2013

Baseline Survey Chagai

SMAAJ

ISLAMIC RELIEF

Administrative Map, Chagai

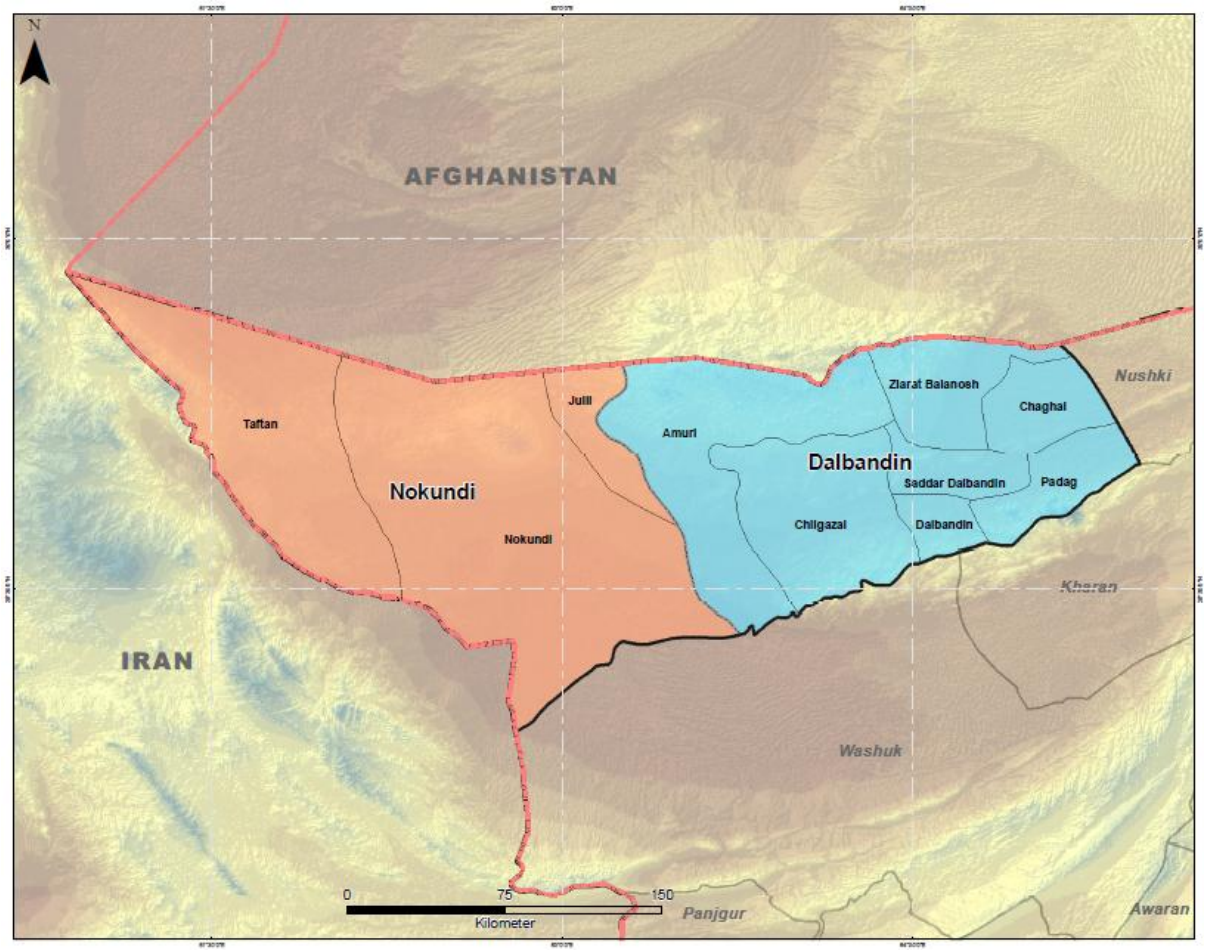


Table of Contents

Abbreviations and Acronyms

BHU	Basic Health Unit
CD	Civil Dispensary
I&PD	Irrigation and Power Department
MDGs	Millennium Development Goals
MTDF	Medium term Development Framework
NPRSP	National Poverty Reduction Strategy Paper
P&DD	Planning and Development Department
PKR	Pakistan Rupee
GoB	Government of Balochistan
GoP	Government of Pakistan
MCH	Mother and Child Health
MCM	Million Cubic Meter
MICS	Multiple Indicators Cluster Survey
DCRs	District Census Reports
NIPS	National Institute for Population Studies
FBS	Federal Bureau of Statistics
PHED	Public Health Engineering Department
PHIS	Pakistan Household Integrated Survey
PRP	Public Representative Program
PSDP	Public Sector Development Program
PTCL	Pakistan Telecommunication Company Limited
LFS	Labor Force Survey
RHC	Rural Health Center
WSS	Water Supply Scheme
WMA	Water Management Association

Acknowledgements

This baseline study could be made possible due to efforts and involvement of many individuals and organizations that spared their invaluable time to give their inputs for the study. It is hard to imagine a study / research without invaluable inputs from direct or indirect stakeholders. We are grateful to the respondents of the baseline survey for giving the field team their time and inputs. Different government departments which provided secondary data for this baseline survey deserve special appreciation.

Quality improvements in the baseline survey report owe countless thanks to offices of Islamic Relief at Quetta and Islamabad. Special mention is made to Mr. Sharif, Area Progrmme Manager and Mr. Raza who thoroughly reviewed draft of the report.

I appreciate Mr. Mohammed Ayub, our important team member, who handled IT related tasks brilliantly. Finally, I would like to thank Mr. Arif Hussain Shah, our lead consultant, who lead all process of this baseline study and prepared this report.

Rasheed Shah

ED SMAAJ, Quetta

Foreword

Identification of projects, their designing and subsequent implementation is based on information collected from a variety of sources. Further, setting targets and gauging performance is impossible without baseline figures. If a project is implemented without getting to know baseline data, at the end of the day it will be unknown how much the project contributed to a particular sector for which the project was meant for.

Bearing in view importance of baseline data, Islamic Relief Pakistan decided to conduct baseline survey for the following projects/program:

- Initiatives for Sustainable Livelihood Opportunities
- Water and Sanitation
- Safe and Clean Drinking Water

Main areas covered in the baseline covers livelihood, agriculture, livestock, water and sanitation, health, community organizations and awareness status. A number of indicators were selected in the aforementioned areas to gauge situation in each of the area.

Executive Summary

Balochistan is a vast land mass and has its own geographical and socio-political peculiarities. Low population density (per square kilometre) with scattered clusters over hard terrain poses great development challenges.

With regard to development indicators of various sectors, there are not only gender but district and union council level disparities. Further, some sectors have remained neglected, particularly sanitation and productive sectors (agriculture, mines and mineral and livestock etc.) for sustainable livelihood. Though all communities have access to drinking water but quality and quantity do not meet requirement in many instances. This baseline study aims to assess situation of access to water and sanitation facilities, availability of clean drinking water, health and hygiene and sustainable livelihood in the following union councils: Chagai, Padag, Chilghazi, Jully, Amuri and Ziarat Balanosh. Literature review and consultation with concerned departments for expert views were part of scope of the study, besides primary data collection.

Impact of development interventions by government or development partners is not conspicuous by its presence in Chagai, which has remained a relatively neglected district. Vastness of land with extreme weather conditions having low annual precipitation, the lowest population density per square kilometre, thin communication infrastructure, scarcity of water for both drinking and agriculture purposes, low literacy rate and poverty are major challenges in Chagai district. Remedial measures to meet the challenges have not been taken.

Households in all union councils are mostly kacha (mud made). Three quarters of families, which are engaged in agriculture own agriculture land and the rest work as bazgar (tenant). Means of livelihood of people vary from labor work to agriculture, livestock and personal business. 76.6% households of the area earn their household income through labor work, agriculture and livestock activities.

In case of illness in the livestock, families use traditional means of healing because veterinary services are extremely scant. Preventive measures against livestock diseases are not very common and support from government facilities almost non-existent. Only 17% of the households in the target UCs have livestock as their source of family income. For fodder, rangelands are relied upon: those who grow their own fodder are 33% in Padag, 16.7% in Chagai and 10.5% in Ziarat Balanosh while in Jully, Amuri and Chilghazi 100% reliance is on

rangelands. Quantity of fodder is not sufficient in most of the cases (70%). For sustainability of rangelands and their replenishment, efforts are required both at community and department level, otherwise future survival for livestock and availability of fuel wood would be a problem.

Data collected on household assets like donkey/ oxen cart, tractor, motor car, motor bike, bicycle, radio, TV, computer, fridge, electricity and generator showed that most families were poor because presence of these items was insignificant in most of the cases. Average (of all six union councils) household income was Rs. 10246.9 and average monthly expenditure came out to be Rs. 9750.3. Few skills were reported to be possessed by the household members, which included embroidery, driving, teaching and mechanical work (in garage / workshops). There is lot of room to impart different types of skills to initiate home-based enterprises to support livelihood activities. Participants of FGDs, especially women, showed eagerness to learn skills but added that any livelihood skill imparted should facilitate working from home.

Knowledge and awareness level were also assessed on health and hygiene issues relating to bodily health and environment. Results to health and hygiene questions were mixed ranging from very good knowledge to poor knowledge – suggesting advocacy for raising awareness on health and hygiene. Incidence of eye infection in all the union councils was significant while presence of health facility for eye treatment was reported to be extremely low.

Access to drinking water is wide spread but improved water sources[1] constitute about 50% only. Wells are main source of getting drinking water and in majority cases when water source is outside, bringing water from the sources take up to 30 minutes. Clean drinking water is available to 76.7% population in all union councils. Water treatment practice on the whole was 31.5%. In 80% of the cases, taste of the drinking water was Ok. Out of about 76% of the respondents who could tell whether water they used made lather easily, 49% said water made lather easily: 24% didn't know about it.

Access to improved toilet facilities was found to be very limited in all union councils. Mostly people used open spaces / fields. Jully: 90%, Padag: 92%, Amuri: 70%, Chilghazi: , Chagai: 62% and Ziarat balanosh: 100% and Chagai: 62.5%. If toilet facilities are not common then obviously presence of sewerage system will surely be almost non-existent. Hand washing is practiced by many but it is not safe because hands are washed without soap on the whole. Before eating the

proportion of without soap hand washing is 82.2% and after toilet use situation is a bit better: 33.3% use soap.

Incidence of water borne diseases is the highest in Ziarat Balanosh (50%). In other UCs too, it is quite alarming: Chagai (44.7%), Padag and Chilghazi (about 24% each). In Jully and Amuri situation is better where incidence of water borne diseases is 11.8% and 7.5% respectively. Prevalence of diseases like Typhoid, Hepatitis, Polio, and Meningitis has been of worrying proportion at 25%.

Presence of community organizations were confirmed by 26% of the respondents. 50% of the COs was reported to be non-functional. Further, performance rating of these COs was also not very high. This rating stood at 16 percent.

Six union councils selected for baseline survey are mostly without electricity: only 0.4% of the households reported to have electricity connection. Presence of solar light, wind energy use and solar hand pumps in the union councils is very limited: no instance of street light installation was reported in Ziarata Balanosh. Presence of wind energy installation, solar home systems and other sources of energy in all the union councils is nominal.

Background

This baseline survey has been conducted for the following three projects, which are being implemented by Islamic Relief Pakistan in six union councils of Chagai district.

1. Initiatives for Sustainable Livelihood Opportunities (ISLO) in 4 Union Councils (Amori, Chilgazi, Chagai, Ziarat Balanosh) District Chagai, Balochistan
2. Chagai Water and Sanitation Project (CWSP), in 5 Union Councils (Chalgazi, Ziarat Balanosh, Jully, Amori and Padag) District Chagai, Balochistan
3. Safe Clean Drinking Water Project (SCDW), in 2 union councils (Amori and Julli) district Chagai, Balochistan

Initiatives for Sustainable Livelihood Opportunities (ISLO) in 4 Union Councils (Amori, Chilgazi, Chagai, Ziarat Balanosh) District Chagai, Balochistan project is in direction with Millennium Developmental Goal (MDG) eradicating extreme poverty and hunger and ensuring environmental sustainability with IR Strategic Focus Area II of empowering Communities i.e. enabling the sustainable development of the communities work with through integrated development underpinned with sustainable livelihoods, social justice and environmental custodianship through proposed project has been considered.

Chagai Water and Sanitation Project (CWSP) in 5 Union Councils (Chalgazi, Ziarat Balanosh, Julli, Amori and Padag) and Safe Clean Drinking Water Project (SCDW) in 2 union councils (Amori and Julli) District Chagai, Balochistan project is in line with MDG 7 that stresses upon ensuring environmental sustainability and reduction by half the proportion of people without sustainable access to safe drinking water and basic sanitation with IR strategic Focus area on access to basic social services including water, sanitation, hygiene and health.

Safe Clean Drinking Water (SCDW) Project aims to improve the health conditions of the inhabitants of District Chagai by introducing innovative technologies to improve the access to clean and safe drinking

water. Two Union Councils Amori and Jully have been selected for the predominant use of open-wells which are regularly contaminated by animals drinking from them as well as air-borne bacteria. Since the walls of these open-wells are not lined, the water being pulled out falls back into the well carrying dust, sand and animal excreta with it, resulting in the contamination of the well.

Goal and Objectives of the Baseline Survey

Goal

The goal of the assignment is assess situation of different sectors in target six union councils of Chagai district with regard to selected sectors of the baseline

Purpose of the baseline

The purpose of the base line survey of the projects is to gather the basic information and data about the targeted communities. This includes statistics on the number of villages, population (age/gender disaggregated), information of existing basic services, number of existing community organizations/structures, their level of activeness, and general awareness and vulnerability and poverty profiles of the targeted population. The data formulated and compiled into a report and analyzed and used to appropriately implement community level interventions, and will also provide a benchmark for midterm reviews and planned impact assessment exercises.

The study will inform the project about household profile in targeted areas in order to evaluate the effectiveness of the intervention in targeted areas. The baseline will also gauge the progress made by the project after its phasing out. Information obtained will be incorporated into the project work plan. The information obtained will also be used to enrich project indicators to evaluate the effectiveness of the strategies and activities planned. Islamic relief Pakistan aims at contracting a specialized team of researchers for the assessment that will be conducted in coordination with Area Management and local stakeholders in target areas.

Objectives

- Establish a pre-intervention snap shot against key indicators for comparison with subsequent reviews and studies including the End-

of-Project Evaluation of Impact Assessment. (The baseline can enrich and/or add new indicators

- Establish concrete benchmark and recommendations for replication of the action. The evaluation will be carried out at the end of the project against the identified bench marks and recommendations will be given for the potential action within the area.
- Establish benchmarks and indicators for monitoring and evaluation of the activities
- Generate statistics on demographic features of the target areas and for analysis of livelihood issues and water and sanitation issues in the target population
- Provide factual information for designing, planning and implementing project activities efficiently and effectively.
- Reflect on the power dynamics structure pre-existent in the target areas and risks which are likely to be faced by the project. Baseline should also suggest risk mitigation strategies for the risks identified.

Format of the Report

The report is divided into modules as outlined in the table of contents. Findings of literature review, based on secondary sources of information, have been presented at district level. Overall situation in sector has been presented under sectoral headings while the results of the baseline survey are presented union council wise as per modules in the table of contents.

Methodology

Analysis of Secondary Data / Literature Review

The assignment of comprehensive need assessment and resource / activity mapping comprised of two major steps: literature review and primary data collection to know present status of various sectors as well as to set baseline for each sector. The documents reviewed included Development Statistics of Balochistan, Agriculture Statistics of Balochistan, Multiple Indicator Cluster Survey (MICS), Balochistan, District Development Profile of Chagai, District Development Atlases of Chagai and few other relevant documents. Review of these documents helped assess situation

of sectors, which have been selected for three projects of this baseline survey, at district level. MICS survey provided information on education, health, water and sanitation. The questionnaire of MICS also served as guideline to develop questionnaire for this baseline survey.

Sample Design

Two-stage cluster sampling (probability sampling) has been used as it is cost effective and suitable for such surveys. At first stage villages/settlements (the primary sampling units-PSUs) have been selected and at second stage households (secondary sampling units) are selected from the PSUs. Confidence interval has been kept at 95% and margin of error (expressed in relative terms) to be tolerated at 10%. Non-response adjustment factor has also been taken into account. A total of 270 households were surveyed in this baseline. Sample distribution across the target union councils is as under.

Table 1 Distribution of Sample

S. No.	Union Council	Sample
1.	Amuri	50
2.	Chilghazi	40
3.	Jully	40
4.	Padag	50
5.	Ziarat Balanosh	40
6.	Chagai	50
Total		270

Questionnaires for Baseline Survey and FGD

A questionnaire was developed to collect household level information for baseline survey. It comprised of the following modules:

- Household listing
- Household income and Assets
- Livestock and agriculture practices
- Individual income and skills
- Household expenditure
- Awareness about health and hygiene
- Eye care
- Water and sanitation
- Hand washing
- Incidence of water borne diseases

- Community organization
- Renewable energy

The questionnaire was refined in discussions with the IR teams. A pre-test was conducted to ensure accuracy and to check response of the interviewees. This step helped confirm skips introduced after certain questions.

These modules were so designed to cover intervention areas of three projects being implemented by IR. To cover qualitative aspect of the baseline survey, focus group discussions were planned. The FGDs, conducted to cover qualitative aspect of the baseline, had three categories of the participants: men, women and children. For each category, separate FGDs were organized.

Discussions were also held with officers of different departments to get their feedback on focus areas of the baseline survey.

Field Staff Selection and Training

Teams were selected for the data collections. Each team comprised of two persons. Before sending the teams for field work, they were given one-day training. During the training every part of the questionnaire was explained and discussed in detail. In order ensure that the teams understood the questionnaire well, they were asked to explain various questions. Skips in the questionnaires were also discussed and mode of conducting the fieldwork explained. The teams were provided set of instructions for their reference in Urdu.

Quality Control

In order to ensure quality, proper training of the field staff was conducted followed by pilot testing of the questionnaire. During the field work, questionnaires completed were checked regularly both in field and office for probable mistakes. Necessary instructions were given to the field staff as and when required. Written instructions were also given to each of the field staff so that they could refer to key points when needed. Data processing software was reviewed with reference to different validation checks and especially the skips for certain questions.

Data Management

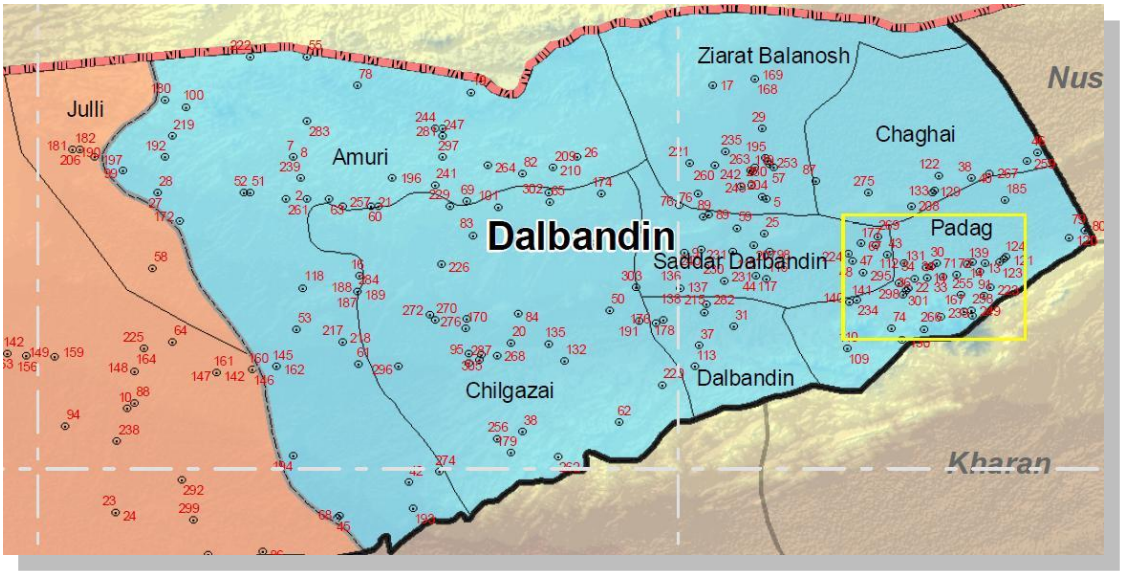
A data entry application was developed in MS Access. Data validity checks and skips in the questionnaires were tested for logic and

sequence. After preliminary data cleaning, questionnaires were re-examined to correct any error in transcription. Detailed checks were performed in SPSS (Statistical Package for Social Sciences) for pointing out any inconsistency and mark outliers.

Chagai District

Area and Population

Chagai comprises of 11 union councils[2] collectively having population of 202, 564 (108, 736 males and 93,828 females) as per Census of 1998. Population density per square kilometer in Chagai district is 4 with average household size of 6.7 persons. The terrain of the district feature highlands, plains and desert. Population is scattered and settlement may be as small as a cluster of 4 households. This pattern of scattered population makes provision of public services very difficult and costly too, at the same time. Among 6 selected union councils (Chagai, Padag, Chilghazi, Jully, Amuri and Ziarat Balanosh), Jully is the least populated. The following map shows spread of settlements.



Since census of 1998, population increased in Chagai district is as under:

Table 2 Projected Population, Chagai District

Year	Male	Female	Total
1998	108,736	93,828	202,564
2010	143,814	124,096	267,910
2011	146,737	126,619	273,356
2012	149,660	129,141	278,801

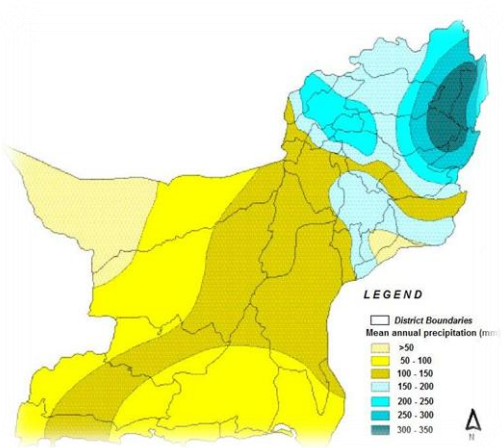
[2] Notification, dated Oct 18, 2012 by LGRD department, Balochistan

Year	Male	Female	Total
2013	152,583	131,663	284,246
2014	155,506	134,186	289,692
2015	158,429	136,708	295,137

NIPS Population Projection

44% population is of age group 18-60 years. Children under 15 years and adults over 65 years of age are considered dependent. In Chagai district dependency ratio is very high (about 50%[3]). In tribal set up of Chagai, women of all age groups are also dependent; hence if women are also included the dependency ratio for Chagai will be further high.

Geography and Climate



Geography of the district features mountains, plains and desert area (on the north). Overall living conditions are not very friendly with has dry climate and scarcity of water. In western part of Chagai desert climatic condition are more severe. Drought when hits, plays havoc with livelihood activities forcing people to migrate. *The high-lands comprise the Chagai and Koh-i-Sultan Ranges* (which are devoid of any significant vegetation) *in the north, the Sarlath Range in the east and the Mir-Jawa, Kachau and Ras-Koh Hills (the highest mountain in the district) on the south-west border.*[4] In fact, it is one of those districts of Balochistan which receive very nominal rainfall being out of monsoon region. The ground elevation ranges between 486 and 2800 meter above mean sea level. In January temperature ranges from 13^0 C during the day to 0^0 C at night while in July the temperature reaches to scorching 45^0 C during the day and at night it is 27^0 C. Most part of the year is dry – slight precipitation takes place in winter and it is irregular and scanty. There are two water basins in Chagai: haman-e-mashkel and haman-e-lora.

[3] Census 1998

[4] District Development Profile, Chagai 2011

Recharge, use and balance of groundwater available in these water basins are given below.

Table 3 Average Recharge, Use and Balance, Water Basins

Basin	Average Recharge	Use				Balance
		People	Livestock	Agriculture	Total	
Hamun-e-Lora	0.04	0.001	0.001	0.139	0.141	-0.101
Hamun-e-Mashkel	0.3	0.008	0.007	0.012	0.027	0.273

Source: a. Groundwater Resources of Balochistan Province Pakistan by Directorate General Hydrogeology WAPDA, Lahore (June 1993) b. Supporting Public Resource Management in Balochistan by Department of Irrigation and Power (2006)

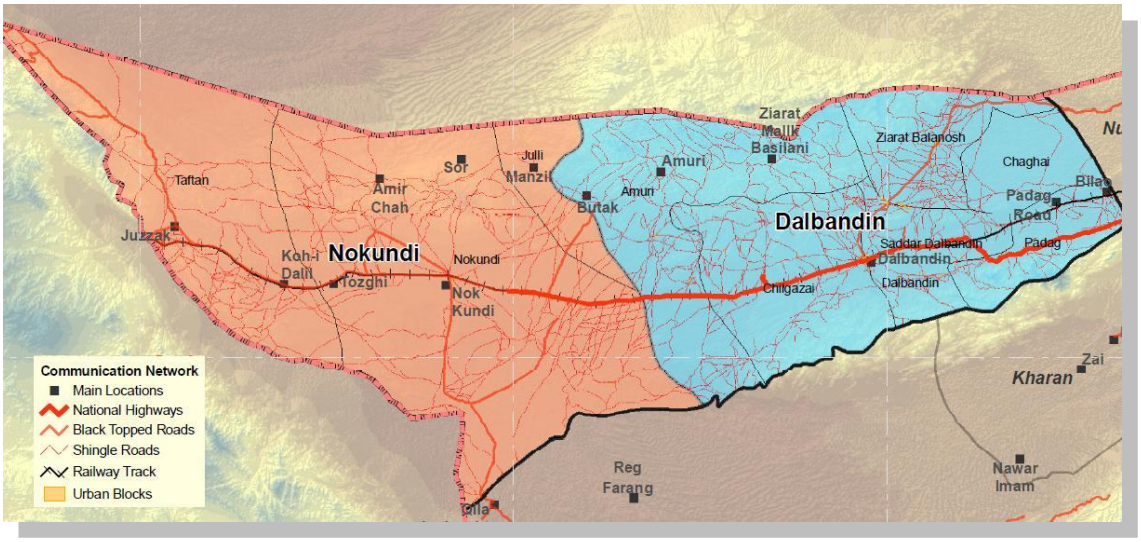
In Balochistan, over past decade increased and unchecked extraction of ground water through tube wells has put in danger availability of groundwater for future generations. Efficient use of groundwater resources is a key to survival in future. Agriculture and livestock development in Chagai, which is a water scarce area, need special consideration with regard to efficient use of water.

Economic Infrastructure

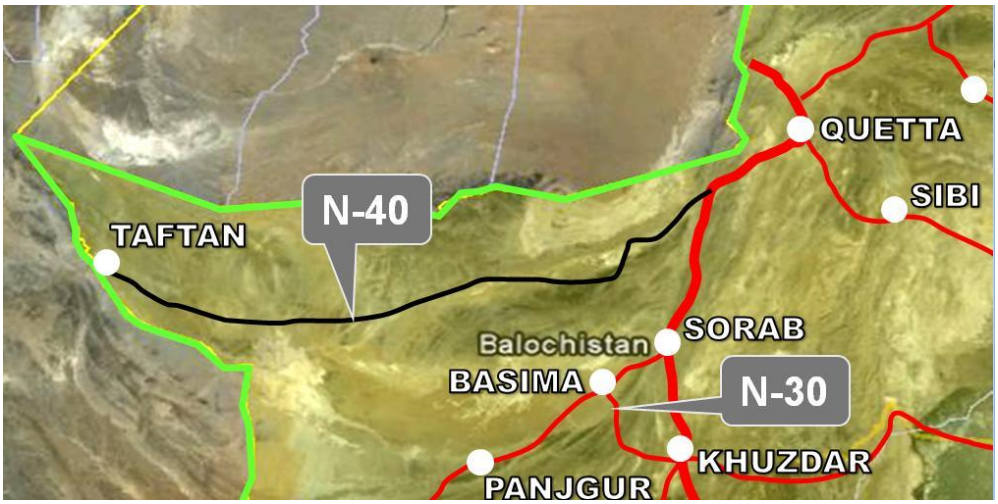
Chagai being one of the larger districts of Balochistan has relatively thin socio-economic infrastructure. Black-topped roads in Chagai (including Nushki[5]) were only 437 kilometers while shingle roads were 1162 kilometers[6]. The map below shows spread of road network in Chagai.

[5] Separate data for Chagai is not avialable

[6] Development Statistics of Balochistan, Bureau of Statistics 2009



Black topped road density per square kilometer is 0.01 and that of shingle road is 0.03. Capacity and quality of road is not very good, in general. Roads, whether shingle or black topped, in rural areas of Chagai provide usual connectivity rather than providing access to markets or mining sites. Having low population density and scattered population, Chagai requires lost of resources to for development of its roads infrastructure. Thin road network means the overall progress of the district will take considerable time. Providing link between service facilities and the settlements will remain slow and a costly affair. Besides, general connectivity roads, an important national highway (N-40) provides road link with Iran.



Having common border with both Afghanistan and Iran, people of Chagai have trade relationships in both countries. Chagai hosts Afghan refugees as well, who have shared with the communities various resources including natural and social services. Future potential for sustainable

development of Chagai will base on mineral development, which on its own is capital intensive activity, but road infrastructure will have to be strengthened to support future development of the district.

There are 8 post offices in Chagai. Postal service is being provided by the Postal Services of Pakistan. The district is connected with other parts of the county through telephone network. Five telephone exchanges, which control 2390 land lines, are operational in the district. PTCL has provided 3679 wireless phone connections also. Broad band connections are limited: 110[7] only.

Agriculture and Irrigation

Of the total area that has potential for agriculture only 15% is arable land. Both fruit and vegetables are grown but total production is low. Production of fruit and vegetable were 4974 and 26929 tonnes respectively[8]. Grapes, pomegranate, plum, dates and apricot are the fruits found in Chagai. Production of vegetables and fruits is tabulated below (all figure of agriculture include Nushki also as Agriculture department has not separated figures yet).

Table 4 Production of Fruits and Vegetables in Chagai

S. No.	Fruit	Area	Production	S. No.	Vegetable	Area	Production
1.	Grapes	456	278	1.	Lady finger	89	464
2.	Pomegranate	148	1918	2.	Tinda	15	89
3.	Plum	12	139	3.	Spinach	3	48
4.	Dates	284	2306	4.	Radish	285	4723
5.	Apricot	15	119	5.	Turnip	530	7886
6.	Tomato	121	932	6.	Carrot	755	12994
7.	Water melon	684	8662	7.	Peas	107	1128
8.	Musk melon	656	6694	8.	Bringal	21	183
9.				9.	Pumpkin	29	244

In Balochistan, there are over 20,000 agriculture tube well run on electricity (legal connections) and getting agriculture tube well subsidy and only

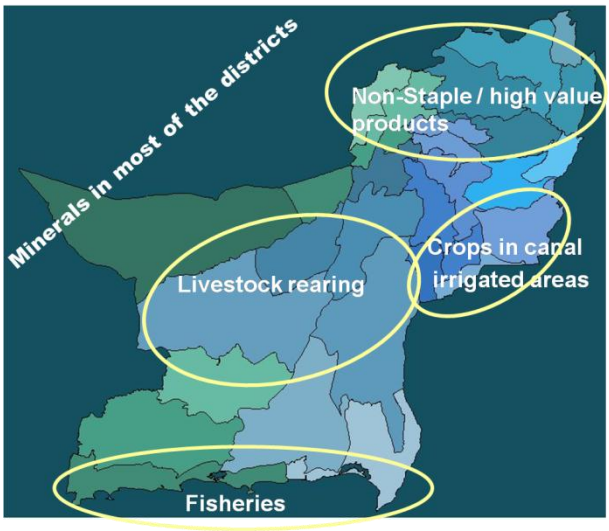
[7] PTCL Quetta

[8] Agriculture Statistics of Balochistan 2009

12 of these tube wells [9]are in Chagai. Karezes are other source of support agriculture activities but their number is constantly decreasing due to falling water table. Though in context of Balochistan fresh water is very precious to be used for agriculture purposes but because of limited financial resources and absence of cheap waste water treatment plants there is no other option than to use fresh water. Chagai being out of monsoon region receives nominal amount of rain, hence groundwater recharge will not be sufficient to keep water basin groundwater extraction and recharge equation in favor of recharge. It will become very difficult to meet fresh water requirements in future in Chagai particularly. Therefore, it is a compulsion to introduce high efficiency irrigation practices and for new agriculture plants and crops a gradual shift be made. Besides, for conservation of water already being used lining water courses and improvement of inefficient water storage tanks is necessary.

Livestock

Due to growing population, rising urbanization and increased awareness about animal protein for better physical health, demand for livestock is also increasing. Livestock production has better prospects in central Balochistan than in other parts of the province. Chagai is a district where due thin vegetation cover / rangelands and scarcity of water livestock is not a flourishing activity but still considerable proportion of rural communities relies on livestock rearing to make both ends meet. The map on right gives an idea of natural resources of Balochistan



Dry climatic conditions prevailing in the district pose great challenges in promotion of livestock and agriculture activities. Since rangeland

[9] Office of QESCO

development has not been given serious consideration, carrying capacity of the rangelands has exhausted. Scarcity of water and over-grazing has pushed livestock activities under strain.

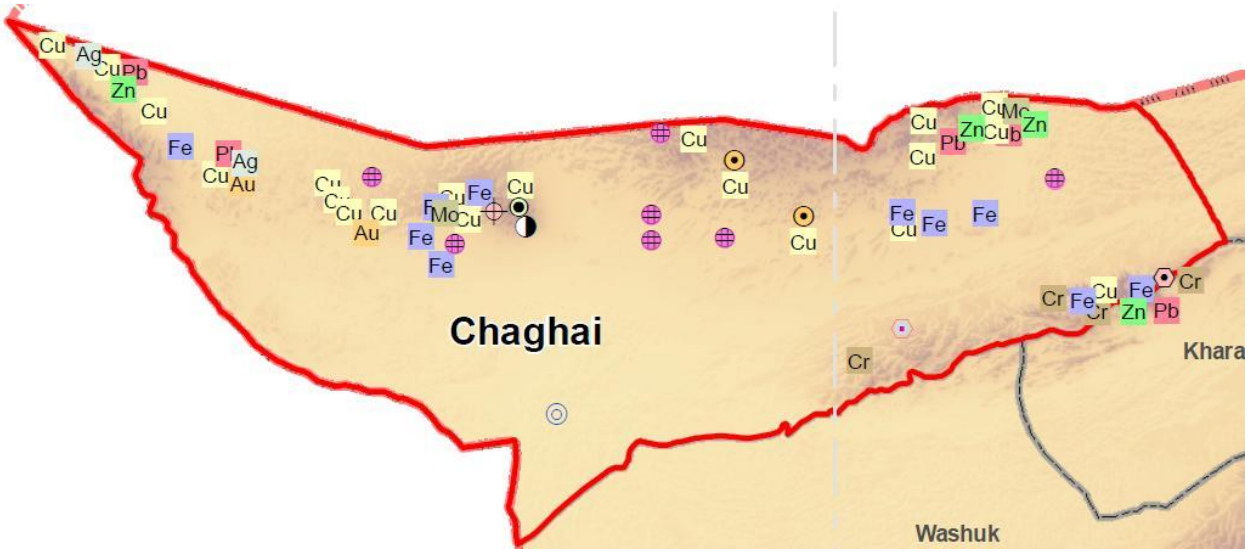
Fodder production in Chagai was 35 tonnes per hectares. To support livestock activities in Chagai, annual production of fodder was 70, 972 tonnes over an area of 2016 hectares for 2009-10. Rangelands also support livestock though their biomass productivity is very low. *Feed supply is less than the level needed for the livestock to produce at their full potential. Natural grazing resource is limited and there is need to introduce scientific grazing techniques for improve productivity. Due to heavy grazing and cutting of range shrubs for fuelwood, protective ground cover of vegetation has been badly affected exposing the loose topsoil to the harsh climatic exigencies*[10]. Systematic grazing can help recover rangelands. The small ruminants (sheep and goats) in Chagai survive mostly on traditional livestock feeding system that's why they are generally in less than optimal body condition. Feed available for livestock is generally deficient in protein, energy, minerals and vitamins during greater part of the year. This is a limiting factor for the productivity of sheep and goats causing high losses during lambing. Feed supply and quality are particularly poor during the cold winter months. Another factor limiting the production is inaccessibility of veterinary facilities and use of traditional medicine to cure livestock of diseases.

Mostly small ruminants are used in livestock and the common breeds used are rakhshani and khurasani. Livestock population in Chagai is not in proportion with its land mass due to thin cover of rangelands.

Mining

Chagai is a mineral rich district but its riches have mainly been untapped due to a number of reasons: the prime one is lack of financial resources and technically trained human resource. Major minerals found in the district include: onyx, limestone, copper, chromite, pumice and gold. Production of onyx has been on top and except for blistered copper mining of other minerals has been insignificant. 308 mining leases have

[10] Rubina Akhter, Sarwat Naz Mirza , National Herbarium, National Agricultural Research Centre, Islamabad



been granted to the private sector for utilization of mineral out of which 225 are Prospecting Licenses and 83 Mining Leases. Furthermore, 30 Exploration licenses and 2 Large Scale Mining Leases are granted to multinational and national mineral exploration companies for three years. In map[11] above presence of metallic ad non-metallic minerals can be seen.

Forestry

In Chagai there is no state forest, though 377, 425 hectares area [12]in Gut and Kambran has been notified as protected wildlife area. Natural vegetation defining the rangelands comprises shrubs, bushes and grass. The vegetation is more supportive to camels than for small ruminants. Besides, a valuable medicinal plant Ferula foetida (Hing) is found in foothills and collected by local people. The rangelands in Chagai are termed as poor rangelands and are mostly owned by the communities. As there is free access to these rangelands for everyone and management aspect is overlooked combined with scarcity of rains, the vegetation cover is becoming thinner. Except for haman-e-lora, which occasionally provides refuge to migratory birds, there is not wetland of national or international significance.

There is no commercial forestry: in fact the prospects are quite low due to natural environmental challenges. Taghaz and its associated trees are used for firewood and construction purposes. Medicinal plants Ferula

[11] District Development Atlas, Chagai, P&D department, Balochistan
[12] District Development Profile (2011) of Chagai, P&D department, Balochistan

foetida 'hing' and Nanoropsritichiana 'mazri' have potential as products for livelihood. It is also noteworthy that forage and firewood resources came under strain after arrival of Afghan refugees.

Energy

There were 5328 electricity consumers (4064 were domestic while 1264 were commercial) in 2009-10[13]. These consumers do not include industrial and agriculture ones: both are very limited in number. As there is power shortfall in whole country, Balochistan too is facing severe electricity shortage. Rural areas are hard hit and Chagai is no exception. Extending power infrastructure requires a lot of funding. Because both at national and provincial level, finances are much less than requirements, there is huge competition between sectors and programs / projects too. In present setup village electrification is being across Balochistan but the pace is slow. Even if all villages of Chagai are connected with power grids, this will not solve the problem because there is power production shortfall. Shifting to renewable energy resources can provide villages and settlements power at relatively cheap cost. Small Solar system for household, replacement of electricity / diesel run water supplies' pumps with solar pumps, and installation of solar street lights are some of the areas requiring investments.

Social Service Infrastructure

Education

Public service infrastructure (education, health, social welfare, livestock and agriculture extension etc.) is thin as Chagai remained one of the districts attracting lesser development funds. Its service delivery infrastructure needs both expansion and measures to ensure that the

[13] Development Statistics of Balochistan 2010

existing facilities are used to the maximum. Some instances will prove the preceding point. For its primary school going population (age 6-10) of 34, 678 children[14] including 16,063 girls there are 193 primary schools (138 male and 55 female) with enrolment of 12791[15] (6113 male and 6678 female), which shows a difference of 21887. For children of middle and high school age, there are fewer educational institutions.

Table 5 Number of Schools in the Target Union Councils

School Level	Gender	Union Councils					Total
		Amuri	Padag	Chilghazi	Ziarat balanosh	Jully	
Primary	Male	10	23	31	9 (2 non-functional	1	65
	Female	1	08	13		0	22
Middle	Male	1	3	4	0	0	8
	Female	0	1	1		0	2
High	Male	0	1	1	0	0	2
	Female	0	0	0		0	0
Total		12	36	50	9	1	99

Source: Balochistan Education Management Information System, 2011

Above table shows that number of female schools is much less than those for male at all levels. Middle and high school level opportunities are limited for both boys and girls. Enrolment figures

UC Name	Gender	Enrolment
AMURI	Boys	342
AMURI	Girls	129
CHAGAI	Boys	2796
CHAGAI	Girls	1647
CHILGAZAI	Boys	1228
CHILGAZAI	Girls	1558
PADAG	Boys	1088
PADAG	Girls	578
JULLI	Boys	18
JULLI	Girls	34

Literacy rates for various age groups are quite low in Chagai. These indicators, seen together with schools' statistics, call for greater attention to education development in Chagai district not only by the government

[14] Projected population 2013
[15] Development Statistics of Balochistan, Bureau of Statistics Balochistan

but by all development partners. Public sector may not be able to extend education facilities to all population of the district at a reasonable pace: the option of non-formal education offers a quicker way to extend outreach of education facilities.

Table 6 Literacy Rates by Age Groups, Chagai District

Age 10 years and above		Age 15 years and above		Age 15-24 years	
Male	Female	Male	Female	Male	Female
33.7	15.5	36.9	15.1	48.5	27.5

Source: Multiple Indicator Cluster Survey Balochistan 2010

To promote literacy in the district, National Commission for Human Rights had opened 60 Literacy Centers, which have been closed now due to lack of finances. In a literacy center one course is of six months duration, which enables an adult to read Urdu and do simple mathematics. Continuing adult literacy programs will surely help ease pressure on government through formal education system and to be able to meet MDGs target though to some extent only.

Health

Health statistics of the districts are also not very promising. Health seeking behavior is poor among pregnant women: only 18.8% women visited once a health professional for ante-natal care during last pregnancy. Those who visited health professional more than 4 times amounted to 1.1%. Similarly, delivery assisted by a skilled health professional was also very low at 1.1%. Incidence of diarrhea during past two weeks of MICS Balochistan (2010) was 16.3% and full vaccination status among children 12-23 months was only 2.17%. Infant mortality rate and under-five mortality rate, calculated at Division level are 57 and 71 per 1000 live births for Quetta Division.

Health facilities and the Staff designated to serve in the facilities has been tabulated on the next page for the district.

Table 7 Number of Health Facilities

BHUs	Dispensaries
1	2
1	-
2	3
-	-
3 BHUs, one maternity home	1 RHC
1 RHC	1 civil Dispensary

There are 46 male and 5 female doctors, 4 male nurses, 7 female nurses, 12 LHVs and 53 midwives/ dais serving in Chagai. Indoor patients treated in above health facilities were 322 males and 385 females while 88581 males and 42644 females' new cases of out-door patients were attended: in addition to old cases of 5161 males and 3423 females. In malaria control activities 560 patients of malaria were treated[16].

Drinking Water

Baluchistan's districts vary greatly in size, population density and water availability. When it comes to assessing access to improved drinking water, here too indicators show steep rise and fall with districts. This puts into question rationale of project identification and implementation in various parts of Balochistan. The Constitution of Islamic Republic of Pakistan states, "Wherein (everyone) shall be granted fundamental rights, including equality of status, of opportunity, and before law, social, economic and political justice, and freedom of thought, expression, belief, faith, worship and association subject to law and public morality." At national level, the provincial government realized that distribution of financial resource through NFC needed revision to bring Balochistan at par with other provinces in development but the same reflection on distribution of resources to various districts of Balochistan is missing.

Drinking water indicators (at district level) have been analyzed since 1998 census. There are some limitations to make comparisons, which are as under:

[16] Directorate of Health, Balochistan

a. Difference in number of water sources categories at the time of census 1998 and MICS 2004 and 2010 ((i) In both MICSs, the categories have been further grouped into 'improved' and 'unimproved' sources,

b. Varying number of districts at both points in time

The following table presents detail of water sources inside and outside of the household (Census 1998) but in this information it is not possible to make out whether 'well', both inside and outside household, is protected or not and thus improved or not. In addition, the Census 1998 data does not provide information on accessibility of the water source in case it is outside. Less than 30% of the households in half of the districts had water available on premises. A large proportion of households depended on pond and other resources (which include springs, streams or dam or irrigation channels etc) for drinking water. These sources might not be safe.

Data below has been arranged in ascending order for column titled 'Inside'. All the values in are percent.

Table 8 Sources of Water (Tap, Hand Pump and Well) Inside/Outside Households

District	Inside	Tap	Hand Pump	Well	Outside	Tap	Hand Pump	Well	Pond	Other
Chagai	34.96	27.81	0.56	6.58	65.04	8.6	4.35	32.18	7.67	12.24
Balochistan	**41.82**	**25.31**	**2.44**	**14.07**	**58.18**	**4.33**	**2.05**	**16.1**	**16.72**	**18.99**

Source: Census 1998

Comparatively, Balochistan lagged behind in 2004: access to improved water was 52% (piped water 28%, hand or donkey pump 9% and protected well, pond or tank 13%). In rural areas, the figures further sank lower: piped: 18%, hand or donkey pump: 11%, and protected well, pond or tank: 15%.

Table 9 Access to Improved Drinking Water, MICS Balochistan (2004 and 2010)

District/Area	MICS 2004			MICS 2010		
	Improved	On Premises	Access within an hour	Improved	On Premises	Access within an hour
Chagai	74	27	61	66.6	65.5	17.4
Urban	**91**	**82**	**90**	**90.6**	**90.6**	**3.9**
Rural	**43**	**24**	**39**	**68.6**	**53.9**	**23.7**

Source: MICS, Balochistan (2004 and 2010)

Gender Aspect of Water

In urban areas of Balochistan 86.8% households have improved drinking water sources on premises while in rural areas this percentage is 48.8. Responsibility of fetching water is shared by females, children and men. Division wise situation is as under.

Table 10 Division-wise, Person Usually Collecting Drinking Water (%)

Division	% of households without drinking water on premises	Adult woman (age 15+ years)	Adult man (age 15+ years)	Female child (under 15)	Male child (under 15)
Quetta	16.6	55.3	24.7	5.7	2.6
Kalat	40.7	65.7	22.7	4.1	3.4
Sibi	37.6	65.5	26.1	1.0	4.9
Zhob	50.6	44.8	37.8	5.5	7.8
Nasirabad	58.8	55.7	39.6	1.5	1.4
Mekran	21.2	46.8	28.9	10.9	4.0
Urban	**9.3**	**24.1**	**56.2**	**1.5**	**4.0**
Rural	**44.9**	**58.4**	**29.4**	**4.3**	**3.8**

Source: MICS, Balochistan 2010

Baseline Survey Results

Population Characteristics

Demographic data is essential for realistic, effective and fruitful socio-economic planning. The demographic changes in population size, spatial distribution, age structure, sex composition must be taken into account while formulating development planes and executing development interventions. The population in Chagai district is unevenly distributed over six target union councils. The villages in all union councils are generally scattered and scarcely populated, however, some villages are moderately populated.

The adult men are bread earners so children, women and to some extent aged persons depend on them. The following table presents percentage distribution of males and females in the target union councils. Statistics in the table show that in all UCs, female segment is substantial, which calls for close involvement of women in socio-economic activities.

Table 11 Population Distribution by Sex (%)

Union Councils	Sex	
	Male	Female
Jully	53.0	47.0
Padag	49.5	50.5
Amuri	48.4	51.6
Chilghazi	50.0	50.0
Chagai	50.6	49.4
Ziarat Balanosh	51.5	48.5
Total	50.5	49.5

Every society uses age as a major building block in its social organization. Social roles and responsibilities are assigned to individuals in accordance with I their age, capacity and mental maturity Age structure shapes the demographic and socio-economic characteristics of population since all aspects of human action and behaviour tend to change with age. It can be argued that age composition has considerable economic and demographic significance. The number of active labour force, the future labour force and retired labour force influence the economic activities of a society to a greater extent. In all UCs, distribution of age groups shows similarity for all age groups.

On the whole, Population of 1-4 years is 11.3%, school going children constitute 34.8% and economically active group with maximum productivity potential is 51.2%: this age group forms bulk of the labour

force and high proportion of such age group in the population is considered a healthy sign.

Baseline survey data on socio-economic status (discussed in detail in the following pages) indicates that different dimensions of development reflect poor state of affairs for all age groups.

Table 12 Population Distribution by Age (%)

Union Councils	Age Groups			
	1-4 years	5-17 years	18-60 years	Above 60 years
Jully	7.9	35.0	54.5	2.5
Padag	11.4	39.9	47.0	1.7
Amuri	12.0	28.9	56.4	2.7
Chilghazi	10.4	29.7	57.5	2.4
Chagai	16.0	39.1	42.0	2.9
Ziarat Balanosh	10.9	36.6	48.3	4.2
Total	11.3	34.8	51.2	2.7

Population of less than 15 years and above 65 years is considered dependent. The analysis of the table shows the proportion of dependent population.

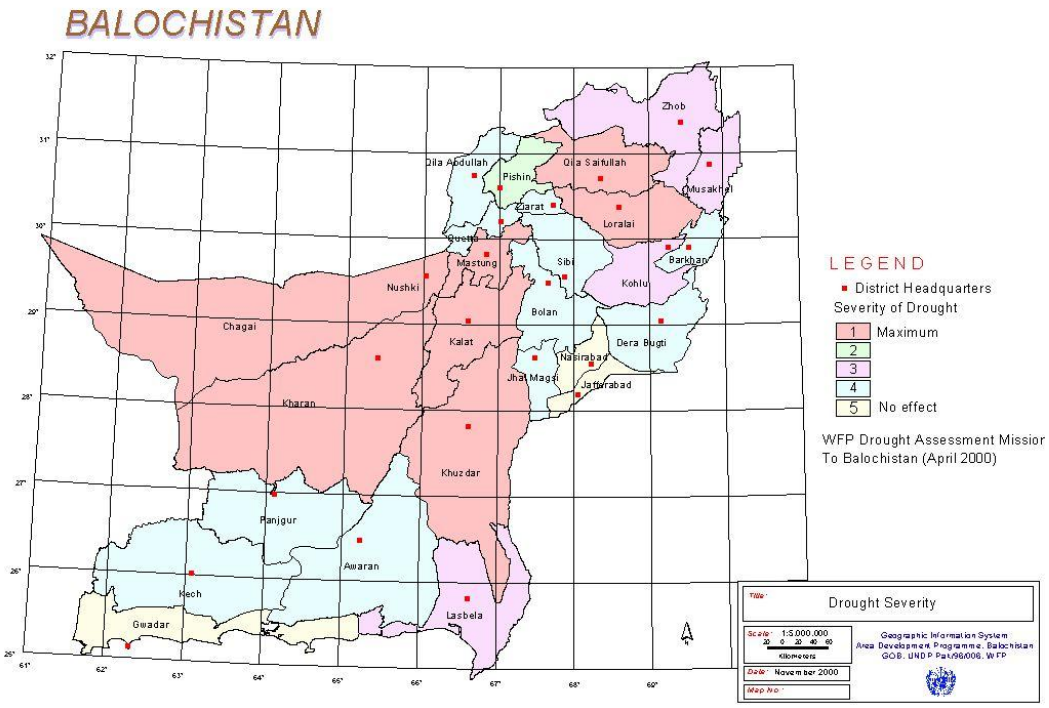
Table 13 Proportion of Dependent Population by Union Councils (%)

Union Councils	Dependent population		
	Less than 15 years	Above 65 years	Total
Jully	34.3	1.1	35.4
Padag	45.0	1.0	46
Amuri	37.8	2.2	40
Chilghazi	32.4	2.1	34.5
Chagai	48.3	2.5	50.8
Ziarat Balanosh	41.1	3.0	44.1
Total	39.5	2.0	41.8

It is obvious that the dependency ratio is very high. It is very alarming satiation having deep implications: the higher the dependency ratio the greater the burden on society. Although one of the positive effects may be a younger, healthier and more productive labour force at a later stage. However, the population under 15 years of age constitutes a serious problem in the short run. For now those already borne requires nutrition, education and assistance in the areas of health for long period of time.

Means of Livelihood

Chagai as a whole faces many challenges posed either by nature or poor planning and subsequent development lapses. Man-made threats (environmental degradation, dilapidated service infrastructure) and potential natural catastrophes make poor people vulnerable to all sorts of hazards like low food intake, fodder shortage for livestock, forced migration and disease attack. According to Relief Commissionerate of Balochistan, in whole Balochsitan1.911 million people and 9.31 million livestock were affected; out of which 1.76 million perished. A total of 1.973 million acres cultivable land was also affected. Though district specific data is not available, Chagai was one of the worst hit districts. Map below shows drought affected districts in Balochistan. Means of livelihood shrink during disasters and aftermath is felt for long time.



The target union councils are not industrialized and private businesses are of rudimentary and homogenous nature , most of the population relies on agriculture, livestock or labor work for their livelihood.

Vulnerability of Chagai district has been assessed with regard to droughts, floods and cyclones. Chagai has been termed highly prone

to droughts while floods' danger and that of cyclones is very low[17]. Chagai has already experienced adverse impact of the drought (1997 to 2002). Because of scarcity of water, which impacts rangelands and fodders production too, and rising cost of agriculture inputs, vulnerability level is considered to be high. Poverty appears to be wide spread. Type of houses is an indicator reflecting economic status of a family. The survey shows that though people have their own houses, most of them are kacha (97.7% in all union councils). 0.8% shown in 'other' category is semi pakka.

Table 14 Construction Type of Houses (Result in percent)

Union Councils	Kacha	Pakka	Other
Jully	100.0	0	0
Padag	100.0	0	0
Amuri	97.5	0	2.5
Chilghazi	96.0	4.0	0
Chagai	97.4	0	2.6
Ziarat Balanosh	95.7	4.3	0
Total	97.7	1.5	0.8

Agriculture and livestock have suffered frequent setbacks due to drought so people resort to labor work, agriculture to make both ends meet. Insufficiency of water and past (1997- 2005) spell of drought together with mismanagement of natural resources, increased number of is involved in labor work instead of agriculture, livestock or mining of minerals. The proportion of government job or private job is there but tilt is towards labor work. In Chilghazi and Chagai, percentage of household involved in labor work is relatively lower than other UCs as there is more agriculture and livestock. Situation of all UCs in terms of sources of livelihood is presented in table below.

Table 15 Source of income of households (Result in percent)

Union Councils	Agriculture	Livestock	Govt. job	Private Job	Personal business	Other	Labor	Don't Know
Jully	17.0	8.5	0	8.5	0	8.5	57.4	0
Padag	7.1	5.4	16.1	7.1	5.4	10.7	48.2	0
Amuri	9.6	9.6	11.5	9.6	3.8	13.5	42.3	0
Chilghazi	26.2	22.6	2.5	5	9.9	2.5	30.1	1.2

[17] Provincial Disaster Risk Management Plan, Balochistan Disaster Management Authority

Union Councils	Agriculture	Livestock	Govt. job	Private Job	Personal business	Other	Labor	Don't Know
Chagai	30.2	19.0	14.3	3	9.5	1.6	20.8	1.6
Ziarat Balanosh	14.5	27.5	2.9	3.9	0	1.5	45.4	4.3
Total	17.4	15.4	7.9	6.2	4.8	6.4	40.7	1.2

Questions regarding what an individual household member is doing for livelihood and what sort of skills he / she possesses were also asked. This part included individuals in the households who were involved in any type of livelihood activity. While asking about main source of family's income, important categories like agriculture, livestock and personal business etc. were specified but in case of nature of work of household's member an open ended question was included in the questionnaire. In response to this question, the respondents had open option to tell what a certain member their family was doing to earn for the family. Categories of work emerging from responses of this question turned out to be similar to those of families' main source of income. Data for all UC has been tabulated below. Amount of time that they spent on such activity was taken into consideration too. Majority of them spent 8 hours in work.

Table 16 Type of Work being done by household members (Result in percent)

Union Council	Type of work							
	Agriculturist	Livestock	Govt. job	Private job	Personal business	Other	Labor/ daily wages	Milk/ butter /Kurd
Jully	9.5	2.8	0	23.8	0	4.0	55.1	4.8
Padag	6.5	3.2	9.7	6.4	3.2	0	71.0	0
Amuri	4.3	3.0	7	21.3	0	8.3	56.1	0
Chilghazi	17.9	5	5	8.7	12	1.5	34.9	15.0
Chagai	22.2	3.7	14.8	7.4	11.1	0	22.2	18.5
ZiaratBalanosh	13.6	9.1	1.9	9.1	0	0	31.0	35.3
Total	12.3	4.5	6.4	12.8	4.4	2.3	45.1	12.3

Results in table above conform to families main sources of income. Analysis of data shows that individuals are mostly doing labor work in all union councils. Examining this data with types of skill possessed by the household members highlights that categories of skills are limited, which shows rudimentary nature of economy and absence of educational and training institutes that introduce variety of skills. Limited number of skill

categories indicates that there is room for introducing new skills and at the same time businesses which make use of these skills.

The skills possessed by members of the households do not bring about good income for the families. Further, few HH members were found to be having any sort of skill. On the whole in all union councils 16.3% had any skills. In Ziarat balanosh, this percentage was very low: only 3.6%. The skills mentioned by the respondents included driving, embroidery, office record management. More individual, as compared to other union councils, in Jully (23.3%) and Chilghazi (33.3%) had any skills, which included embroidery, teaching, driving, and mechanical work (in garage / workshops). The data suggests that there is a lot of room for imparting different types of skills.

Women's Point of View

Discussion was initiated among women in FGDs on issues related to livelihood and the skills that they desire to acquire to support families in earning. Most of the women do not shoulder the burden of household expenditure with men. Women expressed their desire to contribute in family income but said that due to tribal set--up of the area and lack of skills they felt helpless. They added that it was becoming increasingly difficult for male head of the household to make both ends meet. Women also pointed out that they want to work but there are no opportunities for them. Some of them indicated that since they were uneducated, they could not think of getting government jobs.

Due to high cost of living and un-employment, it is difficult to meet family's expenses. If women can work, family's economic problems will reduce to some extent.

Comment of Women in FGDs

Women expressed constraints in working outside of home. Reflecting on social setup, they said they could either work at home or in close vicinity of their homes. They would not be able to seek permission from their men to work away from home. They felt helpless about economic situation of their area, where agriculture and livestock activities were very limited and job opportunities are also non-existent.

All women in the FGDs were willing to learn skills that could enable them to increase family income but when asked about type of skills they wantto learn they could mention only few types. Embroidery, stitching, knitting or similar handicrafts are categories of skills that they mentioned. They emphasized that these skills could be practiced at home. When probed what skills they might like to have, they could not tell any. Almost all of the women who participated in different FGDs said they would like to acquire skills that could be practiced from home for earning livelihood for their families. Women said they participate in agriculture activities also but the extent of involvement was limited.

Enterprises and Trades for Livelihood

Small and Medium Enterprise Development Authority (SMEDA) has listed a variety of livelihood home-based enterprises. The list is given below[18]. The list was prepared to support home-based enterprises across Pakistan. These items could be easily produced or prepared at household level but marketing of such products is considered an issue. If the producers are unable to market their product, such enterprises will fail. In order to initiate such activities in any union council, it will require demand and supply analysis of the market. Without such analysis, there are less chances of success. Home-based enterprises are as following:

1. Candle Making: Rs. 75,000/- per one home based enterprise
2. Soap Making Rs: 125,000/- per one home based enterprise
3. Handicrafts (per unit cost Rs. Rs. 85,000/- per one home based enterprise)
4. Embroidery (knitting machine, stitching, Ada Work, tailoring, pouch & purse making)
5. Bakery Items
6. School Bags & Suit Cases
7. Kitchen Gardening (Rs. 35,000/- per one home based enterprise)
8. Vegetable Seed Production (Depends upon the nature of seeds to be produced and their respective production capacity)
9. Home Based/commercial poultry

[18] Courtesy Mr. Kamran Khan, Regional Business Coordinator, SMEDA, Abotabad

10. Vegetable drying and processing (Depends upon the nature of vegetables to be dried with their respective drying and processing capacities, also the decision of manual or automatic process can affect the price level)
11. Livestock management (Rs. 125,000/- per one home based enterprise, however the selection of livestock can affect the price level)

Besides this, training in domestic trades (for youth) like welding, auto mechanic, electric, motor winding and woodwork can play substantial role in providing livelihood opportunities but absence of technical training centres has hindered the youths to realize their potential. There is one technical training centre in Dalbandin, which is run by Labor and Manpower department. This centre cannot fulfil training requirements of the target union councils because accessibility for youth of all the union councils may be an issue. Further, trainings in only three trades (Motor winding, auto-mechanic and computer) are being imparted. Each training session can accommodate up to 30 students. More trades can be introduced but the center will need financial assistance to purchase machinery, equipment and furniture. Additional teachers will have to be hired also.

Household Income, Assets and Expenditure

Balochistan's economy in general is multi-sectoral but that of Chagai's in its present form shows limited dimensions. The target union councils, are mostly rural and extremely underdeveloped.

A question in the baseline was included about agriculture income besides income from other sources and the expenditure. This part proved very difficult for the survey teams: their observation was that the respondents were not giving cent percent correct information about their household's income as well as expenditure. Particularly it was noticed that the respondents showed low income and high expenditure. When probed about this difference many of the respondents replied that they had borrowed money from others or their relative. This could be taken as valid answer if such instances were very few.

To calculate average monthly income and expenditure, some seemingly unreliable information was excluded from the data so that average was not affected by abnormal values. Taking average of monthly income for all the UCs yielded the amount of Rs. 10246.9 and average monthly expenditure came out to be Rs. 9750.3. UC wise average monthly income and expenditure statistics are as under.

Table 17 Monthly Household Income and Expenditure by UCs

Union Council	Monthly Average in PKR	
	Income	Expenditure
Jully	8206.9	9441
Padag	12629	12956.5
Amuri	9391	8282.6
Chilghazi	12552	11181.8
Chagai	8800	9500
Ziarat Balanosh	7000	8150
Total	10246.9	9750.34

Keeping in view the potential difficulties in getting accurate information about household income and expenditure, questions about household assets were also made part of the survey. It is experienced that people give relatively better information about their household assets than their income and expenditure. The list of items whose possession was enquired included: Donkey/ oxen cart, tractor, truck, motor car, motor bike, bicycle, radio, tv, cable, computer, fridge, AC, electricity, generator, UPS, solar power system. On the whole, presence of all the listed items was repoted to be low: radio (10.4%), motor cycle (31%), bicycle (18.1%), donkey/oxen cart (10.8%). As areas visited did not have electricity, home appliances run on electricity were almost non-existent. Alternate power sources like generator, UPS and solar systems were reported though their occurrence was nominal. Union council wise situation with regard to presence of the aforementioned items is tabulated below.

Table 18 - A, Household Assets (%)

Union Council	Oxen/donkey cart		Agriculture machinery		Tractor		Motor car	
	Yes	No	Yes	No	Yes	No	Yes	No
Jully	16.7%	83.3%		100.0%		100.0%	8.3%	91.7%
Padag	6.1%	93.9%		100.0%		100.0%	4.1%	95.9%
Amuri		100.0%		100.0%		100.0%	10.0%	90.0%
Chilghazi	12.0%	88.0%	4.0%	96.0%	2.0%	98.0%	16.3%	83.7%

Union Council	Oxen/donkey cart		Agriculture machinery		Tractor		Motor car	
	Yes	No	Yes	No	Yes	No	Yes	No
Chaghi	23.7%	76.3%	5.1%	94.9%	5.1%	94.9%	15.4%	84.6%
Ziarat Balanosh	8.5%	91.5%	2.1%	97.9%		100.0%		100.0%
Total	10.8%	89.2%	1.9%	98.1%	1.2%	98.8%	8.9%	91.1%

Table 18-B, Households Assets (%)

Union Council	Motor cycle		Cycle		Generator		UPS	
	Yes	No	Yes	No	Yes	No	Yes	No
Jully	34.2%	65.8%	16.2%	83.8%		100.0%	8.3%	91.7%
Padag	30.6%	69.4%	26.5%	73.5%	6.1%	93.9%	2.0%	98.0%
Amuri	32.5%	67.5%		100.0%		100.0%		100.0%
Chilghazi	38.0%	62.0%	26.0%	74.0%	8.0%	92.0%		100.0%
Chaghi	25.6%	74.4%	16.2%	83.8%	7.7%	92.3%	2.6%	97.4%
Ziarat Balanosh	23.4%	76.6%	19.1%	80.9%	2.1%	97.9%		100.0%
Total	30.8%	69.2%	18.1%	81.9%	4.2%	95.8%	1.9%	98.1%

Table 18-C, Households Assets (%)

Union Council	Radio		TV		Computer		Solar energy source	
	Yes	No	Yes	No	Yes	No	Yes	No
Jully	11.1%	88.9%		100.0%		100.0%	25.0%	75.0%
Padag	22.4%	77.6%	2.0%	98.0%		100.0%	12.2%	87.8%
Amuri	2.5%	97.5%		100.0%		100.0%	15.0%	85.0%
Chilghazi	4.0%	96.0%	4.0%	96.0%	2.0%	98.0%	16.0%	84.0%
Chaghi	10.3%	89.7%		100.0%		100.0%	10.3%	89.7%
Ziarat Balanosh	10.9%	89.1%		100.0%		100.0%		100.0%
Total	10.4%	89.6%	1.1%	98.9%	0.4%	99.6%	12.6%	87.4%

Agriculture and Livestock

Difficult climatic conditions, non-availability of water and relatively low number of tube wells in almost all target UCs restrict the productivity of agriculture. Low level of education, primitive agriculture practices and lack of effective support from government departments further aggravate situation.

Among 17% of families of all union councils doing agriculture, 70.1% have their own agriculture land while 21% work as bazgar (tenant)

and 9% of the respondents could not tell about ownership of agriculture land. Position by union councils is as under.

Table 19 Ownership of Agriculture Land by Union Council (%)

Union Council	Ownership of agriculture land	
	Personal	Buzgari
Jully	100.0	0
Padag	100.0	0
Amuri	75.0	25.0
Chilghazi	68.2	9.1
Chagai	47.4	47.4
Ziarat Balanosh	80.0	20.0
Total	70.1	20.9

Question about size of agriculture land also proved tricky. 51.6% of the respondents could not tell size of their agriculture landholding. Since remaining households indicate varying sizes of agriculture landholding, grouping them did not generate a meaningful conclusion. Clear idea about average size of agriculture land could not be obtained with available survey figures. When probed it was revealed that there are frequent cases of shared tenancy in which demarcation of agriculture land is not clear for all families. Families involved in agriculture generally quote area of land that they cultivate.

Water Storage Practices

Water storage practices for agriculture use shows that a lot of water gets wasted. Low water efficiency structures like unpaved pond and unlined water courses are common among agriculture communities: reason for presence of storage structure in this form points to poverty as well as lack of awareness on the part of farmers and absence of support from government or development partners. Reflecting back on means of livelihood available to the people of the target UCs and inputs from women, the following table shows scope of work to increase area under cultivation. If attempt is to be made to increase income levels of families and generate employment, investment is required to construct water efficient water storage tanks and line water courses.

Table 20 Agriculture Water Storage Structures by UCs (%)

Union Councils	Kacha tank	Pakka tank	Small dam	Dam	Other
Jully	28.6	14.3	28.6	0	28.6
Padag	50.0	50.0	0	0	0
Amuri	66.7	0	0	0	33.3
Chilghazi	61.9	4.8	19.0	9.5	4.8
Chagai	94.7	0	0	0	5.3
Ziarat Balanosh	60.0	0	20.0	10.0	10.0
Total	67.2	6.3	12.5	4.7	9.4

Discussion was held with Director Agriculture Extension, Agriculture department Balochistan to dilate upon water efficiency and conservations methods. Need of this discussion was felt because almost all the union councils lack sufficient water resources. Agriculture is mostly rain-fed. Wherever agriculture is relied upon as means of livelihood, agriculture practices are primitive. Water storage tanks are not brick made or plastered and water courses are unlined in most part of all the union councils. Crux of the discussion was that if storage tanks are RCC made, they save 40% water loss. If water courses are lined, they save 30-35% water loss. Analysis of baseline data shows that pipe is being used by 25% and 5.3% of farmers in Padag and Chagai respectively. In other union councils unlined water courses are being used, which means scarce water resources are not being put to maximum use.

Table 21 UC-wise means of Irrigation Water Conveyance by UC (%)

Union Councils	Means to convey irrigation water		
	Unlined channel	Pipe	Other
Jully	100.0	0	0
Padag	75.0	25.0	0
Amuri	100.0	0	0
Chilghazi	95.0	0	5.0
Chagai	94.7	5.3	0
Ziarat Balanosh	100.0	0	0
Total	95.2	3.2	1.6

Discussion also figured out that if field application of water was based on efficiency irrigation, more water could be saved. Traditional irrigation system has water efficiency of 20 to 25% only. Table below shows

that except in Chilghazi, no existence of modern irrigation techniques was reported by the respondents.

Irrigation Practices

To add, lack of awareness about modern techniques and cost might be the issues behind heavy reliance on primitive methods of irrigation.

Table 22 Method of Irrigation being Practiced (Result in percent)

Union Councils	Method of irrigation	
	Traditional	Modern techniques (Trickle/Sprinkle)
Jully	100.0	0
Padag	100.0	0
Amuri	100.0	0
Chilghazi	95.2	4.8
Chagai	100.0	0
Ziarat Balanosh	100.0	0
Total	98.4	1.6

The following three high efficiency methods are rarely being used in Balochistan:

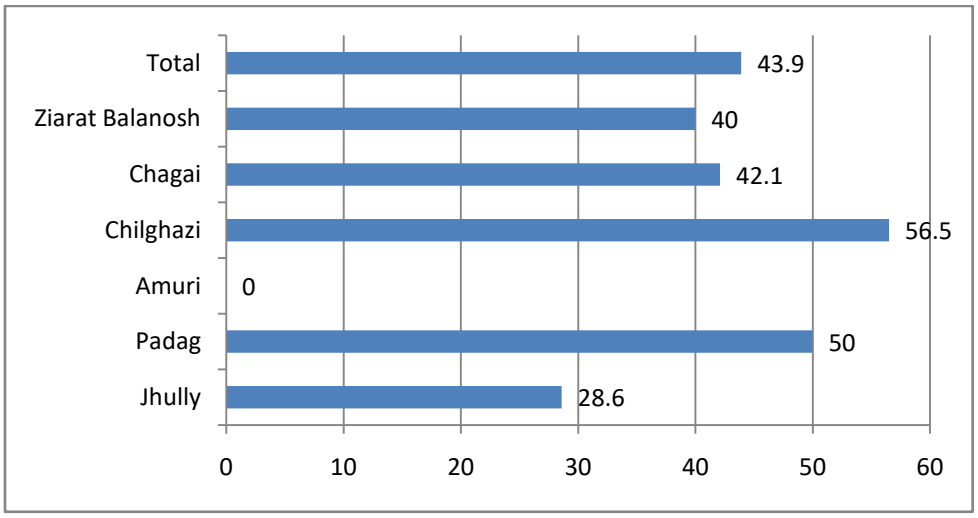
i. Trickle
ii. Bubbler
iii. sprinkler

Trickle irrigation is the cheapest of the three and costs about Rs. 12.0 million per acre. This is used for fruit trees. For crops, inland dripper can be used that costs Rs.0.14 million per acre and saves up to 70% water.

As electricity infrastructure in Chagai is very thin, tube wells are comparatively in small numbers, which implies only those who can afford cost of fuel, can have diesel-run tube wells. In the absence of tube wells, more reliance is on rains water for agriculture.

There is substantial proportion of farmers who do get agriculture inputs when needed. For instance, fertilizer, on the whole, is available to 43.9% of the farmers. Union council wise position is graphically presented below.

Figure 1 Availability of Fertilizer when Needed



45.8% of the farmers in all union councils are purchasing fertilizers from their own resources while 49.2% are reported to be borrowing money to purchase fertilizers and 3.4% are using animal dung as fertilizer. For detail please refer table in the annexure. Similarly not all the farmers are getting seeds and seedlings when needed. 33.3% are reported not be getting them when required, in all UCs. Situation is better in Jully while farmers in Amuri face the worst. In case of purchase of seeds and seedlings , overall position is similar to that of fertilizers, about 48% of the farmers get them on borrowed money.

Availability of Water for irrigation

An overwhelming majority of the respondents indicated deficiency of water during peak seasons of cultivation. It was observed that intensity of deficiency of water in Padag and Chagai is less than other union councils. Information provided by XEN of District Chagai (Public Health Engineering Department) is almost similar in drinking water. The XEN referred to scarcity of water for drinking purpose in almost all the UCs.

Table 23 Availability of water

Union Councils	Deficiency of water	Water deficiency months			Water deficiency area	
	Yes	Jan to Apr	May to Aug	Sep to Dec	Agriculture	Drinking
Jully	87.5	5.9	89.7	4.4	18.6	81.4
Padag	69.4	45.5	42.0	12.6	12.1	87.9

Union Councils	Deficiency of water	Water deficiency months			Water deficiency area	
	Yes	Jan to Apr	May to Aug	Sep to Dec	Agriculture	Drinking
Amuri	95.0	1.9	91.6	6.5	26.0	74.0
Chilghazi	90.0	24.1	67.0	8.9	50.0	46.9
Chagai	68.4	7.5	92.5	0	52.6	42.1
Ziarat Balanosh	95.7	41.6	52.5	5.9	14.2	81.0
Total	84.5	24.9	67.2	7.8	30.0	67.4

As generally observed in entire province, deficiency of water is high during summer season. Padag and Ziarat Balanosh experience water deficiency in most part of the year. Further, percentage for drinking water deficiency is higher than agriculture. The reason is that since agriculture is not a profession of all the households surveyed, percentage is low. In reality, this deficiency will apply equally to both drinking and agriculture usage.

Livestock

15.4% families in all union councils are engaged in livestock. Families involved in livestock are following traditional livestock rearing practices. Small ruminants grow up naturally with no particular focus by the farmer on animal fattening or techniques / methods to ensure better health of animals.

Families engaged in agriculture and livestock activities are not in significant proportion as compared to those having l labor work as means of livelihood.

Household involved in livestock are using rangeland for grazing their animals and most of them said that they didn't have sufficient fodder for their livestock. UC-wise situation of grazing and quantitative assessment of sufficiency is as under (all results are in percent).

Table 24 Way of Obtaining Fodder

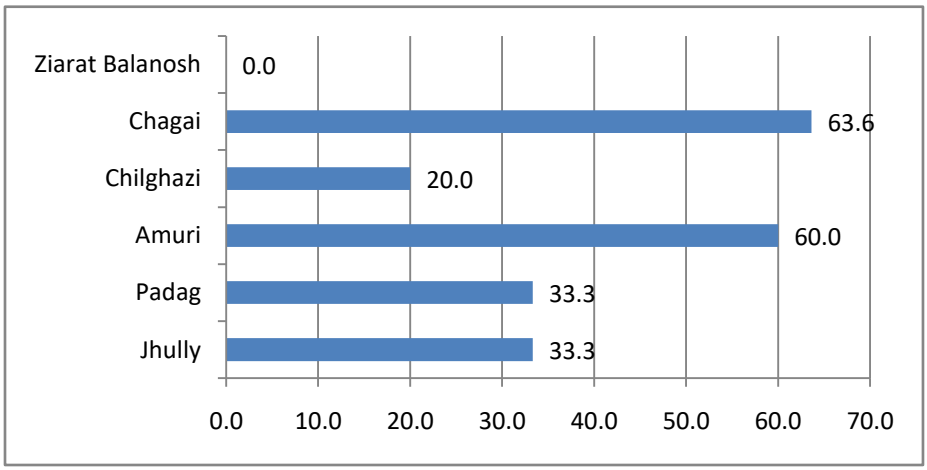
Union Councils	How fodder is obtained for livestock animals			
	Use Rangeland	Grow fodder	Purchase fodder	Don't Know
Jully	83.3	0	0	16.7*

Union Councils	How fodder is obtained for livestock animals			
	Use Rangeland	Grow fodder	Purchase fodder	Don't Know
Padag	66.7	33.3	0	0
Amuri	100.0	0	0	0
Chilghazi	100.0	0	0	0
Chagai	83.3	16.7	0	0
Ziarat Balanosh	84.2	10.5	5.3	0

*16.7% of the respondents could not tell how their families managed to get fodder.

Only 26% respondents in all union councils said that the fodder available for the livestock animals was sufficient. Response for all the union council has been recorded below.

Figure 2 Sufficiency of Fodder (Result in percent)



Those who are in livestock business, mostly rear small ruminants: possession of large ruminants is limited. This shows that large ruminants are used mostly for households' own use. In fact environment and demand in the market are two major determinants for deciding whether to go for large or small ruminants. With regard to environment and fodder availability, the condition of rangelands in all UCs is not good. In Amuri and Padag 50% of total area of the UCs is under rangeland cover. In Amuri rangeland status can be termed as good while in Padag it is depleted[19]. There are no forests in these two UCs. To support livelihood activities, some timber and medicinal plants species (Tagaz and Gaz) are available but investment is required both at community and department level. As rangeland management is not properly performed, the

[19] Forest Department, Balochistan

rangelands are depleting. This implies that future survival of and on livestock as means of livelihood will decrease. The department of Forest Balochistan suggests that each year plantation costing about Rs. 2.00 million per union council be carried out through communities[20]. At department level reforestation and rangeland improvement activities should have be carried out at regular intervals. Besides, community awareness-raising regarding tree plantation and nursery-raising should also be conducted for communities of all UCs.

Access to Markets

Access to livestock markets has come out to be an issue worth considering as 30.3% of households engaged in livestock do not have access to markets for sale of their livestock. Among 6 union councils, this percentage was the highest (66.7%) in Padag and the lowest in Chilghazi (21.1%). Data on role of middleman in sale of livestock animals dispels common perception that actual owner are robbed of their due share in profit. In all union councils, over 94% of the respondents told that livestock animals were sold directly to the customers without any role of the middleman.

Table 25 Access to Market for Sale of Livestock and Role of Middleman (Result in percent)

Union Councils	Access to market for sale of livestock	How livestock animals sold	
	Yes	Directly to Customers	Through Middleman
Juhlly	40.0	100.0	0
Padag	33.3	100.0	0
Amuri	60.0	100.0	0
Chilghazi	78.9	94.7	5.3
Chagai	75.0	100.0	0
Ziarat balanosh	68.4	100.0	0
Total	68.3	98.4	1.6

Study of data on annual income from sale of livestock was not found reliable because there is great variation and unrealistic income figures. Hence, it is not considered fit to be included in this report.

[20] Proposed by the Forest department, Balochistan

Veterinary Health Facilities

Preventive measures against diseases are another issue which needs attention. Survey results show that a majority of households, which are involved in livestock, do not have access to veterinary facilities. The survey result conforms to ground realities. Livestock practices appear to be weak due to a number of reasons. Disease preventive measures are not taken by the majority of households engaged in livestock. Only 30% give any medicine or use vaccination for prevention of diseases. There could be numerous reasons for this low level of preventive treatment: first people are unaware of the importance of preventive measures, second access to veterinary facilities is very limited and third poverty does not allow buying medicine. The following table shows that access to veterinary service facilities is extremely low rather it is noticed only in Jully and Chilghazi.

Table 26 Access to Livestock Treatment Facility and Vaccination Trend, (Result in percent)

Union Councils	Access to Livestock treatment facility	Vaccination or medicine to livestock animals for disease prevention
	Yes	Yes
Juhlly	16.7	16.7
Padag	0	33.3
Amuri	0	20.0
Chilghazi	10.0	45.0
Chagai	0	45.5
Ziarat balanosh	0	11.1
Total	4.6	30.2

Data obtained from Livestock and Diary Development department conforms to the findings of the survey. Public sector livestock facilities in union councils are in shambles. Buildings are in poor condition. Equipment and medicine are also not available. This means that either these facilities are not providing services or the extent of services being provided is very low. Staff of the facilities needs training in laboratory tests but without equipment and accessories the trainings may not yield positive results. Further, Weak monitoring mechanism generates punctuality of staff issue.

Existing public service facilities in livestock and agriculture extension are limited in the target union councils. Number of veterinary facilities by the union councils is as under:

Table 27 Number of Veterinary Facilities by Union Council

Union council	Amuri	Padag	Jhuly	Chilghazi	Chagai	Ziarat Balanosh
Veterinary facility type	Hospital	Dispensary	--	Dispensary	--	--
Number	1	1	0	2	0	0

Each facility requires about Rs. 3-4 million for repair and equipment. It is also noteworthy that on one hand there is service delivery issue while on the other hand there is less awareness among people about advanced techniques of livestock rearing.

Health and Hygiene

This module comprised of 12 questions, which relate to bodily health, drinking water and ways of storing / keeping food besides environmental awareness.

In all target areas, 100% people responded to these questions. On some issues, people possessed very good knowledge while on some other issues the awareness level came out to be lower. Questions relating to germs showed minimum level of awareness. It was observed during the interviews that some of respondents did not know what the germs meant. The interviewer helped them understand the meaning to get proper response. Affirmative response to various questions in this module has been tabulated below for all UCs.

Table 28 Awareness about Health and Hygiene Statement Response (%)

S.No.	Statement	Percentage						
		Jully	Padag	Amuri	Chilghazi	Chagai	Ziarat Balanosh	Total
1.	Cleanliness of body and environment a guarantee for good health	97.6	100.0	95.3	94.4	100.0	97.9	97.5
2.	Garbage should have a specific place in house	33.3	9.4	23.8	35.2	32.4	19.6	25.2
3.	Germs can there be in the kitchen	68.3	58.5	37.2	50.0	52.8	59.6	54.4

S.No.	Statement	Percentage						
		Jully	Padag	Amuri	Chilghazi	Chagai	Ziarat Balanosh	Total
4.	Germs can be everywhere	66.7	42.3	37.2	32.1	50.0	52.2	45.7
5.	Drinking water can be treated free of germs	92.5	41.5	93.0	75.9	63.2	66.0	70.9
6.	Drinking water should be kept under cover	92.7	98.1	95.3	96.3	97.2	89.4	94.9
7.	Clothes shouldn't be washed in drinking water sources like pond or spring	40.0	3.8	20.9	11.1	7.9	4.3	13.9
8.	Eatable should always be kept under cover	90.2	94.2	92.9	98.1	91.7	80.4	91.5
9.	Fruits and vegetables should be washed before use	97.6	98.1	93.0	90.7	97.4	93.6	94.9
10.	Clean teeth and healthy gums are a source of preventing diarrheal diseases	84.6	20.8	61.9	41.5	36.8	17.8	42.2
11.	Walking base-footed can cause skin diseases and intestinal worms to born	75.6	20.4	45.2	26.0	42.9	28.3	38.4
	Total							

Status of awareness about health and hygiene shows room for conducting activities relating to aspects/issues that play key role in making decisions about health status of an individual or family. Knowledge about possible causes of diarrheal diseases in all target-UCs also showed substantial room for improvement. Percentages for all three major causes (consuming stale food, drinking contaminated water and living in polluted environment) are low in all UCs but in Ziarat Balanosh the awareness level is extremely low. Advocacy will help raise awareness in this area.

Table 29 Percentage of Causes of Diarrheal Diseases as Perceived by the Respondents (Result in percent)

Union councils	Causes of diarrheal diseases (%)			
	Stale Food	Contaminated Water	Environmental Pollution	*Don't Know
Jully	59.5	21.4	2.4	16.7
Padag	34.0	30.2	0	35.8
Amuri	37.2	27.9	18.6	16.3
Chilghazi	33.3	37.0	14.8	14.8
Chagai	50.0	10.5	0	39.5
Ziarat Balanosh	23.4	0	0	76.6
Total	38.6	22.0	6.1	33.2

*response of the interviewee who did not know if above-mentioned causes lead to diarrheal diseases

Hand Washing

Hand washing module included questions regarding observing place of hand washing; availability of water, soap and detergent etc. at hand washing place; hand washing practice before eating and after defecation. One question about women hand washing practice before kneading flour and cooking also formed part of this module. In all union councils only 35% households allowed seeing their place of hand washing. Among these, 50% did not have water at their hand washing place: presence of soap or detergent at hand washing place was 70% Hand washing practice before eating is prevalent but it was not found safe as majority washed hand without soap (66%).

Table 30 Hand Washing Practice before Eating (Result in percent)

Union Councils	All with soap	All without soap	Some with soap	No one washes hands	*Don't Know
Jully	23.7	47.4	23.7	0	5.3
Padag	2.1	79.2	8.3	2.1	8.3
Amuri	43.2	40.5	16.2	0	0
Chilghazi	27.7	66.0	4.3	0	2.1
Chagai	14.3	71.4	5.7	0	8.6
Ziarat Balanosh	2.2	82.2	0	0	15.6
Total	18.0	65.6	9.2	0.4	6,8

*percentage of those respondents who could not tell about hand washing practice of their family members

Results of hand washing after toilet use also do not show healthy trend because 40% members of households visited do not wash hand with soap. Highest percentage is in Chagai followed by Ziarat Balanosh. These statistics call for making efforts to raise awareness level about danger of not washing hands or washing hands without soap: both before eating meals and after toilet use.

Table 31 Hand Washing Practice after Toilet Use (Result in percent)

Union Councils	All with soap	All without soap	Some with soap	No one washes hands	*Don't Know
Jully	23.1	43.6	15.4	0	17.9
Padag	4.1	42.9	40.8	0	12.2
Amuri	47.5	30.0	22.5	0	0
Chilghazi	66.0	14.9	19.1	0	0

Union Councils	All with soap	All without soap	Some with soap	No one washes hands	*Don't Know
Chagai	21.6	56.8	18.9	2.7	0
Ziarat Balanosh	33.3	55.6	4.4	0	6.7
Total	32.7	40.1	20.6	0.4	6.2

*percentage of those respondents who could not tell about hand washing practice of their family members

Incidence of waterborne diseases

Drinking water, before it enters human body, passes through different stages. From the source to a glass, there are potential contamination threats. Therefore, not only safe source of water prevents spread of waterborne diseases but how water is stored at household level and whether clean drinking water pots / glasses are used also matter. In both urban and rural areas, it is observed that difference exist between perceptions and practice. Mostly, people say that cleanliness at household level and outside houses is good and mandatory but observing life style of people tells another story. The baseline survey data shows that incidence of water borne diseases is alarmingly high in Chagai (44.7%) in Ziarat balanosh (50%). Padag and Chilghazi also show significant number of cases. Further, it is not only any one family members that got affected but in all cases more than one person in the household fell ill of diarrheal disease. The following table describes prevalence rate of diarrheal diseases in all the union councils.

Table 32 Prevalence of diarrheal disease (Result in percent)

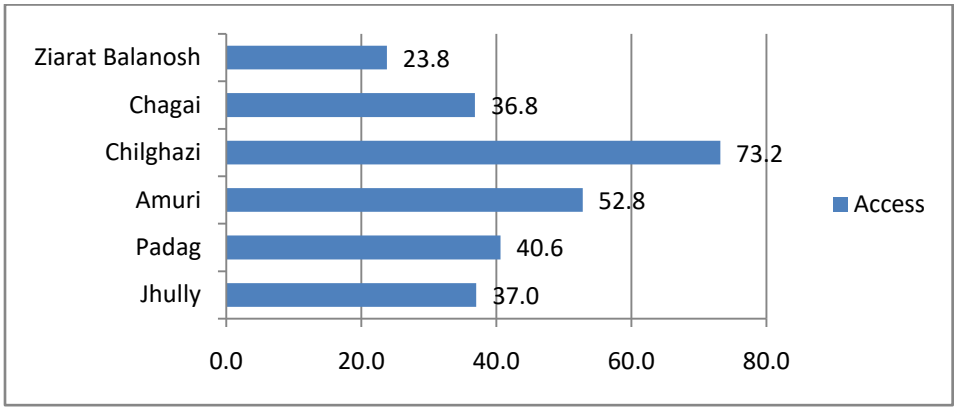
Union Council	Yes	No	Don't Know	More than one person affected
Jully	11.8	88.2	0	46.2
Padag	24.5	75.5	0	25.0
Amuri	7.5	92.5	0	41.7
Chilghazi	24.0	74.0	2.0	38.5
Chagai	44.7	52.6	2.6	39.1
Ziarat Balanosh	50.0	47.8	2.2	36.6
Total	27.6	71.2	1.2	46.2

In Amuri, 100% instances of such cases were reported to have occurred in the past two months of the survey time while in other union councils these instances were in the past 2 to 4 months' duration. About

50% of the respondents could not tell the amount of money that was spent on treatment of diarrheal diseases. Those who could tell about their households' expenditure on treatment of water borne diseases, their expenditure ranged from Rs. 200 to Rs. 500.

On the whole, only 48% of the households visited said they had access to health facility. Union council wise position is given below.

Figure 3 Access to Health Facility (Result in percent)



Question about persons getting ill because of Typhoid, Hepatitis, Polio, Meningitis and other diseases was asked. In 25% instances in all the union councils more than one person was affected by above mentioned diseases. Union council wise status is as under.

Table 33 Percent of More than on Household Member Falling Ill due to Different Diseases (%)

Union Councils	Jully	Padag	Amuri	Chilghazi	Chagai	Ziarat Balanosh	Total
Percent	0	14.3	50	40	14.3	20	25

Among four listed diseases (typhoid, hepatitis, polio and meningitis), occurrence of typhoid, hepatitis and meningitis was reported by the respondents. On the whole, percentages of incidence of these diseases do not show much difference: typhoid 4.8%, hepatitis 4.5% and meinigitis 3.4%. Padag has the highest percentage of hepatitis cases while Jully has none. Proportion of meningitis cases in Chagai is relatively high. Union council wise statistics are given on next page.

Table 34 Incidence of Different Water Borne Diseases (Resutl in percent)

Union Councils	Typhoid	Hepatitis	Meningitis	Other	None of listed disease	Don't know
Jully	3.7	0	0	3.7	88.9	3.7
Padag	5.3	12.3	0	1.8	80.7	0
Amuri	7.1	2.4	0	7.1	83.3	0
Chilghazi	5.8	3.8	1.9	3.8	82.7	1.9
Chagai	3.9	3.9	13.7	15.7	62.7	0
Ziarat Balanosh	3.2	1.6	3.2	12.7	74.6	4.8
Total	4.8	4.5	3.4	7.9	77.7	1.7

33.3% of such cases occurred during past 2 months while 46.7% during past 4 to 6 months. 52% of respondent could not tell about expenditure incurred on treatment of these diseases. Those who told treatment expenses, their amount incurred for treatments was higher than the amount spent on treatment of diarrheal diseases. Range of expenses on treatment of above mentioned diseases was from Rs. 600 to 370,000 while on diarrheal diseases it was from Rs. 200 to Rs. 5000. All population of the target-union councils faces problems in having access to proper health facilities. In Ziarat Balnosh coverage of health facilities is very poor as only 23.8% of the respondents reported to have access to health facilities.

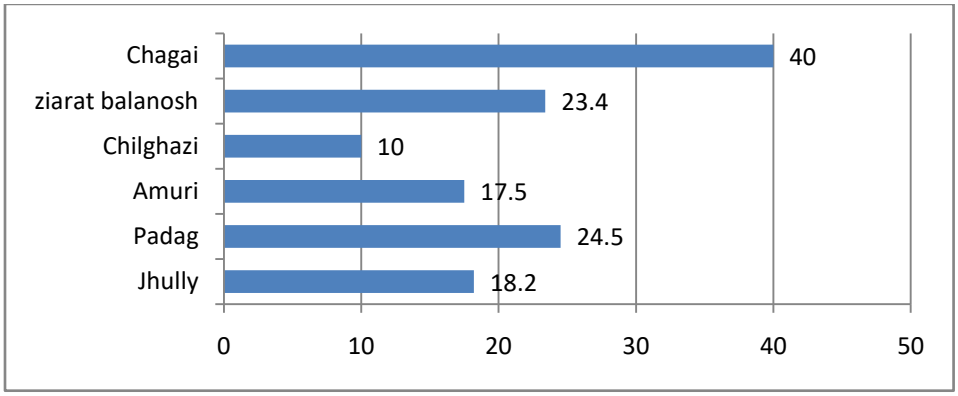
Table 35 Access to Health Facilities (%)

Union Councils	Yes	No	Don't Know
Jully	37.0	59.3	3.7
Padag	40.6	53.1	6.3
Amuri	52.8	36.1	11.1
Chilghazi	73.2	22.0	4.9
Chagai	36.8	57.9	5.3
Ziarat Balanosh	23.8	76.2	0
Total	47.7	46.6	5.7

Eye Care

Under this module, the surveyors asked the respondents that in past six months time whether anyone in their household had an eye infection. In all union councils there were cases of eye infection with Chagai union council at the top having 40.5% instances. Situation in other union councils is as follows (results in percent).

Figure 4 Incidence of Eye Infection (Result in percent)



Amount spent on treatment of disease varied greatly: the lowest expenditure was Rs. 150 while highest Rs. 50,000, which must have involved eye operations.

Presence of eye care treatment facility is reported to be quite low in all the union councils. Ziarat Balanosh presents a distressing picture as no facility is reported there. Amuri fares well among all UCs. 2.6% of the respondents could not tell if any eye treatment facility existed.

Table 36 Eye care facility in the area

Union Councils	Clinic	Eye hospital	No facility available	Other	Don't know
Jully	3.8	0	84.6	0	11.5
Padag	7.7	0	92.3	0	0
Amuri	27.3	0	69.7	0	3.0
Chilghazi	6.3	0	81.3	6.3	6.3
Chagai	3.8	0	96.2	0	0
Ziarat Balanosh	0	0	100.0	0	0
Total	8.2	0	87.7	1.0	3.1

Well over a quarter of the patient had treatment at home in all areas while 51.5% visited doctors. Self-medication trend is noticed high in Chagai and Ziarat Balanosh having percentage of 60 and 63.6 respectively. 4.1% of the respondents could not tell where and how the patient was treated.

Table 37 Where / who Treated Eye Patient (Result in percent)

Union Councils	At home	doctor	Hakeem (herb doctor)	Other
Jully	42.9	50.0	0	0
Padag	25.0	75.0	0	0
Amuri	9.1	54.5	27.3	9.1
Chilghazi	11.1	77.8	11.1	0
Chagai	60.0	26.7	0	0
Ziarat Balanosh	63.6	36.4	0	0
Total	37.5	51.4	5.6	1.4

Above statistics call for raising awareness on preventive measures to avoid eye infection and at the same time indicate need to establish eye treatment facility to reduce incidence of eye infection.

Water and Sanitation

Definitions of 'improved' and 'un-improved' sources of drinking water used in Multiple Indicator Cluster Survey (conducted across the world mostly with technical support of UNICEF) have been used for this survey. Improved water sources include: piped water, public standpipe or tap, hand pump, donkey pump / turbine or protected dug well. 'Unimproved' consists of: unprotected dug well, pond, river, stream, canal, spring, tanker truck, donkey-cart tanker and bottled/canned water.

Common observation that mostly unsafe (which are not covered or protected from potential contamination) drinking water sources are used conforms to results of the survey. The results indicate that most of the respondents in the target union councils are using unsafe drinking water sources. The results are presented on next page.

Table 38 Source of Drinking Water

Union Council	Tap in house	Public tap	T/Well, Boring	Safe well	Unsafe well	Safe Karez	Unsafe karez	Rain water	Pond/ tank	Others
Jully	0	0	0	62.5	37.5	0	0	0	0	0
Padag	0	4.0	14.0	48.0	12.0	0	2.0	20.0	0	0
Amuri	0	0	0	37.5	62.5	0	0		0	0
Chilghazi	2.0	10.0	0	40.0	28.0	8.0	10.0	0	2.0	0
Chagai	25.0	0	0	27.5	22.5	0	0	0	0	25.0
Ziarat Balanosh	0	0	0	22.0	78.0	0	0	0	0	0
Total	4.1	2.6	2.6	39.3	40.0	1.5	2.2	3.7	0.4	3.6

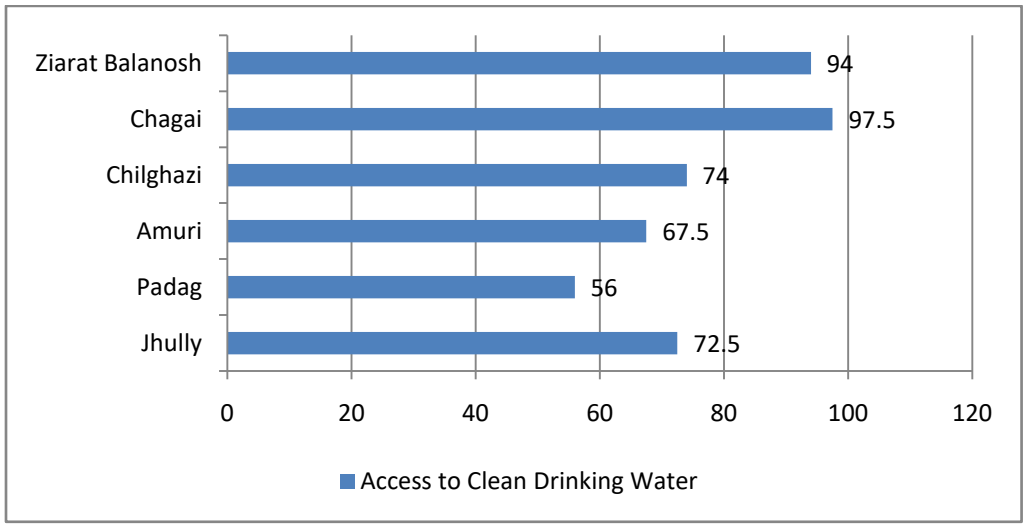
Typically, the location of source of water is neither in one's own dwelling nor in the yard/plot. When the source is located elsewhere, time to fetch water varies. A drinking water source is considered to be adequately accessible if it is situated at either up to 2 KM of distance or is 1 ½ hours away (walking distance) or is in household. It does not imply availability of sufficient amount of water. Household access to improved drinking water sources ranges from 12 to 120 minutes. Overall figures are as under:

Table 39 Time required to fetch water (Result in percent)

Union Council	Up to 10 Minutes	11 to 30 Minutes	31 to 60 Minutes	above 60 Minutes	Do not Know
Jully	37.0	26.1	21.7	10.9	4.3
Padag	15.0	50.0	2.5	32.5	0
Amuri	23.5	47.1	29.4	0	0
Chilghazi	14.9	68.1	6.4	10.6	0
Chagai	34.7	61.2	0	0	4.0
Ziarat Balanosh	42.4	50.8	6.8	0	0
Total	29.5	51.2	8.9	8.9	1.6

In all union councils, 76.7% of the population has access to clean drinking water. Graphical presentation of union councils' situation with regard to clean drinking water is shown below.

Figure 5 Access to Clean Drinking Water (%)



Clean water does not necessarily mean safe water. It may have pathogenic (illness causing) microorganisms or harmful levels of poisonous chemicals or radiation. Percentage of water treatment, to make it safe for drinking, on the whole is 31.5%. In Padag, Ziarat Balanosh and Chagai it is under 10% while in other union councils it is about 50% or above. Examining these results with incidence of water borne diseases in various union councils, it is evident that higher percentage of water treatment can reduce incidence of water borne diseases.

Table 40 Treatment of drinking water (%)

Treat water to make safer for drinking		
Union Councils	Yes	No
Jully	72.5	27.5
Padag	6.0	94.0
Amuri	65.0	35.0
Chilghazi	48.0	52.0
Chagai	5.0	95.0
Ziarat Balanosh	2.0	98.0
Total	31.	68.5

The survey enquired from the respondents whether drinking water containers in their households were covered. In all union councils over 90% of the households kept their drinking water containers under cover except in Jully where this percentage was 87.5. Quality of drinking water with

regard to it taste was found to be OK (over 80%): only in Jully and Padag the percentages were 72.5 and 76.0 respectively.

Table 41 Taste of Drinking Water (%)

Union Councils	Sweet/ tasteless	Bitter	Brackish	Don't Know
Jully	72.5	5.0	12.5	10.0
Padag	76.0	0	14.0	10.0
Amuri	87.5	0	10.0	2.5
Chilghazi	86.0	4.0	6.0	4.0
Chagai	97.5	0	0	2.5
Ziarat Balanosh	94.0	0	0	6.0
Total	85.6	1.5	7.0	5.9

Quality of water with regard to it hardness, as perceived by the respondents, is good. 48.9% of the respondent said that the water that they used made lather easily while 27.4% told that it did not and 23.7% did not know if it made lather easily. Union council wise position is as under:

Table 42 Whether Water Used by Households Produces Lather Easily (%)

Union Council	Yes	No	Don't Know
Jully	60.0	22.5	17.5
Padag	58.0	16.0	26.0
Amuri	52.5	22.5	25.0
Chilghazi	60.0	20.0	20.0
Chagai	47.5	17.5	35.0
Ziarat Balanosh	18.0	62.0	20.0
Total	48.9	27.4	23.7

Role of children and women was assessed through focus group discussion in various activities like fetching water for household use and doing other works. When asked whether children like to fetch water for household use, most of them replied that they do not like this but were compelled by circumstance to do so. They added that they found it laborious to bring water. Children termed both drawing water out of wells and taking it to home as very tough activities. Younger children could draw water out of well but informed that handling hand driven cart was difficult. Limited number of children enjoyed bringing water. Other types of work that the children had to do included brining woods, fodder and taking livestock for grazing.

Sanitation

Use of proper sanitation facilities in the sample areas did not exhibit encouraging figures. A larger proportion of population does not have any type of toilet facility and uses open spaces like bushes or fields (Jully: 90%, Padag: 92%, Amuri: 70%, Chilghazi: , Chagai: 62% and Ziarat balanosh: 100%. Only in Chagai, a small fraction of population uses some type of toilet facility (10% Ventilated Improved Pit latrine (VIP) and 22.5% Pit latrine with slab) and these facilities are not attached to any kind of sewer system. Wherever any toilet facility is used, it is utilized by all members of the households. However, in Jully and Padag in 50% cases the toilet facilities were used only by women and children.

Table 43 Percentage of Household Members Using Toilet Facility (Result in percent)

Union councils	Only women	Children	All HH members
Jully	50.0	0	50.0
Padag	25.0	25.0	50.0
Amuri	0	0	100.0
Chilghazi	0	0	100.0
Chagai	0	0	100.0
Ziarat Balanosh	0	100.0	0
Total	12.0	8.0	80.0

Sewerage system in all areas of the target union councils did not exist, except for a fraction (1.3%): 2.2% respondents could not confirm existence of sewerage system in their areas. Analysis of Public Sector Development Program of the provincial government shows that the government has not paid much attention to developing sanitation infrastructure.

Table 44 UC wise availability of sewerage system (%)

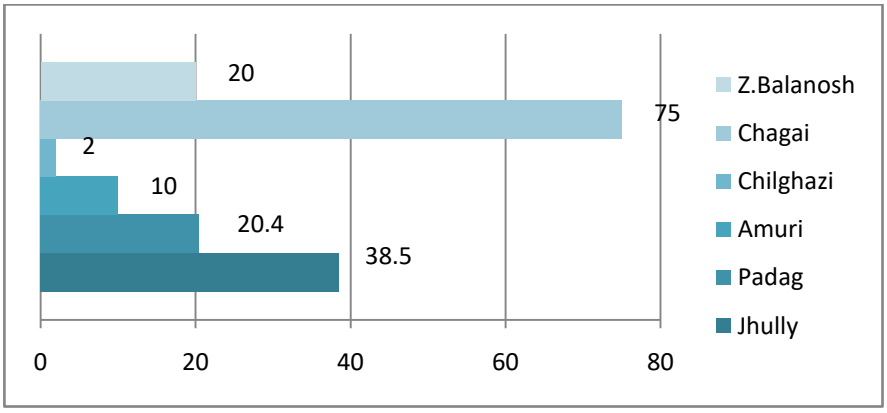
Union Councils	Whether sewerage system available in area	
	Yes	No
Jully	3.7	96.3
Padag	2.1	93.8
Amuri	2.6	97.4
Chilghazi	0	100.0
Chagai	0	91.7
Ziarat Balanosh	0	100.0
Total	1.3	96.5

Community Organization

In case of Chagai where public service infrastructure is thin and quality of services being provided is also weak. Review of education, livestock facilities data in details in the target UCs show that the public service facilities are not performing at their designed capacity due to various reasons like annual operation and maintenance funds are not provided adequately, lack of capacity and commitment. As gaps existed in services, the need to form welfare organizations emerged.

The baseline survey checked presence of community organizations and their status of being functional. Overall, in all target union councils, the presence of the community organizations was confirmed to be 26% by the respondents. Graphical summary of results (in percent) is given below.

Figure 6 Presence of Community Organizations (%)



Presence of community organization is week in the target UCs as reported by the respondents. Among the existing community organizations, more than 50% were reported to be non-functional. Except in Ziarat Balanosh and Padag, the respondents informed that the community organizations were mostly non-functional. In Jully, 33.3% respondents said the COs were non-functional: in Amuri, Chagai, Ziarat Balanosh and Padag the percent response were 50, 30, 80 and 90 respectively. Since in Chilghazi, the evidence of presence of CO was very insignificant, the response on being functional could not found.

The performance rating by the respondent of the COs, on the whole, was not high (16% only). Union council wise performance has been tabulated below.

Table 45 Performance of COs

Union Councils	Excellent	Good	Average	Bad	Don't know
Jully	21.4	57.1	--	--	21.4
Padag	30.0	40.0	30.0	--	--
Amuri	25.0	50.0			25.0
Chilghazi	--	--	--	100.0	--
Chagai	11.8	58.8	5.9	5.9	17.6
Ziarat Balanosh	--	70.0	--	--	30.0
Total	16.1	55.4	7.1	3.6	17.9

Renewable Energy

The baseline survey enquired the respondents about presence of solar street lights, sources of wind energy and solar hand pumps. In six union councils, 27 villages were visited to get this response and in each village 10 households were visited. Presence of street lights was reported by the respondents in all union councils except for Ziarat Balanosh. 1.5% respondents in all UCs could tell anything about presence of solar street lights. In areas where the presence was reported, it came out to be very limited.

Table 46 Presence of solar street lights (%)

	Presence of solar street lights	
Union Councils	Yes	No
Jully	47.2	52.8
Padag	4.1	95.9
Amuri	27.5	70.0
Chilghazi	20.4	79.6
Chagai	25.6	71.8
Ziarat Balanosh	0	95.7
Total	19.3	79.2

Those few respondents, who could report year of installation of the solar street lights, said that the lights were installed in the years 2006, 2009 and 2012 respectively. Overwhelming majority of the respondents could not tell the number of solar lights installed as well. The highest percentage reported was 17 numbers of lights.

Table 47 Number of Solar Lights Installed in UCs (%)

Union Councils	Number of solar lights						
	1	2	3	12	16	17	Don't Know
	Percentage						
Jully	0	16.7	16.7	0	0	0	66.7
Padag	0	50.0	50.0	0	0	0	0
Amuri	9.1	0	0	0	9.1	81.8	0
Chilghazi	0	0	0	100	0	0	0
Chagai	0	0	0	0	0	0	100
Total	2.5	7.5	7.5	25	2.5	22.5	32.5

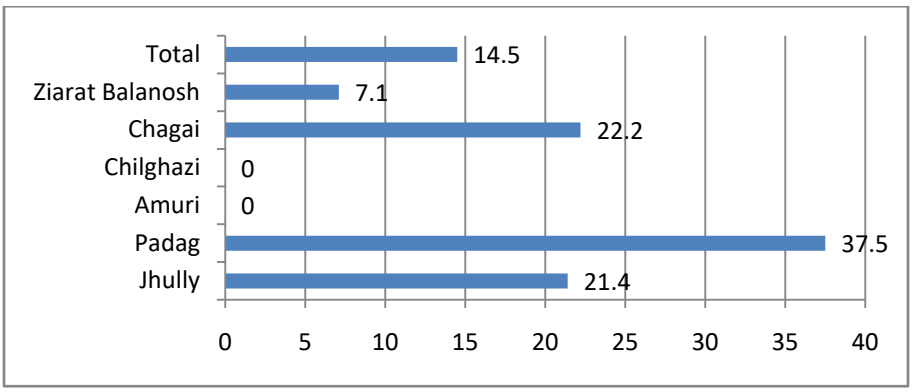
In rural areas, wind energy is also being used though sparingly. Questions were included to know presence of wind energy use. Only 6% of the respondents reported wind energy being utilized in the shape of wind mill. 2.3% respondents did not know about presence of wind mill sources. Over 60% could not tell when these wind mills were installed.

Table 48 Presence of Wind Energy Source by UC (%)

Union Councils	Yes	No
Jully	11.5	80.8
Padag	2.3	97.7
Amuri	20.5	79.5
Chilghazi	0	97.9
Chagai	3.4	93.1
Ziarat Balanosh	0	96.9
Total	6.0	91.7

Presence of solar hand pumps was also nominal. In areas visited in Amuri and Chilghazi, none of the respondent reported presence of solar hand pump. In other UCs, some instance were reported. 21.4%, 37.5%, 22.2% and only 7.1% of the respondents in Jully, Padag, Chagai and Ziarat Balanosh respectively said there were solar hand pumps in their areas. Reliable estimates of number of these hand pumps could not be obtained.

Figure 7 Presence of Solar Hand Pumps (%)



Besides, the survey also enquired the respondents about presence of any solar system and other sources of power in their households. The following results show that coverage of electricity is almost negligible and presence of other sources of power is also insignificant.

Table 49 Source of Power for the Household (%)

Union councils	Electricity	Generator	UPS	Solar system
Jully	2.8	0	8.3	25
Padag	0	6.1	2.0	12.2
Amuri	0	0	0	15.0
Chilghazi	0	8.0	0	16.0
Chagai	0	7.7	2.6	10.3
Ziarat Balanosh	0	2.1	0	0
Total	0.4	4.2	1.9	12.6

Study of above tables indicates potential of installation of solar system at household level.

While designing a solar system for households, two important points should be considered carefully. First, power of the battery (in amperes) and second the limit of discharge of its power. If a battery is discharged more than 70%, it will have shorter life. It may not last longer than a year or so. Therefore, it will have to be replaced. As most of the population is poor, cost of replacing batteries may not be in reach of the poor households. To save battery for night use, additional solar panels should be installed for use during the day. These solar panels can supply power to fans and other small electric appliances directly through power invertor.

Power infrastructure in rural areas needs a lot of extension work but availability of finances has been a constant problem. Imagining electricity supply to every settlement across Balochistan (having a large area and difficult terrain) appears a wild dream in present circumstances. Extension of energy infrastructure is slow and on the other hand, there is huge gap between demand and supply. At current pace, if alternate energy solutions are not used, rural communities will remain deprived of benefits associated with electricity. Possible options to use solar and wind energy in the target union council are:

a. Solar systems for households' use
b. Solar cookers
c. Solar street lights

The survey result about kitchen fuel indicates that in all union councils most of the households are using wood: the practice of wood cutting has adversely affected forests and rangelands. With permanent reliance on firewood for kitchen fuel and no reforestation and rangeland improvement, environment will keep deteriorating thus reducing precipitation amount gradually. Use of solar cooker can slow depletion of wood resources and can provide clean environment friendly fuel. Solar cooker can be used to boil water, prepare tea and cook food. As sunshine in Chagai is abundant, solar cooker can work well. If solar products are introduced in the target union council, this will have double impact on the population: first, it will provide a cheap source of energy, second it will provide livelihood opportunities for those who want to do this business in their area.

Annexure

List of Indicators by sector for the Baseline Survey

Livelihood

1. Household members engaged in earning for the households (youth, women and others age wise)
2. Number of hours spent in labor work (men, women, children)
3. Access to service facilities like health and education
4. Household members having technical skills of any type that may contribute to economic activities (gender disaggregated data)
5. Access to market for sale of agriculture / livestock
6. Direct sale to customers or middleman involved

Agriculture

7. Agriculture assets (land and implements)
8. Sources of irrigation
9. Income from sale of agriculture produce
10. Methods of irrigation
11. Water conveyance system for irrigation (katcha / packa channel)
12. Presence of any high efficiency irrigation system

Livestock

13. Livestock assets (by breed)
14. Animals vaccinated
15. Income from sale of livestock

Water and Sanitation

16. Sources of water by type
17. population having access to improved drinking water
18. population having improved drinking water on premises
19. population having access to clean water
20. population having access to improved sanitation
21. means of water storage
22. households using treated water
23. water treatment by type

Health

27. Incidence of water related diseases
28. Household monthly expenditure on health (arising from water related diseases)
29. Hand washing practices
30. Defecation practices

Community Organizations

31. Existence of COs
32. Functional status of COs
33. Effectiveness of COs

Awareness status

34. Awareness about health and hygiene (keeping cleanliness in surrounding, way of disposing of garbage, hand washing practice, knowledge about conditions of drinking water, knowledge of water related diseases

QUESTIONNAIRE

Baseline Survey on

- **Initiatives for Sustainable Livelihood Opportunities**
- **Water and Sanitation**
- **Safe and Clean Drinking Water**

Chagai Balochistan

Questionnaire No										
				1	2	3	4	5	6
Household		Cluster		Jully	Padag	Amuri	Chil-ghazi	Chagai	Ziarat Balanosh

Islamic Relief Pakistan, SMAAJ

(Introduction by the filed teams) We are conducting a survey. Purpose of this survey is get information about water and sanitation, means of livelihood and household expenditure etc. so that based on this information better facilities can be provided. All the information that we obtain will remain strictly confidential. Your answers are very important for us and will play an important role in development of your area.

Z1: Interviewer's name .....
Z2: Supervisor's name .....
Z3: Record Date: __ __ / __ __ / __ ____ __

(Z4) May I start now?	Z5: Result of household interview:
☐ *Yes, permission is given* ☐ *No, permission is not given*	Completed ..... 1 Not at home..... 2 Refused ..... 3 Household not found / destroyed / vacant ..... 4 Incomplete ……. ..... 5 Other (*specify*) …… 6

Z6: Name of Data Entry Person .....
Z7: Record Data Entry Date: __ __ / __ __ / __ ____ __
Z8: Record Time: House __ __, Minutes __ __

HOUSEHOLD LIST											
HL1	HL2	HL3	HL4		HL5	HL1	HL2	HL3	HL4		HL5
Line No.	Name	Is (name) MALE OR FEMALE? 1 Male 2 Female	WHAT IS (name)'S DATE OF BIRTH?		How old is (name)? Record in completed years. If age is 95 or above, record '95'	Line No.	Name	Is (name) MALE OR FEMALE? 1 Male 2 Female	WHAT IS (name)'S DATE OF BIRTH?		How old is (name)? Record in completed years. If age is 95 or above, record '95'
Line	Name	Code	Month	Year	Write code	Line	Name	Code	Month	Year	
01		1 2	__ __	__ __ __ __	__ __	13		1 2	__ __	——— __	
02		1 2	__ __	__ __ __ __	__ __	14		1 2	__ __	——— __	
03		1 2	__ __	__ __ __ __	__ __	15		1 2	__ __	——— __	
04		1 2	__ __	__ __ __ __	__ __	16		1 2	__ __	——— __	
05		1 2	__ __	__ __ __ __	__ __	17		1 2	__ __	——— __	
06		1 2	__ __	__ __ __ __	__ __	18		1 2	__ __	——— __	
07		1 2	__ __	__ __ __ __	__ __	19		1 2	__ __	——— __	
08		1 2	__ __	__ __ __ __	__ __	20		1 2	__ __	——— __	
09		1 2	__ __	__ __ __ __	__ __	21		1 2	__ __	——— __	
10		1 2	__ __	__ __ __ __	__ __	22		1 2	__ __	——— __	
11		1 2	__ __	__ __ __ __	__ __	23		1 2	__ __	——— __	
12		1 2	__ __	__ __ __ __	__ __	24		1 2	__ __	——— __	

Household Income & Asset					
IA1	What is basic source of family income?	1. Agriculture, 2. Livestock, 3. Govt. job, 4. Private job, 5. Personal Business, 6. Labor work, 6. Other, 9. Don't know			
IA2	What is total monthly income of your family?	Rs…….. Don't know……..9	IA7	If answer to IA1 is 2 then ask else go to IAL12 Do you have access to markets for sale of your agriculture produce?	Yes……1 No……2 Don't know……9
IA3	If answer to IA1 is 2 then ask else go to IAL7 Do you have access to markets for sale of your livestock?	Yes……1 No……2 Don't know……9			
IA4	How do you sell your livestock?	Directly to customer…….1 Through middleman…….2	IA8	How do you sell your agriculture produce?	Directly to customer…….1 Through middleman…….2
IA5	Total annual income from sale of livestock?	Rs. …….. Don't know ……..9	IA9	Total annual income from sale of agriculture produce?	Rs. …….. Don't know ……..9
IA6	Number of livestock animals?	Sheep _____ Goat _____ Buffalo _____ Cow _____ Camel _____ Don't know……..9	IA10	What is status of ownership of agriculture land?	Personal ……1 Tenant ……2 Other……6 Don't know ……9

IA11	What is total area of agriculture land?	_____Acres Don't know……9	IA13	What is type of your house / dwelling?	Katcha ……1 Pakka ……2 Other ……6
IA12	What is status of ownership of your house / dwelling?	Personal……1 Rented ……2 Relative's……3 Other ……6 Don't know……9			
Livestock and Agriculture Practices					
LA1	If household is involved in livestock rearing then ask, else go to LA5 How do you arrange fodder for your livestock?	Take them to rangeland…1 Grow fodder……2 Buy fodder……3 Don't know……9	LA8	What means of irrigation water conveyance do you use?	Mud channel ……1 Lined channel ……2 Pipe……3 Other……6 Don't know……9
LA2	Do you have sufficient fodder for your livestock?	Yes ……1 No……2 Don't know……9	LA9	Do you have fertilizer available when needed?	Yes ……1 No……2 Don't know……9
LA3	In case of your livestock falling ill, what type of treatment facility do you have access to?	Public……1 Private……2 Don't know……3	LA10	How do you get fertilizer?	Purchase……1 Borrow……2 Use animal dung……3 Don't know……9
LA4	Is your livestock vaccinated or given medicine for prevention of diseases?	Yes ……1 No……2 Don't know……9	LA11	Do you or your household have seeds for agriculture or seedlings for crops?	Yes ……1 No……2 Don't know……9
LA5	(If family is involved in agriculture then ask else go to) What is your source of irrigation?	Tube well ……1 Spring ……2 Karez……3 Rain water ……4 Other……6 Don't know ……9	LA12	How do you get seeds for agriculture or seedlings for crops?	Purchase……1 Borrow……2 Don't know……9
LA6	What kind of reservoir is used for storing irrigation water?	Mud (katcha) pond ……1 Brick/Plastered pond …..2 Small dam……3 Medium dam……4 Other……6 Don't know ……9	LA13	Do you have scarcity of irrigation water?	Yes ……1 No……2 Don't know……9
AC6	What type of fuel does your household use for cooking?	Wood ……1 LPG ……2 Natural gas ……3 Coal……4 Animal dung……5 Electricity……7 Other ……6 Don't know……9	LA14	For what use is this scarcity?	Irrigation……1 Drinking……2 Don't know……9
			LA15	In which months of the years is this scarcity of water?	Months…… Don't know……9

LA7	What method of irrigation do you use?	Traditional ……1 Sprinkler/ trickle/drip…….2 Other……6 Don't know ……..9			

Individual's Income and Skills					
IC1	IC2	IC3	IC4	IC5	IC6
Household members (including females) who are involved in any income generating activity (note line number from above table)	What type of work are they involved in?	What is monthly income of each individual? (note even no income but individual is involved in agri./livestock activities)	How many hours are spent in work?	Does individual possess any skill(s)? 2 ⇨ next mod	What is the skill(s) that the individual possesses?
Line number	Type of work	Income in Rs.	Hours	1.Yes, 2.No	Skills
				1 2	
				1 2	
				1 2	
				1 2	
				1 2	
				1 2	
				1 2	
				1 2	
				1 2	
				1 2	
				1 2	
				1 2	
				1 2	
				1 2	
				1 2	
				1 2	

What does your household or any member of your household own from the following items? (Circle Codes)

D1	Items	Yes	No	Items	Yes	No
	A: Animal-drawn cart ……	1	2	J: Generator……	1	2
	B: Agriculture machinery ……	1	2	K: UPS ……	1	2
	C: Tractor ……	1	2	L: Radio……	1	2
	D: Truck ……	1	2	M: TV ……	1	2
	E: Car……	1	2	N: Cable……	1	2
	F: Motorcycle ……	1	2	O: Fridge ……	1	2
	G: Bicycle……	1	2	P: Computer……	1	2
	H: Electricity……	1	2	Q: Solar energy system……	1	2
	I: Air Conditioner (AC)……	1	2			

Household Expenditure					
E1	Total Monthly expenditure of	Rs. _____	E4	If there is no school /	Yes……

	household	Don't know……..9		madrassa, are still children getting education?	…1 No…… ….2
E2	Monthly food / eatables	Rs. _____ Don't know……..9	E5	Expenditure on education	Monthly fee Rs. _____ Annul Books Rs. _____ Uniform Rs. _____
E3	Is there any school / madrassa for children's education in your area?	Yes……1 No……2 Don't know……..9	E6	Monthly electricity bill (if HH has electricity)	Rs. _____ No electricity…….. 2 Don't know……9
E7	a. Monthly expenditure on illness treatment b. Annual expenditure on illness treatment	a. Rs._____ b. Rs. _____ Don't know……..9	E10	Annual Expenditure on dresses of all family members	Rs. _____
E8	Monthly expenditure on kitchen fuel	Rs. _____	E11	Household -use water user charges, if water is purchased	Rs. _____
E9	Fuel expenditure of motor bike, car, tractor etc. if exist	Rs. _____ Don't know……..9			

Awareness about Health and Hygiene								
HH1	Is cleanliness of body and environment a guarantee for good health?	Yes 1	No 2	DK 9	HH7	Can walking base-footed cause skin diseases and intestinal worms to born?	Yes 1	No 2	DK 9
HH2	Can drinking water be treated to make it free of germs?	1	2	9	HH8	Can there be germs in the kitchen?	1	2	9
HH3	Should drinking water be kept under cover?	1	2	9	HH9	Should eatable be always kept under cover?	1	2	9
HH4	Should clothes be washed in drinking water sources like pond or spring?	1	2	9	HH10	Should fruits and vegetables be washed before use?	1	2	9
HH5	Should garbage have a specific place in house?	1	2	9	HH11	Can germs be everywhere?	1	2	9
HH6	Do clean teeth and healthy gums ensure prevention of diarrhoeal diseases?	1	2	9	HH12	What are causes of diarrheal diseases?	Stale Food……1 Contaminated Water……2 Environmental Pollution……3 Don't Know……9		

	Eye Care				
EC1	Did any one in the household have eye infection in the past six months? 2 or 9 go to EC3	Yes……..1 No……..2 Don't know…9	EC4	Where / how were affected persons treated?	At home……1 By doctor……2 By *kakeem……3 Other……6 Don't know……9
EC2	Line number of affected person	…….. …….. …….. …….. ……..	EC5	How much time does it take to reach clinic / matab**?	Hours…… Minutes…… Don't know……9
EC3	What kind of eye-treatment facility is available in your area?	Clinic……..1 Eye hospital…2 Matab……3 No facility……4 Other……6 Don't know…9	EC6	How much money was spent on treatment of affected persons?	Rs…… Don't know……9

* herb doctor; ** Matab: clinic of herb doctor

WATER AND SANITATION		**WS**
WS1. What is the **main** source of drinking water for members of your household?	Piped water Piped into dwelling, compound, yard ..... 1 Piped to neighbour ..... 2 Public tap / standpipe ..... 3 Tube Well, Borehole ..... 4 Filter plant ..... 44 Dug well Protected well ..... 5 Unprotected well ..... 7 Water from Karez Protected Karez ..... 8 Unprotected Karez ..... 9 Water from spring Protected spring ..... 10 Unprotected spring ..... 11 Rainwater collection ..... 12 Pond ..... 13 Tanker-truck ..... 14 Cart with small tank / drum ..... 15 Surface water (river, stream, dam, lake, canal, irrigation channel) ..... 16 Bottled water ..... 17 Other (*specify*) _____ 66	1⇨WS6 2⇨WS6 3⇨WS6 WS3
WS2. Where is that water source located?	In own dwelling ..... 1 In own yard / plot ..... 2 Elsewhere 3	1⇨WS6 2⇨WS6

WS3 How long does it take to go there, get water, and come back?	Number of minutes ..... __ __ __ DK 998	
WS4. Who usually goes to bring water?	Women ..... 1 Children ..... 2 Men ..... 3 All ..... 4 Don't know 9	
WS5. Do you have clean water to for drinking purposes?	Yes ..... 1 No ..... 2 Don't Know 9	
WS6. Do you treat water to make it safer to drink?	Yes ..... 1 No ..... 2 Don't Know 9	2⇨WS8 9⇨WS8
WS7. What do you usually do to make the water safer to drink? *Probe:* ANYTHING ELSE? *Record all items mentioned.*	Boil ..... 1 Add bleach / chlorine ..... 2 Strain it through a cloth ..... 3 Solar disinfection ..... 4 Let it stand and settle ..... 5 Use water filter (ceramic, sand, composite, etc.) ..... 7 Other (*specify*) _____ 8 DK 9	
WS8. How is drinking water stored?	In drum ..... 1 In tank at house ..... 2 In tin containers ..... 3 In Can ..... 4 In bottles ..... 5 Other ..... 6 Don't Know 9	
WS9. Are water storage containers kept covered?	Yes ..... 1 No ..... 2 Don't Know 9	
WS10. How does drinking water taste?	Sweet/tasteless ..... 1 Brackish ..... 2 Bitter ..... 3 Don't know 9	
WS11. Does household-use water make lather easily?	Yes ..... 1 No ..... 2 Don't Know 9	
WS12. What kind of toilet facility do members of your household usually USE? *Circle only one option that is commonly used*	Flush / Pour flush Flush to piped sewer system ..... 1 Flush to septic tank ..... 2 Flush to pit (latrine) ..... 3 Flush to unknown place / Not sure / Don't Know where ..... 4 Pit latrine	

	Ventilated Improved Pit latrine (VIP) ..... 5 Pit latrine with slab ..... 7 Pit latrine without slab / Open pit ..... 8 Bucket ..... 10 No facility, Bush, Field ..... 11 Other (*specify*) _____ 66	1⇨WS14
WS13. How uses toilet facility present in the household?	Only women ..... 1 Children ..... 2 All HH members 9	
WS14. Does your area have proper sewerage system?	Yes ..... 1 No ..... 2 Don't know 9	2 OR 9⇨ NEXT MODE
WS15. Is this sewerage system usable / intact?	Yes ..... 1 No ..... 2 Don't know 9	
WS16. Is your house connected to this sewerage system?	Yes ..... 1 No ..... 2 Don't know 9	

Hand Washing					
HW1	Please show me where members of your household most often wash their hands. 2 go to HW4 3 go to HW4	Observed……1 Not observed Not in dwelling / plot / yard……2 No permission to see…….3 Other reason……6	HW4	Does housewife wash hand before kneading flour and cooking?	Yes..... 1 No..... 2 DK..... 9
HW2	Observe presence of water at the specific place for hand washing. Verify by checking the tap/pump, or basin, bucket, water container or similar objects for presence of water	Water is available……1 Water is not available……2	HW5	Do all household members wash hand before eating?	All with soap……1 All without soap……2 Some with soap…….3 No one washes……4 Don't know……9
HW3	Record if soap or detergent is present at the specific place for hand washing. Circle all that apply.	Bar soap……1 Detergent (Powder / Liquid / Paste) ……2 Ash / Mud / Sand……3 None……8	HW6	Do all household members wash hand after using toilet?	All with soap……1 All without soap……2 Some with soap……3 No one washes……4 Don't know……9

	INCIDENCE OF WATER OF WATER BORNE DISEASES				
WB1	Did anyone in the household fall ill due to diarrhoeal disease in recent past? 2 or 9 go to WB6	Yes .....1 No .....2 Don't Know.....9	WB7	Did anyone in the household fall ill because of the following diseased? Y OR Z go to next mod	Typhoid .....A Hepatitis .....B Polio .....C Meningitis .....D Other.....X No disease.....Y DK.....Z
WB2	Did more than one person fall ill due to diarrhoeal diseases?	Yes .....1 No .....2 Don't Know.....9	WB8	Did more than one person fall ill due to above diseases?	Yes..... 1 No..... 2 Don't Know 9
WB3	Since when did this disease affect?	Past 2 months.....1 Past 4 months.....2 Past 6 months.....3 Don't Know.....9	WB9	Since when did this disease affect or when was it diagnosed?	Past 2 months ..... 1 Past 4 months ..... 2 Past 6 months ..... 3 Don't Know 9
WB4	Line number of persons falling ill	…… …….. …… …… …… ……	WB10	Line number of persons falling ill	…… …….. …… …… …… ……
WB5	How much expenditure was incurred on treatment of disease?	Rs… ..... Don't Know.....9	WB11	How much expenditure was incurred on treatment of disease?	Rs… ..... Don't Know 9
WB6	Do household members have access to health facilities?	Yes .....1 No .....2 Don't Know.....9			

	Community Organizations				
CO1	Are there any community organizations in your area? 2 or 9 go to next mod	Yes .....1 No .....2 Don't Know.....9	CO3	How is performance of these organizations in your opinion?	Excellent.....1 Good .....2 Average .....3 Bad .....4 Very bad.....5 Don't Know 9
CO2	Are these organizations still functional? 2 or 9 go to next mod	Yes .....1 No .....2 Don't Know.....9			
	Renewable Energy				
RE1	Are there solar lights installed in your area? 2 or 9 go to RE 4	Yes .....1 No .....2 Don't Know.....9	RE5	What is this source?	Wind mill.....2 Other.....6 Don't Know 9
RE2	When were these lights installed?	Period ..... Don't Know.....9	RE6	Are there solar hand pumps installed in your area? 2 or 9 TM	Yes.....1 No.....2 Don't Know 9
RE3	What is quantity of the installed lights?	Quantity..... Don't Know.....9	RE7	When were these pumps installed?	Period..... Don't Know 9
RE4	Is there any source in your area for getting wind energy? 2 or 9 go to RE6	Yes .....1 No .....2 Don't Know.....9	RE8	What is the quantity of the installed pumps?	Quantity ..... Don't Know 9

TM. Record the time: Hour __ __ , Minutes __ __

INTERVIEWER'S OBSERVATIONS

SUPERVISOR'S OBSERVATIONS

Focus Group Discussion Questions

Instructions for Teams Conducting FGDs

- Team leader will ask questions and facilitate discussions while other two members will note down response of the participants. The responses of the participants have to be noted down in detail. Teams have to remember that FGD is not a question / answer session but a discussion forum.
- Introduce your teams and yourself and thanks all participants of the session
- Explain objectives of the FGD and tell the participants that their answer will be kept confidential.
- Narrate rules of discussion. They are:
  - ✓ Everyone is requested to give his / her opinion
  - ✓ Only one person should talk at a time
  - ✓ Discussion should be on given topic / questions only
  - ✓ Time limits should be kept in mind
  - ✓ If any question is not understood properly, explanation may be asked from the facilitators
  - ✓ No question or answer is right of wrong but these reflect views / opinions

Further as a facilitator:

- ✓ Keep a watch that one person does not dominate discussions all the time
- ✓ In explanation to a question or an answer adopt neutral stance
- ✓ Groups constitution should be of similar type of participants and those of equal status

Questions for FGDs

1. What kinds of crops are grown in your area during Kharif season (6th Apr to 15th Oct)?
2. Can better crops be grown during this season?
3. If yes, what are those crops?
4. What kinds of crops are grown in your area during Rabi season?
5. Can better crops be grown during this season?
6. If yes, what are those crops?
7. Do you people face deficiency of water for agriculture use?
8. If yes, what do you do to overcome this deficiency?
9. Do you people face drinking water deficiency too?
10. If yes, what do you do to overcome this deficiency?
11. What types of small ruminants breeds are used in your area?
12. Keeping in view environment and climate, can other types of breeds be used?

13. If yes, what are those types?
14. Do you people take any measures for better health of your livestock animals?
15. If yes, what are those measures?
16. What other type of animals are used as livestock?
17. Can better types of livestock animals, other than existing ones, be used in your area?
18. What method do you people adopt to sell your livestock?
19. Is there any role of middleman in trade of livestock?
20. If there is any role of middleman, do you people think that you get due profit?
21. Similarly, by involvement of middleman in trade of agriculture produce do you people get due profit?
22. Can you feel that environment and climate change has occurred during past 15-20 years? If yes, what are environmental and climatic changes that you noticed? Further, what are the factors causing these changes?
23. Did environmental and climatic changes affect availability and quantity of water?
24. Did environmental and climatic change affect agriculture?
25. Did environmental and climatic change affect livestock?
26. Were these effects negative or positive? How can negative effects be avoided?
27. What can we do to conserve water resources?
28. Can we play any role in betterment of environment? If yes, what should we do?
29. Are there any means of getting solar or wind energy in your area? If yes, what are those means and in what way they can be used?

Question for Children and Women

For Children:

30. Do you have to fetch drinking water for home use?
31. Do you like fetching drinking water for home use?
32. Do you feel any difficulty in fetching drinking water?
33. Should children do any work besides studying?
34. What type of work do you have to do?
35. Do you like to do any kind of work?

For Women:

36. Do you have to shoulder burden of household expenses?
37. Should women do any work to increase family income?
38. In what livelihood area should women work to increase family income?
39. If women are willing to work to earn, what kind of problems do they face?
40. In your area, what kind of work, relating to agriculture, women are involved in?

41. What kind of skills do you women need for livelihood and what kind of training do you need?

List of persons consulted

1. Mr. Ghaus Bakhsh Marri, Joint Chief Economist (Social Sectors), P&D department, Balochistan
2. Mr. Ghulam Ali Baloch, Secretary, Forest Department, Balochistan
3. Mr. Shiekh Nawaz, Additional Secretary, PHE department, Balochistan
4. Mr. Khudaidad Khan Kakar, Chief Agriculture, P&D Department
5. Mr. Fateh Khan Khajak, Additional Secretary, Irrigation department, Balochistan
6. Mr. Khalid Pervez, Deputy Director, Bureau of Statistics, Balochistan
7. Mr. Rashid Razaq, Additional Secretary, Education department, Balochistan
8. Dr. Amjad, Livestock and Diary Development department, Balochistan

Baseline Survey tables

Table 50 Number of Hours Spent by Household Members in Work per Day

Union Councils	Hours spent in work (%)											
	2	3	4	5	6	7	8	9	10	12	15	16
Jully	5.3			15.8	5.3		42.1	21.1	5.3	5.3		
Padag							77.4	16.1		3.2	3.2	
Amuri				6.3			81.3	6.3				6.3
Chilghazi		3.3			6.7		70.0	6.7	6.7	6.7		
Chagai			4.0		16.0	4.0	68.0	8.0				
Ziarat Balanosh		3.1			3.1		84.4	6.3		3.1		
Total	0.7	1.3	0.7	2.6	5.2	0.7	71.9	10.5	2.0	3.3	0.7	0.7

Table 51 How Fertilizer is Obtained by the Farmers

Union Councils	Method of getting fertilizer			
	Personal Money	Borrowed money	Animal dung used	Don't Know
Jully	83.3	16.7	0	0
Padag	50.0	0	50.0	0
Amuri	100.0	0	0	0
Chilghazi	59.1	31.8	4.5	4.5
Chagai	29.4	70.6	0	0
Ziarat Balanosh	0	100.0	0	0
Total	45.8	49.2	3.4	1.7

Table 52 Whether Seeds and Seedlings are Available when Needed

Union Councils	Availability of seeds & seedlings	
	Yes	No
Jully	85.7	14.3
Padag	50.0	50.0
Amuri	33.3	66.7
Chilghazi	61.9	38.1
Chagai	68.4	31.6
Ziarat Balanosh	77.8	22.2
Total	66.7	33.3

Table 53 How Seeds and Seedlings are Purchased

Union Councils	How seeds and seedlings obtained		
	Personal money	Borrowed money	DK
Jully	85.7	14.3	0
Padag	75.0	25.0	0
Amuri	100.0	0	0
Chilghazi	65.0	30.0	5.0
Chagai	21.1	73.7	5.3
Ziarat Balanosh	10.0	90.0	0
Total	48.4	48.4	3.1

Index of Tables and Charts

Bibliography

1. Census 1998, Pakistan Census Organization
2. District Development Profiles, 2011
3. District Development Atlases, 2010
4. Development Statistics of Balochistan 2010
5. Multiple Indicator Cluster Survey, 2004, Balochistan, P&D department Balochistan
6. Multiple Indicator Cluster Survey, 2010, Balochistan, P&D department Balochistan
7. Pakistan Sanitation Policy
8. Poverty Reduction Strategy Paper, Balochistan, P&D department, Balochistan
9. Public Sector Development Programs, (2000-2010) P&D department, Balochistan
10. The Advocacy Sourcebook, (2007). WaterAid, London, UK
11. Pakistan Integrate Household Survey, Federal Bureau of Statistics
12. Pakistan Millennium Development Goals Report 200
13. Pedley S, Pond Katherine, Joyce E, Interventions for Water Provision
14. Integrated Water Resource Management Policy, Balochistan (2006)
15. Clean Water for a Healthy World: addressing water quality challenges and solution (an advocacy guide and action handbook) (2010), UN Water, UNEP and UN Habitat
16. Balochistan Conservation Strategy