



# **Water Use Management Plan (WUMP)**

For Two Village Councils of Gobor Valley,  
District Chitral, Khyber Pakhtunkhwa

# Water Use Management Plan (WUMP) For Two Village Councils of Gobor Valley, District Chitral, Khyber Pakhtunkhwa



Government of Khyber Pukhtunkhwa, Pakistan and Helvetas Swiss Intercooperation Pakistan

WUMP: Water Use Management Plan (WUMP) is prepared by Water for Livelihoods Project of Helvetas (W4L) with support from Swiss Agency for Development and Cooperation



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## Contributors

Syed Mazhar Ali Shah, AAC (Revenue), Chitral  
Ali Ahmed (SDO Irrigation Division, Chitral)  
Muhammad Ishaq (District Officer On-Farm Water Management)  
Mohammad Asif (Program Assistant OFWM)  
Water User Associations/Groups, Gobor, Chitral  
Syed Hussain Mustafa (Planning and Governance Coordinator–W4L)  
Tawheed Gul (DTL / HID coordinator–W4L)  
Samira Qazi (Adviser M&E and KM–W4L)  
Aga Safdar (M&E Officer–W4L)  
Azmat Shahi (CBDRM Specialist and Consultant)

## Peer Review

Munawar Khan Khattak

## Field survey and other inputs from

District Administration Office, Chitral  
Social Activists and LG elected Representatives of Gobor valley, Chitral  
Water User Groups/Associations members of Gobor valley, Chitral  
Water for Livelihoods, North Region, Chitral

## Editors

Fatima Daud Kamal, Irshad Ali and Sadaf Tahir

## Photos

Tahir Saleem, Ismat Majeed, Sajid Hussain, Azmat Shahi and Aga Safdar

## Design

Salman Beenish

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Tel: +92 (05) 2624694-95

Web: [www.helvetas.org](http://www.helvetas.org)

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## Acronyms

AAC	Additional Assistant Commissioner	M&E	Monitoring and Evaluation
AKESP	Aga Khan Education Service Pakistan	NFE	Non Formal Education
AKHSP	Aga Khan Health Services Programme	NGOs	Non-Governmental Organizations
ADP	Annual Development Plan	OFWM	On-Farm Water Management
AKPBS	Aga Khan Planning & Building Services	O&MC	Operation and Maintenance Committee
AKRSP	Aga Khan Rural Support Program	PBS	Pakistan Bureau of Statistics
BHU	Basic Health Unit	PCRWR	Pakistan Council of Research in Water Resources
CBDRM	Community Based Disaster Risk Management		
CC	Climate Change	PPAF	Pakistan Poverty Alleviation Fund
CD	Capacity Development	P&DD	Planning and Development Department
CIADP	Chitral Integrated Area Development Programme	PHED	Public Health Engineering Department
CBOs	Community Based Organizations	RRA	Rapid Rural Appraisal
CPI	Community Physical Infrastructure	RSPs	Rural Support Programmes
DDC	District Development Committee	SDC	Swiss Agency for Development & Cooperation
DCC	District Coordination Committee	SDO	Sub Divisional Officer
DRR	Disaster Risk Reduction	SRSP	Sarhad Rural Support Program
DTL	Deputy Team Leader	SWRs	Spring Water Resources
DWSS	Drinking Water Supply Scheme	THQ	Tehsil Headquarters Hospital
FPW	Flood Protection Works	TWRs	Tap Water Resources
GADO	Garam-Chashma Area Development Organization	UC	Union Council
GGMS	Govt. Girls Middle School	VCs	Village Councils
GLAs	Government Line Agencies	VO	Village Organization
GLOFs	Glacial Lake Outburst Floods	W4L	Water for Livelihoods Project
Helvetas	Helvetas Swiss Intercooperation	WASEP	Water and Sanitation Extension Program
HID	Human and Institution Development	WO	Women Organization
ICIMOD	International Center for Integrated Mountainous Development	WR	Water Resources
IWRM	Integrated Water Resource Management	WUAs	Water User Associations
IDV	Integrated Development Vision	WUGs	Water User Groups
LPH	Livelihoods Programme Hindukush	WUMP	Water Use Management Plan
MHP	Micro Hydel Power	WPP	WUMP Planning Process
		WRM	Water Resource Management
		EXEN	Executive Engineer

# Foreword

The preparation of Water Use Management Plan (WUMP) at a local level around a single agenda, water, is an important instrument of good water governance. This well-thought-out plan was prepared in 2016 by Water for Livelihoods Project after a series of intensive discussions on water resources, issues, potentials and priorities. On top of which consultations were carried out with respective District Administration, Government Line Agencies working in Water Sector and communities as important stakeholders.

The Plan provides vision for addressing the water sector issues to ensure equitable access to water for drinking and production purposes apart from catering to water related disasters influencing the mentioned drinking and irrigation objectives. The main theme of WUMP remains to be the community managed initiatives, improving liaison with Government Line Agencies, cost sharing, sharing of responsibilities especially of operation and maintenance with Water User Groups and enhancing role of Water User Associations in dealing with water sector issues in Gobor valley and thenceforth bridging with GLAs.

The Swiss Agency for Development and Cooperation (SDC) is much appreciated for financing an initiative such as Water for Livelihoods Project implemented by Helvetas. It has led to assisting the district government in preparing this plan that will ultimately help in improving access to clean drinking water and water for production through optimum use of technology and participation of locals. A high expectation is also placed on all the relevant government departments and other development actors to consider this plan while planning their financial targets and providing direly needed assistance in the district.

# Executive Summary

The Water Use Management Plan (WUMP) is for two VCs of Gobor Valley Garam Chashma, Tehsil and District Chitral. The purpose of WUMP is to make an inventory of various sources of water available in a particular geographical / administrative area, identify community's priority in order to achieve an effective, equitable and efficient use of water resources at local level. The preparation of this WUMP document has been technically and financially supported by Water for Livelihoods Project of Helvetas Pakistan with financial assistance from Swiss Agency for Development and Cooperation (SDC) and prepared in collaboration with social activists, local institutions (Water User Associations / Water User Groups), District Authority (administration), concerned technical departments of the Government of Pakistan and water sector projects in district Chitral.

This WUMP is established on the Integrated Water Resources Management (IWRM) approach. IWRM is a process which promotes the integrated development and management of water, land and related resources. IWRM is carried out in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems (Global Water Partnership, 2000).

UC Lotkho has four VCs namely Parabeg, Birzeen, Begusht and Murdan, The geographical focus of this WUMP is two VCs; Parabeg and Birzeen of Gobor valley which comprise 18 Patwar Circles<sup>1</sup> and 30 villages in UC Lotkho of sub tehsil Garam Chashma, District Chitral.

The specific objectives of WUMP are;

- Assess and determine water resource availability, existing uses and requirements.
- Determine water access and equity issues and balance these rights through interactive dialogues.
- Participatory prioritization and planning of water resource development, its multiple uses, considering climate change and disaster risks.
- Promote coordinated water resources development by different stakeholders (communities, government and non- government organizations).
- Promote conservation of water resources for the preservation of environment.
- Strengthen local institutional capacity in inclusion of economically and socially disadvantaged groups.

The WUMP for Gobor Valley is fully aligned with Integrated Development Strategy (IDS) laid out by the Government of Khyber Pakhtunkhwa to integrate priorities in one framework. The Local Government Act 2013 also provides a regulatory framework for delegating responsibility at local level which is aligned for WUMP implementation. The WUMP preparation process followed four phases and 13-sub steps in close coordination with concerned community institutions (WUGs / WUAs), concerned Government Line Agencies (GLAs) and District authorities to ensure commitment and ownership of WUMP.

Following are the main highlights of the WUMP for two VCs of Gobor valley:

- **During the period 2005 to 2015, the District Administration and donors / NGOs implemented a variety of Water Sector interventions in two VCs of Gobor Tehsil and District Chitral<sup>2</sup>**

**Table 1:** Based on the secondary and primary data it was revealed that the Birzeen and Parabeg VCs consist of 30 villages having 1,259 households with a population of 12,107 persons. The table shows that during last ten years (2005-2015) two departments and five NGOs/Projects have implemented 38 infrastructure schemes (16 DWSS, 7 Irrigation, 12 DRR and 3 MHPs) in two VCs benefiting most of the population and, 1,879 acre of land. Nonetheless 4 of 16 DWSS developed by PHED are dysfunctional the remaining 12 DWSS are providing safe drinking water to 831 HHs (7,988 persons). Irrigation schemes implemented by different organizations are benefiting 1,146 HHs (10,786 persons) through irrigating 1,118-acre land out of total 4,678 acres. 12 DRR schemes are protecting 761 acres land belonging to 483 HHs (3,864 persons) in 12 villages, and 3 MHPs electrifying 489 HHs (4,203 persons) of 5 villages.

<sup>1</sup>District Revenue & Population Departments, Chitral.

<sup>2</sup>The secondary data was collected, verified and forwarded through proper channel i.e the official letter from District Administration-Chitral, letter no 428-37/AC Chitral dated 21/12/2016 to GLAs.

**Table 1: List of GLAs and NGOs interventions in Parabeg and Birzeen VCs of Gobor Valley (2005-2015)<sup>3</sup>**

S.#	GLAs/ NGOs	DWSS	Irrigation	DRR	MHPs	Direct Beneficiaries Population	Beneficiaries Land (Acre)
1	PHED	5				7856	
2	OFWM		2			3848	176
3	W4L	2	2	5		3753	584
4	LPH	2	1	5		2754	672
5	WASEP	4				2320	
6	AKRSP	2	2	2	3	6500	447
7	PPAF	1				641	
<b>Total</b>		<b>16</b>	<b>7</b>	<b>12</b>	<b>3</b>	<b>27031</b>	<b>1879</b>

### Present Daily Water Demand

**Table 2:** The total quantity of water required for the average daily consumption for local human population and livestock as well as irrigation purposes is 717,540 litres. The current daily discharge capacity for drinking water from available 23 tap water sources is 478,915 litres which provide clear drinking water to a 9,527 population and remaining 2,580 population do not have tap water. They mainly fetch water from different sources like rivers or springs.

**Table 2: Current Daily Demand for Water: 2016 – 2017**

VCs				45 Ltr Per Capita Availability	Livestock		Irrigation <sup>4</sup>		Total Quantity Required Daily (Ltr)
	Access to Tap Water	Fetching Water	Total		Livestock	Avg. 10 Ltr Daily	Acre	Avg. 0.15 ltr/sec/ acre for 2 Hrs for 4 times/365 days	
Birzeen	4326	1184	5510	247,950	8,900	89,000	1,341	48,288	396,488
Parabeg	5201	1396	6597	296,865	3,829	38,290	1,747	62,892	321,052
<b>Total</b>	<b>9,527</b>	<b>2,580</b>	<b>12,107</b>	<b>544,815</b>	<b>12,729</b>	<b>127,290</b>	<b>3,088</b>	<b>111,180</b>	<b>717,540</b>

**Table 3:** Table 3 shows average daily discharge capacity from different sources to be 2,363,688 liters daily which is 1,646,148 litres more than the current daily requirement which is 717,540 litres. After analysis of current situation, it is observed that there is enough water for agricultural activities but limited land for agriculture is an issue. The huge amount of surplus water has adverse effect on agricultural land through land sliding, flash floods and GLOFs. There is a potential for utilizing this surplus water through constructing hydro power plants etc.

**Table 3: Current Daily Water Supply, Demand and Deficit/Surplus**

VCs	TWRs: 24 Hrs Discharge		SWRs: 24 Hrs Discharge daily		Untapped WRs: Average 24 Hours Daily Discharge		Total Avg Daily Discharge	Total Quantity Required Daily (ltr)	Deficit/ Surplus
	TWRs	Disc. (Ltr)	SWRs	DC (Ltr)	IWRs	DC (Ltr)			
Birzeen	11	229,046	4	13,882	17	832,320	1,075,248	396,488	678,760
Parabeg	12	249,869	3	10,411	21	1,028,160	1,288,440	321,052	967,388
<b>Total</b>	<b>23</b>	<b>478,915</b>	<b>7</b>	<b>24,293</b>	<b>38</b>	<b>1,860,480</b>	<b>2,363,688</b>	<b>717,540</b>	<b>1,646,148</b>

Note: Discharge was measured using volumetric method, indigenous knowledge and practice<sup>5</sup>

<sup>3</sup> Sources: PHED, OFWM, WASEP, AKRSP, PPF, LPH and W4L

<sup>4</sup> The daily irrigation demand was measured with rule of thumb i.e. 1 cusec/200 acre ( 28.31 ltr/sec/200 acre)

<sup>5</sup>The discharge of water sources was measured through volumetric method for DWSS, spring and irrigation channel utilizing comparative method (in an irrigation channel flour mill or MHPs are considered approximately 2 cusec p/s and Q=A(V).



## Water Use Management Plan (WUMP) Preparation Process

Employing Rapid Rural Appraisal<sup>6</sup> (RRA) tools, the overall scope of the work includes collection of information, analysis and synthesis of social and technical data to propose an evidence-based, representative and realistically achievable WUMP for 30 villages in 2 Village Councils (VCs) of Gobor Valley, Tehsil and District Chitral.

WUMP preparation process was completed on the basis of participatory dialogues followed by conducting village assemblies in 30 villages with 234 members (men 182 and women 52), representatives of 24 Water User Groups (WUGs), 3 WUAs and 8 elected representatives. These WUGs (constituted during the community mobilization phase of W4L) were treated as Primary Sample Units (PSUs) and all their members as key informants to ensure fair representation of the shared wisdom and the felt priorities of their respective village communities in WUMP Planning Process (WPP). WPP also encompassed consultations with GLAs, with particular reference to the need for citation of empirical evidences in WUMP vis-à-vis numerous socio-economic and ecological factors of Gobor Valley.

## Natural Disaster

During the period from 2005 to 2015, Gobor Valley has faced the devastating 2010 flood, the 2015 flood and an earthquake. These disastrous events (2010-2015) of floods, rains, GLOF and earthquake, moderate events of flash floods and avalanches events of lightening have inflicted an estimated loss of 38.290 million (PKR) to the physical infrastructure and killed over 1486 livestock.<sup>7</sup>

## Summary of Proposed Schemes, Gobor (two VCs) WUMP Chitral

The WUMP Planning Process (WPP) exercise carried-out via involvement of WUGs/WUAs, elected representatives and technical department (GLAs) has led to identification and prioritization of 118 Water Resource Management (WRM) initiatives under nine major categories. These schemes and categories include 17 DWS Schemes in 15 villages, 31 Disaster Risk Reduction (flood protection wall and check dam) in 27 villages, 32 irrigation schemes in 24 villages for 1306 acre of land, 18 sewerage and sanitation schemes, 05 plantation schemes, 02 Micro Hydro Power (MHP), 02 education facilities, 03 health facilities and 05 transportation facilities with a total cost of 218.17 million.

**Table 4: WPP Schemes Identified and Categorized**

WUMP Schemes	Number of Schemes	HHs beneficiaries	Benefiting land	Total estimated cost (millions)
DRR Schemes (CD, FPW)	31	890	1743	52.7
Irrigation Schemes (Rehabilitation and pipeline)	32	1194	2720	54
DWSS Schemes (new and rehabilitation)	17	545		25.5
Sewerage and Sanitation Schemes (new)	18	643		15.2
Watershed management (Check dam, Plantation)	5	348	1340	34.53
Other (Sewing and art center, Health, Education and Transportation facilities)	13	984		29.58
Micro hydro power	2	234		6.66
<b>Total</b>	<b>118</b>	<b>4838</b>	<b>5803</b>	<b>218.17</b>

Source : Gobor WUMP Schemes prioritization list

## Conclusion & Recommendations

This study on Water Governance recommends to the government at a local level for designing and implementing better water policies for improving lives of people in ecologically fragile areas of Chitral. It relies on multi-stakeholder engagement and bottom-up processes to produce policy analysis, dialogues, standards and a forum. It has produced evidence-based analysis, benchmarks and peer reviews on the management of water. Water governance is the set of rules, practices, and processes (formal and informal) through which decisions for the management of water resources and services are taken and implemented. The stakeholders articulate their interest and decision-makers are held accountable.

<sup>6</sup>Rapid Rural Appraisal (RRA) is a research technique used in Action Research to elicit relevant information from individuals or groups to serve specific research needs in a relatively less time. Apart from helping to secure critical time, the technique helps in a robust understanding of local conditions, in our case the prevalence, use and issues of water resources which, being public good, does not render itself as a household specific parameter.

<sup>7</sup>WUMP data of history of Disasters in VC Parabeg and Birzeen, AK-Focus Humanitarian Assistance

The key recommendations are as following;

- This Water User Management Plan identifies some of the applicable and evidence based mechanisms for contribution in strengthening water governance reforms at local level. These mechanisms consist of equitable water resource distribution and provision of quality services.
- The existent water governance is not favorable ; it can be reversed by improved access to productive use of water through lining of water courses,
  - Protection of conveyance system against disasters,
  - Extension of channels to bring new land under command area
  - Introduction of improved on-farm water application techniques.
  - Improved access to potable drinking water supplies.
  - Safe-guarding water services delivery against natural disasters.
  - Improve sanitation and health hygiene facilities
  - Increase possibility for local electricity power generation
- Additional measures such as construction of washing pads and covering of collection points will be taken to address women's concerns.
- In order to ensure the sustainability and anticipation of water sector service delivery, promote beneficiary involvement in identification & prioritization of potential issues, sharing of scheme costs and pay for service culture.
- Strengthening water management systems through local institutions (WUA/WUG & Apex Association) to ensure effective implementation of WUMP. The local institutions will lobby for their respective villages' (prioritised) schemes with local government and other organizations through building functional linkages.

### **The Key Partners**

The following key partners were engaged in WUMP preparation;

1. District Administration as focal point
2. Public Health Engineering Department Chitral
3. Irrigation Department Chitral Division
4. On-Farm Water Management Department Chitral
5. Soil Conservation Department Chitral
6. Agriculture Department - Chitral
7. Livestock Department - Chitral
8. Social Welfare Department - Chitral
9. Local elected government (village and tehsil) Councils - Lotkho
10. Sarhad Rural Support Programme in Chitral
11. Aga Khan Rural Support Program - Chitral
12. AKPBS - Water and Sanitation Extension Program - Chitral
13. Water User Association / Water User Groups of Gobor valley
14. Water for Livelihoods Project, Helvetas Pakistan
15. Focus Humanitarian Assistance

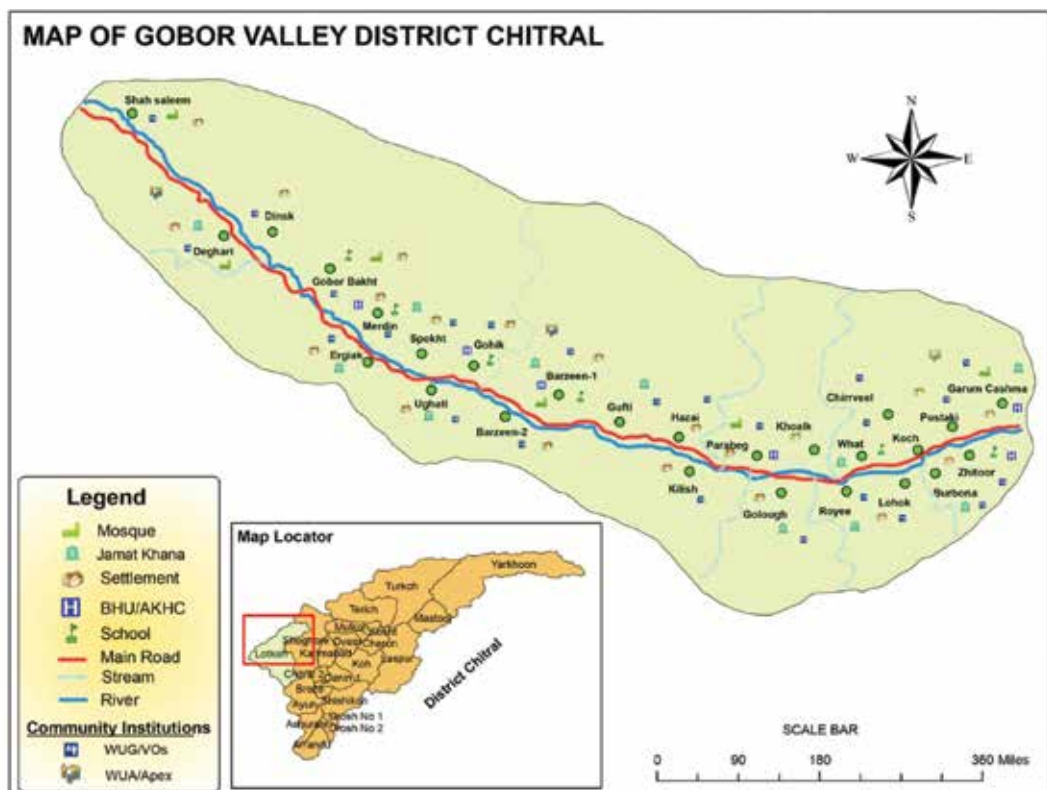


# Chapter 1

## Area Profile

### 1.1 Location, Elevation & Administration

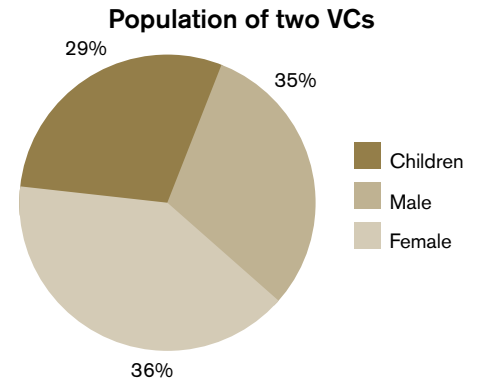
Lying at the foot of the majestic Hindukush Mountain, Gobor valley is one of the three sub-valleys of Garam Chashma sub-tehsil of district Chitral. The word Gobor is derived from “Gabaron” that implies vast and productive area. The valley consists of two Village Councils e.g. Birzeen and Parabeg with 30 small and large scattered villages. Distance of the valley from the District headquarter ‘Chitral’ and from sub-tehsil headquarter ‘Garam Chashma’ is 60 km and 15 km respectively. It lies between N-35.53, E-71.30 to N-35.59, E-71.31, with an average altitude of 9,500 feet from the sea level. This whole valley is temperate / semi-arid with an annual precipitation of 400 mm to 500 mm that is also highly variable in terms of time and quantity. From the last two decades the whole valley has witnessed a changing climate that has affected agriculture and fruit production. As compared to the past there are more monsoon rains causing flash and riverine floods causing huge damage to the houses, irrigation channels, drinking water supply schemes, fertile land, livestock and orchards.



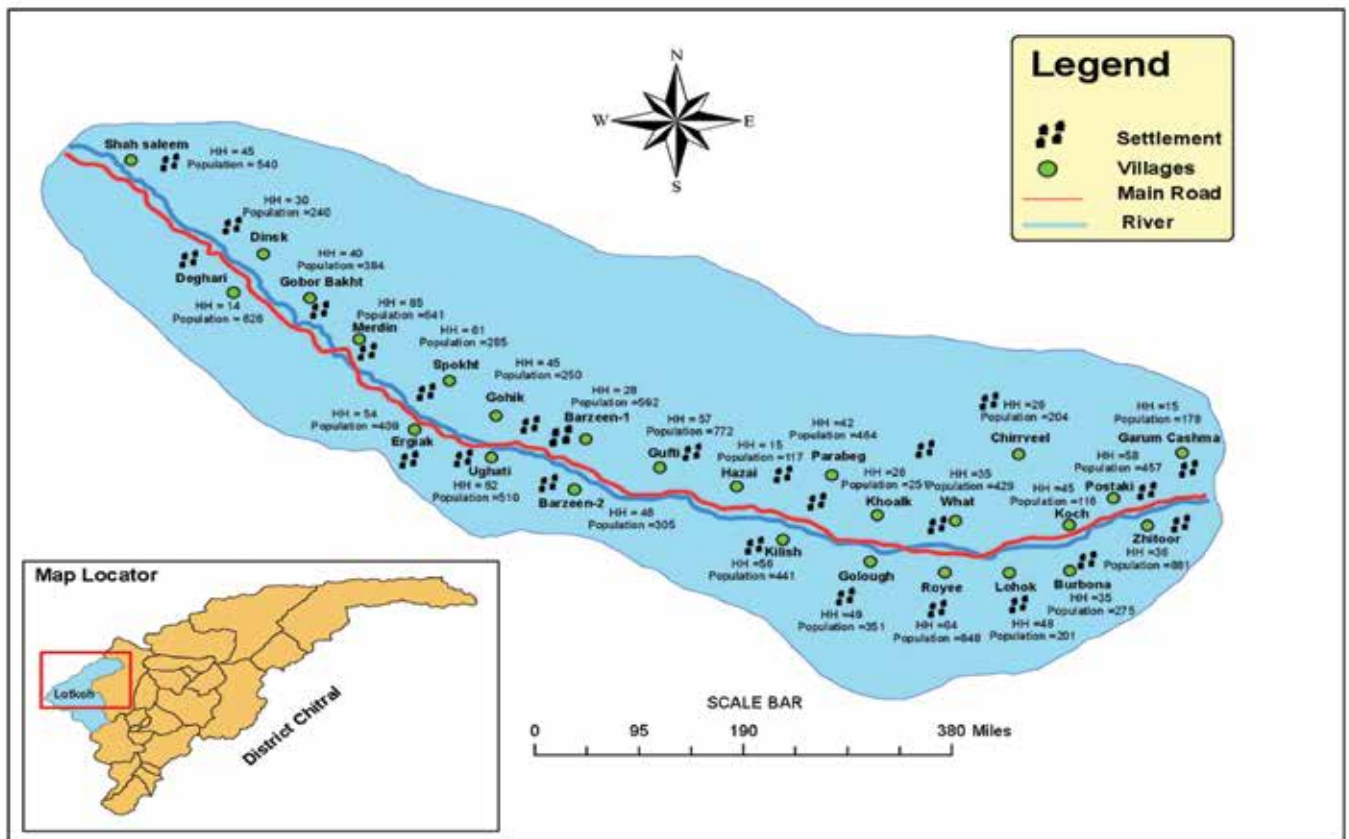
The valley is connected with the rest of the district through a narrow jeepable track, which mostly remains closed in winters due to heavy snowfall, and land sliding, river cutting and floods in summer. Total area of the valley is roughly 800 square km consisting of 1,259 households and 12,107 people. The average household size is 9.6 with 34% male, 37% female and 29% children.

**Table 5: Population of the Village Council<sup>8</sup>**

Village Council	Households	Male	Female	Children	Total
Birzeen	606	1,902	1,991	1,617	5,510
Parabeg	653	2,332	2,426	1,839	6,597
<b>Total</b>	<b>1259</b>	<b>4234</b>	<b>4417</b>	<b>3456</b>	<b>12107</b>



The valley is home to 37 tribes<sup>9</sup>, who live in peace and harmony with each other.



Due to the remoteness of the valley from the district and provincial capitals, the government has given least attention to its development. There are educational institutions (Government and Aga Khan Education Service, Pakistan) up to matriculation level for boys and girls, and only one private college. Those who are financially stable move to district headquarter or down country in order to continue their higher education and the remaining are compelled to abandon further studies due to financial constraints. Literacy rate in the valley varies from village to village. Usually, villages located adjacent to Sub Tehsil Headquarter Garam Chashma exhibit higher literacy and as we move towards areas bordering with Afghanistan, the literacy rate decreases. Average literacy rate of the valley is 38.8%.<sup>10</sup>

<sup>8</sup>District Revenue Department and District Population Department Chitral, PBS, UNICEF and GADO

<sup>9</sup>Major tribes of the valley are Usttrachey, Shoushdarey ; Kaslikdarey, Zubisdarey, Dawodarey , Dangarey, Janadare, Raisey, Bashey, Mazhey, Shapatey, Tajik, Afghani, Mazhatey, Haidarey, Shorabey, Zhatakey, Darvish, Mazhatey, Zondrey, Katoor, Shoghney, Shoghney, Sunbuley, Roshtey, Musengey, Bazeaye, Danishmandey, Bashidarey, Kow, Syed, Sangaley, Safarey, Gajaney, Rausey, Mosegaley, Shaboney and Quraish.

<sup>10</sup>Asian highland project and LPH of Intercooperation Pakistan(2012,2014)

The entire valley is single cropping zone. Agriculture and livestock has always been the most important sector fulfilling food requirements and ensuring food security. Wheat is the most popular crop grown throughout the length and breadth of the valley. Due to less yield, wheat production hardly covers 5-6 months of food requirement, and the remaining food is purchased from the government granaries at subsidized prices. About 80% of the total land in the two VCs is barren while 20% of land is cultivable and irrigated. Average cultivable landholding in the valley is almost 4 chakoram (1 acre). Weather of the valley and its fertile soil is best for the cultivation of potato; therefore, different organizations (both from the government and NGOs) train the local farmers in potato cultivation. Many farmers have started potato cultivation as compared to wheat, barley and maize, as it yields more and also brings in more cash. But as the farmers are not directly linked to the market (due to long distances) the middle-men exploit the situation and farmers receive less profit. Besides wheat and potato, maize, barley, beans are also major products of the valley.

Gobor valley as a whole has significant potential for tourism. The valley is famous for its trekking passes, connecting the area with Afghanistan and Tajikistan. The entire valley is the habitat of wild life. Ibex, Markhor, Musk Deer, Snow Leopard, Black Bear, and Brown Bear are found in areas within. The forests include Juniper, Pine tree, Poplars, Ailanthus and Robinia trees. Proper promotion of these resources will definitely attract tourists including local, national and foreigners specially trekkers to this area. The valley is also famous for its natural sulphur water springs, which is perceived as a natural medication to cure skin diseases and maladies. Therefore, the valley is visited by local tourists as well as foreigners during the summer season.

### 1.2 Climatic Conditions

The climate of the valley is dry and cold, where winters are severe and summers are pleasant. Usually, snowfall starts from December and continues till March. Spring rains occur in March and April. The temperature in winter falls below (-15°C) and goes up to + 30°C in summers. December, January and February are the coldest and July, August are the hottest months of the year. Moreover, annual rainfall varies from 400 mm to 500 mm<sup>11</sup>. In winter due to severe cold and snowfall, all types of outdoor activities are stopped and inhabitants of the valley pass through a rest period. A large number of the male population move down-country in search of livelihood activities, and some portion of female population remain busy inside their homes making Chitrali Patti<sup>12</sup> and other products. With the start of spring season the hustle-bustle returns to the valley. The migrated male population returns to start working in their fields.

### 1.3 Hydrology

The drainage flow of all the streams of Gobor Valley is into the River Garam Chashma which further down meets River Chitral, then enters into Kabul through Kunar Valley. Afterwards it returns into Pakistan in Mohmand Agency.

Mean Maximum Temperature (°C)	+30
Mean Minimum Temperature (°C)	-15

### 1.4 Climate Change Scenario<sup>13</sup>

Temperature recorded in the weather station in Chitral shows that, there is an increase in the temperature from the last ten years. Due to the increase the rate of glacial melting has increased. As a result, there are more floods in streams and rivers, Glacial Lake Outburst Floods have played havoc with the life and properties of the inhabitants. As a result of climate change, for the first time the monsoon crossed into the Karakoram and Hindukush mountains and it rained heavily in the valley causing disasters in 2010, 2015 and 2016.

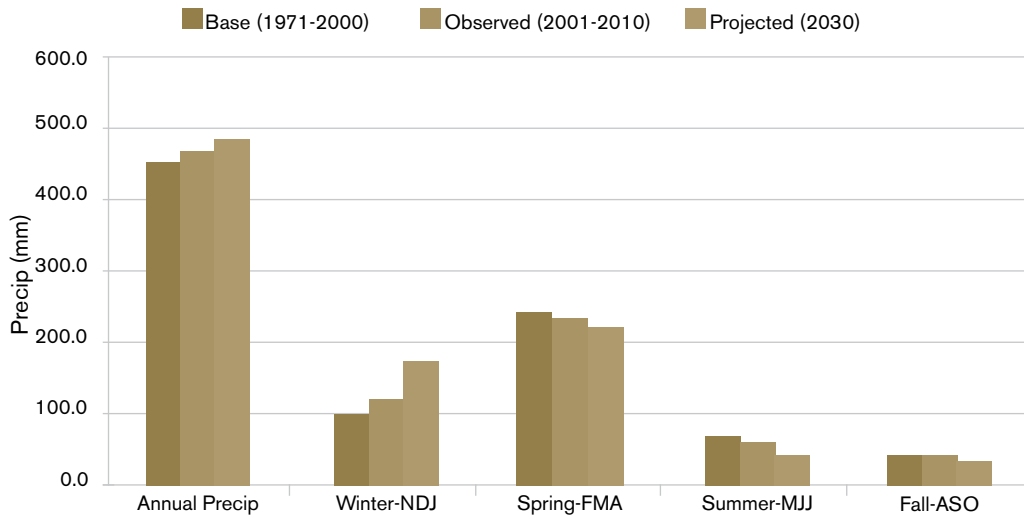
Decadal temperature scenarios for Chitral District revealed that the annual maximum temperatures are on an increasing trend and annual minimum temperatures are at a decreasing trend. On an average, the increase in annual mean temperature is about 0.6°C per decade. Moreover, annual rainfall in Chitral is showing an increasing trend because of an increase in the winter rainfall (IC, 2013). In Chitral, 80% of households have opted for labour migration due to the water hazards induced by climate change (ICIMOD, 2011).

<sup>11</sup> CRiSTAL Report Hydro Meteorological Hazards and Coping Strategies in Chitral-Pakistan

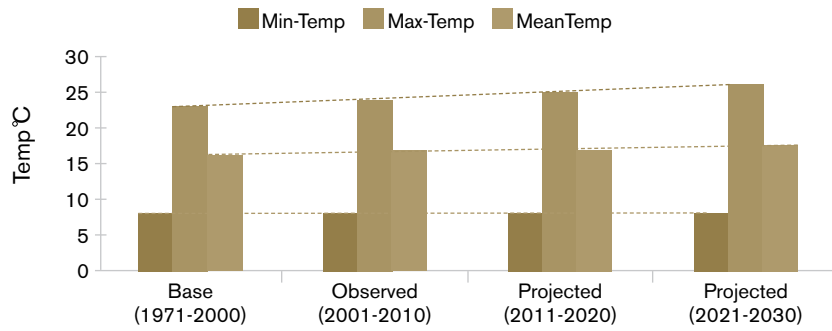
<sup>12</sup> Pure woollen, woven fabric known as 'Shu' in Khowar language

<sup>13</sup> Making climate change tangible for strategic adaptation planning: The Climate Corridor Approach (EGU General Assembly 2017)

**Chitral Precipitation Scenarios**



**Chitral Decadal Temp Scenarios (Annual)**



## Chapter 2

### Socio Economic Factors

#### 2.1 Demography

There are total 30 big and small villages including 13 villages in VC Birzeen and 17 in VC Parabeg. Total number of households in the valley are 1259 and population is 12107. The average household size is 9.6 with 34% men, 37% women and 29% children.

#### 2.2 Households with/ without landholding

In village council Birzeen, there are 606 HHs of which 17 HHs are without landholding and 589 HHs are having their own land. Likewise, in Parabeg village council there are 653 HHs of which 48 HHs are without landholding and 605 HHs are having own land. Of those with landholding (agriculture and forest land), 58% possess 1-3 acres, 28% possess 4-6 acres, 12% possess 7-9 acres and 2% possess 10 acres and/or above land. About 5% of the residents are landless whose condition is likely to be more acute due to unavailability of resources considering the harsh conditions of the area.

**Table 6: Village Wise Population VC Parabeg and Birzeen**

S.No.	VC	Villages	HHs	Men	Women	Children	Total population
1	Birzeen	Ushaik	26	90	60	56	206
2		Ughati	62	150	191	169	510
3		Gohik	45	90	100	60	250
4		Gobor Bakht	40	190	194	0	384
5		Gufti	57	292	303	177	772
6		Birzeen-2	46	100	130	75	305
7		Birzeen-1	28	206	211	175	592
8		Dinsk	30	88	80	72	240
9		Ergiak	54	136	146	127	409
10		Spokht	61	98	102	85	285
11		Shah Saleem	45	174	182	184	540
12		Mirdin	85	219	232	190	641
13		Deghari	14	176	184	266	626
14		Parabeg	Zhitoor	36	302	314	265
15	Koch		45	40	41	35	116
16	Nevest		26	96	102	53	251
17	Garum-chashma		15	64	61	53	178
18	Lohok		48	69	72	60	201
19	What		35	147	153	129	429
20	Chirveel		26	70	73	61	204
21	Hazai		15	40	42	35	117
22	Postaki		58	163	157	137	457
23	Burbono		35	94	98	83	275
24	Zhitoor Sanik		56	151	157	133	441
25	Golough		49	121	126	104	351
26	Noghpati		30	77	82	68	227
27	Parabeg		42	174	187	103	464
28	Royee		64	292	302	254	848
29	Gistini		32	132	131	80	343
30	Khoghik	54	193	204	167	564	
<b>Total</b>			<b>1259</b>	<b>4234</b>	<b>4417</b>	<b>3456</b>	<b>12107</b>

Source: District population department Chitral

**Table 7: Households without landholding (including tenants)**

Village Council	Birzeen	Parabeg	Total HHs
Households without landholding	17	48	65
<b>Total</b>	<b>17</b>	<b>48</b>	<b>65</b>

**Table 8: Households with landholding<sup>14</sup>**

Village Council	Birzeen	Parabeg	Total HH	Percentage
1 – 3 acres	369	331	700	58%
4 – 6 acres	141	187	328	28%
7 – 9 acres	68	78	146	12%
10 acres and above	11	9	20	2%
<b>Total</b>	<b>589</b>	<b>605</b>	<b>1,194</b>	<b>100%</b>

## 2.3 Building Structures

Information regarding the type of material used in the construction of buildings shows that about 79% households are living in mud and stone houses and 2% live in concrete houses. While 19% of the buildings are constructed of mud-cum-concrete, but these buildings are either shops or prayer halls/Mosques.

**Table 9a: Building Materials**

Village Councils	Birzeen	Parabeg	Total
Mud	525	482	1007
Concrete	0	2	2
Mud-cum-Concrete	81	169	250
<b>Total</b>	<b>606</b>	<b>653</b>	<b>1259</b>

**Table 9b: Building Types**

Village Councils	Houses	Mosques	Jamat khana <sup>15</sup>	Shops	Total
Birzeen	606	9	11	33	<b>709</b>
Parabeg	653	7	16	41	798
<b>Total</b>	<b>1,259</b>	<b>16</b>	<b>27</b>	<b>74</b>	<b>1,507</b>

The reported data shows that there are 1259 Houses, 16 Mosques, 27 Jamat Khanas and 74 shops making it a total of 1507 buildings of which 1127 are mud (82%), 2 are concrete (0.1%) and 243 (17%) are mud-cum-concrete structures. About 99% structures (complete mud or mud-cum-concrete) represent impoverished conditions of the respective dwellers/population, their vulnerability to future hazards and their likelihood of being hit hard by the increasingly cloud burst and GLOF phenomenon due to global climate change.

## 2.4 Settlement Patterns

The table shows that out of a total 606 households in VC Birzeen, 237 households are scattered, i.e. their homes are not close to each other and there is considerable distance in between, while 369 households are in clusters. In VC Parabeg, 378 households out of 653 are scattered and 275 are in clusters. It is clear from the table that out of total 1259 households 612 households are in cluster and 615 are scattered.

<sup>14</sup>Result of WUMP survey and database analysis 2016-2017

<sup>15</sup>Jamat Khana, is the religious building or place of worship for Ismaili sect



**Table 10: Settlement Patterns**

Village Councils	Households (Numbers)			Households (percentage)	
	Scattered	Cluster	Total	Scattered	Cluster
Birzeen	237	369	606	36%	64%
Parabeg	378	275	653	52%	48%
<b>Total</b>	<b>615</b>	<b>612</b>	<b>1259</b>	<b>44%</b>	<b>56%</b>

## 2.5 Road Structure

Condition of roads throughout Chitral in general, in Garam Chashma and Gobor valley in particular are extremely poor or broken and prone to seasonal flood and other disasters like snow etc. WUGs reported that 100% of the main and link roads beyond Garam Chashma in the valley are unpaved.

**Table 11: Road Infrastructure**

Village Councils	Roads Infrastructure (percentage)	
	Pacca (Paved)	Katcha (Unpaved)
Birzeen	0%	100%
Parabeg	0%	100%
<b>Overall/Average Percentages</b>	<b>0%</b>	<b>100%</b>

## 2.6 Transport Facilities

Roads and transportation facilities have a significant impact on socialization and trade. The key indicators have been considered to portray the level of development of the transport sector in a valley; availability of public and private transport and vehicles. The indicators, depicted in the table below are estimated from the primary data received during our survey. According to WUGs/WUAs and elected representatives private transport is available in 4 out of 13 villages in Birzeen on a regular basis while 6 villages have occasional private transport facility on demand/need basis. 9 villages have no public transports and 7 have no private transport facilities.

**Table 12: Transport Facilities**

Transport Facility	Number of Villages in Village Councils with/without Transport Facilities [Yes=Y, No=N]				Overall	
	Birzeen		Parabeg			
	Y	N	Y	N	Y	N
Private/ regular	4	9	8	9	13	17
Private/occasional	6	7	10	7	16	14

In Village Council Parabeg out of total 17 villages, 7 have private and 10 have occasional private transport facility. 9 villages have no access to transport. Overall, in 13 villages, 2 VCs have private transport service available vehicles on a regular basis while 17 villages have no access to transport and they engage vehicles on need basis.

## 2.7 Access to Public Places

Garam Chashma bazaar is the main business hub of Tehsil Lotkoh and of Gobor Valley. The District headquarter hospital and the Cantonment of Frontier Corps are both located in the District Headquarter Chitral. Distance of nearest market "Garam Chashma Bazaar" is approximately 17 km from village council Birzeen and 8 km from Parabeg. Distance of District Headquarter and Tehsil Headquarter from the VC Birzeen and Parabeg is 67 km and 59 km respectively. Distance of police station from the VC Birzeen is 6 km and from the VC Parabeg is 4 kilometers. Nearest health facility is at a distance of 17 and 8 kilometers from the VC Birzeen and Parabeg respectively.

**Table 13: Average distance from village to the public places (kilometers)**

Public Place	Birzeen	Parabeg
Nearest Market	17	8
Tehsil Headquarter	67	59
District Headquarter	67	59
Health facility	17	8
Police Station	6	4

## 2.8 Number of shops

As mentioned before, access from scattered villages of the Gobor valley to Lotkoh main market is quite difficult due to unavailability of transport facilities. Therefore, to overcome the needs of local people at village level some grocery shops are run by the local people as a business. Such shops are fulfilling the basic needs of the local people near their doorsteps. According to the information provided by WUMP there are total 33 grocery shops at VC Birzeen and 41 in VC Parabeg making a total of 74.

**Table 14: Shops within the proximity of villages**

Shops	Birzeen	Parabeg	Total	Average
Grocery	33	41	74	37
Services	0	0	0	
<b>Total</b>	<b>33</b>	<b>41</b>	<b>74</b>	<b>37</b>

## 2.9 Public services

**Table 15: Public services locally available (number) - [F-Functional, D-Dysfunctional, T-Total]**

Public Services	Birzeen			Parabeg			Overall Total		
	F	D	T	F	D	T	F	D	T
<b>a. Healthcare facilities</b>									
Dispensary	2	0	2	1	0	1	3	0	3
BHU	1	0	1	1	0	1	2	0	2
RHC	0	0	0	1	0	1	1	0	1
<b>b. Education</b>									
Primary	3	0	3	4	0	4	7	0	7
Middle	1	0	1	1	0	1	2	0	2
High	1	0	1	1	0	1	2	0	2
Higher Secondary	0	0	0	0	0	0	0	0	0
College	0	0	0	1	0	1	1	0	1
<b>c. Animal Husbandry</b>									
Civil Vet. Dispensary	0	0	0	0	0	0	0	0	0
Veterinary Centre	0	0	0	1	0	1	1	0	1
Civil Vet. Hospital	0	0	0	0	0	0	0	0	0
<b>Others</b>									
Post Office	0	0	0	1	0	1	1	0	1
<b>Total</b>	<b>8</b>	<b>0</b>	<b>8</b>	<b>12</b>	<b>0</b>	<b>12</b>	<b>20</b>	<b>0</b>	<b>20</b>

### a. Health Facilities

Health plays a key role in determining human capital. Better health improves the efficiency and productivity of the labour force and thus ultimately contributes to the economic growth, leading to human welfare. On the other hand, there is a strong correlation between poverty and poor health. In past, people mainly relied on traditional herbal recipes which are now rare as people prefer allopathic

treatment. The indigenous knowledge is fading away due to no documentation also the new generation knows little about precious herbs and their medicinal efficacy. Pneumonia, typhoid, tuberculosis, acidity, anemia, diarrhea are the common human diseases. Two health facilities are available in the valley, one is the Basic Health Unit (BHU) at Mirdin village and Aga Khan Health Centre at Parabeg village. For medical treatment people go to Garam Chashma and then to Chitral, Peshawar and Karachi for complicated diseases.

### b. Educational facilities

The table summarizes the extent of available facilities across various levels (primary, middle and high) of education. 7 primary, 2 middle, 2 high schools and 1 private college are currently providing education to the youth of the valley.

3 primary schools, 1 middle school, 1 high school are functional in VC Birzeen, whereas, 1 primary school, one middle school, one high school and one private college are in VC Parabeg. Electricity is available in only 29 percent of primary schools. About 62 percent are without boundary walls. While in contrast, about 81 percent of primary schools operate in buildings of satisfactory condition. About 64 percent reported availability of drinking water facilities. The situation in middle and high schools is however comparatively better. According to the District profile<sup>16</sup> - Chitral<sup>17</sup>(UNESCO, 2012), electricity and drinking water are available in 68 percent and 81 percent of middle schools respectively, while the corresponding percentages for high schools are 73 percent and 85 percent. Overall, about 17 percent of schools have no latrine facility.

### c. Animal Husbandry

The extreme winter season in Chitral poses a potential threat to the animal husbandry as most of the species of cattle heads do not withstand the harsh climate under stressful conditions. The problem can be addressed effectively by vaccination against the diseases of hemorrhagic syndrome, enterotoxaemia and Newcastle which attacks the cattle, goats and poultry respectively. Local breed of the animals have been found to be more resistant to the winter-specific diseases where temperature remains below zero degree Celsius for more than three months of the year. Extreme climatic condition is one of the factors detrimental for the multiplication of the cattle head and poultry whose population density is far below the desired level keeping in view the topography 62 percent area which consists of pastures. During the winter season, Gobor valley is considered inaccessible due to heavy snowfall making the vaccination campaign an uphill task for the workers of livestock department.

**Table 15.1: Common Livestock**

Village Councils	Livestock			
	Small Animal	Cattle	Yak/ Horses /Donkeys	Total
Birzeen	6928	1935	37	8900
Parabeg	2914	848	67	3829
<b>Total</b>	<b>9842</b>	<b>2783</b>	<b>104</b>	<b>12729</b>

Regarding the population of livestock and poultry in the Valley, the collected data shows 9842 small animals (goats and sheep) including 6928 in Birzeen and 2914 in Parabeg, 2783 cattle which are 1935 in Birzeen and 848 in Parabeg respectively. Some large animals like yak/horses/donkeys are also used for transporting goods locally in Gobor valley and are reportedly 104 in number. Livestock is considered the backbone of the economy of the local people, but throughout Gobor valley there is only one veterinary center to serve 12729 (number of) livestock.

## 2.10 Literacy

In the past decades there were no educational institutions at local level. Very few individuals had received education up to middle level in the Persian medium schools of the state era. In 1970's the Government established a school in Garam Chashma area. In late 1980's Aga Khan Education Services (AKES) also began establishing schools for girls with the result that educating children is common nowadays. Almost every family (even the poor), is trying to educate their children till higher grades. In the lower valley the girls are equally educated as compared to the upper valley where educating the girls is still an issue. In the lower valley the education facilities in public and private sector are quite good as compared to the upper valley. The children (male) are also sent to Karachi for higher education where they mostly bear their own educational expenses by working simultaneously. Women largely get higher education from Alama Iqbal Open University or in a private capacity.

In comparison to the rest of Lotkoh UC, Gobor needs to upscale its literacy rate. Existing literacy is mainly due to the private sector initiatives in the education sector. It has facilitated the local community in the valley by establishing community based private schools and a college which imparts education in return for affordable fees.

A number of government schools are also serving in the area. There are 10 Government Primary schools, one Government Middle

<sup>16</sup><http://kpbos.gov.pk/files/1432633137.pdf>(unicef)

<sup>17</sup>[http://www.unesco.org/education/documents/situationanalysis/Policy\\_Analysis\\_Report\\_of\\_KP.pdf](http://www.unesco.org/education/documents/situationanalysis/Policy_Analysis_Report_of_KP.pdf)

School, one Government High School at Parabeg, one Maktab<sup>18</sup> School at Gobor, one community based intermediate college for Boys and Girls in Parabeg. A high school in Mirdin village is run by charity funded by Sheikh Zayed Foundation.

**Table 16: Current Education System**

Village Council	Schools	Boys		Girls		Out-of-School		Sub Total/Enrolled & Out-of-school		
		Schools	Enrollment	Schools	Enrollment	Boys	Girls	Boys	Girls	Gross Total
Birzeen	Government	2	421	1	240	239	507	660	747	1407
	Private	1	165	1	111			165	111	276
	Madrassah	11								
	Non-Formal Education	0	0	0	0					
	<b>Total</b>	<b>14</b>	<b>586</b>	<b>2</b>	<b>351</b>	<b>239</b>	<b>507</b>	<b>825</b>	<b>858</b>	<b>1683</b>
Parabeg	Government	2	454	1	287	258	518	712	805	1517
	Private	1	187	1	120			187	120	307
	Madrassah	15								
	Non-Formal Education	0	0	0	0	0	0	0	0	0
	<b>Total</b>	<b>18</b>	<b>641</b>	<b>2</b>	<b>407</b>	<b>258</b>	<b>518</b>	<b>899</b>	<b>925</b>	<b>1824</b>
Total	Government	4	875	2	527	497	1025	1372	1552	2924
	Private	2	352	2	231	0	0	352	231	583
	Madrassah	26	0	0	0	0	0	0	0	0
	Non-Formal Education	0	0	0	0	0	0	0	0	0
	<b>Total</b>	<b>32</b>	<b>1227</b>	<b>4</b>	<b>758</b>	<b>497</b>	<b>1025</b>	<b>1724</b>	<b>1783</b>	<b>3507</b>

Source: District Education Office -Chitral

The pie chart/diagrams show the existing village council wise educational status of Gobor Valley Chitral. Both formal and non-formal education for boys and girls seem encouraging in the two VCs in the form of government, private and religious centers. In Birzeen and Parabeg village council, there are six schools to cater 3507 school-going children. The literacy rate in Parabeg is better than Birzeen the reason being closer proximity of Parabeg with Garam Chashma town. Alarmingly a huge number, 1522 students (497 boys and 1025 girls) are out of school. Unlike Birzeen, Parabeg does not have any NFE type of school to provide education to out-of-school children and few children are benefiting from Madrassah and religious centers e.g. (Jammat Khana).

**Table 17: Overall Literacy**

Village Councils	Literate	Illiterate	Total	% age	
				Literate	Illiterate
Birzeen	2234	3486	5720	39%	61%
Parabeg	2061	2445	4506	46%	54%
<b>Total</b>	<b>4295</b>	<b>5931</b>	<b>10226</b>	<b>42%</b>	<b>58%</b>



<sup>18</sup>Maktab School System is a system of schools which is providing education to students by incorporating Islamic principles in teaching methodology and curriculum.

**Table 18: Major issues facing the villages - [Priority ranking by number of prone villages]**

Issues	Birzeen	Parabeg	Priority Ranking
Floods	13	17	15
Irrigation	9	15	12
Sanitation	12	13	13
Drinking Water	13	14	14
Electricity	6	12	9
Education	12	11	11
Health	10	9	10
Security	8	4	6
Waterborne Diseases	12	14	13
Transportation	5	11	8

### 2.11 Major Issues and their Prioritisation

Flood is one of the major issues in Gobor valley. The floods of 2010 and 2015 in the valley damaged and destroyed irrigation structures, drinking water supply schemes, cropping lands, roads and bridges and caused human losses. Proper measures are required to minimise flash flooding in rainy seasons in the valley.<sup>19</sup>

- a. **Drinking water supply** is erratic in Gobor valley especially in winters because of heavy snowfall and temperatures below freezing that causes freezing and bursting of water supply pipelines. During harsh winters, women and children suffer the most as they are the principal collectors of water. They have to travel long distances to collect water for drinking, washing and cleaning, therefore special measures are needed to ensure water supply in the harsh winter to help reduce their burden.
- b. **Sanitation** is also one of the major issues. Proper disposal of household waste, sewerage and street cleanliness are desperately needed.
- c. **Waterborne diseases** are usually caused by poor sanitation and contaminated drinking water collected especially during flash floods in summer. Many households have no option but to collect water from the open, contaminated channels thus falling victim to water-borne diseases. Due to poor operation and maintenance of majority of the water schemes, women and young girls spend on an average three to four hours per day travelling long distances to collect water, in some villages where tap water does not exist.
- d. **Electricity:** Both the two VCs are electrified with 7 micro-hydel powerhouses located in Birzeen and Parabeg. Some 40 percent of the population have access to good voltage and can use electricity for heating and cooking. The rest have low voltage which is mainly used for lighting.
- e. **Education:** In district Chitral, the education rate is high, standing 3rd in all of the KP province with a literacy of 77.42% (which is more than the urban areas, according to the KP Education index). On the other hand, although the urban area literacy rate is encouraging, yet in rural areas such as Gobor Valley it stands at 37 % which is lower than the district's average.
- f. **Irrigation and agriculture:** In Gobor valley agriculture is the main source of income. Due to recent floods of 2015 in Chitral, irrigation structures were mostly damaged and still require attention. Innovative yet sustainable irrigation techniques suitable to the terrain and better horticultural crops need to be introduced.
- g. **Health** issues in rural area of Chitral are more due to poverty and nutritional deficiencies, arthritis being the most common. People travel thousands of miles towards major cities of Pakistan for treatment of serious ailments. BHUs and hospitals lack qualified doctors and facilities especially medicines which make the situation more critical.
- h. **Transportation** is the backbone of any area especially to transport the local produce from fields to market. In Gobor valley roads are damaged due to recent floods. Inhabitants of the area solely depend on potato production which is transported to lower cities throughout Pakistan.
- i. **Security** remains good in Gobor despite sharing a border with Afghanistan and Tajikistan. Though strategically it is very important for future trade route consideration.

### 2.12 Community Linkages

Working relationship of the community with Government authorities and community leaders is very limited. The table 19 shows that only authorities/ leaders who have a direct contact and respect in the community enjoy a good relationship e.g. They have enough contacts with religious leaders, NGOs, PHED and Agriculture Extension Department. Nonetheless, they have very limited access to a list of GLAs.

<sup>19</sup>WUMP exercise with WUGs and WUAs

**Table 19: Community's working relationship with GLAs and Community Leaders**

[G=Good] [A=Average] [ NI=Needs Improvement]			
Departments/Leadership	G	A	NI
Politicians	20%	32%	48%
Religious Leader	88%	8%	4%
NGOs (3)	72%	21%	7%
Irrigation department	1%	7%	92%
PHED	13%	29%	58%
On-farm Water Management	4%	13%	83%
Agricultural Research Dept	4%	24%	72%
Livestock Dept	1%	10%	89%
Soil Conservation	1%	7%	92%
Forest Dept	2%	5%	93%
Health Dept	8%	14%	78%
WAPDA	4%	9%	87%

### 2.13 Community Access to Water

According to WUGs/WUAs and elected representatives, before 1980 the whole population depended on fetching water from streams and springs. In winter some villagers used snow melt as drinking water. Collecting and carrying of water from streams and springs was a hectic job for the people in general and for the women and children in particular. The situation used to be even worse in winter season when there was snowfall, making movement very difficult. However the interventions of PHED, WASEP, AKRSP and Helvetas has brought immense changes in the area as more than 78% population has access to clean drinking water at their door steps.

**Table 20: Access to Water**

Village Councils	Households Having Access to Tap Water	Population	Households Fetching Water from Distant Sources	Population
Birzeen	450	4326	156	1184
Parabeg	541	5201	118	1396
<b>Total</b>	<b>991</b>	<b>9527</b>	<b>274</b>	<b>2580</b>

### 2.14 Sanitation and Hygiene Status

Lack of adequate sanitation and hygiene systems has negative impact. In two Village Councils of Gobor Valley (Birzeen and Parabeg) of Chitral 100% population defecates in flush latrines. Sanitation wastes are discharged through drainage system, but due to lack of proper use this practice increases the vulnerability of local population. About 100% of the sewerage waste is discharged underground. Not having sanitation facility speaks volumes about their inferior hygiene conditions and extreme vulnerability to waterborne diseases.

As the water is cold, proper hand washing is avoided, which has to be addressed through awareness.

**Table 21: Sanitation**

Village Council	What percent of the villagers have sanitation (toilet) facility?	Which sanitation type (toilet) is it?			Where is the sanitation waste discharged?		Where does rainfall runoff drain?	
		Pit	Dug	Flush	Surface	Underground	Surface	Underground
Birzeen	100%	0%	0%	100%	0%	100%	100%	0%
Parabeg	100%	0%	0%	100%	0%	100%	100%	0%
<b>Overall Average</b>	100%	0%	0%	100%	0%	100%	100%	0%

**Table 22: Hygiene**

Particulars	Birzeen	Parabeg	Average
Do local HHs clean water with chlorine or by filtering or boiling	82%	100%	91%
Do children wash their hands before eating	71%	37%	54%
Do men & women wash their hands before eating	74%	45%	60%
Do children get vaccinated regularly	81%	49%	65%
Do adults get seasonal vaccinations	72%	100%	86%
Do local HHs use/spray insect killers/repellent regularly	64%	100%	82%

## 2.15 Social and Political Status

Chitrali women hold a high status within the urban and rural community; they are responsible for the utilisation of the finances and farm resources. They hold inherited property rights due to which they at times, manage large estates.

Old proverbs like “Khowistan auratabad” (the land of Khow<sup>20</sup> is prosperous owing to the ability and skills of its women) and “Harchamoto tan hunar” (each finger has a skill) are clear reflections of this fact. Financial management and discipline in resource utilization known as *madiri*, is considered to be the exclusive domain of women.

The women in Gobor Valley do not observe purdah and mainly work on farmland. Kitchen gardens, dairy products, and the production of silk and woollen handicrafts is the exclusive domain of women. Under Muslim family law, which is followed by Khow, women are permitted to inherit property.

In response to changing socio-economic realities, traditional gender roles have begun to change. When men leave the fields in order to pursue education or employment, women take the responsibility of managing farmland and perform many managerial roles. The table depicts the traditional and emerging roles of women in the valley.

**Table 23: Social and Political Status**

Particulars	Birzeen	Parabeg	Overall %
Do women participate in decision making?	71%	100%	86%
Do women have time for leisure activities?	79%	100%	89%
Are people hopeful about their future?	86%	100%	93%
Do women cast vote?	93%	100%	96%
Are there any political or social activists? (M+F)	79%	100%	89%
Do women have representation in local government system?	79%	100%	89%
Are there disputes among different clans?	7%	0%	4%

### a. Gender Roles in Household Tasks

Household work involves looking after the children and other family members. An average woman of target area is symbolised by a wife who has children (four or five) and who tends to the needs of the young as well as care for the old members of the household. Women prepare food, fetch water, collect firewood, care for children, clean and maintain the house, and thus play a pivotal role in running the domestic affairs of the household. Despite these contributions, the decision matrix is dominated by the men who are responsible for earning, constructing the house, household security and decision-making.

<sup>20</sup>Khow" means the people of Chitral.

**Table 24: Gender Roles in Household Tasks**

Tasks	Responsibility	Gender Involvement (%)
Cleaning, preparing lunch/breakfast /dinner	Women	100% Women, 0% Men
Washing clothes	Women	100% Women, 0% Men
Tend to children and the sick	Women/Men	90% Women, 10% Men
Bring children to school	Women/Men	40% Women, 0% Men
Collecting water and fuel wood	Women/Men	50% Women, 50% Men
House maintenance	Men	0% Women, 100% Men
Chopping wood	Men	50% Women, 50% Men
Taking sick to the hospital	Women/Men	0% Women, 100% Men
Host the guest	Women/Men	50% Women, 50% Men
Shopping, clothes, medicine	Women/Men	25% Women, 75% Men

**b. Community Work**

At the next level comes the community work that involves such activities as the management and wellbeing of the community done voluntarily for greater and communal purposes. Men from target communities are responsible for constructing a house, household security and most of the decision-making while women play a complementary role.

Although the women have little say in the communal decisions but they are socially mobilised - 80% women of the target area are members of a Women Organization (WO) and have their say in communal decisions. Men are socially mobilised with Village Organization (VO) in their area and play a more active role in communal decisions.

**Table 25: Gender Roles in Community Work**

Tasks	Responsibility	Gender Involvement (%)
Funeral preparation	Women	50% Women, 50% Men
Wedding preparation	Women	50% Women, 50% Men
Celebrate the birth of the new born	Women/Men	50% Women, 50% Men
Local community meetings	Women/Men	50% Women, 50% Men
VOs/WOs meetings	Women/Men	50% Women, 50% Men
Communal decisions	Women/Men	20% Women, 80% Men

**c. Productive Work**

Both women and men can be involved in productive work but their professions, activities and responsibilities often vary according to the gender based division of labour. Rural economies are based on the performance of farming systems that informally establish relationships in inputs and outputs and labour is the major part of the inputs.

In the targeted valleys the role of women is not confined to household keeping. The household economy is not male-monopolised, but the women from a young age, start participating in economic activities. They provide labour input in agriculture farming, livestock and poultry rearing and contribute in almost all tasks of subsistence farming activities.

**Table 26: Gender Roles in Farm and Productive Work**

Tasks	Responsibility	Gender Involvement (%)
Agriculture / Farming	Women	40% Women, 60% Men
Livestock rearing	Women	70% Women, 30% Men
Agroforestry	Women/Men	20% Women, 80% Men
Fish farming	Men	0% Women, 100% Men
Irrigation and water	Women/Men	25% Women, 75% Men
Marketing of produce	Women/Men	10% Women, 90% Men

Women play a supportive role in agriculture from sowing to harvesting, threshing and storage of the cereal and fodder crops. In livestock, women are predominantly active from fetching the fodder, milking the cow to caring for the pregnant animals. In Agroforestry, women are involved in collection of firewood, dry matter and its storage. Women also lend a helping hand in irrigating fields, particularly when the men are not present at home. They are primarily responsible for growing different varieties of vegetables and are actively involved in harvesting of fruits and all other crops.



Less than 5% of local women are in formal jobs such as teaching, nursing and other roles in services sector compared to 25% men. When it comes to decisions regarding selling of produce, women have little say.

In conclusion, there is tremendous scope for empowerment of women both socially and economically. In particular, their participation in income generating activities in agriculture, livestock, agroforestry and other value chains needs more support.

## 2.16 Household Typology

**Table 27: Household Typology for Gobor Valley<sup>21</sup>**

Types	Names	Description	Livelihood Strategies	HH %
A	<b>Poorest</b> (Ghareeb Tareen)	Own one room kacha house (Some don't own a house) Three times meal mostly salty tea (cannot afford sugar) Have 1-2 goats and 2-4 hens Cannot afford to educate their children Cannot afford to avail health services Recipient of alms at local level Mainly include people who have come from outside in the recent past, people with disabilities, widows, people with chronic diseases. Monthly cash income Rs. 1500-3000/- (Not included in village level decisions related to land, forest etc.)	Labour on daily wages in the valley especially grass cutting, potato cultivation seasons etc. Women work in the houses of the well-to do mainly for food Woolen Patti making through donated wool Farming (At times leveled land is given by owner for 2-4 years to develop it). The land is leveled and cultivated for that period.	5%
B	<b>Poor</b> (Ghareeb)	Own 1-2 rooms kacha house plus bathroom 1-2 chakoram (2-4 kanal) cultivated land 1 cow, 2-6 sheep/goats, 4-6 hens Half of the children go to Government schools (up to primary/middle level) Monthly cash income of Rs. 3000-6000 Usually borrow money	Farming on own small piece of land and /or others land on tenancy (Equal share or lease) Sell labour within and outside the valley Keep livestock for self Woolen Patti making (Men, Women)	30%
C	<b>Medium</b> (Guzaran Chal)	Own 2-3 rooms kacha/semi pacca house and a guest house (1-2 rooms, mostly 1 room) 2-8 Chakoram (4-16 Kanal) cultivated land 2-5 cows, 5-15 sheep/goats Own TV, dish antenna, Vfone and washing machine Educate children in English medium private school (Matriculation-Master) Monthly cash income of Rupees 10,000-25,000 Savings ≥ 50,000	Farming on own land. Some (mostly employed) give their land on lease, share cropping Employment in government/private sector (police, teachers and clerks etc.) Selling skills (Carpenter, Mason etc.) Woolen Patti making at large scale Own vehicle for commercial purpose Contractors, Shop keepers, small businesses Purchase potato for selling further	55-60%
D	<b>Rich</b> (Qwateen)	Own semi pacca house having 4 or more rooms and Two roomed guest house 8-30 (16-60) Chakoram (cultivated land plus plantations) Have 7+ Cows, 60+ sheep/goats Own TV, dish antenna, V phone, washing machine, oven etc. Educate children up to postgraduate degree and send them to private schools/colleges Car for personal use (Own saw mill, water mill etc.) Have maids and other help. Monthly cash income more than Rs. 25,000 Savings ≥ 500,000.	Self-farming and through others (lease, share) Employment in Govt./Private sector (officer level) Income from saw mill, water mill, tractor and other machinery Sell wood from their plantations Bulk purchaser of potato	5%

<sup>21</sup>Intercooperation Pakistan livelihood Framework Analysis 2012.

### 2.17 Employment Status

The employment survey shows that men and women are mostly unemployed in these two village councils. Out of total 5,737 men 1,521 are working as farmers, 270 are doing business, 1,168 are employed domestically, 26 employed abroad, 1,234 labourers and 1,518 are unemployed.

Among the 1,125 total women from the village council Birzeen, 574 are working in farming sector, 2 are in business, 15 employed domestically, while 534 are unemployed.

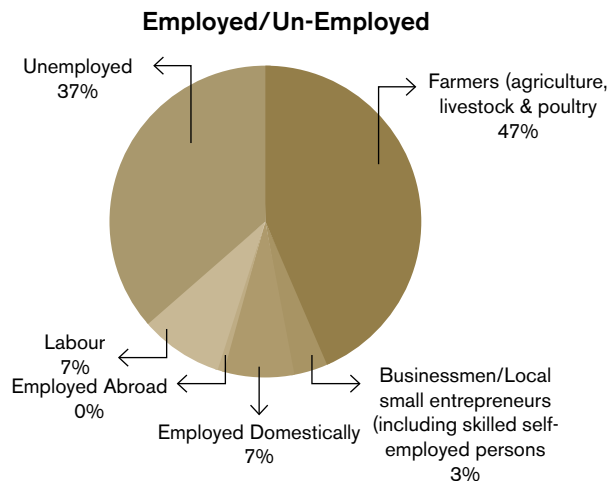
In Parabeg out of 2,970 men, 935 are working as farmers, 86 in Business, 584 are employed domestically, 17 employed abroad, 670 labourers, 678 are unemployed.

**Table 28: Employment / Unemployment**

Village Councils	Age 18 and Above [M=Men, W=Women, T=Total]							
	Sex	Farmers (from agriculture, livestock & poultry)	Having Business/ Local small Enterprise (including skilled self-employed persons)	Employed Domestically	Employed Abroad	Labourers	Unemployed	Total
Birzeen	M	586	184	584	9	564	840	2767
	W	574	2	15	0		534	1125
	T	1160	186	599	9	564	1374	3892
Parabeg	M	935	86	584	17	670	678	2970
	W	712	8	21	0		1045	1786
	T	1647	94	605	17	670	1723	4756
Total	M	1521	270	1168	26	1234	1518	5737
	W	1286	10	36	0	0	1579	2911
	T	2807	280	1204	26	1234	3097	8648

Source: Bureau of Statistics and UNICEF, 2014

Among the 1,786 women of Parabeg, 712 are farmers, 8 women and 270 men are doing business or involved in business sector, 21 women are working domestically, and 1,045 women are unemployed.



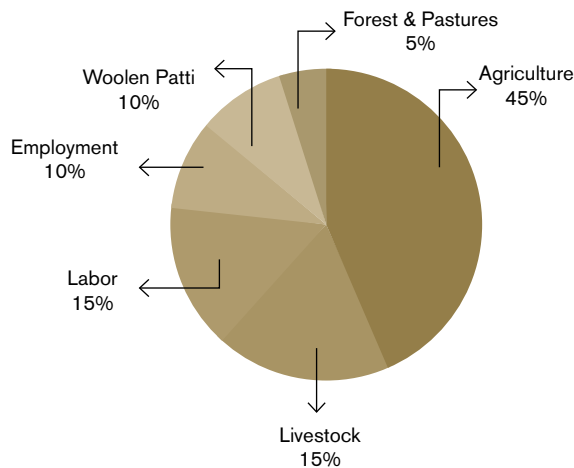
### 2.18 Income and Expenditure

**Table 29: Income and Expenditure**

Union Council	Average Annual Income Per HH	Average Annual Expenses					Net Saving
		Farming	Education	Health	Food and Other Living Needs	Total	
Birzeen	126969	12929	20714	6071	80643	120357	6612
Parabeg	149082	17143	16429	9857	105143	148571	511
<b>Average</b>	<b>138026</b>	<b>15036</b>	<b>18571</b>	<b>7964</b>	<b>92893</b>	<b>134464</b>	<b>3561</b>

Income sources of people of Gobor valley are mainly agriculture, livestock, skilled/unskilled labour, woolen patti; fruits like apple, apricot, walnut and pears. Potato is the main cash crop of the valley and the major source of income. Farmers especially the potato growers take inputs (seed, fertilizer) on credit from the business men of down country, with high interests and repay after harvesting of potato. The men migrate to down country in winter and are mainly employed in dry cleaning and laundry sector. The landholding is very small so people diversify their livelihoods for survival. Stocking of food and firewood for winter is the main concern of a typical household.

**Percentage of income from different sources**

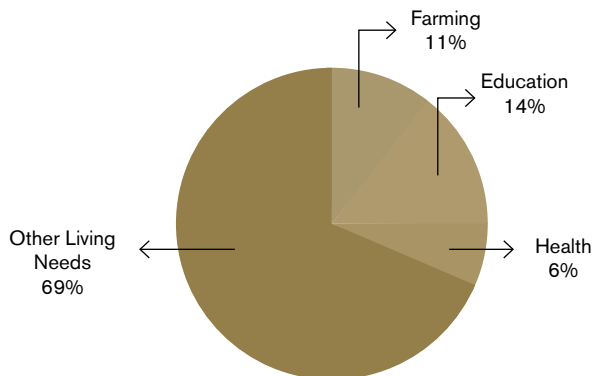


Livestock is an integral part of a Chitrali household and are kept mostly for own consumption, farming purposes and are used as ready cash. Fodder cultivation is a common practice. The upper Gobor valley of Shekhan area is famous for livestock, where a huge quantity of dairy products are produced but not marketed. The dairy products are stored during the winter mostly for own consumption. Weaving woolen patti is also a source of income for many households and majority of women are actively involved in this sector.

Labour opportunities at local level are very rare as most people practice subsistence farming. However, in harvesting season some labourers are employed by the larger growers.

The major expenditures of the valleys people irrespective of household types are depicted as follow:

**Expenditures**



## 2.19 Agriculture

In the past the main crops of this area were barley, wheat and maize. Ploughing was entirely done with bulls and farmyard manure was used as fertilizer. Ash was sprayed as a pesticide. Main fruits are mulberry, walnut and some local types of apple, apricot and peaches. Currently the main crops are potato, wheat, maize and some fodder (Alfalfa) etc. Potato is the major cash crop of the area and brings more income to the farmers. New varieties of potato seeds such as Diesel, Rako, Karula, Basic and Rado etc. have been introduced. Potatoes are sold to agents working for (down country) businessmen normally at lower rates. The inputs (seed, fertilizers) are taken on credit from these or other businessmen and the amount is repaid after harvesting with huge interest. Wheat and maize are cultivated on lesser scale as compared to potato and mainly for the purpose of fodder. The varieties of wheat and maize in the lower valley are comparatively better than the upper valley but still these are old and low yielding. Grains stored by the farmers are hardly sufficient for 3-4 months and the wheat/flour are purchased from the market or government sale points. A lot of potential exists in introducing new varieties of wheat, maize and potato. Land holding is less and people are fully involved in intensive cultivation on their small pieces of land.

Tractors are used for ploughing in all the accessible areas while bullocks till the soil in inaccessible land. Mechanical thresher is used for threshing in almost all over the valley. Use of chemical fertilizers such as DAP, Urea and Phosphate is common these days although people are complaining about their high costs. Farmyard manure is also used but in lesser quantities as dung is mainly used up as fuel in homes.

New varieties of apple, cherry, peach, pears have been introduced at a small scale by AKRSP while new varieties of potato seeds and onion have been introduced by Helvetas. Due to small landholdings regular fruit orchards are rare to be seen. Fruit trees are mostly grown on farm boundaries and in home yards.

**Table 30: Agriculture**

Particulars		Acre
Cultivated Land (Acre)	Irrigated land	4678.11
	Rain fed land	
Cultivable Waste Land (Acre)		1285.2
Non-reclaimable Waste Land (Acre)		75569.18
Farming System (Traditional, Mechanized or Both)	Both	
Major Crops	Wheat, Maize and Potato seeds	
Major Common Vegetable	Potato , Onion, Tomato, Pea and Beans	
Major Common Forest Trees	Kikar, Vela, Chile Pine and Poplar	
Cropping intensity	50%	

Source: Agriculture Extension Office- Chitral

## 2.20 Seasonal Calendar

Agriculture is the main source of livelihood for the people of Gobor Valley. The area is a single cropping zone where maize, wheat, potato, onion, tomato, pea and beans are the main crops. According to the data gathered and analysed, a wide array of brown and green crops can be sown in Kharif season in Gobor Valley. However, traditional farming, lack of technology, inaccessibility to quality seeds and mismanagement of water prevents HHs/farmers from improving their agricultural yield. Owing to the lack of modern knowledge, they grow these crops with conventional methods and there is a great gap between standard cultural practices. The farmer would apply almost double dose of Nitrate and Phosphate fertilizers as opposed to the recommended doses and use three to four time-higher quantity of seed than the recommended rate. Application of inputs in large quantities is an unnecessary financial



**Table 32: Gobor Activities Calendar**

Months	Main activities	Months	Main activities
January	<ul style="list-style-type: none"> <li>Clearing of snow from the rooftops</li> <li>Patti and other handicraft making</li> </ul>	February	<ul style="list-style-type: none"> <li>Clearing of snow from the rooftops</li> <li>Patti and other handicraft making</li> </ul>
March	<ul style="list-style-type: none"> <li>Cleaning of irrigation channels</li> <li>Plantation</li> <li>Cutting of trees for fuel purpose</li> </ul>	April	<ul style="list-style-type: none"> <li>Plantations</li> <li>Land preparation for vegetables e.g. potato, and maize cultivation</li> </ul>
May	<ul style="list-style-type: none"> <li>Potato, vegetables and maize cultivation</li> <li>Irrigation of crops and vegetables</li> </ul>	June	<ul style="list-style-type: none"> <li>Harvesting and threshing of barley</li> <li>Irrigation of vegetables and crops</li> </ul>
July	<ul style="list-style-type: none"> <li>Harvesting and threshing barley &amp; wheat</li> <li>Storage of grains</li> <li>Cultivation of maize for cattle</li> <li>Collection of fruits like apricot, mulberry etc.</li> </ul>	August	<ul style="list-style-type: none"> <li>Harvesting &amp; threshing of wheat,</li> <li>Collection of apples, apricot and other fruits</li> </ul>
September	<ul style="list-style-type: none"> <li>Land Preparation</li> <li>Wheat &amp; Barley cultivation in upper parts of the valley</li> </ul>	October	<ul style="list-style-type: none"> <li>Land Preparation</li> <li>Wheat &amp; barley cultivation</li> <li>Collection of different fruits like apple, pear, grapes etc.</li> </ul>
November	<ul style="list-style-type: none"> <li>Land Preparation</li> <li>Wheat cultivation</li> </ul>	December	<ul style="list-style-type: none"> <li>Collection of fire wood for energy</li> <li>Cutting of fire wood</li> </ul>

## 2.21 Livestock

**Table 33: Common Livestock**

Village Councils	Livestock			
	Small Animal (Goats & Sheep)	Cattle	Yak/Horse/Donkeys	Total
Birzeen	6928	1935	37	8900
Parabeg	2914	848	67	3829
<b>Total</b>	<b>9842</b>	<b>2783</b>	<b>104</b>	<b>12729</b>

Livestock keeping has decreased in comparison to the past due to the trend of sending children to schools and commercial growing of potatoes. Previously the whole household had to migrate to pastures and take their children with them. Now the trend of migration has reduced and most of the people send their children to schools. People keep livestock in varying number, depending on the household's capacity to arrange fodder and hay to feed animals during the long winters. Usually cows are kept for milk, goats for meat, milk and hides and sheep for wool. Bulls are kept for ploughing while in the upper valley horses and donkeys are kept for transportation of material. People mostly keep livestock for fulfilling their own needs but in the upper valley some dairy products are also sold. They can be sold for marriages, emergencies and at times for stocking food for winter. In the upper valley in Sheikhan areas livestock keeping is solely the man's responsibility. Poultry is also kept by women in each household.

Information provided by local people reveal that in Birzeen Village Council there are 6928 small animals like goats and sheep, 1935 cattle, and 37 yaks/horses/donkeys etc. in VC Parabeg there are less cattle as compared to VC Birzeen, table shows that there are 2119 small animals e.g. goats & sheep, 848 cattle and 67 donkeys/horses/ yaks etc.

Livestock services are almost non-existent in the area. One veterinary practitioner is available in the valley. Black quarter, Pleuropneumonia, Enterotoxaemia, Gulgotu (a type of anthrax), foot & mouth and gall bladder diseases are common amongst livestock.

## 2.22 Climatic Variation

The results of the survey show increasing awareness regarding climate change, 100% of the locals believe that the climate is changing. Generally, 96% WUGs believe that increase in temperature has been observed. While 89 % agreed with the statement that increases in occurrence of unprecedented disasters have been observed. 93% of the people believe that change in weather patterns (extreme warm/cold) are apparent. Likewise, 96% of the respondents reported that changes have been observed in cropping patterns (time & duration). When it was asked about the impact of increase in global warming, increase in occurrence of unprecedented hazards, change in weather patterns (extreme warm/cold) and change observed in cropping patterns (time & duration), 96% believed that climatic variation caused loss of lives, property and livelihoods.

When asked about whether “due to climate variation has a changed life style become inevitable” 96% people responded yes and they believe that humanity has learned to live with climate variability and will continue to do so in familiar ways. Climate change has brought many new challenges for this generation and for those to come. It will mean that the underlying conditions that affect almost every aspect of our lives and the environment in which we live, and on which we depend, will become consistently different. Increasingly, it will influence the year-to-year variations with which we are familiar.

**Table 34: Climatic Variation**

Particulars	%
Increase in global warming observed	96%
Change in weather patterns (extreme warm/cold) observed	93%
Increase in occurrence of unprecedented hazards observed	89%
Change observed in cropping patterns (time & duration)	96%
The above events have caused loss of lives, property and livelihoods	89%
Has changing life style become inevitable?	96%

## 2.23 Natural Disasters

Inhabitants of the Gobor valley are exposed to many natural hazards. The mountain ranges are young with unstable geology, steep slopes, and a climate that is difficult to predict. As a result, the region is highly susceptible to natural hazards such as:

- Flash Floods
- Earthquakes
- Glacial Lake Outburst Floods (GLOF)
- Landslides
- Avalanches
- Heavy Rain & Snow Fall
- Mud Flow
- Debris Flow
- Extreme weather
- Soil Erosion
- Windstorm

**Table 35: Natural Disasters Frequency and Intensity**

Hazard	Intensity (mild, moderate, severe)	Frequency	Losses		
		(Years/ duration)	Physical Infrastructure (Rs)	Casualties	Livestock
Floods	Severe	2005-15	24037800	3	1386
Heavy Rain / Snow	Severe	2015	6559100	78	56
Drought	Severe	2005	10500	0	3
Flash Floods	Moderate	2007	3816500	1	21
Windstorm	Moderate	2001-10	101500	0	2
Lightening	Mild	2011-15	350000	0	18
Earthquake	Severe	2015	3416000	36	0
<b>Total</b>			<b>38291400</b>	<b>118</b>	<b>1486</b>

In populated areas, these can lead to disasters. Vulnerable groups – the poor, women, and children are often hit hardest. During the period from 2005 to 2016 District Chitral witnessed severe events of floods, heavy rain & snowfall, earthquake, moderate events of flash floods and avalanches, events of lightening which inflicted an estimated loss of billions of rupees to the physical infrastructure, claimed over 100 human lives and killed over thousand livestock.

Data collected during the survey shows history of natural disaster, intensity, frequency, life loss, damage to infrastructure and livestock.

**Table 36: Historical profile of main natural disasters in Chitral from 2005 to 2016<sup>22</sup>**

Year	Disaster	Magnitude
2016	Avalanche (Karimabad )	08 school going students lost their lives
2015	Glacial Lake Outburst Floods (GLOF)	<p><b>Roads:</b> 3 main roads connecting the largest part of the District with Chitral are damaged:</p> <ul style="list-style-type: none"> <li>• Chitral-Gram Chashma Road</li> <li>• Ayun-Bumburate Road</li> <li>• Chitral-Booni Road at Koragh</li> <li>• Chitral Booni Road blocked at Reshun</li> <li>• 40 link roads damaged</li> </ul> <p><b>Bridges:</b></p> <ul style="list-style-type: none"> <li>• RCC Bridges 4 (Including Reshun Bridge)</li> <li>• 16 Suspension Bridges at Raeen Gol on the Booni Shagram</li> <li>• 12 wooden Suspension bridges</li> <li>• 01 Steel Bridge washed away.</li> <li>• 27 Cantilever/ Suspension Bridges damaged.</li> </ul> <p><b>Water supply Schemes:</b></p> <ul style="list-style-type: none"> <li>• 36 water supply schemes damaged</li> <li>• 70 Irrigation channels damaged</li> </ul> <p><b>Agriculture:</b></p> <ul style="list-style-type: none"> <li>• 1200 acre standing crops damaged.</li> </ul> <p><b>Powerhouse:</b></p> <ul style="list-style-type: none"> <li>• Reshun and Sheshi Powerhouse completely damaged</li> </ul> <p><b>Livestock Mortality:</b></p> <ul style="list-style-type: none"> <li>• 741 cattle</li> <li>• 2476 sheep / goat</li> <li>• 416 poultry /equine / canine</li> <li>• 213 livestock shed/fodder store damaged</li> </ul> <p>NOTE: (Thousands of people were displaced and the total damages caused were estimated to be 1.4 billion rupees (\$13 million). In Chitral and surrounding areas, the floods disrupted over 300,000 people's access to drinking water and basic services, according to the District Administration Chitral District Disaster</p>
	Earthquake	<ul style="list-style-type: none"> <li>• 36 people lost their lives</li> <li>• Over 1000 houses totally damaged</li> <li>• More than 5000 house partially damaged</li> </ul>

<sup>22</sup>Aga Khan Focus Humanitarian Assistance, Chitral Pakistan

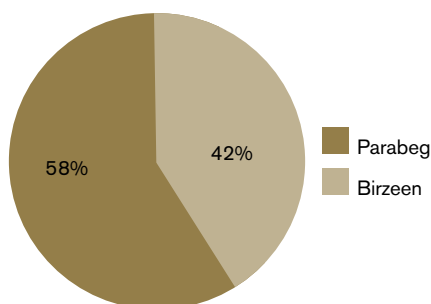


2013	Glacier Lack Outburst (Reshun)	<p>The impacts of this flood were devastating. Nearly</p> <ul style="list-style-type: none"> <li>• 40 houses, 20 shops,</li> <li>• 30 animal corrals,</li> <li>• Standing crops and orchards.</li> <li>• Two ill-fated human lives also fell prey to the flood.</li> <li>• One jeep-able road</li> <li>• Two pedestrian bridges were also completely destroyed and mobility of the up and downstream communities was badly impaired.</li> <li>• Transmission lines and channel of the hydel power station were also badly damaged.</li> <li>• Irrigation channels and potable water supply schemes were also damaged.</li> <li>• Heads of 3 main irrigation channels were completely destroyed.</li> <li>• Agriculture lands were also destroyed</li> </ul>
2011	GLOF (Booni)	<ul style="list-style-type: none"> <li>• Caused widespread devastation and disruption of infrastructure</li> <li>• Standing crops and million rupees fruit orchard washed out</li> </ul>
2010	Flash Flood	<ul style="list-style-type: none"> <li>• village Sonoghur washed away</li> <li>• one person drowned</li> <li>• livestock fled</li> <li>• water supply schemes, roads, bridges, telephone lines and electricity damaged</li> <li>• villages were evacuated and people lived in the tents or under open sky in heavy rains</li> </ul>
2007	Heavy Snowfall	<ul style="list-style-type: none"> <li>• Loss of 78 lives</li> <li>• Caused widespread devastation and disruption of infrastructure, with recovery efforts costing around USD 12 million.</li> </ul>
2007	Glacier Lack Outburst Sonoghhor	<ul style="list-style-type: none"> <li>• Over 50 houses completely damaged</li> <li>• Standing crops, fruit orchards, dense forest completely washed out</li> <li>• 1000 acres of cultivable land became barren</li> </ul>
2005	Glacial Lake Outburst Floods	<ul style="list-style-type: none"> <li>• Over 40 houses totally washed away</li> <li>• Standing crops and fruit orchard damaged</li> <li>• Livestock lost</li> <li>• Million rupees infrastructure damaged</li> </ul>

## 2.24 Disputes Resolution

Village-level conflicts among farmers from within the same village are usually readily settled. But disputes involving farmers from different villages or between villages are more difficult to resolve, and in most cases these require intervention for settlement. Disputes between villages reportedly have become more frequent with the increasing concern and livelihood pressures on what were formerly regarded as common property resources. There is much greater ambiguity of ownership of land and water resources located at higher elevations. The police are generally not involved in disputes within villages, but if between villages the preference is to take the case to the police.

**Negative response over existence of disputes**



During social data collection, when asked regarding existence of any type of dispute among communities over water and its distribution, many said none exists, as water quantity is more than enough to fulfill the drinking, household and agricultural requirement. However minor disputes were reported. These minor disputes arise from time to time when any community member or group of community members do not ensure their presence in repair, improvement and rehabilitation of the damaged physical infrastructure such as water channels, roads, drinking water supply line, small pedestrian bridges over streams. Such minor disputes exist for short periods of time and are usually resolved by O&M system.

# Chapter 3

## Water Use Management Plan Mechanism

### 3.1 WUMP Objective

Key objectives of WUMP preparation are:

- To document existing water resources, water resource use and fundamental issues for an efficient and equitable management and sustainability of water sector in (the ecologically fragile areas of) Chitral
- To identify the potential to up-scale existing water resources and develop new water resource management and governance mechanisms; and,
- To promote sustainable and environment-sensitive initiatives, identified and prioritised in consultation with village communities in two village councils of Gobor valley in Garam Chashma, Chitral.

### 3.2 WUMP Formulation - Overall Scope

Employing Rapid Rural appraisal<sup>23</sup> (RRA) tools, the overall scope of the work includes collection and collation of information, analysis and synthesis of social and technical data to propose an evidence-based, representative and realistically achievable WUMP for 30 villages in 2 village Councils (VCs) of Gobor Valley, Tehsil and District Chitral.

### 3.3 WUMP Study Sample (Participants)

WUMP preparation process was completed on the basis of participatory dialogues followed by conducting village assemblies with 234 WUGs

<sup>23</sup>Rapid Rural Appraisal (RRA) is a research technique used in Action Research to elicit relevant information from individuals or groups to serve specific research needs in a relatively less time. Apart from helping to secure critical time, the technique helps in a robust understanding of local conditions, in our case the prevalence, use and issues of water resources which, being public good, does not render itself as a household specific parameter.

**Table 37: WUMP Study Sample (Participants)**

VC	Name of the WUG	Men	Women
Birzeen	WUG Spokht	3	1
	WUG Irijk	5	2
	WUG Mirdin	4	1
	WUG Gobor Bakht	4	1
	WUG Deens	3	
	WUG Degri	4	1
	WUG Shahsalim	4	1
	WUG Gufti	4	2
	WUG Ughuti	5	1
	WUG Birzeen	4	2
Parabeg	WUG Dinsk	4	1
	WUG Royee	5	2
	WUG Gistini	4	2
	WUG Parabeg	5	2
	WUG Gologh	4	1
	WUG Noghphaty	4	1
	WUG Gohik	4	1
	WUG Digheli	3	1
	WUG Postaki	5	2
	WUG Burbuno	3	1
	WUG Zhitoor sanik	4	1
	WUG Zhitoor	4	1
	WUG Wakhat	4	2
WUG Lohok	3	1	
<b>Total</b>	<b>24</b>	<b>96</b>	<b>31</b>

WUAs and elected representatives (Men: 182 and women: 52) hailing from 30 villages. These WUGs (constituted during the community mobilization phase of W4L) were treated as Primary Sample Units and all their members as key informants to ensure fair representation of the shared wisdom and felt priorities of their respective village communities in WPP. WPP also encompassed consultations with GLAs, with particular reference to the need for citation of empirical evidences in WUMP vis-à-vis numerous socio-economic and ecological factors in Gobor Valley.

### 3.4 WUMP Study Instruments - Contextualization

Helvetas' WUMP instruments, (primarily formulated and implemented in Nepal) were put into local context by customizing them on the basis of desk review and results of subsequent pre-testing during training of selected 14 enumerators (from WUAs/WUGs having undergone a few other W4L trainings such as WUMP Social and WUMP Technical tools).

### 3.5 WUMP Planning Process - A Tripartite Endeavour

Under the overall technical supervision of an Helvetas team, 8 teams comprising trained social and technical staff conducted a total of 30 RRAs, wherein WUG members shared their relevant knowledge regarding the problem in question. RRA tools were employed to collate information regarding availability, management, water use, conditions and issues around local WRs. All such information was collated and sifted through exclusive consultations with village council Nazims and followed by village and Village Council (VC) level prioritization exercises. Key information collated includes number of local HHs and their access to water and public services, HHs income, land and livestock holdings, watercourses, springs/, administrative issues/disputes around WRs, weather and crop patterns, seasonal calendars, disasters, causes of CC and migration, community physical and social infrastructure.

At each step of WUMP planning process, critical technical and social information about two VCs of Gobor was obtained from the GLAs, besides seeking their help and advice regarding field work.



# Chapter 4

## Analysing Existing Water Resources

### 4.1 Water Resources

Before implementation of WUMP, the conditions analyzed, quantified and presented in tabular form in this section, have been inferred from a primary qualitative and quantitative analysis of data that encapsulated views and perceptions of 234 WUG/WUAs and elected representative members (Men: 182 and women: 52) hailing from 30 villages of Gobor valley of District Chitral (Table 1). The findings in this section have been correlated and synthesized cautiously to also cater Helvetas' monitoring and evaluation requirements, vis-à-vis overtime comparisons of baseline with mid and end-of-term/project conditions to determine attributable performance. The under-mentioned tabular data represents shared perceptions and perspectives of the WUG/WUAs/ER members based on their best local knowledge, understanding of the area and prevailing conditions.

As per WUGs, in Gobor Valley, there are 23 tap water resources which are providing clean drinking water to 9,527 persons of 991 households out of 12,107 population of 1,259 households. The remaining 268 households with a population of 2580 people are using stream water or irrigation channel or spring or nearby tap water for drinking purposes. As per report from WUGs and local people there are 38 irrigation channels (24 mega and 14 small irrigations which are benefiting 1194 households by irrigating 4678 acre of agriculture land in 30 villages. There are 7 springs and 24 stream water resources coming together to form one river of Garam Chashma.

**Table 38: Available Water Resources**

Village Councils	Ownership	Tap Water	Irrigation Channel	Springs	Streams	Total
Birzeen	Private	0	0	0	0	0
	Government/ Community	9	17	4	11	43
	<b>Total</b>	<b>9</b>	<b>17</b>	<b>4</b>	<b>11</b>	<b>43</b>
Parabeg	Private	0	0	0	0	0
	Government/ Community	14	21	3	13	49
	<b>Total</b>	<b>14</b>	<b>21</b>	<b>3</b>	<b>13</b>	<b>49</b>
Gross Total	Private	0	0	0	0	0
	Government/ Community	23	38	7	24	92
	<b>Total</b>	<b>23</b>	<b>38</b>	<b>7</b>	<b>24</b>	<b>92</b>

## 4.2 Water Sources

### 4.2.1: Drinking Water Resources

As per WUGs and community activists, there are 23 drinking water supply schemes implemented by different departments and organizations after 1980. During the last ten years 16 drinking water supply schemes set up by seven different departments and NGOs, were designed for 991 households (with a population of 9527). Out of the 16 schemes, 12 are functional and four are dysfunctional (after the flood of 2010 these four schemes were rehabilitated by donor agencies, and after the flood of 2015 the scheme were again damaged). Five schemes were implemented by Public Health Engineering Department (PHED) out of which only one scheme is functional and the remaining are dysfunctional. Four schemes implemented by Water and Sanitation Extension Program (WASEP) of Aga Khan Planning and Building Service Pakistan, are functional, two schemes were implemented by Livelihood Program Hindukush (LPH) and two schemes which were implemented by Water for Livelihood (W4L) project of Helvetas are functional, two schemes implemented by Aga Khan Rural Support Program (AKRSP) are functional and one scheme implemented by Garam Chashma Area Development Organization with the financial support of PPAF, is also functional.

**Table 39: Implemented DWSS schemes by GLAs and NGOs (2005 - 2015)**

S.#	Name of Village	Village Council	Type	Implemented By	Benefiting Households	Benefiting Population	Year of Implementation	Functionality
1	Deghari	Birzeen	DWSS	LPH	60	626	2013	functional
2	Spokht	Parabeg	DWSS	LPH	30	285	2011	functional
3	Burbunoo and Lohok	Parabeg	DWSS	W4L	105	945	2013	functional
4	Shah Salim	Birzeen	DWSS	W4L	60	630	2012	functional
5	Mirdin	Birzeen	DWSS	PPF-GADO	71	641		functional
6	Gobor Bakh	Birzeen	DWSS	AKRSP	45	384	2008	functional
7	Irjiak	Birzeen	DWSS	AKRSP	60	409	2008	functional
8	Khughik	Parabeg	DWSS	WASEP	55	440	2002-03	functional
9	Parabeg	Parabeg	DWSS	WASEP	81	611	2002-03	functional
10	Postaki	Parabeg	DWSS	WASEP	50	400	2004-06	functional
11	Zaitor	Parabeg	DWSS	WASEP	97	869	2007-08	functional
12	Garam Chashma	Parabeg	DWSS	PHED	20	160	1982-83	dysfunctional
13	Parabeg	Parabeg	DWSS	PHED	56	448	1990-91	dysfunctional
14	Ughti	Birzeen	DWSS	PHED	75	547	1993-94	dysfunctional
15	Gobore	Birzeen	DWSS	PHED	45	384	1996-97	dysfunctional
16	Wakht	Parabeg	DWSS	PHED	55	429	1996-97	functional
<b>Total</b>	<b>16</b>	<b>2</b>	<b>16</b>		<b>991</b>	<b>9527</b>		<b>12 F &amp; 4 DF</b>

### 4.2.2: Irrigation Water Resources

As per the report of WUGs and the locals, after comparison of secondary data with the collected primary data in Birzeen and Parabeg VCs of Gobor Valley, there are 30 villages having 38 irrigation channels (24 mega and 14 small irrigation schemes) which are benefiting 1194 farmer households by irrigating 4,678 acres of agriculture land. The 18 functional schemes (Tab:40) are benefiting 1,167 farming HHs by irrigating 4,413 acres land in 30 villages.

**Table 40: Number of functional or dysfunctional irrigation channels (2001 - 2015)**

S. No	Village Name	VC	Nature of Scheme	Beneficiary HHs	Irrigated Land Acre	Constructed By	Year of construction	Functionality
1	Zitoor char	Parabeg	Irrigation channel	105	94	AKRSP/ Local Community	1990	dysfunctional
2	Zitoor(Tarak Nehar)	Parabeg	Irrigation channel		49	Local Community	1903	functional
3	Zitoor (Oshkhost)	Parabeg	Irrigation channel		38	Local community	1985	functional
4	Zhitoor(Pirdamon)	Parabeg	Irrigation channel		84	Local Community	1924	functional
5	Zhitoor deh	Parabeg	Irrigation channel		40	AKRSP renovated by Helvetas-LPH	1992	partially functional
6	Zhitoor (Mor Zoyogh)	Parabeg	Irrigation channel		68	AKRSP & renovated by Community and Helvetas	2005	partially functional
7	Zhitoor (Kishman xoy)	Parabeg	Irrigation channel		36	Local Community/ renovated by Helvetas	1987	partially functional
8	Zitoor Choling	Parabeg	Irrigation channel		80	Local Community self help	1940	dysfunctional
9	Royee, Gologh, Gisiti	Parabeg	Irrigation channel	120	208	AKRSP /Local Community	1991	dysfunctional
10	Khoghik	Parabeg	Irrigation channel	47	108	Local Community	1984	functional
11	Wakht	Parabeg	Irrigation channel	52	132	Local community	1904	dysfunctional
12	Wakht	Parabeg	Irrigation channel	45	136	Local community	1964	functional
13	Wakht lohok zarin(lower)	Parabeg	Irrigation channel	79	218	Local community (LG fund) renovated by Helvetas	1900	functional
14	Royee	Parabeg	Irrigation channel	44	196	Local community	1940	functional
15	Atalaghi channel wakht	Parabeg	Irrigation channel	70	238	Govt/Local community/ renovated by Helvetas	1965	functional
16	Gobor Bakht	Birzeen	Irrigation channel	32	104	Local community	1900	functional
17	Mirdin	Birzeen	Irrigation channel	25	86	Local community	1968	functional
18	Shah saleem	Birzeen	Irrigation channel	40	134	Local community	1900	functional

19	Khughik Deh	Birzeen	Irrigation channel	60	125	Local community / renovated by Helvetas	1800	functional
20	Khoghik zakhmik	Birzeen	Irrigation channel	40	103	CADP	1998	functional
21	Birzeen to roye	Birzeen+Parabeg	Irrigation channel	20	80	AKRSP/ Local community	1994	dysfunctional
22	Birzeen to nokhpati	Birzeen	Irrigation channel	105	235	AKRSP/Local community	1994	dysfunctional
23	Birzeen	Birzeen	Irrigation channel	30	89	AKRSP	1994	dysfunctional
24	Musun Goal	Birzeen	Irrigation channel	22	76	Local Community	1800	dysfunctional
25	Spokht	Birzeen	Irrigation channel	45	132	Local Community	1900	dysfunctional
26	Spokht	Birzeen	Irrigation channel	23	94	Local Community	1906	dysfunctional
27	Oughti	Birzeen	Irrigation channel	56	164	Local Community	1800	functional
28	Dinsk	Birzeen	Water source	30	78	OFWM	2001	dysfunctional
29	Wakht	Birzeen	Water source	23	86	OFWM	2013	dysfunctional
30	Erjiak	Birzeen	Irrigation channel	54	102	W4L-RF-Helvetas	2012	functional
		<b>2</b>	<b>30</b>	<b>1167</b>	<b>4413</b>			<b>F=18 and DF=12</b>

### 4.3 Current Daily Water Supply, Demand and Deficit/Surplus

The current daily discharge capacity for drinking water from the available 23 tap resources is 478,915 litres which provide clean drinking water to 8139 people. The remaining 2,507 people do not have tap water resources and are mainly fetching water from different sources. The average daily discharge from different sources is 2,363,688 litres which is 1,646,148 litres more than the current daily requirement of 717,540 litres. This surplus quantity can provide drinking water to 2,507 HHs and provide irrigation water to 14,032-acre land of 1,195 farmer as well as an opportunity to 64 tenants to cultivate their own land, (if properly managed with provision of rehabilitated irrigation channels, construction of small drinking water supply scheme and construction of protection walls etc.).

**Table 41: Current Daily Water Supply, Demand and Deficit/Surplus**

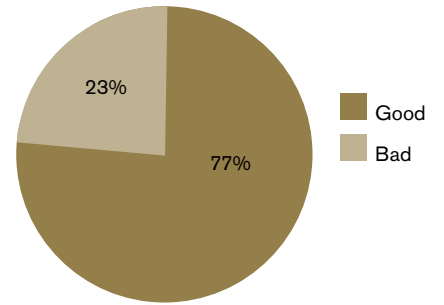
UCs	Tap Water Resources: 24 Hrs DC		Spring Water Resources: 24 Hrs DC daily		Untapped WRs: Average 24 Hours Daily Discharge		Total Avg Daily Discharge	Total Quantity Required Daily (ltr)	Deficit/ Surplus
	TWRs	DC (Ltr)	W/SWRs	DC (Ltr)	IWRs	DC (Ltr)			
Birzeen	11	229,046	4	13,882	17	832,320	1,075,248	396,488	678,760
Parabeg	12	249,869	3	10,411	21	1,028,160	1,288,440	321,052	967,388
<b>Total</b>	<b>23</b>	<b>478,915</b>	<b>7</b>	<b>24,293</b>	<b>38</b>	<b>1,860,480</b>	<b>2,363,688</b>	<b>717,540</b>	<b>1,646,148</b>

#### 4.4 Water Resource Quality

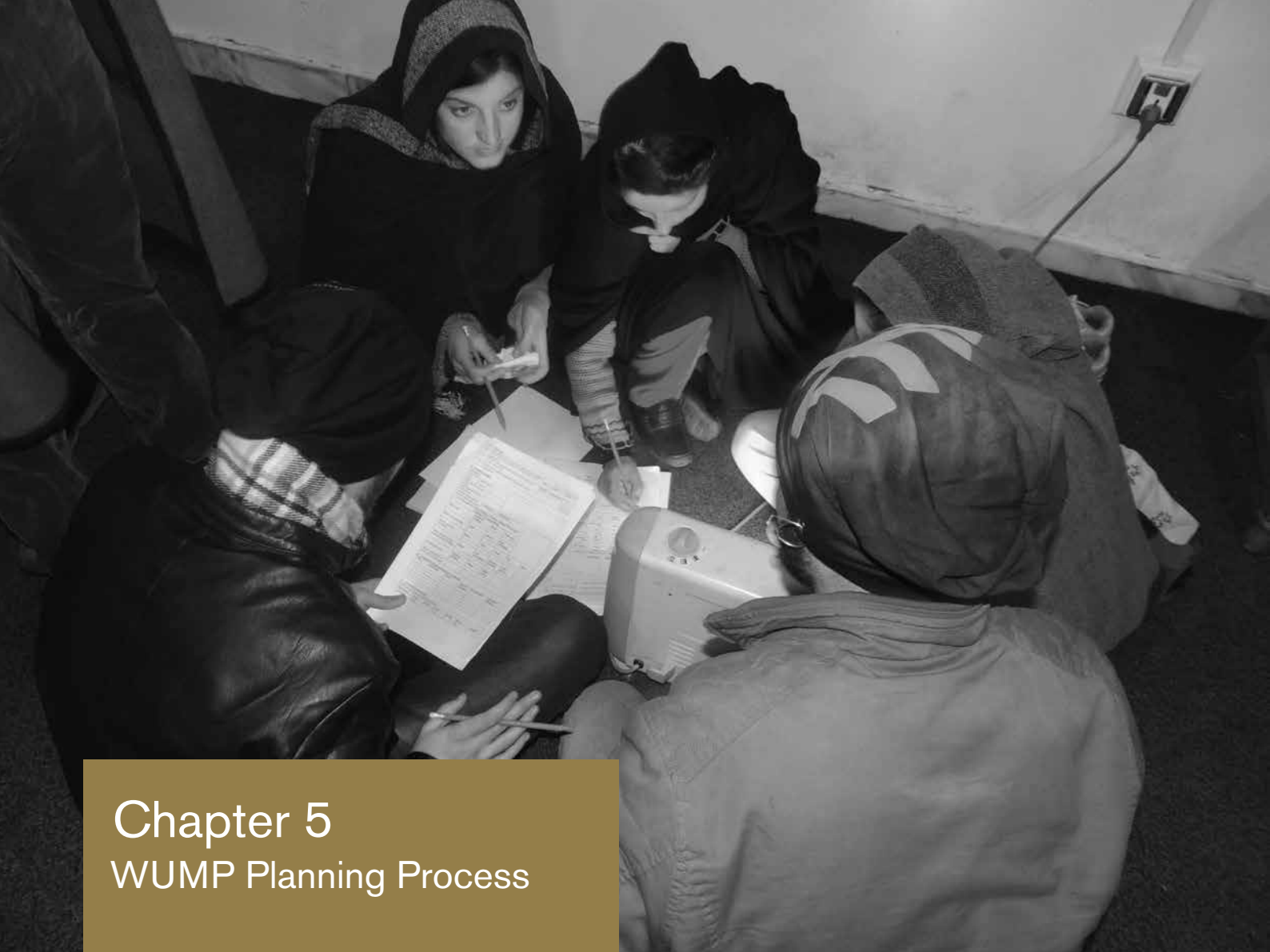
The WUGs showed satisfaction regarding the drinking water quality available from 16 water supply schemes. The perception of 234 representatives out of 23 villages is that their water quality is good and only 7 villages representatives assume that the quality of 7 drinking water supply sources is not good.

**Table 42: Perception of village representatives about water quality**

Community Perception	Birzeen	Parabeg	Gross Total
Good	10	13	23
Bad	3	4	7
<b>Total</b>	<b>13</b>	<b>17</b>	<b>30</b>







## Chapter 5

### WUMP Planning Process

#### 5.1 Interventions Identified and Prioritised

The WPP exercise carried-out with the involvement of WUGs/ WUAS/ER has led to identification and prioritization of 118 WRM schemes under nine major categories. These schemes and categories include 17 DWSS, 31 Disaster Risk Reduction (flood protection wall and Check dam), 30 Irrigation Schemes, 18 Sewerage and Sanitation Schemes, 05 plantation schemes, 2 Micro Hydro Power (MHP), 02 education facilities, 03 health facilities and 05 transportation facilities.

**Table 43: WPP Schemes Identified and Categorized**

WUMP Schemes	Number of Schemes
DWSS	17
DRR Schemes (CD, FPW)	31
Irrigation Schemes	32
Sewerage and Sanitation Schemes	18
Plantation	5
Sewing and Art Centre	3
MHPs	2
Education facilities	2
Health facilities	3
Transportation facilities	5
<b>Total</b>	<b>118</b>

Source :Gobor WUMP Schemes Prioritization List



**Table 44: WPP Schemes Identified and Categorized**

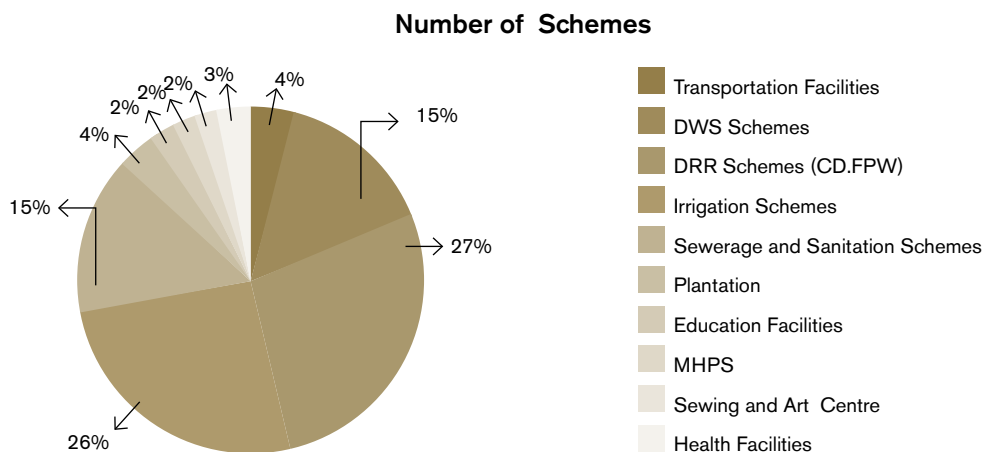
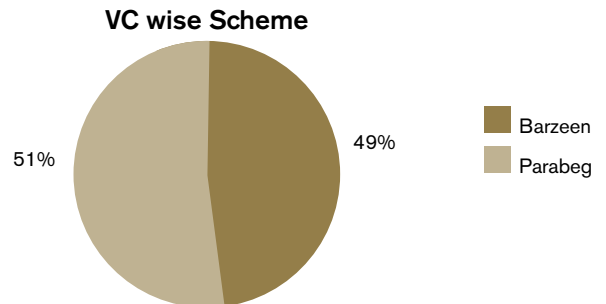
WUMP Schemes	Number of Schemes	Beneficiary HHs	Benefiting land	Total estimated cost Rs. (millions)
DRR Schemes (CD, FPW)	31	890	1743	52.7
Irrigation Schemes (Rehabilitation and pipeline)	32	1194	2720	54
DWS Schemes(New and rehabilitation )	17	545		25.5
Sewerage and Sanitation Schemes(new)	18	643		15.2
Watershed management (Check dam, Plantation)	5	348	1340	34.53
Other (Sewing and art centre, Health, Education and Transportation facilities)	13	984		29.58
MHPs	2	234		6.66
<b>Total</b>	<b>118</b>	<b>4838</b>	<b>5803</b>	<b>218.17</b>

Source : Gobor WUMP Schemes prioritization list

A fair and equitable distribution of WRM schemes across 30 villages in two VCs of Gobor valley, has been ensured. However, the distribution on the scale of 'most needed' (Category A) to 'least needed' (Category H) has been done in strict consideration of i) community need, ii) resource availability, iii) feasibility for development of resource, iv) value for money (cost and productivity), v) coverage (meeting optimum human, livestock and irrigation needs), vi) building resilience, vii) protecting human settlements, viii) improving health and hygiene conditions, ix) improving and enhancing access to safe drinking water, x) lessening economic, health and environmental costs, xi) reducing mental and physical stress on women, xii) improving agricultural and livestock base of the communities through improved access to drinking and irrigation water, and, xiii) environmental impacts.

**Table 45: WPP Schemes (VC Wise Prioritization)**

Village Council	VC Wise Schemes
Birzeen	58
Parabeg	60
<b>Total</b>	<b>118</b>



## 5.2 Key Findings and Recommendations

This study on Water Governance recommends to the local government for designing and implementing better water policies for improving lives of people in ecologically fragile areas of Chitral. It relies on multi-stakeholder engagement and bottom-up processes to produce policy analysis, dialogues, standards and a forum. It has produced evidence-based analysis, benchmarks and peer reviews on water management. Water governance is the set of rules, practices, and processes (formal and informal) through which decisions

for the management of water resources and services are taken and implemented. The stakeholders articulate their interest and decision-makers are held accountable.

The key recommendations are as following;

- This Water User Management Plan identifies some of the applicable evidence based mechanisms for strengthening water governance reforms at local level. These mechanisms consist of equitable water resource distribution and provision of quality services.
- Water governance is critical however it can be reversed by improved access to productive use of water through
  - lining of water courses,
  - protection of conveyance system against disasters,
  - extension of channels to bring new land under command area
  - introduction of improved on-farm water application techniques
  - improved access to potable drinking water supplies
  - Safe-guarding delivery of water services against natural disaster.
  - Improve sanitation and health hygiene facilities
  - Increase possibility for local electricity power generation
- Additional measures such as construction of washing pads and covering of collection points will be taken to address women's concerns.
- In order to ensure the sustainability and anticipation of water sector service delivery, promote beneficiary involvement in identification & prioritization of potential issues, sharing of scheme costs and a pay-for-service culture.
- Strengthening water management systems through local institutions (WUA/WUG & Apex Association) to ensure effective implementation of WUMP. The local institutions will lobby for their respective villages' prioritised schemes with the local government and other organizations through building functional linkages.





## Chapter 6

### WUMP Implementation Plan (WIP)

WUMP for the two VCs of Gobor has been jointly developed with the support of Government Line Departments, WUGs/WUAs, elected representatives from beneficiaries and W4L team (Helvetas Pakistan). The preparation of WUMP has been funded through financial assistance from SDC. The guidelines and supervision of District Coordination Committee (DCC) for WUMP has been followed during socio-economic study, technical assessment, planning and onwards implementation.

WUMP identified and prioritized a total of 118 initiatives for 30 villages in two VCs of Gobor Valley. The tentative cost of physical infrastructures is 298.73 million PKR. Amongst 116 initiatives 51% in Parabeg and 49 % in Birzeen are identified and prioritised with the coordination from local government representatives (Nazim, Nayab Nazim and General Councillor). They have recommended the schemes during meetings held at the VC Nazim office by WUGs/WUAs. WUMP can be implemented on the basis of ownership and interest through government, partner projects, elected representatives and philanthropists. This has been anticipated in long-term (10 years), mid-term (07 years) and short-term (03 years) planning as per the following details:

#### 6.1 Long-Term Planning (10 years)

Long-term planning includes macro level schemes which need more completion time as well as have long-term impacts and benefits. Mega water supply schemes, protection wall, irrigation channels and MHPs are included in Macro level schemes. These schemes would also need detailed feasibility studies therefore they are considered long-term but they are taken as top priority and are the dire needs of the locals. The duration of such implementations will be 10 years.

#### 6.2 Mid-Term Planning (07 years)

Mid-term planning includes implementation at meso-level for WRs infrastructures i.e. WSS, DRR, storage tanks, irrigation channels etc. The duration for implementing such initiatives is 07 years.

#### 6.3 Short Term Planning (03 years)

Short-term planning includes micro level rehabilitation, low cost irrigation schemes and lining of water courses etc. The duration of completion and implementation is 3 years.

#### 6.4 Possible Sources of support for WUMP Implementation

Expected sources for allocation of funds for WUMP implementation are

- Annual Development Programmes (ADPs)
- District Local Government Fund
- Water for Livelihoods Project

- Other organizations working in target area (in water sector)
- Potential Donors

Water for Livelihood Project is investing under certain specific guidelines and financial limitations. Each initiative is taken while working with WUGs/WUAs and elected representatives to implement, with up to 20% cost sharing from beneficiaries. This was also a selection criterion during the prioritisation process.

## 6.5 District Government/Government Line Departments

The WUMP document will be used by the district government, GLAs, NGOs and private sector through local bodies' representatives and DCC.

## 6.6 WUGs /WUAs

In Gobor Valley 24 Water User Groups and 3 Water Users Associations could play an effective role in rehabilitation, O&M, and dispute resolution. Sufficient capacities of WUAs will be/are built by W4L regarding dispute resolution, proposal writing and water resource governance through implementation of a few models for WUMP initiatives and capacity building.





## Annexure: List of WUMP Prioritized Interventions of Two VCs

Village and Village Council Priority Ranking												
Village Names	Village Council	Codes	Schemes [Main]	Scheme [Sub Type]	Specifications/Particulars	Location of the Intervention	Beneficiary HH of the total HHs in the villages	Land to be Protected (acre) out of total land in the Villages	Estimated Cost [PKR/ Millions]	Priority Ranking		
										VC		
Village Council												
Birzeen-1	Birzeen	GWS-01	Protection Wall	DRR	150*8' feet	From River Birzeen	60	35	2.3	A	C	
		GWS-02	Sewerage system	Sewerage and Drainage system	Whole village			32		1.8	B	
		GWS-03	Sewing center	Sewing center for women's		3 rooms	Center of the village	60		0.9		
Birzeen-2	Birzeen	GWS-04	New DWSS	Pipeline	PVC 900'PL (3" dia)	From spring to Birzeen-	50		1.9	A	B	
		GWS-05	New Irrigation channel	Construction of Irrigation Channel	50000 feet	From Birzeen to Sestik	40	45	2.8	B	E	
		GWS-06	Protection Wall	DRR		150*8' feet	In river Birzeen	50	68	1.2	C	
Gufi	Birzeen	GWS-07	Street Pavement	Drainage system	15000 feet	Gufi village	120		2.4	C		
		GWS-08	Protection Wall	DRR	150*8' feet	From river Birzeen	85	130	1.8	B		
		GWS-9	ECD Center	Education			Gufi	85		6.5	D	
		GWS-10	Sewing and art centre	Sewing and art centre for Women		3 rooms	Gufi	32		0.9	F	
		GWS-11	MHP	Micro Hydel power			Gufi	85		5.5	E	
		GWS-12	Improvement of irrigation channel	Rehabilitation of Irrigation channel		50000'feet irrigation channel	From river to whole village	85	150	3.5	A	
Mirdin	Birzeen	GWS-13	Improvement of irrigation channel	Rehabilitation of Irrigation channel of AKRSP	50000'feet irrigation channel	Mirdin main IR constructed by AKRSP	71	300	2.5	A	A	
		GWS-14	Street Pavement	Drainage system				71		1.8	B	
		GWS-15	Sewerage system	Construction of 3 water tanks		3 water tanks for drinking, livestock, drinking, service		40		1.5	C	
		GWS-16	Plantation	Plantation of fuel wood			Mirdin	71	90	5	D	
		GWS-17	Irrigation scheme	Construction of storage tank for irrigation purposes		20*15 feet water tank	Spring from Ali Abad -to Mirdin	25	15	0.8	E	
		GWS-18	Protection Wall	DRR		200*8' feet	To protect the whole village	72	20	1.3	F	B

Village and Village Council Priority Ranking											
Village Names	Village Council	Codes	Schemes [Main]	Scheme [Sub Type]	Specifications/Particulars	Location of the Intervention	Beneficiary HH of the total HHs in the villages	Land to be Protected (acre) out of total land in the Villages	Estimated Cost [PKR/ Millions]	Priority Ranking	
										Village	VC
Village Council											
Spokht	Birzeen	GWS-20	Irrigation channel	Rehabilitation of Irrigation channel	50000'feet irrigation channel	From river to Spokht village	30	36	4.5	A	
		GWS-21	Protection Wall	DRR	double site 1500 feet	Spokht stream	30	300	4	B	
		GWS-22	Irrigation channel	Pipeline irrigation channel	3000 meter	From river	30	75	3.5	C	
		GWS-23	Road	Construction of jeep-able road	2 km	From main road to Spokht village	300		4	D	
Erjick	Birzeen	GWS-24	Protection Wall	DRR	150*8' feet	To protect the whole village	23	23	1.3	A	
		GWS-25	Hospital	BHU		Improvement of health facilities	50		10.3	B	
		GWS-26	Protection Wall	DRR	150*8' feet	To protect the lower part of the village	10	20.5	0.5	D	
Shah Saleem	Birzeen	GWS-27	Irrigation channel	Rehabilitation of Irrigation channel	40000'feet irrigation channel	From river to Erjick village	46	46	1.8	C	
		GWS-28	New DWSS	Pipeline from Hot water spring to whole village	PVC5000'PL (4" dia)	From spring to village	30		2.1	A	
		GWS-29	MHP	Rehabilitation of AKRSP MHP		Shah Saleem	30				
		GWS-30	New Irrigation Channel	Construction of irrigation channel from river shah Saleem to whole village	3000 feet irrigation channel	Irrigation channel from River Shah Saleem to 30HHs	30	45	3.1	B	
		GWS-31	Check Dam	DRR	20 small check dam at several points	Check at several points to protect the village Shah Saleem	30		2.1	C	



Village and Village Council Priority Ranking											
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Village Council											
Birzeen											
Gobor Bakht	Birzeen	GWS-32	DWSS	Pipeline + Water Tank	PVC 2000'PL (2" dia)	From spring to Killesh	35		1.3	A	
		GWS-33	Protection Wall	DRR	200*8' feet	To protect the whole village	30	10	1.8	B	
Ushiak	Birzeen	GWS-34	Irrigation channel	Rehabilitation of Irrigation channel	3500 feet restoration of irrigation channel	Killesh to Gobor Bakht	45	250	3.5	C	
		GWS-35	Sanitation drainage	Sanitation	Whole village	For whole village	35		1.5	D	
		GWS-36	BHU	Health facility provision			45				
		GWS-37	School	GGMS	Whole village		45		15.5	E	
		GWS-38	Irrigation Channel	Rehabilitation of Irrigation channel	3000'feet irrigation channel	From river to Ushiak and Phask	25	39	1.5	A	
		GWS-39	Road	Construction of Jeep-able road		Ushiak	26		1.7	B	
Gohik	Birzeen	GWS-40	Protection Wall	DRR	100*8' feet	To protect the whole village	20	25	1.2	C	
		GWS-41	Protection Wall	DRR	200*8' feet	To protect the whole village	50	35	1.8	A	
		GWS-42	Sanitation drainage	Sanitation	Whole village	For whole village	50		1.3	D	
		GWS-43	Irrigation channel	Rehabilitation of Irrigation channel	1000*8 feet irrigation channel	Gohik Goal to Royee	50	75	2.5	C	
		GWS-44	DWSS	Rehabilitation of AKRSP damaged DWSS and community tap	PVC 5000'PL (2" dia)	From source to Gohik	50		0.7	B	

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										Village	VC
Village Council											
Birzeen											
Ughuti	Birzeen	GWS-45	Protection Wall	DRR	180*8' feet	To protect the whole village	60		1.6	A	F
		GWS-46	Irrigation channel	Rehabilitation of Irrigation channel	3000'feet irrigation channel	Ughati goal	75		3.3	B	
		GWS-47	Sewing center	Handicraft preparation and marketing system	2 rooms, 1 washroom	Ughati	75		0.8	C	C
Sastik	Birzeen	GWS-48	DWSS	Rehabilitation of AKRSP damaged DWSS and community tap	PVC5000'PL (2"dia)	From source to Gohik	50		0.7	B	
		GWS-49	Road	Construction of Jeep-able road		Ushiak	26		1.7	B	
Dink-Gobor	Birzeen	GWS-50	Irrigation channel	Rehabilitation of Irrigation channel	6 km irrigation channel	Dinsk	30	700	3.8	A	
		GWS-51	DWSS	Rehabilitation of DWSS and community tap	PVC5000'PL (2"dia)	Dinsk	30		0.5	B	
		GWS-52	School	Primary school	3000 feet irrigation channel	Dinsk	30		8	C	
		GWS-53	Link Road	Construction of Link road	2 km link road	Dinsk	30		3	D	
		GWS-54	Protection Wall	DRR	180*8' feet	To protect the whole village	30	184	1.9	E	
		GWS-55	Sanitation and drainage	Sanitation	Whole village		30			F	
Degheli	Birzeen	GWS-56	DWSS	Rehabilitation of LPH pipeline DWSS	PVC5000'PL (4"dia)	Pipeline from spring	50		1.2	A	G
		GWS-57	New Irrigation channel	Rehabilitation of new Irrigation channel	60000'feet irrigation channel	From river to Dighari	50	105	7.5	B	

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										Village
Birzeen										
Burbono Parabeg		GWS-58	DWSS	Rehabilitation of DWSS	Water tank rehabilitation	Burbono	35		0.62	A
		GWS-59	Protection wall	DRR	250*8' feet	To protect the whole village	35	56	2.6	
		GWS-60	Irrigation channel	Rehabilitation	at several points	Burbono	40		2.2	B
		GWS-61	Street pavement	Sanitation	Whole village		35		0.5	C
		GWS-62	Check dam	DRR	500 feet	Koch	14	36	3.4	B
		GWS-63	Irrigation channel	Rehabilitation	Rehabilitation of Irrigation at several points	DWSS source tank of Postaki	58		2	A
Postaki Parabeg		GWS-64	DWSS	Rehabilitation of DWSS	Water tank rehabilitation	DWSS source tank to Village	58		0.5	B
		GWS-65	Protection wall	DRR	200*8' feet	For whole village	58	36	1.8	C
		GWS-66	Sewerage system	Sanitation	Four main streets in village	1000 feet streets of the village Postaki	560		4.2	D
		GWS-67	DWSS	New DWSS Pipeline from spring to Village Koch	PVC900' (2" dia)	Koch	14		0.4	A
Koch		GWS-68	Irrigation channel	Rehabilitation of Irrigation channel	at several points	from Zehnik to Koch	14		4.7	B
		GWS-69	Sewerage system	Sanitation	1000 feet street	village Koch	14		4.2	D
		GWS-70	Check Dam	DRR	500 feet	Koch	14	36	3.4	B
		GWS-71	DWSS	New DWSS Pipeline	Pipeline PVC800' (2" dia)	Ghohik	60		4.5	C
		GWS-72	Protection Wall	DRR	150*7' feet	To protect the whole village	60		3.5	D
		GWS-73	Sanitation drainage	Sanitation	160 feet street	Whole village	120		2.8	E
		GWS-73	Sanitation drainage	Sanitation	160 feet street	Whole village	120		2.8	E
Ghohik										
Ghohik		GWS-71	DWSS	New DWSS Pipeline	Pipeline PVC800' (2" dia)	Ghohik	60		4.5	C
		GWS-72	Protection Wall	DRR	150*7' feet	To protect the whole village	60		3.5	D
Ghohik		GWS-73	Sanitation drainage	Sanitation	160 feet street	Whole village	120		2.8	E
		GWS-73	Sanitation drainage	Sanitation	160 feet street	Whole village	120		2.8	E

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										Village	VC
Village Council											
Birzeen											
Royee	Parabeg	GWS-74	Irrigation channel	Rehabilitation of Irrigation channel	Rehabilitation of Irrigation at several points	Royee village	120	67	2.5	A	A
		GWS-75	Check Dam	DRR	300 feet	Royee village	80	85	3.4	B	B
		GWS-76	Plantation	Plantation for reducing flood damages	5000 trees	Royee village	80	50	1.6	D	D
		GWS-77	Washing pad	Sanitation drainage	Quantity 120	whole village	120		2.8	C	C
Nevest	Parabeg	GWS-78	DWSS	New DWSS Pipeline	Construction of water tank and installation of 4000'PL (4" dia)	from spring to Nevest	36		3.5	A	A
		GWS-79	Irrigation channel	Rehabilitation of Irrigation channel	Rehabilitation of Irrigation at several points	Nevest	36	45	4	B	B
		GWS-80	Sewerage system	Sanitation	600' (dimension 0.75*1.16')	Nevest	36		3.2	C	C
Zitoor Sanik	Parabeg	GWS-81	DWSS	New DWSS pipeline	pipe line + overhead tank	Birzeen to sanik	100		8.5	A	B
		GWS-82	Irrigation channel	New irrigation channel	8000 feet	from Birzeen to Sanik	200	145	2.1	B	B
		GWS-83	Check Dam	New construction of check dam	300 feet	Zitoor Sanik	100	18	0.41	C	C
Chervill	Parabeg	GWS-84	DWSS	Pipeline from source to the village	3480 feet pipe line + storage tank	Chervill	26		2	A	B
		GWS-85	Irrigation channel	Rehabilitation of irrigation channel	Rehabilitation of irrigation at several points	Chervill	26	50	2	B	B
		GWS-86	Plantation	Plantation of fuel wood	To reduce flood damages	Chervill	26	75	3	C	C
		GWS-87	Check Dam	Construction of check dam to reduce the flash flood effects on communities	To reduce flash flood damages	Chervill	26	35	2	D	D
		GWS-88	Sewerage system	Sanitation	600' (dimension 0.75*1.16')	Chervill	26		2.2	E	E

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										Village	VC
Birzeen											
Wakht	Parabeg	GWS-89	Irrigation channel	Restoration of irrigation channel	1200 feet renovation	Wakht pongo	55	800	1.2	A	
		GWS-90	Check Dam	DRR	Construction of check dam to reduce the flash flood effects on communities	upper site	55	64	5	B	
Lohok	Parabeg	GWS-91	Irrigation channel	Rehabilitation of irrigation channel	1000 feet	Wakht upper	90	200	1.5	C	
		GWS-92	Irrigation channel	Rehabilitation of irrigation channel	400 feet renovation	Lohok to kuru	15	50	0.2	A	
		GWS-93	Irrigation channel	Rehabilitation of irrigation channel	200 feet renovation	Atalegi nahar Lohok	80	120	1.5	B	
		GWS-94	Irrigation channel	Rehabilitation of irrigation channel	700 feet renovation	Lohok pongo xoy	26	58	0.5	c	
		GWS-95	Irrigation channel	Rehabilitation of irrigation channel	100 feet renovation	Lohok muli	27	45	0.8	D	
Hazai	Parabeg	GWS-96	Protection Wall	DRR	150 feet	Lohok	14	35	0.7	E	
		GWS-97	Irrigation channel	Rehabilitation	3 different points	Hazai	55	250	4	A	
		GWS-98	DWSS	New	5000 pipe line + Over Head tank	Hazai	15		3	B	H
Zhitoor	Parabeg	GWS-99	Grinding Mill	Grinding Mill	Grinding machine	Hazai	15		1	C	
		GWS-100	Protection Wall	DRR		Zhitoor	105	200	2	A	
		GWS-101	Irrigation channel	Rehabilitation	3 different points	Zhitoor	55	250	4	B	
		GWS-102	Sewerage system	Drainage system		Zhitoor	105		2.5	C	
		GWS-103	DWSS	Rehabilitation of DWSS	To reduce flash flood damages	From spring(source) to village	105	35	1.5	D	

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Village Council										
Birzeen										
Parabeg	Parabeg	GWS-104	DWSS	New DWSS	1000 pipe line		55		2.5	A
		GWS-105	Protection Wall	RR	350*8 feet	Parabeg	40	78	2.3	B
Golough	Parabeg	GWS-106	Irrigation channel	Rehabilitation	4 km distance to the village	Golough	42	104	0.8	A
		GWS-107	Dispensary	New		Golough	whole		5	B
		GWS-108	Protection Wall	DRR	300*7	Golough	35	63	1.2	C
		GWS-109	Plantation	Plantation of fuel wood		Golough	42	108	1.5	D
Gisteni	Parabeg	GWS-110	Shelter	DRR	For the flood effects of 2015	Gisteni	28		8.5	A
		GWS-111	Irrigation channel	Rehabilitation of Irrigation channel	3 km	Guffi to Gistini	28	43	2	B
		GWS-112	Check dam	DRR	To reduce flash flood damages	upper site	28	32	3	C
Noghpati	Parabeg	GWS-113	Protection Wall	DRR	To control soil erosion and cutting of stream	Noghpati	20	34	1.5	A
		GWS-114	Check Dam	DRR	bank by GLOF and flash floods	upper site Noghpati	20			B
		GWS-115	Washing pad	Sewerage system	To reduce flash flood damages	Noghpati	20		1.2	C
Zakhtnik	Parabeg	GWS-116	Washing pad	Sewerage system/ sanitation		Noghpati	15		1.3	A
Garam	Parabeg	GWS-117	Check Dam	DRR		upper site	20		1.2	A
Chashma		GWS-118	Washing pad	Sewerage system/ sanitation	To reduce soil erosion	Noghpati	20		1.6	B

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Swiss Intercooperation

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Email: [info.pk@helvetas.org](mailto:info.pk@helvetas.org)  
Web: [www.helvetas.org](http://www.helvetas.org)

