

SECTION – 4

AFFECTED ENVIRONMENT

4.0 GENERAL

An environmental baseline study is intended to establish a data base against which potential impacts can be predicted and managed later. The existing environmental conditions around the proposed project have been considered with respect to physical, biological and socio-economic aspects. A site visit was conducted to survey the field area and to collect environmental data on physical, biological and socioeconomic parameters. Further, interviews were held with the general public and stakeholders of the areas adjacent to the project area in order to seek the public opinion on the implementation of the proposed action.

4.1 PHYSICAL ENVIRONMENT

The areas covered under physical resources are; climate, water resources, topography, seismology, geology and soil conditions. The objective of the study was to establish;

- Baseline conditions of surface and groundwater resources
- Assess the surface and groundwater quality
- Soil and geology baseline of the area
- Impact assessment of the project activities on the physical environment

The detailed description of physical resources is discussed as under:

4.1.1 Topography and Drainage

The topography of the project area is predominately sub mountainous, eroded by intervening flat valleys, which are fertile and partially irrigated by canals or by extracting groundwater through tubewells. Two well washed drainage areas exist in the surrounding of project area. First is Haro drainage system. This watershed starts at Makhad then runs north-east across Pindigheb and Jand tehsils and extends to Fatehjang. The second area, Dor drainage system which is west of Fatehjang and south of the Kala Chitta, drains directly into the Indus. The project area lies in district Haripur, which is geographically divisible into four regions. The first is Maidan-e-Hazara which consists of plain area of Haripur district surrounded by mountains of Tanawal. The second region Tanawal, which is mainly mountainous, is sub-divided into upper Tanawal and lower Tanawal which lies in the north of Maidan-e-Hazara. The third region is Khanpur Punjkahta which is a well watered plain lying in the

south-eastern corner of the Haripur district where the Haro emerges from the Khanpur Hills. The last and fourth region is Chhachh in the west of Haripur city. This entire tract is submerged under the reservoir of Tarbela Dam. The important rivers of the district are Indus, Sirin, Dor and Haro. River Indus enters the district Haripur at Darband in the north-west taking its course along the western boundary of Haripur, makes its exit from the district at Ghazi. Indus River is main source of Terbela Lake. Sirin River being a tributary to Indus River enters the district at Bir and it merges with Tarbela Lake In The Vicinity Of Bir. The Dor River contains much less water and has a shorter and more rapid course than the Sirin River. It originates at the northern end of Daunga Gali range, flows through the plains of district and joins the Sirin near the north-eastern of Gandger range eight (8) kilometers above Tarbela. It irrigates a large area in district Haripur. The Haro River emanates from the southern end of Daunga Gali range where it has two branches. The eastern known as Dhund and the western is known as Karral Haro. The two streams unite at the head of Khanpur tract and the river after flowing for some distance debauches on the Khanpur Panjkatha. The important streams of the district are Haro, Dor and Siran. The Haro originates at the southern end of Daunga Gali range and flows through the district as two separate streams towards southwest. The Dor River rises at the northern end of Daunga Gali range and flows in the center of the district in a south western direction. The Siran river enters the district from the north western corner and flows southwards along the western boundary for a short distance and finally leaves the district near Kachi village. These rivers have numerous tributaries, some with permanent flow and other with scanty flow. These tributaries (nullahs) are also used as access road to the hilly terrain where the earthen tracks are not available. **Fig. 4.1** shows general topography and seasonal nullahs in the surrounding of the project area.

Fig. 4.1: A General View of the Topography and Seasonal Nullahs



4.1.2 Geology and Soil

The project area lies in three geological zones along its alignment. It is Pothohar and rocks present under lie are soft grey sand stones and orange to bright red shale's of the siwalik system. In Haripur District, there exhibits a sort of meta-sedimentary rocks of slates, phyllites, phyllitic-slate, quartzite and crystalline limestone. The major minerals present in the entire stretch of the project area are iron, lead-zinc, manganese, tungsten, bentonite, graphite etc. As a result of substantial rainfall in the project area, soil erosion has been observed as a major problem. The water percolates inside the land and erodes the soil significantly. The soil in the project area is mostly of alluvial character and consists of agglomerate of stone fragments, gravel, sand and silty loams. The soil at project area is predominantly of silt.

4.1.3 Climate

Project area is located in the KPK. The nearest Meteorological station which represents the weather of the region is Peshawar. Climate of the district is extreme. Winter in Peshawar starts from November and ends in March. Summer months are from May to September. The mean maximum temperature in summer is over 40 °C (104 °F) and the mean minimum temperature is 25 °C (77 °F). The mean minimum temperature during winter is 4 °C (39 °F) and means maximum is 18.35 °C (65.03 °F).

Average annual temperature, relative humidity, average annual precipitation and wind rose (wind speed & direction) are given in the **Table 4.1, 4.2, 4.3** and while graphical presentation is given in the **Fig. 4.2-4.6** respectively.

Table 4.1: Temperature Fluctuations Observed (Source: Peshawar Met Station 2013)

Month	Mean Temperature(°C)	
	Maximum	Minimum
Jan	17.95	3.78
Feb	18.33	8.21
Mar	26.51	12.60
Apr	30.46	15.56
May	37.66	21.95
Jun	39.38	26.59
Jul	37.56	27.32
Aug	35.67	25.29
Sep	35.08	23.69
Oct	31.77	19.59
Nov	24.6	10.09
Dec	20.11	6.39
Annual	29.59	16.75

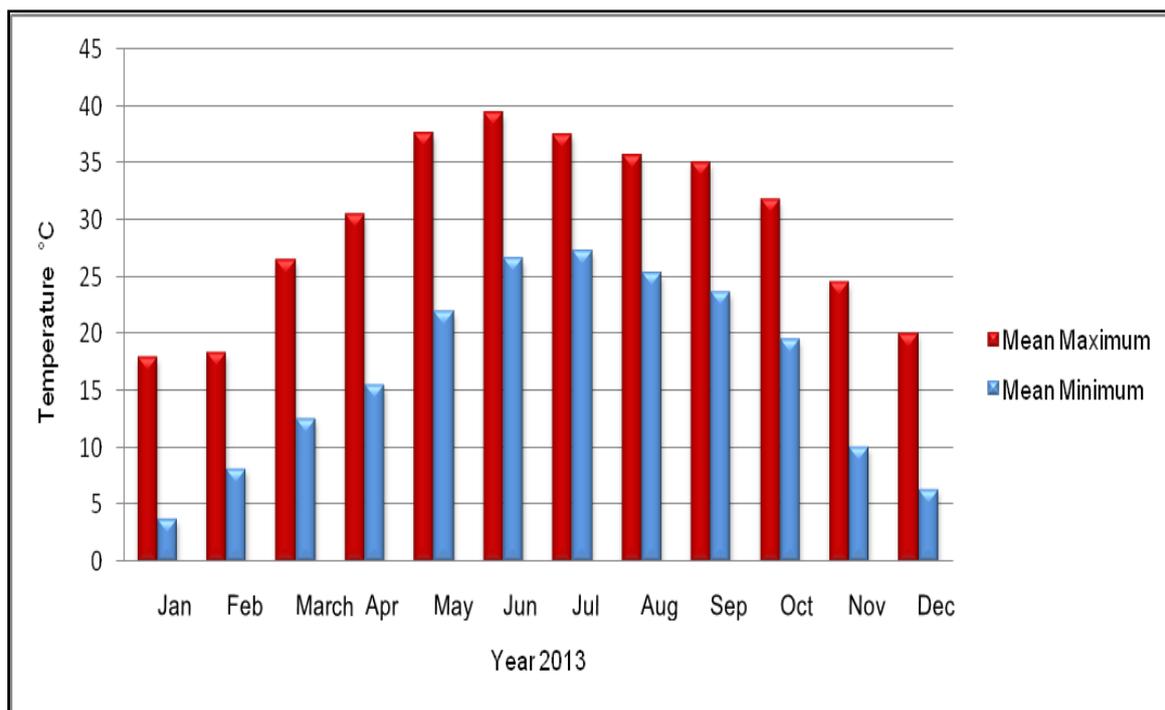


Fig 4.2: Temperature fluctuations observed (Source: Peshawar Met Station 2013)

Table 4.2: Monthly Average of Relative Humidity (Source: Peshawar Met Station 2013)

Month	Relative Humidity (%)
Jan	64.64
Feb	72.46
Mar	64.96
Apr	59.95
May	43.74
Jun	50.66
Jul	66.02
Aug	71.17
Sep	65.40
Oct	63.74
Nov	65.21
Dec	62.42
Annual Average	62.53

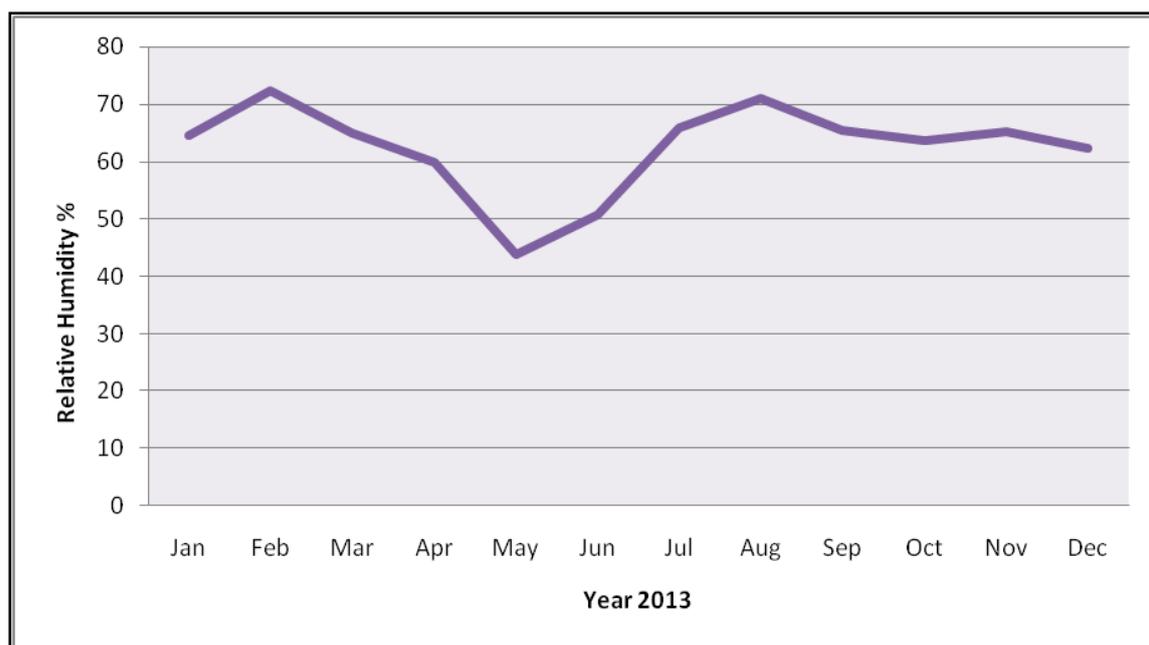


Fig. 4.3: Monthly Average of Relative Humidity (Source: Peshawar Met Station 2013)

Total Annual Rainfall are given in Table 4.3 and month wise comparison of precipitation are presented in the figure below.

Table 4.3: Total Annual Rainfall (Source: Peshawar Met Station 2009- 2013)

Total Annual Rainfall (mm)					
Month	2009	2010	2011	2012	2013
Jan	50	21	8	51	3
Feb	75	119	112	20	197
Mar	85	17	34	18	116
Apr	187	32	49	66	85
May	57	21	52	51	15
Jun	20	81	14	0	18
Jul	18	409	58	2	13
Aug	92	125	122	27	63
Sep	19	4	38	127	1
Oct	0	0	52	16	48
Nov	19	0	29	4	36
Dec	1	10	0	76	1
Total	623	839	568	458	596

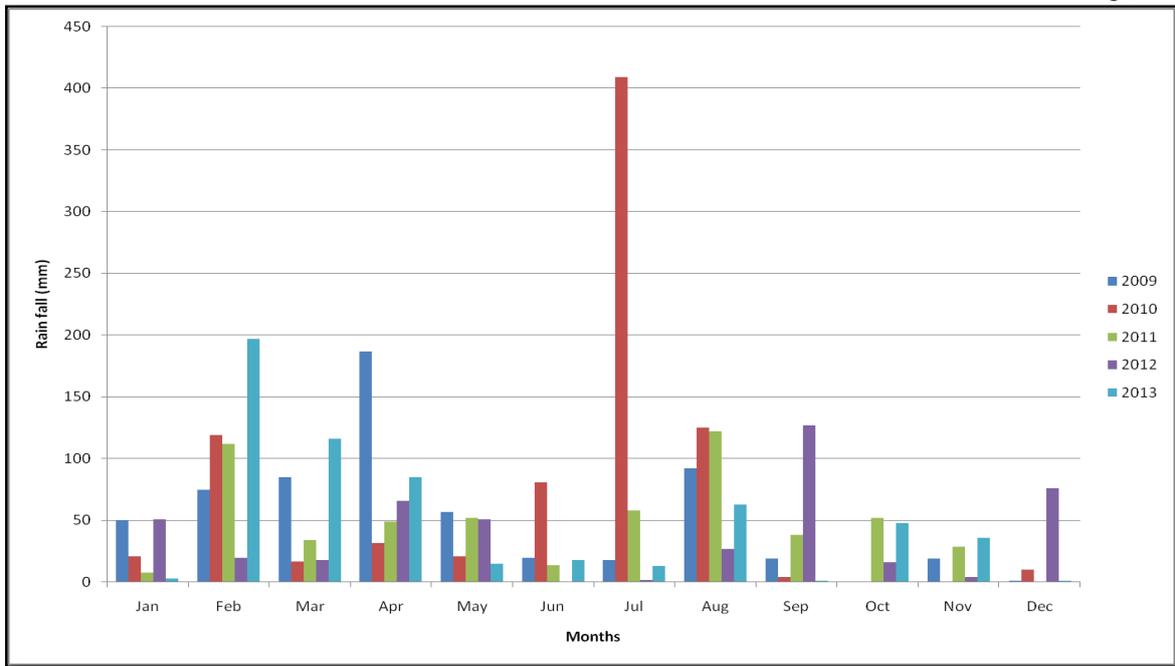


Fig. 4.4: Month wise comparison of Precipitation (Source; Peshawar Met Station 2009-2013)

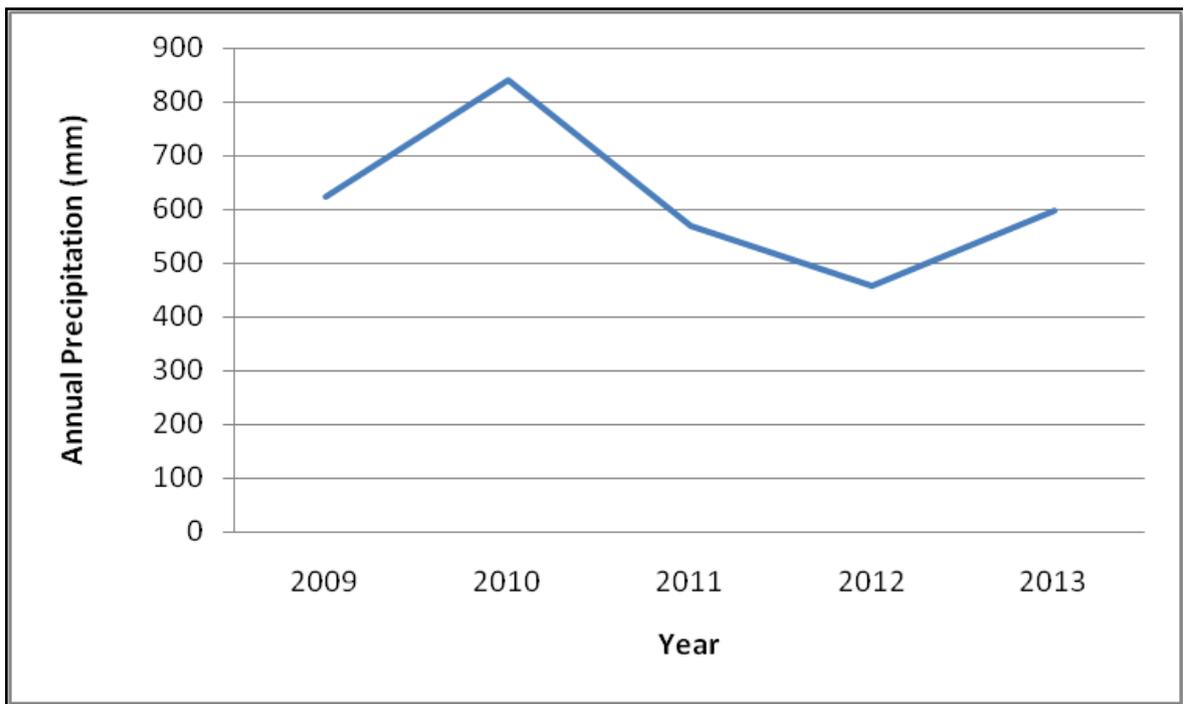


Fig.4.5: Total Annual Rainfall of Project Area (Source; Peshawar Met Station 2009-2013)

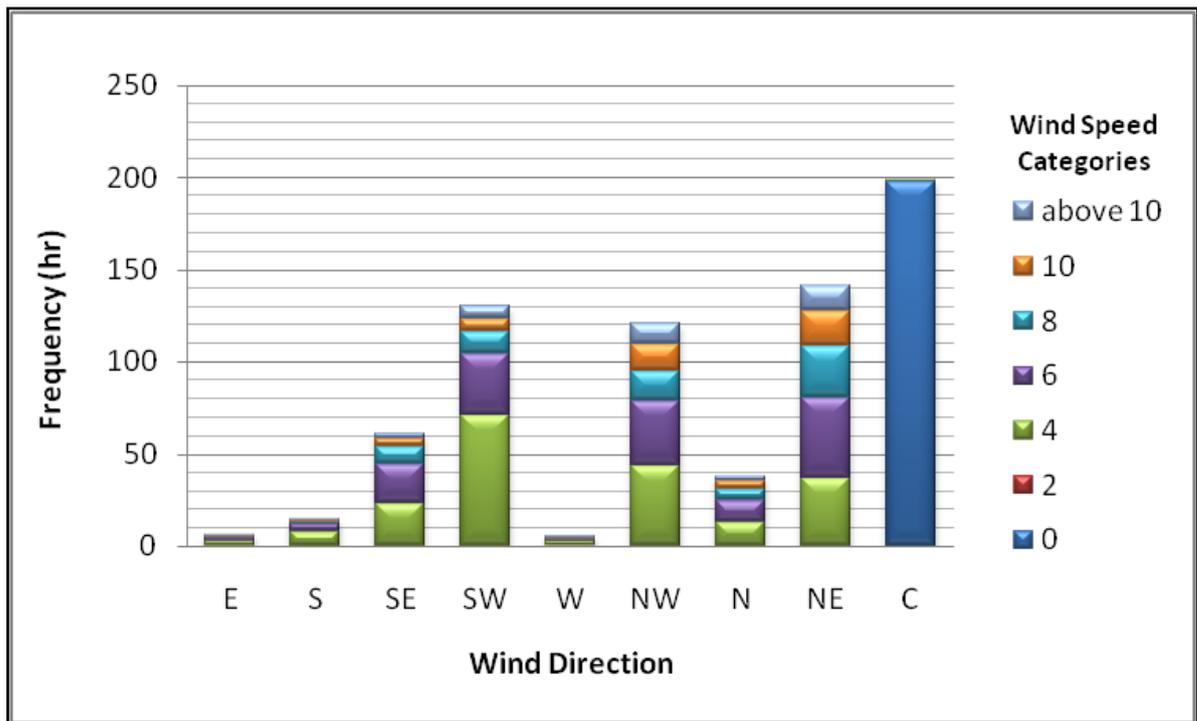


Fig. 4.6: Prevailing wind Speed and Directions of Project Area (Source: Peshawar Met Station 2013)

4.1.4 Air Quality

The ambient air quality was monitored in the Project Area. The ambient air quality was monitored for priority pollutants such as CO, NO₂, SO₂ and PM₁₀. The monitoring period was 24 hours at sampling point. Sampling locations for air, water, and noise monitoring are presented in **Table 4.8 (Annexure-IV)**. for sampling location map. The results obtained are tabulated in **Table 4.4.(Annexure-III)** A view of ambient air quality monitoring in the project area is shown in **Fig. 4.7**.



Fig. 4.7: Ambient Air Quality Monitoring in the Project Area

Table 4.4: Ambient Air Quality Analysis

Sr. No.	Parameter	Duration	Result	NEQS
1	CO	24 hours	9.1×10^{-5}	5 mg/m ³
2	NO _x	24 hours	0.028	80 µg/m ³
3	SO _x	24 hours	0.015	120 µg/m ³
4	PM ₁₀	24 hours	87.00	250 µg/m ³
5	CO ₂	24 hours	443 (ppm)	-

All the monitored parameters are within the limits of NEQS.

4.1.5 Noise

Noise levels monitoring was carried out at the Project site and are well within prescribed permissible limits of NEQS. The monitored data for noise is presented below.

Table 4.5: Noise Levels Monitoring Analysis

Location	Equivalent Noise Level (Leq) dB(A)		NEQS 2012 Level (Leq) dB(A)	
	Day Time	Night Time	Day Time	Night Time
Project Site	45.2	40.8	50	45

Noise modeling is also performed to assess the noise levels around the project site and presented in (Annexure-V).

4.1.6 Surface Water and Groundwater

One Major River namely Haro River flows in the vicinity of the Project area. Groundwater is being used for domestic purpose whereas surface water is used for agriculture requirements. The main source of drinking water in the Project area is wells. The depth to water table varies between the range of 15 to 60 feet for wells and 120 feet for hand pump. Table 4.6 presents the analysis results of groundwater near the project area while the ground water test results conducted in the year 2014 are annexed as (Annexure- VIII).

**Fig. 4.8: A General View of the Surface Water**

Table 4.6: Groundwater Analysis near the Project Area (Year, 2015)

Sr. No.	Parameters	Unit	Results	WHO Guidelines
			Near Dingi Village	
1	pH	-	7.5	6.5 -8.5
2	Total Dissolved Solids (TDS)	mg/	223	1000
3	Total Suspended Solids (TSS)	mg/	23	-
4	Chloride (Cl ⁻)	mg/l	28	250
5	Total Hardness as CaCO ₃	mg/l	60	500
6	Nitrates (NO ₃ ⁻)	mg/l	2.0	50
7	Sodium	mg/l	24	200
8	Turbidity	NTU	0	5
9	Fluoride (F)	mg/l	0.04	1.5
10	Nitrites (NO ₂)	mg/l	BDL	3
11	Arsenic (As)	mg/l	BDL	0.01
12	Sulphate	mg/l	14	250
13	Lead	mg/l	0.01	0.10
14	Zinc	mg/l	0.04	3.0
15	Manganese	mg/l	0.02	0.1
16	Cyanide	mg/l	0.01	0.070
17	Taste	Objectionable/u nobjectionable	Tasteless	Unobjectionable
18	Color	TCU	Colorless	15
19	Odor	Objectionable/u nobjectionable	Odorless	Unobjectionable
20	Iron	mg/l	BDL	0.3
21	Sodium	mg/l	24	200
22	Ammonia	mg/l	0	1.5
23	Total Coliforms	MPN/100 ml	2.0/ 100 ml	0/100 ml
24	Faecal Coliforms (E.Coli)	MPN/100 ml	Absent/100ml	0/100 ml

Groundwater samples taken from Dingi Village are suitable for drinking purpose as all of its parameters have values within the limits of WHO Guidelines. **Table 4.7** present sampling locations and test results of surface water drains and receiving water body which is Haro River. The detail of sampling locations is given in **Table 4.8**.

Table 4.7: Surface Water Analysis (Year, 2015)

Sr. No.	Parameters	Unit	Locations of Sampling		NEQS
			Year 2015		
			Jhari Kassi Drain	Haro River	
1	Temperature	°C	23	21	40
2	pH	-	7.26	7.36	6-9
3	Biochemical Oxygen Demand (BOD ₅)	mg/l	260	296	80
4	Chemical Oxygen Demand (COD)	mg/l	590	108	150
5	Total Suspended Solids (TSS)	mg/l	159	180	200
6	Chloride (Cl ⁻)	mg/l	166	120	1000
7	Fluoride (F)	mg/l	06	2.4	10
8	Oil & Grease	mg/l	BDL	BDL	10
9	Chromium	mg/l	0.04	0.06	1.0
10	Sulphate	mg/l	128	102	600
11	Sulphide	mg/l	0.8	0.5	1.0
12	Ammonia	mg/l	28	22	40
13	Pesticides	mg/l	BDL	BDL	0.15
14	Cadmium	mg/l	BDL	BDL	0.1
15	Copper	mg/l	0.01	0.02	1.0
16	Lead	mg/l	0.2	0.02	0.5
17	Mercury	mg/l	BDL	BDL	0.01
18	Selenium	mg/l	BDL	BDL	0.5
19	Nickel	mg/l	0.01	BDL	1.0
20	Total Toxic Metal	mg/l	0.25	0.64	2.0
21	Zinc	mg/l	2.0	2.4	5.0
22	Arsenic	mg/l	0.02	0.4	1.0
23	Barium	mg/l	BDL	BDL	1.5
24	Boron	mg/l	0.9	0.6	6.0
25	An Ionic Detergent(as MBAS)	mg/l	04	0.02	20
26	Cyanide	mg/l	BDL	BDL	2.0
27	Iron	mg/l	4.4	04	8.0
28	Silver	mg/l	0.01	0.2	1.0
29	Phenolic Compound	mg/l	BDL	BDL	0.1
30	Chlorine Free	mg/l	BDL	BDL	1.0
31	Manganese	mg/l	BDL	BDL	1.5

Table 4.8: Locations of Samples

Sr. No.	Sample Description	Name of Location	Date	Coordinates
1	Ambient Air Sample(AAS)	Project Site Near Al-Mehria Public School	27 Feb. 2015	N 33° 54' 45.02" E 072° 47' 53.46"
2	Noise Sample(NS)	Project Site	27 Feb. 2015	N 33° 54' 46.86" E 072° 47' 59.75"
3	Ground Water Sample(GWS)	Near Dingi Tubewell	27 Feb. 2015	N 33° 54' 39.68" E 072° 48' 7.32"
4	Waste Water Sample(WWS1)	Jhari Kassi Drain	27 Feb.2015	N 33° 54' 16.96" E 072° 48' 11.80"
5	Waste Water Sample(WWS2)	Haro River	27 Feb.2015	N 33° 51' 30.66" E 072° 41' 37.27"

4.1.7 Seismicity

Earthquake loads were computed according to the Seismic Zone in which the Project Area lies i.e. Zone 3, thus having Zone factor $Z = 0.3$. The seismic zoning map of Pakistan is shown in **Fig. 4.9** below:

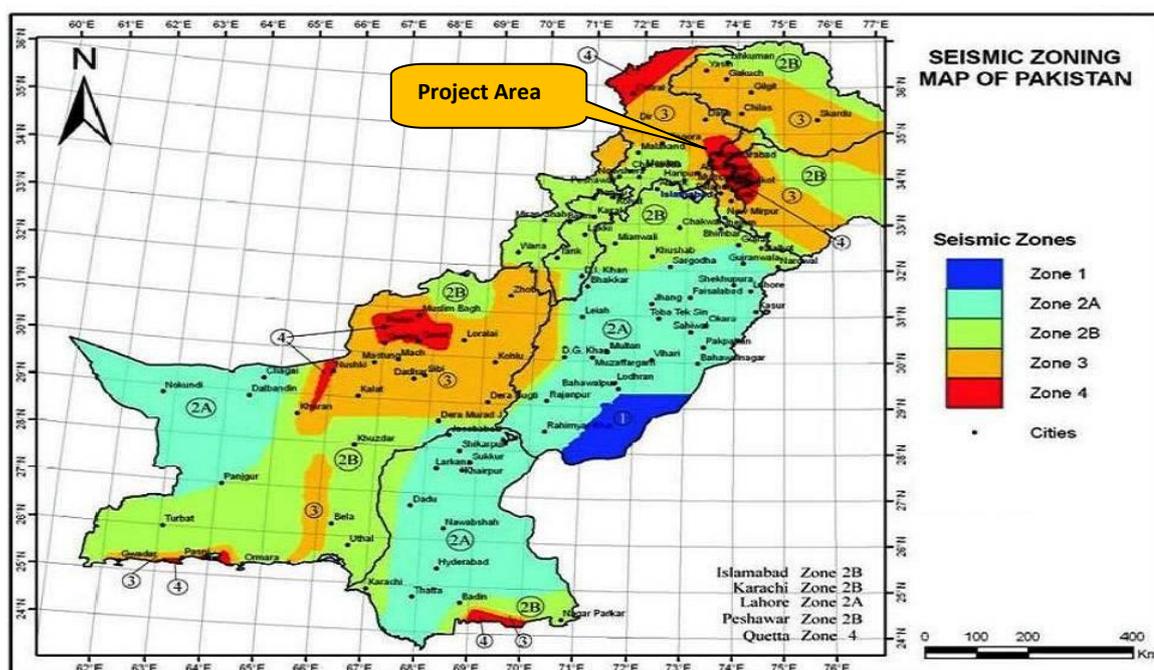


Fig. 4.9.: Seismic Zone of Project Area (Zone 3)

4.1.8 Land use Pattern

The land use in the vicinity of the project area is agricultural. The educational institutions in the surroundings are Govt. Higher Secondary School, and Al Mehria Public School. Moreover graveyards and a shrine of Baba Mian also exist in the vicinity of the project area and a health facility namely Shaheed Akhtar Nawaz Khan Hospital also located in the vicinity of the Project area of influence. **Fig.4.9** shows the land use pattern of the project area.

4.1.8.1 Industrial and Commercial Activities

The Hattar Industrial Estate extending over 280 hectares located in District Haripur. Industries include ghee, chemical, textile and pharmaceutical industries etc. Some commercial shops are also situated in the vicinity of Dingi. However, these commercial shops are located at a distance of approximately 500 meter away from the proposed project area. **Fig.4.10** shows one of the industries and market near the project area.



Fig. 4.10: Land use pattern of the Area of influence of the Proposed Action

4.1.9 Agriculture and Crop Pattern

Major portion of the tract in the vicinity of the project area, nearly eighty percent (80%) is under agriculture which is predominantly rain-fed (Barani). However, the valley lands which are irrigated by canal water or through tubewells are fertile and productive. A majority of population is linked with agriculture sector, being the most significant economic parameter for their livelihood. The land in the vicinity of the project area is mostly fertile and suitable for the growth of crops, vegetables and fruits. The major Kharif and Rabi crops are maize and wheat respectively. **Table 4.9** shows the cropping pattern around the project area.

Table 4.9: Cropping Pattern near the Project Area

Cropping Pattern	
Rabi Season	Kharif Season
Wheat, Barley, Onion, Potato, Garlic	Maize, Jawar, Pulses, Bajra, Rice, Sugarcane, Groundnut

Table 4.10 Presents the per acre yield of main crops grown around the project area both in the Rabi and Kharif season. **Fig. 4.11** is showing the crop pattern of the project area.

**Fig. 4.11: A General View of the Crop Pattern in the vicinity of Project Area****Table 4.10: Main Crops with their Average Yields near Project Area**

Sr. No	Major Crops	Yield/Acre (kg)	Income / Acre
1	Wheat	1000	Rs. 38,000/
2	Maize	800	Rs. 17,000/
3	Vegetables	-	Rs. Upto 100,000/

4.2 BIODIVERSITY AND NATURAL RESOURCES

This section describes the biodiversity and natural resources as they exist in the vicinity of the project area, its baseline conditions, ecosystem and discusses existing ecological conditions. This section also lists the fruit and non-fruit trees (forest trees) and wildlife species and identifies those that are to be protected.

4.2.1 Flora

The original vegetation of the tract surrounding the project area consisted of Phulahi, Sanatha, Kau and Kikar. However, now the local farmers and land owners have raised Shisham, Sufadah, Poplar, Mulberry, Sirru and other useful species which are abundantly available in the vicinity of the project area (**Fig. 4.12**).

Phulahi is the most dominant species, growing wild in the sub-mountainous tract. Phulahi is extremely beneficial. Other trees growing in the tract are Kikar, Shesham, Sufaida, Toot, Sirris, Willow and Ailanthus. Willow is normally growing along streams and water channels. **Tables 4.11** and **Table 4.12** show common fruit trees and non-fruit trees (forest trees) found in the project vicinity.



Fig. 4.12: Flora in the vicinity of Project Area.

Table 4.11: Common Fruit Trees near Project Area

Sr. No.	Name of Fruit Tree	Scientific Name
1	Guava	Psidium guajava
2	Orange	Citrus species
3	Khoobani or Hari Aluchaetc	Prunus species
4	Banana	Musa acuminata

Table 4.12: Common Non-Fruit Trees (Forest Trees) near Project Area

Sr. No.	Name of Tree	Scientific Name
1	Phulahi	Acacia modesta
2	Kikar	Acacia nilotica
3	Shisham	Dalbergia sissoo
4	Chinese Mulberry	Broussonetiapapyrifera
5	Eucalyptus	Eucalyptus camaldulensis
6	Bakain	Meliaazedarach

7	Mulberry	Morus alba
8	Taman	Lagerstroemia regina
9	Bamboo	Bambusa arundinacea
10	Ber	Zizyphus jujube
11	Poplar	Populus ciliata
12	Kau	Olea ferruginea

a) Shrubs and Herbs

As a result of substantial rainfall and other favorable ecological factors, the tract is mostly covered with shrubs and herbs, in addition to trees. The important shrubs and herbs, present in the vicinity of the project area are given in **Table-4.13**

Table 4.13: Important Shrubs and Herbs near Project Area

Sr. No.	Name of Tree	Scientific Name
1	Bhaikar	Adhatodavesica
2	Bhang	Canabus sativa
3	Bathu	Chenopodium betrys
4	Arind	Ricinus communis
5	Ak	Calatropis procera
6	Pataki	Gymnosporangium oyleana
7	Malla	Zizyphus jujuba

b) Grasses

Most common grass found in the tract is Khabbal. Typha and Kana grass was noticed near the banks of nullahs and moist places (**Table 4.14**).

Table 4.14: Grasses in the vicinity of Project Area

Sr. No.	Common Name	Scientific Name
1	Khabbal	Cynodon dactylon
2	Khawi	Cymbopogon jawarnica
3	Dab	Desmostachya bipinnata
4	Kana	Saccharum munja
5	Murka	Dicanthium annulatum
6	Chimmer	Eleusine flagellifera
7	Gam	Panicum antidotale

4.2.2 Fauna

The surroundings of the project area, on account of nature of vegetation and topography, once rich in vegetation and wildlife has now reduced its potential due to over hunting, loss of proper habitat, conversion of forest land. Fauna of the tract consists of mammals, reptiles, amphibians and birds. The details are given as under:

a) Mammals

Mammals reported in the project area are enlisted in **Table 4.15**.

Table 4.15: Mammals in the vicinity of Project Area

Sr. No.	Common Name	Scientific Name
1	Jackal	Canisaureus
2	Porcupine	Hystrixindica
3	Squirrel	Funambuluspennanti
4	Mouse	Musmusculus
5	Mongoose	Herpestesauropunctatus
6	Hare	Lepusnigricollis
7	Fox	Vulpusvulpus

b) Reptiles

Reptiles reported in the surroundings of the project area and its vicinity are mentioned in **Table 4.16**.

Table 4.16: Reptiles in the vicinity of Project Area

Sr. No.	Common Name	Scientific Name
1	Cobra	Najanaja
2	Indian Krait	Bungaruscaerueus
3	Spiny Tailed Lizard	Uromastixhardwickii
4	Fringed Toed Lizard	Acanthodactylus cantoris
5	Brown Turtle	Kachugasmithii
6	Indian Monitor	Varanusbengalensis

a) Birds

Avifauna of the tract consists of small and medium sized birds of different colors, flying from one tree to the other or from crop to crop. Most common birds are House Sparrow, House Crow and Mynah.

Birds like Cuckoo, Bulbul, Hoopoe, Parrots, Blue Birds, and Little Egrets etc were frequently sighted. **Table 4.18** shows list of birds listed noticed or reported in the surroundings of the project area.

Table 4.18: Birds in the vicinity of Project Area

Sr. No.	Common Name	Scientific Name
1	House Sparrow	Passer domesticus
2	House Crow	Corvussplendons
3	Mynah	Acridotherisginginianus
4	Parrot	Psittaculakrameri
5	Pigeon	Columba livia
6	Koel	Eudynamysscolopacea
7	Red Vented Bulbul	Pycnontuscafer
8	Common Teal	Anascrecca

9	Little Egret	Egretta garzetta
10	Hoopoe	Upupa epops
11	Indian Robin	Coracina bengalensis
12	Grey Partridges	Francolinus pondicerianus
13	Falcon	Falco peregrinus
14	Shikra	Accipiter badius
15	Tillor	Houbara bustard
16	Eagle	Aquila rapax
17	Jalkookri	Fulica atra

b) Amphibians

Amphibians found in the surroundings of the project area are given in **Table 4.17**.

Table 4.17: Amphibians in the Project Area.

Sr. No.	Common Name	Scientific Name
1	Frog	Ranatigrina
2	Common Toad	Bufo bufo

c) Livestock

Livestock rearing is common in the areas adjacent to the project area and is an important source of income for the rural population. Buffaloes, cows, goat and sheep are seen, freely grazing in open shamlat areas or in fallow agricultural fields. Almost all the households, who have their link with agriculture, are keeping cattle. Field data shows that average household keeps livestock in small herd of 2 to 5, depending upon the household landholding size and capacity to store the crop residues, fodder and hay to feed animals during the winter. The area is facing overgrazing by livestock of the Afgan Refugees. The trend of livestock keeping is decreasing and there is need for grazing management.

4.2.3 Endangered Fauna

No endangered species have been reported in the Project area.

4.2.4 Critical Habitats

No wild life sanctuary or game reserve (Critical Habitats) exists around proposed project site.

4.3 SOCIO-ECONOMIC ENVIRONMENT

This section provides baseline information and description of socio-economic and cultural environment of the project area. It presents information on the project area's locations, population distribution, socio-economic conditions and livelihood activities, state of education and health facilities. The purpose of this socio-economic survey was to gather information about the generic characteristics of nearby communities, their socio-economic status, cultural traditions, social issues and religious affiliations. It also presents the public consultation outcomes during the field survey. The

approach used during data collection was interviews, focus group discussions and rapid rural appraisal techniques for qualitative data collection. Socioeconomic and cultural data was collected through semi structured questionnaire and focus group interviews with all the major stakeholders including local community members, village heads, land owners in the vicinity of the project area. The demographic profile of tehsils Haripur is as follows:

Total population of the Tehsil was 579,179 with a growth rate of 2.30% as recorded in 1998 census. Population composition was 99.7 females compared to 100 males. Only 14.3% of the population resided in urban areas whereas 85.7% of population lived in rural areas. Average household size was 6.6.

4.3.1 Consultation and Participation Process

About 100 persons at different locations in the surroundings of the project area were contacted. The socio-economic survey was conducted in areas namely Dingi Village, Tareenabad, Ali Nagr, Gulshanabad, Nadarabad, Motian Village and few respondents belong to, Islam Kot, Jhar, Kot Najeebullah etc. Efforts were made to consult people from all localities. Pictorial presentation is given in **Fig. 4.13.** & Social Proforma in **(Annexure-VI)**.



Fig. 4.13: Socio Economic Interview being conducted

4.3.2 Baseline Information

100 respondents are only the males. 78% of the respondents were married and 22% were unmarried. 100% respondents were not literate and employed.

a) Gender Ratio of Respondents

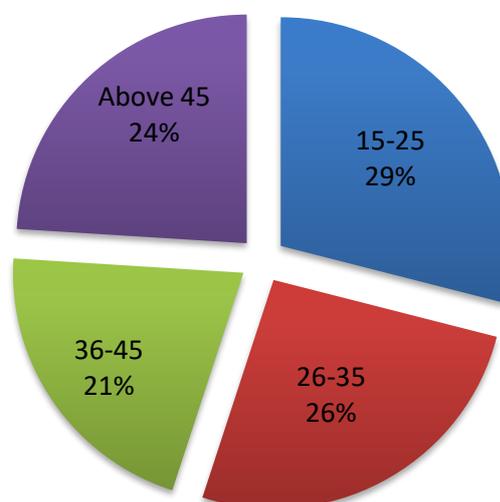
The respondents contacted were only males as it is hard to interact with females due to local traditions.

b) Age Group of Respondents

Table 4.19 shows that 29% respondents were between the age group of 15-25, 26% were between age group of 26-35, 21% were between age group of 36-45 and 24% were above the age group of 45 respectively. These age groups of respondents indicate that the people contacted were mature enough to have better understandings of the proposed plant. **Fig. 4.14** presents the percentages of respondent's age group.

Table 4.19: Respondents Age Group

Sr. No.	Age Group	No. of Respondents	Percentage (%)
1	15-25	29	29
2	26-35	26	26
3	36-45	21	21
4	Above 45	24	24
Total		100	100

**Fig: 4.14: Age distribution of neighboring community inhabitants of project area.****c) Caste**

The cast of peoples live in the vicinity the Project Area are Tanoli, Awan, Pathan, Gujar, Malak etc.

d) Religion

Almost whole population in the vicinity of the project area is Muslim. Cultural festivals are mostly linked with traditional religious events. Pilgrimages to shrines (or Ziarats) are common in the surroundings of the project area.

e) Educational Status and Facilities

Basic level educational facilities both for males & females available in the villages located near the proposed project. But these facilities are not sufficient to meet the educational requirements of the people near the project area. From survey results (**Table 4.20**), it was found that 11% of the respondents were educated upto primary level, 18% were upto middle level, 29% upto matric level. Small percentage i.e. 5% includes those respondents which were not educated but on the other hand Large percentage i.e. 37% includes those respondents which were educated upto or more than intermediate level. **Fig. 4.15** shows the literacy rates of the respondents.

Table 4.20: Education Status of the Respondents

Sr. No.	Education Level	No. of Respondents	Percentage (%)
1	Illiterate	5	5
2	Primary	11	11
3	Middle	18	18
4	Matriculation	29	29
5	Intermediate and Above	37	37
Total		100	100

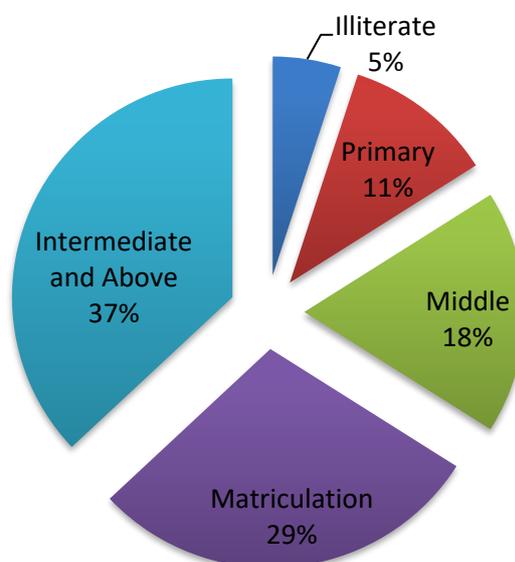
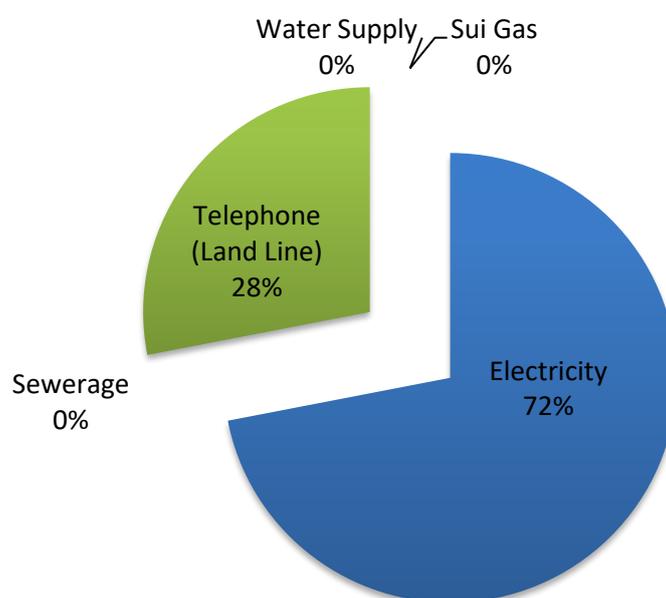


Fig. 4.15: Percentage of Literacy Level of the respondents**f) Social Amenities**

The situation of facilities available at the house of the respondents is depicted in **Table 4.21** and **Fig.4.16**. It shows that hundred percent (100%) of the respondents had the facilities of electricity available at their houses, None of the respondents had sewerage, water supply, and Sui gas facilities.

Table 4.21: Social Amenities

Sr. No.	Social Facility	No. of Respondents	Percentage (%)
1	Electricity	100	100
2	Sewerage	0	0
3	Telephone (Land Line)	39	39
4	Water Supply	0	0
5	Sui Gas	0	0

**Fig. 4.16: Percentages of Social Amenities****g) Professional Status**

Majority of the respondents were associated with Profession of Farmers about 26%, 12% respondents were the Labor/Workers, 16% were

Shopkeepers/Businessman, 17% were Government Employee, 13% were Students/Unemployed and 15% were in private service. The detailed statistics regarding occupational status of the respondents are presented in **Table 4.22** and **Fig.4.17**.

Table 4.22: Professional Status of Respondents

Sr. No.	Professional Status	No. of Respondents	Percentage (%)
1	Farmers	26	26
2	Labour/Workers	13	13
3	Shopkeepers/Businessman	16	16
4	Government Employee	17	17
5	Private Employee	15	15
6	Students/Unemployed	13	13
Total		100	100

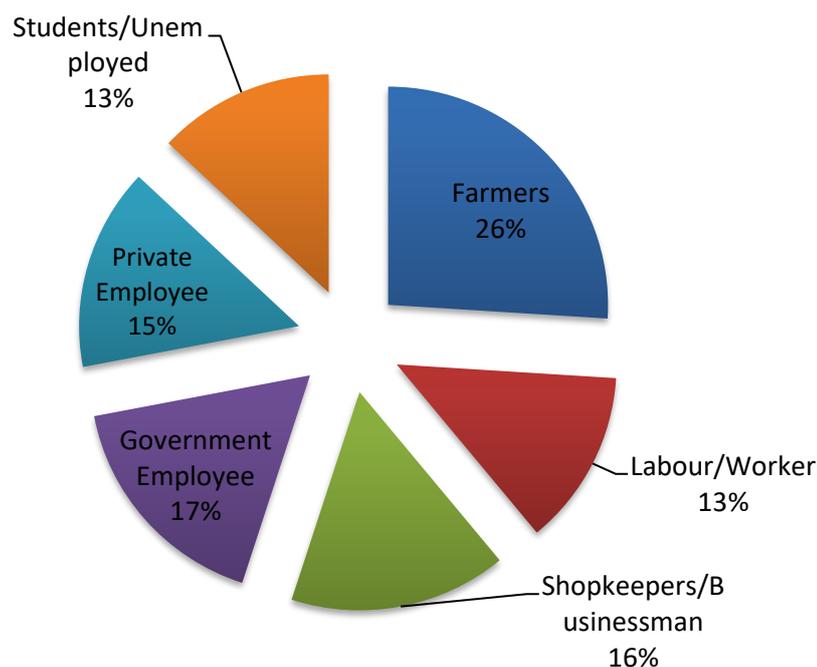


Fig: 4.17: Percentages of Professional Status

h) Monthly Income

Out of 100 respondents, 56% were earning within the income range of 5,000-10,000, 13% respondents were earning between the ranges of 10,000-15,000, 04% respondents were in the range of 15,000-20,000 and 14% respondents were

those whose income level was above 20,000. **Table 4.23** and **Fig. 4.18** show the income status of the respondents.

Table 4.23: Income Level of Respondents

Sr. No.	Income Level (Rs.)	No. of Respondents	Percentage (%)
1	Less than 5,000	13	13
2	5,000-10,000	56	56
3	10,000-15,000	13	13
4	15,000-20,000	04	04
5	Above 20,000	14	14
Total		100	100

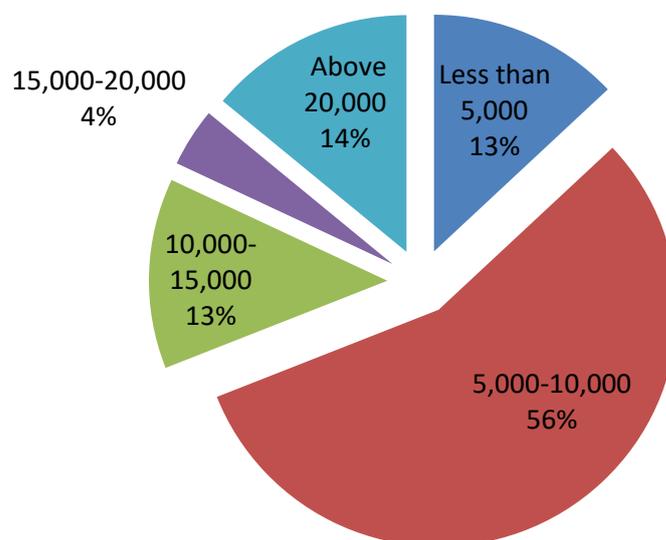


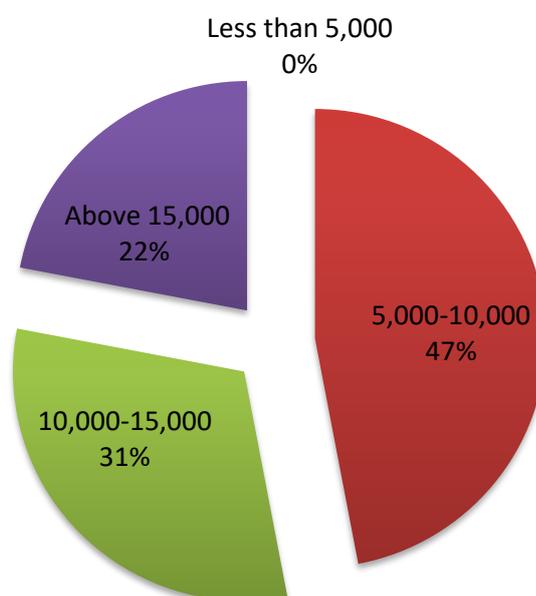
Fig. 4.18: Percentages of Income Level

i) Monthly Expenses

Table 4.24 and **Fig. 4.19** indicate that about 47% of the respondents had their monthly expenses up to Rs. 10,000. 31% respondents had monthly expenses ranging between Rs. 10,000 - 15,000. 22% respondents had their home expenses more than Rs. 20,000. It is evident from the table that monthly expenses of people are normally more than the income which indicates no savings at all.

Table 4. 24: Monthly Expenses of Respondents

Sr. No.	Expenses Level (Rs.)	No. of Respondents	Percentage (%)
1	Less than 5,000	0	0
2	5,000-10,000	47	47
3	10,000-15,000	31	31
5	Above 15,000	22	22
Total		100	100

**Fig: 4.19: Percentages of Monthly Expenses****j) House Size**

During the Socio-economic survey, respondents were also inquired about their house sizes to overview the living standard of the respondents. **Table 4.25** and **Fig. 4.20** indicate that 74% of the respondents had their house area up to 5 marla and only 26% of the respondents had their house size in the range of more than 5 marla but less than 15 marla.

Table 4.25: House Size of the Respondents

Sr. No.	Area (Marlas)	No. of Respondents	Percentage (%)
1	Less than 5	74	74
2	5 – 15	26	26
Total		100	100

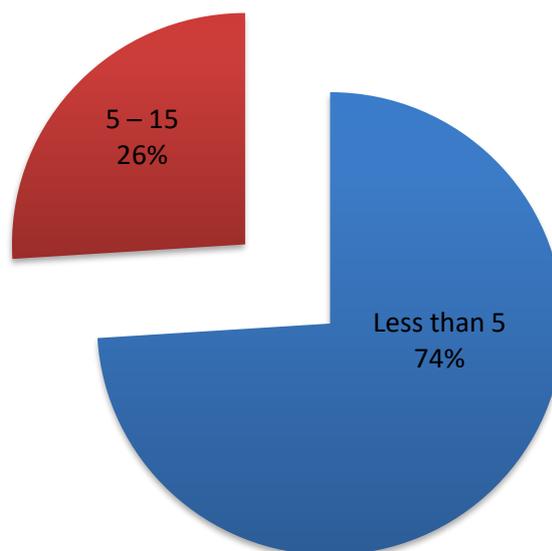
**Fig: 4.20: Percentages of House Size of the Respondents****k) Type of Construction of the Houses**

Table 4.26 and **Fig. 4.21** present the type of construction of houses of the respondents. Houses of the Sixty percent (60%) respondents were pacca, 29% houses were of semi-pacca type and 11% houses were kacha.

Table 4.26: Construction Type of the Houses

Sr. No.	Construction Type	No. of Respondents	Percentage (%)
1	Kacha	11	11
2	Pacca	60	60
3	Semi Pacca	29	29
Total		100	100

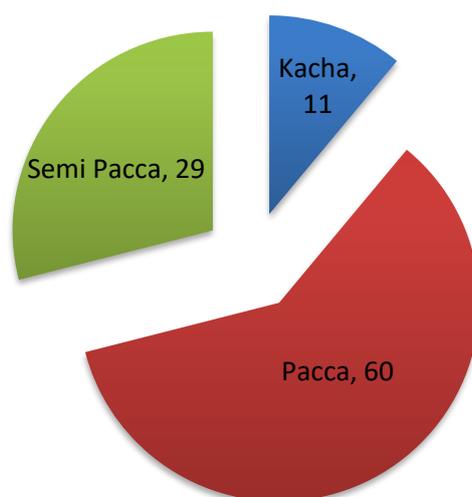


Fig: 4.21: Percentages of Housing Condition

I) Acceptance/ Opposition for the project

Table 4.27 and **Fig. 4.22** reflect that about 87% of the respondents were in project favor and 13% respondents were not in favor as they asked about the project.

Table 4.27: Acceptance/ Opposition for the project

Sr. No.	Response	Number	Percentage
1	In favor	87	87
2	Not in favor	13	13
Total		100	100

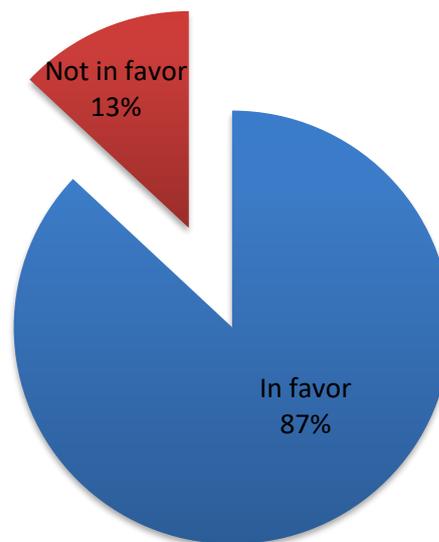


Fig: 4.22: Percentages of Acceptance or Opposition

13 % of Peoples were not in favor of Project. The major Concerns of these peoples were

- People claim that they are facing health problems due to wastewater which is disposed of without treatment from the industries
- Industries produce large amount of waste and disposed off without treatment due to which they are facing health problems.
- Noise pollution from the machinery. Noise should be Controlled
- People said that they would not have any issue provided Coca-Cola take care of environment.
- Major concern of people was the environment, as they are facing problems caused by existing industrial activities.
- Project should be implemented although it may increase pollution level but at the same time will create jobs for local.
- Major concern was environment for the respondents.

Proposed measures to address the concerns of 13 % are

- Tree Plantation will be carried out to abate pollution caused by emissions, dust, and noise during the operation. Tree Plantation in the village will also be carried out to maintain the good environment of the area.

- Construction machinery will be placed in an adequate locations away from the sensitive areas to minimize the impacts related to the noise;
- Wastewater produced from the Proposed Unit's Operation will be disposed of after proper treatment. Continuous Monitoring will be carried out to check its compliance with NEQS.
- Emissions and Discharges from the Proposed Plant will be monitored regularly to ensure the compliance of NEQS.
- The life style of the locals will be improved through community development program.
- Proposed Project will create job opportunities for the locals.
- Pure Drinking water facility will be installed for the locals.

4.4 CULTURE AND TRADITION

The food of the inhabitants is very simple. Maize, wheat and rice are eaten in the surroundings of the project area. The use of Desi ghee and lassi is very popular in the rural areas. Milk is also available abundantly. The people of the surrounding areas are fond of meat, especially various forms of beef. The use of ornaments among the females is also common. The females decorate themselves with ear-rings and bangles.

4.5 PHYSICAL CULTURAL RESOURCES

During the field survey, it was confirmed that no physical or cultural resources like shrine, mosque or historical place are falling within the Right of Way (ROW). However, a number of mosques, shrine and graveyards are located in nearby settlements which bear significant importance for the concerned localities. These cultural resources are discussed below:

a) Shrines

The shrine of Shah Baba and Mian Baba are important shrine near Project area located in Dingi Village. These shrines are visited by local people. Local people come to visit the shrines to pay homage to the saint.

b) Mosques

There are about three (3) small mosques located near project site. These mosques are locally constructed with the mutual contributions of the concerned communities. People come in the mosques to offer prayers.

c) Graveyards

Graveyards are important cultural heritage of the area and are visited by the descendents of the departed people. Two graveyards are near the project area, one in Dingi Village and the other is near Gulshanabad.

d) Archaeological Sites

No historical or archeological monuments are located near the project area.