

Water Use Management Plan (WUMP)

Plan for Birir Village Council, Chitral District, Khyber-Pakhtunkhwa

Water Use Management Plan (WUMP) Plan for Birir Village Council, Chitral District, Khyber-Pakhtunkhwa 2015



Government of Khyber Pukhtunkhwa, Pakistan and Intercooperation (IC) Pakistan

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Acronyms

| | |
|--------|--|
| AKESP | Aga Khan Education Services Pakistan |
| AKRSP | Aga Khan Rural Support Programme |
| ADP | Annual Development Plan |
| AVDP | Ayun & Valleys Development Programme |
| BHU | Basic Health Unit |
| CBOs | Community Based Organisations |
| DRR | Disaster Risk Reduction |
| DDC | District Development Committee |
| DHQ | District Headquarter Hospital |
| DWSS | Drinking Water Supply Scheme |
| FPW | Flood Protection Works |
| GLAs | Government Line Agencies |
| IC Pak | Intercooperation Pakistan |
| IDV | Integrated Development Vision |
| IWRM | Integrated Water Resource Management |
| ICIMOD | International Center of Integrated Mountainous Development |
| JFMCs | Joint Forest Management Committees |
| KPK | Khyber Pakhtunkhwa |
| LP | Livelihood Programme |
| LPH | Livelihood Programme for Hindukush |
| LPS | Litres per Second |
| LSO | Local Support Organisation |
| MHP | Micro hydro power |
| NFE | Non Formal Education |
| NGOs | Non-Governmental Organisations |
| PHED | Public Health Engineering Department |
| SRSP | Sarhad Rural Support Program |
| SDC | Swiss Agency for Development & Cooperation |
| UC | Union Council |
| VC | Village Councils |
| VO | Village Organisation |
| W4L | Water for Livelihoods Project |
| WUMP | Water Use Management Plan |
| WUAs | Water User Associations |
| WO | Women Organisation |
| WUGs | Water User Groups |
| YSDO | Young Star Development Organisation |

Foreword

The preparation of Water Use Management Plan (WUMP) at a local level around a single agenda, water, is an important instrument of good governance. This well thought-out plan was prepared in 2015 by Water for Livelihoods Project after a series of intense discussions on water resources, issues, potentials and priorities. On top of this, 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 Tehsil/Valley/UC 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 Intercooperation. It has lead to a path of assisting the district government in preparing this plan that will ultimately help in improving delivery of clean drinking water and water for production through optimum use of technology and participation of locals. A high expectation is also placed in all the officers of 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

For Birir, Water Use Management Plan (WUMP) is developed to facilitate equitable, efficient, and sustainable management of water resources for the well-being and improved livelihoods of the locals. The overall purpose of WUMP was to take inventory of various sources of water available in a particular geographical/administrative area, identify community 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 Intercooperation (IC) Pakistan with financial assistance from Swiss Agency for Development and Cooperation (SDC). This plan has been developed in collaboration with local institutions (Water user associations/ water user groups), district authority (administration), concerned technical departments of the Government of Pakistan, water sector projects and partner NGOs.

WUMP is based on Integrated Water Resources Management (IWRM) approach. IWRM is a process, which promotes the coordinated development and management of water, land and related resources, in order to maximise the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems (Global Water Partnership, 2000). The geographical scope of WUMP is Union Council in case of 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 prioritisation 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 organisations).
- Promote conservation of water resources for the preservation of environment.
- Strengthen local institutional capacity in participation of economically and socially disadvantaged groups.

The WUMP for Birir 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 4 phases and 17-sub steps in close coordination with concerned village communities (WUG/WUA), concerned Government Line Agencies (GLAs) and District authorities to ensure commitment and ownership of WUMP.

The main highlights of Birir WUMP are as following:

The valley

Birir Village Council, recently delineated under the Khyber Pakhtunkhwa Local Government Act 2013, is divided into 15 small or large hamlets. The VC is comprised 570 Households. The total population of the area is 6242 souls having 2424 men (49.3%) and 2386 women (50.7%). Birir is included in the least developed areas of Chitral where local communities lack necessities of life.

Key Issues

- There is no appropriate repair and maintenance system and due to dilapidated conditions, water infrastructure is not working at optimum level.
- Flood protection works near water off-take structures are frequently inundated which block irrigation channels frequently after flash floods and seasonal floods during summers.
- Owing to extensive leakage in irrigation channels, often 3-4 times higher quantity of irrigation water is taken into the channels as a local practice.
- Local communities, especially communities living in upper ridges reported water shortage because schemes were not properly planned according to geographic terrain.
- Drinking Water is not of good quality because of contamination due to leakage, old infrastructures and uncovered water

- points. Water borne diseases were reported in highest percentage in the village council.
- Local communities in Dalgram are lacking complete access to drinking water supply
 - Water supply schemes have become less functional also due to completion of designed life¹ and increasing population needs.
 - Irrigation channels are mostly passing through steep terrains and in the absence of proper lining and cross drainage structures, maintaining channels is time consuming and cumbersome for local communities.
 - Health, hygiene and sanitation practices are not well maintained. 46 % households lack toilets, similarly solid waste management, drainage of rainwater and sewerage, street pavement and stairs and awareness regarding conservation of environment is lacking.
 - Owing to unplanned layout and poor quality of construction, water infrastructures are not sturdy enough to withstand climatic shocks like floods.
 - High incidence of floods and other natural disasters over the last twenty years have increased vulnerability of community assets and especially water infrastructures.
 - Watershed catchments have become highly fragile and vulnerable for the reason of heavy deforestation and overgrazing and lack of proper land use planning.
 - Community organisations were found dormant and inactive and very limited participation was observed in maintenance of projects carried out in the past by other development partners.

The Strategy to address these issues

- Improved access to potable water (drinking water supplies). This would be possible through tapping new spring sources having potable water quality, improving and rehabilitating existing water supply systems, addition of water storage facilities, extending pipeline networks to un-served population. Safe guarding water services delivery against natural disaster. Additional measures such as construction of washing pads and covering of collection points will be taken to address women's concerns.
- Improved access to productive use of water (water channels and improvement in existing water course) through lining of water courses, protection of conveyance system against disasters, extension of channels to bring new land under command and introduction of improved on-farm water application techniques.
- In order to ensure the sustainability and participation of water sector services delivery, promote beneficiary involvement in identification & prioritisation of potentials, sharing of scheme costs and pay for services culture.
- For sustainable service delivery, structural and non-structural measures will be taken to address
- Strengthening water management systems through local institutions (WUA/WUG & JFMC) to ensure effective implementation of WUMP. The local institutions will lobby for their respective villages' priorities schemes with local government and other organisations (projects) through building functional linkages.

Recommendations

- Organise awareness, mobilisation and advocacy campaigns to create a greater WUMP ownership.
- Increase investment in drinking water and irrigation through rehabilitation and improvement of the existing and new arrangements. WUMP should be used as guiding document for ADP preparation of the respective UC by the Local Government.
- Invest in Watershed Management for improved land use management planning with involvement of WUAs and Joint Forest Management Committees (JFMCs) as a joint working arrangement with Forest Division Chitral.
- Bridging of WUAs in the Birir Valley with registration under Social Welfare Department.
- Under the auspices of District Coordination Committee, prepare WUMP implementation arrangements for the prioritised schemes in the VC through WUA, respective GLAs and other partner organisations in water sector to enhance coordination as well as avoid duplication.
- Promote multiple and efficient utilisation of water resources and reduce water related disputes.
- Developing linkages of Water User Association and other local partners for resource mobilisation.

¹When a designer for water supply scheme plans a new scheme, it is imperative to set perimeters such as target population and growth pattern. Therefore keeping these considerations, a designed life of say 15 years is kept while designing a drinking water scheme. When such an implemented scheme runs past this time it is said that work is performing beyond designed life.

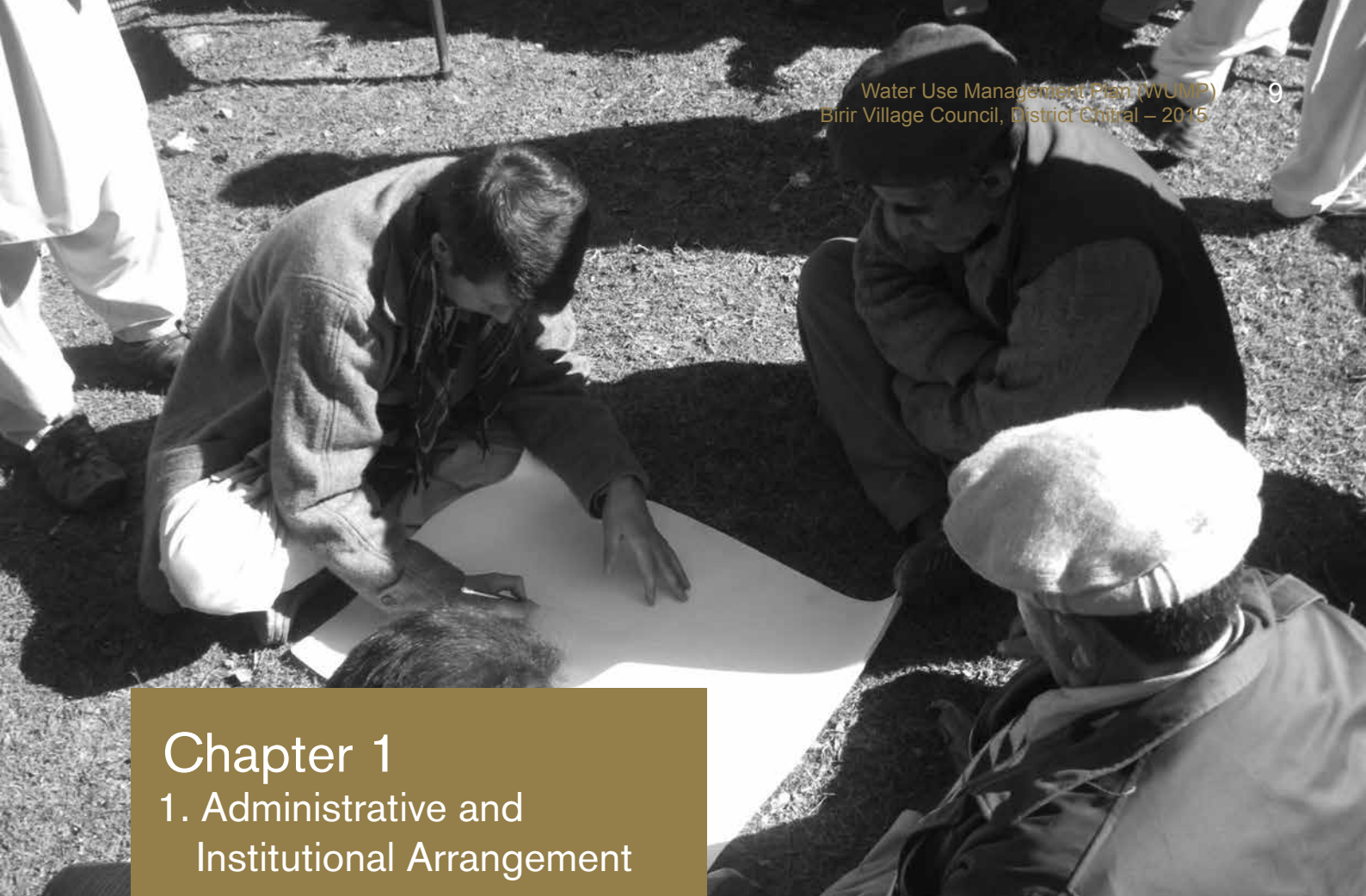
Total estimated investment as per WUMP in Birir Village Council

| S No. | Sector Wise Distribution | Total Budget (Million PKR) |
|-------|---|----------------------------|
| 1 | Drinking Water Supply Schemes (DWSS) | 8.033638 |
| 2 | Irrigation Infrastructures | 70.49383 |
| 3 | Disaster Risk Reduction (DDR) | 60.74948 |
| 4 | Sanitation, Hygiene and Health | 5.8345 |
| 5 | Watershed Management | 29.92655 |
| 6 | Water Governance Management | 0.9 |
| 7 | Supporting Activities for WUMP implementation | 2.5 |
| | Total | 178.4 |

The key partners

The following key partners were engaged in Water Use Management plan preparation in VC of district Chitral:

1. Birir Village Council
2. Tehsil and District Council
3. District Administration (AC of concerned Tehsil) as a focal person
4. Public Health Engineering Department Chitral
5. Irrigation Department Chitral division
6. On-Farm Water Management Department Chitral
7. Soil Conservation Department Chitral
8. Forest Division, Chitral
9. Aga Khan Rural Support Programme Chitral
10. Sarhad Rural Support Programme in Chitral
11. FOCUS Humanitarian Organisation in Chitral
12. Young Star Development Organisation (YSDO)
13. Water User Association/ Water User Groups Birir VC
14. Water for Livelihoods Project, IC (Pak)



Chapter 1

1. Administrative and Institutional Arrangement

1.1 Area Profile -General Features

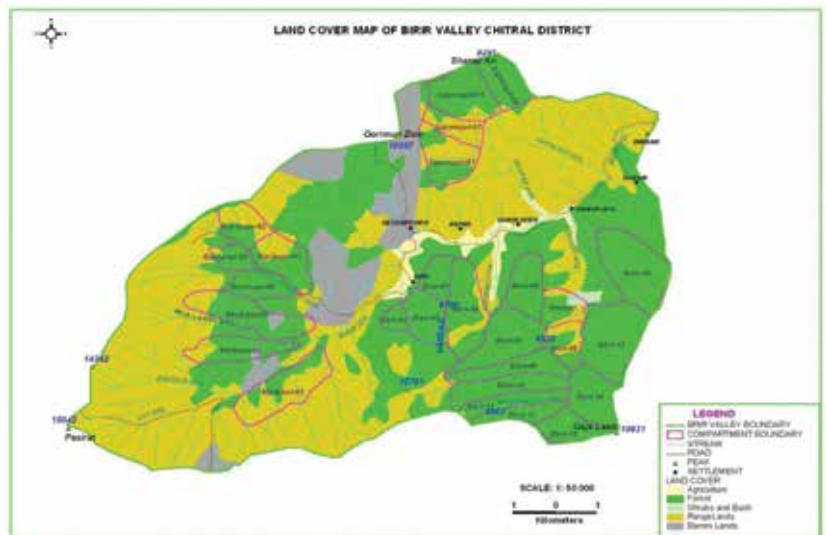
The name Birir was derived from Kalashwar word Biric synonym of Khowar Saric - meaning bringing /collecting things from outside the area. Mostly life goods were imported from other areas into the valley and thus how it acquired the name Birir. Historically, Kalashi were believed to be descendents of Alexander - they were part of the Alexander marching legion however its injured and disgruntled soldiers were detached from the main battalion and settled across these areas. According to local historians, few of them had also migrated from Nuristan due to disastrous floods. Kalash were the ancient most rulers of Chitral until Rais Rule¹ established its footprints and these people retreated to Birir, Bamburate and Rumbur valleys in search of safe heavens. They were also trying to evade religious persecution. They are now localised in three valleys of Chitral with the fact that their brethren in Afghanistan have adopted Islam completely.

1.2 Location and Accessibility

Birir valley, one of the three Kalash valleys, is found between 35° 40' and 35° 45' North Latitude and 71° 35' and 71° 40' East Longitude, in the lower part of District Chitral. Located in the gorge, it is surrounded by Hindukush mountain range and it opens in the eastern side only. The valley is connected with Nuristan Afghanistan by south western sides, Ayun of Chitral to its east and the other two Kalash valleys, Rumbur and Bamburate, to the north and south respectively.

The plain area is comprised of entire Village Council of Birir which is further divided into 15 small or large hamlets. Most of these settlements

Figure 1: Land Cover map of Birir Valley Chitral District



²In the beginning of 11th century Shah Nadir Rais occupied southern Chitral and defeated the Kalash. Shah Nadir Rais extended his dominion from Gilgit to the present southern boundaries of Chitral. Rais family ruled over Chitral for about three hundred years when Katura family succeeded them (Chitralnews.com)

are situated around the Birir stream with the exception of Maskor and Dalgram which are located at lower right fringe. On the basis of altitudinal variations, Birir is further classified into three parts i.e.6 villages are located in downstream area, 3 in mid-stream and remaining in upstream.

Table 1: Birir Villages and their Locations

| S No. | Village | Location |
|-------|--------------|-------------|
| 1 | Dalgram | Down Stream |
| 2 | Maskor | Down Stream |
| 3 | Birirnisar | Down Stream |
| 4 | Jaw Kuru | Down Stream |
| 5 | Sandak | Down Stream |
| 6 | Noshbio | Down Stream |
| 7 | Ururi | Mid Stream |
| 8 | Grambait Gol | Mid Stream |
| 9 | Guru | Mid Stream |
| 10 | Xaghar | Up stream |
| 11 | Gree | Up stream |
| 12 | Grass kuru | Up stream |
| 13 | Asper | Up stream |
| 14 | Bihal | Up stream |
| 15 | Bishal | Up stream |

The Valley is accessible from Ayun and Gehirate areas connecting main Chitral Peshawar Road. The road is unpaved; it remains open for all kinds of vehicular transportation all around the year. However in case of floods and snowfall, transportation is suspended temporarily which is normally restored by local communities on self-help basis. Through mountain passes, the area is also connected with Nuristan Province of Afghanistan and Bamburate.. VC lacks basic amenities of life. The local communities travel either to Ayun or Chitral as Ayun is the nearest market at an average distance of 12 km and at an average distance of 17km and 30 km, tehsil headquarter Drosh and district quarter are situated. Local Communities travel to Chitral to access health and education facilities.

1.3 Physical Features

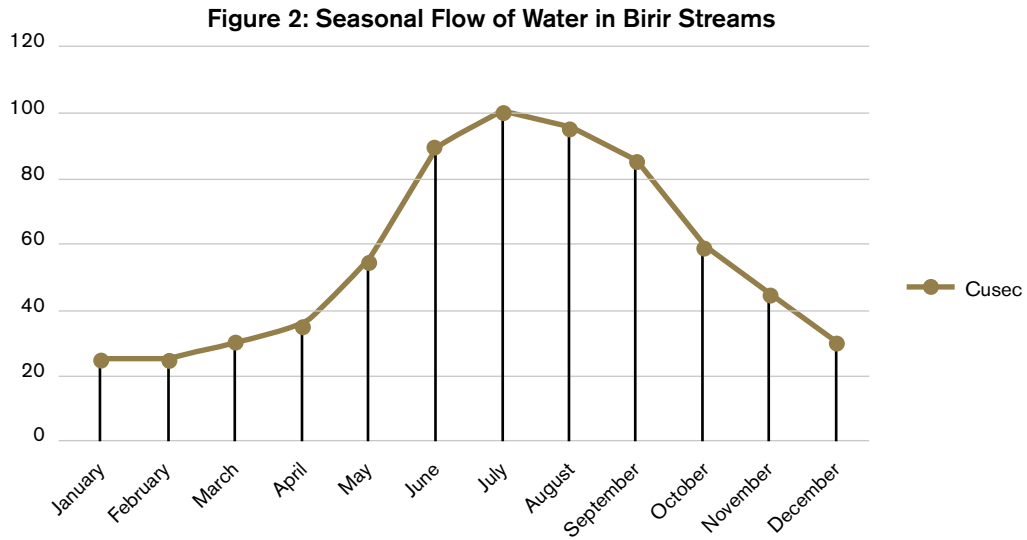
The topography of the area consists of mountainous tracks and deep gorges. The slopes of the mountains are rich in coniferous forests. Birir is classified as a dry temperate zone where summers are pleasant and winters are intensely cold characterized by heavy snowfall. Summer generally remains dry. The elevation of the valley ranges from approximately 1,800 m to 3,800 m above sea level. Both topographical and climatic factors determine its land use pattern. There is a very limited land area for cultivation which is mostly practiced on lower ridges along Birir stream. Most of the areas are included in the double cropping zone however in upstream one major and one minor crop is grown. Owing to limited farmland production, local communities are largely dependent on pastoral activities and the inhabitants of the valley are true mountain dwellers.

1.4 Climate

The climate of Birir is dry and cold, where winters are severe and summers are pleasant. Snow fall occurs during December and continues till March. Spring rains occur in March and April. The temperature in winter falls and can reach -15°C from freezing point and goes up to $+30^{\circ}\text{C}$ in summers. December, January and February are the coldest and July, August are the hottest months of the year. Moreover annual rain fall varies from 100 mm to 500 mm.

1.5 Hydrology

The Birir stream, a main tributary passing through the valley, emerges near the Nuristan Border. Flow of water, is perennial which varies between 100 cusecs during summer and as low as 25 cusecs in winter. Stream flow is comprised of glacier melts and springs; and seasonal rains normally increase its flow which inundates surrounding lands and other vital community assets. The important watersheds are Birir Gol, Pishpo Gol, Ursoon Gol, and Gambak Gol. All irrigation channels, with the exception of 5, have emerged from Birir stream. Seasonal flow of water in Birir stream is distributed as follows;



1.6 Climate Change Scenario

Climate change variations are more visible in marginal areas where events of climatic change have been observed more frequently. Decadal temperature scenarios for Chitral District revealed that the annual maximum temperatures are at 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 increase in the winter season rainfall (IC, 2013).

Figure 3: Temperature Change in Chitral (1971-2030)

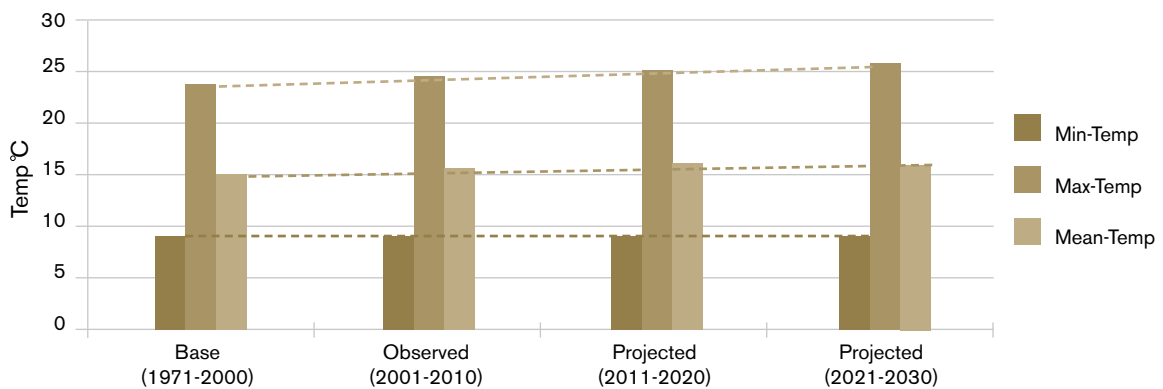
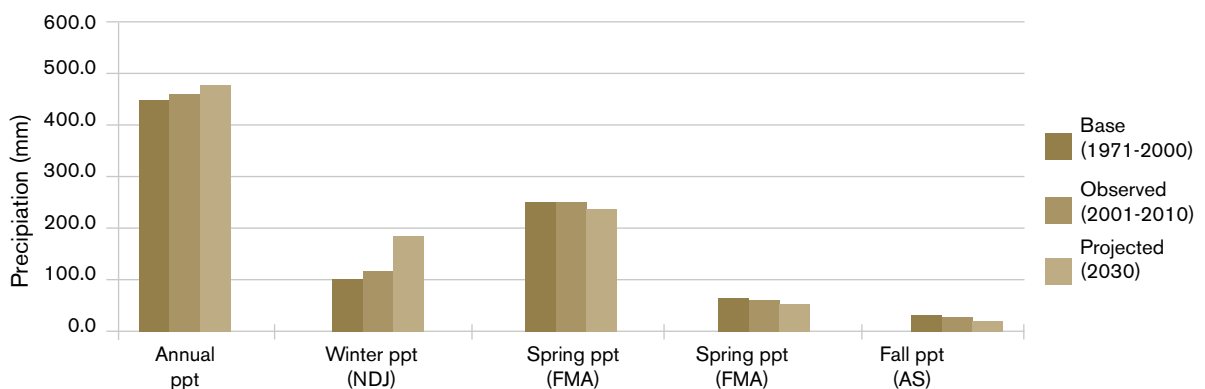


Figure 4: Trends in Annual and Seasonal Precipitation



During documentation, local communities pointed out that they were observing climatic change scenarios to be an increasing trend over the last 20 years. Incidents of untimely rains, floods and other climatic events have increased significantly in the area.

1.7 Institutional Arrangement and Capacity Building

Community Organisations

Constituted by IC, AKRSP and SRSP, the Village Based Organisations (VBOs) already exist in all the villages. AKRSP is a pioneer organisation that introduced participatory development approaches in early 1990s. In 11 villages, local people reported participation of women and for this purpose they have formed separate organisations as “Women Organisations (WOs)”.

In the village council, VBOs are comprised of 444 general body members and 135 executive members including president, manager, and secretary. Out of the total, 4 organisations have bank accounts, 5 have savings and operation & maintenance (O&M) systems exists in 6 while another 6 organisations have maintained complete records; 5 have relevant experience and have also fostered linkages with other developmental agencies. More importantly no defined bylaws were available in any of the community organisations to ensure functioning in a professional manner. From the organisational assessment it emerged that majority of the organisations are inactive and dormant.

Water User Groups (WUGs) have been formed in 11 villages which are functioning as subcommittees of village organisations. In four villages, WUGs do not exist because these areas have recently been included in IC interventions.

At valley level, WUGs were clustered as Water User Association (WUA) working around one common interest – water – and ensure that other development potentials open up with interventions on water. The WUMP field teams and WUGs/WUAs jointly contributed in carrying out assessment, prioritisation and preparation of WUMP.

District Coordination Committee (DCC)

Along with WUMP preparation in the field, an advisory committee i.e. DCC was formed and notified by the Deputy Commissioner (DC) Chitral. The purpose of the DCC is to steer the WUMP process and implementation at district level. The coordination committee is holding meetings bi-annually or when specifically required. The Project keeps a close interaction with DCC to keep them updated about project interventions in the district and seeks support for timely provision of services by the concerned actors (PHED, Irrigation Division, OFWM, SCD and Forest Department). The DCC will also ensure ownership for the WUMP at District/Tehsil level.

Capacity Building of WUG/WUA and GLAs

In the beginning of Phase II before initiating the process of WUMP preparation, training was conducted of all stake holders in the district along with partner organisations to conceptualise the IWRM concept and understanding the WUMP preparation in the field. This inspires easy flow of information and previous experiences.



Chapter 2

2. Socio Economic Characteristics

2.1 Demography

The population is one of the key decisive factors in deciding the extent of facilities that are available and what facilities are required to be planned for future. The VC is comprised 570 Households. The total population of the area is 6242 souls having 2424 men (49.3%) and 2386 women (50.7%). Out of the total population, there are 1317 children and 115 people of above 80 years of Age.

Table 2: Population Characteristics of Birir VC

| S No. | Village | Number of Houses | Women | Men | Children | Elderly | Total Population |
|-------|--------------|------------------|-------|------|----------|---------|------------------|
| 1 | Dalgram | 15 | 61 | 66 | 53 | 8 | 188 |
| 2 | Khaghar | 12 | 49 | 53 | 40 | 8 | 150 |
| 3 | Ururi | 15 | 62 | 66 | 51 | 1 | 180 |
| 4 | Maskor | 45 | 184 | 198 | 95 | 0 | 477 |
| 5 | Birinisar | 52 | 212 | 230 | 38 | 0 | 480 |
| 6 | Jaw Kuru | 70 | 290 | 300 | 100 | 3 | 693 |
| 7 | Sandak | 35 | 143 | 155 | 119 | 4 | 421 |
| 8 | Gree | 28 | 115 | 124 | 95 | 1 | 335 |
| 9 | Grass kuru | 28 | 265 | 145 | 95 | 1 | 506 |
| 10 | Grambait Gol | 75 | 308 | 332 | 129 | 2 | 771 |
| 11 | Asper | 60 | 245 | 265 | 204 | 4 | 718 |
| 12 | Bihal | 58 | 236 | 256 | 150 | 2 | 644 |
| 13 | Bishal | 11 | 45 | 59 | 38 | 80 | 222 |
| 14 | Guru | 60 | 150 | 145 | 95 | 0 | 390 |
| 15 | Noshbio | 6 | 21 | 30 | 15 | 1 | 67 |
| | Total | 570 | 2386 | 2424 | 1317 | 115 | 6242 |

2.2. Housing Characteristics

Local communities have used mud and stone for the construction of buildings such as houses, mosques, Jastakan³, Bashalani⁴ and shops. The number and quality of housing conditions are given in the table;

³A religious place for the Kalash People

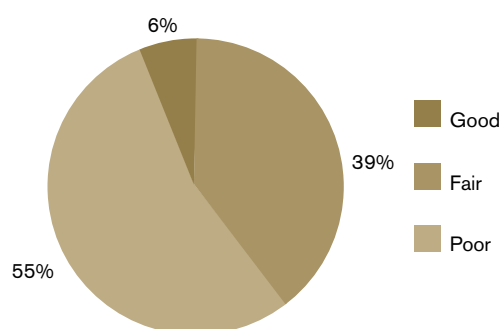
⁴Maternity home for the Kalashi women

Table 3: Housing Conditions of Birir VC

| Particulars | Houses | Mosques | Jastakan | Bashalani | Shops |
|------------------|------------|-----------|----------|-----------|-----------|
| Mud | 562 | 9 | 4 | 2 | 40 |
| Concrete | 0 | 0 | 0 | 1 | 4 |
| Mud-cum-Concrete | 8 | 5 | 2 | 0 | 2 |
| Total | 570 | 14 | 6 | 3 | 46 |

On average, there are 2-3 rooms per house for accommodation of 7-8 family members. Quality of housing showed that 39% of houses were found in poor condition, 55% in fair and only 6% were of good quality.

Figure 5: The quality of Housing in Birir VC



Distribution of the houses was also studied and it emerged that 349 were located in 30 different clusters and remaining 221 houses are scattered. Housing pattern in the village council is described as;

Table 4: Housing Pattern

| Particulars | Number | No. of HH |
|--------------|--------|------------|
| Scattered | | 221 |
| Cluster | 30 | 349 |
| Total | | 570 |

2.3 Ethnic and Religious Diversity

Religious Groups in the valley includes Muslim (73%) and Kalash (26%). To date there is complete harmony with regard to race and religion. Khow, Kalash and Gujurs are the major ethnic groups in the village Council. In addition there are important clans such as Madhari, Mirbaze, Damadari, Chumkdari, Rajudari, Alikishak Dari, Sanaku Dari, Lathorkdare, Galasur Dari Chanchidari, Patrhanduru Dari, Babudari and Rashkudari. Total Muslim and Kalashi households are as follows;

Table 5: Households according to Religion

| Tribe Names | Number |
|--------------|------------|
| Muslim | 417 |
| Kalash | 147 |
| Total | 570 |

2.4 Educational Facilities

Education is the important determinant of development and there are 5 government schools, 13 madrassahs and 18 non-formal education (NFEs) institutions. Distribution of educational institutions is appended below;

Table 6: Distribution of Educational Institutions

| Education Facilities | Boys | Girls | Total |
|----------------------|-----------|-----------|-----------|
| Government | 2 | 3 | 5 |
| Private | 0 | 0 | 0 |
| Madrassah | 5 | 6 | 11 |
| Non-Formal Education | 9 | 9 | 18 |
| Total | 16 | 18 | 34 |

Total number of enrolled students in educational institutions is 1439 which accounts for 12% of total population. Moreover 88 children were not enrolled in schools. Total number of students attending different education facilities and out of school children is given as;

Table 7: Status of School-aged Children

| Education Facilities | Enrolled | | Out-of-School | | Total | |
|----------------------|------------|------------|---------------|-----------|------------|------------|
| | Boys | Girls | Boys | Girls | Boys | Girls |
| Government | 116 | 268 | 36 | 52 | 152 | 320 |
| Private | 0 | 0 | 0 | 0 | 0 | 0 |
| Madrassahs | 227 | 235 | 0 | 0 | 227 | 235 |
| Non-Formal Education | 324 | 269 | 0 | 0 | 324 | 269 |
| Total | 667 | 772 | 36 | 52 | 703 | 824 |

Literacy rate in the VC (38%) is comparatively lesser than overall district (65%) and only 33% women and 42% men are literate in the area. Distribution of educated men and women is tabulated below;

Table 8: Educational Status of Adults

| Gender | Literate | | | | | Illiterate |
|--------------|------------|------------|---------------|---------------------|------------|-------------|
| | Primary | Middle | Matriculation | Above Matriculation | Total | |
| Women | 84 | 64 | 169 | 72 | 389 | 784 |
| Men | 77 | 121 | 195 | 169 | 562 | 766 |
| Total | 161 | 185 | 364 | 241 | 951 | 1550 |

Lack of improved educational facilities is one of the major reasons for low literacy and in the face of poverty, local people especially women, cannot travel to other areas for education.

2.5 Access to Public Services

The level of prosperity of any area can be judged from the availability of important public services. Birir area lacks services like BHUs, RHC, Higher Secondary Schools, College, Veterinary Centre, and Civil Veterinary Hospital. Local communities either travel to Drosh or Chitral Town to access these facilities and the poor condition of roads, however, further restricts communities' movement. The prevailing situation has cast its affect on communities well being.

Table 9: Access to Public Services

| Public Services | Facility Status | Next Facility |
|-----------------------------|-----------------|---------------|
| Dispensary | Available | |
| BHU | Not Available | Ayun Bazar |
| RHC | Not Available | Drosh |
| Primary Schools | Available | |
| Middle Schools | Available | |
| High Schools | Available | |
| Higher Secondary Schools | Not Available | Ayun |
| College | Not Available | Ayun |
| Civil Veterinary Dispensary | Available | |
| Veterinary Centre | Not Available | Ayun |
| Civil Veterinary Hospital | Not Available | Chitral |
| Post Office | Available | |

2.6 Employment

Birir is rural, least developed area and its inhabitants adopt multiples strategies to generate household income. Database shows that people above 18 years of age mostly work as farmers, followed by wage labour.

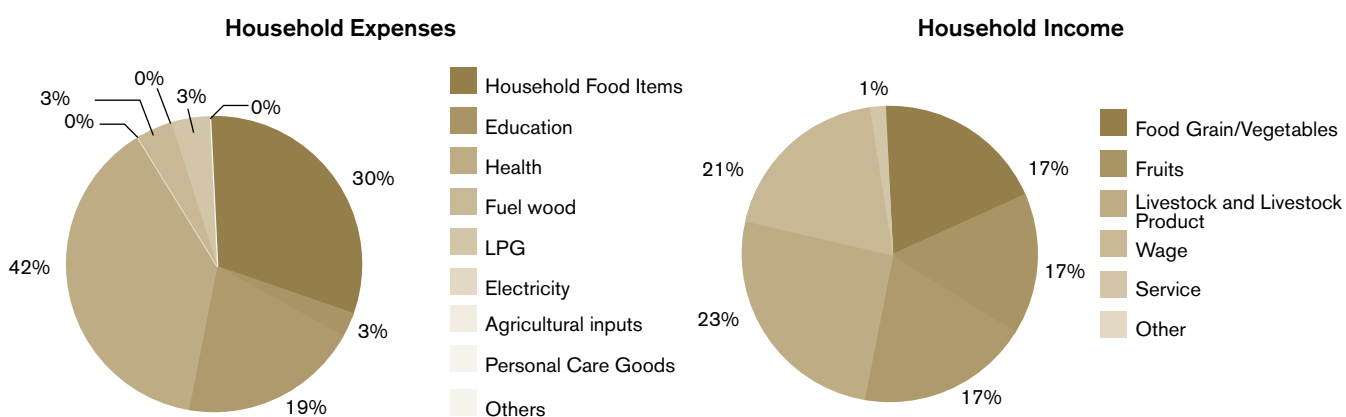
Table 10: Employment Status in Birir VC

| Individuals | Men | Women |
|--|------|-------|
| Farmers (agriculture, livestock & poultry) | 831 | 422 |
| Businessmen/ Local Small Entrepreneurs (including skilled self-employed persons) | 12 | 0 |
| Employed Domestically | 41 | 12 |
| Employed Abroad | 14 | 2 |
| Labourer | 340 | 0 |
| Unemployed | 482 | 425 |
| Total | 1720 | 861 |

2.7 Household Income versus Expenditure

Out of total sampled households, average income varies between Rs. 9000 to Rs. 45,000. The households engaged in services fall mostly in upper income class. Moreover household expenditure varies between Rs. 7,000 to Rs. 38,000. Major sources of household income are Food Grains, Vegetables, Fruits, Livestock, Wage and Services and most of the expenditures are incurred on food items, health and fuel wood. Comparatively assessment of household income and expenditure is shown in the chart as;

Figure 6: Comparison of Household Expenses and Income



2.8 Land Use

Land use is broadly classified into four major types i.e. range land, pastureland, forests, glaciers, agriculture and residential area. In Birir valley, most of land available is along the bottom of the hills, on gentle slopes and terraces and in some alluvial fans mainly formed by hill torrents, avalanches and glaciers. Agriculture is possible only in those areas where irrigation land has been laid out whereas other areas remain uncultivated. Distribution of total land area is appended below;

Table 11: Distribution of Land

| Village | Cultivated Land (acres) | | Cultivable Waste Land (acres) | Non-reclaimable Waste Land (acres) |
|--------------|-------------------------|------------|-------------------------------|------------------------------------|
| | Irrigated land | Arid land | | |
| Dalgram | 50 | 30 | 40 | 0 |
| Khaghar | 10 | 0 | 0 | 0 |
| Ururi | 2.5 | 0 | 0 | 5 |
| Maskor | 20 | 30 | 30 | 0 |
| Birimisar | 50 | 50 | 30 | 0 |
| Jaw Kuru | 50 | 30 | 40 | 0 |
| Sandak | 120 | 0 | 0.5 | 500 |
| Gree | 5 | 1 | 25 | 0 |
| Grass kuru | 2.5 | 0 | 0 | 5 |
| Grambait Gol | 375 | 30 | 0 | 0 |
| Asper | 125 | 0 | 2 | 250 |
| Bihal | 10 | 0 | 0 | 0 |
| Bishal | 20 | 0 | 0 | 0 |
| Guru | 20 | 0 | 4 | 0 |
| Noshbio | 30 | 50 | 0 | 0 |
| Total | 890 | 221 | 171.5 | 760 |

2.9 Forest Resources

Birir is endowed with natural forests, pastures, and wildlife. Coniferous forests are found on the upper slopes and their prevalence is determined by climatic factors. The upper tree line is limited by cold temperatures and the lower perimeter is affected by aridity. The trees comprise blue pine (*Pinus wallichiana*), chilgoza pine (*Pinus gerardiana*), deodar (*Cedrus deodara*) and fir pine (*Abiespindrow*). Broad-leaf species are found on the lower slopes and near the stream banks. These include oak species (*Quercus ilex* and *Quercus dilatata*), birch (*Betula autilis*), ash (*Fraxinus xanthoxiloides*), *Viburnum nervosum*, *Viburnum cotinifolium*, *Lonicera* sp., walnut (*Juglanregia*), wild almond (*Prunusamygdalus*), willow (*Salix denticulata*) and poplar (*Populusciliata*). The pastures found in Birir valley are sub-alpine woodlands at higher altitudes; dry temperate coniferous scrub and dry oak scrub at lower altitudes, which are grazed from mid-May to September.

The communities of the valley are conscious about the rapid degradation of forests and they were of the view that the deterioration and degradation of natural forests would invariably destroy the whole valleys. They observed that with the gradual decline of forests and deterioration of high pastures, a palpable severity was witnessed in the flood related destruction and other natural calamities.

Forest is the major resource of the area and is utilised for different purposes. People get many benefits from forests. Forest Department has been working in the area for management purposes and has its rules and regulations. Government of Khyber Pukhtunkhwa has declared all forest of Chitral as 'protected'.

Due to unsettled land tenure in the area, it is difficult to know about the rights of the people, however still they are allowed to enjoy the following concessions.

- Grazing of livestock
- Grass cutting and trees pruning
- Collection of Non-Timber forest products

- Dry fuel wood collection
- Trees allocation under local quota
- 60% share from commercial sale of Timber

2.10 Grazing and Pastureland

The pastures found in Birir valley are sub-alpine woodlands at higher altitudes and dry temperate coniferous scrub and dry oak scrub at lower altitudes, which are grazed from mid-May to September. The climax grazing vegetation in the alpine zone is meadows; tropical grasses are mostly absent. The major pasture types are meadows, shrub meadows and shrubs.

In the pastures of Birir, grasses and grass-like plants, other forbs and shrubs are found in different groups, patterns, frequency, cover percentage and composition. Micro-topographic features and morphological and physiological characteristics of the vegetation give rise to patterns which vary in size and are found intermittently. For example, major plant species are mostly found tilting towards the ground with spreading aerial parts, so its compact patches are found all over the pasture, particularly on rocky ridges. Salix (Willow plant) occupies depressions on cooler aspects. Species of Polygonum have extensive rhizomes and several patterns are usually visible in the pastures. Iris plants form more or less compact patches distributed all over the area, giving the impression of pure stands. Local communities of Birir Valley have rights and concessions for grazing and grass cutting in the entire Protected Forest of Birir Valley; these are exercised by local people, unless prohibited on silvicultural grounds, in some parts of the forest land.

Some pasture has been protected from grazing by the local community from mid-July to mid-September, and from mid-September to mid-October are cut by sickle for hay. During this period only small scale pruning of Oak trees is made to feed their livestock especially goats.

2.11 Agriculture & Livestock Status

Landholding Pattern

Local communities hold small land holdings because of rugged topography. Majority of the land is located in double cropping zone however in the upstream areas one major and minor crop is grown. Average land holding size is 1.64 acres with mean maximum landholding size being 5 acre and mean minimum 0.09 acres. Database shows that 90% of the households are owners of their land who neither rent out nor rent land from others. Mostly landless people practice agriculture on share basis where owners provide land and second party contributes labour and inputs. The crop produce is equally distributed between the owner and landless farmer. In the whole area, only 8 households are landless and 48 work as tenants. Distribution of landholding in the VC is as follows;

Table 12: Landholding Pattern

| Land | No. of HH with Landholding | | Total |
|--------------------|----------------------------|--------|-------|
| | Own | Tenant | |
| < 1 acre | 431 | 46 | 477 |
| 1 – 3 acres | 52 | 0 | 52 |
| 4 – 6 acres | 10 | 0 | 10 |
| 7 – 9 acres | 20 | 0 | 20 |
| 10 acres and above | 3 | 0 | 3 |
| Total | 516 | 46 | 562 |

Farming Practices

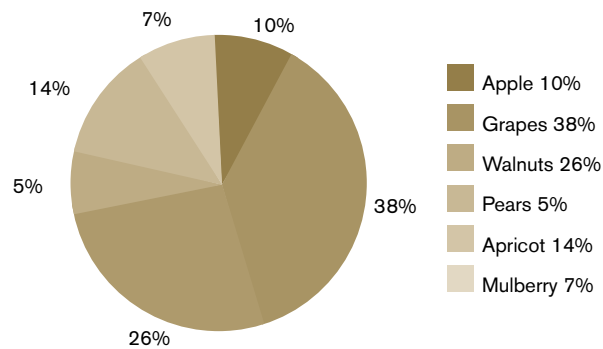
For food production, subsistence agriculture is being practiced which also creates employment and provides households with disposable income. Major crops grown in the valleys are wheat (*triticum spp.*), barley (*Hordeum vulgare*), maize (*Zea mays*), potato (*Solanum tuberosum*), red bean (*Phaseolus vulgaris*) and varieties of vegetables. Cropping density is 2 bags per 0.25 acre which is usually high, to get maximum fodder production to fulfill animal feeds. Average household cropping area and production of important crops is given below;

Table 13: Cropping Area and Production

| Cropping Areas | Average cropping area per household (acre) | Average Production per household (Maund) ⁵ | Average by products Production per household (Maund) |
|-----------------------|--|---|--|
| Wheat | 0.57 | 8 | 7 |
| Maize | 0.67 | 11 | 8 |
| Potato | 0.09 | 5 | 1 |
| Vegetables and others | 0.36 | 7 | 3 |

Fruits grown in the valleys are apples, apricots, walnut, mulberry, pears, grapes and pomegranates. Grapes and walnut are the most favoured fruit trees in the area. Kalashi people use grapes for preparation of wine which they normally use to perform religious rituals.

Figure 7: Trees per Household



Both men and women share farmland labour but women are mostly engaged in weeding and thinning whereas watering, harvesting and plowing are mostly done by men. Local farmers use both mechanised (tractor) and traditional methods of farming depending on the availability and access road. Different kinds of diseases such as root rot, rust, leaf curl, pest attack, powdery mildew, dieback, scabs etc infect agricultural crops in the area.

Majority of the areas falls in the double cropping zones with exception of high altitudinal areas where communities normally grow one major food crop and one minor crop for fodder. Seasonal activities of major food crops in the area;

Table 14: Agricultural Activities (seasonal)

| S No. | Crop Name | Season | Duration (Months) | Sowing Months | Harvesting Months |
|-------|-----------|--------|-------------------|---------------|-------------------|
| 1 | Maize | Summer | 4 | June | October |
| 2 | Wheat | Winter | 8 | October | June |
| 3 | Beans | Summer | 4 | June | October |
| 4 | Barley | Winter | 7 | October | May |

The locals expressed dissatisfaction over the role and services rendered by the Agricultural Department and Extension services in Chitral. The crop production is very low due to non availability of improved seeds and agricultural inputs necessary for enhancing agricultural yield. The valleys have great potential for all kinds of deciduous fruits, as the climatic condition of the valleys is very conducive for horticultural promotion. There is no agriculture extension service in the valleys and the local farmers still practice conventional agriculture which is not cost-effective and beneficial. Majority of the families are not self-sufficient in agricultural production and even the families with bigger chunks of land cannot produce sufficient grain for the families, they have barely produced grain for a maximum of four to five months.

⁵A measure of capacity or of weight, equivalent to about 38 kilograms.

2.12 Livestock Holding

Table 15: Livestock holding

| Household Consumption (per year) | Quantity |
|----------------------------------|----------|
| Meat (Kg) | 272 |
| Wool (kg) | 2 |
| Cheese (Kg) | 14 |
| Butter (Kg) | 43 |
| Milk Cream (Kg) | 7 |

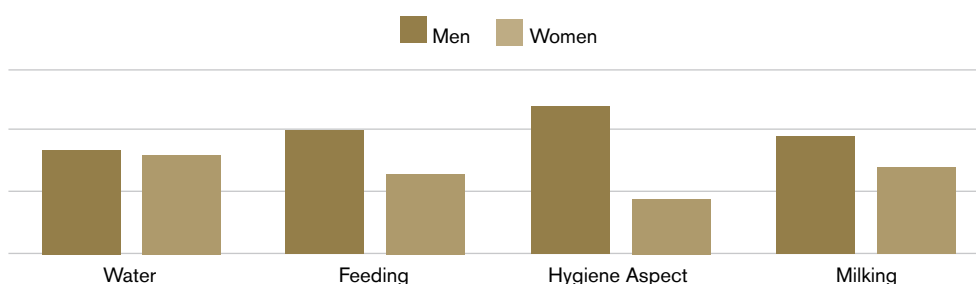
Livestock rearing is a key component of local economy, providing food and allowing local communities to supplement their income by selling animals, wool and hides. It deserves special attention here because the animals are an integral part of Kalashi society. Goats make up the majority of animals, followed by cows and sheep. Goats are reared for milk, for manure and are also sold while the hair is also used for weaving rugs and other enterprises. And in Kalash culture they are very important as rituals cannot be performed without sacrificing goats and serving food consisting of mutton. Cows are mostly kept for milking purposes. The peak milk yield is about 5 liters a day, all of which is consumed by the household. Other uses of cows include meat and sale. Its dung is used as manure. Ploughing is carried out through bulls. Likewise sheep also have similar utilisation. Wool is obtained from sheep. Donkeys are used for load carriage and are also for selling. While taking animals to pastures, donkeys carry the grazier's utensils and food. Horses are used for riding and load carriage as well.

Table 16: Livestock Population

| Type of Livestock | Quantity |
|-------------------|----------|
| Cow | 2086 |
| Goat | 6150 |
| Sheep | 1030 |
| Donkey | 77 |
| Poultry | 360 |
| Total | 9703 |

As mentioned, both men and women share workload and it has been observed that in Kalashi and Gujur customs, men are mostly involved in caring for livestock however in Khow, women are mostly involved.

Figure 8: Distribution of Chores among the Genders



Livestock production is comparatively low because of the absence of village-level facilities. As has been mentioned that the climatic conditions are very harsh which further adds to the vulnerability of the livestock and associated sector in the area. Lack of basic infrastructure in the form of lack of veterinary facilities etc further augments susceptibility of the livestock. Animal predators like snow leopard and wolves often attack animals particularly during grazing in high alpine pastures in summer. Common diseases of livestock in the valley are Bhuadi, Liver Cirrhosis, Sore mouth and Ispro and the local community mostly apply local and traditional methods of cure.

Table 17: Seasonal Livestock Diseases

| Seasonal Diseases | Months | | | | | | | | | | | |
|-------------------------|--------|---|---|---|---|---|---|---|---|---|---|---|
| | J | F | M | A | M | J | J | A | S | O | N | D |
| Bhudai | | | | | | | | | | | | |
| Liver Cirrhosis | | | | | | | | | | | | |
| Sore Month | | | | | | | | | | | | |
| Scabies (Goats& Sheep) | | | | | | | | | | | | |
| Ispro (Cancer in Goats) | | | | | | | | | | | | |

Local herders face shortage of fodder in winters because of long winter season and limited arable land. Hay, maize stover and wheat straw are the major winter fodders available to the sedentary grazier, both from their own or rented lands and also if bought. Green grass is available for grazing from April to October. Sedentary graziers face serious feed scarcity in January and March. Nomads purchase some fodder (Trifolium spp.) and feed it together with tree leaves and twigs to livestock from January to March. Herders graze their animals from June to September in alpine pastures. However, livestock in nomad flocks mostly depend on grazing throughout the year, and also face feed scarcity in January and March. Rarely, supplementary feed in the form of oilcake, molasses or grain is fed to weak or sick animals.

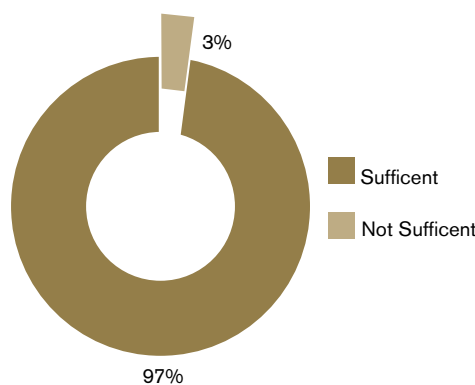
2.13 Energy Sources

Fuel wood is the major source of energy in the area, during the HH survey it was revealed that 85-95 kg of fuel wood is consumed daily per household in the valley in winter season while the calculation for summer is 45-50 kg. The most preferable fuel wood identified by the local people is Oak.

2.14 Household Food Sufficiency Status

In Birir, farm production is very small because of lack of improved agricultural practices and also due to the small landholding size. From the data, it emerged that households have low sufficiency status and on the average local communities have enough food for 3 to 4 months at maximum. Out of sample households, only 3% of households have sufficient food. Local communities are largely dependent on government granary to fulfil wheat requirement.

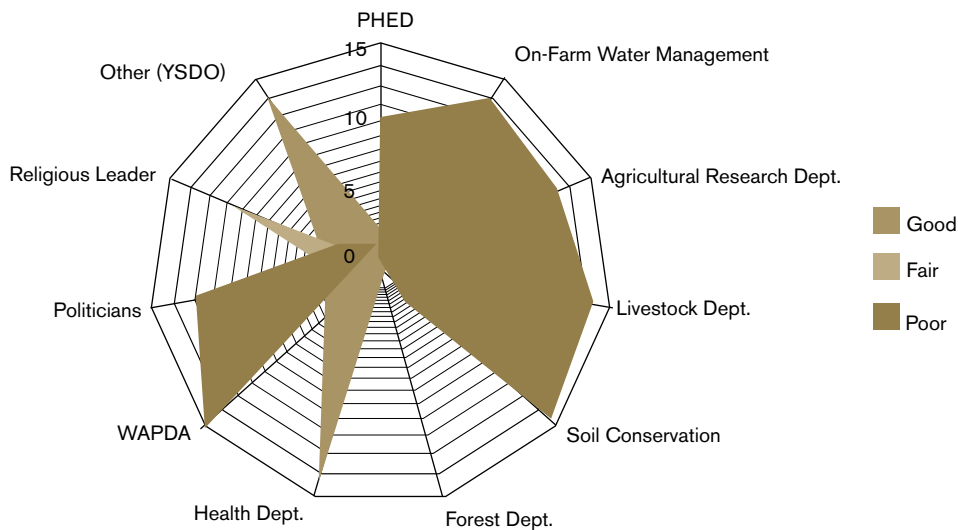
Figure 9: Food Sufficiency in Birir VC



2.15 Mapping of Stakeholders

Local communities show weak linkages with public sector organisations with the exception of health Department ranked as good and fair with Public Health, Engineering Department (PHED). More importantly, relationship with non-Governmental organisations such as YSDO, AKRSP, SRSP was also perceived strongly in the area. Overall distribution of projects are as shown in figure 10

Figure 10: Overall Distribution of Projects



2.16 Water Sector Interventions

Most of the development interventions were made in water sector such as DWSS, irrigation channels and flood protection wall. In total 4 out of 11 irrigation channels were constructed by the PHED and rest by other. Out of the 25 irrigation channels, 20 were constructed by the communities and 5 by AKRSP whereas IC, On-Farm Water Management Department and AVDP have improved 5, 1 and 1 in total. Overall distribution of the infrastructures is as in Table 18.

Table 18: Overall Distribution of Infrastructures

| Organisation | DWSS | Irrigation Channel |
|--------------------------|------|--------------------|
| PHED | 4 | 0 |
| Ms. Maureen ⁶ | 2 | 0 |
| Inter Cooperation | 3 | 6 |
| AKRSP | 0 | 5 |
| Water Management | 0 | 1 |
| AVDP | 0 | 1 |
| Communities | 2 | 20 |

⁶Maureen Lines runs a British Charity 'Hindukush Conservation Association, UK' in Chitral.

Chapter 3

3. Existing Water Resources

3.1 General

Birir Stream constitutes the entire water resource base in the valley which feeds majority of the irrigation channels. The flow of water is perennial however its volume varies throughout the year: it reaches maximum flow during the month of July and August and recedes to lowest ebb in December and January. Glacier melt and spring regularly contribute to stream flow while occasional rains during summer also increase flow causing a significant damage to irrigation infrastructures in addition to surrounding agricultural lands and other vital community assets. Stream flow also charge water aquifers which results in natural springs across the villages. Throughout the year, surplus water passes into stream and thus the plain areas possess plentiful water resource which can be harnessed for socio-economic enhancement of communities.

3.2 Water Sources and Classification

In the Village Council, streams and springs are two sources of water and former is mostly used for irrigation and later for drinking as it believe to be of good quality. There are 25 irrigation channels and 11 drinking water supply schemes which are entirely based on gravity flow. Under the plan, all the water infrastructures were completely studied and proposed measures for their improvement. In addition, watershed management, DRR, sanitation, health and hygiene sectors were assessed.

3.3 Local Water Management /Governance Systems

Water Governance is mostly community managed in which participation of communities' holds central importance for the entire management system to operate. However there exists no formal institutional arrangement for the management of the community developed infrastructure. Local communities come together on need-basis where they contribute either in kind or in cash only when need arises. With the introduction of participatory approaches, village based organisations have been formed for the development of the area including water management and community infrastructures but these organisations were found ineffective in the context of the area.

All the water resources are community owned with the exception of Maskor Irrigation Channel which is owned by one individual family. There is no formal system for water rights allocation and every community has equal access. If a person is living in their own or rented place, he has a right on water for his household and agricultural land. Owing to abundant water resources, there is no conflict between water users regarding water distribution. Ownership of springs is either mutually by the community or individually depending on location (on communal or individual) land area.

Regarding water rights and water management in the valley, the indigenous system is in practice. The three types of local water governance systems in practice are Mir-xoye, Mone/Gram, and Sorogh.

Mir-Xoye System

Mir-Xoye system ensures the equitable (equal) distribution and access to water in and around water channels from head to tail, based on the land holding size. In this local water governance system, the community appoints a person by consensus called Mir-Xoye who ensures that all right holders get their agreed share of water for irrigating his/her land. The compensation for the services of Mir-Xoye, is either payment on monthly wages or on crop basis. Therefore he is either paid in cash or in grain at each harvest.

Mone or Gram System

In this system the community households receiving water from the irrigation channel appoint a person on turn basis from each beneficiary house, for a specific agreed time to ensure proper distribution of water from head to tail. This system is observed mostly on large irrigation channels. Minor repairs are carried out by the persons appointed, whereas the major repairs are done by the community collectively.

Sorogh

Sorogh System comes into practice in special conditions when there is acute water scarcity in the channel. In this, predefined water user rights become the basis of distribution of water as per availability. During shortages of water, the communities come together and decide to start Sorogh, which continues until the end of September. Therefore this system is only practiced in drought years.

The above systems work on communal/civil irrigation channels used primarily for irrigation purposes and at times for domestic consumption. There are also state managed water governance systems on irrigation channels and drinking water supply schemes. Key government departments involved in water sector are PHED, Irrigation department and OFWM. All these departments have separate Standard Operating Procedures (SOPs) for water governance.

3.4 Irrigation Systems & Water Rights

Irrigation comprises major water infrastructures which wind across steep mountain slopes. Local communities had used local wisdom for construction of these channels through difficult terrains which were not functioning to a maximum capacity as designed for. In spite of appreciable quantity of water, local communities have reported water shortage because of poor infrastructural designs and application of obsolete technologies. There are 25 small and large irrigation channels, out of which 22 were constructed by the communities on self-help basis and 3 by AKRSP. In addition AKRSP, Inter Cooperation ICDP, AVDP, SRSP and On-Farm Water Management provided support to local communities for improvement of infrastructure. Only 1 irrigation channel in Sandik was found non-functional.

Birir Stream is a major source of irrigation water however only 2 irrigation channels are drawing water from Ayun Gol, 3 from Pispoo Gol and 1 from Kouch Gol. All these streams are perennial, therefore communities have surplus all year round. These infrastructures were cumulatively designed for 64 cusecs which includes three micro-hydels. Generally local communities do not invest in leveling their agriculture lands and practice farming on irregular field levels which results in huge water wastages. Moreover over-flooding fields results in leaching of soil nutrients that affects crop production. To cope with this situation, land leveling needs to be integrated in the farming system which will result in increasing water use efficiency.

There is no formal setup for operation and maintenance of irrigation infrastructures. Local communities are employing both modern and traditional management and in majority of the irrigation channels, Mir-xoye has been appointed. There are two kinds of labour required to carry out the maintenance of water channels. Firstly, in case of annual maintenance like cleaning of channels or emergency maintenance required due to uncertain damages caused by flood etc; the entire community participates. Changing economic situation has also affected local water management system because of lesser human resource availability. In such situations those households who cannot provide active labour for the maintenance, opts to contribute through cash. However, an adverse development is the relative decline in the importance of crops in the livelihoods options because local communities prefer off-farm sources of income.

Overall in the valley, there are no disputes on water resources especially for irrigation. However small/ minor disputes occasionally arise between individual farmers which are resolved through negotiations (Jirga) by the Village elders. Owing to lack of proper allocation and a weak water management system, small conflicts do take place between communities over water distribution. Apart from that, lack of participation in maintenance and repair works creates conflicts as well. Although there is no formal mechanism to resolve such conflicts, the village elders again do take initiatives to address conflicts regarding damage to the environment and in serious cases seek police or/and support of judicial system.

Table 19: Details of Irrigation Channels

| S No. | Scheme Name | Supported By | Year of Completion | Location | Beneficiary Villages | Beneficiary HHs | Source Name | Type of Source | Source Discharge (Cusecs) | Infrastructure Capacity(Cusecs) | Operation Status |
|-------|--|---------------------------------|--------------------|-------------------|--|-----------------|-------------|----------------|---------------------------|---------------------------------|----------------------|
| 1 | Maskor / Dalgram Irrigation Channel | Community | 1940 | Maskor to Dalgram | Maskor & Dalgram | 60 | Ayun Gol | Stream | 80 | 4 | Partially Functional |
| 2 | Dalgram Irrigation Channel | Community Made/Water Management | 2006 | Dalgram | Dalgram | 50 | Ayun Gol | Stream | 80 | 3 | Partially Functional |
| 3 | Bihal to Grambath Gol Irrigation Channel | Community Made/ AKRSP | 1984 | Bihal | Bihal, Jaw Kuru, Bishal, Asper, Guru, Ururi & Grambath Gol | 304 | Birir Gol | Stream | 40 | 5.3 | Partially Functional |
| 4 | Bihal Musjed Irrigation Channel (Bihar New Hydropower Channel) | Community | 1940 | Bihal | Bihal | 58 | Birir Gol | Stream | 40 | 1.78 | Partially Functional |
| 5 | Bihal to Jaw kuru Irrigation Channel 1 (Mandizome) AKRSP 1992 | AKRSP/W4L | 1991/2013 | Bihal | Bihal & Jaw Kuru | 84 | Birir Gol | Stream | 40 | 3.4 | Partially Functional |
| 6 | Birir Nisar Lower Irrigation Channel | Community | 1948 | Birir Nisar | Birir Nisar | 52 | Birir Gol | Stream | 40 | 2.5 | Partially Functional |
| 7 | Birir Nisar Upper Irrigation Channel | Community | 1800 | Birir Nisar | Birir Nisar | 52 | Birir Gol | Stream | 40 | 1.23 | Partially Functional |
| 8 | Birir Nisar MHP Irrigation Channel | Community | 1992 | Birir Nisar | Birir Nisar | 52 | Birir Gol | Stream | 40 | 4 | Partially Functional |
| 9 | Birir Nisar MHP Upper Irrigation Channel | Community | 1974 | Birir Gol | Birir Gol | 52 | Birir Gol | Stream | 40 | 3.5 | Partially Functional |

| | | | | | | | | | | | |
|----|--|--|-----------|------------|--------------------------------------|-----|------------|--------|----|------|----------------------|
| 10 | Grasskuru to Guru Irrigation Channel (Asper to Ururi) | Community Made/ Repairing the Channel W4L | 2012 | Grasskuru | Jaw Kuru, Bishal, Asper, Guru &Ururi | 209 | Birir Gol | Stream | 40 | 2.23 | Partially Functional |
| 11 | Asper to Guru Irrigation Channel (Asper Channel 1) | Community Made/AKRSP/ LP Repairing the channel | 1990/2013 | Beshal | Asper, Guru | 120 | Birir Gol | Stream | 40 | 3 | Partially Functional |
| 12 | Asper to Nosh Bio Irrigation Channel (Asper to Noshbio) | Community Made/ AVDP/ W4L | 2010 | Asper | Asper, Guru, Ururi & Noshbio | 141 | Birir Gol | Stream | 40 | 4.23 | Partially Functional |
| 13 | Beshal to Guru Irrigation Channel (Beshal to Grambath Gol 2) | Community | 1975 | Beshal | Beshal, Asper & Guru | 120 | Birir Gol | Stream | 40 | 4.6 | Partially Functional |
| 14 | Beshal to Grambath Gol Irrigation Channel 1 | Community Made/AKRSP/ LP Repairing the channel | 1990/2013 | Beshal | Beshal, Asper, Guru & Grambat Gol | 209 | Birir Gol | Stream | 40 | 3 | Partially Functional |
| 15 | Bihal to Graskuru irrigation channel | Community Made/W4L | 2012 | Bihal | Bihal, Xaghar, Gree & Grass Kuru | 124 | Birir Gol | Stream | 40 | 2.5 | Partially Functional |
| 16 | Guru to Nosh Bio Irrigation Channel (Nosh bio) | Community | 1945 | Birir Gol | Ururi& Nosh Bio | 20 | Birir Gol | Stream | 40 | 4 | Partially Functional |
| 17 | Prasho Irrigation Channel (Sandik) | Community | nil | Pishpo Gol | Sandik | 35 | Pishpo Gol | Stream | 6 | 0.87 | Partially Functional |
| 18 | Kandali Irrigation Channel (Sandik) | Community | 1965 | Pishpo Gol | Sandik | 35 | Pishpo Gol | Stream | 6 | 0.24 | Partially Functional |
| 19 | Ochagho Irrigation Channel (Sandik) | Community | 1987 | Pishpo Gol | Sandik | 35 | Pishpo Gol | Stream | 6 | 1 | Partially Functional |
| 20 | AKRSP Irrigation Channel (Sandik) | AKRSP | 1987 | Sandik | Sandik | 35 | Birir Gol | Stream | 6 | 2 | Non Functional |

| | | | | | | | | | | | |
|----|--|-----------|------|-------------------|--------------------|----|-----------|--------|----|-----|----------------------|
| 21 | Kouch Irrigation Channel | Community | 1930 | Kouch to jaw kuru | Jaw Kuru | 28 | Kouch | Spring | 2 | 1.5 | Partially Functional |
| 22 | Pragoon Irrigation Channel | Community | 1940 | Jaw Kuru | Jaw Kuru | 28 | Birir Gol | Stream | 40 | 1 | Partially Functional |
| 23 | Bihar and mandligol channel (Bihar to Jawkuru) | Community | 1944 | Jaw Kuru | Jaw Kuru | 28 | Birir Gol | Stream | 40 | 1.2 | Partially Functional |
| 24 | Manjakkok Gol Irrigation Channel | Community | 1940 | Jaw Kuru | Jaw Kuru | 28 | Birir Gol | Stream | 40 | 1 | Partially Functional |
| 25 | Maskor khan Irrigation Channel | Community | 1930 | Maskor to Dalgram | Maskor and Dalgram | 45 | Birir Gol | Stream | 40 | 3 | Partially Functional |

3.5 Drinking Water Supply Status

Spring is the main source of Drinking Water Supply Schemes (DWSS). Because of its sloping land mass, water is conveyed through pipes flowing under gravity. In total 11 DWSS are located in the area out of which 10 are partially functional and 1 is completely non functional. For these schemes, PHED for 3, IC for 3, Ms. Maureen for 2 and others have provided financial assistance. Details of distribution of irrigation schemes are in Table 20.

Table 20: Details of Irrigation Schemes

| Scheme Name | Supported By | Year of Completion | Location | Function |
|---|--------------|--------------------|-------------------|----------------------|
| Maskor/ Dalgram Drinking Water Supply Schemes | Nil | Nil | Dalgram to Maskor | Partially Functional |
| Bihal to Jawkuru Drinking Water Supply Schemes | PHED | 1994 | Bihal | Partially Functional |
| Birir Nisar Drinking Water Supply Schemes | Ms. Maureen | 2006 | Birir Nisar | Partially Functional |
| Jaw Kuru to ururi Drinking Water Supply Schemes | PHED | _____ | Xhaghir | Partially Functional |
| Grambath Gol Drinking Water Supply Schemes | PHED | 2002 | Grambath Gol | Partially Functional |
| Grambath Gol Drinking Water Supply Schemes | W4L | 2013 | Grambath Gol | Partially Functional |
| Grass Kuru Drinking Water Supply Schemes | Ms. Maureen | 2010 | Grass kuru | Partially Functional |
| Sandik and Nosh Bio Drinking Water Supply Schemes | LPH | 2010 | | Partially Functional |
| Xaghar Drinking Water Supply Schemes | LP | 2010 | Xaghar | Partially Functional |
| Jaw Kuru Drinking Water Supply Schemes | Community | 2010 | Jaw Kuru | Non Functional |

These sources discharge 16.327 liters per second (LPS), out of which 6.33273 LPS is utilised and 10 LPS water in the source points remain un-utilised. In total, 3603.4127 liters per capita per day is available. There is a significant probability to add 10 LPS to existing situation if source water collection and lining systems are improved. Water discharge in all schemes is shown separately in table 21.

Table 21: Water Discharge in Schemes

| Scheme Name | Beneficiary HH | Water Discharge at Source (Ips) | Scheme Tapped Yield (Ips) | Quantity Available per capita per day (litres) |
|---|----------------|---------------------------------|---------------------------|--|
| Maskor/ Dalgram Drinking Water Supply Schemes | 60 | 2 | 2 | 339 |
| Bihal to Jawkuru Drinking Water Supply Schemes | 103 | 1.33 | 0.00873 | 236.44 |
| Birir Nisar Drinking Water Supply Schemes | 52 | 2.223 | 1.201 | 434 |
| Jaw Kuru to ururi Drinking Water Supply Schemes | 148 | 2.23 | 0.0194 | 187.013 |
| Grambath Gol Drinking Water Supply Schemes | 75 | 2 | 0.0129 | 256 |
| Grambath Gol Drinking Water Supply Schemes | 45 | 1.5 | 0.0097 | 675 |
| Grass Kuru Drinking Water Supply Schemes | 28 | 1.544 | 0.044 | 421.81 |
| Sandik and Nosh Bio Drinking Water Supply Schemes | 41 | 1.5 | 0.037 | 0.0027 |
| Xaghar Drinking Water Supply Schemes | 27 | 1 | 1 | 376.5 |
| Jaw Kuru Drinking Water Supply Schemes | 15 | 1 | 1 | 677.647 |
| Total | 594 | 16.327 | 5.33273 | 3603.4127 |

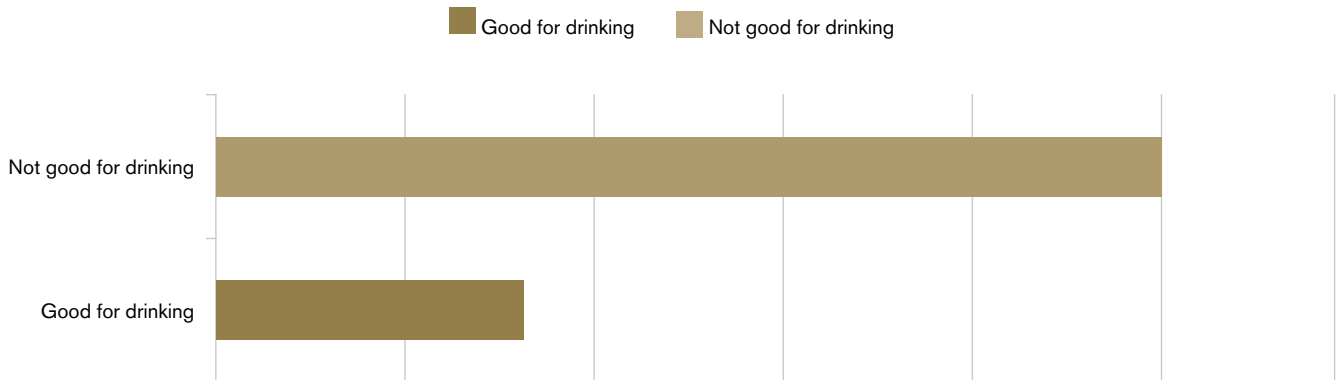
In addition to primary sources, 7 alternative sources are available which can bring additional water to the population in case of any problem in the primary source. These consist of 3 springs, 4 streams and 1 river. Details of alternative sources are given in table 22.

Table 22: Alternate Water Sources

| Scheme Name | Alternate Source | Source Name | Type of Source | Water Discharge (Ips) |
|---|------------------|---------------|----------------|-----------------------|
| Maskor/ Dalgram Drinking Water Supply Schemes | Available | Chitral river | River | - |
| Bihal to Jawkuru Drinking Water Supply Schemes | Available | Chesbotikan | Spring | 1 |
| Birir Nisar Drinking Water Supply Schemes | Available | Birir Gol | Stream | 1132.4 |
| Jaw Kuru to Ururi Drinking Water Supply Schemes | Available | Kouch source | Spring | 3 |
| Grambath Gol Drinking Water Supply Schemes | Not Available | | | |
| Grambath Gol Drinking Water Supply Schemes | Not Available | | | |
| Grass Kuru Drinking Water Supply Schemes | Available | Birir Gol | Stream | 1132.4 |
| Sandik and Nosh Bio Drinking Water Supply Schemes | Available | Birir Gol | Stream | 990.85 |
| Xaghar Drinking Water Supply Schemes | Available | Chosmotiky | Spring | 2.5 |
| Jaw Kuru Drinking Water Supply Schemes | Available | Borir Gol | Stream | 1132 |
| Total | | | | 1136794.15 |

Out of total Drinking Water Supply Schemes (DWSS), the communities' perception about water quality is that 76 % of sample households regard it as not good for drinking. Spring sources are usually considered as a good source of quality water for drinking purposes however has become contaminated because of poor protection of source and dilapidated situation of distribution systems. Furthermore these water sources have not been tested in any laboratory due to remoteness and availability of the services.

Figure 11: Water Quality in Birir VC



Majority of the houses are connected to tap water, however in case of floods or fault in the system, communities fetch water from the source directly on head loads. Owing to sloping terrains, communities living upstream hardly get water because of poor infrastructural designs. Mostly boys and adult females are responsible for water fetching, on an average 4 trips per day are made which takes on average 70 minutes for a single trip. Local communities have formed maintenance committees only for 5 schemes to ensure regular and sustainable supply of water. To ensure the proper functionality of the schemes, communities hire services of local technician and for which payment is made either in cash or in kind on an annual basis.

3.6 General Water Resources Analyses

Birir has relatively abundant water resources than other areas in Chitral. Both spring and stream contribute to water resources which are available all around the year however during floods, the water resources are temporarily suspended because it affects water source points which are mostly located in the stream base. In addition most of the community have been affected which requires limited resources in the area.

On an average 1 cusec water is available for 14 acres which is much higher than standard requirement, where 1 cusec is designed for 80 acres of land (data collected during WUMP exercise in the VC). The irrigation channels have been designed and constructed by communities using local knowledge and also on the basis of available water. Owing to lack of proper lining, a large proportion of water is lost as leakage before reaching fields. This is phenomenally due to the reason that maintaining water conveyance systems in difficult terrains is cumbersome and expensive; therefore there is the farmers' tendency to draw in higher quantities of water which eventually yields the needed discharge. Civil irrigation channels are mostly unlined and exposed to damage at critical locations where rainwater crossing or sliding disrupts the flow.

From water resource analysis, it has been observed that 19 gallons of drinking water is available per head which is much higher than standard requirement equivalent to 10 gallons per head per day (data collected and analysed during WUMP exercise). Owing to poor and dilapidated condition of water infrastructures, the quantity is considerably wasted before reaching users. However the situation is different in different villages due to source proximity, capacity of source and conveyance arrangement.

Some 32 water schemes have community owned management systems for operation and maintenance of water infrastructures (DWSS and Irrigation). With the exception of Government implemented schemes, all kinds of repairs and maintenance works are done on self-help basis by the community themselves which may be either in cash or in kind. Generally there are two kinds of maintenance and repair works: communities hire local technicians to carry out the task and for annual maintenance and large scale works, all beneficiaries are expected to participate in cash or in kind.

3.7 Disaster Risk Reduction

Birir is highly prone to natural disasters such as floods, rains, windstorm, earthquakes, drought and lightening, which have rendered many vital community assets and other facilities non functional and have also claimed human life in addition to livestock. Out of these disasters, floods are ranked as severe which hit the area on yearly basis. In addition to stream floods, Maskhor and Birir Nisar are highly exposed to river erosion and thus the habitable area is shrinking in the Village Council. As a result local communities face difficulties to access basic services in a sustainable manner. Owing to lack of proper preparedness, communities face difficulties to respond to disasters. Over the last 15 years, 204 houses, 119.75 acres of farmland, 12 community assets, 5 human lives and 140 livestock were lost in the face of natural disaster. Overall distribution of disasters is as shown in table 23.

Table 23: Distribution of Natural Disasters

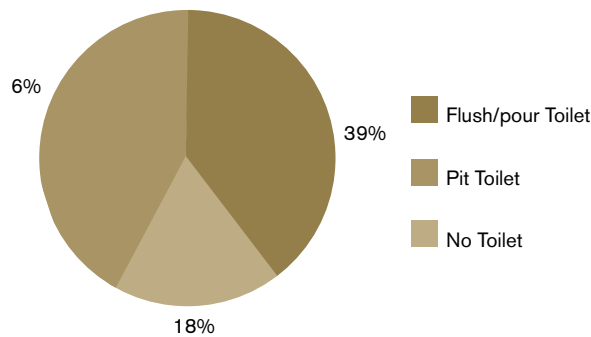
| Hazard | Intensity (mild, moderate, severe) | Frequency (Years, decades etc.) | Losses (for the last 15 years) | | | | |
|----------------------------------|------------------------------------|---------------------------------|---------------------------------|-------------------|------------------------|------------|------------|
| | | | No. of Houses | Farm-land (acres) | Other community assets | Casualties | Livestock |
| Floods | Severe | Yearly | 23 | 107 | 6 | 0 | 30 |
| Heavy Rain | Severe | Yearly | 13 | 4 | 0 | 0 | 0 |
| Drought | Mild | Decades | 0 | 2 | 0 | 0 | 0 |
| Flash Floods (streams or nullas) | Severe | Yearly | 18 | 6.75 | 6 | 5 | 110 |
| Windstorm | Mild | Decades | 0 | 0 | 0 | 0 | 0 |
| Lightening | Mild | Decades | 0 | 0 | 0 | 0 | 0 |
| Earthquake | Mild | Decades | 147 | 0 | 0 | 0 | 0 |
| Total | | | 201 | 119.75 | 12 | 5 | 140 |



3.8 Sanitation

Birir has no adequate means of sanitation which is increasing the spread of infectious diseases in the area. In the Kalashi areas, sanitation is poorly placed in comparison to other communities because the former culture does not promote cleanliness. Sanitation scenario comprises pit latrines, flush latrines and open defecation. Out of the total population, 43% households lacked toilets and most importantly the Kalashi people do not construct toilets inside their homes and use either community toilets or practice open defecation. From the community discussions it emerged that the community toilets are filthy because there is no proper maintenance in the form of cleaning and only 7% of sample households have tap stands for washing hands. The preference of households lays in setting up of flush latrines by and large with no concept of septic tank provision. Furthermore due to open defecation the sanitation situation is rather unsatisfactory. Rain water and surface drains are mostly unpaved or stone lined. In the absence of proper drainage system, waste water finds its way into irrigation channels, streams and open fields. Kalashi women cleanse clothes and bathe in streams and all effluents move in to water directly.

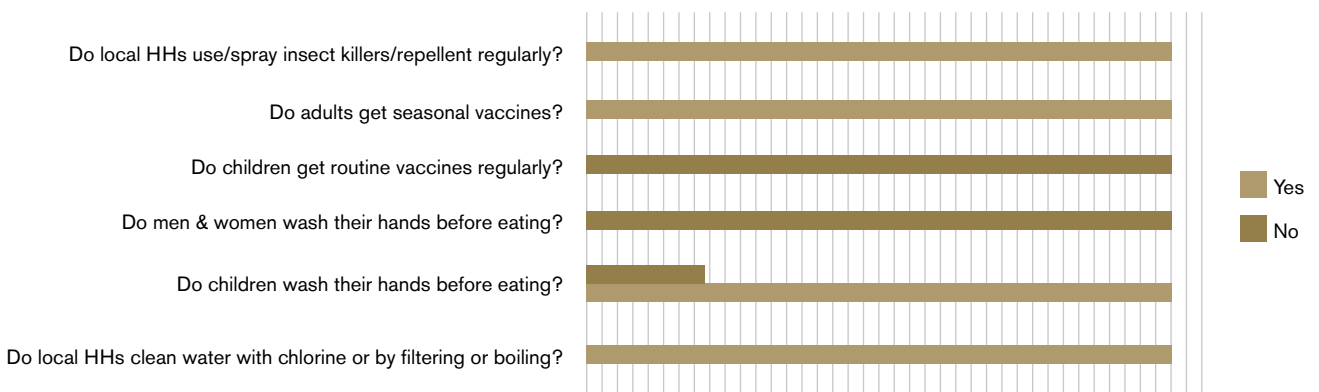
Figure 12: Toilet Facility



This situation is polluting the natural watercourses and channels. The social assessment conducted at the Valley shows the personal, domestic and environmental sanitation status to be moderate primarily due to lack of knowledge embedded by cultural practices/ taboos and poor housing conditions. The water sources being used for drinking purposes also have the possibility of contamination because of the open defecation near to the water sources (in some cases). Furthermore the practice of keeping the domestic animals inside residential houses is common. The animal waste / dung is collected in an open pit near by the house (usually in the yard). Such practices are the root cause of spreading diseases. This shows that there is a need for improvement of the sanitation situation in the valley through a program that should include both awareness raising and training as well as support in improving sanitation facilities. There is no solid waste management system in the houses. The households throw their garbage either into open plots or in the streets. Data shows that 85% of sample population left open and 15% burnt household garbage. Moreover some of the households even dispose off their solid waste in the nearby water channels. All these methods of disposal are the main causes of land and water pollution which is a great threat to the local environment and the ecosystem and also causes unhygienic conditions. Local communities are not in a position to improve or introduce the existing level of the solid waste collection and disposal without guidance. There is a need to create a greater awareness on environment sanitation.

3.9 Health and Hygiene Practices

Figure 13: Health and Hygiene Practices in Birir



Health and hygiene are important determinants of a community's well being. Local communities lack awareness regarding importance of hygiene practices leading to emergence of many diseases. Common practices of hand washing, treating water, adult vaccination and spray of insect repellents are lacking in the area. Common diseases reported are Typhoid, Hepatitis, Polio, Dysentery and Cholera and out of these diseases, dysentery and cholera are reported in highest number in all age groups, followed by cholera and hepatitis etc. During the WUMP data collection, 98 people had passed away due to these diseases. For treatment, local communities mostly visit the local dispensary or District Headquarter Hospital in Chitral. For vaccinations (of new born and children), local communities visit Basic Health Unit, Ayun. Age-wise disease occurrence and annual mortality is appended in table 24.

Table 24: Annual Mortality

| Age group | Diseases | | | | | | Annual Mortality |
|------------|----------|-----------|-------|-----------|---------|-------|------------------|
| | Typhoid | Hepatitis | Polio | Dysentery | Cholera | Total | |
| 1-5 | 41 | 6 | 1 | 164 | 84 | 296 | 44 |
| 6-15 | 31 | 21 | 3 | 69 | 30 | 154 | 22 |
| 16 & above | 50 | 37 | 6 | 81 | 38 | 212 | 46 |
| Total | 122 | 64 | 10 | 313 | 151 | 660 | 98 |

3.10 Other

Suitable climatic conditions and variation in altitude bless the valley with a great variety of flora and fauna. Birir Valley supports a good stand of conifer forest. Oak is also to be found, but is scattered and found mainly on sunny hills and slopes. Forest is the major resource of the area and is utilised for different purposes. People get many benefits from forests. The Forest Department is working for management purposes with its rules and regulations. The government of Khyber Pukhtunkhwa has declared all forest of Chitral as Protected Forest.

Owing to continuous harvesting of forests, watersheds are deteriorating which in turn affects regular flow of water; as a result flood incidences have significantly increased. Owing to continuous conversion of forest land into farmland, marginal lands have become vulnerable to soil erosion which not only affect water quality but also increases land sliding. Therefore it is important to initiate social forestry activities to reduce pressure on existing resources and improve forest cover. In all degraded watersheds, forest harvesting activities should be banned and plantations should be initiated for restoration of these catchments. Existing community institutions should be trained in management and conservation of their natural resources.

Large-scale deforestation for timber and firewood has changed the ecology of Birir. Deforestation exposes soil to erosion and causes sedimentation during rains. Massive deforestation in the valley has disturbed the terrestrial ecosystem. Overgrazing has reduced ground cover which not only affect precious herbs and shrubs but also newly sprouted saplings of coniferous plants. Reduction in ground cover also causes soil erosion and landslides and deteriorates quality of water of Birir Gol and its tributaries.

Since all natural phenomena are interconnected, hence damaging a single thread of the web means entire system becomes non-functional. Flooding in the valley is the direct consequence of massive deforestation. Moreover communities were of the view that deterioration and degradation of natural forests would invariably destroy the natural resources in the whole valley including water resources. They expressed that with the gradual decline of forests and deterioration of high pastures, a palpable severity was witnessed in the flood related destruction and other natural calamities.



Chapter 4

4. Planning and Development Strategy

4.1 Integrated Planning and Development Strategy

Water holds central importance in sustainable development, however changing climatic situation gives rise to a complex situation for management of water resources. Demographic changes have increased demand for space and resources across mountainous areas. As a result of climate change the water availability is becoming uncertain and is bringing about a vulnerable situation for local people. Access and availability of water determines the basis of livelihoods of mountainous communities who live in subsistence economies, low levels of food security and high vulnerability to climate change.

With this background, integrated water resource management carries high justification for optimum and efficient utilisation. Inclusive and participatory process is to be adopted to develop a multi-sectoral plan for sustainable development. The WUMP for Birir has been developed keeping in view the social, economic and environmental needs of the area and adopts multiple strategies to promote efficient and effective water resource utilisations.

4.2 IWRM Approaches

The formulation of IWRM Plan follows a distinct four phase approach

- Identify the range of issues concerning water resources that occur across a Village Council. Assess their severity, mutual dependence and frequency of occurrence. A “user requirement issue” results from an inadequate matching of user requirements (demand) and availability of water resources as well as quality (supply); while an “impact issue” derives from human activities (which negatively affect the quantity or quality of the water resource) or from natural causes in the case of floods and droughts. National and International issues should also be taken into account, for instance upstream-downstream issues.
- Identify the management interventions at all levels– national, basin/valley, local – which are necessary to address the issues identified. From the interventions required, identify the management functions at each level. Management functions include such items as policy development, planning and co-ordination, water allocation, discharge regulation, monitoring, enforcement and information dissemination. Transboundary problems may require concerted international cooperation and

joint efforts.

- Analyse the present institutional capacities at all levels– national, basin/valley, local– and examine the potentials and constraints relating to the issues to be dealt with and functions to be undertaken. The capacities relate to factors such as the efficiency of institutional structures and the adequacy of human and financial resources as well as the adequacy of policies and legislation.
- Prepare strategies in consultation with different water related stakeholders for removal of any deficiency in the framework of national policies, legislation and regulations for IWRM, for the development of institutional roles that allow a coordinated implementation of IWRM with required management instruments and associated skills. International strategies have to be developed in collaboration with other riparian nations.

a. Conservation and Protection of Water Resources

Unplanned use of water resources at the community level has resulted in poor delivery of services, contamination and wastage in terms of drinking water. Due to excessive intake of water in irrigation channels, a compromise has been reached in water conveyance systems, soil nutrients leaching and reduced crop production due to higher occurrence of crop diseases. In Birir this problem becomes even more severe at tail-end of the irrigation channel.

Due to the deforestation and degradation of range lands in the Valley, any investment on water resources and its utilisation are at a risk of landslides and flash floods. Therefore during the WUMP identified initiatives have been considered integrally with suitable environmental concerns such as initiating dialogues for water shed management with the support of Forest Department, Chitral.

As WUMP attempts to improve quality and quantity of water, it lays equal emphasis on promoting awareness on optimum utilisation by beneficiaries and understanding inherent environmental concerns. The role of WUAs/ WUGs in sensitising users as well as mitigating water conflicts has been mandated as an integral role.

b. Multiple Use of Water

The water resources are critically important for life, health, food and energy. Therefore drinking water and sanitation, irrigation and power are multiple uses of water in a holistic manner. Under the multiple use of water, it is related to achieving two or more benefits from a single project such as (WUMP identified) irrigation channel with water mills and small hydropower as potential for multiple use of water and adding to their livelihoods options.

c. Balanced use of Water

WUMP assesses overall water situation and prepares a water resources inventory. It recommends measures for distribution of water according to the needs of the population and agriculture land available as well as future potential. In term of drinking water and irrigation, minimum water wastage and trials for high efficiency irrigation systems have been suggested in Maskor.

Owing to lack of awareness, excessive use of water has led to water induced land sliding and frequent disruption of irrigation channels, seepage of water from unlined irrigation channel which sometimes affects houses and leaching of nutrients in top soil layers.

d. Productive Use of Water

The potential in Birir Valley for productive uses of water are several. These include options for extending irrigated farm land to 171.5 acres, improvement of existing irrigation system to improve supply to 890 acres, introduction of efficient irrigation techniques and agriculture extension services for better crop return. In this regard coordination of Agriculture Department (Extension) and Livelihood Program Hindukush (LPH) inputs would be established.

e. Efficient use of Water

Domestic water supply and irrigation systems often face major water losses, with leakage ranging from 50-70 %. These losses can be recovered through improving water conveyance systems and applying use and reuse options etc. Design, construction, operation and maintenance of systems also contribute to efficient use of water at various stages.

The understanding of water users on economical and efficient use of water is also one of the key elements in enhancing water efficiency through demand management, reduction in use, re-use, and introduction of water-saving measures (3R principles are: Reduce, Reuse and Recharge). Hence, the efficient use of water resources ensures the basic human needs and balances requirements of preserving and restoring the fragile ecosystem.

4.3 Conflict over Water Resources

Competing interests between communities over resource ownership, its utilisation and management are key reasons where conflict arises. This is usually regarding land, water and forest resources in the Valley.

Over the watershed catchment the level of conflict is also dependent on location (upstream and downstream). One group of people living downstream (of the catchment) is dependent on farm lands, whereas the dwelling upstream is close to the forest and would have more dependency on the forest for their livelihoods.

There is a relation of dependency between communities living at the two locations for utilisation of forest resources as well as of agriculture produce for nutritional needs. The conflicts of interest have to be met with pragmatism through promoting dialogue, for achievement of nutritional and livelihoods needs and simultaneously addressing floods and disasters arising due to conflict of interest. Typically for the water infrastructures which extend over a village, the communities living close to source do not participate in the maintenance works but they consume a major share of the water. This creates conflict with the user at tail-end who actively contribute in maintenance works but do not get equivalent share of water.

4.4 Gender and Social Inclusion

In Birir Valley, both genders are involved in carrying out agricultural activities, firewood collections and fetching of water. Management of irrigation channels is however carried out by the male population in the valley.

In Lower Birir, separate meetings were held with men and women representatives, which are predominantly Muslim community, to discuss various water sector aspects during WUMP preparation. In upper parts comprising Kalashi community, both male and female representatives came together to discuss water sector issues and potentials, during WUMP on a single forum. Gender inclusion was facilitated through WUMP teams comprising male and female members of local origin, due to which flow of information became easier. Community confidence in gender and social inclusion during WUMP process also prevailed due to high acceptance of WUGs/WUAs who have been able to practically connect and develop several water sector initiatives with LPH and W4L.

4.5 Prioritisation Process

During the prioritisation process of WUMP, representatives coming from all segments of village population (VO/WO) (including men and women) participated. In the second round, representatives from several villages in a village council came together to understand and prioritise the potential of water sector issues on the basis of water hardship through a jointly agreed selection criteria e.g. extent of beneficiaries, investment, land, multiple use, capacity to contribute, operate and maintain, access etc.

With discussions at WUAs/WUGs level, the upstream and downstream water related issues were better understood. The importance of watershed management in the long term sustainability also became visible in the prioritisation process as the valley is prone to land sliding and flash floods.

During WUMP, the water sector GLAs (Public health Engineering Department, On Farm Water Management, Irrigation Division and Revenue Department) participated in the village council level prioritisation process. At VC level, the WUMP is further vetted and owned for long term assistance and commitment.



Chapter 5

5. Water Use Management Plan (WUMP)

5.1 Village level WUMP

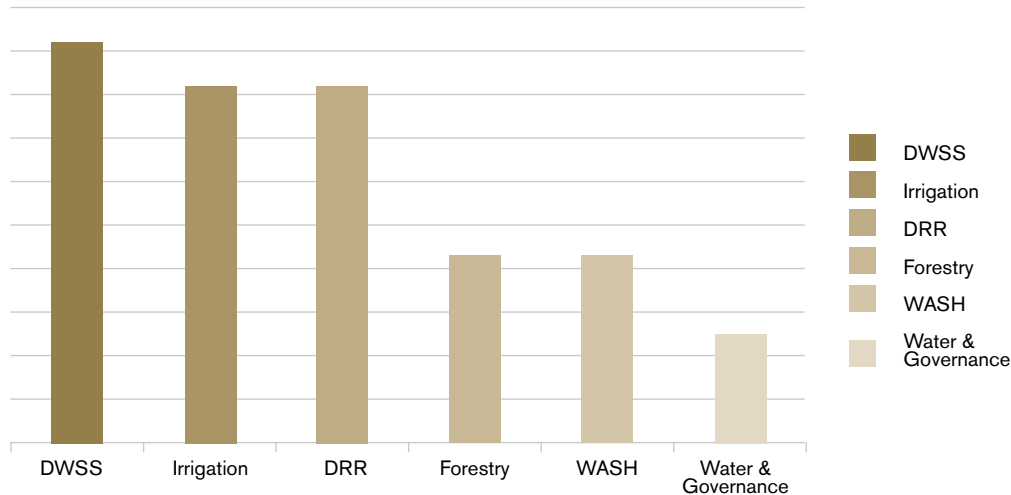
Village Council is defined as the basic entity for planning and resource assessment for developing WUMP in the Birir Valley. Most of the water resources and water related infrastructures are clearly divided between villages and every village has their own rights and management system. WUGs are formed on village/ hamlet level while WUAs were formed on the basis of common watershed and shared water resources base. Due to this factor, water issues and potential identification exercise was administered in all the 15 villages/hamlets. It gave a holistic picture and direction for water sector growth. In each of the village, problem analyses exercise was administered and key issues were discussed;

Table 25: Birir VC Prioritisation

| S No. | Village | Village Prioritisation | | | | | |
|-------|--------------|------------------------|------|------|----------|--------------------|-----|
| | | Irrigation | DWSS | WASH | Forestry | Water & Governance | DRR |
| 1 | Xaghar | 1 | 4 | 3 | 5 | 6 | 2 |
| 2 | Grambate Gol | 2 | 1 | 5 | 3 | 6 | 4 |
| 3 | Jawkuru | 1 | 5 | 4 | 2 | 6 | 3 |
| 4 | Gree | 5 | 1 | 4 | 3 | 6 | 2 |
| 5 | Bihal | 2 | 5 | 3 | 6 | 4 | 1 |
| 6 | Bishal | 6 | 5 | 2 | 3 | 4 | 1 |
| 7 | Grass Kuru | 2 | 6 | 3 | 5 | 4 | 1 |
| 8 | Asper | 2 | 1 | 3 | 5 | 6 | 4 |
| 9 | Ururi | 3 | 1 | 4 | 5 | 6 | 2 |
| 10 | Noshbio | 3 | 1 | 5 | 4 | 6 | 2 |
| 11 | Maskoor | 2 | 1 | 6 | 4 | 5 | 3 |
| 12 | Gurur | 4 | 3 | 6 | 2 | 5 | 1 |
| 13 | Sandki | 1 | 2 | 3 | 4 | 5 | 6 |
| 14 | Birir Nisar | 1 | 3 | 4 | 6 | 5 | 2 |
| 15 | Dalgram | 2 | 1 | 6 | 3 | 5 | 4 |

From the participatory discussion, DWSS water emerged as the highest prioritised sector in 7 out of fifteen villages, which is followed by irrigation and DRR. Sector wise prioritisation of schemes is appended in figure14.

Figure 14: Sector Wise Prioritisation



5.2 Proposed Water Supply Schemes (New & Rehabilitation)

Local communities prioritised DWSS in highest number i.e. 7 out of 15 villages prioritised DWSS at number 1. In 10 villages, drinking water is found insufficient; therefore women and children collect water from springs and streams on head loads. In the whole VC, Dalgram and Maskor areas face extreme water shortage issues where people fetch water from the river and thus, it requires a completely new scheme to address water problem forthwith. Most of the drinking water supply schemes were designed more than 15 years back; therefore due to the growth in population the functionality has been exceeded.

In the existing schemes it has been found that service tanks are not available and the source is open which is liable to contamination and also in consequence, water does not pass through the pipes with maximum pressure. The area is highly prone to natural disasters which cause disruption and leakage in the pipelines. Owing to undulating terrain, main lines are not properly laid out according to the pattern in settlements and as a result most of the people living in upper ridges remain under-served. In some villages, the pipe diameter is smaller whereby water availability is very limited. More importantly, stand posts and washing pads are not available in majority of the cases⁷. It has been noticed, pipelines were not dug into surface which are found frozen during winter. Owing to non-availability of proper source protection, floods contaminate and sometimes source becomes completely nonfunctional.

Out of the 11 DWSS, it has been observed that only 2 schemes are structurally in good working condition, 7 in fair, 1 in poor and 1 is completely non-functional. The key schemes such as storage tanks, main lines, distribution lines and stand posts were assessed. It was found that storage tanks in 7 schemes were not available and the remaining 3 are partially functioning while 1 is completely functional. All the main and distribution lines are partially functioning with exception of 1 which is not functioning. Stand posts were not available in 9 schemes and remaining are partially functioning. Structural overview shows that a significant investment is needed to improve existing facilities so that water shortage can be effectively addressed for a longer duration.

Operation and management of all schemes is informal having no proper fund for maintenance. In government schemes, the valve-operating men are responsible for routine operation and the community organisations for others. Operation and Maintenance Committees exist which are found satisfactory in 7 schemes, 2 in poor and 1 completely nonfunctional. Only 3 committees have maintenance funds whereas members contribute in kind, when in time of any emergency. Apart from self-help basis, local communities had also secured external support for maintenance of 3 schemes.

Local communities have identified 10 existing drinking water schemes for improvement and provision of 1 new DWSS in Dalgram and Maskor is proposed under the WUMP. More importantly if these infrastructures are developed then additional 7.124 lps will be brought into the drinking water system in Birir VC. There is significant opportunity to increase water availability through reducing leakages.

Detailed irrigation schemes are appended in table 26

⁷Stand posts are water taps installed for a few houses outside their homestead. Whereas washing pads are usually communal places where women can bring clothes to wash as washing on a paved surface offers convenience and flow of water just a dip away. Secondly soapy water is drained in such a way that it does not remix with the water channel again.

Table 26: Detailed Irrigation Schemes

| | | | | |
|--|---|---|---|---|
| S No. | 1 | 2 | 3 | 4 |
| Scheme Name | Maskor/Dalgram Drinking Water Supply Scheme | Bihal to Jawkuru Drinking Water Supply Scheme | Birir Nisar Drinking Water Supply Scheme | Jaw Kuru to ururi Drinking Water Supply Scheme |
| Scheme type | New Scheme | Old Scheme (PHED 1994) | Old Scheme(Ms. Maureen 2010) | Old Scheme(PHED 1994) |
| Beneficiary HH | 60 | 103 | 52 | 148 |
| Operation Status | Non Functional | Partially Functional | Partially Functional | Partially Functional |
| Structural Status/ Condition | Nil | Fair | Poor | Fair |
| Storage Tank | Not Functional | Not Functional | Not Functional | Partially |
| Main Supply Lines | Not Functional | Partially Functional | Partially Functional | Partially Functional |
| Distribution system/ network | Not Functional | Partially Functional | Partially Functional | Partially Functional |
| Stand Posts | Not Functional | Not Functional | Not Functional | Not Functional |
| Operation and Management | Not Exists | Informal | Informal | Informal |
| Management Capacity | Poor | Satisfactory | Poor | Satisfactory |
| Maintenance Systems | Self Help | External Support | Self Help | External Support |
| Major Environmental Threats | Floods-Land Sliding-Stone Fall | Floods-Land Sliding-Stone Fall | Floods-Land Sliding-Stone Fall | Floods-Land Sliding-Stone Fall |
| Mitigation structures needed | New schemes | Sub-surface Covering-In-sulation-Crossing | Sub-surface Covering-In-sulation-Crossing-Re-align-ment | Sub-surface Covering-In-sulation-Crossing-Re-align-ment |
| Major Infrastructure Requirements | Intake Chamber-Storage Tank-Branch line-Stand posts | Storage Tank-Branch line-Stand posts | Storage Tank-Branch line-Stand posts | Branch line-Stand posts |
| Village Prioritisation | 1 | 5 | 3 | 1 |
| VC Prioritisation | 1 | 5 | 4 | 1 |
| Estimated Cost (PKRs) | 3,142,569 | 784,217 | 733,296 | 812,625 |
| If Improved, tapped yield (lps) increase | 2 | 1 | 2,223 | |

| | | | | | | | | | | | | | | | | | | | | | | |
|----|--|------------------------------|----|----------------------|------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------|-----------|--------------------------------|---|--|---|--------------------------|---------|---------|---------|--|
| 5 | Gram-bath Gol Drinking Water Supply Scheme | Old Scheme (PHED 2002) | 75 | Partially Functional | Fair | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Not Functional | Informal | Satisfactory | External Support | Floods-Land Sliding-Stone Fall | Sub-surface Covering-In-sulation-Cross-Aligning-Re-align-ment | Branch line- Stand posts | 1 | 2 | 456,717 | |
| 6 | Gram-bath Gol Drinking Water Supply Scheme | Old Scheme(W4L 2013) | 45 | Partially Functional | Good | Functional | Partially Functional | Partially Functional | Partially Functional | Not Functional | Informal | Satisfactory | Self Help | Floods-Stone Fall | Sub-surface Covering-In-sulation-Cross-Aligning-Re-align-ment | Storage Tank- Branch line- Stand posts | 4 | 3 | 100,472 | | | |
| 7 | Grass Kuru Drinking Water Supply Scheme | Old Scheme Ms. Maureen 2010 | 28 | Partially Functional | Good | Not Functional | Functional | Partially Functional | Partially Functional | Not Functional | Informal | Satisfactory | Self Help | Floods-Stone Fall | Sub-surface Covering-In-sulation-Cross-Aligning | Storage Tank- Branch line- Stand posts | 6 | 5 | 621,381 | | | |
| 8 | Sandik and Nosh Bio Drinking Water Supply Scheme | Old Scheme(LPH 2010) | 41 | Partially Functional | Fair | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Informal | Satisfactory | Self Help | Floods-Stone Fall | Source Protection-Realign-ment-Cross-Aligning | Stand Posts | 2 | 3 | 319,201 | 0.9 | | |
| 9 | Xaghar Drinking Water Supply Scheme | Old Scheme (LP 2010) | 27 | Partially Functional | Fair | Not Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Informal | Satisfactory | Self Help | Floods-Stone Fall | Source Protection | Storage Tank- Branch line- Stand posts | 4 | 4 | 280,381 | | | |
| 10 | Jaw Kuru Drinking Water Supply Scheme | Old Scheme (CESSD 2010) | 15 | Partially Functional | Fair | Not Functional | Partially Functional | Partially Functional | Partially Functional | Not Functional | Informal | Poor | Self Help | Floods-Land Sliding-Stone Fall | Sub-surface Covering-Realign-ment | Storage Tank- Branch line- Stand posts | 5 | 5 | 412,387 | 1 | | |
| 11 | Green Drinking Water Supply Scheme | Old Scheme (local Govt.2000) | | | | | | | | | | | | | | | | 1 | 2 | 370,292 | | |

5.3 Proposed Irrigation Initiatives

Irrigation sub-sector has emerged as the second priority - major portion of livelihoods is dependent on subsistence farming. In the VC, 171 acres land has been reported with potential to be brought under irrigation, land development and agricultural extension. In total 25 irrigation channels were assessed which range in size from 0.24 to 5.3 cusecs. Although infrastructures capacity is high in relation to available land area, however, these channels are partially operational because of dilapidated infrastructure conditions.

In the Birir Village Council, local communities have constructed majority of irrigation infrastructures according to local knowledge however quality of works is below the standard in order to withstand with severe climatic conditions. Irrigation channels, developed by other NGOs, were not constructed with improved designs and materials. Moreover these areas require higher level of investment in comparison to plain areas in order to design better infrastructures whereas they receive limited funding from government exchequer. In consequence, local communities could not reap benefits for what they are supposed to provide.

Structural assessment showed that 16 irrigation channels are lying in poor situation, 8 are fair and 1 in Sandik village is totally non-functional. In 24 schemes, intake points, main distribution lines and other branch lines were partially functioning. Outlets are not available in 18 schemes whereas functioning partially in 7. Owing to poor infrastructural facilities, local communities have reported increased seepage of water and sometimes water over flow which is affecting surrounding houses. Water takes a longer duration to reach farmlands and also a significant quantity of it is lost, thus farmers have to work extra hard to cope with the situation. Most of these channels pass through difficult and steep terrains and it causes land sliding which not only damages irrigation channels but also other community assets. As water intake points are not properly protected and incase of floods, passage of irrigation water remains suspended which results in crop failure.

Operation and Management holds much importance for sustainable maintenance of any infrastructure and incase of Birir, management and operation is informal with exception of 1 scheme which is totally nonfunctional. At a local level, no proper planning exists for management but rather system works on need basis. In 14 schemes, beneficiary community have appointed one individual for the operation and management, in 6 schemes community organisations are responsible, community is responsible in 3 schemes and no setup exists in 2. Operation and maintenance committees exist in 23 channels and mode of maintenance fund has been found in 22 cases in kind and only 3 schemes have cash fund. As a whole, management capacity of these committees have been found weak in 19 schemes, functioning satisfactorily in 2 and remaining 2 are totally nonfunctional.

Under WUMP, 25 irrigation schemes for improvement in the VC as shown in table 27.



Table 27: Irrigation Schemes for Improvement

| | | | | | |
|---|------------------------------------|----------------------------------|--|--|---|
| S No. | 1 | 2 | 3 | 4 | 5 |
| Scheme Name | Maskor /Dalgram Irrigation Channel | Dalgram Irrigation Channel | Bihal to Grambath Gol Irrigation Channel | Bihal Musjed Irrigation Channel (Bihar New Hydropower Channel) | Bihal to Jaw kuru Irrigation Channel 1 (Mandizome) AKRSP 1992 |
| Area of cultivable land | 18 | 68 | 10 | 5 | 10 |
| Operation Status | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional |
| Structural Status/Condition | Poor | Poor | Poor | Poor | Fair |
| Intake Point | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional |
| Main Channel | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional |
| Water Courses | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional |
| Water Outlet | Partially Functional | Not Functional | Partially Functional | Not Functional | Not Functional |
| Operation and Management | Informal | Informal | Informal | Informal | Informal |
| Management Capacity | Poor | Poor | Satisfactory | Poor | Poor |
| Environmental Risk | Floods- Land Sliding- Stone Fall | Floods- Land Sliding- Stone Fall | Floods- Land Sliding- Stone Fall | Floods- Land Sliding- Stone Fall | Floods- Land Sliding- Stone Fall |
| Mitigation Structures | Breast Wall- Retaining Wall | Breast Wall- Retaining Wall | Head Protection -Breast Wall- Retaining Wall | Head Protection -Breast Wall- Retaining Wall | Breast Wall- Retaining Wall |
| Improvement Infrastructure | Lining -Super passage | Lining-Super passage | Lining -Super passages- Aqueduct | Lining of the Channel | Lining |
| Village Prioritisation | 2 | 2 | 2 | 4 | 2 |
| VC Prioritisation | 2 | 3 | 2 | 5 | 2 |
| Estimated Cost (PKRs) | 4,437,600 | 2,774,700 | 5,189,964 | 1,137,524 | 2,167,260 |
| If Improved, Increase land area (acres) | 1338 | 401.7 | 15 | 4 | 12 |

| | | | | | | | | | | | | | | | | | | | | | |
|----|---|-----|----------------------|------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|------------|--------------|----------------------------------|--|----------------------------------|---|---|-----------|----|
| 6 | Birir Nisar Lower Irrigation Channel | 1.5 | Partially Functional | Fair | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Not Functional | Informal | Poor | Floods- Land Sliding- Stone Fall | Head Protection -Breast Wall- Retaining Wall | Lining-Super passages | 3 | 5 | 1,071,120 | 32 |
| 7 | Birir Nisar Upper Irrigation Channel | 9 | Partially Functional | Poor | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Not Functional | Not Functional | Not Exists | Poor | Floods- Land Sliding- Stone Fall | Head Protection -Breast Wall- Retaining Wall | Lining-Super passages | 1 | 1 | 1,593,600 | 54 |
| 8 | Birir Nisar MHP Irrigation Channel | 18 | Partially Functional | Fair | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Not Functional | Not Functional | Informal | Satisfactory | Floods- Land Sliding- Stone Fall | Breast Wall- Retaining Wall-Head Protection | Super passages- Aqueduct | 2 | 3 | 1,879,552 | 40 |
| 9 | Birir Nisar MHP Upper Irrigation Channel | 5 | Partially Functional | Poor | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Not Functional | Not Functional | Informal | Poor | Floods- Land Sliding- Stone Fall | Head Protection -Breast Wall- Retaining Wall | Lining | 4 | 5 | 1,414,960 | 8 |
| 10 | Grasskuru to Guru Irrigation Channel. (Asper to Ururi) | 23 | Partially Functional | Fair | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Informal | Poor | Floods- Land Sliding- Stone Fall | Head Protection -Breast Wall- Retaining Wall | Lining -Super passages- Aqueduct | | 4 | 2,819,460 | 8 |
| 11 | Asper to Guru Irrigation Channel (Asper Channel 1) | 6 | Partially Functional | Fair | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Not Functional | Not Functional | Informal | Satisfactory | Floods- Land Sliding- Stone Fall | Breast Wall- Retaining Wall | Lining-Super passage | 2 | 2 | 1,222,440 | 5 |
| 12 | Asper to Nosh Bio Irrigation Channel (Asper to Noshbio | 3 | Partially Functional | Fair | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Not Functional | Not Functional | Informal | Poor | Floods- Land Sliding- Stone Fall | Head Protection -Breast Wall- Retaining Wall | Lining -Super passages- Aqueduct | 1 | 1 | 2,203,380 | 2 |

| | | | | | | | | | | | | | | | | | | | | | |
|----|--|-----|----------------------|------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------|--------------|----------------------------------|--|----------------------------------|---|---|-----------|----|
| 13 | Beshal to Guru Irrigation Channel (Beshal to Grambath Gol 2) | 5 | Partially Functional | Fair | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Informal | Satisfactory | Floods- Land Sliding- Stone Fall | Head Protection -Breast Wall- Retaining Wall | Lining -Super passages- Aqueduct | 5 | 4 | 2,094,360 | 4 |
| 14 | Beshal to Grambath Gol Irrigation Channel 1 | 176 | Partially Functional | Fair | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Not Functional | Informal | Satisfactory | Floods- Land Sliding- Stone Fall | Breast Wall- Retaining Wall | Lining -Super passages | 2 | 3 | 3,945,720 | 5 |
| 15 | Bihal to Graskuru irrigation channel | 27 | Partially Functional | Poor | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Not Functional | Not Functional | Informal | Poor | Floods- Land Sliding- Stone Fall | Head Protection -Breast Wall- Retaining Wall | Lining-Super passages- Aqueduct | 1 | 1 | 2,462,060 | 3 |
| 16 | Guru to Nosh Bio Irrigation Channel (Nosh bio) | 15 | Partially Functional | Poor | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Informal | Poor | Floods- Land Sliding- Stone Fall | Head Protection -Breast Wall- Retaining Wall | Super passages- Aqueduct | 1 | 3 | 1,916,580 | 6 |
| 17 | Prasho Irrigation Channel (Sandik) | 10 | Partially Functional | Poor | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Informal | Poor | Floods- Land Sliding- Stone Fall | Head Protection -Breast Wall- Retaining Wall | Super passages- Aqueduct | 2 | 4 | 3,383,640 | 50 |
| 18 | Kandali Irrigation Channel (Sandik) | 10 | Partially Functional | Poor | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Informal | Poor | Floods- Land Sliding- Stone Fall | Head Protection -Breast Wall- Retaining Wall | Super passages- Aqueduct | 3 | 5 | 3,751,580 | 35 |
| 19 | Ochagho Irrigation Channel(Sandik) | 7.5 | Partially Functional | Poor | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Informal | Poor | Floods- Land Sliding- Stone Fall | Head Protection -Breast Wall- Retaining Wall | Super passages- Aqueduct | 4 | 4 | 3,676,420 | 40 |

| | | | | | | | | | | | | | | | | | | | |
|----|---|-----|----------------------|----------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|------------|------|----------------------------------|--|---------------------------------------|---|---|-----------|------|
| 20 | AKRSP Irrigation Channel (Sandik) | 14 | Non Functional | Not Functional | Not Functional | Not Functional | Not Functional | Not Functional | Not Functional | Not Functional | Not Exists | Poor | Floods- Land Sliding- Stone Fall | Head Protection -Breast Wall- Retaining Wall | Super passages- Aqueduct | 1 | 1 | 4,583,640 | 53.6 |
| 21 | Kouch Irrigation Channel | 5 | Partially Functional | Poor | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Informal | Poor | Floods- Land Sliding- Stone Fall | Head Protection -Breast Wall- Retaining Wall | Lining -Super passages | 1 | 1 | 1,336,324 | 2 |
| 22 | Pragoon Irrigation Channel | 4 | Partially Functional | Poor | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Informal | Poor | Floods- Land Sliding- Stone Fall | Head Protection -Breast Wall- Retaining Wall | Lining of the Channel | 3 | 2 | 1,246,304 | 4 |
| 23 | Bihar and mandigol channel (Bihar to Jawkuru) | 8 | Partially Functional | Poor | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Informal | Poor | Floods- Land Sliding- Stone Fall | Head Protection -Breast Wall- Retaining Wall | Lining of the Channel | 4 | 3 | 2,019,080 | 8 |
| 24 | Manjakkol Gol Irrigation Channel | 6 | Partially Functional | Poor | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Informal | Poor | Floods- Land Sliding- Stone Fall | Head Protection -Breast Wall- Retaining Wall | Lining of the Channel | 5 | 4 | 889,544 | 5 |
| 25 | Maskor khan Irrigation Channel | 301 | Partially Functional | Poor | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Partially Functional | Informal | Poor | Floods- Land Sliding- Stone Fall | Breast Wall- Retaining Wall | Lining of the Channel -Super passages | 4 | 5 | 9,598,735 | 50 |

5.4 Proposed DRR Mitigation Management & Other

In the year 2015, Chitral was hit by floods and an earthquake of unprecedented scale. Birir was also included amongst the worst affected areas. The prevailing situation further emphasises on the importance that comprehensive planning should be done to address increasing trend of disasters. A three-pronged strategy has been adopted i.e. firstly every water infrastructure has to be assessed from the perspective of disaster, and mitigation structures are to be included in the design, secondly DRR structures were also proposed for protection of important community infrastructures and thirdly watershed management and other green measures were also added to address increasing trend of disasters in the long term. In this section, DRR structures were identified as key priority in order to ensure that vital community services remain fully functional at time of floods. In addition, conservation of forests, construction of check dams, control grazing systems, assessment of range land management, training of first aid, search & rescue and integrated program for JFMCs and WUA for sustainable natural resource conservation, were included in the plan. Prioritised DRR infrastructures in different villages of Birir VC are given in table 28.



Table 28: Prioritised DRR infrastructures

| S No. | Hamlet | Type of Scheme | Threats/ Disasters | Community Assets | Mitigation Structure Needed | Beneficiary HHs | Village Prioritisation | VC Ranking | Total Cost (PKRs) |
|-------|-------------|---------------------|---|---|---|-----------------|------------------------|------------|-------------------|
| 1 | Xaghar | Protection wall/New | Soil erosion and cutting of stream bank by flood in the Birir stream Flash floods in Xhaghar Gol | Households, cultivable land and fruit trees | DRR structure Xhagar Gol at Donichaw-100ft DRR at Prabtada -100 ft DRR at Darchogush and Shakodash-100 ft DRR at Xhaghar Khas 50- ft | 27 | 2 | 2 | 3,897,480 |
| 2 | Grambat Gol | Protection wall/New | Soil erosion and cutting of stream bank by flood in the stream and flash floods | Households, cultivable land and fruit trees | DRR structure at Ombarak DRR structure at Kashachoot DRR structure at Anukagha DRR at Broonshisha DRR at Bashal tat | 75 | 4 | 4 | 3,897,480 |
| 3 | Jawkuru | Protection wall/New | Soil erosion and cutting of stream bank by flood in the stream and flash floods | Households, cultivable land and fruit plant, bridges, pipelines, electric poles and pony tracks | DRR structure for Ooch side 800 ft DRR structure Birir Gol Goorzanik side 300 ft DRR for Jawkuru Payeen 200 ft DRR structure for Kawooch area 100 ft | 25 | 3 | 2 | 10,721,100 |
| 4 | Gree | Protection wall/New | Soil erosion and cutting of stream bank by flood in the stream and flash floods | Households, cultivable land and fruit trees | DRR structure Xhagar Gol in three places DRR structure in Gree village | 28 | 2nd | 5 | 2,704,340 |
| 5 | Bihal | Protection wall/New | Soil erosion and cutting of stream bank by flood in the stream and flash floods | Households, cultivable land and fruit trees | DRR structure for Manjikoye both sides 200 ft DRR structure Birir Gol Jigrano side 80 ft | 58 | 1 | 1 | 2,842,900 |

| | | | | | | | | | |
|---|------------|---------------------|--|---|--|----|---|---|-----------|
| 6 | Bishal | Protection wall/New | Soil erosion and cutting of stream bank by flood in the stream and flash floods | Households, cultivable land and fruit trees | DRR structure near Xandorek 100 ft DRR structure near bridge 50 ft DRR structure near Bahshaleni 50 ft | 12 | 1 | 4 | 2,632,440 |
| 7 | Grass Kuru | Protection wall/New | Soil erosion and cutting of stream bank by flood in the stream and flash floods in Shankoyouo xoye | Households, cultivable land and fruit trees | DRR structure near Shankoyouo Gol at 4 sites of 300 ft | 28 | 1 | 2 | 2,632,000 |
| 8 | Asper | Protection wall/New | Soil erosion and cutting of stream bank by flood in the stream and flash floods | Households, cultivable land and fruit trees | DRR structure near Bashaliwaseh for 5HH and 1.2 Checkroom land DRR structure at Nokoshish Asper DRR structure at Aspero link road DRR at Jandorek Asper DRR at Khawnisar DRR at Waridon DRR at Waridon DRR at Madarate DRR at Khawguru Shoot | 60 | 4 | 4 | 3,541,480 |
| 9 | Ururi | Protection wall/New | Soil erosion and cutting of stream bank by flood in the stream and flash floods | Households, cultivable land and fruit trees | DRR structure at Birir Gol 1 DRR structure at Birir Gol 2 | 12 | 1 | 3 | 3,897,980 |

| | | | | | | | | | |
|----|-------------|---------------------|---|--|--|----|---|---|-----------|
| 10 | Noshbio | Protection wall/New | Soil erosion and cutting of stream bank by flood in the stream and flash floods | Households, cultivable land and fruit trees | DRR structure at Saprit Gol DRR structure at Birir Gol | 8 | 1 | 5 | 3,084,340 |
| 11 | Maskoor | Protection wall/New | Soil erosion and river bank cutting by flood in river Chitral and flash floods | Households, cultivable land and fruit trees, electric poles and pony tracks | 600 ft DRR structures | 45 | 3 | 3 | 3,935,920 |
| 12 | Gurur | Protection wall/New | Soil erosion and cutting of stream bank by flood in the stream and flash floods | Households, cultivable land and fruit trees | DRR structure at centre Gurur DRR structure at Gurur DRR structure at Gurur Gol | 60 | 1 | 1 | 5,078,380 |
| 13 | Sandik | Protection wall/New | Soil erosion and cutting of stream bank by flood in the stream and flash floods | Households, cultivable land and fruit trees | DRR structure near Pishpo Gol DRR structure near Sandik Bridge DRR structure for Sandik Payeen | 35 | 6 | 5 | 4,225,420 |
| 14 | Birir Nisar | Protection wall/New | Soil erosion and cutting of stream bank by flood in the stream and flash floods | Households, cultivable land, fruit trees, roads, bridges and Pipe Irrigation | DRR structure near Birir Nisar Bridge DRR structure near Sandik Bridge | 52 | 1 | 1 | 2,995,340 |
| 15 | Dalgram | Protection wall/New | Soil erosion, River Bank Erosion and Flash Floods | Households, cultivable land and fruit trees, electric poles and pony tracks | 200 ft DRR structures | 15 | 4 | 3 | 4,662,880 |

5.5 Sanitation, Hygiene and Health

Sanitation, hygiene and health situation in Birir is in dismal condition. Majority of the population especially in Kalashi areas practice open defecation and also community toilets. Furthermore these localities lack proper waste drainage, street pavement and stairs which create an environmental nuisance. At present there is no proper sanitation as well as solid waste management system in the entire VC. In order to overcome the existing unhealthy and depleting environmental conditions, a proper waste water drainage system needs to be laid down to demonstrate and enhance awareness. In addition, health hygiene campaigns should be organised to promote healthy living. Streets, drains and stairs should be developed to improve general conditions across these areas. Communities' participation should be ensured in such initiatives so that they take lead responsibility of maintenance afterwards. To improve sanitation following activities were proposed as shown in table 29.

Table 29: Proposed Sanitation Activities

| S No. | Hamlet | Type of Scheme | Problem / Issue at Village level | Proposed Activities | Beneficiaries HH | Village Prioritisation | VC Prioritisation | Total Cost (PKRs) |
|-------|-------------|--------------------------------|---|--|------------------|------------------------|-------------------|-------------------|
| 1. | Xaghar | Sanitation, health and Hygiene | <ul style="list-style-type: none"> Lack of toilets for 12 HH Lack of awareness about health and hygiene Unpaved streets Lack of stairs and drains | Toilets, Street Pavement, Stairs, drains development and Awareness Raising | 27 | 3 | 3 | 195,000 |
| 2. | Grambat Gol | Sanitation, health and Hygiene | <ul style="list-style-type: none"> Lack of toilets for 15 HH Lack of awareness about health and hygiene Unpaved streets and Lack of stairs and drains Open Defecation | Toilets, Street Pavement, Stairs, drains development and Awareness Raising | 75 | 5 | 3 | 532,000 |
| 3. | Jawkuru | Sanitation, health and Hygiene | <ul style="list-style-type: none"> 2 toilets for 25 HH Lack of awareness about health and hygiene Unpaved Streets Lack of stairs and drains. | Toilets, Street Pavement, Stairs, drains development and Awareness Raising | 25 | 4 | 2 | 180,000 |
| 4. | Gree | Sanitation, health and Hygiene | <ul style="list-style-type: none"> 5 toilets for 28 HH Lack of awareness about health and hygiene Unpaved Streets Lack of stairs and drains. | Toilets, Street Pavement, Stairs, drains development and Awareness Raising | 28 | 4 | 3 | 500,000 |

| | | | | | | | | |
|-----|---------|--------------------------------|---|--|----|---|---|---------|
| 5. | Bihal | Sanitation, health and Hygiene | <ul style="list-style-type: none"> • 4 toilets for 58 HHs • Lack of awareness about health and hygiene • Unpaved Streets • Lack of stairs and drains. | Toilets, Street Pavement, Stairs, drains development and Awareness Raising | 58 | 3 | 1 | 355,000 |
| 6. | Bishal | Sanitation, health | <ul style="list-style-type: none"> • 3 toilets for 11 HH • Lack of awareness about health and hygiene • Unpaved Streets, • Lack of stairs and drains | Toilets, Street Pavement, Stairs, drains development and Awareness Raising | 12 | 2 | 1 | 250,000 |
| 7. | Asper | Sanitation, health | <ul style="list-style-type: none"> • 3 toilets for 60 HH • Lack of awareness about health and hygiene • Unpaved Streets • Lack of stairs and drains | Toilets, Street Pavement, Stairs, drains development and Awareness Raising | 60 | 3 | 1 | 725,500 |
| 8. | Ururi | Sanitation, health | <ul style="list-style-type: none"> • 2 toilets for 12 HH • Lack of awareness about health and hygiene • Unpaved Streets • Lack of stairs and drains | Toilets, Street Pavement, Stairs, drains development and Awareness Raising | 12 | 4 | 5 | 175,000 |
| 9. | Noshbio | Sanitation, health | <ul style="list-style-type: none"> • 2 toilets for 6 HH • Lack of awareness about health and hygiene • Unpaved Streets • Lack of stairs and drains | Toilets, Street Pavement, Stairs, drains development and Awareness Raising | 8 | 5 | 4 | 125,000 |
| 10. | Maskoor | Sanitation, health and Hygiene | <ul style="list-style-type: none"> • Lack of awareness about health and hygiene • Unpaved Streets and absence of drains | Toilets, Street Pavement, Stairs, drains development and Awareness Raising | 45 | 6 | 4 | 635,000 |

| | | | | | | | | |
|-----|-------------|--------------------------------|--|--|----|---|---|---------|
| 11. | Gurur | WASH | <ul style="list-style-type: none"> • 5 toilets for 35 HH • Lack of awareness about health and hygiene • Unpaved Streets • Lack of stairs and drains. | Toilets, Street Pavement, Stairs, drains development and Awareness Raising | 60 | 6 | 2 | 637,000 |
| 12. | Sandik | Sanitation, health | <ul style="list-style-type: none"> • 5 toilets for 35 HH • Lack of awareness about health and hygiene • Unpaved Streets, Lack of stairs and drains | Toilets, Street Pavement, Stairs, drains development and Awareness Raising | 35 | 3 | 4 | 395,000 |
| 13. | Birin Nisar | Sanitation, health and Hygiene | <ul style="list-style-type: none"> • Lack of awareness about health and hygiene • Unpaved Streets and absence of drains | Toilets, Street Pavement, Stairs, drains development and Awareness Raising | 52 | 4 | 5 | 530,000 |
| 14. | Grass Kuru | Sanitation, health | <ul style="list-style-type: none"> • 2 toilets for 28 HH • Lack of awareness about health and hygiene • Unpaved Streets • Lack of stairs and drains | Toilets, Street Pavement, Stairs, drains development and Awareness Raising | 28 | 3 | 2 | 450,000 |
| 15. | Dalgram | Sanitation, health and Hygiene | <ul style="list-style-type: none"> • Lack of awareness about health and hygiene • Unpaved Streets and absence of drains. | Toilets, Street Pavement, Stairs, drains development and Awareness Raising | 15 | 6 | 5 | 150,000 |

5.6 Watershed Management

Birir has rich natural forest resources which are not only important contributors to the livelihoods of the mountainous people but also possess an immense value as regulator of water resources. These resources are under extreme human pressure due to extensive harvesting for firewood and timber demand both in the Valley and outside. During the problem census, communities have placed greater emphasis on conservation of forests in order to address flash floods in the longer term. In addition, small gullies and rivulets, formed over lower mountain tracts and right above community dwellings have caused damage to the houses, farmlands and link roads. The watershed component coupled with DRR system would likely check the surge of flood water and protect households' and other assets. Moreover there is a huge potential to increase forest cover through forestation next to river beds and other marginal lands. There is also a significant dependency on livestock for which range land needs to be improved. As part of the WUMP, joint forest management committees (JFMCs) would be strengthened with coordination of WUA and Forest Department to promote conservation and management of forest resources in the Valley. In coordination with forest department, a comprehensive

survey of degraded watershed would be undertaken and rehabilitated through biological and physical measures to protect the water resource in the catchment under JFMC mandate. In the proposed VC local communities have proposed measures under watershed management component shown in table 30.

Table 30: Proposed Watershed Management Activities

| S No. | Hamlet | Problem | Proposed Activities | Beneficiary HHs | Village Prioritisation | VC Prioritisation | Estimated Budget (PKRs) |
|-------|-------------|--|---|-----------------|------------------------|-------------------|-------------------------|
| 1 | Xaghar | <ul style="list-style-type: none"> • Deforestation • Overgrazing • Flash floods • JFC inactive | <ul style="list-style-type: none"> • Check dams for the Village in sixteen streams • Afforestation and reactivation of JFMC at village level | 27 | 5 | 3 | 2,011,428 |
| 2 | Grambat Gol | <ul style="list-style-type: none"> • Deforestation • Overgrazing • Flash floods • JFC inactive | <ul style="list-style-type: none"> • Check dams for the 10 streams in Grambat Gol area, Aanshot Gol, Noghagha Gol, Banakakoye, Kashakshoot, Chookurjaw, Ookshoot, Zarashoot, Ramshoot and Kandioshoot, | 75 | 3 | 1 | 3,151,694 |
| 3 | Jawkuru | <ul style="list-style-type: none"> • Deforestation • Overgrazing • Flash floods | <ul style="list-style-type: none"> • Check dams for Ranisar shoot stream, Kanrol grazing side, Barkashee six other streams in Jaw Kuru village • Afforestation and reactivation of JFMC at village level • Linkages with forest department | 25 | 2 | 1 | 2,456,810 |
| 4 | Gree | <ul style="list-style-type: none"> • Deforestation • Overgrazing • Flash floods • JFC inactive | <ul style="list-style-type: none"> • Check dams for the Village in three streams • Afforestation • Reactivation of JFMC at village level | 28 | 3 | 2 | 1,971,520 |
| 5 | Bihal | <ul style="list-style-type: none"> • Deforestation • Overgrazing • Flash floods • JFC inactive | <ul style="list-style-type: none"> • Check dams for Kataw shoot stream, Bihal Khas and Xhaghar side • Afforestation and reactivation of JFMC at village level | 58 | 6 | 3 | 1,236,658 |

| | | | | | | | |
|----|------------|--|--|----|---|---|-----------|
| 6 | Bishal | <ul style="list-style-type: none"> • Deforestation • Overgrazing • Flash floods | <ul style="list-style-type: none"> • Check dams for the Bishal Village in five streams • Afforestation and reactivation of JFMC at village level | 12 | 3 | 4 | 2,101,080 |
| 7 | Grass Kuru | <ul style="list-style-type: none"> • Deforestation • Overgrazing • Flash floods | <ul style="list-style-type: none"> • Check dams for the Village in three streams • Afforestation and reactivation of JFMC at village level | 28 | 5 | 5 | 1,843,234 |
| 8 | Asper | <ul style="list-style-type: none"> • Deforestation • Overgrazing • Flash floods | <ul style="list-style-type: none"> • Forest Conservation • Control Grazing • Integrated program for JFMs and WUA • Check dams in 3 streams • Afforestation | 60 | 5 | 3 | 2,869,398 |
| 9 | Ururi | <ul style="list-style-type: none"> • Deforestation • Overgrazing • Flash floods | <ul style="list-style-type: none"> • Check dams for the Ururi Gol | 12 | 5 | 2 | 1,147,650 |
| 10 | Noshbio | <ul style="list-style-type: none"> • Deforestation • Overgrazing • Flash floods | <ul style="list-style-type: none"> • Check dams for the Saprit Gol | 8 | 4 | 4 | 1,575,460 |
| 11 | Maskoor | <ul style="list-style-type: none"> • Deforestation • Overgrazing Flash floods | <ul style="list-style-type: none"> • Check dams for 3 seasonal streams in Maskoor • Afforestation and reactivation of JFMC at village level • Linkages with forest department | 45 | 4 | 5 | 2,488,940 |
| 12 | Gurur | <ul style="list-style-type: none"> • Deforestation • Overgrazing • Flash floods | <ul style="list-style-type: none"> • Check dams for the Gurur Gol, Manjalik dam, Manjalik dam and Gurur side | 60 | 2 | 1 | 2,951,400 |
| 13 | Sandik | <ul style="list-style-type: none"> • Deforestation • Overgrazing • Flash floods | <ul style="list-style-type: none"> • Check dams for the centre of Sandik Village in three streams • Afforestation • Reactivation of JFMCs at village level | 35 | 4 | 4 | 2,214,918 |

| | | | | | | | |
|----|-------------|--|---|----|---|---|-----------|
| 14 | Birir Nisar | <ul style="list-style-type: none"> • Deforestation • Overgrazing • Flash floods | <ul style="list-style-type: none"> • Check dams for 5 seasonal streams • Afforestation and • Reactivation of JFMC at village level • Building Linkages with forest department | 52 | 6 | 5 | 1,082,490 |
| 15 | Dalgram | <ul style="list-style-type: none"> • Deforestation • Overgrazing • Flash floods | <ul style="list-style-type: none"> • Check dams for seven seasonal streams in Dalgram • Forestation • Reactivation of JFMC at village level • Linkages with forest department | 15 | 3 | 2 | 823,870 |

5.7 Water Governance and Management

Birir has indigenous governance and management of water resources which are mostly informal and work on need basis. Most of the water infrastructures are still managed under this system. However formal community mobilisation was introduced in the early 1990s with basic aim of organisation, skill development, and savings for which purpose village based organisations were formed to replace traditional governance systems, sadly these organisations have worked only around project funded activities. Over the years of neglect, the organisations have become dormant gradually losing their organisational effectiveness. During WUMP exercise, local communities have emphasized village based organisation should not only be revitalized but also provided technical assistance to forge linkages with other development agencies. In the context of Birir, JFMCs have held importance for sustainable management of forest resources however these committee operations have also become non-functional. Moreover organisational capacities of WUGs/WUA should be capacitated to respond to new emerging developing needs.

Table 31: Proposed Activities for WUGs/WUA

| S No. | Description | Number of Units | Total Costs (PKRs) |
|-------|---|-----------------|--------------------|
| 1 | Training on Mobilisation and Participatory Governance | 3 | 300,000 |
| 2 | Training on Record Keeping and Savings Mobilisation | 3 | 3000,00 |
| 3 | Stakeholders Dialogues | 3 | 300,000 |

5.8 Proposed Multiple Use System Application

Birir has plentiful un-utilised water resources which can be tapped in multiple ways. For this purpose, existing infrastructures should be developed for multiple uses so as to improve utilisation of water resources. There is repeated demand for reliable power generation in the Valley wherein the irrigation channels have the potential to produce hydro power which can provide electricity and also save expensive forest resources from deforestation.

5.9 Proposed Supporting Activities

Existing beneficiary groups have been organised to form WUGs and WUAs. Currently in ShishiKoh Valley, there is one Water User Associations based upon mutual water interest and location. There are a total of 15 WUGs (53 male, 60 female). In the WUMP implementation these WUGs would have closer interaction with WUAs. Furthermore bridging up with GLAs and related water sector projects is necessary in venturing the broader range of water sector potential identified in WUMP through capacity building events

WUAs/WUGs would be supported in organisational management including record keeping, financial management, implementation of infrastructure schemes, O&M, training in conflict management and advocacy of water rights. Improvement in water governance

is likely through strengthening dialogue between WUA and GLAs, yielding into GLA notifications and measures for promotion of services delivery. The WUMP lays a road map for WUAs for water sector in the Valley. In order to materialise this road map the recommendations identified in WUMP have to be understood, owned and propagated through WUAs, access to GLAs and other water sector organisations/ donors. W4L would bridge these actors through WUMP implementation as a tool of knowledge and experience sharing.

WUAs and WUGs gain strength through internal dialogue and communication, for which gender balance and inclusivity of deprived segments as represented in executive body, is an important milestone. The W4L would keep a close coordination with WUAs for continuous dialogues within WUGs (male and female) through collective infrastructure management, O&M, health and hygiene awareness sessions, knowledge management and dissemination of success stories. The awareness in WUGs and WUAs through the mentioned activities is likely to increase many folds which would be encouraged towards community savings based on promoting self sustainable systems.

The local implementing partners including grass root NGO, water sector GLAs and other water sector projects in the Tehsil/Valley would be connected through training and knowledge-sharing events e.g. techniques on efficient utilisation of water for increasing crop production, analysis of customary water management in the districts/Valley – particularly on rights, inclusion and decision making. These measures would promote standardisation of approach among various partners in water sector.

5.10 Village Council Level WUMP

Village Councils (VCs) were notified under the Khyber Pakhtunkhwa Local Government Act 2013 to devolve constitutional powers to grass root level. As a result, Birir has been notified as Village Council VC which comprises 15 small hamlets and 570 households in total. This constitutional arrangement through Local Government Act 2013 will allocate 30% of funds at the discretion of Village Council. The VC will also be made responsible for monitoring of development activities.

5.11 Prioritisation of Proposed Water Sector Initiatives and Criteria

Under the prioritisation process for water sector initiatives, participatory criteria have been adopted based on water hardship. The jointly agreed selection criteria for the prioritisation of initiatives were prepared in consultation with WUGs representatives in consultation with Village representatives, Local NGOs and field staff of GLAs. The criteria includes extent of beneficiaries, economical investment, benefiting land, capacity of beneficiary to contribute, operate and maintain, access, multi use potential etc. Overall ranking of projects are as shown in table 32

Table 32: Overall Ranking of Projects

| S No. | Sector | VC Prioritisation | | | | |
|-------|--------------------------------------|-------------------|----|----|----|----|
| | | 1 | 2 | 3 | 4 | 5 |
| 1 | Drinking Water Supply Schemes (DWSS) | 2 | 2 | 2 | 2 | 3 |
| 2 | Irrigation Channel | 5 | 5 | 5 | 5 | 5 |
| 3 | Disaster Risk Reduction (DDR) | 3 | 3 | 3 | 3 | 3 |
| 4 | Sanitation, Hygiene and health | 3 | 3 | 3 | 3 | 3 |
| 5 | Watershed Management | 1 | 1 | 1 | 1 | 1 |
| | Total | 14 | 14 | 14 | 14 | 15 |

5.12 Investment Plan (Short –Medium – Long) Term

| S No. | Sector | Investment (PKR Million) | | |
|----------|---|--------------------------|-------------|--------------|
| | | Short Term | Mid Term | Long Term |
| 1 | Drinking Water Supply Schemes (DWSS) | | | |
| 1.1 | DWSS | 3.96 | 0.83 | 3.25 |
| 2 | Irrigation Infrastructures | | | |
| 2.1 | Irrigation Channels | 12.18 | 14.26 | 44.05 |
| 3 | Disaster Risk Reduction (DDR) | | | |
| 3.1 | Construction of Flood Protection Walls | 10.92 | 17.25 | 32.58 |
| 4 | Sanitation, Hygiene and Health | | | |
| 4.1 | Sanitation Activities | 1.33 | 1.27 | 3.24 |
| 5 | Watershed Management | | | |
| 5.1 | Check dams/ afforestation activities | 8.56 | 3.94 | 17.42 |
| 6 | Water Governance Management | | | |
| 6.1 | Training on Mobilisation and Participatory Governance | 0.30 | | |
| 6.2 | Training on Record Keeping and Savings Mobilisation | 0.30 | | |
| 6.3 | Stakeholders Dialogues | 0.30 | | |
| 7 | Supporting Activities for WUMP implementation | 1.5 | 1 | |
| | Total | 39.3 | 38.6 | 100.5 |

5.13 Formulation of Detailed Action Plan (year wise) with beneficiaries

| S No. | Sector | No of Projects | Number of beneficiaries | Investment (PKR Million) | | |
|----------|---|----------------|-------------------------|--------------------------|-----------|-----------|
| | | | | Short Term | Mid Term | Long Term |
| 1 | Drinking Water Supply Schemes (DWSS) | | | | | |
| 1.1 | DWSS | 11 | 622 | 2 | 2 | 7 |
| 2 | Irrigation Infrastructures | | | | | |
| 2.1 | Irrigation Channels | 25 | 1946 | 5 | 5 | 15 |
| 3 | Disaster Risk Reduction (DDR) | | | | | |
| 3.1 | Construction of Flood Protection Walls | 15 | 540 | 3 | 3 | 9 |
| 4 | Sanitation, Hygiene and Health | | | | | |
| 4.1 | Sanitation Activities | 15 | 540 | 3 | 3 | 9 |
| 5 | Watershed Management | | | | | |
| 5.1 | Check dams/ afforestation activities | 15 | 540 | 3 | 3 | 9 |
| 6 | Water Governance Management | | | | | |
| 6.1 | Training on Mobilisation and Participatory Governance | 3 | 150 | 3 | | |
| 6.2 | Training on Record Keeping and Savings Mobilisation | 3 | 150 | 3 | | |
| 6.3 | Stakeholders Dialogues | 3 | 300 | 3 | | |
| 7 | Supporting Activities for WUMP implementation | 5 | 1 | 3 | 2 | |
| | Total | 95 | 4789 | 28 | 18 | 49 |

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