

Environmental Impact Assessment

July 2017

PAK: Jalalpur Irrigation Project

Project No. 46528-002

Part 7 of 9 of the Main Report

Prepared by Irrigation Department, Government of Punjab for the Asian Development Bank (ADB).

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**Irrigation Department
Government of Punjab**

DETAILED DESIGN OF JALALPUR IRRIGATION PROJECT

**ENVIRONMENTAL IMPACT ASSESSMENT
(EIA)**

MAY 2017



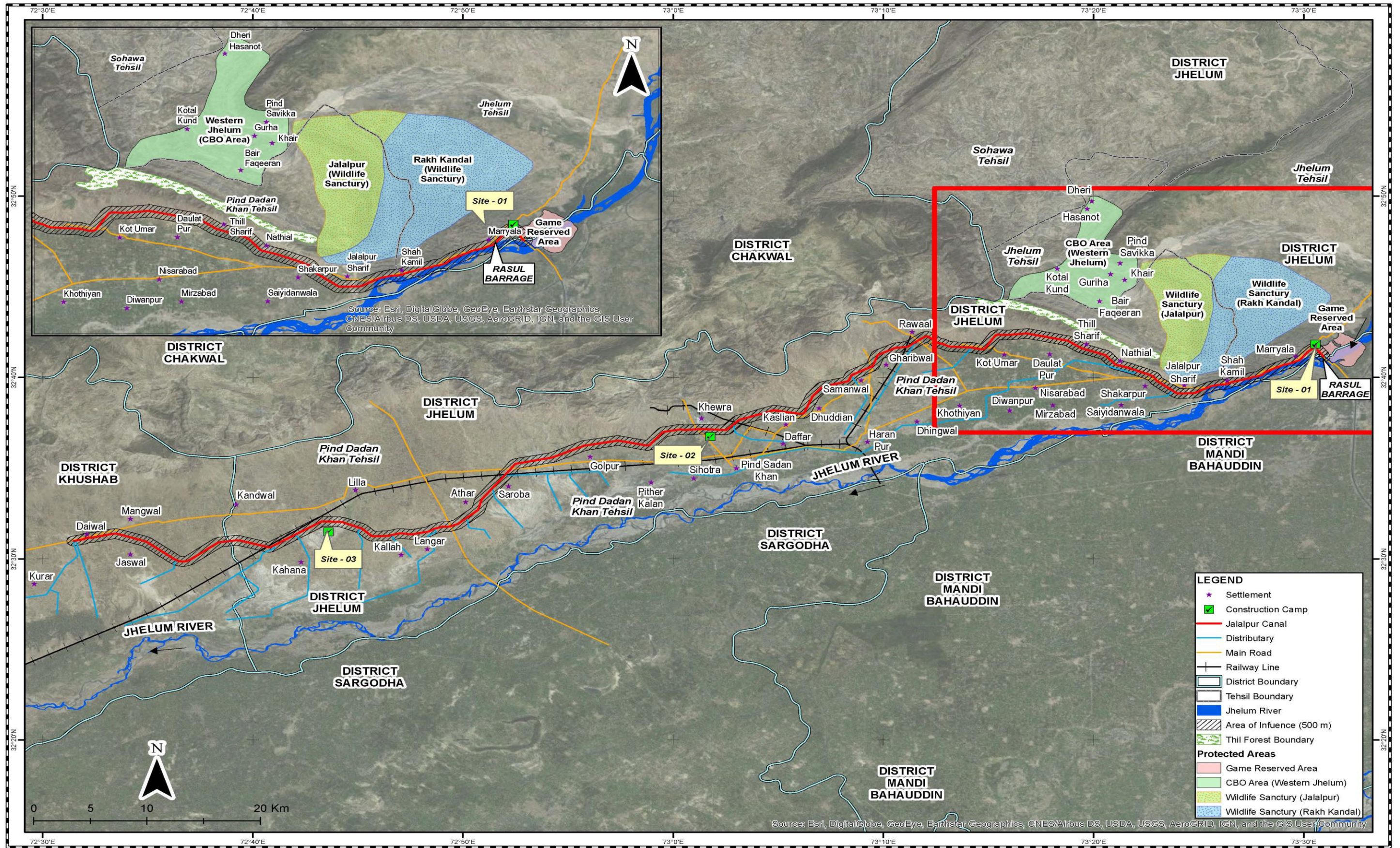


Figure 6.37: Sensitive areas outside project's AOI

336. A thorough review and analysis of all ecological concomitants in the area reveals no major compromise in the ecological assets and characteristics of the area because of proposed JIP. The area does not include any defined protected area, however, a small strip starting from Misri More to Jalalpur Sharif includes roadside plantations, managed by Pak Army and owned by PID. It has been revealed during the discussion with Wildlife officials that with the efforts of Wildlife Department, the population size of *Punjab Urial* has reached to a mature level and the department has been running a successful trophy hunting programme, in collaboration with local organizations. This has been seen as a strategy to align with the carrying capacity of the habitat.

337. Flora and fauna of the area were also reviewed for its conservation status, and it was concluded that no threatened animal and plants were noticed, reported or recorded. However *Ovis vignei punjabiensis* (*Punjab Urial*) which are vulnerable in IUCN red list of species (latest-2016-3) are reported in the area outside JIP. *Common Pochard* (*Aythya ferina*), *Lapwing* (*Vanellus vanellus*) among avifauna fish specie Gulfam (*Cyprinus carpio*) which are vulnerable in IUCN red list of species and Malhee (*Wallago attu*), Silver Carp (*Hypophthalmichthys molitrix*) which are near threatened, are also found in River Jhelum/Rasul Barrage and JIP AOI. No other vulnerable or near threatened species has been noticed or reported from the vicinity or surrounding of JIP.

338. The JIP area has been found in no conflict with the natural environment and the temporary alteration in ecosystem during the implementation phase has been seen as an opportunity:

- The JIP has been designed as a seasonal canal, contributing directly to the farm income; and
- It will also help in reducing the pressure on Rasul barrage during high floods by diverting the water; thus easing pressure on low lying habitats (**Refer Figure 6.38**).



Figure 6.38: Lying Flooded area along the River Bank

6.6. Demographic and Socio-Economic Baseline

339. Various surveys and studies were carried out by the NESPAK-ICS JV at feasibility stage for establishing the demographic, social and economic conditions of the area at that time. At detailed design stage, the similar surveys were conducted by social experts. The results of these studies were made available to the EIA Consultants. Most relevant of these studies are listed below:

- Initial Poverty & Social Assessment – draft, October 2014;
- Land Acquisition & Resettlement Plan – revised draft, May 2015;
- Community Mobilization & Engagement Report – draft, August 2015;
- Agricultural Study Report – draft, October 2014; and
- Gender Development Plan, March 2015.

340. The baseline social information is based heavily on the above mentioned reports. The crux provided in the following sections is based, aside from the above reports, on the observations and impressions of the Consultants gathered during field surveys and stakeholder consultations.

6.6.1. Sampling Procedure

341. The social assessment team made detailed field visits from head to tail of the proposed canal to enlist the villages and settlements expected to be impacted by the project. After preparing a comprehensive list of these villages, a district wise list of these villages was prepared. Then a proportionate sampling technique was adopted to draw sample. The sample size was taken as 25 % of the total villages to conduct village profile survey. The sample size of villages is shown in the **Table 6.31**. A map showing the location of surveyed villages is attached as **Appendix-IX**.

Table 6.31: Distribution of the Villages with Sample Size of the project area

	Tehsil	Total Settlements in project area	Surveyed Settlements	Names of Surveyed Settlements
Zone I	PD Khan	03		
Zone II	PD Khan	40	10	Chakri, Sauwal, Pind Saidpur, Kotli Piran, Chitti, Warnali, Kharidpur, Pinanwal, Karyala, Haran pur
Zone III	PD Khan	33	08	Dhoke Vaince, Tobha, Saroba, Athar, Chanan pur, Kot Kacha, Langar, Kahana
Zone IV	PD Khan / Khushab	04	02	Kurar / Tilokar, Jaswal

342. As mentioned earlier, for the purposes of the EIA, the consultants divided the entire project area in four arbitrary zones. However, since there is minimal impact likely on any human settlement in zone 1, the social survey mainly focused on the other three zones. The

list of total villages situated at head, middle and tail of the proposed canal is shown in the **Appendix-IX**.

343. The National Rural Support Program (NRSP), already working in the area since 2001, provided invaluable support in conducting the required social surveys. The local communities and respondents were already aware of the proposed project. Some initial meetings were arranged by the NRSP due to close coordination with the local peoples living in the project area of Pind Dadan Khan and Khushab.

6.6.2. Social Profile

a) Project area administrative & political units

344. As already defined, the project consists of Pind Dadan Khan town and adjoining localities. Some of the area at the tail end of the proposed canal falls in Khushab Tehsil.

345. In the project area, Jalalpur Shareef, Pind Dadan Khan and Lilla are the main towns covering all surrounding settlements and villages for shopping and trading to fulfill the local needs of the peoples. Lilla town is situated at the end of PD Khan, and Khushab district starts after this town.

346. In terms of parliamentary and provincial representation, the project area lies within the jurisdiction of National Assembly Constituency NA-63 Jhelum-2 and provincial assembly constituency PP-27 Jhelum-IV. The National Assembly Member from the area is Mr. Nawabzada Iqbal Mehdi and the Provincial Assembly Member from the area is Mr. Nazar Hussain Gondal. Both of them belong to the ruling party i.e. PML (N).

347. There are a total of 16 Union Councils (UCs) in Tehsil PD Khan; 13 rural and 3 urban. All of them have some portion in the proposed command area while 14 of them fall almost entirely in the command area. One UC of Tehsil Khushab (Tilokar) falls under the proposed project area.

b) Population

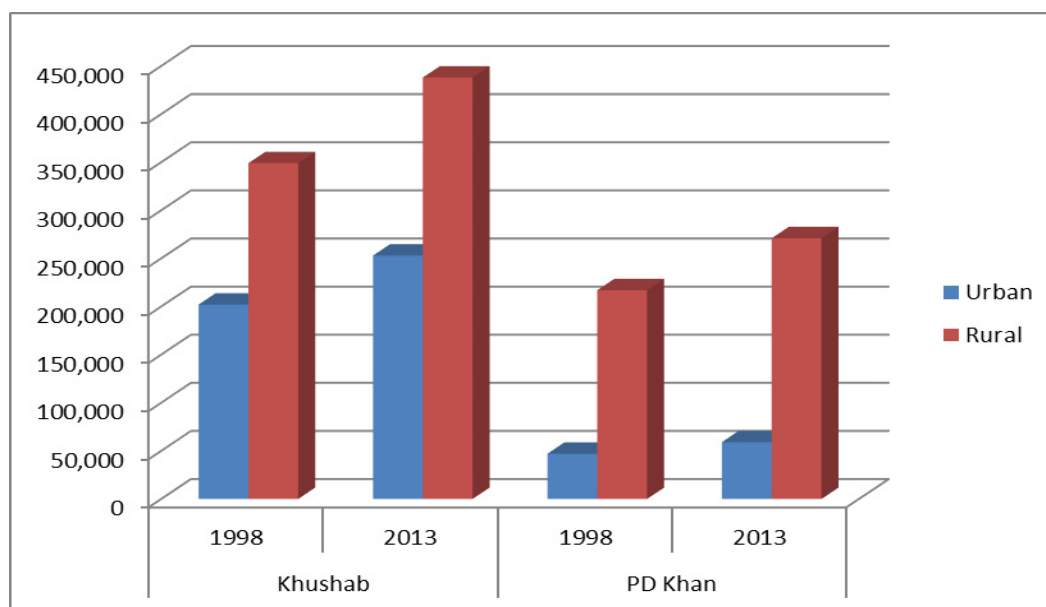
348. As mentioned earlier, the proposed project command area is located in Tehsil Pind Dadan Khan (District Jhelum) and Tehsil Khushab (District Khushab). However, about 92% of the project area falls in PD Khan.

349. The last census in Pakistan was carried out in 1998. Though the data of this census is quite old now, there are many authentic estimations of the current population of the area. The present population of the two tehsils is given in **Table 6.32** and graphical presentation of present population is shown in **Figure 6.39**.

Table 6.32: Present Population

	Khushab		PD Khan	
	1998	Dec-13	1998	Dec-13
Urban	202,000	253,000	47,000	59,000
Rural	349,000	438,000	217,000	271,000
Total	551,000	691,000	264,000	330,000

Source: Punjab Development Statistics 2013⁶



Source: Punjab Development Statistics 2013⁷

Figure 6.39: Graphical Presentation of Present Population

350. The overall numbers show that Khushab tehsil is more urban (36.6%), while Pind Dadan Khan has only about 18% urban population. However, the proposed project is likely to impact only a small portion of rural population in Khushab tehsil. In case of PD Khan, both rural and urban population are likely to be impacted, both in terms of environmental and social impacts and long term project benefits.

351. A total of 99 villages and 2 towns situated in Pind Dadan Khan Tehsil and 6 villages located in Khushab Tehsil can be found in the project area. In 2008, it was estimated that the size of population in the project area was 232,975 persons. Based on an average household size of 6.4 persons in Pind Dadan Khan Tehsil and 5.7 persons in Khushab Tehsil, a total number of 36,822 households would be living in the project area in 2008, including 32,985 households in Pind Dadan Khan Tehsil and 3,837 households in Khushab Tehsil.⁸

352. It is envisaged that the project will provide direct benefits to over 200,000 rural people, mostly poor.⁹

c) Demographic Characteristics

353. According to the demographic survey, the total households of the sample villages is 19,340 with the total population of 132,785 persons, comprising 62,924 males and 69,861 females. The average family size was found as 6.8. The number of children below 10 years was reported as 25% of total population. It was also reported by the respondents that out of this, less than 50% children go to school and other fall in infant category or work as child labor. The sex ratio was 100:111. **Table 6.33** below presents the demographics of the project area:

⁶<http://www.bos.gop.pk/system/files/Dev-2013.pdf>

⁷<http://www.bos.gop.pk/system/files/Dev-2013.pdf>

⁸(NDC 2008a)

⁹ Draft LARP, revised May 2015, ICS-NESPAK JV; the IPISA report (draft) puts the figure at 225,000 people.

Table 6.33: Demographics of project area

S.#	Settlement Name	Total Households	Total Population	Av. Family Size
1	Chitti	150	900	6
2	Kharid pur	60	500	8.3
3	Pind Saidpur	2000	17,000	8.5
4	Chakri Karam	700	4500	6.4
5	Pinanwal	4000	26,000	6.5
6	Karyala	450	2850	6.3
7	Kotli piran	250	2000	8
8	Warnali	45	360	8
9	Sauwal	2000	13,000	6.5
10	Harn pur	2300	16,000	7
11	Dhok Vains	100	600	6
12	Chanan pur	60	475	7.9
13	Kot Kacha	150	1200	8
14	Saroba	2500	17,500	7
15	Athar	850	6000	7.1
16	Langer	800	5000	6.3
17	Tobha	1500	9000	6
18	Kahana	175	1400	8
19	Jaswal	500	3250	6.5
20	Tilokar	750	5250	7
Total		19,340	132,785	6.8

d) Family System, Inhabited Status and Language Spoken

354. Traditional joint family system characterizes the social fabric of the area. Almost 75% households live in joint family system, while the rest 25% are nuclear families. Joint family system also provides them an opportunity to try and explore economic opportunities outside the project area, and even outside the country, as the family is perceived to be safe and taken care of in a joint system.

355. The family head is almost invariably a male member, normally the eldest. Sometimes, the male member having the highest amount of earning may also be the head of the family. The sons of the family are settled either in the same premises or in an adjacent place after marriage. **Table 6.34** shows the type of family and inhabited status.

356. Data regarding inhabitant status indicates that 100 % are local and their language is Punjabi.

357. Some of the interviewers during stakeholder consultation mentioned that a trend of migration is taking root in the area. Many people, due to low agricultural productivity and lack

of other economic opportunities, tend to look elsewhere within or outside the country. During the social survey, it was reported that in the last 01 year 19 families migrated out from two villages. Three households migrated in, one in Chitti and two in Tilokar. The reason for out migration is reportedly draught.

Table 6.34: Type of Family and Inhabited Status

Sr. #	Village Name	Family Type		Inhabited Status		Reason of Migration In/out	Language spoken
		Nuclear	Joint	Local	Migrant		
1	Chitti	-	✓	✓	1in	Due to close relatives in Chitti	Punjabi
2	Kharidpur	-	✓	✓	-	-	Punjabi
3	Pindsaidpur	✓	-	✓	-	-	Punjabi
4	Chakri Karam	-	✓	✓	-	-	Punjabi
5	Pinanwal	-	✓	✓	-	-	Punjabi
6	Karyala	✓	-	✓	-	-	Punjabi
7	Kotlipiran	✓	-	✓	-	-	Punjabi
8	Waarnali	-	✓	✓	-	-	Punjabi
9	Sauwal	-	✓	✓	-	-	Punjabi
10	Harnpur	-	✓	✓	-	-	Punjabi
11	DhokVains	✓	-	✓	-	-	Punjabi
12	Chanapur	✓	-	✓	-	-	Punjabi
13	Kot Kacha	-	✓	✓	-	-	Punjabi
14	Saroba	-	✓	✓	-	-	Punjabi
15	Athar	-	✓	✓	-	-	Punjabi
16	Langer	-	✓	✓	4out	Draught	Punjabi
17	Tobha	-	✓	✓	-	-	Punjabi
18	Kahana	-	✓	✓	-	-	Punjabi
19	Jaswal	-	✓	✓	15out	Draught	Punjabi
20	Tilokar	-	✓	✓	2in	As daily wage labourer	Punjabi

e) Major Caste Group, Religion, Indigenous People and Vulnerable Population

358. There used to be sizeable Hindu and Sikh population in the area before Partition, as evident from some temples still existing albeit in a dilapidated condition. However, in terms of religion, now almost the entire population is Muslim. Followers of both major sects of

Islam, Sunny (Hanafi) and Shia (Asna-Ashri) live in the area. There seemed to be no visible fault lines along the religious faith. In fact, Shia population is almost 30%, which is more than most parts of the country.

359. There is no group of people that could be termed as “Indigenous Community”, under the definition of ADB or any other development agency.

360. Major castes are Gondal, Jat, Raja, Arain, Awan and Mughal. These have their roots in various parts of Asia, but presently, they are residing in this area since many generations and as such consider themselves as Punjabi only. Smaller hamlets tend to be inhabited by one caste, but larger settlements have various castes living together in harmony.

361. The dominant caste group within a settlement holds deciding power to resolve minor social disputes and issues. Awan is perceived to be the more prestigious caste, after Syed. But generally there is no or little distinction based on caste or creed in economic or other spheres of life. The only major consideration of caste is for marriage, which is mostly arranged within families. **Table 6.35** shows the caste group, religion and vulnerable population of the area.

Table 6.35: Caste Group, Religion and Vulnerable Population in Project AOI

Sr.#	Village Name	Major Caste Groups	Religion	Vulnerable Population (No.)	
				Widows	Handicapped
1	Chitti	Rajgan, Arain	Muslims	10	04
2	Kharidpur	Rajpoot	Muslim	07	-
3	PindSaidpur	Awan, Bhatti	Muslims	200	-
4	ChakriKaram	Mughal, Sehgel	Muslim	84	-
5	Pinanwal	Arain, Mughal	Muslims	320	100
6	Karyala	Jatt, Awan	Muslims	30	10
7	Kotlipiran	Mochi, Awan	Muslims	20	10
8	Waarnali	MinhasRajpoot, Gondal	Muslims	05	01
9	Sauwal	Mughal, Tatri	Muslims	300	50
10	Harn pur	Rajgan, Arain	Muslims	184	110
11	Dhok Vains	Vains (Rajpoot)	Muslims	10	05
12	Chanan pur	Jatt Birar, Gondal	Muslims	15	05
13	Kot Kacha	Mughal, Gondal	Muslims	25	07
14	Saroba	Awan, Jatt (tunger)	Muslims	150	10
15	Athar	Baloch, Jatt Kotla	Muslims	85	05
16	Langer	Mughal, Balouch	Muslims	25	15

Sr.#	Village Name	Major Caste Groups	Religion	Vulnerable Population (No.)	
				Widows	Handicapped
17	Tobha	Jatt, Sadat	Muslims	150	45
18	Kahana	Awan, Kahana	Muslims	25	05
19	Jaswal	Janjua, Gondal	Muslims	45	60
20	Tilokar	Janjua, Qureshi	Muslims	40	30
Total:				1,730	472

f) Education Level

362. During the field surveys, the trend of people getting their children to school was observed. It emerged from discussions that local people are increasingly realizing the importance of education. Besides Government run schools, many private schools are operating in the area. A couple of well-known school chains also have their branches in PD Khan. Hence the level of basic education is satisfactory and improving, though the education level in the older generation is lower. Based on the information collected during group discussions, it is estimated that around 21% population of the area has an education level of Matriculation or above.

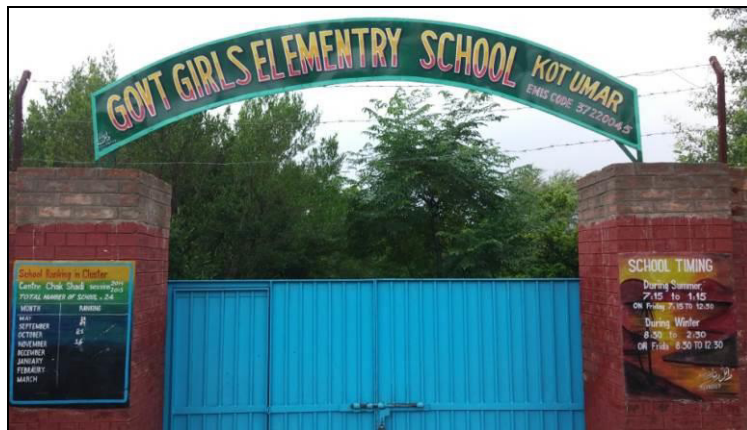


Figure 6.40: An Elementary Level School in project AOI

363. The summary of education-related data graphical presentation of the same is presented in the following **Table 6.36** and **Figure 6.41**.

Table 6.36: Educational Attainment Level of the Selected Village

No. of Villages	Educated population from Matric to Post Graduation
10	< 10% of total population
6	+10-25% of total population
1	+25-50% of total population
2	+50-75% of total population

1	>75% of total population
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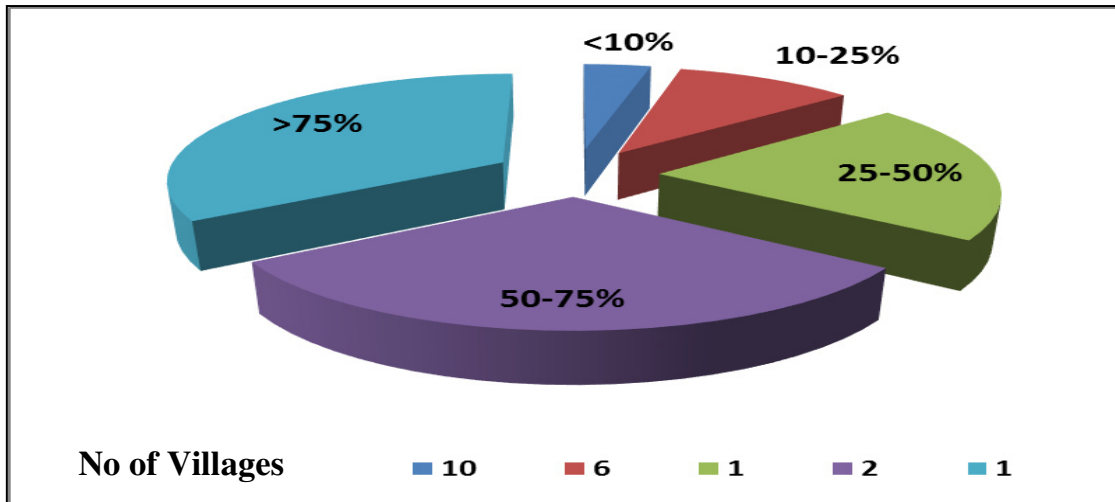


Figure 6.41: Graphical Presentation of Education Attainment Level

g) Health Status

364. The project area falls in arid zone. There is less greenery, vegetation cover and no fresh ground water. The project area also falls in comparatively hot region. Moreover, the salt range mountains run along with project area. The climate and environment is hard for human body and health.

365. During the survey, dry cough, skin disease and diarrhea are commonly noted diseases. . The brackish and contaminated water is the main cause of the above mentioned diseases. The data collected from the field is presented in the **Table 6.37**.

Table 6.37: Common Diseases in the project area

Category	Diarrhea	Hepatitis	Diabetes
Children	✓		
Women		✓	
Male			✓

6.6.3. Economic Profile

a) Major Occupations, Sources & Levels of Income

366. Despite being a rain-fed area, majority of the households are connected directly or indirectly with agriculture owners, tenant, sharecroppers, seasonal laborers (skilled, unskilled) and traders trading agricultural commodities. This also depicts lack of gainful employment opportunities in the area. Furthermore, farming is the ancestral for most of the people in the area and still considered prestigious.



Figure 6.42: Major Occupation i.e. Farming/Agriculture in AOI

367. However, the agricultural productivity is low; mainly on account of erratic availability of rain water and salinity. Therefore, many people have also adopted for other occupations also, either to supplement their agricultural incomes, or in some cases, as the main source of livelihood.

368. During the survey, it was recorded that the major source of income was farming followed by employment in government sector. It ranged from 47 % to 90 % as is evident from the **Table 6.39**. The overall farming occupation was recorded 72.3 % followed by employment in government sector as 11.9 %. The rest are engaged in private service (within or outside the area), own business and daily wage.

369. As far as female employees are concerned, women do have major contribution in the agriculture, without mostly being recognized as formal workers. Besides, they were working mostly in private education sector.

370. The data collected regarding major sources of income is depicted in **Table 6.38**.

Table 6.38: Major Occupation and Source of Income of the Selected Villages

Sr.#	Village Name	Major Source of Income (%)				
		Farming	Government Service	Own Business	Private Service	Others
1	Chitti	47	35	5	13	-
2	Kharid pur	70	5	20	5	-
3	Pind Saidpur	70	10	15	5	-
4	Chakri Karam	50	25	10	2	13
5	Pinanwal	60	10	2	5	23
6	Karyala	70	20	5	5	
7	Kotli piran	75	10	1	5	9
8	Warnali	80	10	5	5	-

Sr.#	Village Name	Major Source of Income (%)				
9	Sauwal	50	25	5	20	-
10	Harn pur	60	15	10	15	-
11	Dhok Vains	60	1	20	15	4
12	Chanan pur	80	20	-	-	-
13	Kot Kacha	90	2	4	4	-
14	Saroba	90	5		5	-
15	Athar	70	10	5	10	5
16	Langer	80	7	6	7	-
17	Tobha	90	5	-	5	-
18	Kahana	80	10	0	5	5
19	Jaswal	80	10	2	8	-
20	Tilokar	90	7	1	2	-
Total:		72.3	11.9	6.1	6.9	2.8

371. Poverty Status in project area with reference to the international Monetary Fund (IMF) and Bureau of Statistics of Pakistan, inflation rate up to year 2014 has been assessed. The average family size of the project area is 6.8 and per capita income per month was Rs.230910 so the OPL comes out as Rs. 15,701 per household per month.

372. During socio-economic field survey of the targeted 20 villages, it was observed that 55% of targeted population is above the poverty line. The rest 45% fall below the poverty line as their earning was less than Rs. 15701 per month. Such people are caught in a dilemma as they are neither able to get proper livelihood in their villages nor ready to leave their villages because of their lands irrespective of whether those lands were useful for them or not.

b) Source of Irrigation Water

373. Besides depending on rain, few farmers have installed tube-wells. Those having farmlands close to the river banks are also employing lift irrigation. Remaining villages are deprived from this facility due to brackish groundwater. **Table 6.39** shows the sources of Irrigation Water in the project area.

Table 6.39: Source of Irrigation Water

Sr. No.	Village Name	Source of Irrigation
1	Chitti	Private Tube well
2	Kharid pur	Private Tube well

¹⁰OPL has been calculated on the official poverty line of 2010-2011, i.e. Rs.1745, and is further projected upto 2014 keeping in view the inflation rates of 2013 and 2014 and family size.

Sr. No.	Village Name	Source of Irrigation
3	Pind Saidpur	Well + Rainfed
4	Chakri Karam	Well+Tube well
5	Pinanwal	Well+Rainfed
6	Karyala	Well+Rainfed
7	Kotli piran	Well+Rainfed
8	Waarnali	Tubewell+Rainfed
9	Sauwal	Tubewell+Rainfed
10	Harn pur	Tubewell+Lift irrigation
11	Dhok Vains	Rainfed
12	Chanan pur	Lift irrigation from river
13	Kot Kacha	Lift irrigation from river
14	Saroba	Rainfed
15	Athar	Rainfed
16	Langer	Rainfed
17	Tobha	Rainfed
18	Kahana	Rainfed
19	Jaswal	Rainfed
20	Tilokar	Rainfed

Source: Initial Poverty and Social Assessment Report, Jalalpur Irrigation project, NESPAK-ICS JV, October 2014



Figure 6.43: Sources of Irrigation Water in the project area

c) Cropping Pattern

374. The project area has no regular irrigation system. The landholdings are small and it is difficult to manage lift or pump irrigation at individual level. During the Rabi crop season, wheat and fodder are the major crops. **Figure 6.44** shows the wheat crop in project area. In Kharif season, millet, jawar, bajra are common. Rice and cotton were found very rare and were sown in few villages where the farmers had installed their private tube wells. No orchards were recorded in the area. **Table 6.40** below indicates the cropping pattern.



Figure 6.44: Wheat Crop in project area

Table 6.40: Cropping Pattern

Sr. No.	Village Name	Rabi Crops	Kharif Crops
1	Chitti	Wheat, Fodder	Rice, Fodder
2	Kharid pur	Wheat, Pulses	Millet
3	Pind Saidpur	Wheat	Millet
4	Chakri Karam	Wheat	Millet
5	Pinanwal	Wheat, Fodder	Potato, Corn, Fodder
6	Karyala	Wheat	Fodder
7	Kotli piran	Wheat, Fodder	Fodder
8	Waarnali	Wheat, Barsin	Fodder, Rice
9	Sauwal	Wheat	Fodder, Millet
10	Harn pur	Wheat	Rice, fodder, potato
11	Dhok Vains	Wheat, Fodder	-
12	Chanan pur	Wheat, Fodder	Fodder
13	Kot Kacha	Wheat	Rice, fodder
14	Saroba	Wheat, Gram, Fodder	Millet, Jawar
15	Athar	Wheat, Gram,	Bajra, Jawar Pulses
		Mustard	
16	Langer	Wheat, fodder	-
17	Tobha	Wheat, Gram,	Millet, Jowar, Pulses
		Mustard	
18	Kahana	Wheat, Jawar, Millet	Cotton, fodder
19	Jaswal	Wheat, Tara Mera	Millet, Jawar
20	Tilokar	Wheat	Millet, Jawar

Source: Initial Poverty and Social Assessment Report, Jalalpur Irrigation project, NESPAK-ICS JV, October 2014

d) Land Tenure & Holdings

375. The farm size and tenure system has a major impact on development of agriculture in any area. Large farms have comparatively higher absorptive capacity for development than small farms due to availability of resources. **Table 6.41** shows the number of farms and farm area by size of farm for project area.

376. Based on the latest available data obtained from Agriculture Census Report (2010), the distribution of farm area by size of farm has been computed for the project areas falling

in Pind Dadan Khan, Khushab and overall project area. It is evident that the project area is characterized by very small to small land holdings.



Figure 6.45: Landholdings in project area

377. Accordingly, the distribution of land resources amongst the population is not entirely equitable, though it is still much better than many other parts of the country. In Pind Dadan Khan Tehsil, around 40% of the area is owned by around 78% landholders in small and very small categories. On the other side of the spectrum, only 0.8% landholders (large and very large) control around 12.5% of the farm land.

378. The corresponding figures for project area in the Khushab Tehsil are further tilted towards larger landholders. Here, around 50% farm area is owned by around 90% landholders (small and very small); while the remaining 50% farm area is controlled by 10% landholders in the medium to very large categories.

379. The distribution of farm and farm area by tenure system i.e. owner, owner cum tenant and tenant are provided in **Table 6.42**.

Table 6.41: Number of Farms and Farm area by Size of Farm for project area¹¹

Category	Farm Size (ha)	PD Khan			Khushab			Total project area		
		Number of Farms Total	Farm area ha) Total	Av. Farm Size (ha)	Number of Farms Total	Farm area ha) Total	Av. Farm Size (ha)	Number of Farms Total	Farm area (ha) Total	Av. Farm Size (ha)
i. Very Small ii. Small	Less 2.02	27797	21007	0.76	2381	1890	0.8	30178	22898	0.8
iii. Medium vi. Large	2.02 to 5.05	6645	19401	2.9	1498	4449	3	8143	23850	2.9
v. Very Large	5.05 to 10.1	889	6085	6.8	417	2756	6.6	1306	8841	6.8
Total:		35611	53094	1.5	4421	11655	2.6	40032	64748	1.6

Table 6.42: Land Tenure System of project area¹²

Category	Total Number	owner		Tenant		Total Number	owner		Tenant		Total Number	owner		Tenant	
		owner	cum Tenant	Tenant	owner		cum Tenant	Tenant	owner	cum Tenant		Tenant	owner	cum Tenant	Tenant
Very Small	27,797	26,550	824	424	2,381	2,284	49	48	30,178	28,835	873	472			
small	6,645	6,066	492	85	1,498	1,306	89	103	8,143	7,372	581	188			
medium	889	822	65	2	417	327	60	30	1,306	1,150	125	32			
large	212	200	10	3	86	66	17	4	299	266	27	6			
very large	68	56	12	-	38	28	10	-	107	85	22	-			
Total:	35,611	33,695	1,402	514	4,421	4,012	225	184	40,032	37,707	1,627	698			

¹¹Based on Agriculture Census data (2010)¹² Ibid

380. The percent distribution of farms for Pind Dadan Khan project area comes to owner 94.6%, owner cum tenant 3.9%, tenant 1.4% whereas farm area comes to 92.3%, 6.6% and 1.2% for owner, owner cum tenant and tenant farms respectively.

381. For Khushab project area the percent distribution of farms comes to owner 90.7%, owner cum tenant 5.1%, tenant 4.2% and farm area comes to 82.9%, 11.6% and 5.5% for owner, owner cum tenant and tenant farms, respectively.

6.6.4. Utilities and Development Profile

a) Social and Civil Amenities Available in the project area

382. The facilities including water supply, electricity, garbage disposal, railways, roadways etc., are mostly available in the area but generally need improvement. The data regarding social and civil amenities was collected from the respondents of sample villages and is presented in **Table 6.43** and **Table 6.44** respectively. A map showing the infrastructure facilities in the project area is attached as **Appendix-X**.

Table 6.43: Social Amenities in project area

S. No.	Village Name	Dispensary/ BHU/RHU	Education				Post office	Bank	Police station	Vet. Disp.	Grocery shop
			Primary	Middle	High	College					
1	Chitti	✓	girl	-	-	-	-	-	-	-	✓
2	Kharid pur	-	-	-	-	-	-	-	-	-	✓
3	Pind Saidpur	✓	-	-	Boy govt	girl- Pvt	✓	✓	-	✓	✓
4	Chakri Karam	✓	boys	Girl	-	-	-	-	-	-	✓
5	Pinanwal	✓	boysgovt		boy govt	-	✓	✓	-	✓	✓
6	Karyala	✓	boys govt	-	-	-	-	-	-	-	✓
7	Kotli piran	✓	boys govt	boy govt	boy govt	-	-	-	-	✓	✓
8	Waarnali	-	boy govt	-	-	-	-	-	-	-	✓
9	Sauwal	✓	boy govt	-	-	-	✓	-	-	✓	✓
10	Harn pur	✓	boy govt	-	girl govt	-	✓	-	-	✓	✓
11	Dhok Vains	-	boy govt	-	-	-	-	-	-	-	✓
12	Chanan pur	✓	-	-	-	-	-	-	-	-	✓
13	Kot Kacha	-	boy govt	-	-	-	-	-	-	-	✓
14	Saroba	✓	-	-	girl govt	-	✓	-	-	-	✓
15	Athar	-	-	-	girl govt	-	✓	-	-	-	✓
16	Langer	✓	boy govt	-	boy govt	-	-	-	-	-	✓
17	Toba	✓	boy govt	boy govt	boy govt	-	✓	✓	-	✓	✓
18	Kahana	-	boy govt	-	-	-	-	-	-	-	✓
19	Jaswal	-	boy govt	boy govt	-	-	✓	-	-	-	✓
20	Tilokar	✓	boy govt	boy govt	boy govt	-	-	-	-	✓	✓

Table 6.44: Civic Amenities in project area

S #	Village Name	Water supply	Lined drainage	Sewerage System	Electricity	Road	Shaded Bus Stop	Recreational Park/Picnic resort
1	Chitti	-	✓	-	✓	✓	-	-
2	Kharid pur	-	-	-	-	-	-	-
3	Pind Saidpur	-	✓	-	✓	✓	-	-
4	Chakri Karam	✓	-	-	✓	✓	-	-
5	Pinanwal	-	✓	-	✓	✓	-	-
6	Karyala	✓	✓	-	✓	✓	-	-
7	Kotli piran	-	-	✓	✓	✓	-	-
8	Waarnali	-	✓	-	✓	✓	-	-
9	Sauwal	✓	✓	-	✓	✓	-	-
10	Harn pur	✓	✓	-	✓	✓	-	-
11	Dhok Vains	-	✓	-	✓	✓	-	-
12	Chanan pur	-	-	-	✓	-	-	-
13	Kot Kacha	-	-	-	-	-	-	-
14	Saroba	✓	-	-	✓	✓	-	-
15	Athar	✓	✓	-	✓	✓	-	-
16	Langer	✓	✓	-	✓	✓	-	-
17	Toba	✓	✓	-	✓	✓	-	-
18	Kahana	✓	✓	-	✓	✓	-	-
19	Jaswal	✓	✓	-	✓	-	-	-
20	Tilokar	-	-	-	✓	-	-	-

b) Drinking Water Availability & Quality

383. In the selected villages, 08 water supply schemes are installed near river to supply drinking water one for each village, whereas two water supply schemes are installed by the community on self-help basis. In the remaining villages, people have also arranged drinking water through hand pumps and wells etc. The hand pumps, which are installed near river area, pump out sweet water. Due to bad quality of ground water, people are suffering from diarrhea and other water borne diseases. **Table 6.45** shows the sources and quality of drinking water in the project area.

Table 6.45: Source of Drinking Water and Quality

Sr.#	Village Name	Source of Water	Quality
1	Chitti	Hand Pump	Good Quality
2	Kharidpur	Pipelines (90%) Hand pump (10%)	Good Quality Unfit for drinking purpose
3	PindSaidpur	Hand Pump	Good Quality
4	ChakriKaram	Private water supply scheme	Good Quality
5	Pinanwal	Hand pump	Marginal Quality
6	Karyala	Taped water supply (Govt)	Good Quality
7	Kotlipiran	Hand pump	Marginal Quality
8	Waarnali	Hand pump	Good Quality
9	Sauwal	Tapped water /hand pump (Govt.)	Good Quality
10	Harnpur	Water supply (Govt.)	Good Quality
11	DhokVains	Community Well	Good Quality
12	Chananpur	Hand pump (near river)	Good Quality
13	Kot Kacha	Hand pump (near river)	Good Quality
14	Saroba	Hand pump	Bad Quality
15	Athar	Private water supply	Good Quality
16	Langer	Tapped Water Supply(Govt)	Good Quality
17	Tobha	Hand pump	Good Quality
18	Kahana	Tapped Water Supply(Govt)	Good Quality
19	Jaswal	Tapped water supply(Govt)	Good Quality
20	Tilokar	Tube Well (Govt)	Bad Quality

Source: Initial Poverty and Social Assessment Report, Jalalpur Irrigation project, NESPAK-ICS JV, October 2014

c) Road Network

384. The project area is well connected through metaled roads, as per the finalized layout plan of project area the main canal is crossing two (02) arterial roads and district roads and village roads at twenty three (23) places. The main canal is also crossing M2 Lahore – Islamabad at one (01) place. The details of the road crossings are given below in **Table 6.46**.

Table 6.46: Road Network in project area

Sr #	Type of Road	Description
1	Motorway	– M2 Lahore Islamabad (one time)
2	Arterial Roads	– Jhelum to Pind Dadan Khan Road (one time) – Pind Dadan Khan to Khushab Road (one time)
3	District Roads	– Gharibwal to Chuk Mujahid Road (one time) – Khewra Road (one time)
4	Village Roads	– Total 23 crossings of main canal

385. Similarly the distributaries and minors are crossing the arterial roads, district roads and village roads at different locations which are mentioned in **Figure 6.46** below:

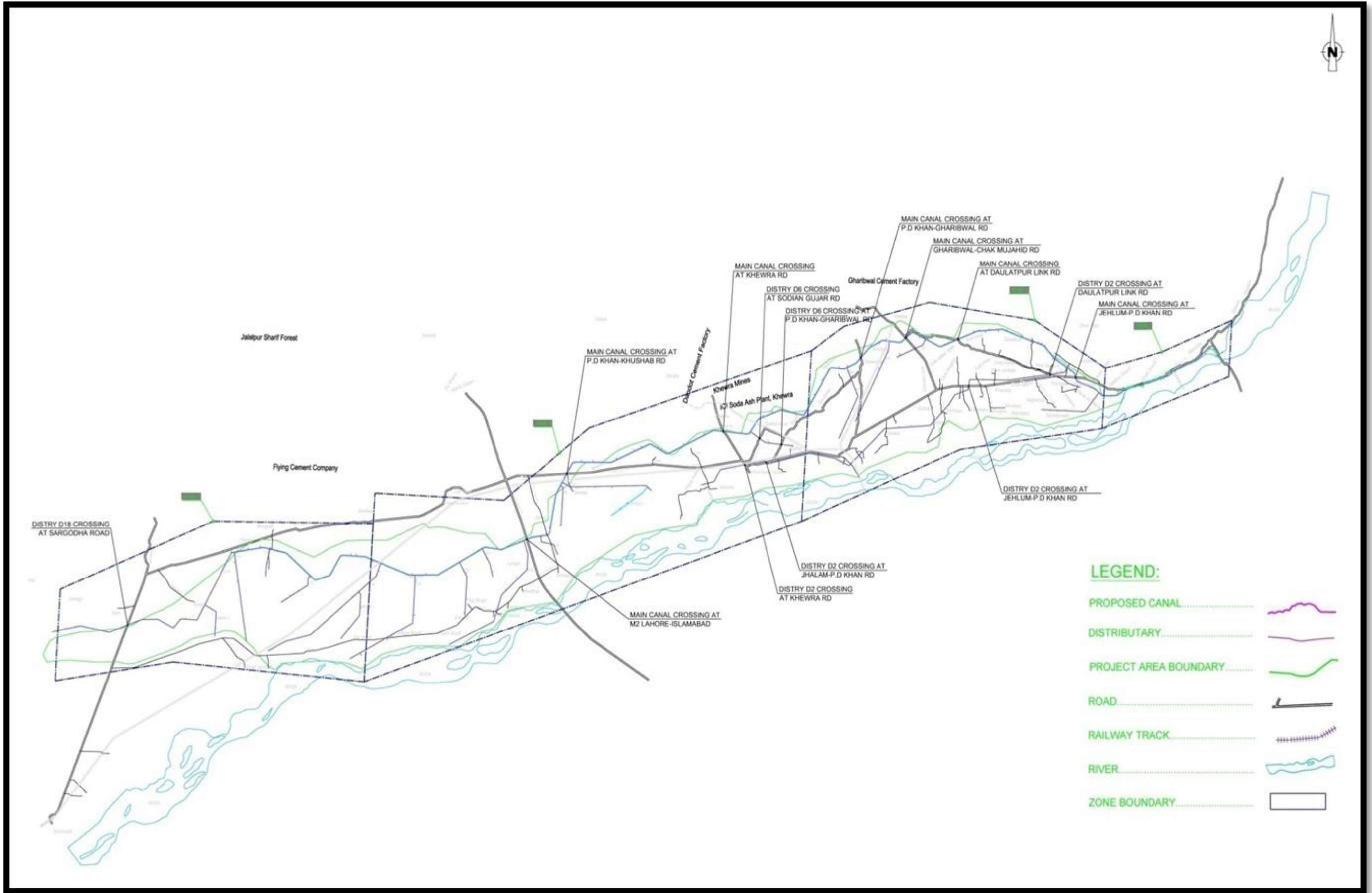


Figure 6.46: Main canal and Distributaries Road Crossings

d) Railways

386. The project area contains railway network for passenger as well as goods transport. The main canal of proposed network crosses the railway track at four (04) places and the distributary D2 at one (01) place. Among the five crossings as per the discussion with Pakistan Railways two crossings at Pind Dadan Khan to Tobah and Lilla to Dhak Janjua lines are non-functional.



Figure 6.47: Railway line near project AOI

387. The details of the railway crossings are provided below in **Figure 6.48**.

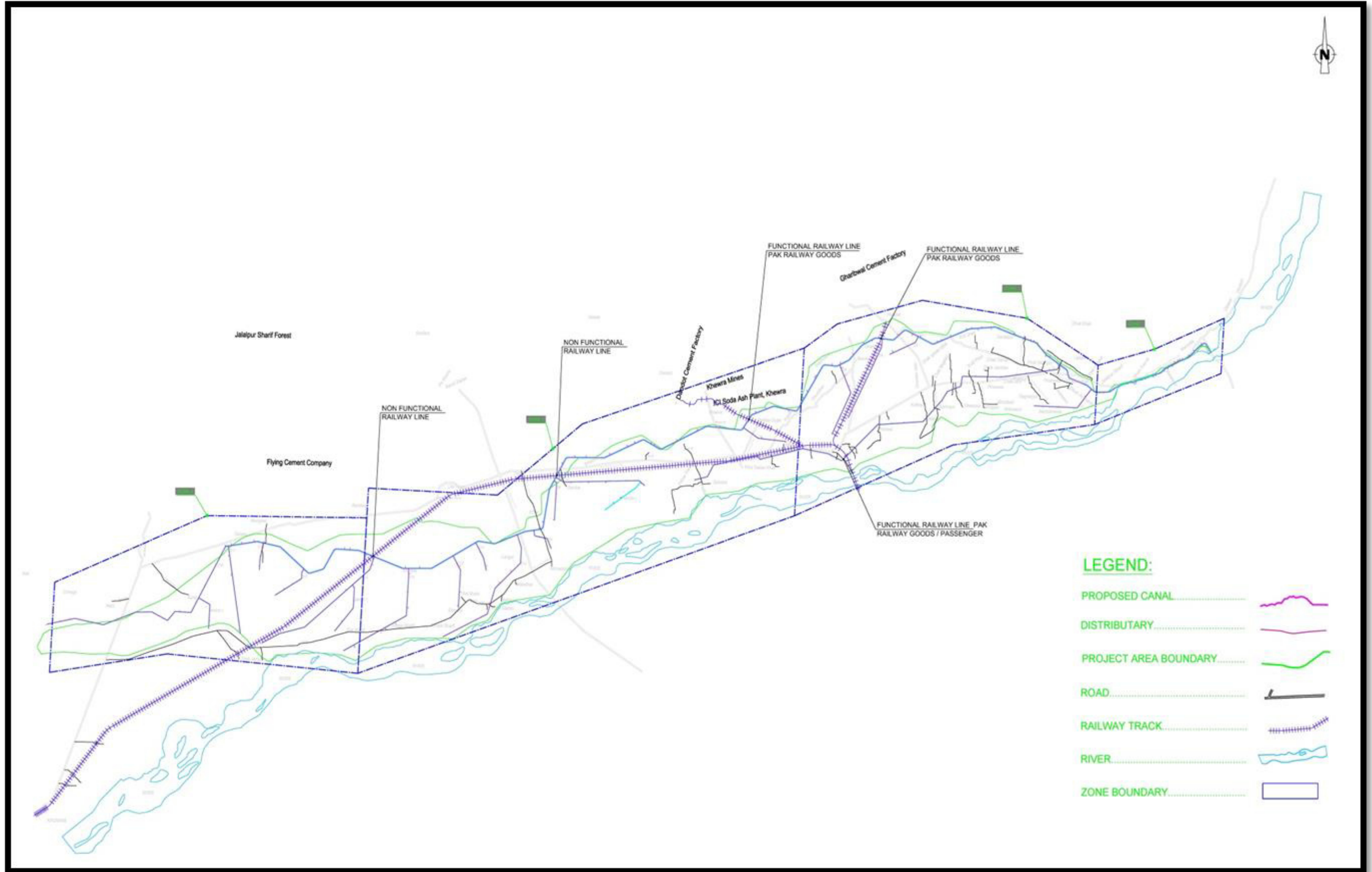


Figure 6.48: Main canal and Distributary Railway Line Crossings

6.7. Gender Profile¹³

a) Position, Role & Status of Women

388. The survey has revealed that the participation rate of women in various socio-economic activities in the project corridor is generally high. For the domestic spheres of life e.g. household work, their involvement in decision making is also substantial. However, they are not considered by the males in making the decisions about various socio-economic matters, particularly relating to activities which require interaction with others such as decisions about children education, farm business, sale & purchase of livestock or property etc.

389. Information in respect of women's participation and decision making in the routine socio-economic life is presented in **Table 6.47**.

Table 6.47: Women's Role in Socio-economic Activities

Sr. No.	Item	Participation (%)	Decision Making (%)
1	Household Activities	100	83
2	Child Caring	100	82
3	Farm/Crop Activities	64	18
4	Livestock Rearing/up keeping	52	25
5	Sale & Purchase of Property	18	12
6	Social Obligations	75	31
7	Local Representation	36	23

b) Gender Mainstreaming

390. Women contribution in the rural economy has a significant input. Rural women have role in all agricultural activities directly and indirectly. The educated women play their role in different departments, particular in education sector. Most of the women take interest to serve in education sector. During the field survey, data was also collected on this context and is presented in the following **Table 6.48**. Besides the educational sector (both private and public institutions), a sizeable number is working for the health sector. Two female employees were serving in NGO and the same number of females was operating their private business like a small shop or kiosk in their house in the village of Pind Saidpur and Pinnanwal.

391. Although rural women get always busy in agriculture activities, but their services are never counted and rewarded properly. With the passage of time, it is being recognized that their participation and involvement in development activities is beneficial in mobilizing the community. In the project area, National Rural Support Program (NRSP), an NGO has started many useful programs for males and females to improve their socio-economic condition and to reduce poverty. For this purpose, NRSP has established an area office in Pind Dadan Khan and has launched many programs. Many small groups consisting 20 to 25 members were established. Trainings have been imparted in different fields and provided micro credit to start different activities. The credit is being utilized to keep small livestock (goats and sheep etc.) and poultry. The loan is also used for other small businesses like shop, machines for sewing, stitching and embroidery.

¹³ Source: Gender Development Plan, Jalalpur Irrigation project, NESPAK-ICS JV, March 2015

Table 6.48: Women Serving in Different Institutions of the Selected Villages

Sr.No	Village Name	Women serving in different institutions							Total
		Education		Health		NGO	Private Job	Owned Business	
		Govt.	Pvt.	Govt.	Pvt.				
1	Chitti	1	-	1	-	-	-	-	2
2	Kharidpur	2	5	1	-	-	-	-	8
3	PindSaidpur	2	2	-	4	-	1	1	10
4	ChakriKaram	2	4	-	2	-	-	-	8
5	Pinanwal	3	20	2	6	2	3	1	37
6	Karyala	1	2	-	-	-	-	-	3
7	Kotlipiran	1	3	1	3	-	-	-	8
8	Waarnali	-	2	-	-	-	-	-	2
9	Sauwal	2	3	-	2	-	-	-	7
10	Harnpur	2	3	1	2	-	-	-	8
11	DhokVains	-	-	-	-	-	-	-	0
12	Chananpur	-	-	-	-	-	-	-	0
13	Kot Kacha	-	-	-	-	-	-	-	0
14	Saroba	2	8	1	2	-	-	-	13
15	Athar	3	15	2	4	-	-	-	24
16	Langer	-	-	-	-	-	-	-	0
17	Tobha	6	18	1	6	-	-	-	31
18	Kahana	-	-	-	-	-	-	-	0
19	Jaswal	3	15	2	6	-	-	-	26
20	Tilokar	1	8	1	2	-	-	-	12
Total:		31	108	13	39	2	4	2	199

392. A potential of gender development have been envisaged during the survey as NRSP has created awareness amongst the women. They are convinced and have got training to initiate their small business activities to generate more income to reduce poverty.