generation of the emissions, effluents and wastes.

3.17 Tree Plantation

The site is a category B type forest cover where scarcely any tree occurs, It is dominantly spiny shrubs covered. Therefore, only native trees and shrubs will be planted which can thrive well under local semi-arid conditions.

3.18 Government approvals

1. According to Section 12 PEPA 1997 (amendment 2012) it is necessary to get the approval and the management of M/s Kamran Collieries is waiting for the Government approval.

2. According to the Mines Rules 2002, the mining approval for renewal must also be get from the mines and minerals department. It is necessary for the further process

Chapter 4

DESCRIPTION OF EXISTING AND EXPECTED ENVIRONMENTAL CONDITION

4.1 DESCRIPTION OF EXISTING AND EXPECTED CONDITIONS

The applied for areas lie in Eastern Salt Range, where Nammal/Sakaser Limestone are exposed. Limestone is available in Nammal/Sakaser Formations of Paleocene age, while, coal is available in Patala Formation lying beneath the Nammal/Sakaser Limestone. A geological formation is a certain amount of rocks strata that has a comparable lithology or other similar features. The thickness of coal formation may vary from thin to very thick

According to the information collected by U.S. Geological Survey and Geological Survey of Pakistan through a joint program sponsored by the U.S. Agency for International Development, Strata exposed near proposed area, range in age from Paleocene to Pliocene and crop out as a belt of folded and thrusted rocks that form a southeast-facing orocline. All of the pre-Neogene rocks in Chakwal are greatly deformed by the collision of India and Asia. The formations of Nammal/sakser & Patala(coal Bearing) are especially susceptible to regional compressional tectonics because it contains amounts of shale and is sandwiched between two thick carbonate units. As a result, bedding-plane faults and isoclinal folds are very common. (Peter D. Warwick and et al)

Deformation and metamorphism of the High Himalaya have obscured much of the sedimentary record associated with initial India-Asia continental collision. The sedimentary evidence that does exist is controversial because of structural complications and a lack of contextual information that could link it to other (e.g., geophysical and paleontological) records of initial collision (Bossart and Ottiger, 1989; Rowley, 1996; Najman et al., 2001). Reliable stratigraphic records of early collision are critical for testing proposed links of India-Asia tectonism to global climatic and biotic change during the early Paleogene (Beck et al., 1998) and for constraining the structural evolution of the collision zone (Burbank et al., 1996).

4.2 Spatial and temporal boundaries adopted for the various aspects of the study

The natural environmental settings, present industrial status and its future trends around the project site covering fairly large distances have been taken into consideration while taking stock of the existing and expected conditions. Socio-economic conditions, availability of basic infrastructure, availability of water, labor, raw materials, transport and

means of communication, electricity and approach to the project site were the major considerations and spatial and temporal boundaries considered during this study.

4.3 Existing (baseline) condition of the biophysical and socio-economic

Implementation of the proposed Environmental Management Plan and Environmental Monitoring Plan as proposed in this report will ensure protection of the environment around. Legal compliance of environmental monitoring with NEQS standards will further guarantee environmental protection of all the segments of the environment. Still further, certification of the factory under ISO 9001 & ISO 14001 ensures environmentally safe operations.

While utilizing the unharnessed raw material like coal converting it into value added product (bricks) is also earning a lot of revenue for government & indirect infrastructure investment on recurring basis in the wake of present government housing projects**.**

4.4 Environmentally sensitive areas of special or unique value

4.4.1 Physical resources of the project area:

Topography and geology, Soils and Climate, water, Ecological resources, Fisheries and aquatic biology, Biodiversity, Forestry, Wildlife, scientific institutions, Socio-economic and Cultural and other heritage.

4.4.2 Topography and Geology

Pakistan geologically overlaps both with the Indian and the Eurasian tectonic plates where its Sindh and Punjab provinces lie on the north-western corner of the Indian plate while Balochistan and most of the Khyber-Pakhtunkhwa lie within the Eurasian plate which mainly comprises the Iranian plateau, some parts of the Middle East and Central Asia. The northern areas and Azad Kashmir lie mainly in Central Asia along the edge of the Indian plate and hence are prone to violent earthquakes where the two tectonic plates collide.

Pakistan is divided into eight geographic regions the northern highlands; the Indus River plain, the Desert areas, the Pothohar Plateau, Baluchistan Plateau, Salt Range, and the Sistan Basin. All the Rivers of Pakistan, i.e., Sindh, Ravi, Chenab, Jhelum, and Sutlej

originate from the Himalayas mountain range. Some geographers designate Plateau is to the west of the imaginary southwest line; and the Indus Plain lies to the east of that line. Elevation extremes; lowest point: Sea level highest point: K2 (Mt. Godwin-Austen) 8,611 m.

Geological Map of the Area is attached as **Annex-IX.**



Fig No. 4.2: Geology of the area

4.4.3 Coal Resources

Coal is available in Patala formation of Paleocene age which underlies Nammal/sakser Formations in the project area. Coal is bituminious to sub-bituminious in its nature. Although the Salt Range coal resources are estimated by the Mines & Minerals department in 2012 which are about 596 million tons. The area of this lease also falls in those estimated area and it has coal resource area in terms of inferred resource. However, the exact resources are estimated by the proponent which will be exploited after renewal of grant of mining leases. They generally occur in irregular beds which can be

traced for considerable distances. Lithologically the Coal is composed dominantly of carbon, which range in color from, brown to black. Coal is present in middle part of the Patala formation. the upper part of the patala Fm is brownish grey shale and light grey to grey siltstone and limestone. Whereas the lower part is composed of brown to grey & pink fine-grained sandstone. Subordinate beds of limestone, marl and marly clays make up a considerable part of the formation. The formation is 10 to 40 meters thick. The unit is coal bearing and coal is being mined in the project area from Patala Formation.

The coal bearing area is about 354 acres which is Inferred resource as per resource category.14 acers have been goaf, hence remaining coal bearing area is 340 acers. Hence rough estimate of the potential area shows that it may have **601,800** tons of coal over spatial extent of 340 acres.

Remaining Coal Potential of the Area:

To calculate the in-ground coal resource requires potential areal extent, seam thickness and density of coal bed. For calculation of the coal resource of ML-CKL-II-COAL-61; the average seam thickness for this area which is being mines is approximately 1.00 feet because the coal being mined out from it and its surrounding areas reflects about same thickness. Coal tonnage was calculated using coal density of 1770 tons per acre-foot of coal ((American Standards of Testing Materials (ASTM)) and remaining potential areal extent has been calculated by putting the mined out area over the total potential area.

Tonnage calculation = Total Coal Bearing Area * Seam thickness *1770 tons/Acre Foot = answer

Coal tonnage for Inferred Category = 340*1.0*1770ton/acre-foot = 601,800 Tons

Coal tonnage for mined out area = 14*1.0*1770ton/acre-foot = 24,780 Tons

Lease Area Coal Resource Statistics	
Total Lease Area	599.42 Acers
Total Coal bearing area	354 Acers
Total mined out area	14 Acers
Total remaining coal Bearing area	340 Acres
Total remaining Coal Resource	601,800 tons

Coal Resource area Map is attached as **Annex-X.**

Uses

Coal is used in the energy needs of the Brick kilns industry of the Punjab Province. It is main ingredient of brick kilns industry; it is also used in cement industry and in chemical work and in glass industry.

4.4.4 Terrain of the area

The Overlying terrain of the project (lease) area is predominantly of nammal/sakaser Formation which consists of nodular to massive limestone with subordinate shale, marl, sandstone and limestone conglomerate.

The Formation is mainly developed in the Salt range and part of the Calcareous Zone of the Axial Belt. The formation is usually 100 m thick, though its thickness changes rapidly from place to place. The lower contact of Sakaser/Nammal Formation is conformable in most of the locations with Patala formation which is Coal bearing. This Nammal/Sakaser Formation overlaps with Chorgali Fm in most of the salt range areas. Paleocene age is assigned to the formation.

The entire mine design in this lease area is based on Nammal/sakaser limestone through adits. The terrain elevation of the project area ranges from 600 Meters to 820 meters from MSL. In this terrain presently four coal mines are installed in the range of terrain elevation 760 MSL.

Contours Elevation of Three Installed & Operational Mines in the Project Area					
Sr.no	**Mine Name**	**Easting**	**Northing**	**Status of Mine**	**MSL(m)**
1	Mine no.2	3223770.45	967346.08	Operative	760
2	Mine no.3	3223603.76	967524.68	Operative	760
3	Mine no.4	3224080.01	967520.71	Operative	760
4	Diljabba 1	3223909.36	967111.93	Operative	760
The total coal stockyard area for coal mines is not more than 1 acers.					
Overburden & dump site area is not more than 1 Acers.					
Total surface mining operations areas is not more than 2 acers.					

In terrain the total surface mining operation area is not more than 2 acers; which includes coal stockyard, overburden & dump site, labor quarters & site office.Terrain layout map of the area is attached as **Annexure-XI.**

4.4.5 Soils

Soils form major part of environment. Their fertility and other special characteristics have great relationship with environment. Climate has great influence on the formation of soils, therefore study of these factors is of great importance. Soil is dynamic layer in which many complex physical, chemical and biological activities are taking place. Therefore, soil is a dynamic changing body.

Soils are made up of solids, liquids and gases. The solid part of the soil is made up of both inorganic and organics. While weathering of rocks makes inorganic particles, the organic solids consist of living and decayed plants. In order to classify the entire soils in Pakistan, the Soil Survey of Pakistan has divided the entire country into nine ecological zones. Soil in the area ranges from silt loam with pH ranging from 7-9.

According to the classification of soil survey of Pakistan the area is Salt Range piedmont. Ecologically this soil is Salvador a saline type. However, the land use of the proposed project site is mountainous, therefore there is no such accumulation of soil layers in this area.

4.4.6 Climate

The climate of the area can be classified as true semi-arid, sub-tropical with long winter and sub-humid. The general feature are high June- July temperature with occasional hot, dry wind and dust storms, cold nights in winter and two rainy seasons. Unseasonal rain fall also occur in the start of the winter. Rain fall pattern of the study area are as;

1. Mid Jun to mid September

2. December to March

The wind mostly flow from the north to the south in the study are region. Mean annual maximum temperature of the study area reach 29°C and minimum is about 14°C.

Humidity of the area is high at night except of the month of the May and June when it is about 58% at midnight and 46% at 0300 hrs. During the other month the humidity range is about 70% to 80% while the midday humidity is low and range is 23%-26%

4.4.9 Geography

Most of the area is characterized by rugged hilly terrain with high mountains of the Salt Range, steep parallel ridges and narrow valleys. The local relief is about 757 meters with maximum and minimum heights of 620 meters above sea level respectively. The site is not subjected to flooding. Proposed Site is situated in Chakwal, Punjab, Pakistan, its geographical coordinates are given in Sketch Plan.



Fig No. 4.7: Geography of Proposed area

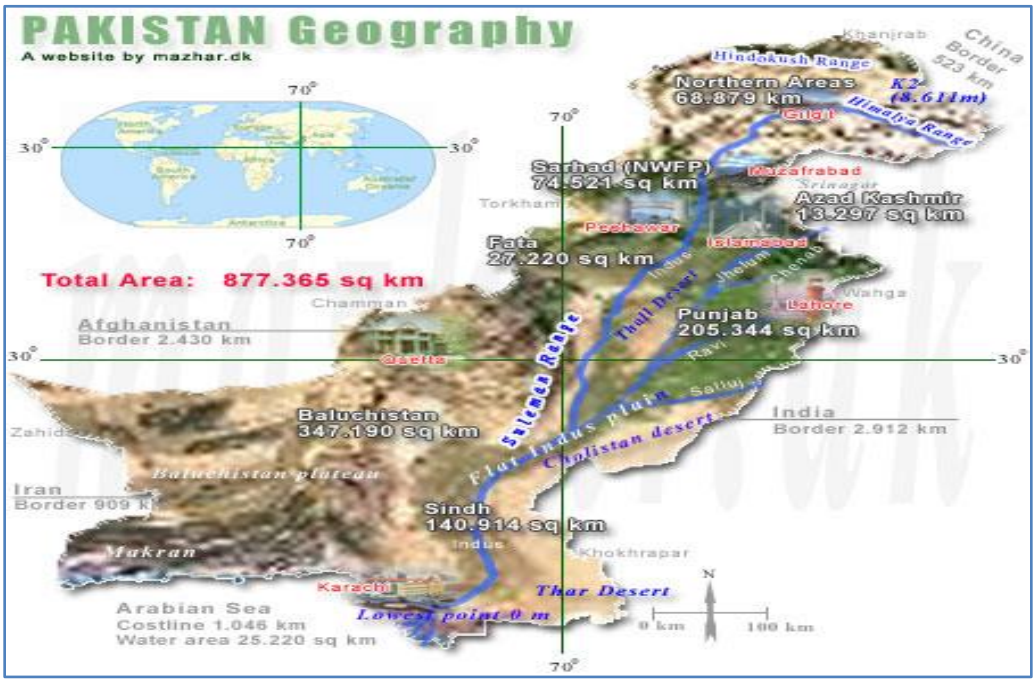


Fig No. 4.8: Pakistan Geography Map

4.4.10 Water

It is water scarce area which is only rain dependent. Ground water is deep and un continuous reserves. Annul average rain fall is 155 mm which is only source of drinking water and other use of local people. A small rainy pond is situated in Northwest of the Project area.

4.4.10.1 River Bhunna (Nullaha)

The Bhuna River is located at about 1.5 Km North from the site. Water for Sprinkling in mining area will be brought from there through water Bowsers as per need of the site. No water from Project site will pollute this Nullaha. Map of the Nullaha is attached as **Annex-XII.**

Table No. 4.1: Result of Drinking water of stream

Sr. No.	Parameters	Unit	PEQS	Results
1	pH	-	6.5-8.5	7.83
2	Electrical Conductivity	uS/cm	-	2960
3	Total Dissolved Solids	Mg/l	<1000	1130
4	Turbidity	NTU	5	2.8
5	Taste	-	Non-Objectionable	Non-Objectionable
6	Odor	-	Non-Objectionable	Non-Objectionable
7	Total Hardness	Mg/l	<500	256
8	Chloride (Cl^{-1})	Mg/l	<250	102
9	Cadmium	Mg/l	0.01	Nil
.10	Sulphate (SO_4^{-2})	Mg/l	-	82
.11	Copper (Cu)	Mg/l	2	Nil
.12	Sodium (Na)	Mg/l	-	46
.13	Calcium (Ca)	Mg/l	-	58
.14	Magnesium	Mg/l	-	30

.15	Potassium	Mg/l	-	14

Torrential streams

There are a number of torrential water courses in the project area. These are flooded during the rain. One such stream passes in the project area. It has been kept intact and other will also be intact during mining development.

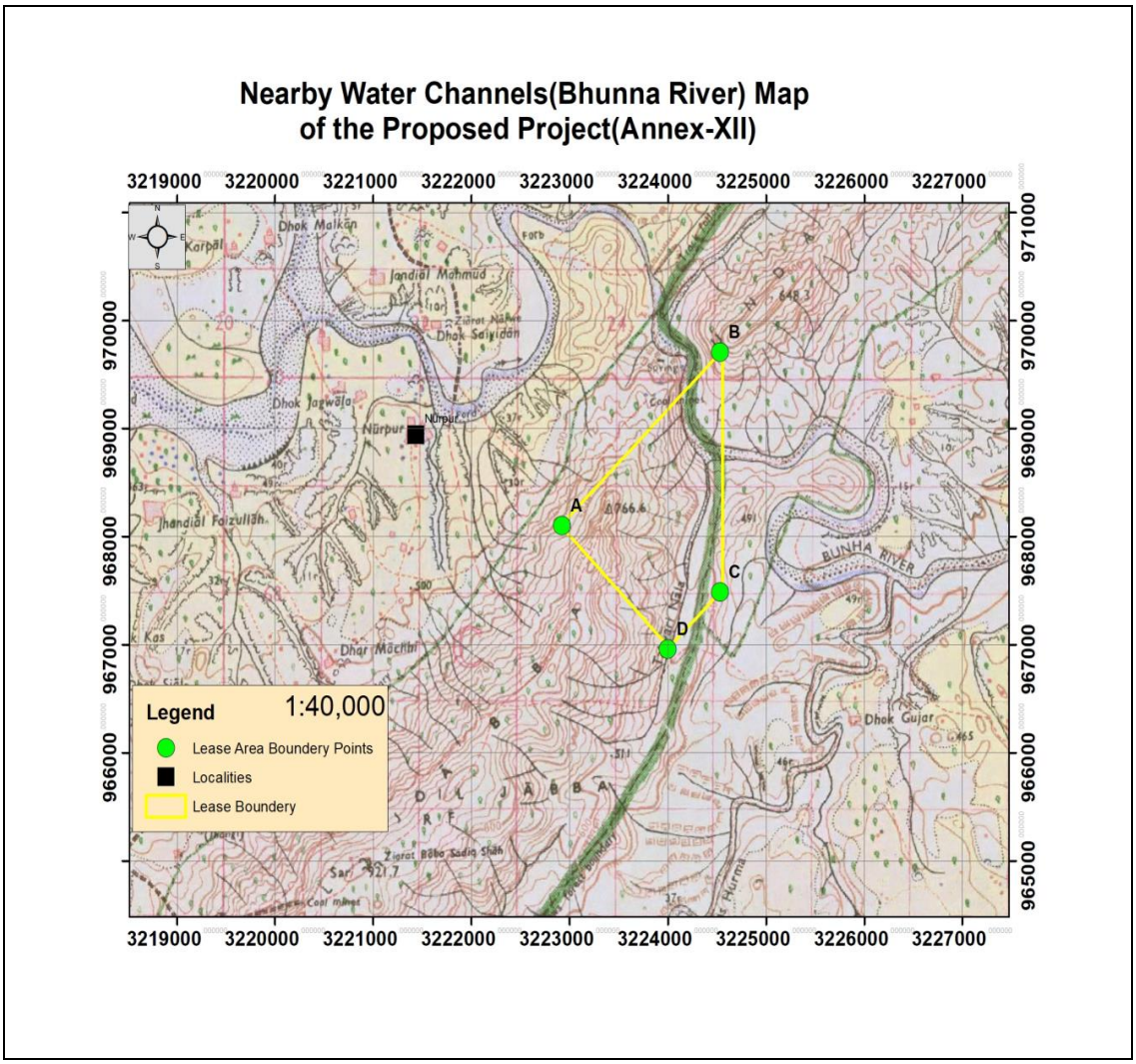


Fig No 4.12: Stream near proposed project area

4.4.11 Fishery and aquatic biology:

The project area is devoid of canals and river in the area; anyhow a Nullaha flow almost 1.5 km away from project site. Fish farming is also source of income for the people but no fish farms are present almost within 10 km radius of the project site. Not any significant aquatic life is present. Bhunna Nullaha is also not a source of fishery in this aquatic ecosystem.

4.5 Biodiversity

Biodiversity of the area is discussed hereunder.

4.5.1 Forest Rangeland

It lies between the base of Eastrn Salt range and the and stretches over Chakwal and Jhelum districts. The soil is deep, well-drained, calcareous, medium-textured and low in organic matter. Climate is broadly characterized by cold winters and very hot summers. June and July are the hottest months with an average maximum temperature of 42˚C. Average annual precipitation is 140 mm which is received in summer.



Fig No. 4.14: acasiaar abica

4.5.2 Wildlife

There is no big life present in the Salt Range pediments. However, some reptile and birds were seen during the survey of the proposed site. No endanger spices exist there however the following animals have been reported in this range like Jackals, Foxes as mammals; Snakes and Lizards as reptiles. Sparrows and Doves as birds.

Live stocks are reared on the grasses and bushes of the area where goats and cows are fed.

	
Fox	**Urhial**
	
Sparrow	**Teetar**
	
Parrot	**Crow**

	
Cow	**Goat**

Fig No. 4.15: Wildlife in the proposed project area

4.5.4 Protected Area

Chumbi-Surla Wildlife Sanctuary is a notified protected area declared under the Punjab Wildlife Act by the Punjab Wildlife and Parks Department is at a linear distance of 30 km in westward from the project site. Like all other protected areas notified by the Department, little and non-sustainable interventions were made towards adopting remedial measures for mitigating the negative impacts on the areas. Wildlife Sanctuary is currently confronted with multiple issues. Limited cultivation is practiced inside the sanctuary area by the communities residing in the surrounding areas by clearing off the natural vegetation. This is altering the natural ecosystem, degrading wildlife habitat, leading to the invasion of alien species and causing many more adverse environmental impacts. Fuel wood extraction from the sanctuary by the surrounding communities is also a continuous problem as the area is deficient in alternate sources of fuel and free fuel wood is readily available at Sanctuary. Most of the people living in the neighboring villages own sheep, goats, cows, and buffaloes. They generally graze their livestock inside the sanctuary and spurs. Consequently, there is a heavy pressure of grazing and fuel wood cutting in the sanctuary.

4.5.5 Flora:

Vegetation of the area is dry deciduous scrub type. The stocking on the whole is poor. The southern slopes are often devoid of vegetation, while northern slopes carry some minor vegetation. Grasses are abundant, like Aristidadepressa (Lamb), Cmybopogan Jawarnica (Khawi) and Eleusine flajellifera (Chhemar). Good quality fodder grasses like

Bothrochloa pertusa (Palwan) and Digitaribicornus (pharion) are found in moist places, where the incidence of grazing is less.

We carried out sampling of vegetation at the project site. The method through we carried out the sampling was Quadrat Sampling in this method of sampling we took an area of 20x20 of different locations and got the information about the land. Some places have good vegetation features and some have not.

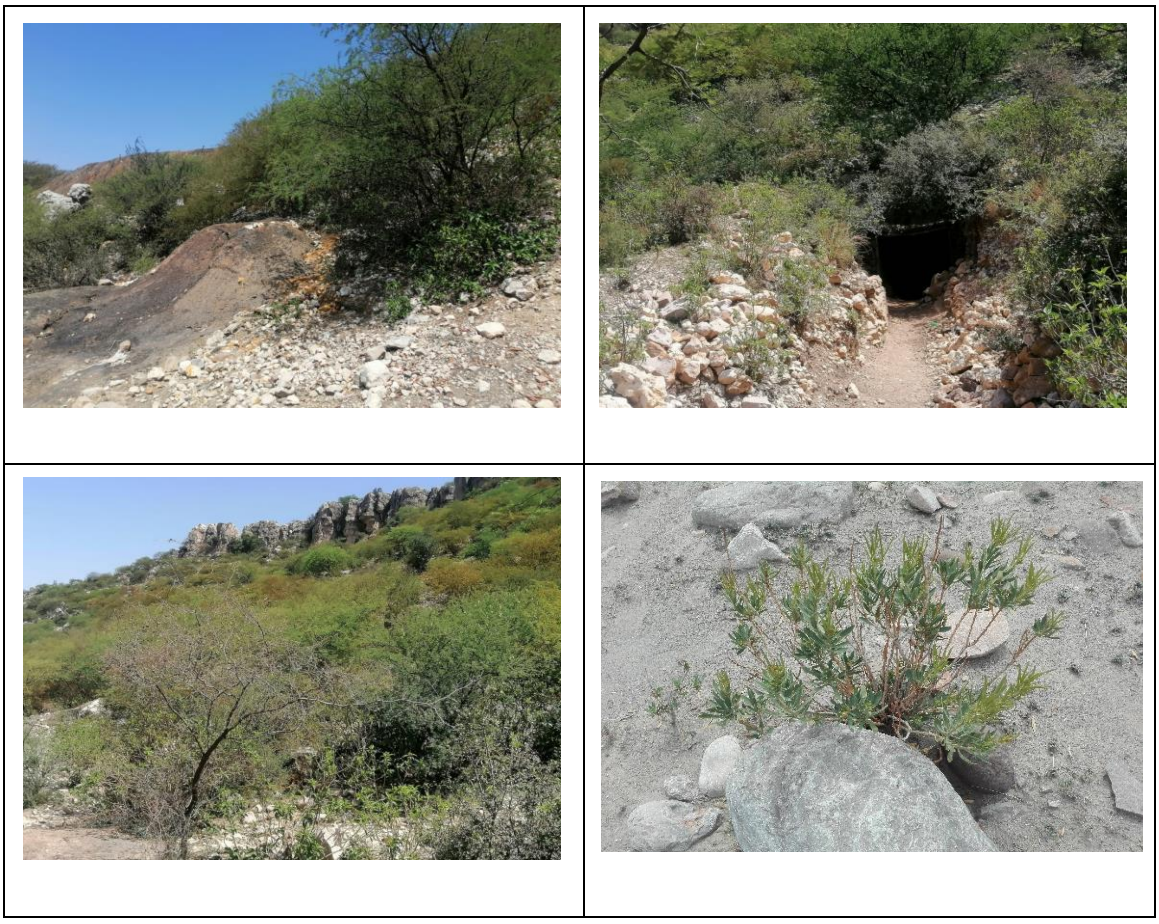


Fig 4.15: Flora of the proposed site

4.5.6 Fauna:

There is no big life there, however some reptile and birds were seen during the survey of the proposed site. There is no endangering species at the site. No animal except dove sparrow, pheasant, crow were seen during the survey. However, people of the area told that the following species are found there.

- Urial
- Jackal
- Wild boar /pig
- Chakore
- Partridge
- Quail
- Sparrows
- Parrot
- Snake
- Spine cat

4.6 Socio-economic*

The land around the project area is semi-arid. With the exception of rain water there is no other worth mentioning source of water. Average land holdings are very small. Agriculture is sparse and cannot contribute to any worth mentioning level of the livelihood of the people. The people also supplement their income by rearing goats, sheep and cows on a limited scale. The people of the area are generally poor.

A large number of the people do mostly labor and other menial work especially at Islamabad, Faisalabad, Lahore and Karachi. However, some are working in Middle East. There is also a highly educated, affluent and well placed segment of the society in the area who are serving in Military & Bureaucracy. Their way of life can be compared with that of any developed segment of the society of Pakistan.

People mostly follow old traditions in almost all walks of their life. Elders are very much respected and play vital role in decision-making. Old people are mostly illiterate. Old customs are being practiced. Arranged marriage system is followed and it is quite successful. People are proud of their traditions and customs. Joint family system prevails and people reap the fruits of this system. Families are quite coherent. Guests are welcome as a tradition from the old past. Life style is simple. Due to awareness about the importance of education most of younger generation, including both sexes, is now trying to get education. There is a rising trend in the society to change their old traditional

socioeconomic pattern of life. Print and electronic media are playing great role in bringing tangible change in the old pattern of life.

4.6.1 Public Health:

The public health conditions of the project area are poor. Only small scale dispensaries are available at some villages i.e. Diljabba. However, at Chakwal city, hospitals are present which caters for medical needs of the people of the area. By and large medical/health facilities are available in the city. No sewerage facility exists in the project area and no water supply scheme exists in the project area. The people use the water from torrential water channel and harvested rainwater in the form of ponds (small water reservoir).

4.6.2 Educational institutions*

There are no scientific institutions in the rural around the project area. This is a list of educational institutions located in the district of Chakwal in Pakistan.

4.6.3 Recreational Resources and Development:

Chakwal, usually neglected district of northern Punjab, is becoming attractive tourist destination, thanks to its natural and religious sites. These sites included one of the most sacred places in Hindu faith, Katas temples on the one side and charming natural sites like Kallar Kahar on the other.

Katas Raj Temple, according to Hindu belief is associated to lord Shiva, the Hindu god. It is said that the temple existed since the day of battle of Mahabharata. Katas mean “weeping eyes”. It has been told that when lord Shiva wept over his wife’s death, the tears formed the pool, which is now known as Katas Raj Temple. Hindu pilgrims considered it very sacred place to please lord Shiva.

But Kallar Kahar is considered as most popular site in the District Chakwal, attracting large number of visitors every day. It is a small hill station on Motorway (M2) and easily accessible tourist destination situated 224km in the north from Lahore and 156km in south from Islamabad making it equally attractive point for both important cities.

The project site is minimum at a distance of 60 Km from Kallar in East and at least 30 Km in Northeast from Katas Raj temple.

4.6.4 Cultural and Aesthetic Values:

Old traditional cultural and aesthetic values prevail among most of the people. Where some people belong to middle class, there a large number of the people are living life below poverty levels. However, media is playing a big role to bring change in the traditional aesthetic values presently prevailing among a large cross section of the society. There is also a section of affluent people who follow even the modern aesthetic pattern of life. A tangible change is appearing among a cross section of the society who are trying to pursue the modern aesthetic values of life.

Financial and religious factors influence aesthetic and cultural values of a society. People have religiously strong commitment to Islam. This relation contributes to good aesthetic and cultural values among the people.

Area around the project site is semiarid. By and large, land holdings are small to support life. Agriculture depends upon rain water and that too on very limited scale. People cannot sustain life on this single agriculture source. Resultantly, aesthetic and cultural practices of a poor and medium type of society are dominant among a large cross section of the society.

On the overall basis, century old traditions of typical villages of Punjab are prevalent in culture and aesthetic sense of life. Most of the people follow quite old type of life, rituals and traditions.

Most of the old people are illiterate but awareness and importance of education is attracting the people to send their wards to schools mostly up to primary level and some inclination to high school education is also shown.

Mostly, customs and rituals are primitive in nature. Some modernization in the existing cultural values is appearing among those educated and economically well off and those frequently mixing with urban society.

4.6.5 Archeological and Historical Treasures:

Katas Raj Temple, according to Hindu belief is associated to lord Shiva, the Hindu god. It is said that the temple existed since the day of battle of Mahabharata. Katas mean “weeping eyes”. It has been told that when lord Shiva wept over his wife’s death, the tears formed the pool, which is now known as Katas Raj Temple. Hindu pilgrims considered it very sacred place to please lord Shiva.

The distance of the Katas Raj Temple is about 30 km away from the project site.



Fig No. 4.21: Katas Raj Temple

4.7 Air & Noise Quality

Air quality of the project area is too much clean. According to the monitoring results of air quality measured jointly by Pak-Green Environmental lab, the quality of air clean. The same are attached as **Annex. XIII**

There is no source of noise at the proposed site therefore it was a silent and comfortable site with respect to noise pollution the measurements made by Pak-Green lab show the noise levels are within PEQS for ambient noise. The results are attached at **Annex. XIII.**

4.8 Population and communities

The project site is situated at a distance of 60 km from Kallar Kahar in Chakwal District. There are small and big villages around the project site. Of these significant ones are Diljabba, Parhal and Nurpur..

4.9 Industries

The project area is not so far developed in industrial terms. Only DG cement factory of D.G Cement Company Limited and Bestway cement factory is about 50 km away from the proposed project site.

4.10 Scenic values.

The project area is relatively barren and has scarce vegetation cover which has little scenic value. However, the Kallar Kahar Lake is a place of scenic and is 60 km away from the site area. Some part of the project area has cover of herbaceous annual and perennial nature which become green in rainy season and give good look.

Chapter 5

EVALUATION OF POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

5.1 Assessment of Environmental Impact during Mining and Operational Phase

Identification of negative impacts and their assessment through scoring have been done. Their negative impacts, mitigation measures and implementation agencies are also described in the report.

The Mines are in planning stage for the production of coal. There is no construction activity involve in this project so no mitigation measures will be taken regarding construction activity. The impacts are limited to the operation stage of the project which may include change in land use, change in topography, loss of flora and fauna, generation of noise and dust, change of drainage pattern and Health and safety issues.

The impacts and their mitigation during the Operation phase are briefly described below:

Coal mines in the project area in District Chakwal waiting for the approval for excavation under strict environmental controls. Implementation of the proposed Environmental Management Plan and Environmental Monitoring Plan as proposed in this report will further ensure protection of the environment around. Legal compliance of environmental monitoring with PEQS standards will further guarantee environmental protection of all the segments of the environment. Still further, certification of the factory under ISO 9001 & ISO 14001 ensures environmentally safe operations.

However, likely adverse impacts from the coal mining, in case no environmental controls are put in place, are explained hereunder.

5.2 Identification of environmental issues:

The environmental issues identified are enumerated in the following **Table 5.1:**

Serial	Environmental Component	Environmental Issue
1.	**PHYSICAL**	
	Water	o Channel water quality o Channel water discharge o Nilla Wahan Nullaha water quality o Nilla Wahan water discharge o Groundwater quality o Groundwater level o Surface run-off o Drainage
	Land	o Soil salinity o Soil erosion o Land utility/productivity
	Climate	o Micro-climatic changes
	Atmosphere/Mining Period	o Dust o Noise
2.	**BIOLOGICAL**	
	Flora	o Forests/trees o Other terrestrial vegetation
	Fauna	o Mammal communities/habitats o Reptile communities/habitat
3.	**HUMAN**	
	Social	o Population o Land ownership/lease o Security o Social cohesion/attitude o Food/nutrition o Health o Education
	Economic	o Income levels o Employment o Land value
	Institutional	o Institutional activities o Institutional effectiveness

	Human Use	o Cultivation o Livestock o Infrastructure o Mining and domestic water supply o Community development
	Resettlement	o Land lease o Dislocation of population o Loss of property o Loss of infrastructure o Resettlement of affectees
4	Geomorphic impact	o The area is barren and scares plantation and has little scenic value. o Removal of overburden and other material will have almost nil geomorphic impact. o The scenic hills are not included in project area.
	Blasting	o Fly rock o Noise o Vibration o Air concussion

5.3 Likely adverse impacts during Mining and operation

The coal mines are in planning stage for the production of coal. There is no construction involve in this process, so no mitigation measure will be taken regarding construction activity. The impacts and their mitigation during the Operation phase are briefly described below:

5.3.1 Land Use

The present land use of the proposed project is vacant and barren land because of no availability of water in the area. This land will be used for mining operation and its mineral reserves will be processed to produce coal. The land use will be shifted to barren land to the mining one. This change in land use will portray positive impacts on the area.

5.3.2 Topography

No Major impact on topography of the proposed project is foreseen because mining is underground. However, the area of mine mouth and coal stockyard may accompany in the changes in flora and fauna and pattern of vegetation of the proposed area. After excavation of coal from underground the topography of the project will not be changed and will not likely to affect the social, environmental or economical pattern of the area. The minor changes in the mouth areas and mining operations area the effect may be mitigated through plantation of same pattern as exists on the present site.

5.3.3 Reptile Communities/Habitats:

Common reptiles are found during the inspection of the area. During the mining operation the species will move to virgin habitats in the surrounding areas. Impact will be minor negative.

4.3.4 Food/Nutrition:

This area comprises hills of dry nature where semi-arid condition prevails, and the people of the area rely on the rain water for the food items. Their present economic conditions hamper to have a balance nutrition. The economic intake from this project will improve the food and nutrition conditions of the people, hence the project impact is significantly positive.

5.3.5 Tree Cutting:

There are no trees or bushes worth mentioning on the proposed project site. However, shrubs of no economic importance exist. The cutting of small shrubs will have no notable impact on the project area. The impact is minor negative. However, it will be mitigated through plantation of native shrubs and plants to restore the area in the existing condition.

5.3.6 Impacts on Flora & Fauna

There are no valuable plants in the project area as the project area is of dry rocks where no water source is available. Few trees and bushes are present which will not be cut down because the mining would be underground. Only few trees which will fall over the mine mouth site and mining operation areas would be cut down which will be replaced at the

closure of coal mine. This whole area does not exceed from 2 acers out of the total lease area.

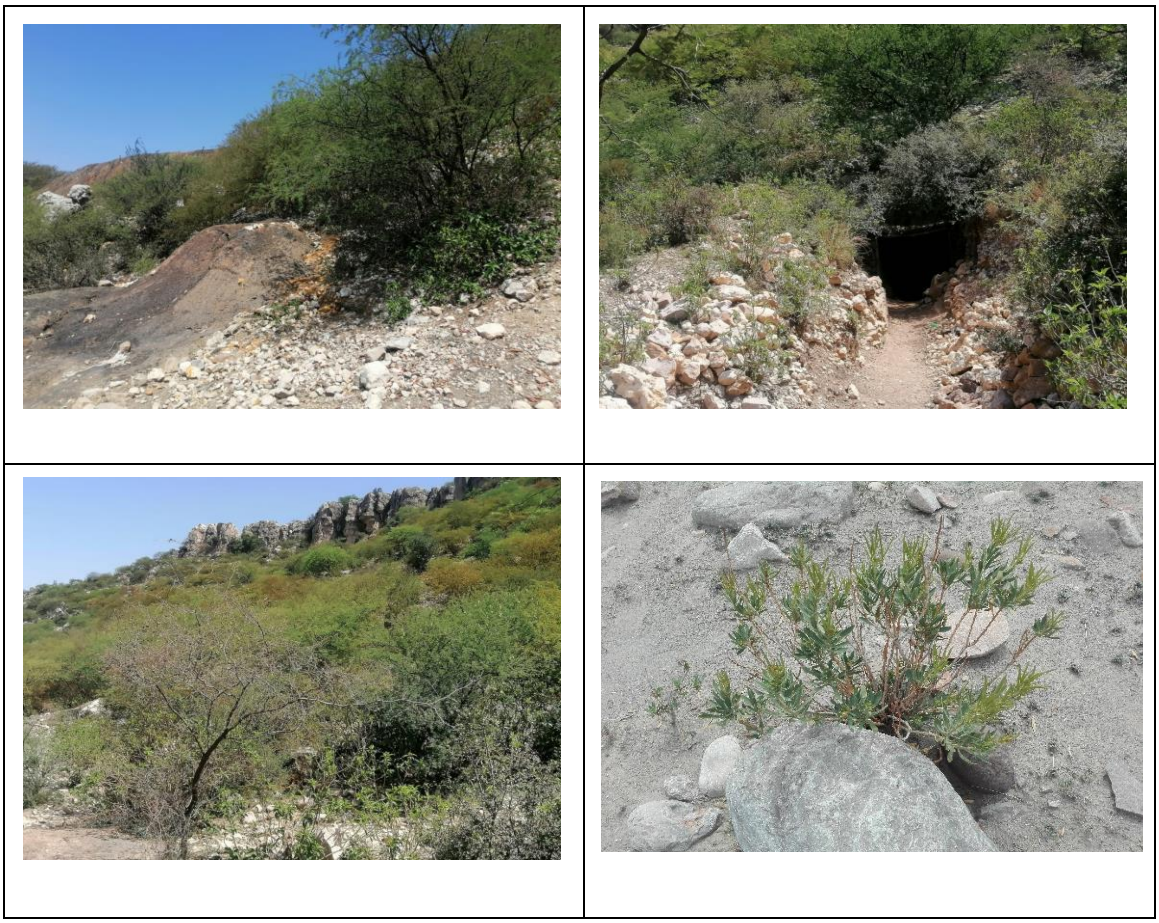


Fig 5.1: Flora of the area

Mitigation Measure:

The large number of plants and trees will be planted after the completion of coal mining process in this 2 acers area in particular and at other places in general.

5.3.7 River/Nulaha Bhuna Water Quality:

Bhunna Nullaha is at distance of about 1.5 KM nortthward from the mining sites therefore, water quality of Nullaha water will not be affected.

5.3.8 Groundwater Quality and Level:

No water is used in mining process; however, small amount of water is required for drinking, washrooms and sprinkling which will be taken from the nearest Nullaha channel or from a small pond lying nearby the lease boundary. Hence no impact on ground water quality is foreseen during operation of this project.

5.3.9 Surface water Quality:

No major surface water source is available in the project area. However, drains and streams exists in the project area which carry water during the rainy season whereas, these channels remain dry for most of the year. During mining process the water sources will be kept intact and no material will be thrown or dumped into these seasonal water courses.

Mitigation Measure:

The flow of water in the channels remains unchanged on account of underground mining and surface operation. No water channel will be disturbed during mining process.

5.3.10 Land Utility/Productivity:

After the mining operation the land will be available for other purposes and will be planted with trees. 100s of indigenous trees will be added every season to the mining area. Impact will be highly positive.

5.3.11 Micro Climatic Changes:

After underground mining of the coal, massive plantation will be carried out to improve local climatic conditions to some extent. Impact will be highly positive.

5.3.12 Air Quality

The air quality will be affected during mining process, loading of trucks , a small quantities of dust will be generated. So its impact is moderately negative. Following mitigation measures will be adopted at each coal mine site:-

- Sprinkle water at the water site. Water bowser to remain present at site throughout operatorial activities.
- Use protective devices against dust
- Avoid working on windy days
- Control speed of vehicles
- Reduction of drop distances
- Dissipation of the dust/ particulates through unutilized carrying capacity of the local environment.

5.3.13 Noise

Noise will be generated from the trucks used during loading process of coal from the stockyard.

Mitigation Measure:

- Allow to enter those trucks who compliant with PEQS for noise of 80 dB (A)
- Proper maintenance of vehicles and equipment
- Use ear mufflers/plugs and other gadgets
- Effective traffic control.
- Dilution of the noise level by the immense carrying capacity of the site ecosystem
- The low noise machinery will be used for mining operation.
- Regular maintenance of machinery and equipment
- Provision of Ear Muffs for the workers

5.3.14 Health and Safety

The possibilities of accidents cannot be ruled out during any operation.

Following mitigation measures will be adopted to reduce the hazards during mining:

- Protective equipment like helmet, gloves, safety shoes and masks will be provided to the mine & site workers.
- Training of workers on health and safety before and during mining process.
- Provision of first aid facilities for workers at site and for meeting the emergency needs of workers.
- Establishment of Health and Safety Department for provision of safe working environment for the employees and for implementing and monitoring various procedures adopted for the safety at site.
- Display of sensitizing material for the workers on issues of safety

Solid Waste:

Various solid waste will be generated from the mining operations as listed below in

Table 5.3: Solid waste

Item/Waste	Source of generation
Metallic Scraps	Workshops (repair, maintenance and fabrication)
Metallic shavings	Workshops (repair, maintenance and fabrication)
Bearings	Binding wires, various steels
Empty drums of plastic and metal	Mechanical and auto department
Plastic cans	Workshop
Redundant Tires, tubes,	Vehicles
belts, nylon strips	Machinery

scrap wood, steel strips,	From packing of machinery

Disposal practices of solid wastes:

When a substantial quantity of these wastes will generate, they will sale out to a third party, select through inviting open bids. The party will purchase the items is fully apprise of the environmental aspects of the items he is buying and instruct of using good environmental practices.

5.3.15 Impacts on Socio-Economic/Human Environments

5.3.15.1 Population:

Population will be increased due to project activity, thus becoming the source of income. Highly positive impact is envisaged.

5.3.15.2 Land Lease:

As the mineral resources belong to Provincial Government, these are leased out generating significant amount of revenue. Overall impact is major positive.

5.3.15.3 Social Cohesion/Attitude:

With availability of more financial resources land employment for the people, it is likely lead to exhibiting more cohesion among themselves. Impact is minor positive.

5.3.15.4 Health:

No regular settlement exists in the project area therefore no impact on the health is foreseen. However, the workers at the mining site will be provided with proper safety gadgets (PPE's).

5.3.15.5 Education:

On improvement of income level, people will send their children to educational institutions. Impact is Moderate positive.

5.3.15.6 Income Levels:

The project has High positive impact on the income levels of the locals. The people of other parts of the country will also be benefited from this project.

5.3.15.7 Employment:

During operational phase more than 100s of people will be benefited for the number of years. During this phase 100% labour jobs will be provided to local community.

As a result of the operation of the coal mines the proponent company will accommodate around 50% people from the project area, yet by and large most of the labor, skilled and semi-skilled jobs will be from the locals. This is also in the best interest of the project.

With these employment opportunities economic status of the people will raise. This has brought out positive change in the entire walk of life of the people.

5.3.15.8 Dislocation of Population:

The project is not involving any dislocation of the local people as regards the Coal mines sites. Impact is high positive

5.3.15.9 Resettlement of Affectees:

There is no requirement of resettling even a single person. Therefore, impact will highly positive.

Table 5.4: showing Overall Assessment of Environmental Impacts

Serial	**Environmental Component**	**Environmental Issue**	**Impacts**	
			Positive	**Negative**
	PHYSICAL			

	Water	o Channels water quality	+1	-
		o Channels water discharge		
		o Nullaha water quality	+1	
		o Nullaha water discharge		
		o Groundwater quality	+1	
		o Groundwater level		
		o Surface run-off	+1	
		o Flooding		-1
		o Drainage	+1	
		o Wetland	+1	
			+1	
			+1	
			+1	
	Land	o Soil salinity	+1	
		o Soil erosion	+1	
		o Land utility/productivity	+1	
	Climate	o Micro-climatic changes	+3	
	Atmosphere/ Mining Operation	o Dust		-1
		o Noise	+1	
Total			+16	-2
2.				
	Flora	o Forests/trees	+1	
		o Other terrestrial vegetation	+1	
	Fauna	o Mammal communities/habitats	-	-1
		o Reptile communities/habitat		
				-1

Total			+2	-2
3.	Social	o Population	+2	
		o Land lease	+3	
		o Security	+3	
		o Social cohesion/attitude	+2	
		o Food/nutrition	+3	-1
		o Health		
		o Education	+2	
			+2	
	Economic	o Income levels	+3	
		o Employment	+2	
		o Land value	+1	
	Institutional	o Institutional activities/effectiveness	+2	
	Human Use	o A forestation	+3	
		o Mining and domestic water supply		-1
		o Community development	+2	
	Resettlement	o Dislocation of population	+3	
		o Loss of property	+3	
		o Loss of infrastructure	+3	
		o Resettlement of affectees	+3	
Total			+42	-6
Grand Total			**+60**	**-10**

On the basis of the above evaluation the Positive impacts are far too greater than the negative ones.

5.4 Assessed significance of the impact stating the standards or criteria used as a basis for judgment

Although the coal mines will be operated in environmentally sustainable fashion, yet a comprehensive Environmental Management Plan and Environmental Monitoring Plan will be recommended in this report. This will ensure further improvement in the environment.

5.5 Possible measures for avoiding or mitigating the impacts

Cleaner Production and good housekeeping help to reduce pollution. It also helps to minimize resource inputs ultimately cutting upon wastes and at the same time reducing losses.

Cleaner Production Principle, i.e. reduce, reuse and recycle, refurbish and retrofit (5Rs) will be followed while going for waste management at all stages during production.

Any fugitive dust emissions from the trucks minimized through water sprinkling at mines roads.

5.6 Mines site mitigations:

5.6.1 Mitigation Measures and Implementation Agencies

To control the negative impacts, measures are proposed. Further, the implementation agencies are also identified. The ultimate aim of these measures is to conserve the local environment commensurate with the PEQS.

Table 5.5: Mitigation Measures and Implementing Agencies

Sr. No	Negative Impact	Mitigation Measures	Implementing Agencies
1	Flooding	• Increased forestry/ cultivation	• Forest Department • M/S Kamran Collieries.
2	Soil erosion	• Increased forestry/ cultivation	-do-
3	Dust generation	• Use protective devices against dust • Avoid working on windy days • Control speed of vehicles • Reduction of drop distances • Dissipation of the dust/ particulates through unutilized carrying capacity of the local environment. • Installation of dust control equipment at the crusher site.	• M/S Kamran Collieries. • Contractors • Workers • Drivers and operators

4	Noise hazard	• Proper maintenance of vehicles and equipment • Underground Coal Mining • Use ear mufflers/plugs and other gadgets • Effective traffic control. • Dilution of the noise level by the immense carrying capacity of the site ecosystem	• M/S Kamran Collieries. • Contractors • Drivers and operators
5	Mammal communities / Habitats	• Increase tree plantation • Control hunting for trophies	• Wildlife Department • Forest Department • M/S Kamran Collieries.
6	Reptile habitats	• Increase tree plantation • Control hunting for trophies	• Wildlife Department • Forest Department • M/S Kamran Collieries.
7	Health	• Provision of timely medical treatment • Workers to use protective clothing/gadgets	• Medical Department of M/S Kamran Collieries.

5.6.2 Environmental Enhancement Measures

5.6.2.1 Identification of Positive Impacts

- On the overall basis there will be positive impacts of the project on the land related issues. Land morphology and agricultural productivity will exhibit improvement. Such impacts can be even further enhanced.

- In addition to the above, socio-economic condition of the locals will show significant positive improvement. With proper management of enhancement measures more dividends from the project can be obtained.

5.6.2.2 Environmental Enhancement Measures and Implementing Agencies

Responsibilities of the relevant stakeholders for implementation of the environment enhancement measures are delineated hereunder:

Note: In all activities aimed at environmental enhancement measures the M/S Kamran Collieries. will play lead role.

Table 5.6: Environmental Enhancement Measures and Implementing Agencies

Sr.#	Positive Impacts	Enhancement Measures	Implementing Agencies
1	Improvement of drainage	• Rehabilitation of the recovered land • Implementation of drainage plan	• M/S Kamran Collieries.
2	Improvement of land utility	• Recovered land must not remain unused.	• Farmers • M/S Kamran Collieries.
3	Improvement of land productivity	• Applying suitable and timely inputs in the soil	• M/S Kamran Collieries.

4	Improvement of economic conditions	• Provision of more jobs to locals in mines • Women be encouraged to undertake small development projects in the area.	• M/S Kamran Collieries. • NGOs
5	Improvement of agriculture and forestry	• Apply optimum inputs. • Plant trees and crops which require lesser water.	• Forest Department • Farmers

Subject	Environmental and Social impacts during various Project Phases			Proposed Mitigation Measures
	Planning	Construction	Operation	
Socio Economic Impacts				
Increase in economic activity	Nil	Nil	Increase of coal will boost the economic activity through addition of taxes and duties	Positive impact
Resettlement	No New resettlement required as site is already under Mining use	Nil	Nil	Not required as no structure needs to be demolished.
Land acquisition	Nil	Nil	Nil	This site is under the government and the government has alloted it to M/S Kamran Collieries . No new land is required.

Change in Land Use	Not significant	Nil	The mining process will remove a small fraction of upper layers where the Coal mine Mouth will be developed & which will be rehabilitated with the sufficient number of trees.	No negative impact is foreseen.
Employment	Positive Few officers have been employed by the Proponent while dozens of people are working on the project.	Nil	Job opportunities for unskilled, semiskilled and skilled workforce at local level. About 20 personnel of all categories will be employed	Max. Workers will be recruited from local persons. Positive impact is expected on local as well as provincial level
Cultural resources	Nil	Nil	People from different sources will come for labour. They will be confined to operational premises. 20 people are	The employees will be within the operational area and very few people are expected to dwell in nearby villages, therefore, negative impacts on cultural

			expected to be employed which will work in proposed area and reside in the project area.	values of the nearby villages are not foreseen.
Camp management	Nil	Nil	Solid and human waste disposal may contaminate soil	The solid waste will be collected in bins of different colors. Valuables will be sold to recyclers while other solid waste will be dumped to TMA dump site.
Socio-economic conditions	Nil	Nil	Income of the individuals is likely to increase. Employment will increase the income level of each person.	Positive impact
Public health	Nil	Nil	Dust, noise and vibration may affect public health	1. Water sprinkling at regular intervals during operational phase. Machinery of low noise and emissions will be employed during operation. Noise generating activity will not be done during night.

				2. Ambient air quality standards which protect the public health will be complied strictly through pollution control. These standards are yardstick for saving of public health.
Permissions from controlling authorities	Permission from EPA Punjab is being applied under section 12 of PEPA, 1997. No other permission is required in this case.	Nil	Permission (NOC) for operation will be obtained from EPD.	1. A reliable and seasoned consultant has been hired for preparation of EIA. The team work of consultant and M/s Kamran Collieries will succeed in procuring the NOC under section 12
Subject	Environmental and social Impacts During Project Phases			Proposed Mitigation Measures

	Planning	Construction	Operation	
Environmental Impacts				
Geology and soils	Nil	Nil	Soil contamination may happen due to oils spillage of trucks on mining site.	Area is not flat, erosion is expected oils, fuel storage and handling will be done with care to control any spillage or leakage. Compacted soils, protective liners, and sedimentation controls for runoff The natural drainage /contours of the mining area will not be disturbed to decease the soil run off.
Air Pollution (gaseous and particulate emissions and heavy metal)	Not significant	Nil	significant due to the following: Emissions of fugitive dust due to movement of heavy vehicles, mining and excavation activities on site	**Operation Phase** 1. Sprinkle water at the quarry site 2. Avoid working on windy days 3. Reduction of drop distances 4. Compliance of NEQS and WBG guidelines 5. Regular monitoring of air pollutants

Noise pollution	Not significant	Nil	Significant due to generators and operation of heavy machinery	1. Use of the machinery compliant with PEQS for noise of 80 dB (A) 2. Use ear mufflers/plugs and other gadgets 3. Addition of noise barriers at mining area. 4. Regular maintenance of machinery
Dust pollution	Nil	Nil	Handling activity like loading activities may cause dust issue.	**Operational Phase** Mitigated by: 1. Water spray in the Coal loading handling activity. 2. Pavement of the surface mining area where loading truck pass 3. Installation of bag filters at all possible sources of dust generation.

Sr. .No.		**Physical Environment**							**Bio-Environment**		**Socio –Economic Environment**							
	Environmental component / Project Activities	Topography And drainage	Soil Quality	Landscape PC	Surface water Quality	Ground water quality	Air Quality	Noise and Vibration	Flora	Fauna	Agricultural Land	Health & Safety	Disruption of public utilities	Employment	Population Disturbance	Social Disorder	Cultural/religious values	Traffic Management
1	Construction camps, Workshops etc.	O	LA	O	LA	O	O	LA	O	O	LA	LA	O	B	O	O	O	LA
2	Transportation of Underground Coal to Coal Stockyard	O	O	O	O	O	LA	MA	O	O	O	LA	O	B	LA	O	O	MA
3	Open storage of materials, fuels etc.,	O	MA	LA	MA	LA	LA	O	O	O	O	MA	O	B	O	O	O	O
4	Storage of chemicals or lubricants	O	LA	O	LA	LA	O	O	O	O	O	LA	O	O	O	O	O	O
5	Relocation	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
6	Use of generators	O	LA	LA	LA	LA	MA	MA	O	LA	O	LA	O	B	LA	O	O	O
7	Stripping and leveling	LA	LA	LA	O	O	LA	LA	O	O	LA	LA	O	O	O	O	O	O

8	Secondary development	O	LA	O	O	O	LA	O	O	O	LA	O	O	B	O	O	O	LA
9	Land use change	O	LA	B	O	O	LA	O	O	O	B	LA	O	B	O	O	O	LA
10	Operation of Mining	LA	O	LA	O	O	HA	MA	LA	O	LA	HA	O	B	O	O	O	LA
Legends: O=Negligible/No Impact B=Beneficial LA= Low Adverse MA= Medium Adverse HA= High Adverse																		

Chapter 6

ENVIRONMENTAL MANAGEMENT PLAN, MONITORING PLAN AND PROPOSED TRAINING

6.0 ENVIRONMENTAL MANAGEMENT PLAN, MONITORING PLAN AND PROPOSED TRAINING

According to EIA guidelines matrices as followed in the preparation of this proposal, this part takes into account the followings:

i- Description of the proposed mitigation actions,

ii- Schedule for mitigation,

iii- Assigning responsibility for implementation (by name or position),

iv- Monitoring program to assess performance,

v- Reporting and reviewing procedures and

vi- Training needs.

6.1 Environmental Management Plan of M/S Kamran Collieries

This ESMP is a delivery mechanism for environmental and social mitigation measures made in the Assessment Report. The purpose of the ESMP is to ensure that these recommendations are translated into practical management actions which can be adequately resourced and integrated into the Project phases. The ESMP is, therefore, an environmental management tool used to ensure that undue or reasonably avoidable adverse impacts of construction, operation and decommissioning are prevented and that the positive benefits of the Projects are enhanced (Lochner, 2005).

An environmental management plan (EMP) has been prepared for the proposed underground Coal mining of M/s Kamran Collieries to minimize negative impacts and is formed on the basis of prevailing environmental conditions and likely impacts of this project on various environmental parameters. The terms and conditions of the environmental approval imposed by EPA Punjab have also been considered for devising the management plan. This plan will also facilitate monitoring of environmental parameters. EMP includes scheme for proper and scientific treatment and disposal mechanism for air, liquid and solid hazardous pollutants. Apart from this, green belt

development, safety aspect of the workers, noise control, fire protection etc. are also included in it.

This environmental management plan is a document which reflects the M/s Kamran Collieries policy to abide by all the legal obligation inferred upon him through environmental laws and environmental approvals.

Table 6.1 Shows the Environmental Management Plan:

1. Air Pollution Control

Sr. no.	Environmental issue	Action taken	Responsibility
1	Maintenance drilling machines	•	Manager mines and Mine Sardar
		• Repair after due date or before damage.	Manager mines and Mine Sardar
2	Dust emission from Coal Stockyard	Covering the Coal Stock with Polythene Sheet	Manager mines and Mine Sardar
3	Dust emission from Blasting	Controlled blasting	Manager mines and Mine Sardar
4	Safety issue during blasting	Issuance of warning and cordoning of the before blasting	Manager mines and Mine Sardar
5	Control of air pollution from transport vehicles	• The exhaust of transport vehicle may be checked periodically for compliance of NEQS	Manager mines and Mine Sardar
6	Control of Fugitive dust	• Transport points may be enclosed with access doors • Fixing of speed limit at site • Cleanliness of the roads	Manager mines and Mine Sardar

		• Persons working in fugitive dust area should have PPE and training.	

2. Water Pollution Control

Sr. No.	Environmental Issues	Actions	Responsibility
7	Waste water of office and toilets	Disposal after three stage treatment in septic tanks	Manager mines and Mine Sardar
8	Damage to the drainage system	Drainage system will not be disturbed during mining operation	Manager mines

4. **Mining**

Sr. No.	Environmental Issues	Actions	Responsibility
9	Dust emission during mining process	• Water spraying will be done during drilling • Use of sharp teeth for pickets • Water sprinkling system	Mine sardar and his staff
10	Dust emission during transportation of Underground coal out of the mine	• Covered Haulage will be used to avoid dust emission • speed inside the mine area will be restrained to 5 kmph to reduce the possibility of dust emissions.	Mine sardar and his staff

11	Land degradation	• Vegetation cover will be provided to avoid soil erosion after close of the mine site. • Dumping and levelling of soil after close of the quarry	Mine sardar and his staff
12	Ground water contamination Leakage and spillage in minng area	• Maintenance and look after of explosive, fuel, oil and domestic sewage	Manager Mine

5. **Solid waste management**

13	Restoration of Site	• After closing of the mining process, the site will be restored in its original appearance through installation of same species which were existing on the site	Manger Mine & M/s Kamran Collieries
14	Segregation of different kind of wastes and its disposal through contractor	• Installation of colored bins • Collection of solid waste from regularly from bins • Separation of recyclable • Maintenance of collection waste bins	Manger Mine & M/s Kamran Collieries

6. **Health and Safety**

15	Noise pollution from mining activity	• Good site management • Efficient material handling system • Provision of PPE to workers	Manger Mines and HSE Officer

16	Health and safety of workers	• Provision of personal protective equipment at high noise and dusty area • Awareness of Health and safety Environment for use of PPE	Manger Mines and HSE Officer
17	Educating the workers for safety and environment	• Lectures to workers and management • Display of educating material at work place	Manger Mines and HSE Officer
18	Emergency plan and remedial measures	• Working and maintenance of all health and safety equipment, firefighting equipment and extinguishers • Preparedness for first aid and health care	Manger Mines and HSE Officer
19	Compensation in case of causalities	• In case of any injury to worker, compensation / insurance may be paid	Owner of M/s Kamran Collieries

Regulatory Compliance

20	Environmental policy Environmental management Plan	Preparation and its approval Circulation of copy to each HOD Ensure the compliance of EMP	Manger Mine & M/s Kamran Collieries
21	Air and noise pollution	Monitoring of Ambient air quality and noise at mining area	Hiring of EPA Certified lab as and when required by the Owner

22	Monitoring and reporting	• Monitoring of water quality and noise on quarterly basis from environmental certified lab by EPA Punjab and reporting to the Proponent and EPA Punjab. • Compliance of conditions of Environmental approval • Ensure environmental approvals • Liaison between EPA and M/s Kamran Collieries	Hiring of EPA Certified lab as and when required by the Owner
23	Social compliance	• Interaction between the management and people of the area • Community development	Owner and Manager Admin.
24	Implementation of Environmental management plan (EMP)	• To ensure the provision of budget for environmental management	Owner & Manger Admin

6.2 Description of the proposed mitigation actions

A summary of the mitigation measures/actions will be adopted and further strengthening against all possible type of pollutants that generates from the mining operations, are given hereunder.

6.2.1 Effluents

Inside the coal mine there is not any source of waste water.

6.2.2 Gaseous emissions and particulate matter

There is no source of fuel burning therefore there are no gaseous emissions. However, the vehicular emissions from the trucks used for transport of Coal from the stockyard to the market are visiting in such a way that no stampede is formed.

The workers are obliged to use all PPE's gears against noise and dust.

6.2.3 Noise levels

Though noise levels within lease boundaries would be generate but will be remain within the prescribe limits of the PEQS, yet further, they will be minimized by proper maintenance of the equipment/machinery at regular intervals of time. A timely replacement of parts/ machinery is to ensure to cut upon sound levels during Mining operations.

Environmental Management Plan and Environmental Monitoring Plan will be made operational. This will further ensure environmental compliance with the PEQS limiting values.

6.3 Schedule for mitigation

Adequate mitigation measures will be adapted. The mining operations will be well organize, environmentally sustainable and in compliance with the PEQS-Pakistan.

6.4 Assigning responsibility for implementation (by name or position)

For effective environment management of all mining operations, responsibilities will set for each operation as follows in Table 6.2:

Official concerned	**Responsibility**
1-Manager Mine	i- Over all in-charge of all the environmental management (E.M.) set up. ii- He will be responsible to ensure smooth functioning of the E.M. system iii- He will work as bridge between the Government concerned authorities and the inside E.M.

	iv- He will be answerable to the higher management in all matters relating to E.M.
2- Environmental Officer	i- During his shift timings, he will be responsible to look into smooth functioning of the process in environmentally sustainable fashion. ii- He will be responsible to rectify any problem regarding environmental matter in collaboration with Manager Mine. iii- He will report all matters regarding E.M. to the Manager Mine.
3- Shift Engineer/ Incharge/Mine Sardar	i- He will be responsible to carry out all tests regarding environmental monitoring which includes vehicular emissions monitoring, particulates monitoring, sound levels monitoring, waste water etc. according to the monitoring scheduled described below in section 7.4 and will report to the Manager mine.

6.5 Monitoring program to assess performance:

According to the "Guidelines for Self- Monitoring and Reporting by the Industry **(SMART)**," Final Report, March 1998, approved by Pakistan Environmental Protection Council (PEPC), in August 1999, Quarry mining falls under "Category A" regarding monitoring of gaseous emissions.

Particulates and noise levels are to be monitored from ambient air and reported on monthly basis for normal quarry conditions.

Record of all monitored results must be maintained adequately for its use at any time and each of the monitoring reports needs to be sent to the EPA Punjab.

In house monitoring of dust, noise and wastewater should be carried out regularly and necessary corrective actions should be taken.

A track record of any solid wastes and their disposal should also be regularly maintained for its use as and when required.

All monitoring data should be reviewed and analyzed regularly in comparison with the PEQS limiting values. And in case of any deviation/violation immediate necessary corrective actions should be taken.

Reporting of all the monitored data should be reported to the EPA Punjab on required basis.

6.6 Reporting and reviewing procedures

Monitoring schedule, as explained at Serial No: 7.4 should be adhered to and all the data to be monitored is scrutinized at the level of Environmental Officer/Shift Engineer**/** In Charge and on monthly basis at the Manager Mines level. The data should be documented according to appropriate format.

6.7 Training needs

Environment Management staff at the Mine site should be trained especially in the following fields:

6.8 Environmental Monitoring

It is necessary to train the relevant mine staff for particulates and sound levels monitoring in order to report the monitored data for assessment of smooth operations of the mines.

6.8.1 Environment quality control laboratory

The existing environmental laboratory will be carried out quality control.

6.8.2 Environmental Monitoring and Evaluation

6.8.3 Coal Mines

Aims:

- In the context of underground coal mining, monitoring and evaluation implies to watch whether mine site is being managed in a sustainable manner.

- Continuous monitoring and evaluation helps to improve the monitoring and environmental controls.

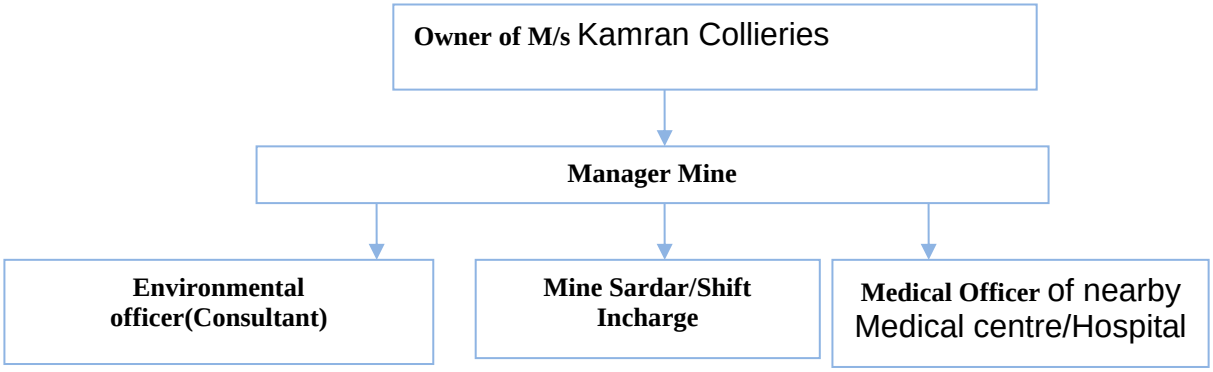
- The aim is to undertake timely assessment of enhancement and mitigation measures for overall conservation of environment at the project site.

Objectives

- Undertake effective environmental surveillance of the mine site.
- Assess effectiveness of mitigation and enhancement measures.
- Ensure compliance with national environmental obligations.
- Monitor rehabilitation of recovered land including afforestation.

6.8.4 Establishment of Environmental Monitoring and Evaluation Department

Organization – With a view to enforce effective and efficient system of monitoring and evaluation, integral resources of M/s Kamran Collieries can be utilized. Suggested



organization of Environmental Monitoring and Evaluation Department is as under:

6.8.5 Training of Monitoring and Evaluation Staff

There is requirement of training the members of Monitoring and Evaluation Department on multifarious environmental aspects pertaining to mining operations. Training will be arranged at a suitable institution.

6.9 Equipment Maintenance Details

The drilling excavating and dumping equipment are required to be properly maintain for smooth mining development and environment pollution control

6.10 Environmental Budget

The environment management cost has been worked out for operation at mining site. The cost covers the environmental monitoring for air, water and noise during operation phase for project site on quarterly basis. Onsite testing instruments, logistic support and maintenance cost.

Total estimated environmental cost for implementation is approximately PKR 1.6 million for operation phase. The tree plantation cost comes out to be rupees 500,000/- after closing of site.

Table 6.3: Environmental Cost of the Project

Category	**Cost (Rs.)**	**Inspection Frequency**	**Annual Cost (Rs.)**
Environmental Monitoring for Water, Air Quality & Noise	100,000/-	Quarterly	400,000/-
Pay HSE Officer	50,000/-	Monthly	600,000/-
Environmental Equipment	100,000/-	Annual	100,000/-
Tree Plantation after closing of site	500,000/-	Yearly	500,000/-
Total	**750,000/-**		**1,600,000/-**

Chapter 7

GRIEVANCE REDRESSING MECHANISM-FORMAL AND INFORMAL CHANNELS

7.1 Formal Channel

7.1.1 Environmental Legislation

The Pakistan Environmental Act (PEPA) 1997, after amendment by the Provincial Assembly of the Punjab vide its Bill No. 56 of 2011 now called “The Punjab Environmental Protection (Amendment) Act 2012”, provides a complete code of conduct for addressing grievances stemming from damages to any sector of the environment from the project activities.

The project is required to operate at least 95 % of its operational period in strict compliance with the required emission standards of Pakistan as provided in the Punjab Environmental Protection (Amendment) Act 2012 and the Punjab Environmental Quality standards. This ensures that the project proponent is legally bound to observe all legal requirements to avoid damaging the environment around the project.

7.1.2 Pakistan Environmental Act and Environmental Management

The Punjab Environmental Protection (Amendment) Act 2012 covers aspects related to the protection, conservation, rehabilitation and improvement of the environment and the prevention, control of pollution and promotion of sustainable development. The Punjab Environmental Protection (Amendment) Act [PEP(A)A] 2012 establishes complete regulatory and monitoring bodies, policies, rules, regulations and Punjab Environmental Quality standards. To ensure enforcement, the act establishes regulating bodies i.e. Punjab Environmental Protection Council (PEPC) and responsible bodies i.e. Punjab Environmental Protection Agency (Punjab EPA) at Provincial level. The act extends to the whole of Punjab Province.

Punjab -EPA has the powers to arrest without warrant any person against whom reasonable suspicion exists of his having been involved in an offence under the [PEP(A)A] 2012, and enter, inspect and search without warrant any premises, vehicle or vessel. It also provides for seizing any plant, machinery, equipment, vehicle or substance, record or document. It also provides the power to summon and enforce the attendance of any person and issuance of Environmental Protection Order, PO 16, an Environmental

Protection Order (EPO), in relation to a person who is contravening a provision of the [PEP(A)A] 2012.

7.1.3 Enforcement of Punjab Environmental Protection (Amendment) 2012, Act 1997 and it's Liability

The Government of Pakistan and so also the Government of Punjab are bound to protect the environment in accordance with its international commitments under various conventions and treaties it has signed or ratified. The Punjab Environmental Protection (Amendment) 2012 translates these commitments into a compliance program for the industrial establishments. Non-compliance to these commitments may results in loss of credibility, popularity and even financial aid from the international forums.

The Punjab EPAs, after the 18th Amendment in the Constitution of Pakistan and of late under The Punjab Environmental Protection (Amendment)Act 2012 is responsible for implementation of these Rules and Regulations within the province.

The [PEP(A)A] 2012 requires:

- That no person (including companies) under its purview will discharge or emit any effluent or noise in contravention of the Punjab Environmental Quality standards.
- That no proponent of a project shall commence construction or operation unless he has filed with the PEPA, an Environmental Assessment report according to the sensitivity of the project or where the project is likely to cause an adverse environmental impact.
- That no person may dispose of waste on public land or on highway on or a land owned or administrated by a local council, unless done in accordance with the provisions of The Punjab Environmental Protection (Amendment) Act 2012.

The following section of the Punjab Environmental Protection (Amendment) Act 2012 further clarifies the mechanism of Environmental Management and Grievance Redress Mechanism.

Section 11:

"Prohibition of certain discharges or emissions.—(1) Subject to the provisions of this Act and the rules and regulations no person shall discharge or emit or allow the discharge or emission of any effluent or waste or air pollutant or noise in an amount, concentration or level which is in excess of the Punjab Environmental Quality standards or, where applicable, the standards established under sub-clause (I) of clause (g) of sub-section (1) of section 6."

"(2) The Provincial Government may levy a pollution charge on any person who contravenes or fails to comply with the provisions of sub-section (1), to be calculated at such rate, and collected in accordance with such procedure as may be prescribed."

Section 12:

"Initial environmental examination and environmental impact assessment.—(1) No proponent of a project shall commence construction or operation unless he has filed with the PEPA an environmental impact assessment, and has obtained from this Government Agency approval in respect thereof".

Section 16:

Environmental Protection Order

"(1) Where the PEPA is satisfied that the discharge or emission of any effluent, waste, air pollutant or noise, or the disposal of waste, or the handling of hazardous substances, or any other act or omission is likely to occur, or is occurring, or has occurred, in violation of the provisions of this Act, rules or regulations or of the conditions of a license, and is likely to cause, or is causing or has caused an adverse environmental effect, the PEPA may, after giving the person responsible for such discharge, emission, disposal, handling, act or omission an opportunity of being heard, by order direct such person to take such measures that the Agency may consider necessary within such period as may be specified in the order."

"(2) In particular and without prejudice to the generality of the foregoing power, such measures may include;

(a) immediate stoppage, preventing, lessening or controlling the discharge, emission, disposal, handling, act or omission, or to minimize or remedy the adverse environmental effect;

(b) installation, replacement or alteration of any equipment or thing to eliminate, control or abate on a permanent or temporary basis, such discharge, emission, disposal, handling, act or omission;

(c) action to remove or otherwise dispose of the effluent, waste, air pollutant, noise, or hazardous substances; and

(d) Action to restore the environment to the condition existing prior to such discharge, disposal, handling, act or omission, or as close to such conditions may be reasonable in the circumstances, to the satisfaction of the Agency."

Section 17:

Penalties:

"(1) Whoever contravenes or fails to comply with the provisions of Sections 11, 12, 13 or Section 16 or any order issued there under shall be punishable with fine which may extend to fifty million rupees, and in the case of a continuing contravention or failure, with an additional fine which may extend to one Lac rupees for every day during which such contravention or failure continues:

Provided that if contravention of the provisions of section 11 also constitutes contravention of the provisions of section 15, such contravention shall be punishable under sub-section (2) only."

"(2) Whoever contravenes or fails to comply with the provisions of section 14 or 15 or any rule or regulation or conditions of any license, any order or direction, issued by the Punjab Environmental Protection Council or the Provincial Agency, shall be punishable with fine

which may extend to five hundred thousand rupees, and in case of continuing contravention or failure with an additional fine which extend to five thousand rupees for every day during which such contravention or failure continues.

- Contraventions of the provisions of the Punjab Environmental Protection (Amendment) Act 2012 is punishable with imprisonment extending up to five years, or with fine extending up to one million or with both. Where an offence is committed by a company every Chief Executive officer (CEO) and the company shall be deem guilty of the offence. Action can even be taken against Government Agencies and Local Authorities."

Government may also constitute an Environmental Tribunal to hear cases relating to the PEPA-1997. The tribunal may only hear cases when the complaint is made in writing by the EPA Punjab, or Local Council or any aggrieved person who has given at least thirty days' notice to PEPA of the offence and of his intension to make a complaint to the Tribunal. The Tribunal may also hear appeals from the Agency appeals from the tribunal shall go to the High Court.

In order to resolve the disputes relating to the environment issues, Environmental Tribunal Rules 1999 have been promulgated. In trying the offences, the tribunal has to follow the Code of Criminal Procedures 1898. The tribunal shall send the copies of his orders to the parties concerned and the Director General of the Punjab EPA. The Tribunal shall dispose of its proceedings within 60 days. An appeal to the Tribunal, accompanying a copy of the impugned order, copies of the documents relied and prescribed fees, shall be sent to the Registrar by the appellant. Generally, the proceedings of the Tribunal shall be open. "

7.2 Grievance Redress Mechanism- Informal

7.2.1 Compensation for Environmental Damages

- First, according to The Punjab Environmental Protection (Amendment) Act 2012, the likely damages to be caused to any sector of the environment or property or else will be paid to the affected parties.

- Second, under The Punjab Environmental Protection (Amendment) Act 2012, the PEPA and the Environment Tribunal can legally prosecute the project proponent for the damages to occur from the pollution generation from the project.

There is complete legal cover to address issues related to compensation for any environmental damage arising out of project activity. However, to address any such issues more expeditiously, the project administrations will have a local committee as an Informal Mechanism.

This informal mechanism will provide convenient, quick and cost effective decisions for compensation against any environmental damages that occur from the project activity. This informal mechanism will also build confidence between the project administration and public and safeguard the interests of both the project and the public at large.

The project administration, therefore, proposes the following committee at the local level for amicable and speedy resolution of cases pertaining to any environmental damages that likely occur from the project activity. The decision of the committee will be executed in letter and spirit.

7.2.2 Constitution of the Committee:

The project management will form a committee at local level including the members from local administration, environmental expert and representative of the aggrieved person/s the committee will be chaired by CE/Project Director for amicable and speedy resolution of any discrepancy regarding environmental damages.

7.2.3 Time Schedule for Redressing the Grievance

- The committee will be under obligation to decide the grievance within three weeks of the complaint by the aggrieved party.

- Compensation as decided by the committee will be paid in full to the aggrieved party within two weeks from the date of decision of the committee.

- The decision of the committee will be binding on both parties i.e. the project proponent as well as the aggrieved party.

Chapter 8

Public Consultation

8.1 SOCIO-ECONOMIC SURVEY OF THE PROJECT AREA

Consultation with the stakeholders is a tool for managing two-way communication between the project proponent and the public. Its goal is to improve decision - making and build understanding by actively involving individuals, groups and organizations which have a stake in the project. This involvement increase project's long term viability and enhances its benefits to locally affected people and other stakeholders. The public consultation was conducted for this project keeping in view the above theme.

8.2 Methodology

8.2.1 Identification of stakeholders

Stakeholders in this project were identified keeping in view the Guidelines for Public consultation published by Pakistan EPA, 1997. The stakeholders were identified from the following groups.

a) Local people
b) Affected Communities
c) Proponents
d) Management of M/s Kamran Collieries
e) Government Agencies
f) NGO
g) Influential people
h) Technical persons
i) Poor People

8.2.2 Techniques for Public Consultation

The following principals were kept to select the techniques or public consultation:

- Provision of material / information in easy language
- Providing sufficient time to understand

- Providing discussion to understand the information in a friendly way
- Portraying the actual issues relating to the project
- Discussion at the place which has easily access to the people
- Selection the time when maximum people are available
- Selection of influential people of project area
- Including of poor people
- Selection of people who give true presentation of community make up
- Including technical people who has clear knowledge of on the issues relating to M/s Kamran Collieries.
- Concerned government departments were selected who had liaison with the execution of the project and environmental approval.

8.3 Dissemination of information

The EIA team reviewed the available information, held meetings with the proponent and designer and prepared a leaflet in English containing all the necessary information about the proposed Underground Mining project of M/s Kamran Collieries relating to the public interest. The pamphlet was distributed to the public in informal meetings group discussion and corner meetings at public and work place of the proposed site. The original social survey performa are being attached at **Annex. IVX.**

8.4 Public Meetings and Group Discussions

The surrounding area is rural in nature therefore we decided to hold physical contact instead of using print or electronic media. The group discussion is the way of opinion making used in the Punjab since hundreds of years. It is reliable and unbiased way to get opinion of the people.

8.4.1 Convenient Time and Place

The people in villages do not move away from village except in case of urgency. We went to them on their residences or work places. In this way no time and money of the people was spent, and we got indiscriminate access to the concerned people. In this way the

people who do not have money to travel to go to government departments got access to information and had opportunity to express their opinion in a liberal way.

8.4.2 Non Government Organization

NGO are working in the area which are mostly exploiting.

8.4.3 Limitations of the Public Consultation

We tried our best to include all segments of life into account according to education and professions as per local distribution of the social formation. But we could not include the enough women in public consultation process due to closeness of the society for women exposure to alien people and social taboo.

8.4.5 Questionnaire

After review of the available information a questionnaire was developed containing all necessary information and question covering different aspects of the M/s Kamran Collieries mining initiatives. The questionnaire comprised of two parts. First part has brief introduction of interviewee and second part is the overall overview of the residents of the area divided in the following parts:

- Socioeconomic background
- Positive and negative impact of the project
- Acceptance level of the project.

8.5 Public Consultation

The following stake holders were identified, and meetings were held with them to inform them about the project design and know their response.

- Management of M/s Kamran Collieries
- Nobles of the area.
- Shopkeepers of area

- Farmers
- Laborers
- Management of the Project
- Residents of the area

The socio-economic information was gathered through different techniques and methodologies and is derived from primary and secondary sources. Primary data were collected through following data collection tools: (i) Village profiles; (ii) Socio economic survey; Village profiles were carried out for all villages/settlements falling in Project Area. An introductory leaflet about basic information of the project was prepared in Urdu and distributed among the people at public places. This helped the people to understand about the project pros and cons. After one week the area was revisited by the team of experts and again asked the opinion of the people about the project in the form of well-designed social survey questionnaire. Public consultations were also conducted in the area.

8.5.1 Issues Discussed

Following issues were discussed during the stakeholder consultation:

i) Personal information

ii) Residence status

iii) Information about project

iv) Possible impacts on natural vegetation, land and properties;

v) Beneficial factors and involvement

vi) Opportunities for the local people.

vii) Adverse effects of the project

viii) Acceptance of the project by the people of the area

Different segments of the society were included to reflect the true and unbiased opinion. From Mine Sardar to labour all segments of the project area were interviewed. The offices at district level were approached to have their verdict on the project. The people who were interviewed through a questionnaire which showed the following results:

8.5.2 Socio Economic Survey

a. Gender:

Male	20
Female	0

b. Occupation:

Farmer	3	15 %
Labor	11	55 %
Shopkeeper	2	10 %
Government service	1	5 %
Business	3	15 %

c. Water pollution problem:

Concerned about water pollution	0	0%
Don’t show any concern about water pollution.	20	100%

d. Employment chances Direct and indirect:

Yes	20	100%
No	0	0%

e. Consent on project implementation:

Yes	20	100%
Conditional (yes)	0	0%
No	0	0%

8.6 Apprehensions of the people of the area

- Low employment offers to local people during operation phase
- Social work in the area
- Health dispensary

8.6.1 Mitigation of the People's Apprehensions

i) No resettlement is involved

ii) Wastewater will be treated before disposal

iii) Big opportunities for the local people during operation phase.

iv) It will create employment opportunities.

v) Project management will give priority to local people for employment

vi) Social welfare work through community uplift

Pictures of the Public Consultation:







Fig 8.2: Public Consultation

Chapter 9

Conclusion and Recommendations

Conclusions and recommendations:

Conclusions and recommendations as a result of the Public Consultations are given hereunder.

9.1 Conclusions:

At the end of this EIA study, following conclusions are drawn:

- Social cohesion among the locals is expressed optimally.
- The project* will bring much more benefits than the disadvantages.
- On the overall basis the project* is environmentally sustainable.
- The project will operate in environmentally sustainable manner.

9.2 Recommendations:

In order to improve further the environmental conditions at the coal mines site a few recommendations are made as under:

- At points of Loading and unloading of coal necessary precautions along with provision of dust catching equipment (bag filters) should be installed.
- Trucks should be filled with Coal to the extent where from the spillage of material should be minimum as far as possible.
- Dusty areas and for that matter roads, open and vegetation free area should be wetted down to minimize dust generation.
- Adequate systems to control runoff and storm water should be provided to minimize suspended materials carried off site.
- Existing storm water drains should be properly maintained, and culverts be construct over them at all road crossings. Wherever required, new drains should also be constructed to further facilitate storm water safe drainage without damaging any segment of the environment.

- Develop a strong unit to undertake environmental management responsibilities.
- Blasting should not be done during night times.
- All open spaces under operation should be wetted to minimize fugitive dust.
- The existing water system for rain/storm water should be further developed.
- Drilling equipment with dust collection system be employed.
- All mine workers should be provided with the required protective gears and their use should be made mandatory.
- Complete compliance with the EM and EMP should be done in true letter and spirit during regular mining operations.
- Closed Coal Mines should be rehabilitated as recommended in this report.
- Mines should not be operated on:

    1. **Public holidays and other gazetted holidays,**
    2. **During strong windy & rainy days and at night.**

Sequence of delays detonators should be adjusted to reduce the noise levels during blasting and controlling vibrations.

Minimization of Dust and Noise Generation:

Control the levels of dust and noise pollution by creating awareness about these hazards among the workers/operators/drivers and by providing them protective clothing and equipment for strict use.

Medical Check-up of Mine Site Workers:

Medical Officer of the hired by M/s Kamran Collieries should carry out medical check-up of the employees working at the mine sites against possible health deterioration and take preventive and control measures against environmental hazards.

Particulate Matter Monitoring:

M/s Kamran Collieries needs to undertake monitoring of particulate matter from each operational point at the mine site upto the transfer of raw material to the market.

9.3 Conclusion

On the basis of findings of this EIA study, it is concluded that operation of underground coal mines does not have any significant adverse impacts on the local population or any segment of environment and by implementation of above provided recommendations and mitigation measures the environmental conditions will further improve the environment.

Therefore, it is recommended that the NOC/ EIA as requested may be issued by the Environment Protection Agency Govt. of the Punjab, Lahore so that it may be provided to the Directorate General of Mines and Minerals, Poonch House Multan Road Lahore.

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