

Annex G

Rural Sociology



ANNEX G

RURAL SOCIOLOGY

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ANNEX G RURAL SOCIOLOGY

G.1 DEMOGRAPHY AND SOCIOLOGY

G.1.1 Demography

In Pakistan the last population census was held in 1981, 15 years before from now. At that time the population of Balochistan was 4.33 million, of which 0.68 million was in urban areas and 3.65 million in rural areas. According to the population census held in 1981, the total population in 5 districts including the Study area is shown below:

Population by district in 1981 (Population Census)				
District	Urban	Rural	Total	(%)
Quetta	285,719	95,847	381,566	(8.8)
Qila Abdullah	29,793	146,548	176,341	(4.1)
Pishin	14,715	187,541	202,256	(4.7)
Mastung	16,450	115,594	132,044	(3.1)
Kalat	11,037	198,112	209,149	(4.8)
Total	357,714	743,642	1,101,356	(25.4)
(%)	(32.5)	(67.5)	(100.0)	
Balochistan	676,772	3,655,604	4,332,376	(100.0)

Source: Population Census Organization

According to this table, the total population of related 5 districts including the Study Area occupies 25.4% of the population of Balochistan province, and the population ratio of urban is 32.5%, higher than provincial average (15.6%) due to including Quetta city. The average population density of Balochistan was 12.5 persons per square kilometers, and that of total 5 districts was about 45 persons per km² though except Quetta district it was about 34.

After that, several population projections have been tried by government agencies and private sectors. The latest population projection by district in Balochistan was conducted in 1995 by the bureau of statistics of the provincial government. According to this projection, the population in 1981 (population census) and population estimation in 1995 by district concerning to the Study area is as below (see Table G.1).

Population Estimation by District

District		1981 Census	1995 Estimation	(1000 persons, %) Annual Growth Rate
Quetta	Total	381.6	676.9	4.18
	Rural	95.8	155.6	3.52
	Urban	285.7	521.4	4.39
Qila Abdullah	Total	176.3	272.2	3.15
	Rural	146.5	222.3	3.02
	Urban	29.8	49.9	3.76
Pishin	Total	202.3	312.2	3.15
	Rural	187.5	287.6	3.10
	Urban	14.7	24.7	3.76
Mastung	Total	132.0	200.0	3.01
	Rural	115.6	172.5	2.90
	Urban	16.5	27.6	3.76
Kalat	Total	209.1	316.8	3.01
	Rural	198.1	298.0	2.96
	Urban	11.0	18.8	3.86
Total	Total	1,101.4	1,778.2	3.48
	Rural	743.6	1,135.9	3.07
	Urban	357.7	642.3	4.27
Balochistan	Total	4,332.4	7,357.9	3.85
	Rural	3,655.6	6,137.1	3.77
	Urban	676.8	1,220.2	4.30

Source: Population Census 1981: Population Census Organization

Population Estimation: Provincial Bureau of Statistics and JICA Study Team

According to above table, the estimated population by district in 1995 is from 1.8 to 1.5 times comparing to the census population in 1981. The annual growth rate of Quetta district is considerable high being an urban area, while those of the other districts are lower than the provincial average. The urbanization of Quetta city is likely to attract more people from the surrounding areas to the city.

Relatively high growth rate of whole province is reflected by very high estimated growth rate of Loralai, Nasirabad, Jaffarabad, Lasbella districts, etc. Though the methodology to get annual population growth rate is not announced, and estimation isn't shown for urban area and rural area respectively, the calculation in detail is assumed as Table G.1.

However, because of the complicated population trend and the lack of the population census for long period, reliable estimation of current population in these districts is so difficult that new population census should be held as soon as possible. In any case above estimation will be tentatively acceptable to understand the present condition of the region including the Study Area.

Rapid population growth is subject to cause the deterioration of natural environment, especially overgrazing and ground water depletion in case of this region. To slow down the population growth rate, family planning practices to increase smaller family is desirable, and the comprehensive education, especially of women is essential as a long-term countermeasure.

The fertility rate for Balochistan is estimated to be 6.5 births per woman in 1990 (5.95 births per woman is national average). This high level of fertility must be derived from unawareness and socio-cultural resistance to family planning, and inaccessibility to family planning services.

G.1.2 Ethnic Group

There are three major ethnic groups in Balochistan, that is, Baloch, Brahui and Pashtun. Besides the Sindhi, Punjabis, Mongol, Hazaras, Muhajirs and Turkmen also live in this province as the smaller groups. The distribution of major ethnic groups in the Province is shown in Fig. G.1. Pushtun tribes live mainly in northern mountainous areas, Zhob, Loralai, Pishin and Quetta districts. The Baloch live predominantly in the southwestern (Makran division) and eastern (Sibi and Nasirabad division) part of the province. Brahvi inhabit mainly the Kalat plateau including Mustung, Kalat and Khuzdar.

Each tribe speaks their own language and has own customs and traditions. The number of household by language spoken in the province is as follows:

No. of Household by Language Spoken in Balochistan (1000)						
Total	Balochi	Pashto	Brahvi	Sindhi	Siraki	Others
590	214	148	122	49	18	39
(100%)	(36%)	(25%)	(21%)	(8%)	(3%)	(7%)

Source: Population Census Organization

Administratively this province is divided into two parts. One is the area where is controlled by regular police force, and the other is the area where is dealt by the Levies who are a traditional force being recruited from tribes. It is said that about 75% area of the province except Quetta city and its surrounding area is under the control of Levy force.

Pashtun mainly lives in northern part of the Study Area, i.e. Pishin and Qila Abdullah and Quetta districts, and Brahui and Baloch in southern part, i.e. Mastung and Kalat districts. The territorial boundaries are not very rigid, especially in urban areas, because of the development of social groupings, the intermingling through the seasonal movements, and the recent influx of Afghan Refugees. However, the characteristic of social structure of each ethnic group is still very distinct. Each group has the particular traditions and rules of social organization.

The large majority of Pashtun living in the northern part of the northern highland of the province were originally pure pastoralists. Recently they changed gradually to agro-pastoralists due to the increasing impact of agricultural activities. Their social organization is based on an

egalitarian, and society is tend to individualism. Tribal chiefs so called 'Sardars' are considered to be the tribal representatives rather than the tribal leaders, and the religious leaders called 'Mullahs' have social power. The value of Pashtun is based on a concept called 'Pashtunwaali,' that is a concept covering all kinds of public behavior, as well as a means of ethnic identification and differentiation to other ethnic groups.

Baloch people in the province are divided into two groups, one of them is living in the southwest area, while another group is living in the central eastern area. Originally these people were nomadic pastoralists based on kinship, however today they include sedentary agriculturists and agro-pastoralists. Baloch society is traditionally under the feudal tribal system based on a tribal brotherhood and on the authority of a tribal chief, 'Sadar' holding wealth and power, to whom group members subordinate.

Brahui groups are mainly living in Kalat, Mastung and Khuzdar, and some of them are intermingled with other groups. They were originally also nomadic pastoralists, but today most of them have changed to sedentary agriculturists or agro-pastoralists, though some of them still keep the lifestyle with seasonal migrating. The Brahui tribal organization is characterized by genealogical heterogeneity. Their society is hierarchic, on the basis of the hereditary authority of a chief 'Sardar' and the personal bond of allegiance to the chief, which is common rather than genealogical comparing to Baloch.

The main ethnic group living in each beneficial area of proposed dam is as below:

<u>Dam</u>	<u>Main Ethnic Group</u>
Brewary	Baloch and Syed
Dara	Pashtun
Murgi Kotal	Pashtun
Kach	Pashtun
Jigda	Pashtun
Sanzali	Pashtun
Sakhol	Brahui
Mangi	Baloch
Kad Kocha	Brahui and Baloch
Gazlona	Pashtun

G.1.3 Nomadic People in the Study Area

It is certain that in Balochistan, a significant proportion of the population is engaged in nomadic activity. Though it is very difficult to estimate the exact number of the nomad people due to the high degree of seasonal mobility between and within countries and provinces, reportedly they may share about 10 % of the rural population in Balochistan. The estimation of animal population with them is also very difficult.

Generally nomadic households have about 5 to 6 family members which are smaller than agricultural households, because of less labor requirement. There are several nomadic groups in Balochistan. During summer season, the main groups stay at relatively cooler highlands including the Study Area, and move to southern districts or other warmer areas in winter. Some of them come from Afghanistan. Usually their migrating route and seasonal camping quarter are definite by group. Some of them work as the seasonal wage labors at the farm fields of the local sedentary farmers for wheat harvesting, fruits harvesting, etc., or at the other economic sectors. Because the rangeland is considered as the resource anybody can use, grazing is generally free without any payment.

In the Study Area, considerable nomads camping here and there are observed. Out of beneficial areas of proposed delay action dams, especially in and around the areas of Jigda, Murgi Kotal, Sakhol, Kad Kocha and Mangi, nomadic people come and return every year, and supply the seasonal labor force to the beneficiaries. In return they can graze their animals at the surrounding hilly areas and get crop residues as the fodder.

G.1.4 Present Situation of Afghan Refugees in Balochistan

It is said that by 1983 more than 2.8 million Afghans had to migrate across the border to Pakistan, out of which 80% to N.W.F.P and 20% to Balochistan. The majorities of Afghan refugees in Balochistan are Pashtun people who had come from the neighboring provinces of southwest of Afghanistan and most of them had lived in farming villages. According to the UNHCR (United Nations High Commissioner of Refugees), by 1990 about 850 thousands' refugees had been accommodated in Balochistan. They had been spread out among lot of refugee camps. They brought about 1.8 millions of sheep and goats with them. To meet their fuel and forage demands, rangelands and the places with better vegetation were severely devastated.

Several international agencies and NGOs have been assisted them. After Afghan War ended, from 1990 a large number of the refugees have been repatriated. As of 1991, the status of registered Afghan refugees in Balochistan is shown in Table G.2. According to UNHCR, in 1995 those refugees are estimated at 140 thousands to 150 thousands. However there may be considerable refugees, not recognized by UNHCR and mainly living in Quetta City. In rural area of the Study Area, not a few residents of Afghan refugees have still remained here and there.

G.1.5 Household

According to the Census of Agriculture in 1990, average household size in the five districts including the Study Area is about 8.2 persons, that is equal to the provincial average. The average size of agricultural households is a little larger than that of non-agricultural households (see Table G.3). Generally a household size is much larger in agricultural sector due to the traditional life style. It is not unusual that more than 20 persons live together in a walled house or make an economic living unit. The power of family chief is very strong and man-dominated atmosphere is distinct. In tribal areas, the custom of early marriages is common.

G.1.6 Education

In 1993 the literacy ratio in Balochistan was 20.9% (29.3% for men and 11.8% for women) which are very low comparing to national average of 35.5% (45.3% for men and 24.7% for women). Though this ratio was higher in urban area, 44.4% (55.2% for men and 30.4% for women), in rural area it was quite low with 16.2% (23.5% for men and 8.3% for women). During recent 15 years, this ratio has been considerably lifted up, but it must still be very low, especially in rural area. Above all, the literacy ratio of women in rural area in this province is extremely low. Inaccessibility of education facilities and lower social priority and motivation for girl and women causes such a situation (see Table G.4 (1)). However according to the Agriculture Census, 1990, the percentage of households that don't have any educated person in a family member in Quetta District followed by Pishin District is lower than that of the provincial average. It shows a relative superiority of these regions in education condition (see Table G.4 (2)).

In Balochistan many parents still haven't been unconvinced to conduct their children school education. School enrollment ratio (number of students to school age population) by level in this province in 1991 - 92 is as follows (see Table G.5):

School Enrollment Ratio by Level & Sex (1991 - 1992)				%
School level	Age	Both Sex	Male	Female
Primary	6 - 10	37.4	55.1	17.5
Middle	11 - 13	16.5	24.0	6.0
High	14 - 15	9.4	13.3	3.3

Source: Bureau of Statistics, P.D.D. Government of Balochistan

According to above table, about 45% of school age boys and 82% of school age girls do not or can not enroll even in primary school. In primary education, there are abnormally high dropout

rates in early grades. Such a situation comes from the facts that many parents still not convince the utility of school education, and children under these ages are needed as helping labor force in the farm fields and at home. On the other hand, teachers are untrained or poorly trained and the shortage of lady teachers in rural area is a major problem.

G.1.7 Health Condition

The health condition of the Balochistan is lower than in the rest of Pakistan. Infant mortality (around 200 per 1000 live births), fertility, and maternal mortality (5-7 per 1000) are very high. Incidence of malnutrition, infectious and parasitic diseases are larger. Twenty-eight percent of expectant mothers, 46% of lactating mothers and one third of pre-school children consume less than 70% of recommended daily allowance of calories. In the province, out of the morbidity of out-patient in 1992, about 17% was the respiratory tract infections, followed by 16% of other infectious diseases, 11% of gastrointestinal infections, and 8% of other diseases of the digestive tract.

G.1.8 Women in the Rural Community

Historically tribal societies in Balochistan are so patriarchal that male play predominant role and women's role is very limited in their communities. Generally in the tribal societies traditional values are still strictly followed and purdah regulations are observed. A high degree of malnutrition, poorer health condition, high birth rates, very low education level, very low levels of formal employment, very limited role in decision making processes, etc., has restricted women in development.

Urbanization with technological development has changed the daily life of women in the urban and semi-urban areas. However women in remote areas don't perceive many differences in their lives, many situations are still dependent on male people, and participation in decision making on their communities is very restricted. Although several government agencies, international cooperation organizations, and NGOs have provided the various assistants to lift up women's social status and living conditions, it will take much more time to improve remarkably the present situation of women in rural areas.

In formal statistical data, the participation rates of women in agricultural activities are shown very low (see Table G.6). As a matter of fact, many women share of activities such as weeding, harvesting, threshing, food processing, etc. However due to the difference of ethnic background, the position of women in agricultural sector varies strongly. According to field

observation and some information from extension workers, in Pashtun tribal societies, usually women seldom work on the farm fields. Contrary to this, in Baloch and Brahui societies, women work on the farm mainly at harvesting seasons, though they are not involved in activities of ploughing, seeding, fertilizer application, irrigating, etc. In livestock sector, generally women are involved in several activities such as milking, feeding, collection of fodder, animal weaning, production of dairy products, etc. These women usually work as unpaid family labor.

G.1.9 Economic Activities

As the major economic activity in Balochistan is the crop production and animal husbandry, and most of the industries of Balochistan are unregistered micro and small scale units, it is difficult to grasp exactly the industrial condition in the province. A large part of manufactured consumer goods, engineering products, etc., is imported from other provinces or countries, while export industries are very limited. Manufacturing of food, textiles, chemical and plastic products, metal products and machinery, etc., are the major industrial sub-sectors (see Table G.7). For medium and large scale industries, about 90% are established in Lasbela district and 10% in Quetta district. The percentage of un-employed civilian labor force in the province is very low (1.6%) compared to the national average (6.3%) in 1990-91.

According to the Household Income and Expenditure Survey in 1987, average monthly income per household in Balochistan is slightly lower than the national average. The average monthly income per household for Balochistan was Rs. 2,898 less than that of Rs. 3,590 in Pakistan (see Table G.8). Similarly, the average monthly consumption expenditure per household for this province was Rs. 2,649 that is also less than Rs. 3,485 in the whole country. Percentage distribution of food, beverage, fuel, etc., in the province is higher than national average (see Table G.9).

G.1.10 Policy of the Provincial Government

Thus, Balochistan is the least developed province in Pakistan both in terms of physical infrastructure and social services. To improve and bottom up the present poor socio-economic conditions in the province, provincial government is making effort to carry out several countermeasures and projects based on the Social Action Programme that is an umbrella exercise aimed at transforming the socio-economic conditions and consists of following main elements: a) addressing the sector-wide constraints at the policy, institutional, and administrative levels, b) increasing budgetary allocations to the basic social sectors, c) and increasing the

involvement of communities, especially women, NGOs and the private sector in the provision of social services. Besides this, a lot of development projects and schemes are being carried out in several sectors.

G.2 RURAL INFRASTRUCTURES

G.2.1 Domestic Water Supply and Sanitation

According to the Housing Survey (1989), in Balochistan, the source of water for 72% of the population was from open wells, ponds and streams. By 1993, 829 water supply schemes had been installed by the Public Health Engineering Department, and 1,100 hand pumps have been installed by the Local Government Department. Thus the rural water supply coverage in Balochistan has been nearly 45% as of 1993 compared to the national average of 48%. While, sanitation coverage in rural area is still 10% compared with the national average of 14%.

It is estimated that urban water supply in Balochistan extends to nearly 90 % of the urban population, and sanitation coverage is about 50%. However this figures conceal the quality of service. Because, for instance, the water supply service varies from piped household connections to community taps. In Quetta City, Water and Sanitation Authority (WASA) created in 1989 has responsibility to supply the domestic water to almost all households of about 42,000 in the city area.

In the five districts including the Study Area, most of water sources of public rural water supply are tubewell as in all of the province, while there are no water supply schemes based on dam reservoirs or river streams. In the rural areas of said five districts, there are 218 piped water supply systems and 577 community water tanks. Water consumption ratio in rural area is about 83 % for households, 7 % for industries and 10 % for other purposes (see Table G.10).

With foreign assistance, several RWSS (rural water supply and sanitation) projects have been implemented. The major on-going projects are; Balochistan Rural Water Supply and Sanitation Project (1992-99) assisted by IDA, Balochistan Integrated Area Development Project assisted by EEC, and the rural water supply projects assisted by UNICEF.

In this province, groundwater is a source for about 80% of all existing water supply schemes. However groundwater schemes are expensive to install, difficult to maintain, and electric power is either not available or unreliable in most villages. Furthermore, revenue collection rate is very low (It was only 2.3% to total O&M expenditure in 1992-93).

G.2.2 Electricity

In Balochistan, Sheikh Manda Thermal Power Station (15 MW) was established by WAPDA in 1964 as the first coal based power station in the country. Since then this station was gradually extended with gas turbine generators and today the total installed capacity is 95 MW (effective generating capacity is 75MW). In 1977 Balochistan was connected with the National Grid through a 272km of 220 KV high voltage transmission line from Guddu (Sind Province) to Sibi, and 163km of 132KV double circuit transmission line from Sibi to the existing 75 MW power station of Quetta was linked in 1979. These power generation capacities are total of about 240 MW. Besides, 132KV with KESC (Karachi Electricity Supply Company) system from Karachi is connected to Lasbela (these two systems are not yet linked in Balochistan), and other separated systems have been developed for Mekran and Turbat. In addition to these major grids, 19 separate diesel mini grids (generating average 1MW) have been established in various areas. At present the total length of lines and number of grid stations by KV in Balochistan is shown below:

KV	Transmission Lines (Km)	Grid Stations (Nos) *	Distribution Lines (Km)
220 KV	272	1	-
132 KV	1,283	27	-
66 KV	291	7	-
33 KV	624	13	-
11 KV	-	-	7,580
0.4 KV	-	-	3,383
Total	2,424	47	10,963

Source : WAPDA Power Wing, Quetta

* exclude diesel mini grids stations.

There are the great number of small and scattered villages and settlements in Balochistan. Therefore, despite considerable increase of electric facilities, rural electrification is still insufficient as shown in following table, though the electrification rate in the Study area is a little higher:

	Main Villages	Sub Villages	Total	Electrified Villages	Percentage
Study Area	1,383	1,407	2,790	926	33.2%
Balochistan	5,596	7,127	12,723	2,488	19.6%
Pakistan	43,115	80,000	123,115	37,295	30.3%

Source: WAPDA power wing, Quetta, 1995, Paper for rural electrification by 8th plan working group

The electric power supply facilities and electrified villages in the five districts including the Study Area are as shown in Table G.11.

The per capita consumption of electricity in the province is about 240 KWHs. A major problem is the big arrears of payment, especially for agricultural consumers (for tubewells) whose average annual non-collection payments reportedly come up to about 46%, or more than Rs 80,000 per consumer.

Electrification of tubewells has been developed in several valleys such as Quetta, Pishin, etc. However the installation and electrification of tubewells have led to a drop in the groundwater level and pumped up water depth has increased year by year with greater requirement of electricity. Nevertheless, the bill of electricity is not likely to increase. Because most of tubewells is on a flat rate, there is no incentive for the owner or operator to conserve on energy, and so that groundwater is also not conserved.

G.2.3 Roads and Transportation

Though Balochistan accounts for 43.6% of the area of Pakistan, total length of roads is only 19% of total road's length in the country. The road density 0.09 is very low compared to average 0.21 of Pakistan. Only 23.3% is high type (paved) roads compared with 52 % of Pakistan (see Table G.12).

Up to 1995, Total length of the roads in Balochistan is about 21,700 km in which about 2,600 km is national highway, 1,700 km is Central Importance road, and 17,400 km is provincial road. Almost all national highway is paved, and out of total provincial road 2,100 km (11%) is paved and the rest 15,300 km is unpaved. As for the provincial road, the percentage of paved road is relatively high in Quetta, while very low in Kalat (See Table G.12 in detail).

The main roads National Highway) through the districts including the Study Area are shown below:

	Road Name	Total Length (km)	Type
1.	Quetta-Karachi	689	Paved
2.	Quetta-Nushki-Taflan	638	Paved
3.	Quetta-Chaman	122	Paved
4.	Quetta-Zhob-Dera Ismari Khan	440	Almost paved
5.	Quetta-Sibi-Dera Allah Yar	296	Paved

Source : Communication & Works Department, Balochistan

Road density of Quetta District is considerably high, while that of Kalat and Mastung Districts is very low. Besides these, there are lots of local roads that are motorable in fair weather and neither controlled by governments nor reported about current conditions. However, these informal roads practically play the important role for access to remote villages.

During 6th and 7th Five Year Plan, 20 major routs of road projects started and now some of them have been completed, while some are still on going. In 8th Five Year Plan, 20 major routs of road's improvement projects and 4 new road construction projects are planed with total road's length of 3,147.2 km.

Number of vehicle in Balochistan registered since 1981 up to 1995 is as follows:

Vehicle	Motorcars	Buses	Trucks	Motorcycles & Scooters	Rikshaws	Others
Number	33,296	6,117	26,822	46,094	2,930	34,615

The number of vehicles registered by type in the Study Area both in 1993 and 1994 are shown in Table G.13. Most of motorcars and trucks were registered in Quetta and Lasbela districts, and most of motercycles in Quetta and Sibi districts.

G.2.4 Education Facilities

In Balochistan, there were 7,590 primary schools, 612 middle schools, 314 high schools, 39 intermediate and degree collages as of 1992. These education facilities have increased a little in recent years, and as of 1995, these are 8,011, 623, 332, and 44 respectively. Out of which, 1,762 primary school, 166 middle school, 109 high schools and 16 collages are located in the Study area. In addition, there are some praiivate schools, federal government schools and Mosque schools.

Number of enrollment of primary schools in Balochistan amounts to about 520 thousands out of which 71% is male and 29% is female. In the Study area, number of enrollment of primary schools is about 194 thousands out of which 67% is male and 33% is female. Number of enrollment of middle schools is about 90 thousands in the province and about 33 thousands in the Study Area, and for high schools it is about 36 thousands and about 11 thousands respectively.

On the other hands, number of teaching staff is about 19.5 thousands in primary schools, 6.2 thousands in middle schools and 2.7 thousands in high schools in the whole province. In the

Study area, these are 5.7 thousands, 1.6 thousands and 1.1 thousands respectively. The ratio of female teacher is very low in rural area though it is considerably high in Quetta district.

According to above figures, in the Study area, it is computed that the number of average enrollment per school is 110 for primary school, 200 for middle school and 100 for high school. The number of average teaching staff per school is 3.2 for primary school, 9.6 for middle school and 10 for high school. Therefore number of average students per teacher is 34 in primary school, 21 in middle school and 10 in high school. (See Table G.14 in detail)

Most of primary schools are shelterless or dilapidated and basic facilities such as water supply, sanitation, electricity, furnishing, text books, training materials, etc., is quite scanty.

In Eighth Five Years Plan, it is planed that almost every child of 5 years and above shall have access to a primary school or mosque school and new physical accommodation shall be constructed for additional enrollment.

G.2.5 Health Facilities

In 1995, there are 40 hospitals with 2,560 beds, 539 dispensaries with 40 beds and 46 rural health centres (R.H.C.s) with 470 beds in Balochistan. Besides these, 459 basic health units (BHU), 78 municipal committee health centres (MCHcentre), and 18 tuberculosis clinic (T.B. clinic) are established as of 1993. Out of total of about 1,200 health outlets, about 1,050 outlets are the public sector, while private sectors are very small, poor and located all in Quetta City. Generally these health sectors have inadequate facilities as well as low quality of services. In terms of human resources, the supply of doctors has generally exceeded demand in urban area, while the shortages of nurses, paramedics and health technicians are critical as a whole. Further problem is a strong tendency to locate in urban areas.

The number of health facilities and staff by district including the Study Area are shown in Table G.15. According to the table, 10 hospitals with 1,540 beds, 95 dispensaries with 10 beds and 9 B.H.C.s with 90 beds are located in the Study area. Recently the numbers of health facilities have not been increased. There are considerable remote villages with no health facilities.

Number of doctors is 900 in the province and 453 in the Study area. Number of nurses is only 251 in the province, out of which 240 is in the Study area, almost in Quetta. Besides these, total of 164 lady health visitors (L.H.V.s) and 697 midwives are working in the province. Seventy-seven L. H. V.s and 160 midwives are in the Study Area. According to above figures, the number of staff for health services per 1,000 inhabitants is estimated as 0.3

doctors, 0.1 nurses and 0.5 the other health workers in the Study area (See Table G.15 in detail).

The locations of health service outlets are often inadequate and the distribution of health facilities is not equitable between districts. In Eighth Five Year Plan, it is emphasized that the highly centralized nature of health service organization needs to be corrected through a process of decentralization, and additional services should be provided in view of equalizing provision with respect to size of population between districts.

G.3 RURAL SOCIO-ECONOMIC SURVEY

In accordance with the Terms of Reference for the socio-economic survey prepared by JICA Study Team, Socio-Economic Survey composed of the Community Survey and Household Survey, was carried out by a local contractor from May to June 1996 at the beneficial areas of 13 proposed and 7 existing delay action dams. One hundred of the households in these areas were interviewed. The result of the survey is summarized as follows (see Table G.16, G.17 and G.18):

The number of the largest households in a selected village is 400, and the smallest is 20. The largest population in the village is about 5,500 and the smallest is 200 except the Kodkacha and Gorpad villages where total population was not cleared due to considerable number of nomad people. Average person per household is 14.

Ethnic distribution is 51 % of Pashtun, 38% of Brahvi, 9% of Baloch and 2% of others. Pashtun is dominant in Pishin and Quetta districts while Brahvi is dominant in Mastung and Kalat districts. Baloch is main ethnic group in the villages selected from the beneficial area of Brewery and Mangi dams.

About the distribution of households by major economic activities in the villages selected, 32% is mainly engaged in service business (mainly government services), 29% in agriculture, 8% in nomad and 31% in other business. However it is quite difficult to determine the exact number of individuals involved solely in farming or agricultural activities as most people are simultaneously engaged in more than one economic activity.

About the present agricultural land use in the villages selected, 20% of total are cultivated land and 49% is grass land. Fifty-seven percent of cultivated land is upland, and 43% is orchards. Most of fruits are apples and wheat is dominant in annual crops.

Total number of tubewells in the area is 144. Total irrigated area is 60% of the cultivated area (thirty-five percent are covered by water from tubewells, 21% by spring, 4% by karez), and remaining 40% is rainfed (barani) area.

Most of villages surveyed have at least one primary school, while there are only 5 secondary schools, one high school, 5 health center and 4 dispensary in the total area. Domestic water source varies village to village. Electricity is available in almost all villages. In most of villages Mosque is used as a community hall. Telephone is available at 9 villages. An agricultural tractor is introduced to about 50 ha of cultivated area, and a sprayer for plant protection to about 80 ha of orchard on average in all villages surveyed.

The number of cooperatives could not be confirmed in the villages selected. Twelve villages have a traditional irrigators' association having average 30 members respectively, for maintenance of karez or surface irrigation facilities.

The outline of the result of interview for 100 households is as below. However, the persons interviewed were selected from relatively big farmers as those who have thoroughly the abilities responsible to the questions. Therefore the result of the household survey doesn't necessarily show the average condition of the households of the villages in the Study Area. The farm size distribution of farm households interviewed, and average cropping patterns by farm size are shown in Table G.17(2)-1.

- 1) Average population per household is 19 that is composed of 10 males and 9 females, and more than half are under 14 aged, while persons above 65 are very few. Number of persons engaged in crop farming per household is average two.
- 2) Most of the land is owned by respondents. Average size of land per household is 34 hectares composed of 7 hectares of planting area of annual crops, 6 hectares of orchards area, 19 hectares of fallow land and 2 hectares of others. Because of the large percentage of rainfed area in agricultural land, proportion of fallowland is considerably high. However the average land size includes those of very big farmers. Except for too big farm lands, the figures for land use mentioned above is about 22, 4, 4, 13 and 1 hectares respectively.
- 3) Average number of livestock per household is one cow, 11 sheep, 10 goats, 9 chickens and one other animal. In average farm household, most of orchards are occupied by apples, while most of uplands are occupied by wheat.
- 4) Half of the total household interviewed have average one tubewell. Most of these tubewells are owned by the respondents, and a part of them is shared by irrigators. Average water depth of the pumping is 226 feet, and average irrigated area with tubewell per household is 10 hectares.
- 5) Several water sources are used for domestic water. Twenty-six households in the area surveyed use surface water as the domestic water, 20 use ground water, and 22 use the water from the facilities constructed by Public Health Engineering Department (PHED), 16 use karez's water and 16 use springs

respectively. Average consumption water per household per day is about 260 gallon that equals to about 60 liters per person.

- 6) Sixty-seven percent of the farm households interviewed use tractors out of which about 20% is owned and about 80% is rented. For spray machine, 55% of farm households use this machine out of which about 40% is owned and 60% is rented. Thirty-eight percent of households use thresher, most of those are rented.
- 7) Number of average family labor per household is two persons, but female and children are not counted as the labor forces despite they often work at the fields. Average mandays per year per family are about 300. While, number of average hired labor per household is 3 persons and average hired mandays per year is about 420.
- 8) Average household income per year is about Rs.400 thousands, half of which comes from agricultural activities and the other half comes from other business including forestry, seasonal labor, livestock husbandry, etc. However, this yearly income seems to be overestimated too much compared to the average yearly household income in Balochistan Province mentioned in section 1. The reason is that there is considerable number of big farmers in the households interviewed. When too big farmers are eliminated out of the total households, average household income goes down to Rs.140 thousands. Even if it is so, generally the income level of the households interviewed seems to be comparatively high.
- 9) Average family expenditure per year is about Rs.230 thousands, out of which the expenditure for foods is about 40%. As same as the case of households income, except for too big farmers, this figure drops to about Rs. 80 thousands.
- 10) In recent five years, crops were suffered cold damages in the fields of 60 households out of 100 household interviewed, followed by flood damages in 45 households, damages by hail storms in 25 households and damages by soil erosion in 18 household.
- 11) About eighty percent of the farmers desire the fruits cropping in their future farming, followed by vegetables and common upland crops. Most of farmers want to continue or enlarge their current farming.
- 12) About 80% of the interviewed farmers in the beneficial area of the proposed delay action dams (DADs) desire the construction of DAD, about 9% have a doubt about the effect of the construction of DAD and 4% have the opinion that DAD is not necessary to maintain present condition of flood irrigation.
- 13) Fifty-four percent of the beneficial farmers desire the improvement of existing irrigation facilities, followed by 41% for the reclamation of farm land, 18% for the improvement of farm roads and market roads, 13% for the foundation of low interest loan for farm inputs procurement, and 12% for the improvement of domestic water source.
- 14) Twenty-four percent of the beneficial farmers have the complain for little chance to obtain the financial support by the government for the project, followed by 7% for poor accessibility between markets and the beneficial areas, 4% for little supporting of the rural government for new farming, etc., though the farmers' responses to the question about constraints to the countermeasures were relatively low.

- 15) Thirty-two percent of farmers are willing to participate the operation and maintenance activities of new DAD, followed by 28% for project planning, 21% for construction works, 10% for rationalization of on-farm water management, and the other 10% for improvement of crop production.

G.4 SOCIAL ENVIRONMENT AND FARM HOUSEHOLD SURVEY

G.4.1 General

This survey was carried out as a supplemental survey of the Rural Socio-Economic Survey (summarized in Section 3) conducted by JICA Study Team. The object of this survey is to get the information of social environmental and socio-economic condition of the small farmers in the beneficial areas of the 10 proposed delay action dams. Because in Rural Socio-Economic Survey, the selected farm households for interview inclined to relatively big ones due to get information quickly through the village chiefs. Therefore, the farm households for interview in this survey were selected from the relatively small farmers possessing land in the range 1-5 hectares. Fifty small farm households were selected. The technique used to interview was to gather the farmers at one place, give a brief introduction of the survey purpose and scope, and identify strata of farmers to be interviewed. The interview was carried out at the following villages by each beneficial area of the proposed delay action dam.

Delay Action Dam

Brewary Delay Action Dam
Dara Delay Action Dam
Murgi Kotal Delay Action Dam
Kach Delay Action Dam
Sanzali Delay Action Dam
Jigda Delay Action Dam
Sakhol Delay Action Dam
Mangi Delay Action Dam
Kad Kocha II Delay Action Dam
Arambi Delay Action Dam

Name of Villages

Killi Kirani
Killi Umar
Killi Kateer, Malazai
Sara Ghurgai
Sahibzada, Abdullah Jan and Haji Sahib Jan
Jigda, Sharan
Karez Afghan, Karez Ladha, Karez Murgha
Shapch, Mal
Malli Khurma
Silad Thana

G.4.2 Result of Farm Household Survey

The result of the farm household survey by beneficial area of DAD is summarized as follows (see Table G.19).

Average population per household is about 15, with maximum in Jigda (21) and minimum in Mangi (10). In an average household, the ratio of male and female is almost 1:1. The population of under 14 years old is about half of total male and female respectively, and the

number of over 64 years old is negligible. All households are engaged in agricultural activity, out of which about half of them are engaged in other business, 30% in civil service and 12% in livestock raising simultaneously.

Average land tenure per household is 3.10 hectares out of which 2.95 hectare is fully owned and 0.15 hectares is sharecropped. About 53% of the land are occupied by annual crops, about 31% by tree crops, and the rest is fallow and uncultivated land. However in Brewary, Dara and Kad Kocha, the area of tree crops is the biggest. In the annual crops of the average farm land, wheat comes first (42%), followed by vegetables (23%), barley (22%), onion (15%). In the tree crops, apple accounts to 66%, grape to 15%, and the rest 19% is apricot, peach, plum, etc. In a part of farms intercropping is observed. Some farmers share crops. The ratio of sharecropping is different from case to case.

Average raising size of livestock per household is about one of cattle, 8 of sheep and goats, 8 of chicken. Most of the households raise these livestock mainly for their domestic use. In Kad Kocha, Mangi and Sakhol, raising size of sheep and goats is relatively large, which is 26, 17 and 10 respectively.

The total number of tubewells of the households surveyed is 30. Sixteen households own tubewells individually, and 8 households share them. The oldest tubewell was settled in 1960 and the newest in 1995. The depth of the watertable for pumping is fluctuate area by area with maximum 600 feet and minimum 60 feet. The caliber of tubewells is from about 1.5 to 4.3 inch, the pumping energy is from 5 to 30 HP, the pumping capacity is from 0.2 liter to 11.3 liter per second, and the average irrigated area per household practicing irrigation with tubewell is about 3 hectares. The average irrigated area per household irrigating with other water source is about 1.7 hectares for karez, 2.8 hectares for spring and 2.3 hectares for others. Average irrigation frequency is every 13 days.

Domestic water source is tubewell, karez, surface water, PHED facilities, and spring. The share of these water sources is 34%, 28%, 18%, 18% and 2% respectively. Average distance from home to water source is about 460 feet, and domestic water consumption per day per household is about 280 gallon (about 60 liter).

Only a part of farmers applies chemical fertilizer like urea and DAP to their apple, vegetables, wheat, etc. Most of farmers use manure to their apples. Agro-chemical application is carried out only in a part of farms of fruits and vegetables. However, the reported application quantity of these fertilizers and agro-chemicals generally seems to be too low. These quantities may be underestimated due to the considerable farmers might have not remembered the accurate quantities of their fertilizers and agro-chemicals applied.

Average labor force per year per household is about 340 mandays, out of which about 180 mandays are family labor, and hire about 160 mandays are hire labor. Average household income is about Rs.106,000 out of which about 60% is agricultural, and the rest is non-agricultural. Despite interviewed households are small farmers, their income level is higher than the average in the province. Because, most of the beneficial household has relatively larger irrigated area and orchard compared to the average farm household in the province.

G.5 SOCIO ECONOMIC PROFILE OF THE BENEFICIAL VILLAGES SURVEYED

Through the Socio-Environment and Farm Household Survey, basic information about each beneficial area of the 10 proposed delay action dams was collected. However, at that time, as the borderline of each beneficial area still had not been settled, each area mentioned below includes non-beneficial village or non beneficial part of a village. Despite that following information will be very helpful to imagine the general socio-economic condition of each beneficial area.

(1) Brewary Delay Action Dam (Killi Kirrani)

The estimated population of the village is about 1,600 souls. Extended family systems prevail in the area. This village belongs to the Chisti Syeds and presently 30 Syed families own the total land of this area. Besides them 100 Baloch families are also living in the village but they do not possess any land. All the residents are Muslims and the language of the Syed families is Persian but all of them can speak Baloch, Brahui and Urdu as well. Syeds hold a very prominent position in Muslim society. They are the descendants of the Holy Prophet and act as spiritual leaders. Therefore the Baloch families are under the influence of these Syed families and are dependent on them socially and economically. All the social decisions are taken according to the Sharia and Rawaj that are Islamic and tribal laws. The Malik (traditional leader) and elders of the village have influence on the decision making process. The selection system of the Malik is hereditary.

According to the information, the total land area of the village is approximately 1,410 hectares, out of which about 120 hectares is occupied by the orchards, 40 hectares is upland crops, approximately 1,210 hectares is grassland, and 40 hectares is residential area. The physical structure of the settlement is compact. The average farm size of each family is about 4.23 hectares. All land is owned individually.

The orchards and crops, in a majority of cases is self farmed by the owner with the help of resident paid labour. However in some cases these may be farmed by a Bazgar (share

cropper). Being located in the suburbs of Quetta city, the farmers have access to the market and procuring facilities. The owner or sharecropper sells the products either personally in the market or to a contractor of middlemen. The farmers are not versed with the modern agriculture techniques and are not also trained in this respect by any private and government agency. The livestock by the community is mainly for their domestic requirements.

The domestic water source is open well, and energy source is electricity, gas and wood/coal. Road is metalled for 1km and kacha (unmetalled- shingle road) for 1.5km. There are 2 middle boys' schools (with primary school), 1 Mosque school, 1 dispensary, 10 lines of telephones. Regular service of mini bus and vehicles are owned by the community for transportation to Quetta city. Agricultural machinery like tractors and threshers are usually hired. The people are living in their own houses that are categorized as burnt bricks-cement bonded and unburnt bricks-mud bonded. The average number of persons per room is 7. The sanitation facilities are also not satisfactory.

The survey shows that the economic condition of the farmers is much better than the average household in rural area of Balochistan. However greatest impediment to economic uplift of the area is lack or insufficiency of irrigation water supplies and lack of modern agricultural techniques.

The community being educated is well aware of the importance of the delay action dams. They had already requested the government for the construction of a dam. They informed that after the collapse of Brewery Dam in the 70's, the karezes have dried out and floods are damaging the agriculture land.

(2) Dara Delay Action Dam (Killi Umar)

The estimated population of the village is about 1,800 souls. The village is located at a distance of about 12km north of Quetta city. The majority of the residents are Kakar with a few Mandokhels, Nasars, etc. All belong to Pashtun ethnic group. The village has expanded to a great deal within the last few decades due to the influx of Afghan refugees and the people from rural areas. Although there is no formal Malik in the village, the eldest person of village is considered as a Malik and thus influential in decision making.

The exact land of the village could not be ascertained but the survey indicates that the village is spread over an area of about 2,100 hectares, out of which 124ha is cultivated, 450ha is residential while the rest is uncultivated due to lack of irrigation water. Most of the land is owned and farmed by the farmers themselves. About 25% of the farmers let their land to the fellow villagers who care for the crops from sowing to harvesting. Usually the sharecropper has a certain percentage of share in the final income that ranges from 33% to 50%.

The farmers usually sell the orchards or vegetable farms to the middleman or contractor who in turn sells the products in the market. The village is in the vicinity of Quetta city and as such the product finds ready market. Agricultural inputs are also obtained from the market in the city. Livestock is raised to fulfill the domestic supplies of butter and milk.

Domestic water source of village is the facilities constructed by the provincial Public Health Engineering Department (PHED), open wells and tubewells. Energy source is electricity, gas and wood/coal. The road length in the village is about 2km that is partly metalled and partly unmetalled. There are a boys' primary school and a girls' primary school. There are no Health facilities. Twenty-five telephone service lines exist. Most of houses in the area are constructed of unburnt bricks-mud masonry bonded. The average persons per room are 6-8.

The majority of households are involved in other business as well as agriculture. The economic condition of the village is much better than the average of the rural households in Balochistan because the area is located in the suburb of Quetta city and as such provides opportunities to the farmers to resort to other income sources.

The position of women is typical of that of the Pashtun societies and is restricted to that of house wives. Their participation in agricultural activities is usually negligible.

The residents are in favor of the construction of the delay action dam. According to them due to the rapid depletion of irrigation water, considerable residents were resorting to other means of livelihood. As this area is well known for the production of high valued fruits and vegetables, if proper measures are adopted for improving the irrigation supplies and farming practices, agriculture will find great scope.

(3) Murgi Kotal Delay Action Dam (Killi Kateer, Killi Malazai)

The estimated population of both the villages is about 1,700 souls. The social structure of the community can be classified as semi tribal where the Malik and other elders make decisions and solve disputes. Malik is selected on a hereditary basis. Almost all the 225 households of the community are Pashto speaking and practicing Muslims. Besides agriculture many of villagers are involved in government jobs, business and labour, etc. The daily life of the people is governed by the Pashto tribal customs and Rawaj. The physical structure of the Mallazai is compact whereas that of Kateer is somewhat scattered.

Out of 1,200 hectares of total land area of the villages, orchards and vegetables are cultivated on an area of about 130-140 hectares. Residential area is covered on an area of about 30 hectares and remaining 1,030-1,040 hectares is either cultivated with rainfed crops or lying uncultivated. Most of farmers used to farm their land themselves, and some used to let their land farmed by the sharecropper. The distribution of income between the sharecropper and the

owner is the ratio that ranges from 1:3 to 1:1. No marketing/procurement of input facilities exist in the area. The people usually come to Quetta city for the purpose. The livestock raised by farmers is usually to fulfill their domestic requirements.

Domestic water sources of the villages are the facilities provided by the provincial PHED, open wells and tubewells. Energy source is electricity, kerosene oil, gas cylinders, wood/coal, etc. Mallazai is connected by metalled road whereas Kateer is connected by 2 km stretch of shingle road to main Quetta-Chamman road respectively. There are 2 boys' primary schools and 2 girls' primary schools and one girls' secondary school. Telephone connections of 308 exist in Kuchlak exchange near the villages. The houses were mostly kachha with a few pacca constructions. Pit holes are used for sanitation with a few flush latrines. Drainage system does not exist.

Due to proximity to Quetta city, the farmers have access to different sources of income from agriculture. Economic conditions of small farmers are well off as compared to average small farmers of Balochistan. Due to being close to Quetta city, the people have developed some sort of awareness about modern agricultural practices. However since no training is imparted to them they are not much better than the average farmer of Balochistan.

The community is well aware of the impact of the delay action dam. The community is in favour of dam construction.

(4) Kach Delay Action Dam (Killi Sara Ghurgai)

The estimated population of the village is about 2,500 persons. The community is composed of Bazai, Kakar tribe of Pashtun ethnic group. In addition to the Pashtun tribal traditions, modern urban values have also penetrated and influenced the social structure of the community. Although the elders have great influence in the day to day social life of the people, modern education and economic opportunities have brought about great changes in the socio-political structure of the community. The influence of religious leaders is also felt at various levels. All the 400 households of the village area Pashto speaking and practicing Muslims, and Islamic laws have great impact of the life of the people.

Of the total number of households, 100 are completely involved in agriculture. The big farmers having orchards are economically strong and thus influence the political and tribal life of the people. Out of the total land area of approximately 1,600 hectare, 460 hectares are under cultivation, 120 hectares are occupied by the residential area while rest is grassland. In most of cases the land is farmed by the farmer himself, but in some cases especially in case of annual crops the land is cultivated and looks after by the sharecropper/bazgar who shares the income obtained from the selling of the products with the owner usually between 25% and 50%.

No marketing/procurement of inputs facilities exist in the area, but due to the proximity of the area with Quetta city, the products can be marketed and the inputs procured from the city market quite easily. Quite a large number of big farmers owns all the agricultural equipment and machinery, and small farmers usually hire the equipment/machinery. The livestock owned by the farmers is usually to fulfill the domestic requirements.

Domestic water source of the village is spring and the facilities provided by the provincial PHED. Energy source is electricity and gas. Road is partly metalled and partly unmetalled. There are 1 boys' primary school and 1 girls' primary school, and 1 dispensary. Telephone lines in the village are 12. There are 10 tractors and 5 spray machines. A combination of Kachha (unburnt brick-mud) and Pacca (burnt-cement) housing was observed. The people had pits in their house with few flush latrines. No drainage system is present.

The small farmers in this area are well off in economic condition, compared to the average small farmers in the province. Though no training has been imparted by any agency to the farmers regarding agriculture, the farmers have resorted to mechanized practices as a result of general awareness about their usefulness due to proximity to Quetta city. The contribution of women in agricultural activities is almost negligible.

The people are in favor of the construction of the delay action dam. However some are apprehensive that the silt carried to their fields by the spring water, after the siltation of the dam.

(5) Sanzali Delay Action Dam (Sahlbzada, Abdullah Jan and Haji Sahib Jan)

The estimated population of the beneficial villages is about 400 souls. The community belongs to the Kakar tribe of Pashtun ethnic group. The socio-political organization of the community is democratic, governed by Pashtun customary traditions. Decision making in the community is by consensus through the agency of elders.

The total land area of the villages is approximately 850 hectares, out of which 106 hectare is occupied by orchards and vegetables. About 490 hectares is grassland and 240 hectares is uncultivated land or cultivated with barani crops. The average cultivated land per household and per person comes out to be 3.61 hectares and 0.32 hectares respectively. Most of the households use to farm their agriculture land themselves, but a part of households is sharecroppers /bazgars who divide the farm income in ratio of 1:2 with the land owner.

No marketing/procurement of inputs facilities exist in the area. The approach roads are also good weathered and it is sometimes very difficult to transport the produce of the farm to the

market. A part of the farms is involved in livestock and marketing, but rest of the farmers the livestock is meant their domestic requirement of meat, milk and eggs.

Domestic water source is open surface wells and the facilities constructed by PHED Energy source is electricity, wood and coal. All roads are Kachha (shingle) roads. There is a boys' primary school. No health facilities exist in the area. The housing facilities are built of mud and there are no sanitation and drainage facilities in the area.

The existing groundwater resources are fast depleting. Due to uncontrolled grazing and cutting of the trees the area has become devoid of any vegetative cover as a result the soil has become very loose or unstable and subject to heavy erosion.

(6) Jigda Delay Action Dam (Jigda, Sharan)

The estimated population of the villages is about 1,200 souls. The communities belong to the Kakar and Syed Chishti. The socio-political organization is semi-tribal and the system of leadership is hereditary. Decision making in the community is carried out through the agency of elders.

The total land of the area is approximately 700 hectares, out of which only 54 hectares are occupied by orchards and vegetables, 16 hectares by residential area, and the rest is either barani, fallow or grassland. Most of the farmers own their land and a part of farmers is sharecroppers whose share is usually among 33% to 55% in the final income.

No marketing facilities exist in the area. Also the input procurement is carried out from Quetta, Kuchlak and Pishin markets. Due to this reason, the agricultural product is not harvested and is spoiled if the income is much less than the cost involved in production and transportation. There are two tractors in the village and owned by the big farmers. The other farmers usually hire the machinery. The livestock owned by the community is usually for fulfilling their domestic requirements.

Domestic water source is Karez and open surface wells. Energy source is electricity, kerosene, wood and coal. Road is all shingle. There are two primary schools and no health facilities. The housing condition is quite unsatisfactory. They live Kachha houses with no sanitation and drainage facilities. The number of persons per room is about 7 to 9.

The agricultural income of small farmers is not so sufficient that considerable numbers of them are involved in other additional income sources. The farmers are not well conversant with proper agricultural techniques. No trainings have been imparted to them by any agency. In order to uplift the socio-economic condition of the area, improvements of farm to market road and provision of education facilities and agricultural trainings are required.

(7) Sakhol Delay Action Dam (Karez Afghan, Karez Ladha, Karez Murgha)

The estimated population of the three villages is about 580 souls. The 3 settlements in the area are consisted of the Bangulazai tribe of the Brahui ethnic group. The social structure of the residents was relatively democratic.

The total irrigated area is about 80 hectares and constitutes a very small percentage of the total area. Almost all farmers used to farm their agricultural land. Agricultural machinery is mostly hired.

Domestic water source is open surface well, karez and tubewell. Energy source is electricity, kerosene oil and wood. All roads are kachha roads available only in good weather. There is a primary school for boys and girls. No health facilities exist. The housing facilities are very poor. The number of persons living in a room ranges among 6 to 8.

The farmers were suffering from lack of irrigation water. The discharges of karezes were very low due to improper maintenance. The average household income is estimated very low. The technical capability of the farmers is also not satisfactory.

(8) Mangi Delay Action Dam (Shapchi, Mat)

The estimated population of the villages is about 3,000 souls. There are many settlements in the area, out of which Shapch Tamaz Khan is relatively larger and number. The Sarpara tribes of Brahvi are true natives of the area, while Muhammad Hassanis, Langos of Baloch and a few Afghan Refugees live in the villages. The social structure is tribal. The elder of the village is called Takari who holds a considerable influence of the social and economic life of the people.

The total land of the two villages is about 1,400 hectares, out of which 170 hectare is occupied by orchards, 1,170 hectares by upland crops and fallow land, and 60 hectares is residential. The major part of the land is possessed by a few land owners and almost all the land owners use to share crop their land with other villagers. The share of the share cropper is usually in the range 25% to 50%.

No marketing facilities exist in the area. Farmers usually market their products and procure agricultural inputs from Quetta city located at a considerable distance. There are about 7 tractors and 5 threshers possessed by large land owners. However small farmers usually hire the machinery and equipment. The livestock usually fulfills the domestic requirements.

Domestic water source is the facilities provided by PHED and tubewells. Energy source is electricity, wood and coal. The area is located at 25km from main road. Roads in the area are kachha roads available only in good weather. There are two primary schools and one middle

school and two dispensaries in the area. The housing facilities of villagers are very poor. There are no sanitation and drainage facilities in the area.

The socio-economic condition of the residents is very poor due to lack of dependable sources of irrigation supplies, farm to market roads, marketing facilities, etc. The technical capability of farmers is also not satisfactory. Therefore the household income level is very low.

Almost all the households are in favour of the dam construction. However some have apprehension about it, as on two previous accession dams had collapsed, causing considerable destruction downstream.

(9) Kad Kocha II Delay Action Dam (Malli Khurma)

The estimated population of the village is about 1,400 souls. This community belongs to Lango tribe of Baloch ethnic group. The social structure of the community is tribal, and the selection system of leadership is hereditary. The Takari has a considerable influence on the socio-political life of the community. Socio-political decision making is carried out through the instrument of Jirga, which comprises of elders of the tribe.

The total land area of the community is approximately 330 hectares, out of which 135 hectares are orchards and upland crops, 40 hectares is barani and the rest is uncultivated. The majority of the farmers farm their agricultural land themselves and a part of the farmers' sharecroppers whose share is usually between 25% and 50%.

Agriculture is the major source of income. No marketing facilities exist in the area and the farmers usually market their agricultural products in Quetta and Sukkur. The farm input materials are usually bought from Quetta city. Some farmers are involved in marketing livestock.

Domestic water source is open surface wells and tubewells. Energy source is electricity, kerosene and wood and coal. There are two boys' primary schools. No health facilities exist. The houses of the area are usually of mud with no proper sanitation and drainage facilities. The average number of persons per room is 8 to 10.

The household income is estimated better than the average household of Balochistan. The technical capabilities of farmers are better than the average farmer in the province, but no agriculture training has been imparted to them.

(10) Arambi Delay Action Dam (Silad)

The estimated population of the village is about 2,000 souls. The community belongs to the Achakzai tribe of the Pashtun. Socio-political structure of the community is semi-tribal, with

decisions carried out through the agency of elders in the light of Pashtun customary traditions. Out of total 65 households, about 70% were involved in agriculture.

The total land area of the village is approximately 148 hectares, out of which 24 hectares are occupied by orchards, 20 hectares is cultivated with upland crops 24 hectares is residential area and 80 hectares is grassland. Most of the farmers farm their land themselves. A part of farmers used to sharecrop usually in the range 25% to 50%.

The area is well known for the production of good varieties of apples and vegetables. However due to no marketing facilities exist in the area the farmers have to go to Pishin, located at more than 40km far from the area, for marketing products and procuring farm inputs. Most of the farmers own livestock to meet their domestic requirements.

Domestic water source is karez and open surface wells. Energy source is electricity, kerosene, wood and coal. Road is all shingle. There are one boys' and one girls' primary school, one dispensary and 8 telephone lines in the area. There are 3 tractors, 8 sprays and 2 threshers. The housing condition of the households is very poor. The houses are built of mud with no sanitation and drainage facilities.

Table G.1 Population Projection by District in the Study Area (1981-1995)

District	Area	Growth Rate	1981 (Census)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
(1,000)																	
Quetta	Rural	3.52%	95.8	99.2	102.7	106.3	110.1	113.9	118.0	122.1	126.4	130.9	135.5	140.2	145.2	150.3	155.6
	Urban	4.39%	285.7	298.3	311.4	325.0	339.3	354.2	369.7	386.0	402.9	420.6	439.1	458.3	478.5	499.5	521.4
	Total		381.6	397.5	414.1	431.4	449.4	468.1	487.7	508.1	529.3	551.5	574.5	598.6	623.6	649.7	677.0
	Avg.	4.18%	381.6	397.5	414.1	431.4	449.4	468.1	487.7	508.1	529.3	551.5	574.5	598.6	623.6	649.7	677.0
Qila Abdullah	Rural	3.02%	146.5	151.0	155.5	160.2	165.1	170.1	175.2	180.5	185.9	191.5	197.3	203.3	209.4	215.8	222.3
	Urban	3.76%	29.8	30.9	32.1	33.3	34.5	35.8	37.2	38.6	40.0	41.5	43.1	44.7	46.4	48.1	49.9
	Total		176.3	181.9	187.6	193.5	199.6	205.9	212.4	219.1	226.0	233.1	240.4	248.0	255.8	263.9	272.2
	Avg.	3.15%	176.3	181.9	187.6	193.5	199.6	205.9	212.4	219.1	226.0	233.1	240.4	248.0	255.8	263.9	272.2
Pishin	Rural	3.10%	187.5	193.4	199.3	205.5	211.9	218.5	225.2	232.2	239.4	246.8	254.5	262.4	270.5	278.9	287.6
	Urban	3.76%	14.7	15.3	15.8	16.4	17.1	17.7	18.4	19.1	19.8	20.5	21.3	22.1	22.9	23.8	24.7
	Total		202.3	208.6	215.2	222.0	229.0	236.2	243.6	251.3	259.2	267.4	275.8	284.5	293.4	302.7	312.2
	Avg.	3.15%	202.3	208.6	215.2	222.0	229.0	236.2	243.6	251.3	259.2	267.4	275.8	284.5	293.4	302.7	312.2
Mastung	Rural	2.90%	115.6	118.9	122.4	125.9	129.6	133.4	137.2	141.2	145.3	149.5	153.8	158.3	162.9	167.6	172.5
	Urban	3.76%	16.5	17.1	17.7	18.4	19.1	19.8	20.5	21.3	22.1	22.9	23.8	24.7	25.6	26.6	27.6
	Total		132.0	136.0	140.1	144.3	148.7	153.1	157.8	162.5	167.4	172.4	177.6	183.0	188.5	194.2	200.1
	Avg.	3.01%	132.0	136.0	140.1	144.3	148.7	153.1	157.8	162.5	167.4	172.4	177.6	183.0	188.5	194.2	200.0
Kalat	Rural	2.96%	198.1	204.0	210.0	216.2	222.6	229.2	236.0	243.0	250.2	257.6	265.2	273.1	281.1	289.5	298.0
	Urban	3.86%	11.0	11.5	11.9	12.4	12.8	13.3	13.9	14.4	14.9	15.5	16.1	16.7	17.4	18.1	18.8
	Total		209.1	215.4	221.9	228.6	235.5	242.6	249.9	257.4	265.1	273.1	281.3	289.8	298.5	307.5	316.8
	Avg.	3.01%	209.1	215.4	221.9	228.6	235.5	242.6	249.9	257.4	265.1	273.1	281.3	289.8	298.5	307.5	316.8
Study area	Total		1,101.4	1,139.4	1,178.9	1,219.7	1,262.1	1,305.9	1,351.3	1,398.3	1,447.0	1,497.4	1,549.7	1,603.8	1,659.9	1,718.1	1,778.3
	Avg.	3.48%	1,101.4	1,139.7	1,179.3	1,220.4	1,262.9	1,306.8	1,352.3	1,399.3	1,448.0	1,498.4	1,550.6	1,604.5	1,660.4	1,718.2	1,777.9
	Balochistan																
Balochistan	Rural	3.77%	3,655.6	3,793.4	3,936.4	4,084.8	4,238.8	4,398.6	4,564.5	4,736.5	4,915.1	5,100.4	5,292.7	5,492.2	5,699.3	5,914.2	6,137.1
	Urban	4.30%	676.8	705.9	736.2	767.9	800.9	835.3	871.3	908.7	947.8	988.6	1,031.1	1,075.4	1,121.6	1,169.9	1,220.2
	Total		4,332.4	4,499.3	4,672.7	4,852.7	5,039.7	5,234.0	5,435.7	5,645.3	5,862.9	6,089.0	6,323.8	6,567.6	6,820.9	7,084.0	7,357.3
	Avg.	3.86%	4,332.4	4,499.4	4,672.9	4,853.1	5,040.2	5,234.5	5,436.4	5,646.0	5,863.7	6,089.8	6,324.6	6,568.4	6,821.7	7,084.7	7,357.9

Source: Population Census 1981 - Population Census Organization, Population Projection - JICA Study Team (Based on the latest provincial estimation)

Remark: 1) 'Avg.' means the estimation with average growth rate by district carried out by Bureau of Statistics, Balochistan.

2) Rural' and 'Urban' means the estimation by rural and urban area presumed by JICA Study Team based on the provincial estimation.

Table G.2**Status of Afghan Refugees in Balochistan**

No.	District/ Sub Division	Registered Population up to 31 August 1991	Registered Population as on 31 August 1991	Registered Population as repatriated to country of origin
1	Quetta	119,887	51,635	68,252
2	Chamman	37,732	10,944	26,788
3	Gulistan	178,086	91,580	86,506
4	Pishin	163,753	78,994	84,759
5	Chagai	166,592	74,152	92,440
6	Loralai	102,479	50,090	52,389
7	Muslim Bagh	55,013	30,281	24,732
Total		823,542	387,676	435,866

Source: Data of Afghan Refugee Camps

Table G.3

Number of Households and Household Members

	Quetta	Pishin	Qila Abdullar	Mastung	Kalat	Balochistan
All Households						
No. of Households	61,754	35,262	*	**	131,294	476,331
Average Size	8.8	11.4	*	**	7.0	8.2
Member of Households						
Total	543,100	400,900	*	**	920,800	3,900,800
Male	277,000	217,500	*	**	473,700	2,038,500
Female	266,100	183,400	*	**	447,200	1,862,200
Agricultural Households						
No. of Households	5,709	28,599	*	**	105,969	331,084
Average Size	10.5	12.0	*	**	7.3	8.6
Member of Households						
Total	59,700	343,400	*	**	768,500	2,836,600
Male	30,600	186,800	*	**	396,000	1,491,700
Female	29,100	156,600	*	**	372,500	1,344,900
Livestock Households						
No. of Households	2,570	7,719	*	**	25,205	88,217
Average Size	10.3	10.9	*	**	6.3	7.9
Member of Households						
Total	26,500	84,100	*	**	159,700	700,700
Male	13,500	46,900	*	**	82,500	369,200
Female	13,000	37,200	*	**	77,200	331,400
Farin Households						
No. of Households	3,139	20,880	*	**	80,764	242,867
Average Size	10.5	12.4	*	**	7.5	8.8
Member of Households						
Total	33,100	259,300	*	**	608,800	2,136,000
Male	17,100	139,900	*	**	313,500	1,122,400
Female	16,000	119,400	*	**	295,300	1,013,500
Non-Agricultural Households						
No. of Households	56,045	6,663	*	**	25,325	145,247
Average Size	8.6	8.6	*	**	6.0	7.3
Member of Households						
Total	483,500	57,600	*	**	152,300	1,064,100
Male	246,400	30,700	*	**	77,700	546,900
Female	237,000	26,800	*	**	74,700	517,300

* included in Pishin District ** included in Kalat District

Source : Census of Agriculture 1990, Balochistan

Table G.4 (1)

Literacy Ratios in Pakistan (1981,1993)

Sex	(%)			
	Pakistan		Balochistan	
	1981	1993	1981	1993
Both Sexes	26.17	35.45	10.32	20.94
Rural	17.33	26.67	6.18	16.17
Urban	47.12	55.56	32.16	44.37
Male	35.05	45.29	15.20	29.3
Rural	26.24	36.75	9.82	23.53
Urban	56.32	63.72	42.42	55.16
Female	15.99	24.73	4.32	11.75
Rural	7.33	16.04	1.75	8.34
Urban	37.27	45.87	18.54	30.4

Source : Population Census Organization, NETCON

Table G.4 (2)

Education Level of Family Members

Highest Education Level	(%)			
	Quetta	Pishin *	Kalat **	Balochistan
Farm Households				
All households members	100	100	100	100
Below primary but can read letter or newspaper	21	15	17	10
Primary and above but under matric	16	22	16	10
Matric	8	11	5	4
Above matric	12	4	2	2
No education	44	47	60	73
Non-Farm Households				
All households members	100	100	100	100
Below primary but can read letter or newspaper	23	12	10	12
Primary and above but under matric	16	22	12	12
Matric	6	12	4	6
Above matric	13	6	2	6
No education	42	48	73	65

Source : Agricultural Census, 1990

* including Killa Abdullah District

** including Mastung District

Table G.5 (1) School Enrolment Ratio by Level & Sex in Balochistan

Year	Sex	Primary Schools			Middle Schools			High Schools		
		Population (6 - 10 y. old)	No. of Students	Enrolment Ratio	Population (11 - 13 y. old)	No. of Students	Enrolment Ratio	Population (14 - 15 y. old)	No. of Students	Enrolment Ratio
1984 - 85	Both Sex	958,471	246,692	25.7	370,974	36,511	9.8	222,847	11,544	5.2
	Male	506,762	201,640	39.8	216,249	27,630	12.8	135,390	9,093	6.7
	Female	451,709	45,052	10.0	154,725	8,881	5.7	87,457	2,451	2.8
1988 - 89	Both Sex	1,082,963	434,635	40.1	419,158	58,072	13.9	251,792	19,745	7.8
	Male	572,583	361,557	63.1	244,336	46,181	18.9	152,976	16,093	10.5
	Female	510,380	73,078	14.3	174,822	11,891	6.8	98,816	3,652	3.7
1991 - 92	Both Sex	1,186,833	443,540	37.4	459,361	75,642	16.5	275,941	25,802	9.4
	Male	627,501	345,916	55.1	267,771	64,140	24.0	167,647	22,269	13.3
	Female	559,332	97,624	17.5	191,590	11,502	6.0	108,294	3,533	3.3

Source : Population Census Organization, Directorate of Education, B.E.M.I.S.

Table G.5 (2) School Enrolment by District, Level and Gender (1994)

District	Primary School			Middle School			High School		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Quetta	51,774	38,912	90,686	13,312	7,090	20,402	5,394	2,673	8,067
Pishin	46,271	9,489	55,760	7,041	607	7,648	2,321	204	2,525
Killa Abdullah	*	*	*	*	*	*	*	*	*
Mastung	12,831	3,756	16,587	2,550	456	3,006	796	170	966
Kalat	11,911	2,752	14,663	1,832	268	2,100	512	79	591

Source: BEMIS * included in Pishin District

Table G.6 Percentage Distribution of Employed Persons by Major Industry Division of Balochistan (1990-91)

Major Industry Division	All Areas			Rural			Urban		
	Both Sexes		Female	Both Sexes		Female	Both Sexes		Female
	100.01	94.04	5.97	86.80	81.44	5.36	12.53	12.00	0.53
Total									
Agriculture, Forestry, Hunting & Fishing	60.91	58.40	2.51	59.47	56.96	2.51	1.44	1.44	0.00
Mining & Quarrying	0.07	0.07	0.00	0.00	0.00	0.00	0.07	0.07	0.00
Manufacturing	3.34	2.32	1.02	2.28	1.35	0.93	0.97	0.97	0.00
Electricity, Gas & Water	1.13	1.13	0.00	0.86	0.86	0.00	0.26	0.26	0.00
Construction	4.62	4.45	0.17	3.17	3.01	0.16	0.85	0.84	0.01
Whole Sale, Retail Trade & Restaurant & Hotels	11.11	10.81	0.30	7.60	7.36	0.24	3.53	3.46	0.07
Transport, Storage and Communication	4.96	4.95	0.01	3.56	3.56	0.00	1.40	1.39	0.01
Financing, Insurance, Real Estate & Business Services	0.30	0.30	0.00	0.08	0.08	0.00	0.22	0.22	0.00
Community Social & Personal Services	13.49	11.53	1.96	9.70	8.18	1.52	3.79	3.35	0.44
Activities not adequately Defined	0.08	0.08	0.00	0.08	0.08	0.00	0.00	0.00	0.00

Source : Federal Bureau of Statistics

Table G.7 Major Industries in Balochistan (1991)

Industries	No. of Establishment	Average Daily Employment	Value of Pro- duction / Year
			million Rs
All Industries	110	14,513	10,210
(Quetta)	(5)		
(Lasbela)	(101)		
(Nasirabad)	(4)		
Food, Beverages & Tobacco	18	1,203	835
(Quetta)	(3)		
Dairy products & vegetable ghee	3	270	289
Wheat, grain & its products	7	63	13
Confectionery, not sweetneats	4	373	194
Others	4	497	339
Textile, Apparel & Leather	23	4,180	2,813
(Quetta)	(0)		
Cotton spinning	6	758	728
Silk & art silk textile	7	1,941	1,725
Other textile	7	1,319	273
Leather & leather products	3	162	87
Wood, Wood product & furniture	3	904	162
(Quetta)	(0)		
Paper, Printing & Publishing	7	486	908
(Quetta)	(1)		
Chemicals, Rubber & Plastics	27	1,989	1,398
(Quetta)	(1)		
Drug & pharnacentical products, etc	11	772	685
Other chemical products	5	236	249
Plastic products	11	981	465
Non-Metalic mineral products	5	940	943
(Quetta)	(0)		
Metal products, Machinery, Equipment	27	4,811	3,151
(Quetta)	(0)		
Non-electrical machinery	3	871	343
Electrical Machinery & Supplies	7	802	704
Transport equipment	11	1,625	1,487
Others	6	1,513	618

Source: Federal Bureau of Statistics

Table G.8 Percentage Distribution of Total Monthly Income by Source in Balochistan (1992 - 93)

Area	Average Monthly Income /Household	Total	Wages & Salaries	Self Employment			Property (exclude owner occupied houses)	Owner Occupied Houses	Social Insurance Benefits IN-CL Pension	Gifts and Assistance			Other sources, Taxes Paid
				Farming Crop Product	Farming Livestock	Other Activities				Gifts, Assistance	Foreign Remittances	Domestic Remittances	
Rs %													
Balochistan													
All Groups	2,898	100.00	40.35	22.13	8.31	13.73	1.15	11.00	0.59	1.17	1.22	-0.09	0.40
Urban	4,363	100.00	53.64	1.71	2.60	30.35	2.49	8.44	0.51	0.13	1.05	-1.18	0.02
Rural	2,721	100.00	37.77	26.10	9.42	10.47	0.89	11.49	0.60	1.37	1.25	0.11	0.48
Pakistan													
All Groups	3,590	100.00	33.28	9.05	13.93	18.43	3.74	10.44	1.17	2.10	2.91	4.10	0.79
Urban	4,976	100.00	46.34	0.60	2.54	26.33	3.27	13.04	1.14	1.27	3.34	1.76	0.31
Rural	3,070	100.00	25.33	14.19	20.86	13.63	4.03	8.85	1.19	2.60	2.65	5.53	1.09

Source : Pakistan Statistical Year Book, 1995

Source : Pakistan Statistical Year Book, 1995

Table G.9 Percentage Distribution of Total Monthly Consumption Expenditure by Item in Balochistan (1992 - 93)

Area	Average Monthly Expenditure / Household	Total	Food Beverage & Tobacco	Apparet Textile & Footwear	Transport & Communi- cations	Cleaning Laundry & Personal Appearance	Recreation & Entertain- ment	Education	(Rs.%)			Misc- ellaneous
									Housing			
									Rent	Fuel & Lighting	Houshold Furniture	
Balochistan	Rs	%										
All Groups	2,649	100.00	55.62	6.87	2.78	4.32	0.37	0.40	13.67	8.37	1.12	6.43
Urban	3,802	100.00	52.09	7.45	3.25	4.58	0.52	1.23	14.06	7.02	1.35	8.39
Rural	2,509	100.00	56.27	6.76	2.70	4.27	0.35	0.25	13.60	8.61	1.07	6.07
Pakistan												
All Groups	3,485	100.00	48.51	8.46	3.80	4.34	0.57	1.42	14.14	6.15	2.08	10.48
Urban	4,542	100.00	42.73	7.75	5.16	4.74	0.95	2.29	18.88	5.38	2.15	9.92
Rural	3,088	100.00	51.70	8.86	3.04	4.11	0.36	0.95	11.52	6.57	2.05	10.79

Source : Pakistan Statistical Year Book, 1995

Table G.10

Outline of the Public Domestic Water Supply

(1996)

	Quetta	Pishin	Killa Abdullar	Mastung	Kalat	Balochistan
Rural						
Water Supply						
<u>Water Source</u>						
Dam Reservoir	-	-	-	-	-	2
Tubewell/Well	62	87	*	31	30	657
Karez	-	2	*	3	1	54
Spring	-	1	*	-	1	48
River	-	-	*	-	-	28
<u>No. of Piped Water Supply Systems</u>						
	62	90	*	34	32	789
<u>No. of Community Water Tanks</u>						
	163	232	*	89	93	2,530
<u>Water consumption</u>						
<u>litter/capita/day</u>						45litter
Urban						
Water Supply (Quetta City)						
<u>Water Source</u>						
Tubewell/Piedmont	28					
Tubewell/City	58					
<u>Piped Water Supply System</u>	All city area 42,000 households					
<u>Water consumption</u>						
<u>litter/capita/day</u>						45-68litter

Source : Public Health Engineering Department

Table G.11 Electric Power Supply Facilities and Electrification by District

	Quetta	Pishin	Killa Abdullar	Mastung	Kalat	Balochistan
Grid Stations						
132KV/11KV	5 *	2	2	2	4	34
Distribution Line						
11KV						
(No. of feeders)	46	11	6	10	16	91
(Km)	852	605	233	780	851	3,186
Grid Stations						
66KV/11KV	1 **	1	-	1	-	6
Distribution Line						
11KV						
(No. of feeders)	2	9	-	6	-	25
(Km)	60	388	-	310	-	1,950
Grid Stations						
33KV/11KV	-	-	1	2	-	15
Distribution Line						
11KV						
(No. of feeders)	-	-	1	2	-	17
(Km)	-	-	N.A	53	-	655
Other 11 KV D.L.						
(No. of feeders)	-	-	-	-	-	16
(Km)	-	-	-	-	-	522
Total Villages						
Main (Nos.)	40	490	***	331	522	5,596
Sub(Nos.)	162	529	***	287	429	7,127
Total(Nos.)	202	1019	***	618	951	12,723
Electrified Villages						
Main(Nos.)	36	120	***	116	84	979
(%)	90	24	***	35	16	17
Sub(Nos.)	112	287	***	94	77	1,509
(%)	69	54	***	33	18	21
Total(Nos.)	148	407	***	210	161	2,488
(%)	73	40	***	34	17	20

Source : WAPDA Power Wing, Quetta

* One distribution line goes to Mastung

** Two distribution lines go to Mastung

*** included in Pishin District

Table G.12 Road Length and Width by Type by District in the Study Area (1994-95)

	Quetta	Qila Abdullah	Pishin	Mastung	Kalat	Total	Balochistan
National Highway							
Blacktopped							
Length (km)	45.0	64.0	162.0	80.0	112.0	463.0	2,595.0
(%)	(100)	(100)	(100)	(100)	(100)	(100)	(99.5)
* Width (m)	18.0	18.0	18.0	18.0	18.0	18.0	18.0
Shingle							
Length (km)	0.0	0.0	0.0	0.0	0.0	0.0	12.0
(%)							(0.5)
* Width (m)							18.0
Total Length (km)	45.0	64.0	162.0	80.0	112.0	463.0	2,607.0
Central Importance Road (A-II) **							
Blacktopped							
Length (km)	0.0	0.0	0.0	0.0	0.0	0.0	38.4
(%)							(2.3)
* Width (m)							12.0
Shingle							
Length (km)	100.0	476.0	0.0	0.0	0.0	576.0	1,669.0
(%)	(100)	(100)				(100)	(97.7)
* Width (m)	24.0	24.0					
Total Length (km)	100.0	476.0	0.0	0.0	0.0	576.0	1,707.4
Provincial Road (A-I)							
Blacktopped							
Length (km)	219.3	153.0	200.0	66.0	30.6	668.9	2,133.0
(%)	(39.7)	(22.0)	(12.8)	(26.2)	(5.5)	(18.5)	(12.3)
* Width (m)	12-32		12-20				
Shingle							
Length (km)	332.8	544.0	1,357.2	186.0	527.2	2,947.2	15,268.9
(%)	(60.3)	(88.0)	(87.2)	(73.8)	(94.5)	(81.5)	(87.7)
* Width (m)	24.0		24.0				
Total Length (km)	552.1	697.0	1,557.2	252.0	557.8	3,616.1	17,401.9
Grand Total (km)							
Black Topped							
(%)	(37.9)	(17.5)	(21.1)	(44.0)	(21.3)	(24.3)	(22.0)
Shingle							
(%)	(62.1)	(82.5)	(78.9)	(56.0)	(81.3)	(75.7)	(78.0)
Total	697.1	1,237.0	1,719.2	332.0	669.8	4,655.1	21,716.3
Road Density	1.43	***	0.15	****	0.06		0.09

Source : Communication and Works Department, Balochistan

* Average Width

** Roads for Defense on the National Border

*** included in Pishin district,

**** included in Karat district

Table G.13

Number of Vehicles Registered by Type in the Study Area

Type	Quetta	Qila Abdullat	Pishin	Mastung	Kalat	Total	Balochistan
Motorcar, Jeep, Vans							
1992-1993	4,091	*	27	0	0	4,118	4,445
1994-1995	1,563	*	19	1	8	1,591	3,318
1981-1994							33,296
Motorcycles, Scooters							
1992-1993	4,998	*	93	0	1	5,092	5,483
1994-1995	1,348	*	59	1	2	1,410	3,477
1981-1994							46,094
Trucks							
1992-1993	2,436	*	0	0	10	2,446	3,146
1994-1995	484	*	6	0	2	492	1,046
1981-1994							26,822
Buses							
1992-1993	1,454	*	0	0	0	1,454	1,550
1994-1995	165	*	2	0	1	168	236
1981-1994							6,117
Auto Rikshaws							
1992-1993	0	*	0	0	0	0	0
1994-1995	0	*	0	0	0	0	0
1981-1994							2,930
Others							
1992-1993	3,051	*	51	0	4	3,106	3,718
1994-1995	885	*	18	2	273	1,178	8,782
1981-1994							34,615
Total							
1992-1993	16,586	*	171	0	15	16,772	18,948
1994-1995	4,445	*	104	4	286	4,839	16,859
1981-1994							149,874

* included in Pishin district

Table G.14 **Number of Schools, Enrolment and Teaching Staff by District**
in the Study Area (1995)

	Quetta	Qila Abdullah	Pishin	Mastung	Kalat	Total	Balochistan
Primary School							
No. of Schools							
Male	254	342	410	214	249	1,215	6,791
Female	125	14	86	42	26	168	1,220
Total	379	356	496	256	275	1,383	8,011
Enrollment							
Male	61,135	21,856	24,932	11,395	10,994	69,177	371,277
Female	43,373	2,770	8,347	4,937	3,768	19,822	149,102
Total	104,508	24,626	33,279	16,332	14,762	88,999	520,379
Teaching Staff							
Male	1,261	*	1,828	552	530	2,910	16,060
Female	1,091	*	238	149	79	466	3,472
Total	2,352	*	2,066	701	609	3,376	19,532
Middle School							
No. of Schools							
Male	32	15	42	18	21	96	531
Female	22	1	4	6	5	16	92
Total	54	16	46	24	26	112	623
Enrollment							
Male	13,060	2,220	4,732	2,313	1,699	10,964	72,089
Female	7,979	231	446	486	310	1,473	18,343
Total	21,039	2,451	5,178	2,799	2,009	12,437	90,432
Teaching Staff							
Male	223	*	546	199	206	951	5,326
Female	350	*	58	38	22	118	915
Total	573	*	604	237	228	1,069	6,241
High School							
No. of Schools							
Male	29	12	20	7	7	46	296
Female	19	2	3	3	2	10	65
Total	48	14	23	10	9	56	361
Enrollment							
Male	5,503	657	2,031	868	662	4,218	30,680
Female	2,698	70	200	182	106	558	5,556
Total	8,201	727	2,231	1,050	768	4,776	36,236
Teaching Staff							
Male	500	*	150	61	50	261	2,231
Female	209	*	50	23	7	80	502
Total	709	*	200	84	57	341	2,733
College **							
No. of Schools							
Male	7	1	2	1	1	5	35
Female	3	0	0	1	0	1	9
Total	10	1	2	2	1	6	44
Enrollment							
Male	7,786	236	835	660	129	1,860	18,971
Female	3,457	33	59	147	31	270	4,653
Total	11,243	269	894	807	160	2,130	23,624
Teaching Staff							
Male	289	18	50	38	13	119	906
Female	134	0	0	18	0	18	220
Total	423	18	50	56	13	137	1,126

* : included in Pishin District.

** : includes Intermediate Colleges and Degree Colleges

Source : Directorate of Education, Balochistan

Table G.15

Number of Health Facilities and Staff by District
in the Study Area (1995)

		Quetta	Qila Abdullah	Pishin	Mastung	Kalat	Total	Balochistan
Facilities								
Hospital								
	Number	5	2	1	1	1	10	40
	Beds	1,373	54	35	20	60	1,542	2,559
Dispensaries								
	Number	11	13	16	8	47	95	539
	Beds	0	6	0	0	4	10	44
Rural Health Centre (RHC)								
	Number	1	*	6	**	2	9	46
	Beds	10	*	60	**	20	90	472
Basic Health Unit (BHU)								
		28	*	42	15	12	97	459
Municipal Committee Health Centre (MCH Centre)								
		16	*	6	2	1	25	78
Tuberculosis Clinic (TB Clinic)								
		1	*	2	0	1	4	18
Staff								
Doctor								
		355	*	52	26	20	453	902
	male	236	*	46	23	17	322	722
	female	119	*	6	3	3	131	180
Nurses								
		237	*	2	0	1	240	251
	male	29	*	2	0	1	32	36
	female	208	*	0	0	0	208	215
Lady Health Visitors (LHVs)								
		30	*	30	9	8	77	164
Village Matron (DAIs/Midwives)								
		54	*	52	16	38	160	697

* : included in Pishin district

** : included in Kalat district

Source : Director General, Directorate of Health Quetta

Table G.16 (1) Summarization of Rural Socio-Economic Survey in Each Beneficial Area of Delay Action Dam

Community Survey

Name of Dam	Population	No. of Household	Total Land		Cultivated Land (ha)			No. of Tubewells		Irrigated Area (ha)		Members of WUA	Domestic Water S.	Primary School	Health Facilities
					Total	Orchards	Upland	Tubewells	Tubewell	Karez	Spring				
(Proposed)															
Brewery	3,000	130	1,412		160	120	40	6	80		30	O.S.W			D-1
Ghutai Shela	1,000	100	4		-							P.H.E.D	1-B		
Wali Dad	4,200	350	75		40	20	20	5	40			P.H.E.D	1-G		C-1
Dara	400	20	1,080		45	25	20	2	20		25	Spring	1-B/1-G		
Murgi Kotal	900	60	600		245	3	242	1	3			O.S.W.	1-B/1-G		
Kach	5,500	400	1,632		462	242	220	30	202		100	Spring	1-B/1-G		C-1
Jigda	1,050	40	534		38	2	36			10	18	Karez	1-B		
Sanzali	200	30	524		130	10	120			10	15	O.S.W	1-B		
Arambi	2,000	65	148		46	24	22	1	9	20	45	Karez	1-B		C-1
Sakhol	375	25	40		17		17	2	7			O.S.W/Tw			
Mangi	1,900	94	1,000		356	128	228	30	100	76	20	P.H.E.D	1-B		D-1
Kadkacha II 1>	250	112(12)	320		241	160	81	23	193			Tubewell	1-B		
Iskalkoo	2,100	120	1,790		471	80	391				229	Spring	1-G		D-1
(Existing)															
Khora Manda	200	25	460		41	6	35	5	40			Tubewell	1-B		
Marium	800	65	200		40	40	-				40	Dam	1-G		C-1
Bostan	420	30	484		200	161	39	12	171			P.H.E.D	1-B		
Khushab 2>															
Tirkha	900	60	80		53	13	40	4	13		10	Tubewell	1-B/1-G		
Amach	2,000	270	100		60	20	40			20	35	Karez	2-B/1-G		C-1
Kad Kacha I 3>															
Gorpad 1>	8	37(1)	301		11	1	10					Spring			
Laghangir	700	100	4,413		464	280	184	23	200		200	Spring	1-B		D-1
Sarbund 4>															
Total	27,903	2,133	15,197		3,120	1,335	1,785	144	1,078	136	634		15B/8G		5C/4D
(%)					(100)	(43)	(57)	(58)	(58)	(8)	(34)				

Remark: This survey was carried out in one village by each beneficial area of Delay Action Dam.

Note: 1> Population doesn't include nomad people. Figure in parentheses in column 'No. of households except nomad families.

2> The survey wasn't carried out. 3> Beneficial area is overlapped with that of Kad Kacha II. 4> Beneficial area is overlapped with that of Mangi.

5> O.S.W means open surface water. P.H.E.D means the facilities constructed by Public Health Engineering Department. 6> B means boys' school.

G means girls' school. 7> C means health center. D means dispensary.

Table G.16 (2) Rural Socio-Economic Survey (Community Survey) 1

Dam Stage	Name of Dam	District	Name of Village Selected	No. of Households Interviewed	Subtotal	No. of Households	Population		Person / Household
							Male	Female	
Proposed	Brewery	Quetta	Killi Kirani	7		130	1,673	1,327	3,000
	Chutai Shela		Khalzai	0		100	558	442	1,000
	Wali Dad		Sarday	4		350	2,342	1,858	4,200
	Dara		Ragha	7		20	223	177	400
	Murgi Kotai		Malazai	7		60	502	398	900
	Kachi		Sara Churgai	9	34	400	3,067	2,433	5,500
	Jigda	Pishin	Jigda	5		40	540	510	1,050
Total	Sanzali		Sahibzada	2	7	30	103	97	200
	Arambi	Killa Abdullah	Silad	7	7	65	1,032	968	2,000
	Sakhol	Mastung	Shamsabad, etc.	5		25	188	187	375
	Mangi		Shapah	5		94	955	945	1,900
	Kadkacha II		Kalozai	5	15	*****12(12)	126	124	250
	Iskalkoo	Kalat	Iskalkoo	5	5	120	1,055	1,045	2,100
					68				
Existing	Khora Manda	Quetta	Haji Barkat, etc.	5		25	112	88	200
	Mariun		Gujrat	7	12	65	446	354	800
Total	Bostan (Khushab)**	Pishin	Khanan Bostan	7		30	216	204	420
	Tirkha		Haiderzai	3	10	60	463	437	900
Total	Amach (Kad Kacha I)**	Mastung	Isbkina	5 (5)	5	270	1,005	995	2,000
	Gorpad Laghamgir (Sarband)***	Kalat	Gorpad Karchap	1 4 (5)	5	37(1) 100	4 352	4 348	8 700
Grand Total					32 100	2,133	14,962	12,941	27,903

**** There is no farm household in the village.
 ***** The figure in parentheses is the number of household exclusive of nomad families, and the population does not include nomad people.

Table G.16 (2) Rural Socio-Economic Survey (Community Survey) 2

Dam Stage	Name of Dam	District	Name of Village Selected	Ethnic group			Syed/Delwar	Economic activity				Total
				Baloch	Pashtoon	Brahvi		Agriculture	Nomad	Services	Others	
Proposed	Brewery	Quetta	Killi Kirani	77	0	0	0	30	0	80	20	130
	Chutai Shela		Khalazai	0	60	40	0	0	0	70	30	100
	Waji Dad		Sarday	14	0	86	0	15	10	55	270	350
	Dara		Ragha	0	100	0	0	6	0	14	0	20
	Murgi Kotai		Malazai	0	100	0	0	2	0	35	23	60
	Kach		Sara Churgai	0	100	0	0	100	0	200	100	400
	Jigda	Pishin	Jigda	0	100	0	0	18	0	0	22	40
	Sanzali		Sahibzada	0	100	0	0	15	0	6	9	30
	Arambi	Killa Abdullah	Silad	0	100	0	0	45	0	20	0	65
	Sakhol	Mastung	Shamsabad, etc.	0	0	100	0	5	0	0	20	25
Existing	Mangi		Shapch	60	0	40	0	75	0	15	4	94
	Kadkacha II		Kalozai	0	0	100	0	10	100	0	2	112
	Iskalkoo	Kalat	Iskalkoo	20	0	80	0	95	0	2	23	120
	Khori Manda	Quetta	Haji Barkar, etc.	0	56	44	0	3	0	0	22	25
	Marium		Gujrat	0	100	0	0	52	0	6	7	65
	Bostan (Khushab)	Pishin	Khanan Bostan	0	100	0	0	8	7	6	9	30
	Tirkha		Haiderzai	0	100	0	0	10	0	15	35	60
	Amach (Kad Kacha I)	Mastung	Ishtina	0	0	80	20	50	20	150	50	270
	Gorpad	Kalat	Gorpad	0	0	100	0	1	36	0	0	37
	Laghungir (Sarbound)		Karchap	0	0	100	0	90	0	0	10	100
Total				9	51	38	2	630 (29)	173 (8)	674 (32)	656 (31)	2,133 (100)

Table G-16 (2) Rural Socio-Economic Survey (Community Survey) 3

Dam Stage	Name of Dam	District	Name of Village	Land use			Cultivated Land		Grass Land	Wheat	Main crops			Root crops	Fresh vegetables	Fruits
				Total Land	Total	Orchards	Upland	Orchards			Other cereals & Pulses					
Proposed	Brewery	Quetta	Killi Kirani	1,412	120	120	-	-	1,210							120
	Ghutai Shela		Khaluzai	4	-	-	-	-								
	Wali Dad		Sarday	75	40	20	20	20							20	20
	Dara		Ragha	1,080	45	25	20	20	726	15						25
	Murgi Kotai		Malazai	600	245	3	242	242	120	242	5					3
	Kach		Sara Ghurgai	1,632	462	242	220	220	1,210	160					60	242
	Jigda	Pishin	Jigda	534	38	2	36	36		16	12				8	2
	Sanzali		Sahibzada	524	130	10	120	120	350	40	80					10
	Arambi	Killa Abdullah	Silad	148	46	24	22	22	80	13	4	5				24
	Sakhol Mangi	Mastung	Shansabad, etc.	40	17	-	17	17		10						
Existing	Kadkacha II		Shapoch	1,000	356	128	228	228		172	50	4			3	120
	Iskalkoo	Kalat	Kalorai	320	241	160	81	81		48	18	10			5	160
			Iskalkoo	1,790	471	80	391	391	500	242	121	23				80
	Khora Manda	Quetta	Haji Barkat, etc.	460	41	6	35	35	400	17	11	7				5
	Marium		Gujrat	200	40	40	-	-								40
	Bostan (Khushab)	Pishin	Khanan Bostan	484	200	161	39	39		27	11					160
	Tircha		Haiderzai	80	53	13	40	40		40						13
	Amach (Kad Kacha I)	Mastung	Ishkina	100	60	20	40	40		32		6			2	20
	Gorpad	Kalat	Gorpad	301	11	1	10	10		10						
	Laghamir (Sarband)		Karchap	4,413	464	280	184	184	2,800	64	20	100				280
Total (%)				15,197 (100)	3,080 (20) (100)	1,235 (43)	1,745 (57)	1,745 (57)	7,396 (49)	1,148	332	166		98	1,324	

Table G.16 (2) Rural Socio-Economic Survey (Community Survey) 4

Dam Stage	Name of Dam	District	Name of Village Selected	No. of Tubewells			Irrigated Area		Rainfed Area	Total	Schools		Health Facilities	
				Tubewells	Karez	Spring	Tubewells	Karez			Primary	Secondary	Health center	Dispensary
Proposed	Brewery	Quetta	Killi Kirani	6	80	40				120		1-B/1-G		1
	Chutai Shela		Kharazi							0	1-B			
	Wali Dad		Sarday	5	40					40	1-G		1	
	Dara		Ragha	2	20	25				45	1-B/1-G			
	Murgi Kotai		Malazai	1	3				242	245	1-B/1-G			
	Kach		Sara Ghurgai	30	202	100			160	462	1-B/1-G		1	
	Jigda	Pishin	Jigda				10		28	38	1-B			
	Sanzali		Sahibzada				10		120	130	1-B			
	Aranbi	Killa Abdullah	Silad	1	9	20			17	46	1-B		1	
	Sakhol	Mastung	Shamsabad, etc.	2	7				10	17				
Existing	Mangi		Shapch	30	100		76		172	348	1-B			1
	Kadkacha II		Kalozai	23	193				48	241	1-B			
	Iskalkoo	Kalat	Iskalkoo			229			242	471	1-G		1-B	1
	Khora Manda	Quetta	Haji Barkat, etc.	5	40					40	1-B			
	Martun		Gujrat			40				40	1-G	1-B	1	
	Bostan (Khushab)	Pishin	Khanan Bostan	12	171				27	198	1-B			
	Tirkha		Haiderzai	4	13				40	53	1-B/1-G			
	Amach (Kad Kacha I)	Mastung	Ishkina				20		40	60	2-B/1-G	1-G	1	
	Gorpad	Kalat	Gorpad	23	200				10	10				
	Laghmagir (Sarbound)		Karchap			200			64	464	1-B			1
Total	Total (%)			144	1,078 (35)	634 (21)	136 (4)		1,220 (40)	3,068 (100)	15B/8G	3-B/2-G	5	4

* B=Boys' school, G=Girls' school

Table G.16 (2) Rural Socio-Economic Survey (Community Survey)

5

Dam Stage	Name of Dam	District	Name of Village Selected	Domestic Water Source	Energy Source	Community Hall	Stores & Shops	Road (Total km)	Telephone	Vehicles	Agricultural Machines				WUA	
											Tractor	Spray	Thresher	Others	Members	
Proposed	Brewery	Quetta	Kilri Kirani	O.S.W	Electricity	Mosque	4	-	10	8		4				30
	Chutai Shela		Kharzai	P.H.E.D	Elec./Gas	Mosque	50	-	9	11						
	Wali Dad		Sarday	P.H.E.D	Electricity	Mosq/G.H	7	-	15	30	2					15
	Dara		Ragha	Spring	Electricity	Mosque	-	Kacha 2	-	14	2					
	Murgi Kotai		Malazai	O.S.W.	Electricity	Mosque	3	Kacha 2	8	21						50
	Kach		Sara Churgai	Spring	Elec./Gas	Mosque	5	Kacha 3	12	200	10	5				
	Jigda	Pishin	Jigda	Karez	Electricity	Mosque 2	1	Kacha 1	-	2						18
	Sanzali		Sahibzada	O.S.W	Electricity	Mosque 2	-	Kacha 3	-	4						15
	Arambi	Killa Abdullah	Silad	Karez	Electricity	Mosque	3	Kacha 1	20	14	3	8	2			45
	Sakhol	Mastung	Shamsabad, etc.	O.S.W/Tw	Elec./Wood	Mosque	2	Kacha 6.5	-	2	1					
Existing	Mangri		Shapoh	P.H.E.D	Electricity	Mosque	3	Kacha 10	-	62	6		3			20
	Kadkocha II		Kalozai	Tubewell	Elec. Wood	Mosque	4	Kacha 3	-	5	4	4	4			
	Iskalkoo	Kalar	Iskalkoo	Spring	Elec./Oil	Mosque	6	Kacha 9	-	10						55
	Khora Mandu	Quetta	Haji Barkat, etc.	Tubewell	Elec./Wood	Mosque	-	Kacha 6	-	2						
	Marium		Gujrat	Dam	Elec./Wood	Mosque	-	Kacha 4	8	15						32
	Bostan (Khushab)	Pishin	Khanan Bostan	P.H.E.D	Electricity	Mosque	1	Kacha 1	-	13	1					
	Tirkha		Haiderza	Tubewell	Electricity	Mosque	3	Kacha 15	6							10
	Amach (Kad Kacha I)	Mastung	Isbkina	Karez	Elec./Gas	Mosque	4	Metalled 5	25	52						35
	Gorpad	Kalat	Gorpad	Spring	Elec./Wood	-	-	Kacha 8	-							
	Laghangir (Sarbund)		Karchap	Spring	Electricity	G.	5	Kacha 20	-	2	6	1	3			40
Total							101		113	467	35	22	12	0		365

Open Surface Water
Facility constructed by Public Health Engineering Department
Tubewell
Electricity

Mosque
Guest House
Shingle Road

Mosq.
G.H.
Kacha

Table G.17 (1)-1 Summarization of Rural Socio-Economic Survey in Each Beneficial Area of Delay Action Dam
Household Survey (1/2)

Items	Max*	Min*	Average	Items	Max	Min	Average	Items	Max	Min	Average
Population				Land Use (ha)				Tubewell for Irrig.			
Total	73	6	19	Total	299	0.1	34	No. of Tubewells	5	0	1
Male	44	2	10	Annual Crops	50	0	7	The Year set up	1946	1995	
14>	17	0	5	Tree Crops	120	0	6	Well Owner			
15-64	31	1	5	Fallow Land	288	0	19	Owner			** (43)
65<	3	0	0	Cultivable Waste	24	0	1	Shared			(7)
Female	38	2	9	Forest	50	0	1	Depth (ft)	650	80	226
14>	17	1	5	N/a for Cultivation	5	0	0	Caliber (inch)	5	2	2
15-64	12	1	4	Livestock				Pumping Ene. (HP)	60	5	17
65<	1	0	0	Buffalo	12	0	0	Pumping Cap. (l/s)	71	1	12
Economic Activity				Cows	7	0	1	Irrigated Area (ha)	120	0	10
Crop Farming	9	0	2	Sheep	150	0	11	Other Water Source			
Livestock Raising	4	0	0	Goats	500	0	10	Karez			(23)
Forestry				Camel	5	0	0	Spring			(23)
Quarrying				Donkey	3	0	0	Flood			(0)
Civil Service	6	0	1	Chickens	50	0	9	Others			(34)
Manufacturing				Others	10	0	1	Crop Share (%)			
Construction	1	0	0	Cropped Area (ha)				Crop Sharing	50	0	9
Abroad	1	0	0	Fruit Trees				Owner	100	0	91
Others	5	0	1	Apples	120	0	5	Domestic Water S.			
Land Tenure (ha)				Grapes	5	0	0	Surface Water			(26)
Fully Owned	290	0	34	Others	29	0	1	Tubewell			(20)
Rented	4	0	0	Annual Crops				PHED Facilities			(22)
Leased	10	0	0	Wheat	41	0	5	Karez			(16)
Share-Cropped	46	0	2	Barley	12	0	1	Spring			(16)
Labor				Vegetables	20	0	1	Consumption (Gal/d)			258
No. of Family labor	9	0	2	Cumin	10	0	0	Agri. Infrastructure	Owned	Rented	N.A
(Total mandays/year)	1500	0	299	Potato	0	0	0	Tractor	(15)	(52)	(33)
No. of Hired labor	25	0	3	Others	10	0	0	Spray	(24)	(31)	(45)
(Total mandays/year)	6300	0	418					Thresher	(5)	(33)	(62)

* Max. and Min. means the maximum and minimum value by each item in a village.

** The figure in parentheses shows the number of households interviewed.

Table G.17 (1)-2 Summarization of Rural Socio-Economic Survey in Each Beneficial Area of Delay Action Dam
Household Survey continued (2/2)

Items	Proposed Dam		Existing Dam	
	No. of Household	Income Rs./year	No. of Household	Income Rs./year
Income distribution (Rs.1000)				
50 >	7	33,960	3	30,830
51 - 100	10	75,770	6	75,470
101 - 150	7	123,080	4	130,500
151 - 200	7	169,140	2	187,450
201 - 300	13	251,040	3	245,330
301 - 400	5	348,800	1	350,000
401 - 500	3	457,000	2	417,000
501 - 1,000	9	654,330	6	727,000
1,001 <	6	1,956,670	4	1,254,810
Total	67	403,710	31	411,080

Expenditure distribution (Rs.1000)	Proposed Dam		Existing Dam	
	No.	Rs./year	No.	Rs./year
50 >	6	40,800	10	31,580
51 - 100	16	77,620	20	75,230
101 - 150	9	122,230	12	123,430
151 - 200	8	174,750	11	172,970
201 - 300	14	249,620	20	247,370
301 - 400	5	354,600	11	336,920
401 - 500	0	0	1	457,000
501 - 1,000	7	624,140	11	827,500
1,001 <	1	1,011,000	1	0
Total	66	204,865	97	277,070

Items	Proposed Dam		Existing Dam	
	No. of Household	(%)	No. of Household	(%)
Meteorological disaster				
Flood damages	31	(46)	14	(44)
Drought damages	8	(12)	0	(0)
Cold damages	42	(62)	18	(56)
Hail storm	14	(21)	11	(34)
Wind storm	9	(13)	0	(0)
Soil erosion	9	(13)	9	(28)
Salt injury	0	(0)	1	(3)
Desirable Farming in future				
Paddy rice	0	(0)	0	(0)
Upland crops	11	(16)	0	(0)
Vegetable	23	(34)	8	(25)
Fruit	59	(87)	25	(78)
Flower	1	(1)	0	(0)
Livestock	2	(3)	2	(6)
Poultry	1	(1)	0	(0)
Others	2	(3)	2	(6)

Table G.17 (2)-1

Rural Socio-Economic Survey (Household Survey 1)

	Farm Size (cultivated area excluded fallow land)					Total
	<1ha	1 - 5ha	5 - 10ha	10 - 20ha	20 ha <	
Farm Size Distribution and Cropped Area (no. of households)						
<u>Proposed Dam</u>						
Brewary		2	2	3		7
Ghutai Shela						0
Wali Dad		2	1		1	4
Dara	1	2	1	3		7
Murgi Kotal		3	4			7
Kach		4		1	3	8
Jigda	1	1	2	1		5
Sanzali				1	1	2
Arambi		7				7
Sakhol	1	4				5
Mangi		3	1	1		5
Kad Kocha II		2	2		1	5
Iskalkoo		3		1	1	5
<u>Existing Dam</u>						
Khora Manda			2		3	5
Marium	7					7
Bostan		1	3	2	1	7
Tirkha					3	3
Amach	1	4				5
Gorpad				1		1
Laghmgir				1	2	3
Total *	11	38	18	15	16	98
(%)	11.2	38.8	18.4	15.3	16.3	100.0
Cropped Area (ha)						
Fruits	3.7	44.9	51.0	85.4	293.7	478.7
Cereals (irrigated)	0.0	18.4	24.8	47.9	94.2	185.3
Cereals (unirrigated)	0.4	27.6	49.7	20.2	215.7	313.6
Vegetables **	0.6	10.8	10.8	21.9	115.9	160.0
Others	0.0	5.0	4.6	8.4	24.1	42.1
Total	4.7	106.7	140.9	183.8	743.6	1,179.7
Cropping Pattern by Farm Size (%)						
<u>All Dam</u>						
Fruits	78.7	42.1	36.2	46.5	39.5	40.6
Cereals (irr)	0.0	17.2	17.6	26.1	12.7	15.7
Cereals (unirr)	8.5	25.9	35.3	11.0	29.0	26.6
Vegetables **	12.8	10.1	7.7	11.9	15.6	13.6
Others	0.0	4.7	3.3	4.6	3.2	3.6
Total	100.0	100.0	100.0	100.0	100.0	100.0
<u>Proposed Dam</u>						
Fruits	23.1	39.5	25.8	48.1	52.8	46.7
Cereals (irr)	0.0	19.2	12.6	24.4	4.7	11.0
Cereals (unirr)	30.8	25.8	47.6	7.9	22.6	23.7
Vegetables **	46.2	10.0	9.2	13.1	15.8	13.8
Others	0.0	5.5	4.8	6.5	4.2	4.8
Total	100.0	100.0	100.0	100.0	100.0	100.0
<u>Existing Dam</u>						
Fruits	100.0	57.6	58.1	42.5	23.2	30.7
Cereals (irrigated)	0.0	5.3	28.3	30.0	22.5	23.2
Cereals (unirrigated)	0.0	26.5	9.3	18.4	36.9	31.3
Vegetables **	0.0	10.6	4.4	9.0	15.3	13.2
Others	0.0	0.0	0.0	0.0	2.1	1.6
Total	100.0	100.0	100.0	100.0	100.0	100.0

* The data of two households weren't available to prepare this table.

**For the simplification of cropping pattern, onion and potato are included in this 'Vegetables'.

Table G.17 (2)-2 Rural Socio-Economic Survey (Household Survey 2)

Dam Stage	District	Provised Dam												Qila Abdullah				Mustung													
		Dara Raghvi (7)				Murgu Kotal Malazan (7)				Kach Sam Ghurgar (9)				Jigda Jigda (5)				Sanzali Sahibzada (2)				Aranabi Silad (7)				Sakhol Shamsabad (5)				Mangpi Shapch (5)	
Dam / Village	Brewery Kili Kiran (7)*	Wadi Dad Sunday (4)	Ave. (Total)		Max	Min	Ave. (Total)	Max	Min	Ave. (Total)	Max	Min	Ave. (Total)	Max	Min	Ave. (Total)	Max	Min	Ave. (Total)	Max	Min	Ave. (Total)	Max	Min	Ave. (Total)	Max	Min	Ave. (Total)			
Population																															
Total	26	7	15	10	17	23	16	7	11	35	73	18	44	70	59	65	25	7	14	20	8	15	29	6	14						
Male	14	4	8	12	5	4	10	3	6	20	35	7	23	44	31	38	13	4	7	11	5	8	18	4	8						
145	10	0	3	4	0	3	7	2	5	6	16	3	11	14	12	13	10	2	5	6	4	5	12	0	4						
15-64	11	2	5	9	3	5	8	1	3	9	18	3	11	31	16	24	4	1	2	5	1	3	6	3	4						
65+	1	0	0	1	0	1	0	0	1	0	0	1	0	1	1	1	1	0	0	1	0	0	1	0	0						
Female	12	3	7	14	5	9	8	3	5	15	2	9	34	11	21	28	26	27	15	2	7	9	3	7	11	2	6				
145	7	0	3	9	2	5	11	5	7	11	0	5	17	4	11	16	15	15	10	0	4	6	1	4	10	0	4				
15-64	6	2	4	5	3	4	6	3	1	7	1	4	21	5	10	12	11	12	5	1	3	5	1	3	1	2	2				
65+	1	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
Economic Activity																															
Crop Farming	3	1	2	2	2	2	2	1	1	9	3	2	1	2	1	2	3	1	2	4	1	2	4	1	2						
Livestock Raising																															
Forestry																															
Quarrying																															
Civil Service	2	0	1	1	0	0	2	0	1	1	0	1	0	6	0	3	0	0	3	0	1	0	0	0	0						
Manufacturing																															
Construction																															
Abroad																															
Others	1	0	0	3	1	2	1	0	0	0	0	0	0	4	0	2	3	1	2	1	0	0	2	1	2						
Totals	Syed (7)																														
Land Tenure (Total)																															
Fully Owned	12	0	7	80	5	35	41	6	18	29	5	16	200	14	106	71	27	46	163	81	122	8	2	4	41	2	10	0	4		
Rented																															
Leased																															
Share-Cropped	10	4	2																												

* The figure in parentheses shows the number of households interviewed.

** Max and Min. means the maximum and minimum value by each item in a village.

Remark: The figures in parentheses show the total number of households in the concerned item by village.

Table G.17 (2)-3 Rural Socio-Economic Survey (Household Survey 3)

Dom State	District	Proposed Dam												Mastung																			
		Qayata						Pahin			Qila Abdullah			Sakhot			Mastung																
Dom / Village	Brewary Kili Kiron (7)* Mag** Min** Ave. (Total)	Wadi Dad Sarley (4)			Dare Ragha (7)			Murpi Kotal Malazai (7)			Kach Sara Ghurgia (9)			Jigda Jigda (5)			Sanzali Sahitradu (2)			Arambi Shad (7)			Sakhot Shamsahud (5)			Mastung Shapah (5)							
		Max	Min	Ave. (Total)	Max	Min	Ave. (Total)	Max	Min	Ave. (Total)	Max	Min	Ave. (Total)	Max	Min	Ave. (Total)	Max	Min	Ave. (Total)	Max	Min	Ave. (Total)	Max	Min	Ave. (Total)	Max	Min	Ave. (Total)					
Total	20	4	9	30	5	35	41	6	22	29	5	16	200	14	83	71	27	55	163	81	122	8	2	4	41	2	10	61	0	16			
Annual Crops	4	0	1	20	0	8	5	3	3	10	3	10	50	1	13	10	1	5	34	11	23	2	0	1	3	0.4	1.5	11	2	5			
Tree Crops	10	2	6	20	3	7	7	0	4	1	0	0.4	120	0	32	2	0	1	8	0	4	3	0	1	3	0	1	6	0	2			
Fallow Land	10	0	2	40	1	19	30	6	15	25	0	9.6	140	0	35	65	26	49	129	62	95	6	0	2	38	0.6	8.5	20	0	4			
Cultivable Waste												1.2	0	3	0	0	0	0	0	0	0.4	0	0	0	0	0	0	24	0	5			
Forest																														0	0		
N/A for Cultivation																														0	0		
Livestock																																	
Buffalo																																	
Cow	1	0	0	4	0	2	3	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3	0	1	3	0	1	0	0	0	0		
Sheep	4	0	1	10	0	3	115	0	42	50	0	9	10	0	2	30	4	11	100	0	50	6	0	1	10	0	6	150	0	40	0	0	
Goats	4	0	1	4	0	1	20	0	6	100	0	16	20	0	0	0	0	0	0	0	0	4	0	1	6	0	0	3	10	0	3		
Camel																															0	0	
Donkey																															0	0	
Chickens	12	0	3	30	0	13	50	0	27	20	0	6	30	0	11	20	0	12	30	5	18	10	0	5	8	0	0	1	0	0	7	0	
Others																															0	0	
Crop/Land (ha)																																	
Fruit Trees																																	
Apples	8	1	4	20	0	6	7	0	23	14	0	0.4	120	0	31	2	0	1	0	0	0	2.4	0.4	1				6	0	2	0	0	
Grapes	4	0	1	3	0	1													4	0	2							0	0	0	0	0	
Others	4	2	1				1	0	0.4				10	0	1			0				2	0	0				0	0	0	0	0	
Annual Crops																																	
Wheat				10	0	3	3	0	2	10	0	4	30	1	7	5	0	2	20	3	12	1.6	0	1	3	0.4	1	4	1	3	0	0	
Barley							4	0	1	3	0	1	10	0	3	2	0	1	12	4	8							0.6	0	0	0	0	0
Vegetables				20	0	5	2	0	0.3				10	0	0.3			1.6										1.2	0	0	0	0	0
Cumin	4	0	1				1	0					10	0	0	2	1	0	4	1	3							0.5	0	0	1	0	0
Potato																		0.4											3	0	0	0	0
Others																		0															

* The figure in parentheses shows the number of households interviewed.

** Max. and Min. means the maximum and minimum value by each item in a village.

(2/2)

Table G.17 (2)-3 Rural Socio-Economic Survey (Household Survey 3)

Dam Stage	District	Protected Dam					Existing Dam					Kulsi					Average				
		Masung			Kulsi		Qayla	Pohin			Masung		Kulsi			Corpad	Leghanger				
		Kad Kucha II	Kad Kucha I	Iskalkoo	Iskalkoo (5)	Khora Manda		Haji Barkat (5)	Mariam	Gujrat (7)	Marium	Khunon Buzan (7)	Tirika	Handral (3)	Amach		Iskalkoo (5)	Corpad	Corpad (1)	Avg. (Total)	Max
Dum / Village	Max	Min	Avg.	Max	Min	Avg.	Max	Min	Avg.	Max	Min	Avg.	Max	Min	Avg.	Max	Min	Avg.	Max	Min	Avg.
Total	163	5	38	31	2	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Annual Crops	22	3	7	12	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tree Crops	29	0.4	8	7	0	3	0	1	1	0	0.4	3	11	0	7	3	0	1	1	0	1
Fallow Land	112	0	23	15	1	8	41	20	34	0	0	0.2	59	0	19	70	0	0	0	0	0
Cultivable Waste	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Forest	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A for Cultivation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Livestock	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Buffalo	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cows	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sheep	150	0	34	40	0	9	0	10	5	0	1	0	0	15	0	40	0	0	0	0	0
Goats	30	0	7	25	0	10	50	0	11	5	0	0	0	10	0	0	0	0	0	0	0
Camel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Donkey	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chickens	30	3	15	25	0	5	30	10	17	10	0	0	0	8	0	15	0	5	0	0	0
Others	20	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cropped Area (ha)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fruit Trees	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apples	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grapes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Others	29	0.4	8	2	0.4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Annual Crops	12	1	4	10	0	4	30	4	15	0	0	0	2	41	20	4	0	1	10	36	0
Wheat	0.4	0	0	0	0	0	10	0	5	0	0	0	0	1	0	0	0	0	0	4	0
Barley	5	0	2	2	0	1	8	0	2	0	0	0	0	2	0	0	0	0	0	0	0
Vegetables	5	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cumin	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Potato	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Others	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table G.17 (2)-4 Rural Socio-Economic Survey (Household Survey 4)

(1/2)

Dam Stage District	Punjab										Muzung									
	Jigda (5)					Sakhal Shamshad (5)					Arambi Silad (7)					Mangal Shapoh (5)				
Dam / Village	Max**		Min**		Avg. (Total)	Max		Min		Avg. (Total)	Max		Min		Avg. (Total)	Max		Min		Avg. (Total)
	1984	1984	1984	1984		1984	1984	1984	1984		1984	1984	1984	1984		1984	1984	1984	1984	
No. of Tubewells	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
The Year set up	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984
Well Owner	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984
Shared	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984
Depth (ft)	450	100	200	200	200	450	100	200	200	200	450	100	200	200	200	450	100	200	200	200
Caliber (inch)	4	2	3	3	3	4	2	3	3	3	4	2	3	3	3	4	2	3	3	3
Pumping Eng.(HP)	25	5	16	16	16	25	5	16	16	16	25	5	16	16	16	25	5	16	16	16
Pumping Cap.(lit)	15	2	7	7	7	15	2	7	7	7	15	2	7	7	7	15	2	7	7	7
Irrigated Area (ha)	10	2	7	7	7	10	2	7	7	7	10	2	7	7	7	10	2	7	7	7
Other Water Source	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984
Karez	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984
Spring	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984
Flood	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984
Others	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984
Crop Share (%)	40	0	11	11	11	40	0	11	11	11	40	0	11	11	11	40	0	11	11	11
Crop Sharing	100	60	84	84	84	100	60	84	84	84	100	60	84	84	84	100	60	84	84	84
Owner	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984
Domestic Water	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984
Surface Water	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984
Tubewell	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984
PHED Facilities	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984
Karez	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984
Spring	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984
Consumption (Gall)	430	120	240	240	240	430	120	240	240	240	430	120	240	240	240	430	120	240	240	240
Auto Irrigation	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984
Tractor	5	2	7	7	7	5	2	7	7	7	5	2	7	7	7	5	2	7	7	7
Sprayer	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984
Thresher	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984

* The figure in parentheses shows the number of households interviewed.

** Max. and Min. means the maximum and minimum value by each item in a village.

Remark: The figures in parentheses show the total number of households in the concerned item by village.

Table G-17 (2)-5 Rural Socio-Economic Survey (Household Survey 5)

Dom. Stage	District	Purawal Dum										Mastung									
		Qasbi					Pohin					Qila Abulillah					Sakhot Shumabul (5)				
Dum / Village	Brewary Kili Krani (7)*	Wali Dad Sandy (4)		Dara Raghu (7)		Murgi Kotal Malay (7)		Kach Sam Ghurgau (9)		Jilda Jigda (5)		Suzali Subhvala (2)		Arasbi Siald (7)		Sakhot Shumabul (5)		Mangi Shapch (5)		Ave. (Total)	
		Max**	Min**	Ave.	Min	Max	Min	Ave.	Min	Max	Min	Ave.	Min	Max	Min	Ave.	Min	Max	Min	Ave.	Min
Male	3	1	1.9	2	2	2	2	1	1	4	1	2	2	3	1	2	1	5	1	3	1
Female	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Children	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total males/year	410	40	290	560	160	350	545	150	370	270	180	300	100	820	80	365	20	1,500	60	520	0
Male	4	1	2.4	10	0	5.5	4	0	3	3	0	2	11	0	1	1	0	15	0	4	0
Female	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Children	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total males/year	900	365	670	1,800	0	710	1,440	0	710	360	0	200	100	1,650	240	30	0	3,300	0	140	0
Household Income (Rs 1000/year)	1,400	320	694	1,500	250	713	660	70	396	1,56	35	112	239	565	58	138	12	250	41	148	0
Annual Crops	150	0	21	400	0	100	100	0	16	0	0	45	28	37	0	8	0	120	0	41	0
Perennial Crops	700	170	360	600	0	263	300	0	3,000	0	623	25	9	13	365	3	0	165	0	54	0
Livestock	0	0	0	0	0	0	100	0	21	0	0	40	0	20	0	35	0	10	0	1	0
Forestry	0	0	0	0	0	0	360	0	71	0	0	0	0	0	0	0	0	0	0	0	0
Seasonal Labor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Business	1,000	36	312	500	150	350	300	0	159	156	15	124	100	112	250	103	0	37	100	0	39
Total	1,400	320	694	1,500	250	713	660	70	396	1,56	35	112	239	565	58	138	12	250	41	148	0
Family Expenditures (Rs 1000/year)	180	50	114	200	100	135	300	10	115	156	24	68	168	120	144	60	10	120	25	61	0
Food	100	0	51	150	20	59	150	0	35	88	24	1	8	4	3	6	0	3	0	1	0
Health	125	10	34	45	20	30	50	6	24	30	15	20	40	15	28	15	0	30	3	16	0
Electricity	100	6	38	20	4	8	72	3	14	5	5	8	0	4	66	2	0	28	1	10	0
Fuel for Cooking	35	10	16	17	8	12	15	0	7	30	3	13	8	8	20	6	0	17	4	8	0
Transporting/Travel	150	20	58	100	4	46	30	2	17	10	2	5	10	9	15	9	0	5	10	4	0
Others	150	50	50	100	20	40	195	24	63	25	0	10	4	2	110	10	0	3	10	0	0
Total	547	192	360	585	203	329	660	70	277	237	53	128	236	198	267	95	16	208	46	104	0

* The figure in parentheses shows the number of households interviewed.

** Max. and Min. means the maximum and minimum value by each item in a village.

Table G.17 (2)-5 Rural Socio-Economic Survey (Household Survey 5)

Dom Stage	Princess Dam			Existing Dam			Kajal			Average		
	District	Max/min	Male	Female	Children	Total	Male	Female	Children	Total	Male	Female
Dum/Village												
Male		3	1	2	2	1	2	2	2	2	1	0
Female		0	0	0	0	0	0	0	0	0	0	0
Children		0	0	0	0	0	0	0	0	0	0	0
Total mandays/year		3	1	2	2	1	2	2	2	2	1	0
Rural Labor		100	90	100	100	100	100	100	100	100	100	100
Male		20	5	12	5	3	0	1	19	0	1	0
Female		0	0	0	0	0	0	0	0	0	0	0
Children		0	0	0	0	0	0	0	0	0	0	0
Total mandays/year		20	5	12	5	3	0	1	19	0	1	0
Household Income (Rs 1000/year)		400	50	280	1,825	0	420	1,370	60	440	60	0
Agriculture		200	30	71	34	0	9	410	20	145	100	4
Annual Crops		150	6	76	150	16	72	20	0	0	0	0
Perennial Crops		0	0	0	0	0	0	0	0	0	0	0
Livestock		0	0	0	0	0	0	0	0	0	0	0
Forestry		0	0	0	0	0	0	0	0	0	0	0
Seasonal Labor		36	0	14	180	0	45	0	0	0	0	0
Other Business		150	0	36	362	0	78	340	36	118	120	0
Total		430	75	197	441	48	204	750	40	271	245	14
Family Expenditure (Rs 1000/year)		120	36	58	150	24	64	180	120	134	120	10
Food		10	4	6	30	0	14	50	1	24	10	1
Education		50	3	17	20	3	9	50	2	22	30	0
Health		26	3	10	10	0	4	60	10	36	1	0
Electricity		15	2	8	18	3	9	20	6	11	10	0
Fuel for Cooking		100	5	36	30	1	13	60	20	36	20	0
Transporting/Travel		50	0	10	100	1	29	100	4	62	31	0
Others		200	59	145	343	46	147	457	235	329	168	12
Total		200	59	145	343	46	147	457	235	329	168	12
Male		3	1	2	2	1	2	2	2	2	1	0
Female		0	0	0	0	0	0	0	0	0	0	0
Children		0	0	0	0	0	0	0	0	0	0	0
Total mandays/year		3	1	2	2	1	2	2	2	2	1	0
Rural Labor		100	90	100	100	100	100	100	100	100	100	100
Male		20	5	12	5	3	0	1	19	0	1	0
Female		0	0	0	0	0	0	0	0	0	0	0
Children		0	0	0	0	0	0	0	0	0	0	0
Total mandays/year		20	5	12	5	3	0	1	19	0	1	0
Household Income (Rs 1000/year)		400	50	280	1,825	0	420	1,370	60	440	60	0
Agriculture		200	30	71	34	0	9	410	20	145	100	4
Annual Crops		150	6	76	150	16	72	20	0	0	0	0
Perennial Crops		0	0	0	0	0	0	0	0	0	0	0
Livestock		0	0	0	0	0	0	0	0	0	0	0
Forestry		0	0	0	0	0	0	0	0	0	0	0
Seasonal Labor		36	0	14	180	0	45	0	0	0	0	0
Other Business		150	0	36	362	0	78	340	36	118	120	0
Total		430	75	197	441	48	204	750	40	271	245	14
Family Expenditure (Rs 1000/year)		120	36	58	150	24	64	180	120	134	120	10
Food		10	4	6	30	0	14	50	1	24	10	1
Education		50	3	17	20	3	9	50	2	22	30	0
Health		26	3	10	10	0	4	60	10	36	1	0
Electricity		15	2	8	18	3	9	20	6	11	10	0
Fuel for Cooking		100	5	36	30	1	13	60	20	36	20	0
Transporting/Travel		50	0	10	100	1	29	100	4	62	31	0
Others		200	59	145	343	46	147	457	235	329	168	12
Total		200	59	145	343	46	147	457	235	329	168	12
Male		3	1	2	2	1	2	2	2	2	1	0
Female		0	0	0	0	0	0	0	0	0	0	0
Children		0	0	0	0	0	0	0	0	0	0	0
Total mandays/year		3	1	2	2	1	2	2	2	2	1	0
Rural Labor		100	90	100	100	100	100	100	100	100	100	100
Male		20	5	12	5	3	0	1	19	0	1	0
Female		0	0	0	0	0	0	0	0	0	0	0
Children		0	0	0	0	0	0	0	0	0	0	0
Total mandays/year		20	5	12	5	3	0	1	19	0	1	0
Household Income (Rs 1000/year)		400	50	280	1,825	0	420	1,370	60	440	60	0
Agriculture		200	30	71	34	0	9	410	20	145	100	4
Annual Crops		150	6	76	150	16	72	20	0	0	0	0
Perennial Crops		0	0	0	0	0	0	0	0	0	0	0
Livestock		0	0	0	0	0	0	0	0	0	0	0
Forestry		0	0	0	0	0	0	0	0	0	0	0
Seasonal Labor		36	0	14	180	0	45	0	0	0	0	0
Other Business		150	0	36	362	0	78	340	36	118	120	0
Total		430	75	197	441	48	204	750	40	271	245	14
Family Expenditure (Rs 1000/year)		120	36	58	150	24	64	180	120	134	120	10
Food		10	4	6	30	0	14	50	1	24	10	1
Education		50	3	17	20	3	9	50	2	22	30	0
Health		26	3	10	10	0	4	60	10	36	1	0
Electricity		15	2	8	18	3	9	20	6	11	10	0
Fuel for Cooking		100	5	36	30	1	13	60	20	36	20	0
Transporting/Travel		50	0	10	100	1	29	100	4	62	31	0
Others		200	59	145	343	46	147	457	235	329	168	12
Total		200	59	145	343	46	147	457	235	329	168	12

Table G.17 (2)-6 Rural Socio-Economic Survey (Household Survey 6)
Income and Expenditure Distribution of the Households in the Beneficial Areas

(1) Income Distribution

Income Class (Rs.1000)	Beneficial Areas of Proposed Dams															Beneficial Areas of Existing Dams										Average (Rs.)	
	(Number of Households)															(Number of Households)										Proposed Dams	Existing Dams
	y	Ghurai Sheila	Wali Dad	Dara Murgi	Kach Kotal	Jigda Sanzali	Arambi Sakhol	Mangri Manga	Kad Keeha	Isakikoo Sub- Total	Khora Manda	Manum	Bosun	Tirkha	Amach Gorpad	Lagmari Sub- Total	Total	Total	Total								
50 >			1	1	1		2	1	1	7	1	2				3	10	33,960	30,830								
51-100					1	3	2	2	2	10	1	1				1	6	75,770	75,470								
101-150			1		2		1		1	7	2	2	1			1	4	123,080	130,500								
151-200					1	1		1	1	7	1	1				2	9	169,140	187,450								
201-300			2	1	3	1	2	2	1	13	2	1				3	16	251,040	245,330								
301-400	3		1	1						5			1			1	6	348,800	350,000								
401-500	1								1	3			1			2	5	437,000	417,000								
501-1,000	1		1	3	1	2	1		1	9	1		4	1		6	15	654,330	727,000								
1,001 <	2		1		3					6			1	2		4	10	1,956,670	1,254,810								
Total	7		4	7	7	5	2	7	5	5	5	7	7	3	5	31	98	403,710	411,080								

* The data from two households weren't available.

(2) Expenditure Distribution

Expenditure Class (Rs.1000)	(Number of Households)																	Average (Rs.)		
	Beneficial Areas of Proposed Dams										Beneficial Areas of Existing Dams							Total	Proposed Dams	Existing Dams
	y	Ghurai Sheila	Wali Dad	Dara Murpi	Kach Kotal	Jigda Sanzali	Arambi Sakhol	Mangri Manga	Kad Keeha	Isakikoo Sub- Total	Khora Manda	Manum	Bosun	Tirkha	Amach Gorpad	Lagmari Sub- Total				
50 >				1						2	6		2		1		4	10	40,800	31,580
51 - 100				2	1				1	1	16		2		2		4	20	77,620	75,250
101-150				1	1	2			1	1	9		1		1		3	12	122,230	123,430
151-200	1					1					8		2				1	11	174,750	172,970
201-300	2		3	1		1			1		14				1		6	20	249,620	247,370
301-400	2			1		1			1	5	5		2		3		6	11	354,600	336,920
401-500											0		1				1	1	0	457,000
501 - 1,000	2		1	1	3					7	7			2	1		4	11	624,140	827,500
1,001 <					1					1	1						0	1	1,011,000	0
Total	7		4	7	7	5	2	7	4	5	5	5	7	7	3	5	31	97	204,865	277,070

* The data from three households weren't available.

Table G.17 (2)-7 Rural Socio-Economic Survey (Household Survey 7)

Dam Stage	District	Proposed Dam													Sub-Total (68)	(%)	
		Qetta			Pishin			Qila Abdillab			Mastung			Kalat			
		Wali Dad (4)	Killa Kirmi (7) Sardary	Mung Kotal (7)	Jigda (5)	Nanzali (2)	Sahibzada (2)	Silad (7)	Shamsabad (5)	Kad Kacha II (5)	Kad Kacha I (5)	Iskalkoo	Iskalkoo (5)				
Name of Village																	
Meteorological																	
disaster				3	6	4	1	2		4	1		5	1	4	31 (46)	
Flood damages			1				4			2	1					8 (12)	
Drought damages				6	2	6		2			4		2	5	4	42 (62)	
Cold damages		7	4	2		1	1							1	4	14 (21)	
Hail storm		4		2													
Wind storm				5		4										9 (13)	
Soil erosion				1	3	2				2	1					9 (13)	
Salt injury																0 (0)	
Desirable Farming in future																	
Paddy rice																0 (0)	
Upland crops		2	1	1	3	2		2			2		3	4	2	11 (16)	
Vegetable		7	3	7	4	7		2		7	3		5	5	5	23 (34)	
Fruit																59 (87)	
Flower																1 (1)	
Livestock		1					1									2 (3)	
Poultry																1 (1)	
Others																2 (3)	

Dam Stage	District	Existing Dam*										Sub-Total (32)	(%)	TOTAL
		Qetta	Qetta	Qetta	Qetta	Qetta	Qetta	Qetta	Qetta	Qetta	Qetta			
Name of Dam	Name of Village	Killa Kirmi (5)	Wali Dad (3)	Qetta (7)	Mung Kotal (3)	Kach (5)	Jigda (1)	Nanzali (4)	Sahibzada (3)	Silad (5)	Shamsabad (4)	Kad Kacha II (4)	Kad Kacha I (4)	TOTAL
Metereological disaster														
Flood damages		3	7			1		3						45
Drought damages														8
Cold damages		5	2	7		4								60
Hail storm			1	6	3			1						25
Wind storm														9
Soil erosion		4	4		1									18
Salt injury								1						1
Desirable Farming in future														
Paddy rice														0
Upland crops		3				4								11
Vegetable		5	5	7	3	4	1							31
Fruit														84
Flower														1
Livestock			2											4
Poultry														1
Others			2											4

* The figure in parentheses shows the number of households interviewed.
Remark: Figures in the table show the number of answers selected by the interviewed farmers.

Table G.18 (1) Summarization of Farmers' Opinion 1 (Rural Socio-Economic Survey)

(Beneficial Areas of Proposed Dams)															Kalar		Total (68)	(%)
District	Quetta	Wani Dad	Dara	Murgu Kotla	Kach	Pishin	Sanzali	Killa Abdullah	Mastung	Mandi	Kadlacha II	Iskalkoo	Iskalkoo					
Name of Village	Brewery	Sardav (4)	Ragha (7)	Malozai (7)	Sara Ghurgai (9)	Jigda (6)	Sahibzada (2)	Shad (7)	Sharnabad (5)	Shapoh (5)	Kalozai (5)	Iskalkoo (5)	Iskalkoo (5)	Iskalkoo (5)				
Question No. 5																		
1	7	4	4	4	7	5	2	7	4	1	5			5	55	(81)		
2			3							3					6	(9)		
3	2														2	(3)		
4															0	(0)		
5															0	(0)		
6															0	(0)		
7															0	(0)		
8									1	2					3	(4)		
Question No. 6																		
1														1	8	(12)		
2	6	4		2	7	3	2	7	4	4	1			4	37	(54)		
3					1										1	(1)		
4														2	2	(3)		
5	3	2		2	6	2	2	4	1	3	2			1	28	(41)		
6	1	1			1										3	(4)		
7	2				1			4							12	(18)		
8	1				1			1						4	8	(12)		
9	1					1								1	3	(4)		
10	1														4	(6)		
11		1								1	1				3	(4)		
12		1								2					4	(4)		
13	3	3			2			1		2				1	6	(9)		
14															9	(13)		
15	2	1								1					0	(0)		
16															3	(4)		
17						1			2	2	4				1	(1)		
															9	(13)		

* The figure in parentheses shows the number of households interviewed.
 Remark: 1) Number of the Question means that of the Questionnaire shown in attached papers.
 2) Figures in the table show the number of answers selected by the interviewed farmers.

Table G.18 (1) Summarization of Farmers' Opinion 1 (Rural Socio-Economic Survey) continued

(Beneficial Areas of Existing Dams)									
District	Quetta	Peshawar	Tirukha	Mastung	Kalat	Total			
Name of Dam	Khewra Mandla (5)	Manum	Bostan	Tirukha	Amach	Gopad (1)	Laybamgar	Karechap (4)	Total (%)
Name of Village	Haji Barkai (5)	Gujrat (7)	Khuan Bostan (7)	Haiderai (3)	Ishkina (5)	Gopad (1)	Karechap (4)	Laybamgar	Total (%)
Question No. 5									
1		2	2						4 (13)
2									0 (0)
3									0 (0)
4									0 (0)
5									0 (0)
6									0 (0)
7									0 (0)
8									0 (0)
Question No. 6									
1									0 (0)
2			2	2	5		1		10 (31)
3									0 (0)
4									0 (0)
5		3	1	2		1			5 (16)
6			6						8 (25)
7									0 (0)
8									1 (3)
9									1 (3)
10			1						1 (3)
11									0 (0)
12									1 (3)
13			2	1	2				5 (16)
14									1 (3)
15									1 (3)
16									0 (0)
17		1			1				3 (9)

* In Question No. 5, there were no answers coming under no. 9 to 14.

Table G.18 (2) Summarization of Farmers' Opinion 2 (Rural Socio-Economic Survey)

(Beneficial Areas of Proposed Dams)													
District	Quetta	Wari Dad	Dera	Murgu Kot	Kach	Pishin	Sanzali	Killa Abdulah	Mastung	Mangri	Kadkacha II	Kalat	Total
Name of Dam	Brewery	Sarday (4)	Ragha (7)	Milazai (7)	Sarn Ghurgai (9)	Jigda (5)	Nahizada (2)	Silad (7)	Shamsabad (5)	Shapoh (5)	Kaloza (5)	Iskalkoo (5)	(68)
Name of Village	Killi Kirani (7)												(%)
Question No. 2													
1		1						1				1	2 (3)
2		2				2	1	7		3		3	3 (4)
3													16 (24)
4													0 (0)
5										1			1 (1)
6													0 (0)
7						1							0 (0)
8													1 (1)
9													0 (0)
10	1							2				2	5 (7)
11												1	1 (1)
12													2 (3)
13													0 (0)
14													0 (0)
15													1 (1)
16													0 (0)
17													0 (0)
18													2 (3)
19		1				1		1					2 (3)
20	2	2	1		1			1	2	1			9 (13)
Question No. 2													
1	5	2		1	6	1	1	1	1			1	19 (28)
2	2				1	4		1	2		3	1	14 (21)
3	3	1		2	4	3	2	4	2	1			22 (32)
4	3			2		2							7 (10)
5							1	4				2	7 (10)
6													0 (0)
7									1		1		2 (3)

* The figure in parentheses shows the number of households interviewed.

Remark: Figures in the table show the number of answers selected by the interviewed farmers.

Table G.18 (2) Summarization of Farmers' Opinion 2 (Rural Socio-Economic Survey) continued

(Beneficial Areas of Existing Dams)									
District	Quetta	Pushin	Mastung		Kalat	Lachamgar		Total	
Name of Dam	Khora Manda	Manum	Rosigan	Tirkha	Amach	Gorpad	Karchap	(4)	(%)
Name of Village	Haji Parkat (5)	Gural (7)	Khannan Rostan (7)	Haiderzal (3)	Iskhina (5)	Gorpad (1)			
Question No. 7									
1									0 (0)
2									0 (0)
3			1		2				3 (9)
4									0 (0)
5			1						1 (3)
6									0 (0)
7									0 (0)
8									0 (0)
9									0 (0)
10									0 (0)
11	1	2							3 (9)
12									0 (0)
13									0 (0)
14									0 (0)
15									0 (0)
16			1						1 (3)
17									0 (0)
18									0 (0)
19									0 (0)
20									0 (0)
Question No. 9									
1									0 (0)
2									0 (0)
3				2					4 (13)
4									0 (0)
5									0 (0)
6									0 (0)
7									0 (0)

Supplement for Table G.18 (1/2)
[Questionnaire for Proposed Dam Sites]

Q 5 Improvement of Irrigation Water Resource with Delay Action Dam

We are carrying out the feasibility study of the construction of Delay Action Dams. Select your view point to this plan out of following phrases.

- 1) have a great desire the construction of DAD as soon as possible.
- 2) have a doubt about the effect of the construction of DAD.
- 3) have a concern in the share in irrigation fee. (amortization for DAD)
- 4) disagree the construction of DAD because of exclusive huge land use for reservoir.
- 5) have a concern in the physical / budgetary responsibility for operation and maintenance of DAD.
- 6) have a doubt of life span of DAD due to sedimentation.
- 7) DAD is not necessary due to sufficient groundwater supply.
- 8) DAD is not necessary to maintain present condition of flood irrigation.

Q 6 Desirable Supporting Countermeasures for Improvement of Present Socio-Economic Condition (excludes Irrigation water resources development with delay action dams)

Select the prior three items out of the following supporting countermeasures for improvement of present socio-economic condition.

- 1) Improvement of irrigation water sources not by DAD, but by normal dam reservoir.
- 2) Improvement of existing irrigation facilities. (canals, bunds, karez, etc.)
- 3) Improvement of irrigation water quality. (including turbidity, salinity, etc.)
- 4) Drainage improvement.
- 5) Farm land reclamation.
- 6) Implementation of Soil conservation measures.
- 7) Farm roads / Market roads improvement.
- 8) Improvement of domestic water source.
- 9) Improvement of livestock breeding.
- 10) Improvement of marketing facilities (including post harvest facilities)
- 11) Promotion of agricultural mechanization.
- 12) Extension and training of agricultural technologies.
- 13) Low interest loan for farm inputs procurement.
- 14) Development and improvement of grassland.
- 15) Establishment of Water Users' Association.
- 16) Strengthening of Agricultural cooperatives.
- 17) Others (Specify)

Q 7 Constraints for Implementation of the Countermeasures

Select the most serious three items out of following constraints for the implementation of DAD and other countermeasures selected in section 6.

- 1) Considerable beneficiaries don't have strong incentive to realize the rural development.
- 2) Most of beneficiaries don't understand the necessity of the rural development.
- 3) Little chance to obtain the financial support by the government for the project.
- 4) Little supporting of the rural government for the modernization of farming.
- 5) Little reliability to obtain the inputs materials for agriculture.
- 6) Shortage of labor force to expand the existing farming.
- 7) Insufficient acknowledges and techniques for modern farming practices.
- 8) Little desire to enhance production activity due to the low price of products.
- 9) Anxiety about environmental deterioration caused by development.
- 10) Poor accessibility between markets and the beneficial areas.
- 11) No suitable construction site of proposed DAD.
- 12) Uncertain technical feasibility for the project development.
- 13) Difficult operation and maintenance of proposed DAD.
- 14) Inflow of the domestic sewage into the irrigation water.
- 15) Severe price knock down by merchants or wholesalers on the farm products.
- 16) Insufficient reliability to sell the farm products at the markets.
- 17) Insufficient reliability for the activities of agricultural cooperative on the production and marketing.
- 18) Low income during immature stages of the fruits trees.
- 19) Poor information about the successful developed areas with project.
- 20) Others (Specify)

Q 8 Your Opinion to Solve These Constraints

If you have any opinion to solve the constraints you selected in section 7, please describe in detail of it.

Q 9 Participation to the DAD project

Do you intend to participate to any activities for the DAD project, if possible?

Yes / No

If yes, what kind of activities shown below are you able to participate?

- 1) Project Planning
- 2) Construction works
- 3) Operation and Maintenance activities
- 4) Rationalization of on-farm water management
- 5) Improvement of crop production
- 6) Conservation works in watershed area (Soil conservation, Afforestation, etc.)
- 7) Others (Specify)

Supplement for Table G.18 (2/2)
[Questionnaire for Existing Dam Sites]

O.5' Evaluation of the Existing Delay Action Dam

What were the major changes in your community brought about by the construction of the Delay Action Dam? Select ones closer to your opinion amongst the following items.

- 1) Ground water level was raised up.
- 2) Pumping up cost of irrigation water was reduced.
- 3) Utilization of irrigation water was rationalized.
- 4) Irrigation method was changed. (Specify)
- 5) Crop production was increased.
- 6) Women's job was reduced.
- 7) Farmers' association was organized or strengthened.
- 8) Only landowner was benefited.
- 9) Dam function has been interfered by great sedimentation.
- 10) Ground water level was not raised up.
- 11) Crop production was not increased.
- 12) Shortage of irrigation water was rather accelerate.
- 13) None of socio-economic life in the community was changed.
- 14) Others (Specify)

O.6' Desirable Supporting Countermeasures for Improvement of Present Socio-Economic Condition

Select the prior three items out of the following supporting countermeasures for improvement of present socio-economic condition.

- 1) Improvement of irrigation water sources not by DAD, but by normal dam reservoir.
- 2) Improvement of existing irrigation facilities. (canals, bunds, karez, etc.)
- 3) Improvement of irrigation water quality. (including turbidity, salinity, etc.)
- 4) Drainage improvement.
- 5) Farm land reclamation.
- 6) Implementation of Soil conservation measures.
- 7) Farm roads / Market roads improvement.
- 8) Improvement of domestic water source.
- 9) Improvement of livestock breeding.
- 10) Improvement of marketing facilities (including post harvest facilities)
- 11) Promotion of agricultural mechanization.
- 12) Extension and training of agricultural technologies.
- 13) Low interest loan for farm inputs procurement.
- 14) Development and improvement of grassland.
- 15) Establishment of Water Users' Association.
- 16) Strengthening of Agricultural cooperatives.
- 17) Others (Specify)

O.7' Constraints for Implementation of the Countermeasures

Select the most serious three items out of following constraints for the implementation of DAD and other countermeasures selected in section 6.

- 1) Considerable beneficiaries don't have strong incentive to realize the rural development.
- 2) Most of beneficiaries don't understand the necessity of the rural development.
- 3) Little chance to obtain the financial support by the government for the project.
- 4) Little supporting of the rural government for new farming.
- 5) Little dependence to obtain the inputs materials for agriculture.
- 6) Shortage of labor force to expand the existing farming.
- 7) Insufficient knowledges and techniques for modern farming practices.
- 8) Little desire to enhance production activity due to the low price of products.
- 9) Anxiety about environmental deterioration caused by development.
- 10) Poor accessibility between markets and the beneficial areas.
- 11) Uncertain technical feasibility for the project development.
- 12) Difficult operation and maintenance of proposed DAD.
- 13) Inflow of the domestic sewage into the irrigation water.
- 14) Severe price knock down by marchants or wholesalers on the farm products.
- 15) Insufficient reliability to sell the farm products at the markets.
- 16) Insufficient reliability for the activities of agricultural cooperative on the production and marketing.
- 17) Low income during immature stages of the fruits trees.
- 18) Poor information about the successful developed areas with project.
- 19) Others (Specify)

O.8' Your Opinion to Solve These Constraints

If you have any opinion to solve the constraints you selected in section 7, please describe in detail of it.

O.9' Participation to the DAD project

Do you intend to participate to any activities for the DAD project, if possible?

Yes/No

If yes, what kind of activities shown below are you able to participate?

- 1) Project Planning
- 2) Construction works
- 3) Operation and Maintenance activities
- 4) Rationalization of on-farm water management
- 5) Improvement of crop production
- 6) Conservation works in watershed area (Soil conservation, Afforestation, etc.)
- 7) Others (Specify)

Table G.19 (1)-1 **Summarization of Social Environment and Farm Household Survey**
(Average by Proposed Dam - 1)

District	Quetta				Pishin		Mastung			Q. Abdullah		Average
Dam	Brewary	Dara	Murgi Kotai	Kach	Jigda	Sanzali	Sakhol	Mangi	Kad Kochali	Gazlona		
Village	(Average 5) (Average 4) (Average 4) (Average 5)				(Average 5) (Average 5)		(Average 6) (Average 5)			(Average 5)		(50)
Population												
Total	13.4	13.3	16.5	17.0	20.8	14.6	12.3	9.6	19.0	12.4	14.9	
Male	5.8	6.3	7.0	9.4	9.8	8.2	5.8	5.4	9.7	6.8	7.5	
14>	2.0	3.8	4.0	6.2	3.8	4.8	3.2	2.0	5.5	3.4	3.9	
15-64	3.8	2.3	3.0	3.2	5.6	3.4	2.2	3.2	4.0	3.0	3.4	
65<	0.0	0.3	0.0	0.0	0.4	0.0	0.5	0.2	0.2	0.4	0.2	
Female	7.6	7.0	9.5	7.6	11.0	6.4	6.5	4.2	9.3	5.6	7.5	
14>	3.0	3.3	4.8	3.4	5.4	4.0	4.3	2.2	4.8	2.6	3.8	
15-64	4.4	3.8	4.5	4.2	5.0	2.4	2.0	2.0	4.5	3.0	3.5	
65<	0.2	0.0	0.3	0.0	0.6	0.0	0.2	0.0	0.0	0.0	0.1	
Economic Activity												
Crop Farming	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Livestock Raising	0%	0%	0%	0%	0%	20%	50%	20%	17%	0%	12%	
Forestry	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Quarrying	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Civil Service	40%	0%	75%	100%	40%	0%	17%	20%	0%	20%	30%	
Manufacturing	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Construction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Abroad	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Others	80%	50%	50%	0%	60%	60%	67%	40%	17%	100%	52%	
Tribes	Syed	Kakar	Kakar	Kakar	Kakar	Kakar	Banglazi	Sarpara	Lango	Kakozai	-	
		Mandokhel		Syed			M.Hassani	Lahri	Shahwani			
		Naxar										
Land Tenure (ha)												
Total	4.24	4.03	3.09	3.92	1.98	3.76	1.89	2.56	3.17	2.73	3.10	
Fully Owned	4.05	4.03	3.09	3.92	1.98	3.76	1.89	1.28	3.17	2.73	2.95	
Rented	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Leased	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Share-Cropped	0.19	0.00	0.00	0.00	0.00	0.00	0.00	1.28	0.00	0.00	0.15	

Table G.19 (1)-2 **Summarization of Social Environment and Farm Household Survey**
(Average by Proposed Dam - 2)

District	Quetta	Pishin			Mastung			Q. Abdullah	Average			
Dam	Brewary	Dara	Murgi Kotal	Kach	Jigda	Sanzali	Sakhol	Mangi	Kad Kochali	Ghazlona	(Average)	(50)
Village	(Average)	(Average)	(Average)	(Average)	(Average)	(Average)	(Average)	(Average)	(Average)	(Average)	(Average)	(50)
Household												
Land Use (ha)												
Total	4.24	4.03	3.09	3.92	1.98	3.76	1.89	2.56	3.18	2.73	2.73	3.10
Annual Crops	0.68	1.17	1.25	2.35	1.24	3.58	1.45	1.94	1.05	1.70	1.70	1.64
Tree Crops	2.81	2.36	0.41	0.43	0.25	0.03	0.31	0.58	2.06	0.49	0.49	0.97
Fallow Land	0.58	0.14	1.39	1.12	0.50	0.15	0.10	0.04	0.00	0.54	0.54	0.43
Cultivable Waste	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Forest	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N/A for Cultivation	0.16	0.36	0.04	0.02	0.00	0.00	0.04	0.00	0.07	0.00	0.00	0.06
Livestock												
Buffalo	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.8	0.0	0.0	0.0	0.1
Cattle	0.4	0.8	1.3	0.8	0.4	1.0	0.0	0.6	0.2	0.6	0.6	0.6
Sheep	0.6	0.0	0.0	4.4	2.6	2.2	10.0	4.6	15.5	4.4	4.4	4.9
Goats	0.0	0.0	0.0	2.2	0.0	0.0	7.3	5.0	10.0	0.0	0.0	2.8
Camel	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.5	0.0	0.0	0.1
Donkey	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.4	0.3	0.0	0.0	0.1
Chicken	3.0	6.3	3.8	11.6	20.2	10.0	4.5	7.2	7.3	4.0	4.0	7.8
Others	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cropped Area (ha)												
Fruit Trees	2.81	2.36	1.18	0.43	0.58	0.03	0.31	0.08	2.68	0.41	0.41	1.08
Apples	1.32	2.36	0.57	0.43	0.58	0.00	0.00	0.08	1.78	0.21	0.21	0.71
Grapes	1.49	0.00	0.05	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.16
Others	0.00	0.00	0.57	0.00	0.00	0.03	0.24	0.00	0.90	0.29	0.29	0.21
Annual Crops	0.70	1.17	0.22	2.35	1.49	3.58	1.45	2.44	1.12	1.78	1.78	1.65
Wheat	0.00	0.00	0.00	0.83	0.25	0.49	1.10	2.03	0.20	1.70	1.70	0.69
Barley	0.21	1.03	0.00	1.45	0.00	1.15	0.00	0.00	0.00	0.00	0.00	0.36
Vegetables	0.41	0.14	0.07	0.24	1.07	1.86	0.07	0.00	0.00	0.00	0.00	0.38
Cumin	0.00	0.00	0.16	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
Onion	0.00	0.00	0.00	0.00	0.00	0.00	0.52	0.91	0.78	0.00	0.00	0.25
Others	0.08	0.00	0.00	0.00	0.17	0.07	0.17	0.00	0.14	0.00	0.00	0.07

Table G.19 (1)-3 **Summarization of Social Environment and Farm Household Survey**
(Average by Proposed Dam - 3)

District	Quetta	Pishin			Mastung			Q. Abdullah	Average
Dam	Brewary	Dara	Murgi Kotal	Kach	Sanzali	Sakhol	Mangi	Gazlona	
Village	(Average)	(Average)	(Average)	(Average)	(Average)	(Average)	(Average)	(Average)	
Household									
Tubewell for Irrigation									
No. of Tubewells	3/5	4/4	2/4	0/5	5/5	4/6	5/5	7/6	30/50
The Year set up	1960-88	1986-90	1976-94		1976-95	1976-92	1981-95	1976-81	1960-95
Well Owner									
Owner	2/5	2/4	1/4		3/5	2/6	1/5	5/6	16/50
Shared		1/4			1/5	1/6	4/5	1/6	8/50
Depth (ft)	80-430	390-580	300-350		90-500	60-100	300-450	300-600	60-600
Caliber (inch)	1.5-2.5	3.0-4.3	3.3		2.5-3.3	2.0-3.0	3.0	3.0-3.3	1.5-4.3
Pumping Energy (HP)	5-15	10-20	25		15-20	5-15	25-30	15-30	5-30
Pumping Capacity (l/s)	1-4.9	3.9-5.4	5.7		1.8-8.3	0.3-11.3	1.7-3.3	0.2-4.8	0.2-11.3
Irrigated Area (ha)	4.35	3.33	3.30		3.59	1.65	2.52	3.09	3.02
Other Water Source (ha)									
Karez	2.96					1.11		0.83	1.69
Spring									2.79
Others		4.13	0.78		3.70				2.28
Irrig. Frequency (days)	11	18	12	13	14	12	12	12	13
Crop Share (%)									
Crop Sharing	33	33	33	25-50	33		25-72	25	25-72
Owner	67-100	67-100	67-100	50-100	67-100	100	28-75	75-100	28-75, 100
Domestic Water Source									
Surface Water	100%	0%	50%	0%	20%	17%	0%	0%	18%
Tubewell (Well)	0%	50%	25%	0%	20%	8%	100%	100%	34%
PHED Facilities	0%	50%	25%	60%	60%	0%	0%	0%	18%
Karez	0%	0%	0%	80%	0%	75%	0%	0%	28%
Spring	0%	0%	0%	0%	0%	0%	0%	0%	2%
Distance fr. home (ft)	0	25	0	14	0	213	1,715	905	461
Consumption (Gal./d)	425	363	258	270	370	242	130	283	280
Agri. Infrastructure									
Tractor									
Spray									
Thresher									

**Table G.19 (1)-4 Summarization of Social Environment and Farm Household Survey
(Average by Proposed Dam - 4)**

District	Quetta					Pishin		Mastung			Q. Abdullah		Average
	Brewary	Dara	Murgi Kotal	Kach	(Average)	Jigda	Sanzali	Sakhoi	Mangi	Kad Kochali	Gazlona		
Dam													
Village													
Household													
Seeds or Seedlings													
Apple (pieces/ha)	145	180	248	213		161	0	0	0	184	142	182	
Grape (pieces/ha)	1,110	0	0	0		0	0	1,100	0	170	0	950	
Wheat (kg/ha)	0	0	0	125		78	88	81	77	0	37	76	
Vegetables (kg/ha)	300	0	146	0		0	13	250	0	0	0	131	
Onion (kg/ha)	0	0	0	0		0	0	6	11	18	0	13	
Fertilizer (kg/ha)													
Urea													
Apple	0	403	48	0		0	0	0	0	0	0	226	
Grape	0	0	0	0		0	0	0	0	0	0	0	
Wheat	0	242	0	76		484	322	0	149	0	61	182	
Vegetables	0	242	48	0		430	216	0	0	0	0	271	
Onion	0	0	0	0		0	0	48	316	79	0	160	
DAP													
Apple	242	0	0	0		0	0	0	0	0	0	242	
Grape	0	0	0	0		0	0	0	0	0	0	0	
Wheat	0	0	0	0		0	0	0	84	0	0	84	
Vegetables	0	0	0	0		1,210	0	0	0	0	0	1,210	
Onion	0	0	0	0		0	0	242	174	32	0	138	
Manure													
Apple	3,687	1,278	726	982		1,309	0	0	484	2,371	538	1,541	
Grape	1,952	0	0	0		0	0	484	0	0	0	1,707	
Wheat	0	0	0	0		0	0	484	0	0	242	323	
Vegetables	1,775	0	0	0		150	4,015	0	0	0	0	1,980	
Onion	0	0	0	0		0	0	1,770	0	0	0	1,770	
Plant protection (l/ha)													
Apple	2	8	0	10		8	0	0.0	4.8	8.9	8.9	7.6	
Grape	3	0	0	0		0	0	0.0	0.0	0.0	0.0	3.0	
Wheat	0	0	0	0		0	0	0.0	0.0	0.0	0.0	0.0	
Vegetables	0	0	15	0		1	3	0.0	0.0	0.0	0.0	4.8	
Onion	0	0	0	0		0	0	1.9	1.4	0.0	0.0	1.6	

Table G.19 (1)-5
Summarization of Social Environment and Farm Household Survey
(Average by Proposed Dam - 5)

District	(Average by Proposed Dam - 3)									
	Quetta		Pishin		Mastung		O. Abdullah Ghaziona		Average	
Dam	Brewary	Dara	Murgi Kotal	Kach	Jigda	Sanzali	Sakhel	Mangi		Kad Kochali
Village	(Average)	(Average)	(Average)	(Average)	(Average)	(Average)	(Average)	(Average)	(Average)	(Average)
Household	1.2	0.8	1.5	2.4	1.4	2.0	2.2	1.4	3.3	1.6
Male	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.2	0.7	0.0
Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.2	0.0
Children	104	96	101	195	108	220	300	94	331	208
Total mandays/year										
Hired Labor	8.0	6.3	2.3	3.0	1.8	1.2	0.0	1.6	3.2	0.2
Male	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Children	474	282	189	123	203	185	0	46	111	6
Total mandays/year										
Household Income (Rs.)										
Agriculture	23,260	6,600	58,250	3,850	24,050	97,610	24,000	16,598	72,417	6,680
Annual Crops	65,880	92,500	8,000	14,200	16,000	1,200	7,775	0	70,000	2,000
Perennial Crops	0	0	0	0	0	1,680	7,000	1,000	10,000	0
Livestock	0	0	0	0	0	0	0	0	0	0
Forestry	0	0	0	0	9,200	0	11,333	6,640	0	16,200
Seasonal Labor	47,200	33,750	48,700	85,920	60,000	36,400	14,000	6,000	8,000	51,200
Other Business	136,340	132,850	114,950	103,970	109,250	136,890	64,108	30,238	160,417	76,080
Total										
Family Expenditure (Rs.)										
Food	58,000	40,000	57,200	48,000	57,220	54,800	33,000	16,000	46,000	39,600
Education	4,610	11,000	12,625	1,700	4,700	4,260	1,033	160	1,933	1,400
Health	7,400	13,125	10,500	15,300	10,000	8,100	3,417	1,160	5,750	8,800
Electricity	21,980	27,825	3,565	4,000	2,500	28,140	11,203	5,060	50,167	908
Fuel for Cooking	3,900	3,150	7,450	4,760	12,620	3,720	1,167	1,600	8,667	5,660
Transporting/Travel	17,520	8,075	8,300	4,200	8,600	3,000	1,087	1,400	4,883	6,300
Others	15,400	12,500	10,400	14,800	10,800	21,000	5,083	3,700	14,167	9,800
Total	128,810	115,675	110,040	92,760	106,440	123,020	55,990	29,080	131,567	72,468

Table G.19 (2)-1

Summarization of Social Environment and Farm Household Survey

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(1/3)

District	Quetta											Dera											Kach										
Dam	Brewary											Murgu Korol											Kach										
Village	Kili Kirini											Kilil Umar											Sara Ghurgal										
Household	Br-1	Br-2	Br-3	Br-4	Br-5	Average	Da-1	Da-2	Da-3	Da-4	Average	Mu-1	Mu-2	Mu-3	Mu-4	Average	Ka-1	Ka-2	Ka-3	Ka-4	Ka-5	Average											
Population																																	
Total	18	10	21	16	2	13.4	8	12	8	25	13.3	12	13	8	33	16.5	10	30	5	17	23	17.0											
Male	7	5	10	5	2	5.8	2	7	3	13	6.3	6	6	3	13	7.0	3	18	2	10	14	9.4											
14+	2	3	2	2	1	2.0	1	4	2	8	3.8	5	2	1	8	4.0	2	13	1	5	10	6.2											
15-64	5	2	8	3	1	3.8	1	3	0	5	2.3	1	4	2	5	3.0	1	5	1	5	4	3.2											
65+	0	0	0	0	0	0.0	0	0	1	0	0.3	0	0	0	0	0.0	0	0	0	0	0	0.0											
Female	11	5	11	11	0	7.6	6	5	5	12	7.0	6	7	5	20	9.5	7	12	3	7	9	7.6											
14+	7	3	2	3	0	3.0	4	3	0	6	3.3	3	3	3	10	4.8	3	5	2	2	5	3.4											
15-64	3	2	9	8	0	4.4	2	2	5	6	3.8	3	4	2	9	4.5	4	7	1	5	4	4.2											
65+	1	0	0	0	0	0.2	0	0	0	0	0.0	0	0	0	1	0.3	0	0	0	0	0	0.0											
Economic Activity																																	
Crop Farming	1	1	1	1	1	100%	1	1	1	1	100%	1	1	1	1	100%	1	1	1	1	1	100%											
Livestock Raising						0%					0%					0%						0%											
Forestry						0%					0%					0%						0%											
Quarrying						0%					0%					0%						0%											
Civil Service		1			1	40%					0%	1	1		1	75%	1	1	1	1	1	100%											
Manufacturing						0%					0%					0%						0%											
Construction						0%					0%					0%						0%											
Abroad						0%					0%					0%						0%											
Others	1	1	1	1	1	80%	1	1	1	1	50%				1	50%						0%											
Totals	Syed	Syed	Syed	Syed	Syed	Syed	Kakar (P)	Kakar-fandolthei	Nasar	Mandolthei	Nasar	Kakar (P)	Kakar	Kakar	Kakar	Kakar	Kakar (P)	Kakar	Kakar	Kakar	Kakar	Kakar											
Land/Tenure (ha)																																	
Total	5.78	2.89	4.24	2.07	6.20	4.24	4.13	3.72	6.19	2.06	4.03	0.82	4.95	3.30	3.30	3.09	1.03	4.54	4.13	4.96	4.96	3.92											
Fully Owned	5.78	2.89	3.31	2.07	6.20	4.05	4.13	3.72	6.19	2.06	4.03	0.82	4.95	3.30	3.30	3.09	1.03	4.54	4.13	4.96	4.96	3.92											
Rented						0.00					0.00					0.00						0.00											
Leased						0.00					0.00					0.00						0.00											
Share-Cropped			0.93		0.19	0.19					0.00					0.00						0.00											

Table G.19 (2)-1 Summarization of Social Environment and Farm Household Survey

District	Pishin										Mastung									
	Jigda										Sakhol									
	Jigda, Sharan										Murgi, Afghan, Ladha									
Household	Ja-1	Ja-2	Ja-3	Ja-4	Ja-5	Average	Sa-1	Sa-2	Sa-3	Sa-4	Sa-5	Average	Sk-1	Sk-2	Sk-3	Sk-4	Sk-5	Sk-6	Average	
Population																				
Total	9	17	46	6	26	20.8	8	25	20	11	9	14.6	8	19	9	9	20	9	12.3	
Male	5	5	24	3	12	9.8	6	13	12	6	4	8.2	4	8	6	3	7	7	5.8	
14+	2	3	7	2	5	3.8	1	7	10	3	3	4.8	1	5	3	1	3	6	3.2	
15-64	3	2	16	1	6	5.6	5	6	2	3	1	3.4	2	3	2	1	4	1	2.2	
65+	0	0	1	0	1	0.4	0	0	0	0	0	0.0	1	0	1	1	0	0	0.5	
Female	4	12	22	3	14	11.0	2	12	8	5	5	6.4	4	11	3	6	13	2	6.5	
14+	2	6	10	2	7	5.4	0	7	6	3	4	4.0	2	7	2	5	9	1	4.3	
15-64	2	5	11	1	6	5.0	2	5	2	2	1	2.4	1	4	1	1	4	1	2.0	
65+	0	1	1	0	1	0.6	0	0	0	0	0	0.0	1	0	0	0	0	0	0.2	
Economic Activity																				
Crop Farming	1	1	1	1	1	100%	1	1	1	1	1	100%	1	1	1	1	1	1	100%	
Livestock Raising						0%						20%			1			1	50%	
Forestry						0%						0%							0%	
Quarrying						0%						0%							0%	
Civil Service					1	40%						0%					1		17%	
Manufacturing						0%						0%							0%	
Construction						0%						0%							0%	
Abroad						0%						0%							0%	
Others						60%						60%							67%	
Totals	Kakar (P)	Kakar	Syed	Kakar	Syed	Kakar	Kakar (P)	Kakar	Kakar	Kakar	Kakar	Kakar	Kakar	Banglaza (Br)	Banglaza	Banglaza	Banglaza	Banglaza	Banglaza	
Land Tenure (Ha)																				
Total	0.83	1.24	4.96	1.24	1.65	1.98	4.75	2.32	5.16	2.89	3.70	3.76	0.82	2.48	2.07	2.48	2.27	1.23	1.89	
Fully Owned	0.83	1.24	4.96	1.24	1.65	1.98	4.75	2.32	5.16	2.89	3.70	3.76	0.82	2.48	2.07	2.48	2.27	1.23	1.89	
Rented						0.00						0.00							0.00	
Leased						0.00						0.00							0.00	
Share-Cropped						0.00						0.00							0.00	

Table G.19 (2)-1 Summarization of Social Environment and Farm Household Survey

District	Qila Abdullah																			Total	Average
	Gazlena (Arambi)																				
	Silad																				
	Ga-1 Ga-2 Ga-3 Ga-4 Ga-5 Average																				
Dam	Kad Kocha II																			Total	Average
Village	Mulia Khurmi																				
	Kil-1 Kil-2 Kil-3 Kil-4 Kil-5 Kil-6 Average																				
	Ma-1 Ma-2 Ma-3 Ma-4 Ma-5 Average	Kil-1 Kil-2 Kil-3 Kil-4 Kil-5 Kil-6 Average	Ga-1 Ga-2 Ga-3 Ga-4 Ga-5 Average																		
Household	7 4 3 1 0 3 3 2 1 0 1 1 1 1 0 0 0 0 0 0	8 4 1 3 0 4 5 1 2 3 15 10 8 6 5 4 5 3 2 2	10 5 1 4 0 6 2 3 1 5 5 5 7 4 2 0 0 0 0 0	13 10 3 6 2 4 2 0 7 8 7 5 1 6 3 0 0 0 0 0	10 4 2 10 25 13 6 4 25 13 25 12 19.0	9.6 5.4 2.0 3.2 0.2 4.2 2.2 2.0 0.0	20 11 6 6 5 0 9 5 4 0 0 0 0 0 0 0 0 0 0	26 11 6 6 5 0 15 10 5 5 0 0 0 0 0 0 0 0 0	18 10 6 4 7 0 8 5 1 3 6 0 0 0 0 0 0 0 0	13 6 4 2 5 0 7 12 5 1 6 0 0 0 0 0 0 0 0	25 13 4 2 5 1 12 5 3 4.8 7 2 0 0 0 0 0 0 0	12 7 4 3 1 0 5 3 4.5 2 0 0 0 0 0 0 0 0	19.0 9.7 5.5 4.0 0.2 9.3 4.5 0.0	17 8 5 2 3 1 9 5 2 2 0 0 0 0 0 0 0 0	9 6 2 3 0 4 3 2 2 2 0 0 0 0 0 0 0 0	9 6 3 2 1 0 3 4 1 1 1 1 1 1 1 1 1 1	19 10 6 4 4 0 9 3 2 2 0 0 0 0 0 0 0 0	12.4 6.8 3.4 3.0 0.4 5.6 2.6 0.0			
Population	746 373 194 169 10 373 190 177 6	14.9 7.5 3.9 3.4 0.2 7.5 3.8 3.5 0.1																			
Economic Activity																					
Crop Farming	1	1	1	1	1	100%	1	1	1	1	1	1	100%	1	1	1	1	1	100%	50	100%
Livestock Raising						20%						1	17%						0%	6	12%
Forestry						0%							0%						0%	0	0%
Quarrying						0%							0%						0%	0	0%
Civil Service				1		20%							0%	1					20%	15	30%
Manufacturing						0%							0%						0%	0	0%
Construction						0%							0%						0%	0	0%
Abroad						0%							0%						0%	0	0%
Others					1	40%							17%						0%	26	52%
Tribes	Mohammad Hasan (Ba)	Sarpura (Ba)	Sarpura (Ba)	Sarpura (Ba)	Sarpura (Ba)	M Hassan	Lango (Ba)	Lahn (Ba)	Lango (Ba)	Lango (Ba)	Lango Shahwani (Ba)	Lahn (Ba)	Lahn Shahwani (Ba)	Kakozai (P)	Kakozai (P)	Kakozai (P)	Kakozai (P)	Kakozai (P)	Kakozai (P)		
Land Tenure (ha)																					
Total	2.50	1.03	4.33	3.30	1.65	2.56	2.10	3.31	4.54	1.65	2.48	4.96	3.17	3.72	4.54	2.07	1.65	1.65	2.73	154.84	3.10
Fully Owned						1.28	2.10	3.31	4.54	1.65	2.48	4.96	3.17	3.72	4.54	2.07	1.65	1.65	2.73	147.49	2.95
Rented						0.00							0.00						0.00	0.00	0.00
Leased						0.00							0.00						0.00	0.00	0.00
Share-Cropped	2.50	1.03		1.24	1.65	1.28							0.00						0.00	7.35	0.15

Table G.19 (2)-2 Summarization of Social Environment and Farm Household Survey

District	Quetta	Dara					Murgal Kotal					Kach										
Dam	Brewary	Kili Umar					Kater, Mallazni					Sara Churgai										
Village	Br-1	Br-2	Br-3	Br-4	Br-5	Average	Da-1	Da-2	Da-3	Da-4	Average	Mu-1	Mu-2	Mu-3	Mu-4	Average	Ka-1	Ka-2	Ka-3	Ka-4	Ka-5	Average
Household	5.78	2.89	4.24	2.07	6.20	4.24	4.13	3.72	6.19	2.06	4.03	0.82	4.94	3.30	3.30	3.09	1.03	4.54	4.13	4.96	4.96	3.92
Total	5.78	2.89	4.24	2.07	6.20	4.24	4.13	3.72	6.19	2.06	4.03	0.82	4.94	3.30	3.30	3.09	1.03	4.54	4.13	4.96	4.96	3.92
Annual Crops	0.83	0.83	0.93	0.41	1.24	0.68	4.13	0.55	1.17	1.17	1.17	0.27	0.61	2.06	2.06	1.25	0.41	1.65	3.72	4.34	1.65	2.35
Tree Crops	2.89	1.65	2.89	1.65	4.96	2.81	2.62	4.95	1.86	2.36	2.36	0.41	0.41	1.24	1.24	0.41	0.41	0.31	0.41	0.62	0.41	0.43
Fallow Land	2.89					0.58	0.58	0.55		0.14	0.14	1.39	4.33	1.24		1.12	0.21	2.58		2.79		1.12
Cultivable Waste						0.00					0.00	0.00				0.00						0.00
Forest						0.00					0.00	0.00				0.00						0.00
N/A for Cultivation						0.16			1.24	0.20	0.36	0.14				0.04				0.10		0.02
Livestock																						
Buffalo						0.0					0.0					0.0						0.0
Cattle			2			0.4	1	1	1		0.8	1	2	2		1.3			2	1	1	0.8
Sheep			3			0.6					0.0					0.0	11	11		7	4	4.4
Goats						0.0					0.0					0.0						2.2
Camel						0.0					0.0					0.0						0.0
Donkey						0.0					0.0					0.0						0.0
Chicken			15			3.0		19	6		6.3	3	10	2		3.8	8	9	6	20	15	11.6
Others						0.0					0.0					0.0						0.0
Cropped Area (ha)																						
Fruit Trees	2.89	1.66	2.89	1.65	4.96	2.81	0.00	2.62	4.95	1.86	2.36	0.40	0.00	1.03	3.30	1.18	0.41	0.31	0.41	0.62	0.41	0.43
Apples		0.83	1.65		4.13	1.32		2.62	4.95	1.86	2.36	0.20		2.06		0.57	0.41	0.31	0.41	0.62	0.41	0.43
Grapes	2.89	0.83	1.24	1.65	0.83	1.49					0.00	0.20				0.05						0.00
Others					(4.13)	0.00		(2.06)	(4.95)	(1.86)	0.00	(0.4)		1.03	1.24	0.57						0.00
Annual Crops	0.00	0.83	1.03	0.41	1.24	0.70	4.13	0.55	0.00	0.00	1.17	0.27	0.62	0.00	0.09	0.22	0.41	1.65	3.72	4.34	1.65	2.35
Wheat						0.00					0.00	0.00				0.00	0.41					0.83
Barley						0.21	4.13				1.03	0.27				0.00		1.65	3.72	1.03	1.65	1.45
Vegetables		0.83		0.41	1.24	0.41		0.55			0.14	0.27	0.62			0.07			1.21		0.24	0.24
Cumin						0.00					0.00					0.16						0.08
Onion						0.00					0.00					0.00				0.41		0.00
Others						0.08					0.00					0.00						0.00

Table G.19 (2)-2 Summarization of Social Environment and Farm Household Survey

District	Pishin	Sanjaili										Mastung									
Dam	Jigda	Sahibzada, Haji Abdulins Jan										Sakhot									
Village	Jigda, Sharan											Murgel, Afghan, Ladha									
Household	Ji-1	Ji-2	Ji-3	Ji-4	Ji-5	Average	Sa-1	Sa-2	Sa-3	Sa-4	Sa-5	Average	Sk-1	Sk-2	Sk-3	Sk-4	Sk-5	Sk-6	Average		
Land Use (ha)																					
Total	0.83	1.24	4.96	1.24	1.65	1.98	4.75	2.32	5.16	2.89	3.70	3.76	0.82	2.48	2.07	2.48	2.27	1.24	1.89		
Annual Crops	0.83	0.83	2.48	1.24	1.65	1.24	4.75	1.40	5.16	2.89	3.70	3.58	0.41	2.27	2.07	1.24	1.65	1.03	1.45		
Tree Crops	0.83	0.41			(1.65)	0.25		0.16				0.03	0.41	0.21		0.41	0.62	0.21	0.31		
Fallow Land			2.48			0.50		0.76				0.15				0.62			0.10		
Cultivable Waste						0.00						0.00							0.00		
Forest						0.00						0.00							0.00		
N/A for Cultivation						0.00						0.00				0.21			0.04		
Livestock																					
Buffalo	1	1				0.2		2	1		2	0.0							0.0		
Cattle						0.4						1.0							0.0		
Sheep			6	3	4	2.6	11					2.2	15	20	40	10		15	10.0		
Goats						0.0						0.0		4					7.3		
Camel						0.0						0.0		1	1				0.3		
Donkey						0.2						0.0							0.0		
Chicken	15	10	50	6	20	20.2	10	18	10		12	10.0		2	5		15	5	4.5		
Others						0.0						0.0							0.0		
Cropped Area (ha)																					
Fruit Trees	0.83	0.41	0.00	1.64	0.00	0.58	0.00	0.16	0.00	0.00	0.00	0.03	0.41	0.21	0.00	0.41	0.62	0.21	0.31		
Apples	0.83	0.41		1.64		0.58						0.00							0.00		
Grapes						0.00						0.00					0.41		0.07		
Others						0.00						0.03	0.41	0.21		0.41	0.21	0.21	0.24		
Annual Crops	0.00	2.07	2.48	1.24	1.64	1.49	4.75	1.39	5.16	2.89	3.70	3.58	0.41	2.27	2.07	1.24	1.65	1.03	1.45		
Wheat		1.24				0.25	0.61				1.85	0.49	0.41	1.65	2.07	0.83	1.65		1.10		
Barley						0.00			3.92		1.85	1.15							0.00		
Vegetables		0.83	1.65	1.24	1.64	1.07	4.14	1.03	1.24	2.89		1.86				0.41			0.07		
Cumin						0.00						0.00							0.00		
Onion						0.00						0.00		0.62	2.07		0.41		0.52		
Others			0.83			0.17		0.36				0.07						1.03	0.17		

Table G.19 (2)-2 Summarization of Social Environment and Farm Household Survey

District	Kad Kocba II										Qila Abdullah										Total	Average
	Mangri					Mulia Khurmi					Ghazlona					Silad						
	Mai, Shapch																					
	Ma-1	Ma-2	Ma-3	Ma-4	Ma-5	Average	KII-1	KII-2	KII-3	KII-4	KII-5	KII-6	Average	Ga-1	Ga-2	Ga-3	Ga-4	Ga-5	Average			
Land Use (ha)																						
Total	2.50	1.03	4.33	3.30	1.65	2.56	2.10	3.31	4.54	1.66	2.48	4.96	3.18	3.72	4.54	2.07	1.65	1.65	2.73	154.85	3.10	
Annual Crops		0.83	3.92	3.30	1.65	1.94	1.24	0.86	2.10	0.83	1.24		1.05	0.83	3.31	2.07	1.44	0.83	1.70	82.08	1.64	
Tree Crops	2.50		0.41			0.58	0.86	2.45	2.44	0.83	1.24	4.54	2.06	0.20	1.23		0.21	0.82	0.49	48.27	0.97	
Fallow Land		0.20				0.04							0.00	2.69					0.54	21.34	0.43	
Cultivable Waste						0.00							0.00						0.00	0.00	0.00	0.00
Forest						0.00							0.00						0.00	0.00	0.00	0.00
N/A for Cultivation						0.00						0.42	0.07						0.00	3.13	0.06	
Livestock																						
Buffalo		3		1		0.8							0.0						0.0	5	0.1	
Cattle		1	1	1		0.6		1					0.2	1		1			0.6	28	0.6	
Sheep		3		20		4.6	20	5	4	4		60	15.5	5	3	4		10	4.4	247	4.9	
Goats	15				10	5.0		20			40		10.0						0.0	140	2.8	
Camel						0.0	1			1			0.5						0.0	5	0.1	
Donkey				1	1	0.4					1		0.3						0.0	5	0.1	
Chicken	10	4		12	10	7.2	4	20	2	6		12	7.3		6	8	2	4	4.0	391	7.8	
Others						0.0							0.0						0.0	0	0.0	
Cropped Area (ha)																						
Fruit Trees	0.00	0.00	0.41	0.00	0.00	0.08	1.24	3.37	4.88	0.83	1.21	4.54	2.68	0.20	1.23	0.00	0.21	0.83	0.49	54.22	1.08	
Apples			0.41			0.08	1.24	1.65	2.44	0.83	1.21	3.30	1.78		0.83			0.21	0.21	35.46	0.71	
Grapes						0.00							0.00						0.00	8.05	0.16	
Others						0.00		1.72	2.44			1.24	0.90	0.20	0.40		0.21	0.62	0.29	10.71	0.21	
Annual Crops	2.50	0.83	3.92	3.30	1.65	2.44	0.86	1.72	2.10	0.83	1.21	0.00	1.12	0.83	3.31	2.07	1.86	0.83	1.78	82.66	1.65	
Wheat	1.67	0.83	3.92	2.06	1.65	2.03					1.21		0.20	0.83	3.31	2.07	1.45	0.83	1.70	34.30	0.69	
Barley						0.00							0.00						0.00	18.16	0.36	
Vegetables						0.00							0.00						0.00	19.17	0.38	
Cumin						0.00							0.00						0.00	1.03	0.02	
Onion	0.83		2.48	1.24		0.91	0.86	0.86	2.10	0.83			0.78						0.00	12.30	0.25	
Others						0.00	0.86	0.86					0.14						0.00	3.49	0.07	

Table G.19 (2)-3 Summarization of Social Environment and Farm Household Survey

District	Quetta										Kach																																																						
Dam	Brewary										Murgi Kotai																																																						
Village	Kili Kirani										Kaseer, Mallazai																																																						
	Data					Kili Umar					Mu-1					Mu-2					Mu-3					Mu-4					Average					Kas-1					Kas-2					Kas-3					Kas-4					Kas-5					Average				
Household	Br-1	Br-2	Br-3	Br-4	Br-5	Average	Da-1	Da-2	Da-3	Da-4	Average	Mu-1	Mu-2	Mu-3	Mu-4	Average	Ka-1	Ka-2	Ka-3	Ka-4	Ka-5	Average																																											
Cropped Area (ha)																																																																	
Apples		0.83	1.65		4.13	1.32		2.62	4.95	1.86	2.36	0.20			2.06	0.57	0.41	0.31	0.41	0.62	0.41	0.43																																											
Grapes	2.89	0.83	1.24	1.65	0.83	1.49					0.00	0.20				0.05						0.00																																											
Others					(4.13)	0.00		(2.06)	(4.95)	(1.86)	0.00	(0.4)		1.03	1.24	0.57						0.00																																											
Wheat						0.00					0.00					0.00						0.83																																											
Barley			0.62	0.41		0.21	4.13				1.03	0.27				0.00	0.41	1.65	3.72	1.03	2.10	1.65																																											
Vegetables		0.83			1.24	0.41		0.55			0.14					0.07						1.45																																											
Cumin						0.00					0.00		0.62			0.16				1.21		0.24																																											
Onion						0.00					0.00					0.00					0.41	0.08																																											
Others			0.41			0.08					0.00					0.00						0.00																																											
Crop Production (tons)																																																																	
Apples			4.00		16.00			6.40	112.50	0.00		1.25			42.00		5.40	2.25	0.00	?		5.60																																											
Grapes	7.00	4.20	0.98	0.84	3.60							0.71																																																					
Others					3.16			10.40	5.60	19.60		2.08		0.60			0.50	0.80	0.98	1.30	0.35	0.70																																											
Wheat							1.60																																																										
Barley			0.48	0.60																																																													
Vegetables		3.95			3.60								0.25																																																				
Cumin																																																																	
Onion																																																																	
Others																																																																	
Crop Yield (t/ha)																																																																	
Apples		0.00	2.42		3.87			2.44	22.73	0.00		6.25			20.39		13.17	7.26	0.00			13.66																																											
Grapes	2.42	5.06	0.79	0.51	4.34							3.55		0.58	0.00																																																		
Others																	1.22	0.48	0.26	0.62	0.34	0.77																																											
Wheat																																																																	
Barley			0.77	1.46			0.39	0.00																																																									
Vegetables		4.76			2.90																																																												
Cumin																																																																	
Onion																																																																	
Others																						0.00																																											

Table G.19 (2)-3 Summarization of Social Environment and Farm Household Survey 3 continued (2/3)

District	Pishin										Mastung									
Dam	Jigda										Sakhol									
Village	Jigda, Sharan										Murg, Afghan, Ladha									
Household	Ji-1	Ji-2	Ji-3	Ji-4	Ji-5	Average	Sa-1	Sa-2	Sa-3	Sa-4	Sa-5	Average	Sk-1	Sk-2	Sk-3	Sk-4	Sk-5	Sk-6	Average	
Cropped Area (ha)																				
Apples	0.83	0.41		1.64		0.58						0.00							0.00	
Grapes						0.00						0.00					0.41		0.07	
Others						0.00		0.16				0.03	0.41	0.21		0.41	0.21	0.21	0.24	
Wheat		1.24				0.25	0.61				1.85	0.49	0.41	1.65	2.07	0.83	1.65		1.10	
Barley						0.00			3.92		1.85	1.15							0.00	
Vegetables		0.83	1.65	1.24	1.64	1.07	4.14	1.03	1.24	2.89		1.86				0.41			0.07	
Cumin						0.00						0.00							0.00	
Onion						0.00						0.00					0.41		0.52	
Others			0.83			0.17		0.36				0.07		0.62	2.07			1.03	0.17	
Crop Production (tons)																				
Apples	7.50	0.00																		
Grapes																	1.06			
Others							3.60	0.90					1.00	1.00		0.56	0.84	0.48		
Wheat		1.50									1.10		1.20	2.00	1.50	1.00	1.00			
Barley									0.80		0.60									
Vegetables		2.25	25.50	7.50	8.25		19.10	8.33	25.06	26.37						3.50				
Cumin																				
Onion																	6.00			
Others														2.20	12.00					
Crop Yield (t/ha)																				
Apples	9.04	0.00		0.00																
Grapes																	2.59			
Others							5.90	5.63			0.59		2.44	4.76		1.37	4.00	2.29		
Wheat		1.21									0.32		2.93	1.21	0.72	1.20	0.61			
Barley									0.20											
Vegetables		2.71	15.45	6.05	5.03		9.44	8.09	20.21	9.12						8.54				
Cumin																				
Onion														3.55	5.80		14.63		0.00	
Others			0.00					0.00												

Table G.19 (2)-3 Summarization of Social Environment and Farm Household Survey 3 continued (3/3)

District	Kad Koccha II												Qila Abdullah												Total	Average
	Mangi						Ghazlona																			
	Mal Shapoch						Silad																			
	Mulla Khumri						Ga-1 Ga-2 Ga-3 Ga-4 Ga-5 Average																			
Household	Ma-1	Ma-2	Ma-3	Ma-4	Ma-5	Average	Kil-1	Kil-2	Kil-3	Kil-4	Kil-5	Kil-6	Average	Ga-1	Ga-2	Ga-3	Ga-4	Ga-5	Average							
Cropped Area (ha)																										
Apples			0.41			0.08	1.24	1.65	2.44	0.83	1.21	3.30	1.78		0.83			0.21	0.21	35.46	0.71					
Grapes						0.00							0.00						0.00	8.05	0.16					
Others						0.00		1.72	2.44			1.24	0.90	0.20	0.41		0.21	0.62	0.29	10.72	0.21					
Wheat	1.67	0.83	3.92	2.06	1.65	2.03					1.21		0.20	0.83	3.31	2.07	1.45	0.83	1.70	34.30	0.69					
Barley						0.00							0.00						0.00	18.16	0.36					
Vegetables						0.00							0.00						0.00	19.17	0.38					
Cumin						0.00							0.00						0.00	1.03	0.02					
Onion	0.83		2.48	1.24		0.91	0.86	0.86	2.10	0.83			0.78						0.00	12.30	0.25					
Others						0.00	0.86	0.86					0.14						0.00	3.49	0.07					
Crop Production (tons)																										
Apples							16.60	28.80	0.00	7.00	14.90	42.00						0.96								
Grapes																										
Others								5.05				14.00		1.40	1.00		0.20	1.50								
Wheat	2.10	0.90	5.00	0.70	1.20									0.80	0.80	1.10	0.40	0.70								
Barley																										
Vegetables																										
Cumin																										
Onion	15.00		32.00	2.56			26.60	15.00	70.00	17.00	10.20															
Others																										
Crop Yield (t/ha)																										
Apples			0.00				13.39	17.45	0.00	8.43	12.31	12.73			0.00			4.57								
Grapes																										
Others								2.94	0.00			11.29		7.00	2.44		0.93	2.42								
Wheat	1.26	1.08	1.28	0.34	0.73						0.00			0.96	0.24	0.53	0.28	0.84								
Barley																										
Vegetables																										
Cumin																										
Onion	18.07		12.90	2.06			30.93	17.44	33.33	20.48																
Others								0.00																		

Table G.19 (2)-4

Summarization of Social Environment and Farm Household Survey

4

(13)

District	Quetta										Kach											
Dam	Brewary										Sara Churgai											
Village	Kili Kirani										Kacer, Mallazai											
Household	Br-1	Br-2	Br-3	Br-4	Br-5	Average	Da-1	Da-2	Da-3	Da-4	Average	Mu-1	Mu-2	Mu-3	Mu-4	Average	Ka-1	Ka-2	Ka-3	Ka-4	Ka-5	Average
Tubewell for Irrigation																						
No. of Tubewells	1	2	3/5	2	3/5			2	1	1	4/4				2	2/4						0/5
The Year set up	1976			1960,88	1960-88			1986,88	1989	1990	1986-90				1976,94	1976-94						
Well Owner																						
Owner	1	1	2/5						1	1	2/4				1	1/4						
Shared									1		1/4											
Depth (ft)	80			180,430	80-430			580,390	500	500	390-580				300,350	300-350						
Caliber (inch)	2.5			2.5,1.5	1.5-2.5			4.3,4.3	3.0	3.0	3.0-4.3				3.3,3.3	3.3						
Pumping Energy (HP)	5			15,7.5	5-15			20,15	15	10	10-20				25,25	25						
Pumping Capacity (l/s)	4.9			1,96,1.0	1-4.9			5,4,5.0	4.4	3.9	3.9-5.4				5.7	5.7						
Irrigated Area (ha)	2.49			6.20	4.35			3.17	4.95	1.86	3.33				3.30	3.30						
Other Water Source (ha)																						
Karez	2.89		3.93	2.07	2.96												0.83	1.96	4.13	4.96	2.07	2.79
Spring																						
Others																						
Irrig. Frequency (days)	-	10	12	10	12	11	4.13	25	20	10	18	0.69	0.61	1.03	9	12	13	13	13	13	15	13
Crop Share (%)																						
Crop Sharing	33				33		33				33				33	33						25-50
Owner	100	67	100	100	100	67-100	67	100	100	100	67-100	100	100	100	67	67-100	100	100	100	100	100	50-100
Domestic Water Source																						
Surface Water																						
Tubewell (Well)																						
PHED Facilities																						
Karez	1	1	1	1	100%						0%	1			1	50%						0%
Spring											0%					25%						0%
Distance fr. home (ft)	0	0	0	0	0		0	0	100	0	25	0	0	0	0	0	0	0	60	10	0	14
Consumption (Gal/d)	500	300	600	300	425		400	300	300	450	363	400	130	100	400	258	300	350	100	200	400	270
Agri. Infrastructure																						
Tractor		hire	hire	hire	owns		hire	hire	owns	owns		hire	hire		borrow		hire	hire	hire	hire	hire	hire
Spray		hire	hire	hire	owns		hire	owns	owns	owns		hire	hire				hire	hire	hire	hire	hire	hire
Thresher																						

Table G.19 (2)-4 Summarization of Social Environment and Farm Household Survey 4

District	Pahin			Sanzali			Masung					
	Jigda			Sakhol								
Village	Jigda, Nharan			Murgit, Afghan, Ladha								
Household	Ji-1	Ji-2	Ji-3	Ji-4	Ji-5	Average	Sa-1	Sa-2	Sa-3	Sa-4	Sa-5	Average
Tubewell for Irrigation						0/5	2	1	1	1	1	5/5
No. of Tubewells							1976-95	1995	1985	1992		1976-95
The Year set up							1976-95	1995	1985	1992		1976-95
Well Owner							1	1	1	1	1	1
Owner							1	1	1	1	1	1
Shared							90-200	500	400	300		90-500
Depth (ft)							3,3,3,3	2.5	3.0	3.0		2.5-3.3
Caliber (inch)							15,15	15	20	20		15-20
Pumping Energy (HP)							3.6	8.3	1.8	1.8		1.8-8.3
Pumping Capacity (l/s)							4.75	1.55	5.16	2.89		3.59
Irrigated Area (ha)							0.83	1.65	0.21	1.65		1.11
Other Water Source (ha)							0.83	1.65	0.21	1.65		1.11
Karez												
Spring												
Others												
Irrig. Frequency (days)	16	14	12	14	16	14	6	12	7	15		3.70
Crop Share (%)							33					33
Crop Sharing							67	100	100	100	100	67-100
Owner	100	100	100	100	50	50-100	67	100	100	100	100	100
Domestic Water Source												
Surface Water						0%						17%
Tubewell (Well)						20%						8%
PHED Facilities						0%						0%
Karez						80%						75%
Spring						0%						0%
Distance fr. home (ft)	900	1,100	1,000	1,200	0	840	0	0	0	0	0	213
Consumption (Gal/d)	200	300	500	150	700	370	190	425	250	130	130	242
Agri. Infrastructure												
Tractor							hire	hire	hire	hire	hire	hire
Spray							hire	owns	owns	owns	owns	owns
Thresher							hire	hire	hire	hire	hire	hire

Table G.19 (2)-4 Summarization of Social Environment and Farm Household Survey

District	Qila Abdullah																Total	Average				
	Gazlona																					
	Silad																					
Dam	Kad Kucha II																Ga-1	Ga-2	Ga-3	Ga-4	Ga-5	Average
Village	Mulla Khurmi																					
Household	Ma-1	Ma-2	Ma-3	Ma-4	Ma-5	Average	KII-1	KII-2	KII-3	KII-4	KII-5	KII-6	Average									
<u>Tubewell for Irrigation</u>																						
No. of Tubewells	1	1	1	1	1	5/5	2	1	1	1	1	1	7/6	0/5								
The Year set up	1981	1981	1995	1981	1995	1981-95	1976/76	1981	1981	1979	1976	1981	1976-81									
Well Owner																						
Owner	1	1	1	1	1	1/5	1	1	1	1	1	1	5/6									
Shared	1	1		1	1	4/5			1				1/6									
Depth (ft)	350	350	450	300	450	300-450	300-300	600	600	500	300	600	300-600									
Caliber (inch)	3.0	3.0	3.0	3.0	3.0	3.0	3.3	3.0	3.0	3.0	3.0	3.0	3.0-3.3									
Pumping Energy (HP)	30	30	25	25	25	25-30	20-20	15	30	30	20	30	15-30									
Pumping Capacity (l/s)	1.7	1.7	2.1	2.3	2.1	1.7-3.3	0.2-0.2	Not Known	Not Known	Not Known	Not Known	4.8	0.2-4.8									
Irrigated Area (ha)	2.50	0.83	4.33	3.30	1.65	2.57	2.10	3.31	4.54	1.65	2.42	4.54	3.09									
<u>Other Water Source (ha)</u>																						
Karez							0.83						0.83	1.03	0.83	1.65	1.03	30.36	1.69			
Spring																		13.95	2.79			
Others														4.54	1.24	1.16	1.16	15.94	2.28			
Irrig. Frequency (days)	10	15	11	11	15	12	10	13	14	13	13	10	12	16	10	16	17	18	600	13		
<u>Crop Share (%)</u>																						
Crop Sharing	25	33	50	72.58	50	25-72			25				25						365	25-72		
Owner	75	67	50	28.42	50	28-75	100	100	75	100	100	100	75-100	100	100	100	100	100	4,335	25-75,100		
<u>Domestic Water Source</u>																						
Surface Water						0%							0%	1				20%	9	18%		
Tubewell (Well)	1	1	1	1	1	100%	1	1	1	1	1	1	100%					0%	17	34%		
PHED Facilities						0%							0%					0%	9	18%		
Karez						0%							0%		1	1	1	80%	14	28%		
Spring						0%							0%					0%	1	2%		
Distance fr. home (ft)	100	-	3,280	200	3,280	1,715	1,500	1,000	330	300	1,000	1,300	905	0	1,640	1,500	20	932	22,600	461		
Consumption (Gal/d)	200	100	100	150	100	130	200	425	250	325	275	225	283	400	340	200	250	290	13,705	280		
<u>Agri. Infrastructure</u>																						
Tractor	hire	hire	hire	hire	hire	hire	hire	hire	hire	hire	hire	hire	hire	hire	hire	hire	hire	hire	hire	hire		
Spray	hire	hire	hire	hire	hire	hire	hire	hire	hire	hire	hire	hire	hire	hire	hire	hire	hire	hire	hire	hire		
Thresher	hire	hire	hire	hire	hire	hire	hire	hire	hire	hire	hire	hire	hire	hire	hire	hire	hire	hire	hire	hire		

Table G.19 (2)-5 Summarization of Social Environment and Farm Household Survey

District	Quetta	Dera				Murgu Kotal				Kach			
Dam	Brewarv	Kili Umar				Kaleer, Mallaza				Sara Ghungai			
Village	Kili Kirani	Be-1	Be-2	Be-3	Be-4	Be-5	Average	Da-1	Da-2	Da-3	Da-4	Average	
Household		121	145	524	774	1,400	1,452	200	145	170	300	169	180
Seeds or Seedlings													
Apple (pieces/ha)													
Grape (pieces/ha)													
Wheat (kg/ha)													
Vegetables (kg/ha)													
Onion (kg/ha)													
Fertilizer (kg/ha)													
Urea													
Apple													
Grape													
Wheat													
Vegetables													
Onion													
DAP													
Apple													
Grape													
Wheat													
Vegetables													
Onion													
Manure													
Apple													
Grape													
Wheat													
Vegetables													
Onion													
Plant protection (l/ha)													
Apple													
Grape													
Wheat													
Vegetables													
Onion													

Table G.19 (2)-5 Summarization of Social Environment and Farm Household Survey

District	Probin	Sanzali					Mastung					
Dam	Jigda	Sakhol					Murg, Afghan, Ladha					
Village	Jigda, Sharan	Sakhol, Haji Abdullah Jan					Murg, Afghan, Ladha					
Household	Ji-1	Ji-2	Ji-3	Ji-4	Ji-5	Average	Sa-1	Sa-2	Sa-3	Sa-4	Sa-5	Average
Seeds or Seedlings												
Apple (pieces/ha)	242	121		120	161	0						0
Grape (pieces/ha)					0	0					1,100	1,100
Wheat (kg/ha)		81	75		78	88	121				48	81
Vegetables (kg/ha)					0	13	5	21	9	17	250	250
Onion (kg/ha)					0	0					7	6
Fertilizer (kg/ha)												
Urea												
Apple					0	0						0
Grape					0	0						0
Wheat		484			484	322	322					0
Vegetables		726	322	242	430	216	303	122	169	268		0
Onion					0	0					48	48
DAP												
Apple					0	0						0
Grape					0	0						0
Wheat					0	0						0
Vegetables		1,210			1,210	0					242	242
Onion					0	0						0
Manure												
Apple	2,400			218	1,309	0						0
Grape					0	0					484	484
Wheat					0	0					484	484
Vegetables			81	218	150	4,015						0
Onion					0	0	1,290	6,740				1,770
Plant protection (l/ha)												
Apple		14.5		0.6	7.6	0.0						0.0
Grape					0.0	0.0						0.0
Wheat					0.0	0.0						0.0
Vegetables				0.6	0.6	2.9	1.8	2.1		4.8		0.0
Onion					0.0	0.0					3.2	0.5
												1.9

Table G.19 (2)-5 Summarization of Social Environment and Farm Household Survey 5 continued (3/3)

District	Kad Koocha II										Qila Abduljab					Total	Average				
	Mangi		Mulla Khurmi						Gazlena												
	Mal. Shapoch								Silad												
	Ma-1	Ma-2	Ma-3	Ma-4	Ma-5	Average	KII-1	KII-2	KII-3	KII-4	KII-5	KII-6	Average	Ga-1	Ga-2			Ga-3	Ga-4	Ga-5	Average
Household																					
Seeds or Seedlings																					
Apple (pieces/ha)						0	193	190	194	192	190	145	184	145	135			145	142	4,546	182
Grape (pieces/ha)						0							0						0	6,650	950
Wheat (kg/ha)	61	61	127	49	85	77							0	68	24	29	35	29	37	1,678	76
Vegetables (kg/ha)						0							0						0	1,048	131
Onion (kg/ha)	9		16	8		11	24		15	18	16		18						0	125	13
Fertilizer (kg/ha)																					
Urea						0							0						0	451	226
Apple						0							0						0	0	0
Grape						0							0						0	0	0
Wheat	121	181	191	73	181	149							0			61			61	2,007	182
Vegetables						0							0						0	2,442	271
Onion	363		403	182		316	121		97	18			79						0	1,280	160
DAP						0							0						0	242	242
Apple						0							0						0	0	0
Grape						0							0						0	0	0
Wheat		61	101		91	84							0						0	253	84
Vegetables						0							0						0	1,210	1210
Onion	181		302	40		174			58	5		32							0	828	138
Manure						484	4,800			1,512	800		2,371	968	161			484	538	32,358	1,541
Apple						0							0						0	10,244	1,707
Grape						0							0						0	968	323
Wheat						0							0			242		242	242	11,879	1,980
Vegetables						0							0						0	3,540	1,770
Onion						0							0						0		
Plant protection (lit/ha)																					
Apple			4.8			4.8	4.0			14.5	12.1	4.8	8.9	8.1			9.7		8.9	144.3	7.6
Grape			0.0			0.0							0.0						0.0	3.0	3.0
Wheat			0.0			0.0							0.0						0.0	23.9	4.8
Vegetables			0.0			0.0							0.0						0.0	6.5	1.6
Onion	1.2					1.4							0.0						0.0		

Table G.19 (2)-6

Summarization of Social Environment and Farm Household Survey

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(1/3)

District	Quetta					Dura					Murgh Kotal					Kach						
Dam	Brewary					Kili Umar					Kaccer, Mallazai					Sara Churgau						
Village	Br-1	Br-2	Br-3	Br-4	Br-5	Average	Da-1	Da-2	Da-3	Da-4	Average	Mu-1	Mu-2	Mu-3	Mu-4	Average	Ka-1	Ka-2	Ka-3	Ka-4	Ka-5	Average
Household	1	1	2	1	1	1.2		1	1	1	0.8	1	2		3	1.5	1	5	1	3	2	2.4
Family Labor																						
Male						0.0					0.0					0.0						0.0
Female						0.0					0.0					0.0						0.0
Children						0.0					0.0					0.0						0.0
Total mandays/year	68	135	180	45	90	104		136	180	67	96	180	60	165	165	101	66	450	150	56	252	195
Hired Labor																						
Male	10	8	10	5	7	8.0	5	11	7	2	6.3	1		2	6	2.3	3		3	7	2	3.0
Female						0.0					0.0					0.0						0.0
Children						0.0					0.0					0.0						0.0
Total mandays/year	450	500	800	360	258	474	63	370	410	284	282	365		180	210	189	180		90	330	14	123
Household Income (Rs)																						
Agriculture																						
Annual Crops	40,000			1,300	75,000	23,260	6,400	20,000			6,600	11,000	12,000	30,000	180,000	58,250			3,500	8,000	7,750	3,850
Perennial Crops	100,000	40,000	60,000	4,400	125,000	65,880		100,000	200,000	70,000	92,500	32,000				8,000	10,000	19,000		28,000	14,000	14,200
Livestock						0					0					0						0
Forestry						0					0					0						0
Seasonal Labor						0					0					0						0
Other Business	50,000	54,000	72,000	60,000		47,200	35,000			100,000	33,750	80,800	62,400	51,600		48,700	31,200	176,400	30,000	120,000	72,000	85,920
Total	150,000	134,000	132,000	65,700	200,000	136,340	41,400	120,000	200,000	170,000	132,850	123,800	74,400	81,600	180,000	114,950	41,200	195,400	33,500	156,000	93,750	103,970
Family Expenditure (Rs)																						
Food	68,000	60,000	61,000	41,000	60,000	58,000	24,000	36,000	48,000	52,000	40,000	60,000	52,800	50,000	66,000	57,200	18,000	60,000	12,000	90,000	60,000	48,000
Education	16,000	6,000	1,050			4,610	6,000	14,000		24,000	11,000	6,000	1,500	13,000	30,000	12,625	500	4,000	2,000	1,000	1,000	1,700
Health	14,000	6,000	10,000	5,000	2,000	7,400	1,500	1,000	30,000	20,000	13,125	20,000	3,000	4,000	15,000	10,500	3,000	60,000	4,000	8,000	1,500	15,300
Electricity	7,000	25,800	3,600	1,500	72,000	21,980	300	34,000	54,000	23,000	27,825	2,000	800	960	10,500	3,565	4,800	7,200	3,600	3,000	1,400	4,000
Fuel for Cooking	6,000	6,000	6,000	1,500		3,900	3,000	5,000	1,000	3,600	3,150	5,000	1,200	3,600	20,000	7,450	6,000	7,200	3,000	4,000	3,600	4,700
Transporting/Travel	11,600	12,000	28,000	12,000	24,000	17,520	300	5,000	3,000	24,000	8,075	3,600	600	3,000	26,000	8,300	2,400	12,000	1,000	2,000	3,600	4,200
Others	20,000	12,000	20,000	5,000	20,000	15,400	5,000	15,000	10,000	20,000	10,400	25,000	600	6,000	10,000	10,400	5,000	30,000	4,000	25,000	10,000	14,800
Total	142,600	127,800	129,650	66,000	178,000	128,810	40,100	110,000	146,000	166,600	115,675	121,600	60,500	90,560	177,500	110,040	39,700	180,400	29,600	133,000	81,100	92,760

Table G.19 (2)-6 Summarization of Social Environment and Farm Household Survey

District	Pashun					Sanzali					Mastung								
	Jigda	Jigda	Jigda	Jigda	Jigda	Jigda	Sahibzada, Haji Abdullah Jan	Sahibzada, Haji Abdullah Jan	Sahibzada, Haji Abdullah Jan	Sahibzada, Haji Abdullah Jan	Sahibzada, Haji Abdullah Jan	Sahibzada, Haji Abdullah Jan	Murgi, Afghan, Ladha	Murgi, Afghan, Ladha	Murgi, Afghan, Ladha	Murgi, Afghan, Ladha	Murgi, Afghan, Ladha	Murgi, Afghan, Ladha	
Village	Ji-1	Ji-2	Ji-3	Ji-4	Ji-5	Average	Sa-1	Sa-2	Sa-3	Sa-4	Sa-5	Average	Sk-1	Sk-2	Sk-3	Sk-4	Sk-5	Sk-6	Average
Household	1	3	1	1	1	1.4	3	1	2	3	1	2.0	3	3	2	2	2	1	2.2
Male						0.0						0.0		1		1		1	0.5
Female						0.0						0.0							0.0
Children						0.0						0.0							0.0
Total mandays/year	210	200	40	52	38	108	169	165	270	405	90	220	360	270	480	300	240	150	300
Skilled Labor																			
Male	4	1	2	1	1	1.8	1	3	1	1		1.2							0.0
Female						0.0						0.0							0.0
Children						0.0						0.0							0.0
Total mandays/year	96	150	540	20	210	203	23	170	365	365		185							0
Household Income (Rs)																			
Agriculture																			
Annual Crops	26,250	69,000	10,000	15,000	24,050	24,050	104,900	110,000	70,000	200,000	3,150	97,610		27,000	78,000	15,000	24,000		24,000
Perennial Crops	80,000				16,000	16,000		6,000				1,200	10,000		10,000	8,050	12,000	6,600	7,775
Livestock					0	0		8,400				1,680			20,000	10,000		12,000	7,000
Forestry					0	0						0							0
Seasonal Labor	30,000			16,000	9,200	9,200						0							
Other Business	150,000			150,000	60,000	60,000		40,000	60,000		82,000	36,400	40,000						11,333
Total	80,000	56,250	219,000	26,000	165,000	109,250	104,900	164,400	130,000	200,000	85,150	136,890	50,000	57,000	88,000	47,050	102,000	40,600	64,108
Family Expenditure (Rs)																			
Food	50,000	24,000	100,000	12,000	100,100	57,220	36,000	66,000	70,000	72,000	30,000	54,800	36,000	36,000	32,000	30,000	40,000	24,000	33,000
Education	7,500	3,600	10,000		2,400	4,700	6,000	10,800	2,000	1,500	1,000	4,260			700	3,000	1,500	1,000	1,033
Health	4,000	9,000	20,000	5,000	12,000	10,000	2,000	10,500	12,000	10,000	6,000	8,100	5,000	500	5,000	4,000	5,000	1,000	3,417
Electricity	1,200	1,800	3,000	500	6,000	2,500	28,400	32,000	28,800	50,000	1,500	28,140	420	17,000	18,000	600	30,000	1,200	11,203
Fuel for Cooking	3,000	3,800	40,000	3,500	12,800	12,620		5,600	4,000	5,000	4,000	3,720		1,000	700	300	5,000		1,167
Transporting/Travel	1,000	4,000	24,000	2,000	12,000	8,600	1,000	5,000	2,000	6,000	1,000	3,000	720	500	600	1,500	1,200	2,000	1,087
Others	10,000	7,000	20,000	2,000	15,000	10,800	23,000	20,000	7,000	25,000	30,000	21,000	1,000	5,000	5,000	2,500	13,000	4,000	5,083
Total	76,700	53,200	217,000	25,000	160,300	106,440	96,400	149,900	125,800	169,500	73,500	123,020	43,140	60,000	62,000	41,900	95,700	33,200	55,990

Table G.19 (2)-6 Summarization of Social Environment and Farm Household Survey

District	Kad Koccha II												Qila Abdullah		Total	Average			
	Miangi						Ghazfonia												
	Village						Silad												
Household	Mal Shapch						Mulla Khurmi						Average						
	Ma-1	Ma-2	Ma-3	Ma-4	Ma-5	Average	Kil-1	Kil-2	Kil-3	Kil-4	Kil-5	Kil-6	Average	Ga-1	Ga-2	Ga-3	Ga-4	Ga-5	Average
Family Labor																			
Male	1	2	1	1	2	1.4	5	2	3	2	5	3	3.3	1	2	1	1	3	1.6
Female	1					0.2	4						0.7						0.0
Children	2					0.4	1						0.2						0.0
Total mandays/year	156	90	30	135	60	94	900	315	300	84	115	270	331	60	80	180	180	540	208
Hired Labor																			
Male			4	2	2	1.6		8	1	8		2	3.2	1					0.2
Female						0.0							0.0						0.0
Children						0.0							0.0						0.0
Total mandays/year			120	90	20	46		68	270	90		240	111	30					6
Household Income (Rs.)																			
Agriculture																			
Annual Crops	15,750		65,000	2,240		16,598	80,000	67,000	107,500	60,000	120,000		72,417	5,000	7,000		1,400	20,000	6,680
Perennial Crops						0	80,000	130,000	50,000	50,000	10,000	150,000	70,000			10,000			2,000
Livestock		5,000				1,000						60,000	10,000						0
Forestry						0							0						0
Seasonal Labor		8,000		4,200	21,000	6,640							0		52,000	29,000			16,200
Other Business			30,000			6,000	48,000						8,000	99,000			85,000	72,000	51,200
Total	15,740	13,000	65,000	36,440	21,000	30,238	160,000	245,000	107,500	110,000	130,000	210,000	160,417	104,000	59,000	39,000	86,400	92,000	76,080
Family Expenditure (Rs.)																			
Food	6,000	8,000	30,000	20,000	12,000	15,200	36,000	84,000	50,000	30,000	40,000	36,000	46,000	60,000	30,000	24,000	36,000	48,000	39,600
Education				800		160	200	4,000	2,500	1,000	1,500	2,400	1,933	3,000	1,000	1,000		2,000	1,400
Health	500	300	2,000	2,000	1,000	1,160	5,000	15,000	3,000	4,000	6,000	1,500	5,750	10,000	5,000	3,000	20,000	6,000	8,800
Electricity		1,000	17,500	5,600	1,200	5,060	80,000	75,000	6,000	40,000	40,000	60,000	50,167	2,000	1,200	240	600	500	908
Fuel for Cooking			5,000	3,000		1,600	1,000	5,000	3,000	3,000	25,000	15,000	8,667	7,000	4,000	300	7,000	10,000	5,660
Transporting/Travel	1,500	1,000	2,000	2,000	500	1,400	1,000	15,000	4,000	2,000	2,500	4,800	4,883	5,000	8,000	500	6,000	12,000	6,300
Others	7,000	2,000	5,000	2,000	2,500	3,700	3,000	20,000	15,000	10,000	12,000	25,000	14,167	10,000	8,000	9,000	12,000	10,000	9,800
Total	15,000	12,300	61,500	35,400	17,200	28,280	126,200	218,000	83,500	90,000	127,000	144,700	131,567	97,000	57,200	38,040	81,600	88,500	72,468

Table G.20 **Area and Population in Balochistan by District**
1981 Census

Division / District	Area (km ²)	Both sex	Male	(1000 number)		
				(%)	Female	(%)
Balochistan Province	347,190	4,331	2,284	52.74	2,047	47.26
Quetta Division	64,310	881	469	53.23	412	46.77
Quetta	2,653	382	213	55.76	169	44.24
Pishin	11,112	379	195	51.45	184	48.55
Chagai	50,545	120	61	50.83	59	49.17
Zhob Division	46,200	749	400	53.40	349	46.60
Zhob	27,129	361	194	53.74	167	46.26
Loralai	19,071	388	206	53.09	182	46.91
Killa Saifullah	(a)	(a)	(a)	(a)	(a)	(a)
Musa Khail	(a)	(a)	(a)	(a)	(a)	(a)
Barkhan	(a)	(a)	(a)	(a)	(a)	(a)
Sibi Division	27,055	305	155	50.82	150	49.18
Sibi	9,285	130	67	51.54	63	48.46
Ziarat	(a)	0	(a)	(a)	(a)	(a)
Kohlu	17,770	175	88	50.29	87	49.71
Dera Bugti	(a)	0	(a)	(a)	(a)	(a)
Nasirabad Division	16,946	700	351	50.14	63	48.46
Jaffarabad	5,832	395	201	50.89	194	49.11
Nasirabad	(a)	0	(a)	(a)	(a)	(a)
Jhal Magsi	11,114	305	150	49.18	155	50.82
Bolan	(a)	0	(a)	(a)	(a)	(a)
Kalat Division	138,033	1,044	545	52.20	499	47.80
Kalat	12,517	341	171	50.15	170	49.85
Mastung	64,891	0	(a)	(a)	(a)	(a)
Khuzdar	(a)	387	204	52.71	183	47.29
Kharan	48,051	128	70	54.69	58	45.31
Lasbela	12,574	188	100	53.19	88	46.81
Mekran Division	54,646	652	364	55.83	288	44.17
Turbat	22,539	379	217	57.26	162	42.74
Gawader	15,216	161	88	54.66	73	45.34
Panjgur	16,891	112	59	52.68	53	47.32

Source: Population Census Organization

Note: (a) means that separate information is not available.

Total may not tally due to rounding off.

Table G.21 Selected Social Indicator

Indicator	Balochistan	Pakistan
Life expectancy at birth 1990 (No. of Years)	58.2	60.1
Population with access to safe water 1988 (%)		
Rural	22.0	40.0
Urban	38.0	83.0
Population with access to sanitation 1989 (%)		
Rural	5.0	10.0
Urban	30.0	51.0
Literacy rate (%) 1993 (1981)	20.9 (10.3)	35.5 (26.2)
Male	29.3 (15.2)	45.3 (35.0)
Rural	23.5 (9.8)	36.8 (26.2)
Urban	55.2 (42.4)	63.7 (55.3)
Female	11.8 (4.3)	24.7 (16.0)
Rural	8.3 (1.7)	16.0 (7.3)
Urban	30.4 (18.5)	45.9 (37.3)
Primary Education 1990 Girls enrolment %	20	35
Daily Calorie supply 1988 (% of requirement)	83	100
Infant mortality rate 1989 (per thousand live births)	200	100
Low-birth weight babies (%) 1988	30	25
One year old immunized	41	71
Tatnus Toxoid coverage of expectant mothers (%) 1990	22	71
Maternal mortality rate 1988 (per 100,000 live births)	500 - 700	500
Fertility rate 1990	6.5	6.0
Population per doctor 1988	4,525	2,920
Population per nurse	26,535	10,500

Source : Concept Eight Five Years Plan, Government of Balochistan

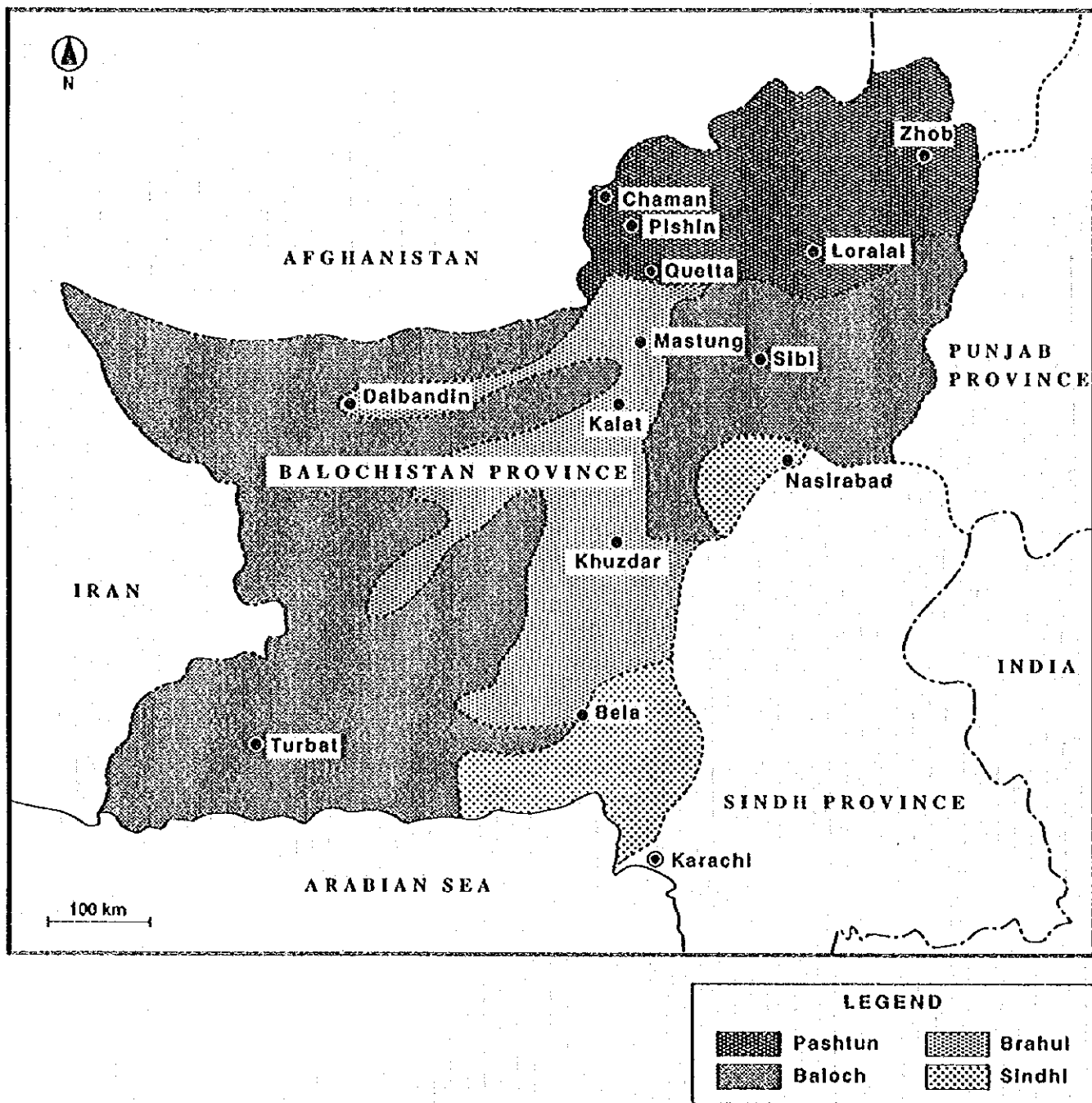


Fig. G.1 Distribution of Major Ethnic Groups in Balochistan