Water Use Management Plan (WUMP)

Tehsil Karak of District Karak, Khyber Pakhtunkhwa, January 2016

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Acronyms

3Rs	Recharge, Retention and Reuse
ADB	Asian Development Bank
ADWO	Al-Khidmat Development & Welfare Organization
CC	Climate Change
CPI	Community Physical Infrastructure
DIK	Dera Ismail Khan
DRR	Disaster Risk Reduction
DWSS	Drinking Water Supply Scheme
EU	European Union
FGDs	Focus Group Discussions
GLAs	Government Line Agencies
GoKPK	Government of Khyber Pakhtunkhwa
HHs	Households
Helvetas	Helvetas Swiss Intercooperation
IWRM	Integrated Water Resource Management
Km	Kilometre
KP	Khyber Pakhtunkhwa
NRM	Natural Resource Management
O&MC	Operation and Maintenance Committee
OFWM	On Farm Water Management
OGDCL/MOL	Oil & Gas Development Corporation Limited / Mari Oil & Gas Limited
P&DD	Planning and Development Department
PCRWR	Pakistan Council of Research in Water Resources
PHED	Public Health Engineering Department
PL	Pipeline
PSUs	Primary Sample Units
PRA	Participatory Rural Appraisal
SDC	Swiss Agency for Development and Cooperation
SDGs	Sustainable Development Goals
SRSC	Sarhad Rural Support Coorporation
SWCD	Soil & Water Conservation Department
TMA	Tehsil Municipal Administration
VC	Village Council
W4L	Water for Livelihoods
WHO	World Health Organization
WPP	WUMP Planning Process
WRM	Water Resource Management
WRs	Water Resources
WSS	Water Supply Scheme
WUG	Water Users Group
WUMP	Water Use Management Plan

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 2016 by Water for Livelihoods Project after a series of intense discussions on water resources, issues, potentials and priorities. On top of it this consultation was 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 Helvetas. 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

Water for Livelihoods Project (W4L)has been promoting water sector initiatives in Karak and Takht-e-Nasrati Tehsils of District Karak since 2011, both for drinking and irrigation purposes. This is under a mutual agreement of the Planning and Development Department (P&DD) and Swiss Agency for Development and Cooperation (SDC) through Helvetas Pakistan and WUGs/WUAs. The Karak District Administration (DA) is cognizant of the ecological fragility due to acute water scarcity in semi-arid conditions prevailing in Karak Tehsil. The Karak Vision prepared collectively by DA and GLAs confirm that the major issue is that of water scarcity. It can be due to inefficient water use, underground water is turning saline, one third of population is buying water for drinking purpose, water is a vote winning card during political campaigns, water governance issues like ownership, billing and pilferage from distribution system, lowering of groundwater table, 8% of drinking water resources owned by Government in Tehsil Karak are non functional, 5% population has migrated due to these water issues, inadequate measures for rainfall water harvesting and inadequate storage capacity.

During the period 2005 to 2015, the Karak Tehsil Administration implemented a variety of Water Sector improvements in Karak Tehsil

S.#	GLAs	[1]Macro Level	[2]Meso Level	[3]Micro Level	Direct Beneficiaries Population	Beneficiaries Land (ha)
1	PHED	1	98	416	82035	
2	TMA Karak	0	3	19	2420	
3	Irrigation Department	1	60	0	22660	1865
4	OFWM	0	229	47	15429	577
5	SWCD	0	98	73	30375	528
Total		**2**	**488**	**555**	**152919**	**2970**

Macro level schemes are devised from Zebi Dam and Changoz Dam. PHED initiated a pipeline from Zebi Dam through pumping system to Karak city at a cost of Rs. 120.00 million. The Irrigation Department established a water channel for irrigation purposes for the land in Latambar Valley at a total cost of Rs. 35.5 million. The storage capacity of Zebi dam is 1875 acre feet while of Changoz dam it is12300 acre feet. Meso level schemes include water supply schemes, infiltration galleries, irrigation water courses, check dams, DRR, diversion structures and storage tanks. The storage capacity of Meso level interventions is 92 acre feet. Micro level schemes include pressure pumps, hand pumps, small scale irrigation channels and water courses lining, small water ponds, the average storage capacity is 15 acre feet (the details are given in annexure-I). Under corporate responsibility use of water tanker runs to 40 in number on a daily basis to Karak town assisted by OGDCL/MOL.

Present Daily Water Demand

The total quantity of water required for the average daily consumption of local human and livestock population, as well as irrigation

[1]All schemes linked to/associated with Zaibi and Charghoz Dams, etc
[2]Ponds, small dams, sub-surface dams, retention/protection walls, major new supply schemes
[3]Community/village level upgrade and rehabilitation schemes

Current Daily Demand for Water: 2016 – 2017

UCs	Human Population				45 Ltr Per Capita	Livestock		Irrigation		Total Quantity Required Daily (Ltr)
	Vended Water	Access to Tap Water	Fetching Water	Total		Livestock	@ Avg. 10 Ltr Daily	Ha'	@ 0.15ltr/ sec/ha for 2 Hrs for 4 times/365 days	
Meta Khel	3,520	12,179	42,169	57,868	2,604,060	26,370	263,700	59	703	2,868,463
Esak Chontra	2,833	12,619	21,535	36,987	1,664,415	29,272	292,720	89	1,055	1,958,190
Gundi Mir Khan Khel	1,715	8,173	19,149	29,037	1,306,665	22,720	227,200	535	6,327	1,540,192
Jandrai	32,374	5,429	37,199	75,002	3,375,084	40,091	400,910	564	6,679	3,782,673
Karak South	49,053	4,234	3,870	57,157	2,572,072	13,366	133,660	238	2,812	2,708,544
Latambar	36,134	14,766	10,756	61,656	2,774,520	16,271	162,710	178	2,109	2,939,339
Palosa Sar	3,528	14,065	38,610	56,203	2,529,135	37,420	374,200	267	3,164	2,906,499
Sabir Abad	5,684	19,319	19,521	44,524	2,003,580	13,344	133,440	475	5,624	2,142,644
Karak North	63,000	1,328	1,542	65,870	2,964,150	22,991	229,910	564	6,679	3,200,739
Total	**197,841**	**92,112**	**194,351**	**484,304**	**21,793,680**	**221,845**	**2,218,450**	**2,970**	**35,152**	**24,047,282**

purposes (to irrigate the current land under irrigation) is 24,047,282 litres.
Current daily discharge capacity of drinking water from available water resources is 30,251,708 litres which is 6,204,426 litres more than the current daily requirement of 24,047,282 litres. This surplus quantity can provide drinking water to 21000 HHs if properly managed with provision of storage tanks, solarised pumps, distribution pipe lines etc by using the available water infrastructure.

Current Daily Water Supply, Demand and Deficit/Surplus

UCs	WRs: 24 Hrs Discharge		WRs: Average 9 Hrs Daily Discharge		Untapped WRs: Average 2 Hours Daily Discharge for 2 Months Annually/6		Total Average Daily Discharge	Total Quantity Required Daily (ltr)	Deficit/Surplus
	WRs	DC (Ltr)	WRs	DC (Ltr)	WRs	DC (Ltr)			
Meta Khel	5	190,080	308	3,691,980	13	816,000	4,698,060	2,868,463	1,829,597
Esak Chontra	5	388,800	182	2,744,220	3	150,000	3,283,020	1,958,190	1,324,830
Gundi Mir KK	1	86,400	168	1,503,900	5	294,000	1,884,300	1,540,192	344,108
Jandrai	3	1,857,600	629	3,945,096	0	0	5,802,696	3,782,673	2,020,023
Karak South	0	0	115	931,320	0	0	931,320	2,708,544	(1,777,224)
Latambar	0	0	504	7,655,148	0	0	7,655,148	2,939,339	4,715,809
Palosa Sar	6	1,581,120	94	913,712	10	144,000	2,638,832	2,906,499	(267,667)
Sabir Abad	3	259,200	294	2,918,412	0	0	3,177,612	2,142,644	1,034,968
Karak North	1	25,920	5	154,800	0	0	180,720	3,200,739	(3,020,019)
Total	**24**	**4389120**	**2299**	**24458588**	**31**	**1404000**	**30,251,708**	**24,047,282**	**6,204,426**

Water Use Management Plan (WUMP) Preparation Process

The WUMP for Tehsil Karak is established on the Integrated Water Resource Management (IWRM) approach. IWRM is a process which promotes the coordinated development and management of water, land and related resources. IWRM is carried out 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 preparation time for WUMP was approximately four months. It was carried out during Sep-Dec 2015. PRA tools were used for data collection and resource/needs inventories. Focus Group Discussions (FGDs) were conducted in 119 villages (Revenue Village: Local Bodies Act 2013) with 238 Water User Groups (half with women and half with men) with total participants being 2,104 (men: 1,815, women: 1,289). Detailed social, geographic and resource inventory has been developed with participants in each village with review of secondary information. Problems and needs analysis have been carried out involving beneficiaries, GLAs and local grass root NGOs. The sources and new initiatives were confirmed through transect walk and preparation of initial feasibilities. The

initiatives are then prioritised at village/VC and UC level in the presence of VC/UC representatives in WUA and through mutually agreed selection criteria; finally the decision of VC/ UC representatives in WUA are primarily based on optimum benefit at minimum investment, rehabilitation first, avoiding sweet-water pumping and utilising rainwater resource, water hardship where alternate water source is far-fetched, reduce burden on women and their role in water fetching, safe drinking water, contribution (also in O& M) from beneficiaries etc. All the key initiatives in VC are prioritised and documented on an official, legal stamped paper.

Natural Disasters

During the period from 2005 to 2015, Tehsil Karak witnessed severe events of floods, rain, drought, earthquakes, moderate events of flash floods, winds and mild events of lightening which inflicted an estimated loss of 115 million PKR to the physical infrastructure, claimed 104 human lives and killed 3,415 livestock.

Summary of Proposed Schemes for WUMP Tehsil Karak

The WUMP led to identification and prioritisation of 407 WRM schemes at macro (38), meso (307) and micro (62) levels. 60% of these schemes were recommended by GLAs and endorsed by local communities. 40% of the schemes are those that were prioritised and recommended as most needed by local communities. The schemes divided into nine categories include 166 Drinking Water Supply Schemes (DWSS), 30 schemes that serve both DWSS and Irrigation purposes, 55 Irrigation Schemes, 84 Disaster Risk Reduction (DRR) Schemes, 37 Sewerage and Sanitation Schemes, 06 Community Physical Infrastructure (CPI) Schemes, 25 Schemes for livestock, 03 Education related schemes and 01 Health related scheme. Of the 407 schemes, 35 have been placed in various categories for Karak South, 45 for Sabir Abad, 47 for Essak Chontra, 56 for Jandri, 39 for Palosa Sar, 28 for Gundi Mir Khan Khel, 52 for Meta Khel, 49 for Karak North and 56 for Latambar UC and Annex-II.

Expected Impacts and Benefits

WUMP has projected far reaching social, economical, infrastructural and institutional improvements. The key benefits and impacts are as following:

- 98,809 HHs covering 6,91,663 people could be direct beneficiaries in terms of fulfilling their drinking and irrigation needs. The expected beneficiaries are more than the actual population (3, 84,304) due to multi-faceted benefits from several schemes in a single village.
- 28,472 HHs who are spending 2 million rupees per day in terms of buying drinking water from water tankers would save this amount.
- 2,633 ha of new land would come under command of irrigation and thus the irrigation command area in Tehsil Karak would increase from 11% to 32% of the existing cultivated area.
- 28477 HHs who are fetching drinking water from an average distance of 0.4 km (where women and girls are primarily responsible for fetching water) would be eliminated. Further these HHs would receive safe drinking water at their door step.
- Upon implementation of irrigations schemes and increase of land up to 32% irrigated land, potential for change in cropping pattern to nutrition sufficiency and additional vegetables/ fodder can be anticipated.
- Currently 29,441 persons are engaged in farming/livestock rearing. It is anticipated that employment in farming/livestock opportunities would increase by 25%.
- By establishing O&M systems through beneficiaries and WUGs/WUAs and promotion of a culture of pay-for-services, would increase life of schemes through inculcating sense of ownership amongst beneficiaries.
- As per Karak Vision, the Karak WUMP also strongly encourages surface water utilisation in comparison to further ground water exploitation. This is to support ground water recharge and the worsening saline water intrusion. The identified initiatives in WUMP only address rehabilitation of tube wells and only one new tube well at Khawaja Khel has been identified.
- WUMP also suggests increasing forest cover which is currently at an alarming 2.1% in Karak Tehsil. This could be increased through planting scrub forest in catchments of Zebi Dam, Changoze Dam and Chambi Dam. Plantation along with seasonal flood streams and communal forest (Shamilat)could also be linked to the billion tree plantation campaign of the KP government.
- WUMP promotes water vision in Tehsil Karak through the participation of the Government, grass root NGOs and beneficiaries. This would improve water governance and mobilise District/Tehsil funds, royalty and beneficiaries' contribution.
- Due to 84 DRR structures identified through WUMP, the risk of damages due to floods would be minimised and would contribute in controlling top soil loss/ erosion.

Level	Schemes	Beneficiaries (HHs)	Beneficiaries land (ha)	Cost (Rs. In Millions)
Macro	38	17,825	593.4	147.287
Meso	307	62,735	1,959.1	500.204
Micro	62	18,249	80.5	27.378
Total	**407**	**98,809**	**2,633**	**674.869**

Conclusion and Recommendations

In the recommendations section, various remedial measures have been proposed to address the issue of water scarcity and governance, however, most critical ones are that the government must design and implement new schemes after evaluating i) the need for water in any locality; ii) the adequacy/availability and drinkability of the underground and surface water; and, iii) the feasibility of the location identified vis-à-vis long-term sustainability of the scheme, optimisation of benefits to maximum population, potential to be protected from natural hazards and social risks such as probable disputes, local influential preventing judicious access and distribution.

- Study to determine groundwater potential, map groundwater quality, calculate recharge and maintain balance in ground water utilization.
- Alternate water sources (subsurface/sand dams, artificially recharge groundwater, rainfall harvesting etc) should be incorporated in the feasibility study.

The long term solutions can only be achieved after adopting assessment/research and development in the following sectors:

- Water resources conservation(e.g. subsurface dam, artificially recharge the groundwater)
- Water resources Monitoring and Evaluations (Continuously or periodically as per technical requirements)
- Agriculture Research and Development (i.e. for suitable crop type in Climate Change Scenario (CCS),saline water utilisation for crops and fruit gardening)
- Environmental Monitoring and Control
- Proper water testing of untested WRs every six months by PHED and TMA Offices.

Key Partners

The following key partners were engaged in WUMP (Water Use Management Plan) preparation in Tehsil Karak:

1. District Administration (Assistant Commissioner of concerned Tehsil) as focal person
2. Public Health Engineering Department Karak
3. Irrigation Department Karak Division
4. On Farm Water Management Department Karak
5. Soil and Water Conservation Department Karak
6. Agriculture Extension Department
7. Forest Division Karak
8. Livestock Department
9. Social Welfare Department
10. Water User Groups/Water User Association Tehsil Karak
11. Al-Khidmat Development & Welfare Organization
12. Water for Livelihoods Project

Chapter 1

Water for Livelihoods Project - Introduction

Water for Livelihoods (W4L) project is funded by Swiss Agency for Development and Cooperation (SDC) and implemented by Helvetas is an initiative of the Planning and Development Department (P&DD) of the Government of Khyber Pakhtunkhwa (GoKPK). W4L contributes to improvement of livelihood conditions of the inhabitants in four ecologically fragile and semi-arid districts of Khyber Pakhtunkhwa (KPK) province, namely; Karak, Dera Ismail Khan, Tank and Chitral. In these districts, W4L promotes water sector improvements, both for drinking and irrigation purposes, under a coordinated tripartite endeavour carried out by the Government Line Agencies (GLAs), Water Users Groups (WUGs) and Water User Associations (WUAs) comprising local men and women and Water for Livelihood (W4L) Project under Helvetas Pakistan. As a starting point, these three actors jointly spearhead a planning process to formulate a comprehensive Water Use Management Plan (WUMP) on the basis of socio-economic, hydrological/geological evidences that are gathered through desk review of secondary literature, direct observations and discussions with community and GLAs representatives. As a next step, through joint efforts, the three actors carryout implementation of WUMP while also ensuring that completed Water Resource Management (WRM) schemes are thoughtfully embedded into government and community-led structures for their sustenance through efficient and judicious management. W4L follows access through participatory approach where grass root beneficiaries, local implementing partners are connected to GLAs working in water sector. This is to organise and build capacities of WUGs/WUAs at watershed level, local elected representative's level and partner projects in water sector. In all seven of the WUMPs prepared so far, the donor (SDC) is keen to see community owned water sector models which are managed on sustainable basis.

1.1. Water Resource Management –Issues and Imperatives

1.1.1 Commitment in the International Community

"Water management will be the key to achieving 17 Sustainable Development Goals (SDGs), which set the wider global development agenda for the next 15 years (2016-2030). In much of the world, managing water resources means working across borders in trans boundary river basins, adding complexity to realizing 'SDG # 6:to ensure availability and sustainable management of water and sanitation for all.' The hydrological cycle is one of the primary pathways through which Climate Change (CC) impacts development: increasing uncertainty about future water availability constraints countries' abilities to manage the extreme weather and disaster-related risks resulting from CC[4]."

Water is intertwined with our daily lives in many ways; therefore, importance of water as a driver for health, food security, quality of life and a precursor for stimulating economic growth is unique. As poor water affects human lives, poor life style of human beings also affects the hydrological cycle. Water is a political good, as majority of mankind dwells alongside the river basins mostly shared by more than one nation. It is finite, and more often unevenly distributed in time and space. The water managers, service providers and

[4]http://blogs.worldbank.org/water/working-water-across-borders-spillover-benefits-sdgs

users embrace a plethora of challenges in achieving sustainable, economical and equitable water services while seeking to draw on complex and increasingly contested resources. There is growing consensus that water crisis facing many countries around the world today, is not about having too little water to satisfy their needs, but it is basically the politicisation of WRM.

1.1.2 Pakistani Context

In Pakistan38.5 million people live without access to safe drinking water and ground water shortage is proliferating rapidly. According to Pakistan Council of Research in Water Resources (PCRWR), the mortality rate of children under five due to poor water conditions is 101 per 1000 children. Pakistan is one of the most water stressed countries in the world and is rapidly heading towards becoming water scarce. Per capita water availability has sharply declined from 5,600m^3 in 1947 to around 1,100 m^3 for a current population of approximately 180 million. This situation will exacerbate as the population increases, which is expected to reach 220 million by 2025. Based on current trends, it is likely that per capita water availability will decline to around 800 m^3 by 2025, making Pakistan a water scarce country. In a report published in 2013, the Asian Development Bank (ADB) described Pakistan as one of the most "water-stressed" countries in the world, with a water availability of 1,000 m^3per person per year, a fivefold drop since independence in 1947, and about the same level as drought stricken' Ethiopia[5].

Recently, Pakistan has been witnessing extreme situations, wherein, on one hand, embraces excessive flood waters that rip through human and physical infrastructure, and, on the other, experiences drought conditions that prove fatal for the people and their livestock. Inefficient water management continues to stall economic growth of the country, which, coupled with continued widening of the chasm between water, food production, energy supply and demand is likely to trigger various political challenges at domestic levels and for trans boundary conflicts. The root causes of water crisis in Pakistan are two-pronged: i) Circumstantial, which are linked to inherent ill-will and poor WRM policies; and ii) Structural, which are deeply seated in trans boundary politics and inter-provincial factors.

1.1.3 District and Tehsil- Karak's Context

Karak District is located in the southern part of KP covering a total area of 3,372 square kilometres (km). It lies between 32˚48′ to 33˚23′ North latitudes and 70˚40′ to 71˚30′ East longitudes. According to the census of 1998 (GoP: 2001), the total population of District Karak was 430,796 persons (Female 50.9%) and as per Bureau of Statistics, P&DD, KP (Table I below)estimated population of Karak Tehsil was 273,000 persons (Male 133,000; Female 140,000) in 2014.

Table I: Estimated Population of Tehsil Karak (Thousands)

1998			2011			2012			2013			2014		
Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
162	79	83	248	121	127	256	125	131	264	129	135	273	133	140

Source: http://kpbos.gov.pk/files/1399368724.pdf

Physiographically, this area is mountainous with broad valleys and interlocking spurs. The altitude of the district ranges from 300 to 1400 meters above sea level. This whole region is semi-arid with an average monthly precipitation of 47.71mm that is also highly variable in terms of time and amount. The last two decades were the warmest; the year 2010 has been observed as the warmest year on record since 1880. Climate change has affected agriculture with decreased (6-18%) crop production through increased variability of monsoon, changes in availability of irrigation water, severe water stress conditions in arid and semi-arid areas, extreme events such as flash floods, droughts and heat waves. CC has evolved in the need to prepare for increased water requirements at critical crop stages, genetically modified seed production for shortening of growing season length and similarly increased water requirement of livestock and fodder crops.

From June to November the area receives 70% precipitation, whereas, 30% precipitation comes in the months of December to May. Summer rains are of high intensity with short time period, whereas winter season has low intensity rains over longer period. Terrain conditions and scarcity of water are the major constraints for agriculture.

[5]http://pwp.org.pk/wp-content/uploads/2015/02/World-Water-Day-Events-report-2015-Pakistan.pdf

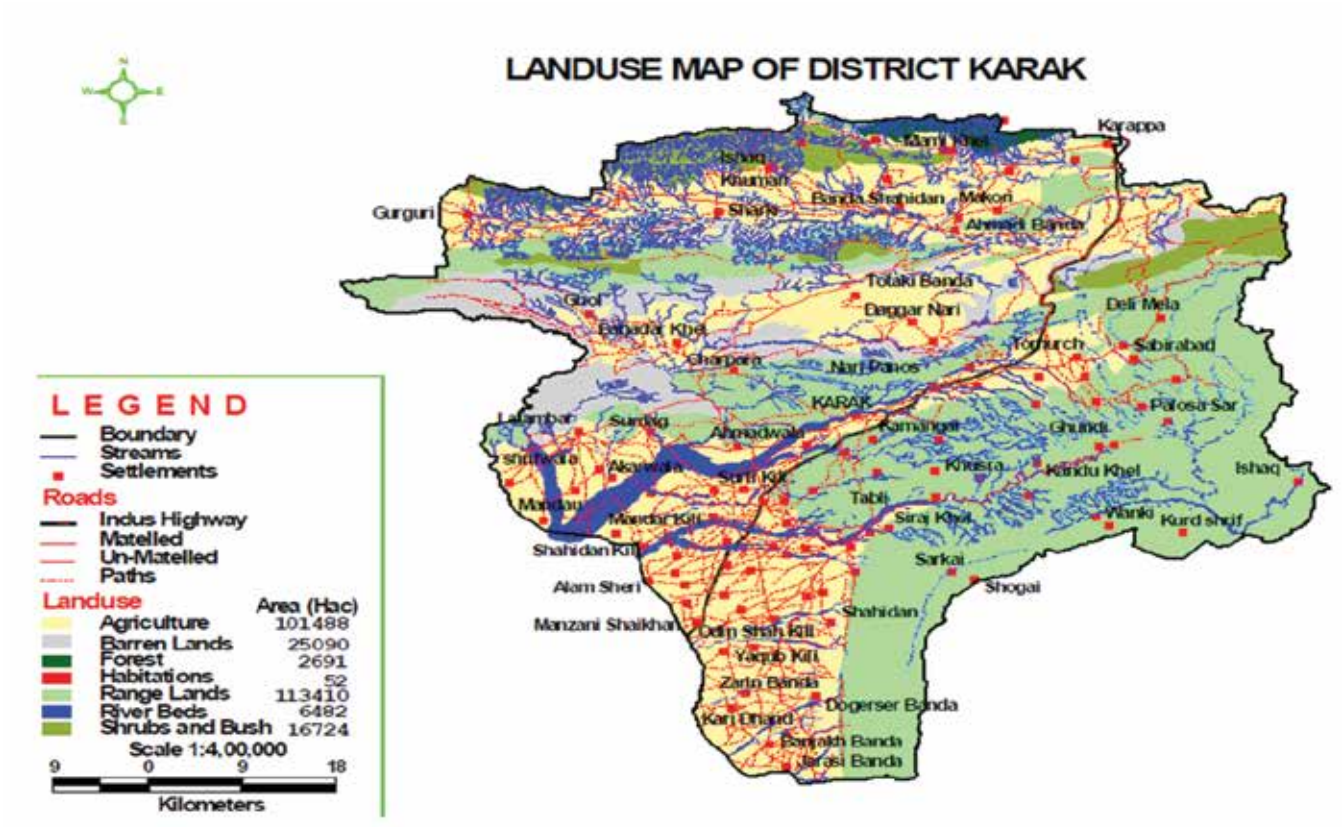


Table II: Meteorological Data, Tehsil Karak (Year 2001-2010)

Months	Temperature (°C)		Humidity (%)		Rainfall (mm)	Wind Speed (Km/hr.)	Soil Temperature(C°) Average
	Max.	Min.	Max.	Min.			
January	19.18	4.26	75.8	35.24	27.43	2.9	7.03
February	21.69	7.29	77.39	42.23	37.72	3.2	9.14
March	28.2	12.06	75.38	35.23	37.17	3.5	13.89
April	34.74	17.94	66.12	29.42	36.54	5.2	19.02
May	38.32	22.33	59.66	30.73	31.6	5.4	21.87
June	39.5	25.9	59.96	32.89	74.24	5.5	25.78
July	38.44	25.76	73.33	38.76	121.6	5.2	26.77
August	36.66	25.29	75.68	42.61	108.3	4.1	26.37
September	35.47	21.95	77.21	39.29	61.58	3.7	23.49
October	32.33	16.79	71.55	35.51	15.13	3.5	20.09
November	26.71	10.01	71.56	36.66	5.8	3.2	14.1
December	21.93	5.67	75.2	35.9	15.38	3.1	8.96
Annual Total	373.17	195.25	858.84	434.47	572.49	48.5	216.51
Monthly Mean	31.1	16.27	71.57	36.21	47.71	4.04	18.04

Source: Agriculture Research Station, Ahmad Wala, District Karak

Area suitable for cultivation is limited hence only18.8% of the total area is cultivated. Rain-fed (Barani) agriculture is predominantly practiced in the district and only11% of the total cultivated area is irrigated. The arid and semiarid climatic conditions have a significant impact on the vegetation cover and only 2.1% of the district is under some form of drought resistant plants[6]. "In Karak District, groundwater is suitable for irrigation purposes, however, certain measures are required to be taken to handle the underlying issues systematically and scientifically," says a study by UET Taxila[7]. Similarly, another study conducted by Helvetas (Pak) with the technical support of Agriculture University Peshawar in 2010 says that an average 1.27 feet per year drawdown in water table has been recorded over the last 30 years in Chuntra valley of Tehsil Karak.

[6]http://www.bzu.edu.pk/PJSS/Vol32No12012/Final_PJSS-32-1-12.pdf
[7]http://web.uettaxila.edu.pk/techJournal/2014/Chapter-5.pdf

Table III: Irrigated Land – Karak

Total Irrigated Land-District		6,600 ha
Total Irrigated Land-Tehsil		**2,970 ha**
S.No	UCs	Irrigated Land (ha)
1	Karak North	59.4
2	Karak South	89.1
3	Jandri	534.6
4	Sabir Abad	564.3
5	Esak Chontra	237.6
6	Palosa Sir	178.2
7	Gundi Mir Khan Khel	267.3
8	Meta Khel	475.2
9	Latambar	564.3
Total		**2,970**

Source: Agriculture Department, Karak& WUMP Assessment 2015

The total available land of District Karak is 2,56,866 ha in which cultivated land is 75,646 ha. Out of the total cultivated land, the irrigated land is only 6,600 ha and the remaining 69,046 ha is rain-fed. Culturable wasteland is 14,032 ha and non-reclaimable wasteland is 167,188 ha. Irrigated land of Karak Tehsil is about 2,970 ha. Presently, Karak North and Karak South UCs have insignificant quantities of irrigated land (59.4 ha and 89.1 ha respectively). Given the population size of all UCs of Tehsil Karak, the figures of their current irrigated land are too little to produce anything significant that could support their livelihoods. Therefore an available potential culturable waste land 5.4% can expand agricultural resource base of farmers provided water availability is ensured through adapting different means of rain water harvesting.

During the WUMP Process, the secondary data shows that in last thirty years the water table of Meta Khel, Tarkha Koi, Dabb, Zebi, Karak Proper and Toor Dhand has lowered by about 80 feet. Further in the recent years, underground water has become increasingly brackish. Open wells and tube-wells have gone dry due to the receding water table, leaving the residents to drill even deeper. Owing to the long drought spells, underground salt deposits of Bahadar Khel Salt Range have turned the water saline. Karak City is the worst affected town where the problem is most acute. Various tube-wells of the Public Health Engineering Department have gone dry, leaving the residents in acute water shortfall. Karak Tehsil's villages located near the Salt Range including Shaheedan, Makh Kala, Lak Kana, Surdag, Warana Latambar, Srekhwa, Algadi Banda, Tarkha Koi, Darab Kala, Hafizabad, UC Karak North, Tapi Algadi and Tapi Karak are the worst hit where the underground water is salty hence undrinkable. The situation may worsen further owing to rare landscape infiltration in existing underground pockets bearing drinkable water which is turning saline.

"The burden of fetching drinking water from outdoor sources falls disproportionately on the girls and women. In the face of scarcity and depletion of Water Resources (WRs), women and young girls bear the consequences most adversely. Water scarcity in Karak Tehsil continues to worsen the conditions in which women have to toil ceaselessly and unconditionally to fetch water from far-off areas to suffice their domestic needs.

"The responsibility of fetching drinking water rests on the shoulders of women, mainly, mothers. However, often, children also have to assume this responsibility, resultantly they find little or no time to focus on their studies", says a community leader.

Table IV: Quality of Underground Water – Tehsil Karak

Present Condition	Number of WRs	% of the Total WRs	Water Level in Meters
Good	19	14%	30
Slightly Saline	72	51%	22
Completely Saline	50	35%	20
Total	**141**	**100%**	**72**

Source: Assessment of Ground Water Depletion in District Karak by Agriculture University,Peshawar(2009-2010)

Findings cited in Agriculture University, Peshawar report Assessment of Ground Water Depletion in District Karak (2009-2010), cites that "water available at an average depth of 30 meters at 19(13%)government WRs locations,is drinkable. Water available at an average depth of 22 meters at 72 (51%) government WRs locations is slightly saline which is at the risk of turning completely saline owing to an insignificant landscape infiltration which lets saline water from the upper parts to move to the lower parts, turning the pockets of drinkable water saline. Water available at an average depth of 20 meters at 50 (35%) government WR locations has completely turned saline. This implies that water at 122 (87%) locations has become undrinkable. The overall figures hint at the

severity of the situation and calls for sustainable and eco-friendly interventions utilising rain water designed around water Recharge, Retention and Reuse (3Rs) mechanisms.

Table V: District Karak – Food Security [Production and Yield Per Hectare (ha) in Kilograms (KGs)]

Crop	2010-2011			2011-2012			2012-2013		
	Area	Production	Yield Per ha in KG	Area	Production	Yield Per ha in KG	Area	Production	Yield Per ha in KG
Wheat	19510	8787	449	20252	8341	313	17987	7359	409
Maize	93	97	1043	79	85	1076	91	91	1000
Gram	4867	1633	336	4781	1204	252	4533	1312	289
Sorghum	1267	498	393	1448	569	393	477	390	198
Pearl Millet	2506	1187	474	2570	1218	474	2189	1025	468
Barley	234	99	423	280	86	307	209	82	392
Rape Seed and Mustard	265	42	158	274	35	128	229	33	144

Source: http://kpbos.gov.pk/files/1399368724.pdf

Disruptions in the hydrological cycle trigger climatic variations which unleash rain-fed floods or drought and the outcomes of these two are either loss of standing crops besides the other social and physical capital or famine respectively. Therefore, scarcity of water is a major cause of food insecurity. Above data released by the KP government indicates decline in the already meagre yield per ha' in KGs, of almost all the crops despite the increase in the cultivated area overtime which can be witnessed against some crops. This low productivity can be attributed to extreme climatic events and depletion of available WRs and soil fertility.

Table VI: Population and Food Security-District Karak

Crop (000 tons)	2010-2011					2011-2012					2012-2013				
	Population (000)	Requirement	Production	Net-Availability	Deficit/ Excess	Population (000)	Requirement	Production	Net-Availability	Deficit/ Excess	Population (000)	Requirement	Production	Net-Availability	Deficit/ Excess
Wheat	650	69	9	8	-61	671	72	6	5	-72	693	75	7	6	-68
Rice		6	0	0	-6		7	0	0	-7		7	0	0	-7

Source: http://kpbos.gov.pk/files/1399368724.pdf

Data available in table VI (released by KP government) is self-explanatory of the severity of the rapidly growing food crisis facing Karak District. On the one hand it indicates the exponential growth in population and on the other it points out as to how abnormally the food deficit is intensifying in this area. There is a consistent decline in local wheat production; whereas, the production of rice (a major staple food item) is now completely non-existent, although demand for it is on the rise.

Table VII: District Karak – Livelihoods (10 Years and Above Labour Force, Employed and Un-Employed)

Employed									Un-employed								
All Areas			Rural			Urban			All Areas			Rural			Urban		
Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
38,784	37,486	1,298	35,466	34,395	1,071	3,318	3,091	227	22,720	22,583	137	21,394	21,282	112	1,326	1,301	25

Source: http://kpbos.gov.pk/files/1399368724.pdf

The compounding issues make survival toughest for the lowest income strata, i.e. the impoverished and vulnerable unskilled and landless class/HHs. The table VII indicates that almost 37% (22,720 persons) of the local labour force is unemployed. Those employed have limited opportunities to earn respectful living.

Chapter 2

Socio Economic Factors

2.1 Salient Features of Tehsil Karak based on Social and Technical Data

S.No	Parameters	Description	
1	No of Union Councils	9	
2	No of Village Councils	26	
3	No of Villages	119	
4	Total HHs	68,762	Table 02
5	Total Population	484,304	
6	Male	170,627	
7	Female	185,385	
8	Children	128,292	
9	HHs with Land holding	55,601 (81%)	Table 04
10	HHs without Landholding	13,161 (19 %)	Table 03
11	Total land(ha)	94,217	
12	Cultivated land(ha)	26,476 (28 %)	
13	Irrigated land(ha)	2,970 (11 %)	
14	Arid land (ha)	23,506 (89%)	
15	Culturable Waste land (ha)	4,209 (5 %)	
16	Non Reclaimable Waste land(ha)	63,532 (67 %)	
17	Major Crops	Wheat, Gram, Ground Nut, Maize, Barley	
18	Major Crop Diseases	Smut, Kana, Leaf loss, Rust, Bazeer	
19	Major Forest Trees	Keeker, Shawa, Beer, Palosa, Sanatha	
20	Educational Facilities	Government Schools=184 Private Schools=25 Madrassahs=12	Table 28
21	Health Facilities	Dispensary=56, BHU=9,Hospital=04,DHQ=01	Table 13
22	Water Borne Diseases	Cholera, Dysentery, Hepatitis and Typhoid	
23	Annual Avg. Mortalities	928 (0.2%)	
24	Village Vote Casting Ratio	45 %	
25	Total Water Sources in Villages	2,553	Table 33

26	Distribution of Water Resources (Dams, Small ponds, Infiltration Galleries, Seasonal Flood Streams, Dug Wells, Tube Wells, Pressure Pumps, Hand Pumps and Sub Surface water storage)	Dams=03 Small Ponds=02 Infiltration Galleries=21 Seasonal Flood Streams=38 Dug well=176 Tube Wells=130 Pressure Pumps=1733 Hand Pumps=445 and Sub Surface water storage=6	Table 33
27	Government WRs	184	Table 33
28	Private WRs	2,369	
29	Details of Status/Condition of Sources	Functional=2,323 Non-Functional=199 31 seasonal flood streams can be potentially utilized	Table 34
30	Condition of Water Sources (Community View)	Safe=2,320 Not Safe=233	Table 40
31	Community Perception about 2553 Water Sources	Good=2,067 Bad=486	Table 39
32	Yield from available drinking WRs	101 Litres/person	Table 36
33	Direct Access to DW(HHs)	12,387	Table 35
34	No of HHs Buying Water	28,472	
35	No of HHs Fetching Water	28,477	
36	Avg. Fetching Distance(Km)	0.3 Km(Minimum), 2Km (Maximum)	
37	Sale Price of Water Tank/HH/ Month	Rs 2,100	
38	Total Direct Beneficiaries (Livestock)	134,205	
39	Total Water Disputes in Villages	135	Table 17
40	Causes of Disputes	Distribution, Sources and Access	
41	Resolved Disputes	64	Table 18
42	Toilet Facilities	38 %	
43	Ratio of HHs that clean water through using chlorine	1 %	

Chapter 3

Water Use and Management Planning

3.1. WUMP Objective

"The objective of WUMP preparation is to document existing WRs and intrinsic issues in their efficient and equitable management and usage, potential to upscale existing and develop new WRs. Promote sustainable and environment-sensitive initiatives identified and prioritised in consultation with village communities of Tehsil Karak".

3.2. WUMP Formulation - Overall Scope

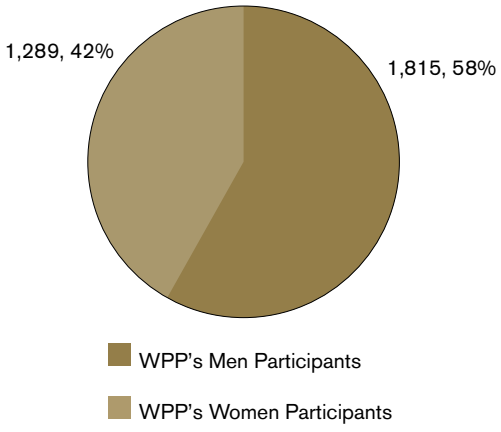
Employing Participatory Rural Appraisal (PRA), collate, analyse and synthesize social and technical data to propose an evidence-based, representative and realistically achievable WUMP for 119 villages in 9 Union Councils (UCs) of Tehsil Karak. List of UCs and villages [Annexure 1]

3.3. WUMP Study Sample (Participants)

WUMP preparation process was completed on the basis of participatory dialogues with 3,104 (men: 1,815 and women: 1,289) representatives of 238 followed by transect walk WUGs (one for men and one for women in each of 119 focus villages). These WUGs were constituted during community mobilization phase of W4L and were treated as Primary Sample Units (PSUs) and all their members as key informants to ensure fair representation of the shared wisdom and felt priorities of their respective village communities in WUMP Planning Process (WPP). WPP also encompassed consultations with GLAs, with particular reference to the need for citation of empirical evidences in WUMP vis-à-vis numerous socio-economic and ecological factors of Tehsil Karak.

Table 1: WUMP Study Sample (Participants)

UC Name	WUG (PSU)			Number of Participants		
	Men	Women	Total	Men	Women	Total
Karak South	13	13	26	183	191	374
Karak North	15	15	30	224	184	408
Jandri	19	19	38	309	202	511
Sabir Abad	14	14	24	229	154	383
Palosa Sar	12	12	24	185	125	310
Gundi Mir Khan Khel	7	7	14	113	53	166
Essak Chontra	11	11	22	137	70	207
Meta Khel	14	14	28	216	128	344
Latambar	14	14	28	219	182	401
Total	**119**	**119**	**238**	**1,815**	**1,289**	**3,104**



3.4. WUMP Study Instruments- Contextualization

Helvetas' WUMP instruments, primarily formulated and implemented in Nepal were put into local context by customising them on the basis of desk review and results of subsequent pre-testing at a few locations in the field. See WUMP Tool-Social [Annexure 2]; WUMP Tool-Technical [Annexure 3];

3.5. WUMP Planning Process - A Tripartite Endeavour

Under the overall technical supervision of Helvetas, Al-Khidmat's two teams comprising trained social and technical staff conducted a total of 238 PRAs[8], wherein WUG members shared their relevant knowledge regarding the problem in question. PRA tool was employed to collate information regarding availability, management, water use, conditions and issues around local WRs. All such information was collated and sifted through exclusive consultations, followed by transect walk with community representatives, along with village and Village Council (VC) level prioritization exercises. Key information collated include number of local HHs and their access issues to water and public services, HHs income, land and livestock holdings, watercourses, springs/infiltration galleries, private and public tube-wells, dug-wells, hand pumps, pressure pumps, administrative issues/disputes around WRs, weather and cropping patterns, seasonal calendars, disasters, causes of CC and migration, community physical and social infrastructure.

Any deterioration in use and management of water translates into absolutely the same or even worst conditions in which women are required under the age-old chore exclusively set aside for them to fetch drinking water from far-off places to meet their domestic needs. Without challenging local norms, ensuring to integrate their voice in WPP was critical. Therefore, their men counterparts concurrence was obtained, following which they were effectively organised under the platforms of WUGs and enabled to assert their views in WPP.

At each step of WPP, critical technical and social information about Tehsil Karak was obtained from the GLAs, besides seeking their help and advice regarding field work.

3.6. WUMP Planning Process - Findings

a. Social Information

The pre-WUMP implementation conditions analysed, quantified and presented in tabular form in this and the next section have been inferred from a primary qualitative and quantitative research data that encapsulated views and perceptions of 3,104WUG members (Men: 1,815, women: 1,289) hailing from 119 villages of Tehsil Karak (Table 1). The findings in this section have been correlated and synthesised cautiously to also cater to Helvetas' monitoring and evaluation requirements vis-à-vis comparisons of baseline with mid and end-of-term/project conditions to determine attributable performance. The under-mentioned tabular data represents shared perceptions and perspectives of the WUG members based on their best local knowledge, understanding of the area and prevailing conditions.

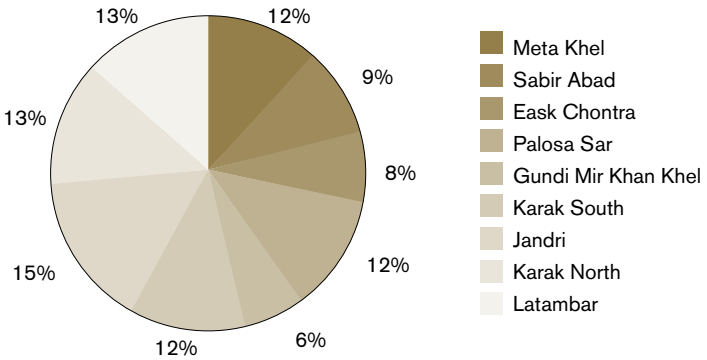


Table 2: Sum total of the local population reported by Karak Tehsil's 119 focus villages is 170,627 men, 185,385 women and 128,292 children, with an overall total of 484,304 persons. However, the estimated population as stated by P&DD of KP as of 2014 is 133,000 men and 140,000 women, with an overall total of 273,000 persons. The difference between the two estimates is quite large; however, for the purposes of planning and prioritisation, the population estimates ascertained under this study (WPP) were taken into account/based upon.

[8]one with women and the other with men WUG in each village

Table 2: Union Council and Tehsil Population segregated by Gender and Children

Union Councils	Men	Women	Total	Children	Total
Meta Khel	17,335	17,503	34,838	23,030	57,868
Sabir Abad	15,987	17,144	33,131	11,393	44,524
Esak Chontra	11,239	11,760	22,999	13,988	36,987
Palosa Sar	21,694	23,577	45,271	10,932	56,203
Gundi Mir Khan Khel	10,088	11,627	21,715	7,322	29,037
Karak South	20,455	23,468	43,923	13,234	57,157
Jandri	26,504	29,948	56,452	18,550	75,002
Karak North	24,293	26,337	50,630	15,240	65,870
Latambar	23,032	24,021	47,053	14,603	61,656
Total	**170,627**	**185,385**	**356,012**	**128,292**	**484,304**

Table 3 and 4:As per WUGs, in Tehsil Karak, there are 68,762 HHs of which 13,161 HHs are without land holdings and 55,601 HHs are with. Of those with land holdings, 48% possess I-3 acres, 27% possess 4-6 acres, 17% possess 7-9 acres and 8% possess 10 acres and/or above land. About 19% of the residents are landless whose condition is likely to be more acute due to their limited or no access to the PHED water supply schemes, or not residing in areas where drinkable underground water is available, or not having land with other means to extract underground water for domestic consumption.

Table 3: HHs without Landholding (including tenants)

Union Councils	Total
Meta Khel	803
Sabir Abad	359
Esak Chontra	530
Palosa Sar	730
Gundi Mir Khan Khel	481
Karak South	3,014
Jandri	962
Karak North	5,825
Latambar	457
Total HHs	13,161

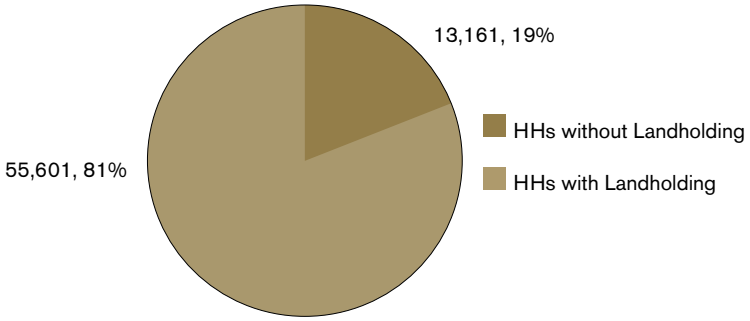


Table 4: HHs with Landholding

Union Councils	Meta Khel	Sabir Abad	Esak Chontra	Palosa Sar	Gundi Mir Khan Khel	Karak South	Jandri	Karak North	Latambar	Total HHs	%
I – 3 acres	3,009	2,303	1,996	3,835	1,775	2,400	4,375	2,466	3,793	25,952	48%
4 – 6 acres	2,062	1,655	1,637	2,260	1,085	1,057	2,520	865	2,140	15,281	27%
7 – 9 acres	1,135	1,148	646	990	644	1,047	1,943	530	1,560	9,643	17%
10 acres and above	437	867	197	194	165	604	1,209	194	858	4,725	8%
Total HHs	**6,643**	**5,973**	**4,476**	**7,279**	**3,669**	**5,108**	**10,047**	**4,055**	**8,351**	**55,601**	**100%**

Table 5 and 6: As per WUGs, in Tehsil Karak, there are 68,762 Houses, 561 mosques, 395 Hujras[9] and 1,385 shops with a total of 71,103 buildings of which 22,832 are mud (32%), 14,595 are concrete (21%) and 33,426 (47%) are mud-cum-concrete structures. About 79% structures (complete mud or mud-cum-concrete) represent impoverished conditions of the respective dwellers/population, their vulnerability to unprecedented future hazards and their likelihood of being hit hard by the increasingly depleting WRs including frequently surfacing phenomena of drought conditions.

[9]A drawing room (of sorts) where men usually gather

Table 5

Union Councils	Houses	Mosques	Hujra	Shops	Total
Meta Khel	7,446	40	69	93	7,648
Sabir Abad	6,332	95	21	162	6,610
Esak Chontra	5,006	29	28	107	5,170
Palosa Sar	8,009	45	29	85	8,168
Gundi Mir Khan Khel	4,150	45	35	53	4,283
Karak South	8,122	62	74	176	8,434
Jandri	11009	92	43	123	11267
Karak North	9,880	68	66	353	10,367
Latambar	8,808	85	30	233	9,156
Total	**68,762**	**561**	**395**	**1,385**	**71103**

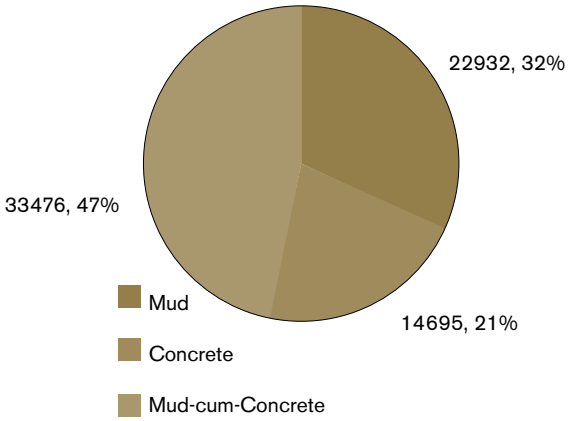


Table 6: Types of Building Structures

Union Councils	Meta Khel	Sabir Abad	Esak Chontra	Palosa Sar	Gundi Mir Khan Khel	Karak South	Jandri	Karak North	Latambar	Tehsil
Mud	2401	2123	1283	4976	1550	1515	4519	2216	2349	22932
Concrete	1789	728	1143	963	986	2566	1824	3730	966	14695
Mud-cum-Concrete	3458	3759	2744	2229	1747	4353	4924	4421	5841	33476
Total	**7648**	**6610**	**5170**	**8168**	**4283**	**8434**	**11267**	**10367**	**9156**	**71103**

Table 7: In Karak Tehsil, 20,294 houses are scattered (30%) whereas 48,468 are in clusters (70%). From the viewpoint of social cohesion and enabling a larger population's access to drinkable water within low cost schemes, having houses in clusters give an added advantage. However, lack of beforehand disaster risk prevention planning goes into the construction of such houses to make them disaster risk resilient. These are usually made of mud besides the conditions surrounding them presenting adverse hygiene environment. In the light of these, this WUMP should view sewage, sanitation and DRR as integral elements to be woven into WRM schemes to make them risk free.

Table 7: Settlement Patterns

Union Councils	HHs (Numbers)			HHs (percentage)	
	Scattered	Cluster	Total	Scattered	Cluster
Meta Khel	2606	4840	7446	35%	65%
Sabir Abad	1956	4376	6332	31%	69%
Esak Chontra	1565	3441	5006	31%	69%
Palosa Sar	4200	3809	8009	52%	48%
Gundi Mir Khan Khel	1250	2900	4150	30%	70%
Karak South	971	7151	8122	12%	88%
Jandri	5251	5758	11009	48%	52%
Karak North	1385	8495	9880	14%	86%
Latambar	1110	7698	8808	13%	87%
Total	**20294**	**48468**	**68762**	**30%**	**70%**

Table 8: According to WUGs, there are an average 53 Khels tribes/sub-tribes in each UC of Karak Tehsil. Though, this symbolises the beauty of the coexistence of various tribes/sub tribes, however, given their rigidity and inward looking history, disputes among them over judicious distribution of available natural resources, particularly water, may not be ruled out. A glimpse of this was witnessed during a VC prioritization workshop wherein local community representatives representing various WUGs tenaciously resisted the idea to reach consensus on a scheme benefitting the majority and the neediest. Therefore, WRM schemes under this WUMP must factor it in while setting forth priorities so that potential risks to the achievement of anticipated results could be pre-empted.

Table 8: Tribes in Union Councils

Union Councils	Number of Khels (Tribes/Sub-tribes)
Meta Khel	67
Sabir Abad	48
Esak Chontra	53
Palosa Sar	56
Gundi Mir Khan Khel	30
Karak South	49
Jandri	86
Karak North	43
Latambar	48
Average Tribes in each UC	53

Table 9: WUGs reported 42% of the local road infrastructure as pacca (metalled) and 58% as katcha (dirt road). Esak Chontra and Palosa Sar villages with only 12% and 14% pacca infrastructure respectively are at the lowest ebb. This is self-indicative of how underdeveloped these two villages be vis-à-vis other critical public services such as water, sanitation, health and education.

Table 9: Road Infrastructure

Union Councils		Meta Khel	Sabir Abad	Esak Chontra	Palosa Sar	Gundi Mir Khan Khel	Karak South	Jandri	Karak North	Latambar	Overall Average
Percentages	Pacca	33%	52%	12%	14%	48%	36%	39%	76%	64%	42%
	Katcha	67%	48%	88%	86%	52%	64%	61%	24%	36%	58%

Table 10: According to WUGs, there is a public transport facility in 100 villages while in 19 villages there are only few residents of 112 villages having self-owned transport facility whereas in 07 villages there is none. Majority of the identified communities having access to public or self-owned transport facility is a positive indication as it enables easy and speedier access to public services such as education, health, etc. However, 19 villages not having public transport facility is an indicator of their vulnerable and impoverished conditions.

Table 10: Locally Available Transport Facilities (Y-Yes : N-No)

Transport Facility	Number of Villages in Union Councils with/without Transport Facility																		Overall	
	Meta Khel		Sabir Abad		Esak Chontra		Palosa Sar		Gundi Mir Khan Khel		Karak South		Jandri		Karak North		Latambar			
	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
Public	13	1	12	2	8	3	7	5	7	0	12	1	15	4	13	2	13	1	100	19
Private	14	0	12	2	11	0	7	5	7	0	13	0	19	0	15	0	14	0	112	7

Table 11: According to WUGs, average distance between a village and nearest market is 6km, a village and Tehsil Headquarter is 20km, a village and District Headquarter is 20km, a village and nearest health facility is 8km and a village and police station is 9km. While state has the primary responsibility to make basic services available at the doorsteps of citizens, their remoteness (particularly markets) from the village centres represents local residents' sheer lack of purchase power/poor livelihoods owing to which markets do not evolve in their close vicinity.

Table 11: Distance from Village to the Public Places (KMs)

Public Places	Meta Khel	Sabir Abad	Esak Chontra	Palosa Sar	Gundi Mir Khan Khel	Karak South	Jandri	Karak North	Latambar	Average
Nearest Market	4	7	8	12	5	2	5	1	7	6
Tehsil Headquarter	9	31	20	37	24	2	22	1	33	20
District Headquarter	9	31	20	37	24	2	22	1	33	20
Health facility	5	11	11	15	5	2	10	2	8	8
Police Station	10	10	16	16	5	2	13	2	6	9

Table 12: There are an average 11-12 shops in a village, of which 7 are grocery shops, 2-3 are service shops (barber, welding, mobile, motor pump, etc) and one falls in other category. For an average population of 3,000-5,000 in a village, these numbers are too little, however, better the livelihoods better the access to markets and vice versa.

Table 12: Small Shops within the Proximity of Villages

Shops	Meta Khel	Sabir Abad	Esak Chontra	Palosa Sar	Gundi Mir Khan Khel	Karak South	Jandri	Karak North	Latambar	Total	%
Grocery	60	111	80	73	41	131	104	235	155	990	70%
Services	16	42	27	13	11	54	19	101	61	344	24%
Others	0	11	7	0	0	4	0	27	22	71	5%
Total	**76**	**164**	**114**	**86**	**52**	**189**	**123**	**363**	**238**	**1405**	**100%**
Average Number of Shops in Each Village = 1405 (Total Number of Shops in Nine UCs)/119 (Total Villages in Nine UCs)										11-12	

Table 13: In Tehsil Karak, there are 69 healthcare facilities of which one is dysfunctional; hence, average number of functional healthcare facilities in each UC comes to 7 to 8. There are 330 educational facilities of which eight are dysfunctional; hence, average number of educational facilities in each UC comes to 35 to 36. With few exceptions of HHs living in and around areas with urban/semi-urban features and HHs without landholding, invariably, rest of the HHs have livestock holdings. However, total number of husbandries in the Tehsil is 15 only, hence, average number of facilities in each UC comes to 1-2. Neither in Palosa Sar nor in Gundi Mir Khan Khel does a single husbandry exist.

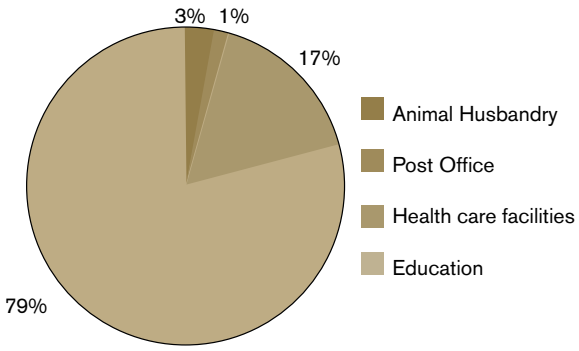


Table 13: Public Services Locally Available –(F-Functional, D-Dysfunctional, T-Total)

Public Services/ Union Councils		Healthcare		Education					Animal Husbandry					
		Dispensary	BHU	RHC	Primary	Middle	High	Higher Secondary	College	Civil Vet. Dispensary	Veterinary Centre	Civil Vet. Hospital	Post Office	Total
Meta Khel	F	6	2	0	28	7	7	0	0	0	1	0	1	52
	D	0	0	0	0	0	0	0	0	0	0	0	0	0
	T	6	2	0	28	7	7	0	0	0	1	0	1	52
Sabir Abad	F	8	0	1	30	7	3	0	1	4	0	0	1	55
	D	0	0	1	0	0	0	0	0	0	0	0	0	1
	T	8	0	2	30	7	3	0	1	4	0	0	1	56
Esak Chontra	F	6	2	1	21	4	2	1	0	2	1	0	1	41
	D	0	0	0	1	0	0	0	0	0	0	0	0	1
	T	6	2	1	22	4	2	1	0	2	1	0	1	42
Palosa Sar	F	3	2	0	21	3	3	0	0	0	0	0	0	32
	D	0	0	0	5	0	0	0	0	0	0	0	0	5
	T	3	2	0	26	3	3	0	0	0	0	0	0	37
Gundi Mir Khan Khel	F	4	0	0	19	2	4	0	0	0	0	0	0	29
	D	0	0	0	0	0	0	0	0	0	0	0	0	0
	T	4	0	0	19	2	4	0	0	0	0	0	0	29
Karak South	F	4	1	0	23	3	2	0	3	0	0	0	1	37
	D	0	0	0	0	0	0	0	0	0	0	0	0	0
	T	4	1	0	23	3	2	0	3	0	0	0	1	37
Jandri	F	3	0	0	39	4	10	0	0	0	1	0	0	57
	D	0	0	0	0	0	0	0	0	0	0	0	0	0
	T	3	0	0	39	4	10	0	0	0	1	0	0	57
Karak North	F	11	0	0	24	1	5	1	0	1	0	1	1	45
	D	0	0	0	2	0	0	0	0	0	0	0	0	2
	T	11	0	0	26	1	5	1	0	1	0	1	1	47
Latambar	F	11	2	1	31	7	6	0	0	2	1	0	1	62
	D	0	0	0	0	0	0	0	0	0	0	0	0	0
	T	11	2	1	31	7	6	0	0	2	1	0	1	62
Overall Total	**F**	**56**	**9**	**3**	**236**	**38**	**42**	**2**	**4**	**9**	**4**	**1**	**6**	**410**
	D	**0**	**0**	**1**	**8**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**9**
	T	**56**	**9**	**4**	**244**	**38**	**42**	**2**	**4**	**9**	**4**	**1**	**6**	**419**

Table 14: According to WUGs, local community's "working relationship" with religious leadership (90%) and politicians (52%) is "good", health department (50%) is "Average" and On-farm Water Management (87%), Forest (82%), Irrigation/Rodh Kohi (81%), Soil Conservation (76%), Livestock (72%) and WAPDA (67%), "needs improvement". Schemes under this WUMP should seek to strengthen linkages between service delivery institutions and citizens to improve governance of WRM in particular.

Table 14: Community's working relationship with GLAs and Community Leaders

[G=Good]
[A=Average]
[NI=Needs Improvement]

Departments/Leadership	G	A	NI
Irrigation/ Rodh Kohi	3%	16%	81%
PHED	3%	39%	57%
On-farm Water Management	2%	13%	87%
Agricultural Research	4%	30%	66%
Livestock	6%	23%	72%
Soil Conservation	7%	18%	76%
Forest	6%	12%	82%
Health	14%	50%	36%
WAPDA	3%	29%	67%
Politicians	52%	34%	14%
Religious Leaders	90%	7%	3%

Table 15: WUGs of 113 villages (out of 119) said that most critical issue facing their region is rapid depletion and contamination of drinking WRs. In their opinion, other key issues confronting their region comprised of Electricity (94), Sanitation (91), Health (89), Education (74), Waterborne Diseases (62), Transportation (44), Disputes (33) and Security (15). From the previous (Table 14) and current table, it is evident that most of the issues facing communities are founded in poor governance; therefore, a strong political resolve is needed to tackle them.

Table 15: Major Issues Facing the Villages (Priority Ranking)

Issues	Meta Khel	Sabir Abad	Esak Chontra	Palosa Sar	Gundi Mir Khan Khel	Karak South	Jandri	Karak North	Latambar	Priority Ranking
Drinking Water	13	12	11	10	7	13	18	15	14	113
Electricity	10	13	10	10	4	11	10	14	12	94
Sanitation	11	10	7	4	5	11	16	14	13	91
Health	11	9	8	10	6	12	15	8	10	89
Education	5	7	9	12	4	9	15	7	6	74
Water-borne Diseases	5	11	0	2	7	8	10	10	9	62
Transportation	7	4	8	8	0	2	6	2	7	44
Disputes	8	7	0	1	6	0	5	2	4	33
Security	0	2	0	3	0	3	0	2	5	15

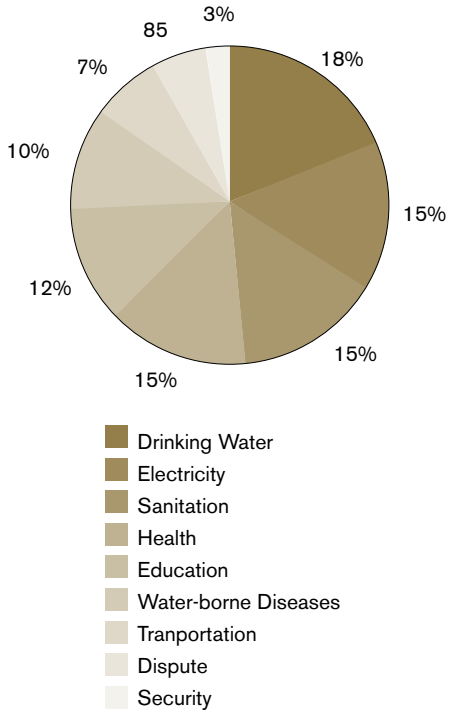


Table 16: 76% WUGs maintained that women participate in decision-making at the HH level, 31% maintained that women have time for leisure activities, 95% were hopeful about their good future, 100% maintained that women exercise their right to vote, 95% maintained that there are political and social activists in Karak Tehsil, 87% maintained that their communities have representation in local government system and 56% maintained that there are disputes among different clans.

Simply agreeing that a higher degree of independence in decision-making at HH level is exercised by women in the culturally conservative area of Karak will be unrealistic. Women fetching water and rates of illiteracy and unemployment among them do not substantiate this proposition.

Table 16: Social and Political Status

Particulars	Do women participate in decision making?	Do women have time for leisure activities?	Are people hopeful about their future?	Do women cast vote?	Are there any political or social activists?	Do they have representation in local government system?	Are there disputes among different clans?
Meta Khel	50%	14%	93%	100%	93%	86%	93%
Sabir Abad	71%	14%	93%	100%	93%	86%	71%
Esak Chontra	73%	73%	100%	100%	91%	73%	91%
Palosa Sar	42%	17%	92%	100%	100%	83%	17%
Gundi Mir KK	86%	14%	86%	100%	100%	86%	71%
Karak South	85%	23%	100%	100%	100%	92%	0%
Jandri	74%	11%	95%	100%	95%	95%	53%
Karak North	100%	60%	100%	100%	87%	87%	33%
Latambar	100%	57%	100%	100%	100%	100%	79%
Overall %	76%	31%	95%	100%	95%	87%	56%

Table 17: According to WUGs, out of 2,553 (Table 33) WRs in Karak Tehsil, 135 are under certain disputes. There are 26 disputes between the government and site owners, 33 between the site owners and respective communities, 26within same community, 49 between the local and neighbouring communities and 01 between the community and government. These add more miseries to the acute water shortage already confronted by the local communities, particularly, the low income strata. An empowered dispute resolution body led by the local neutral and unbiased community leaders duly supported by the government can resolve, mitigate and pre-empt such disputes for public good.

Table 17: Disputes that Affect Access to, and Equitable Distribution of Available WRs

Disputes on Total Available WRs (2,553 – Ref. Table 33)	Meta Khel	Essak Chontra	Gundi Mir Khan Khel	Jandri	Karak South	Latambar	Palosa Sar	Sabir Abad	Karak North	Gross Total
Site Owner's Dispute with Government	10	3	1	0	0	4	2	6	0	26
Site Owner's Dispute with Community	18	6	1	0	0	3	0	5	0	33
Dispute/s within the Same Community	12	10	1	0	0	2	0	1	0	26
Dispute/s with other/Adjacent Community/ies	18	8	8	0	0	1	3	5	6	49
Community's Dispute with Government	1	0	0	0	0	0	0	0	0	1
Total	**59**	**27**	**11**	**0**	**0**	**10**	**5**	**17**	**6**	**135**

Table 18: According to WUGs, local disputes over WRs have resulted in injuries sustained by five persons involved. However, no fatalities or litigations were cited whereas 64 disputes over WRs already stood resolved at the time of WPP.

Table 18: Results of Disputes

Results/Consequences	Meta Khel	Essak Chontra	Gundi Mir Khan Khel	Jandri	Karak South	Latambar	Palosa Sar	Sabir Abad	Karak North	Gross Total
Injuries	5	0	0	0	0	0	0	0	0	5
Casualties/ Deaths	0	0	0	0	0	0	0	0	0	0
Litigations	0	0	0	0	0	0	0	0	0	0
Disputes Resolved (so far)	31	14	4	0	0	1	3	6	5	64

Table 19: According to the data obtained from WUGs, in Karak Tehsil, there are 29,441 farmers of whom 17,443 are men and 11,998 are women, 15,982 small entrepreneurs of whom 13,226 are men and 2,756 are women, 16,599 persons employed domestically of

whom 13,518 are men and 3,081 are women, 6,850 persons employed abroad of whom 6,819 are men and 31 are women, 39,119 labourers of whom 35,669 are men and 3,450 are women, 251,807 persons unemployed of whom 85,012 are men and 166,795 are women and a total of 359,798 skilled and un-skilled labour force of whom 171,687 are men and188,111 are women. 70% of the active labour force is un-employed which is alarmingly huge and reflects their negligible capacity to cope with unprecedented challenges that may emanate from ecological and economic fragility of the region they live in.

Table 19: Employment/Unemployment

Union Councils	Age 18 and Above (M=Men, W=Women, T=Total)							
	Sex	Farmers (Agriculture, Livestock and Poultry)	Entrepreneurs/ skilled self-employed persons)	Employed Domestically	Employed Abroad	Labour	Unemployed	Total
Meta Khel	M	1530	347	1095	521	7006	6836	**17335**
	W	1354	34	92	0	260	15763	**17503**
	T	2884	381	1187	521	7266	22599	**34838**
Sabir Abad	M	1925	1464	1156	488	3144	7810	**15987**
	W	1441	153	271	0	228	15051	**17144**
	T	3366	1617	1427	488	3372	22861	**33131**
Esak Chontra	M	1993	459	625	172	3214	4776	**11239**
	W	1381	46	114	2	56	10161	**11760**
	T	3374	505	739	174	3270	14937	**22999**
Palosa Sar	M	4992	770	1268	401	5766	8497	**21694**
	W	3939	275	140	0	211	19012	**23577**
	T	8931	1045	1408	401	5977	27509	**45271**
Gundi Mir Khan Khel	M	645	372	341	209	1124	7397	**10088**
	W	434	31	44	25	133	10960	**11627**
	T	1079	403	385	234	1257	18357	**21715**
Karak South	M	1007	2279	2371	1452	2019	11327	**20455**
	W	403	271	525	0	73	22196	**23468**
	T	1410	2550	2896	1452	2092	33523	**43923**
Jandri	M	2043	1065	988	484	4779	17145	**26504**
	W	1519	729	299	4	502	26895	**29948**
	T	3562	1794	1287	488	5281	44040	**56452**
Karak North	M	840	3607	2219	2154	4093	12440	**25353**
	W	282	540	1133	0	270	25262	**27487**
	T	1122	4147	3352	2154	4363	37702	**52840**
Latambar	M	2468	2863	3455	938	4524	8784	**23032**
	W	1245	677	463	0	1717	21495	**25597**
	T	3713	3540	3918	938	6241	30279	**48629**
Total	**M**	**17443**	**13226**	**13518**	**6819**	**35669**	**85012**	**171687**
	W	**11998**	**2756**	**3081**	**31**	**3450**	**166795**	**188111**
	T	**29441**	**15982**	**16599**	**6850**	**39119**	**251807**	**359798**

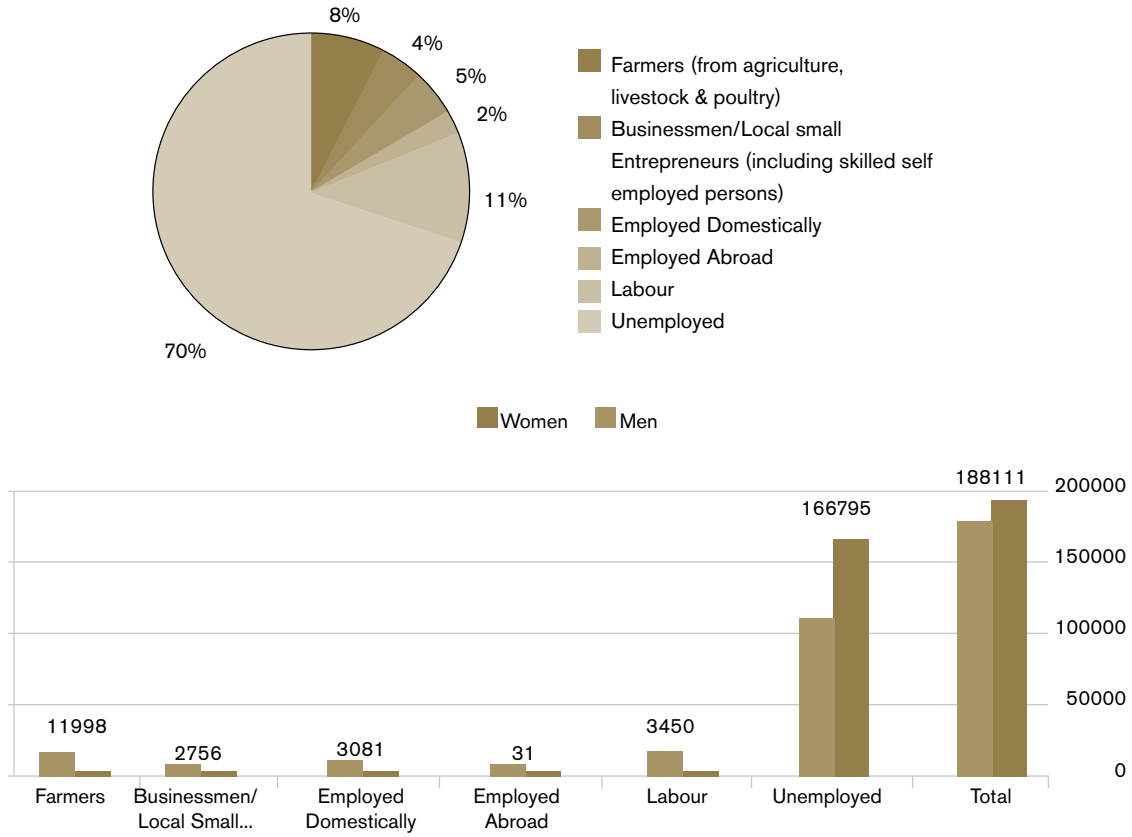


Table 20: According to WUGs, approximate annual average HH income is 382,918 PKR. Annual average HH spending on farming is PKR 42,245, education is PKR 53,664, health is PKR 60,757, other living needs is PKR 206, 637 and total annual average spending is PKR 363,303 which brings the annual average saving of an HH to 19,614. However, UC Palosa Sar reported an annual average HH level deficit of 30,060 PKR. This income and spending patterns suggest that communities find it hard to let both the ends meet. Aiding agricultural productivity in the semi-arid and climatically fragile zone of Karak Tehsil through provision of farming inputs and efficient on-farm water management structures will improve livelihood options thereby increasing income, lessening unemployment and increasing coping capacities.

Table 20: Income and Expenditure Patterns

Union Council	Average Annual Income Per HH	Average Annual Expenses					Net Saving
		Farming	Education	Health	Other Living Needs	**Total**	
Meta Khel	301,329	63,000	67,829	25,636	138,279	**294,743**	6586
Sabir Abad	375,957	28,977	41,369	56,115	222,285	**348,746**	27211
Esak Chontra	299,868	51,836	28,446	62,827	140,854	**283,963**	15905
Palosa Sar	283,159	45,610	29,789	83,257	154,563	**313,220**	-30060
Gundi Mir Khan Khel	464,510	54,827	47,008	68,946	240,933	**411,714**	52796
Karak South	443,196	21,582	65,312	64,973	270,046	**421,913**	21284
Jandri	297,059	44,976	37,995	42,393	148,884	**274,248**	22811
Karak North	457,283	30,297	82,117	63,256	254,000	**429,670**	27613
Latambar	523,897	39,101	83,114	79,407	289,893	**491,516**	32382
Overall Averages	**382,918**	**42,245**	**53,664**	**60,757**	**206,637**	**363,303**	**19,614**

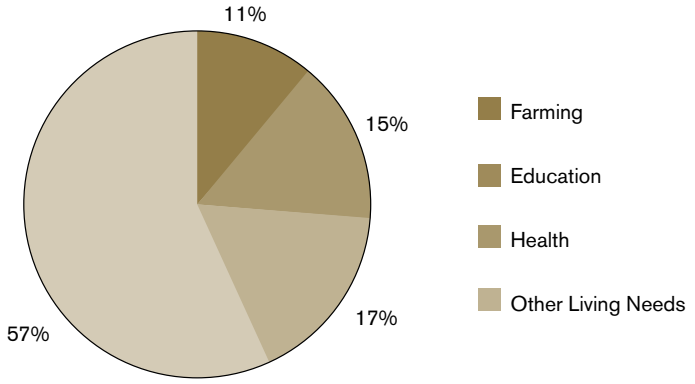


Table 21: According to WUGs, only 38% of the villagers have sanitation or toilet facility of whom 78% use pit, 15% use dug and 7% use Flush System. About 74% of the sanitation waste is discharged underground. 3% of the rainfall runoff is drained underground. 62% villagers not having sanitation facility speaks volumes about their inferior hygienic conditions and extreme vulnerability to waterborne diseases (Table 27), whereas water available for drinking already has higher concentrations of radon and non-soluble content making the overall situation hazardous.

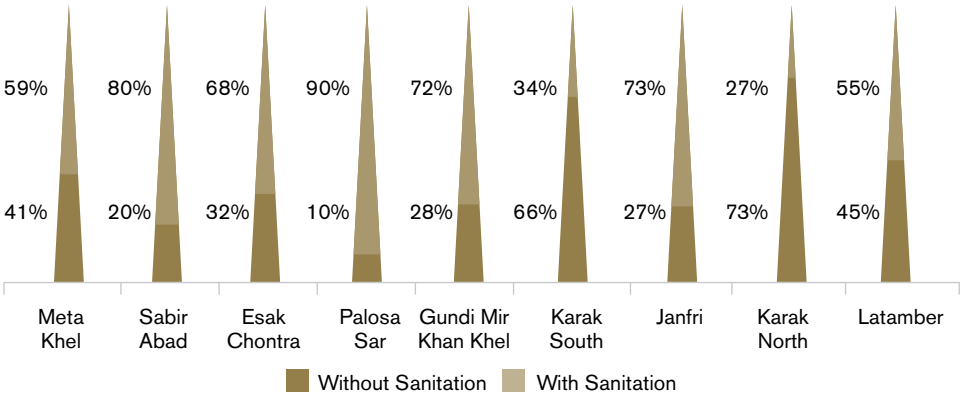


Table 21: Sanitation – Vulnerabilities Resulting from Un-hygienic Conditions

Union Council	What % of the villagers has sanitation (toilet) facility?	Which sanitation type (toilet) is it?			Where is the sanitation waste discharged?		Where does rainfall runoff drain?	
		Pit	Dug	Flush	Surface	Underground	Surface	Underground
Meta Khel	41%	75%	25%	0%	27%	73%	100%	0%
Sabir Abad	20%	86%	14%	0%	21%	79%	100%	0%
Esak Chontra	32%	71%	14%	14%	0%	100%	100%	0%
Palosa Sar	10%	92%	8%	0%	75%	25%	100%	0%
Gundi Mir Khan Khel	28%	78%	22%	0%	25%	75%	100%	0%
Karak South	66%	93%	7%	0%	0%	100%	100%	0%
Jandri	27%	88%	8%	5%	42%	58%	100%	0%
Karak North	73%	60%	20%	20%	25%	75%	73%	27%
Latambar	45%	61%	17%	22%	19%	81%	100%	0%
Overall Averages	**38%**	**78%**	**15%**	**7%**	**26%**	**74%**	**97%**	**3%**

Table 22: According to WUGs, 49%of the farming is done traditionally whereas 51% is mechanized. They opined that Wheat (59%) is the major crop followed by Ground Nut (29%)and Gram(12%); Guava (44%) is the major fruit followed by Orange (29%)and Grapes (27%); Okra (28%) is the major vegetable followed by Spinach (23%), Zucchini (20%), Pumpkin (16%)and Tomato (12%);

Acacia (35%) is the major forest tree followed by Jujube (31%), Palosa/Acacia Modesto (20%) and Shawa/Dalbergia Sasoo (14%); whereas wheat (64%) is the major fodder crop followed by Barley (31%) and Groundnut (5%). Despite offering fertile soil and friendly climate to grow staple food yet Tehsil Karak is at the risk of becoming a food insecure region. Expanding the agricultural and livestock base of local communities through an environment-conscious IWRM will guarantee reduced food insecurities.

Table 22: Farming Practices and Major Crops

Farming system	**Traditional**	**Mechanized**			
	49%	51%			
Major crops	Gandum (Wheat)	Mong Phali (Ground Nut)	Channa (Gram)		
	59%	29%	12%		
Major/common fruits	Malta/Naranji (Orange)	Amrud (Guava)	Angor (Grapes)		
	29%	44%	27%		
Major/common vegetables	Bhindi (Okra)	Saag (Spinach)	Kaddu (Pumpkin)	Tamatar (Tomato)	Toori (Zucchini)
	28%	23%	16%	12%	20%
Major/common forest trees and grasses/fodder	Kiker/Babuul (Acacia)	Ber (Jujube)	Shawa (Dalbergia Siasoo)	Palosa (Aesias Modesta)	
	35%	31%	14%	20%	
Major fodder crops	Gandum (Wheat)	Jau (Barley)	Mong Phali (Ground Nut)		
	64%	31%	5%		

Table 23: According to the data gathered and analysed, a wide array of brown and green food crops can be sown in Kharif and Rabi seasons in Tehsil Karak. However, traditional farming, lack of technology, inaccessibility to the drought resistant seeds and acute shortage of water mostly resulting from poor handling and management prevent HHs/farmers from improving their agricultural returns (yield). The crop calendar below is self-explanatory of available potential to strengthen farmers agricultural base (and, through extension, their livestock holding) through improved WRM and provision of efficient agricultural and livestock extension services.

Table 23: Crop Calendar (Crop Cycle/Pattern)

Union Councils	Crops	Kharif						Rabi						
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Meta Khel	Pearl Millet; Sorghum; Ground Nut; Maize;													
	Barley; Wheat;													
	Maize [Durra]; Millet;													
Sabir Abad	Pearl Millet; Ground Nut; Jowar; Maize; Pearl Millet;													
	Wheat;													
Esak Chontra	Ground Nut;													
	Sorghum; Wheat;													
	Millet; Maize;													
Palosa Sar	Ground Nut;													
	Sorghum; Wheat;													
	Millet;													
Gundi Mir Khan Khel	Barley; Ground Nut; Maize;													
	Wheat;													
Karak South	Maize; Millet;													
	Wheat													
Jandri	Pearl Millet;Maize;													
	Red chilli; Lady Finger;													
	Ground Nut;													
	Millet;													
	Wheat;													
Karak North	Maize; Millet;													
	Clover													
	Wheat													
Latambar	Millet; Maize;													
	Gram;													
	Wheat;													

Table 24: As per WUGs, in Tehsil Karak, there are an approximate 162,240 small animals, 42,939 cattle, 16,666 camels and donkeys and a gross total of 221,845 livestock. However, as per Tehsil livestock department, there are 28,000 cattle, 60,000 goats, 12,000 sheep, 120 camels and a gross total of 100,120 livestock. These figures cannot be denied, however, data gathered through WPP is more representative. Diseases such as foot and mouth (42%), black quarter (26%), Entero Toxaemic (20%) and red water (12%)

are common among the livestock. Livestock are a major source of livelihood and their sustenance is chiefly dependent on water and fodder while supplementary husbandry services are also vital. In the Tehsil, they are almost non-existent (Table 13).

Table 24: Common Livestock

Union Councils	Livestock				Diseases			
	Small Animal	Cattle	Camels and Donkeys	Total	Foot and Mouth	Black Quarter	Red Water	Entero Toxemic
Meta Khel	19743	4990	1637	26370	46%	32%	11%	11%
Sabir Abad	21330	5242	2700	29272	42%	30%	0%	27%
Esak Chontra	16544	4850	1326	22720	38%	23%	19%	19%
Palosa Sar	25595	9905	4591	40091	36%	27%	27%	9%
Gundi Mir Khan Khel	11450	1480	436	13366	50%	29%	7%	14%
Karak South	11045	4485	741	16271	34%	32%	0%	34%
Jandri	26890	6910	3620	37420	37%	14%	20%	29%
Karak North	10438	2231	675	13344	61%	30%	4%	4%
Latambar	19205	2846	940	22991	32%	16%	16%	35%
Total	**162240**	**42939**	**16666**	**221845**	**42%**	**26%**	**12%**	**20%**

Table 25: According to WUGs, in 101 villages 31% HHs have access to electricity, in 81 villages 24% HHs have access to gas, in 103 villages 7% HHs have access to solar energy, in 47 villages23% HHs use wood as fuel and in 44 villages 16% HHs use dung as fuel. Reliance on gas and solar energy are a good omen, as this will reduce the pace of deforestation that has already inflicted irreparable loss to the flora and fauna. Enhancing forest cover improves frequency of precipitation besides returning other important ecological dividends; therefore, this particular aspect should remain a key consideration while planning various schemes under WUMP.

Table 25: Fuel and Energy – HHs Dependence/Reliance

Union Councils			Sources			
		Electricity	Gas	Solar	Wood	Dung
Meta Khel		29%	26%	7%	21%	17%
Sabir Abad		26%	15%	10%	27%	21%
Esak Chontra		25%	13%	9%	31%	22%
Palosa Sar		15%	8%	10%	37%	30%
Gundi Mir Khan Khel		28%	24%	4%	22%	22%
Karak South		40%	40%	5%	14%	0%
Jandri		32%	28%	4%	20%	16%
Karak North		47%	42%	5%	5%	1%
Latambar		33%	16%	7%	28%	16%
Average Reliance		31%	24%	7%	22%	16%
Daily Availability (hours)		4.14	6.46	6.33	4.95	4.52
Availability in Number of Villages	Daily	101	81	103	47	44
	Weekly	0	0	0	47	42
	Monthly	0	0	0	12	10

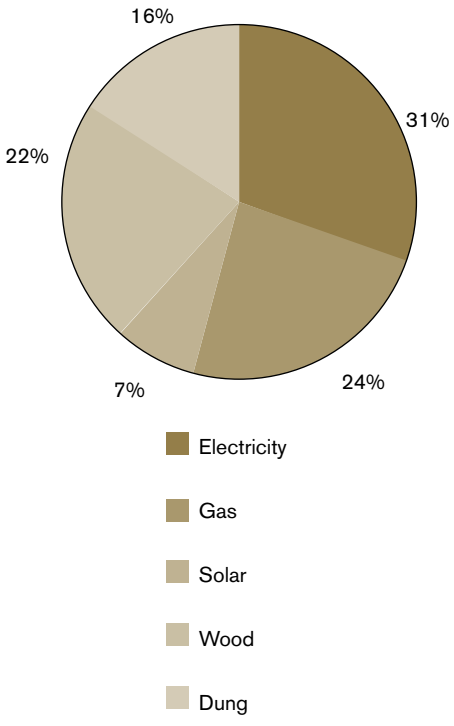
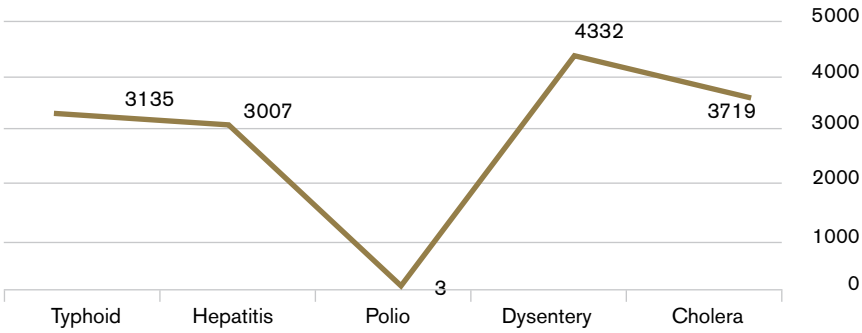


Table 26: According to WUGs, only 1% HHs clean water with chlorine or filter it or boil it, 47% children wash their hands before eating, 63% men and women wash their hands before eating, 75% children get regular routine vaccines, 11% adults get seasonal vaccines and only 2% HHs use insect killers regularly. There is a general misconception in the communities that underground water is safe therefore it needs no treatment before drinking. Attention must be paid to ensure lab testing of the water samples taken from proposed scheme sites, besides sensitising WUGs and their respective communities regarding waterborne diseases (Table 27)

Table 26: Hygiene

Particulars	Meta Khel	Sabir Abad	Esak Chontra	Palosa Sar	Gundi Mir Khan Khel	Karak South	Jandri	Karak North	Latambar	Average
Do local HHs' clean water with chlorine or by filtering or boiling?	2%	0%	1%	0%	0%	0%	0%	4%	3%	1%
Do children wash their hands before eating?	47%	55%	35%	26%	44%	63%	37%	57%	61%	47%
Do men and women wash their hands before eating?	67%	65%	59%	49%	68%	77%	45%	64%	71%	63%
Do children get routine vaccines regularly?	78%	83%	76%	48%	80%	83%	64%	83%	79%	75%
Do adults get seasonal vaccines?	6%	4%	4%	2%	4%	31%	4%	33%	11%	11%
Do local HHs use or spray insect killers/ repellents regularly?	3%	0%	0%	1%	0%	1%	2%	11%	4%	2%

Table 27:According to WUGs, an estimated 3,135 persons annually contract typhoid(Age 0-5: 949, Age 6-15: 1,023, Age16 and above: 1,163), 3,007 persons contract hepatitis(Age 0-5: 905, Age 6-15: 1,009, Age16 and above: 1,093), 3 children contracted Polio (Age 0-5: 1, Age 6-15: 2), 4,332 persons contract dysentery (Age 0-5: 1,616, Age6-15: 1,451, Age 16 and above: 1,265), 3,719 persons contract Cholera (Age 0-5; 1,555, Age 6-15: 1,295, Age 16 and above: 869)and a total of 14,196 persons get affected (Age 0-5: 5,026, Age 6-15: 4,780, Age 16 and above: 4,390) which causes 928mortalities (Age 0-5: 264, Age 6-15: 290, Age 16 and above: 374). According to the statistics received from GLA in Tehsil Karak, patients registered with waterborne diseases were 1,699 in 2011, 2,031 in 2012, 1,834 in 2013, 2,536 in 2014 and 2,384 in 2015. These statistics reveal a dismal state of affairs due to contaminated drinking water. In light of these, interventions under WUMP must seek to promote healthy practices around handling, storage and utilization of drinking water at community and HH levels.



In places with poor water treatment, sanitation and hygiene, the polio virus spreads through the faecal oral route, via contaminated water and food; typhoid bacteria is deposited in water or food by a human carrier and is then spread to other people; dysentery is spread by faecal contamination of food and water; cholera bacterium is usually found in water or food sources that have been contaminated by faeces from a person infected with cholera. With poor hygienic conditions, as reported in Table 26, such eventualities may always be anticipated.

Table 27: Health - Waterborne Diseases

Union Councils	Age group	Diseases						
		Typhoid	Hepatitis	Polio	Dysentery	Cholera	Total	Annual Mortality
Meta Khel	0-5	75	69	0	281	294	719	32
	6-15	130	149	0	345	318	942	41
	16 & above	192	168	0	301	190	851	50
	Total	**397**	**386**	**0**	**927**	**802**	**2512**	**123**
Sabir Abad	0-5	122	146	0	153	119	540	42
	6-15	131	136	0	104	80	451	40
	16 & above	144	162	0	89	77	472	60
	Total	**397**	**444**	**0**	**346**	**276**	**1463**	**142**
Esak Chontra	0-5	96	74	0	146	107	423	31
	6-15	84	70	2	131	146	433	30
	16 & above	111	97	0	159	74	441	39
	Total	**291**	**241**	**2**	**436**	**327**	**1297**	**100**
Palosa Sar	0-5	133	134	0	279	378	924	44
	6-15	129	185	0	243	266	823	40
	16 & above	149	146	0	217	191	703	50
	Total	**411**	**465**	**0**	**739**	**835**	**2450**	**134**
Gundi Mir Khan Khel	0-5	17	13	1	32	58	121	11
	6-15	33	27	0	37	31	128	10
	16 & above	40	43	0	49	34	166	23
	Total	**90**	**83**	**1**	**118**	**123**	**415**	**44**
Karak South	0-5	75	87	0	145	48	355	18
	6-15	96	69	0	109	21	295	20
	16 & above	93	71	0	69	35	268	20
	Total	**264**	**227**	**0**	**323**	**104**	**918**	**58**
Jandri	0-5	127	116	0	278	254	775	37
	6-15	129	138	0	232	172	671	34
	16 & above	131	134	0	177	119	561	50
	Total	**387**	**388**	**0**	**687**	**545**	**2007**	**121**
Karak North	0-5	134	143	0	172	178	627	26
	6-15	144	128	0	156	161	589	41
	16 & above	141	124	0	124	102	491	39
	Total	**419**	**395**	**0**	**452**	**441**	**1707**	**106**
Latambar	0-5	170	123	0	130	119	542	23
	6-15	147	107	0	94	100	448	34
	16 & above	162	148	0	80	47	437	43
	Total	**479**	**378**	**0**	**304**	**266**	**1427**	**100**
Total	**0-5**	**949**	**905**	**1**	**1616**	**1555**	**5026**	**264**
	6-15	**1023**	**1009**	**2**	**1451**	**1295**	**4780**	**290**
	16 & above	**1163**	**1093**	**0**	**1265**	**869**	**4390**	**374**
	Total	**3135**	**3007**	**3**	**4332**	**3719**	**14196**	**928**

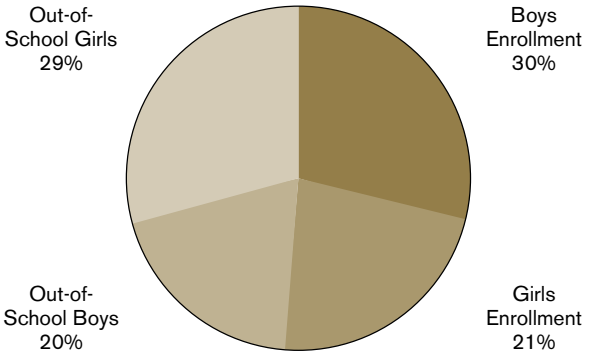


Table 28: In Karak Tehsil, for the boys, there are 186 government schools that presently enrol 32,705 students, 25 private schools that presently enrol 4,808 students and 12 madrassahs that presently enrol 747 students while current total number of the schools for boys stands at 221 and their enrolment is 38,260. Similarly, for the girls, there are 137 government schools that presently enrol 24,930 students, 13 private schools that presently enrol 2,089 students and12 madrassahs that presently enrol 703 students while current total number of the schools for girls stands at 162 and their enrolment is 27,722. There are 25,456 boys and 37,714 girls of 'school going age' presently out-of-school. In the Tehsil, total number of children (school going and out-of-school) is 63,716 boys and 65,436 girls with a gross total of 129,152. Out-of-school girls are 29% and boys are 20% and altogether the total figure is 49%, which is alarming. Illiteracy, poor health and lack of hygiene practices reinforce existing vulnerabilities; therefore, education must be addressed as the lynchpin to perpetually replace such vulnerabilities with resilience and adaptation capabilities.

Table 28: Education Facilities – School-going and Out-of-School Children

Union Council	Schools	Boys		Girls		Out-of-School		Enrolled & Out-of-school		
		Schools	Enrolment	Schools	Enrolment	Boys	Girls	Boys	Girls	Gross Total
Meta Khel	Government	25	4865	18	2447	5310	6701	10175	9148	19323
	Private	9	2040	4	490			2040	490	2530
	Madrassah	7	550	7	407			550	407	957
	Total	**41**	**7455**	**29**	**3344**	**5310**	**6701**	**12765**	**10045**	**22810**
Sabir Abad	Government	29	3686	18	3404	1347	2481	5033	5885	10918
	Private	2	420	0	0			420	0	420
	Madrassah	1	55	0	0			55	0	55
	Total	**32**	**4161**	**18**	**3404**	**1347**	**2481**	**5508**	**5885**	**11393**
Esak Chontra	Government	16	3706	11	2465	2270	4283	5976	6748	12724
	Private	3	614	3	575			614	575	1189
	Madrassah	1	32	1	43			32	43	75
	Total	**20**	**4352**	**15**	**3083**	**2270**	**4283**	**6622**	**7366**	**13988**
Palosa Sar	Government	18	3257	9	2087	1888	3260	5145	5347	10492
	Private	1	90	1	95			90	95	185
	Madrassah	2	75	3	180			75	180	255
	Total	**21**	**3422**	**13**	**2362**	**1888**	**3260**	**5310**	**5622**	**10932**
Gundi Mir Khan Khel	Government	14	2020	11	1717	1211	2154	3231	3871	7102
	Private	1	220	0	0			220	0	220
	Madrassah	0	0	0	0			0	0	0
	Total	**15**	**2240**	**11**	**1717**	**1211**	**2154**	**3451**	**3871**	**7322**
Karak South	Government	15	2567	15	2517	3397	4753	5964	7270	13234
	Total	**15**	**2567**	**15**	**2517**	**3397**	**4753**	**5964**	**7270**	**13234**
Jandri	Government	24	4396	24	3433	4544	5777	8940	9210	18150
	Private	3	365	0	0			365	0	365
	Madrassah	1	35	0	0			35	0	35
	Total	**28**	**4796**	**24**	**3433**	**4544**	**5777**	**9340**	**9210**	**18550**

Karak North	Government	17	3631	13	3087	3738	5163	7369	7813	15182
	Private	2	434	1	194		434	194	628	
	Madrassah	0	0	1	73		0	510	510	
	Total	**19**	**4065**	**15**	**3354**	**3738**	**5163**	**7803**	**8517**	**16320**
Latambar	Government	26	4577	18	3773	1751	3142	6328	6915	13243
	Private	4	625	4	735		625	735	1360	
	Madrassah	0	0	0	0		0	0	0	
	Total	**30**	**5202**	**22**	**4508**	**1751**	**3142**	**6953**	**7650**	**14603**
Total	Government	184	32705	137	24930	25456	37277	58161	62207	120368
	Private	25	4808	13	2089		4808	2089	6897	
	Madrassah	12	747	12	703		747	1140	1887	
	Total	**221**	**38260**	**162**	**27722**	**25456**	**37714**	**63716**	**65436**	**129152**

Table 29: In Tehsil Karak the people of age 10 and above, 30% are literate and 64% are illiterate. Global studies have proven that poverty, unemployment, poor health and hygiene conditions and some of the communicable diseases are correlated with illiteracy. Assuring sustainability of the schemes under WUMP will require giving awareness and education to the individuals and families regarding their shared interests and mutual rights in relation to equitable Natural Resource Management (NRM), particularly water.

Table 29: Literacy in Tehsil Karak

Union Councils		Meta Khel	Sabir Abad	Esak Chontra	Palosa Sar	Gundi Mir Khan Khel	Karak South	Jandri	Karak North	Latambar	Total
%	Literate	64%	22%	36%	22%	31%	30%	35%	39%	31%	34%
	Illiterate	36%	78%	64%	78%	69%	70%	65%	61%	69%	66%

Table 30: As per WUGs, Tehsil Karak has witnessed “severe events” of erratic floods, heavy-rains, drought and earthquake, “moderate events” of flash floods and windstorm and “mild events” of lightening during the period from 2005 to 2015, which inflicted an overall estimated loss of 115 million PKR to the physical capital, claimed 104 human lives and killed 3, 415 livestock. The climatically fragile region of Karak will continue to witness similar unprecedented events; however, the need is to build resilience among local vulnerable communities through development of resistant physical infrastructure, provision of adequate livelihoods and efficient promotion and protection of NRM, particularly retention, recharge and reuse of water and scrub forestation.

Table 30: Natural Disasters – Frequency, Intensity and Resultant Losses

Hazard	Intensity	Frequency (Years/ Duration)	Losses		
			Physical Capital (PKR)	Casualties	Livestock
Floods	Severe	2005-15	85	32	1151
Heavy Rain		2015	19	51	1986
Drought		1999	4	11	136
Earthquake		2015	4	6	40
Flash Floods	Moderate	2007	1	2	31
Windstorm		2001-10	1	2	40
Lightening	Mild	2011-15	1	0	31
Total			**115**	**104**	**3415**

Table 31: WUGs opined that global warming is a real phenomenon (96%), weather patterns are changing (98%), repeated occurrence of unprecedented hazards has become a worrisome phenomenon (98%), crop cycle (time and duration) and patterns change rapidly (88%), all of the aforementioned events have caused loss of human lives, property and livelihoods (70%) and changing lifestyles has become inescapable to withstand climatic variations (76%). Building resilience will require an unshakeable resolve of the communities, government and aid partners so that perceived and actual vulnerabilities of the communities could be turned into coping capacities.

Table 31: Climatic Variations

Particulars	%
Increase in Global Warming Observed	96%
Change in Weather Patterns (extreme warm/cold) Observed	98%
Increase in Occurrence of Unprecedented Hazards Observed	98%
Change Observed in Cropping Patterns (time and duration) Observed	88%
The Above Events Have Caused Loss of Lives, Property and Livelihoods	70%
Has Changing Life Style Become Inevitable?	76%

Table 32: According to WUGs, among the reasons for migration of local families to other destinations,29% of the families constitutes "search for employment opportunities" of which 33% are seasonal and 67% are permanent, 22% constitutes "poverty" of which 26% are seasonal and 74% are permanent, 21%constitutes "children's education" of which 32% are seasonal and 68% are permanent, 12% constitutes "disputes" of which 43% are seasonal and 57% are permanent, 4% constitutes health of which 40% are seasonal and 60% are permanent, 4% constitutes scarcity of water of which 33% are seasonal and 67% are permanent, 4% constitutes life threats of which 10% are seasonal and 90% are permanent and 3% constitutes extreme weather of which 100% are seasonal. While stress caused by the paucity of water is the gravest (Table 15), yet it is the least responsible factor behind outside migrations. These figures clearly emphasize the need to take an integrated approach to development so that the issues not directly affecting water scarcity per se, but equally or more adversely affecting lives and livelihoods of the residents otherwise could be addressed.

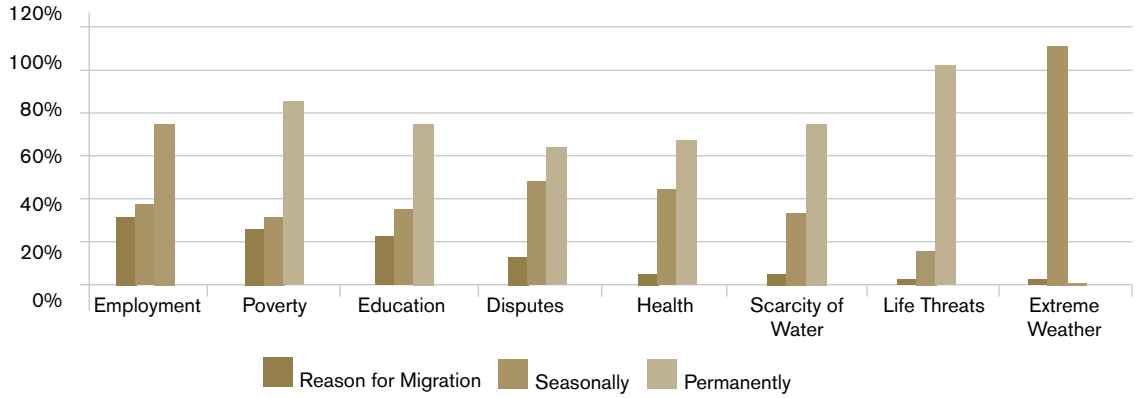


Table 32: Triggers of Migration

Migration Factors	WUGs Opinion	Migrate Seasonally	Migrate Permanently
Employment Opportunities	29%	33%	67%
Poverty	22%	26%	74%
Children Education	21%	32%	68%
Disputes	12%	43%	57%
Health	4%	40%	60%
Scarcity of Water	4%	33%	67%
Life Threats	4%	10%	90%
Extreme Weather	3%	100%	0%

3.7. Technical Information

The pre-WUMP implementation conditions analysed, quantified and presented in tabular form in this section have been inferred from a primary qualitative and quantitative research data that encapsulated views and perceptions of 3,104 WUG members (Men: 1,815; women: 1,289) hailing from 119 villages of Tehsil Karak (Table 1). The findings in this section have been correlated and synthesised cautiously to also cater to Helvetas' monitoring and evaluation requirements vis-à-vis overtime comparisons of baseline with mid and end-of term/project conditions to determine attributable performance. The under-mentioned tabular data represents shared perceptions and perspectives of the WUG members based on their best local knowledge, understanding of the area and prevailing conditions.

Table 33:As per WUGs, in Tehsil Karak, there are two dams constructed by the Government, two Government owned small water reservoirs/ponds, 21 Government owned springs/infiltration galleries, 38 Government owned rain/spring water-fed rivers or streams,

175 dug-wells of which 169 are owned by individuals and 6 are owned by Government, 131 tube-wells of which 32 are owned by individuals and 99 are owned by Government, 1,733 pressure pumps owned by individuals (installed with Government funding), 435 hand-pumps owned by individuals, 6 conduit/Karez/sub-surface water reservoirs owned by Government and a gross total of 2,553 WRs of which 2,369 are owned by individuals and 184 are owned by Government. However, as per the details provided by PHED, 104 government-owned WRs in Tehsil Karak include 72 functional, 7 out of order, 10 abandoned and 15 "not energized schemes". However, contrary to this, as indicated above, Government-owned WRs reported by the community are 184 of which 63 are dams, small water reservoirs/ponds, springs/infiltration galleries and rain/spring water-fed rivers or streams. The remaining number of 121 is still higher than that reported by the government i.e.104. The figures not tallying tell the story of where the issue is. The figure of 2,553 WRs in Tehsil Karak looks handsome, however, operational details of most if not all depict an incomplete picture. Sporadic and poorly managed water schemes; mostly funded and operated on political grounds, not the need or based on merit, is the major cause of acute mismanagement of WRs in Karak.

Table: 33: Available WRs (P: Private – G: Government)

Union Councils	P & G WRs	Dams	Small Water Ponds	Springs/ Infiltration Galleries	Rain/Spring Water Rivers or Streams	Dug-well	Tube-well	Pressure pump	Hand pump	Sub-Surface Water Storage	Total
Meta Khel	P	0	0	0	0	37	9	225	39	0	310
	G	0	0	5	13	0	16	0	0	0	34
	Total	**0**	**0**	**5**	**13**	**37**	**25**	**225**	**39**	**0**	**344**
Esak Chontra	P	0	0	0	0	46	0	84	55	0	185
	G	0	0	5	7	0	17	0	0	0	29
	Total	**0**	**0**	**5**	**7**	**46**	**17**	**84**	**55**	**0**	**214**
Gundi Mir Khan Khel	P	0	0	0	0	4	2	178	0	0	184
	G	0	0	1	7	0	17	0	0	0	25
	Total	**0**	**0**	**1**	**7**	**4**	**19**	**178**	**0**	**0**	**209**
Jandri	P	0	0	0	0	4	2	540	71	0	617
	G	1	1	2	0	0	5	0	10	2	21
	Total	**1**	**1**	**2**	**0**	**4**	**7**	**540**	**81**	**2**	**638**
Karak South	P	0	0	0	0	0	0	153	0	0	153
	G	0	0	0	0	0	2	0	0	0	2
	Total	**0**	**0**	**0**	**0**	**0**	**2**	**153**	**0**	**0**	**155**
Latambar	P	0	0	0	0	0	19	458	20	0	497
	G	0	0	0	0	0	19	0	0	0	19
	Total	**0**	**0**	**0**	**0**	**0**	**38**	**458**	**20**	**0**	**516**
Palosa Sar	P	0	0	0	0	26	0	25	40	0	91
	G	1	0	5	11	1	7	0	0	4	29
	Total	**1**	**0**	**5**	**11**	**27**	**7**	**25**	**40**	**4**	**120**
Sabir Abad	P	0	0	0	0	48	0	70	210	0	328
	G	0	0	3	0	5	12	0	0	0	20
	Total	**0**	**0**	**3**	**0**	**53**	**12**	**70**	**210**	**0**	**348**
Karak North	P	0	0	0	0	4	0	0	0	0	4
	G	0	1	0	0	0	4	0	0	0	5
	Total	**0**	**1**	**0**	**0**	**4**	**4**	**0**	**0**	**0**	**9**
Gross Total	P	0	0	0	0	169	32	1733	435	0	2369
	G	2	2	21	38	6	99	0	10	6	184
	Total	**2**	**2**	**21**	**38**	**175**	**131**	**1733**	**445**	**6**	**2553**

> "Two dams in Karak offer a great deal of potential for storing drinkable and accessible water to those needing it the most. However, making this happen will require an honest and dedicated endeavour by the local leadership and GLAs to transform the dams into useful reservoirs supplying clean drinking water," said a community representative.

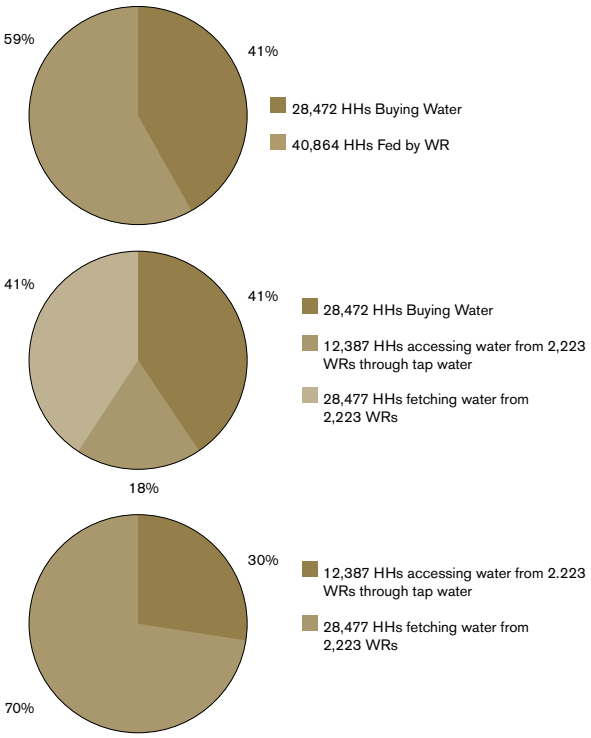
Table 34: As per WUGs, two government-owned dams are functional to the extent that water stored in them is intermittently used for irrigation purposes. In addition, there is one functional and one dysfunctional small water reservoir/pond, 21 functional springs/ infiltration galleries, 31 functional and 7 dysfunctional rain/spring water-fed rivers or streams, 159 functional and 17 dysfunctional dug-wells, 70 functional and 60 dysfunctional tube-wells, 1,658 functional and 75 dysfunctional pressure pumps, 412 functional and 33 dysfunctional hand pumps, six dysfunctional conduit/Karez/sub-surface water reservoirs and a total of 2,354 functional and 199 dysfunctional WRs.

Table 34: Functional (F) – Dysfunctional (DF) WRs

Union Councils	F & DF WRs	Dams	Small Water Ponds	Springs/ Infiltration Galleries	Rain/ Spring Water Rivers or Streams	Dug-well	Tube-well	Pressure pump	Hand pump	Sub-Surface water storage	Total
Meta Khel	F	0	0	5	13	30	14	225	39	0	326
	DF	0	0	0	0	7	11	0	0	0	18
	Total	**0**	**0**	**5**	**13**	**37**	**25**	**225**	**39**	**0**	**344**
Esak Chontra	F	0	0	5	3	42	5	80	55	0	190
	DF	0	0	0	4	4	12	4	0	0	24
	Total	**0**	**0**	**5**	**7**	**46**	**17**	**84**	**55**	**0**	**214**
Gundi Mir Khan Khel	F	0	0	1	5	4	2	162	0	0	174
	DF	0	0	0	2	1	16	16	0	0	35
	Total	**0**	**0**	**1**	**7**	**5**	**18**	**178**	**0**	**0**	**209**
Jandri	F	1	0	2	0	4	4	540	81	0	632
	DF	0	1	0	0	0	3	0	0	2	6
	Total	**1**	**1**	**2**	**0**	**4**	**7**	**540**	**81**	**2**	**638**
Karak South	F	0	0	0	0	0	2	113	0	0	115
	DF	0	0	0	0	0	0	40	0	0	40
	Total	**0**	**0**	**0**	**0**	**0**	**2**	**153**	**0**	**0**	**155**
Latambar	F	0	0	0	0	0	34	458	12	0	504
	DF	0	0	0	0	0	4	0	8	0	12
	Total	**0**	**0**	**0**	**0**	**0**	**38**	**458**	**20**	**0**	**516**
Palosa Sar	F	1	0	5	10	27	2	25	40	0	110
	DF	0	0	0	1	0	5	0	0	4	10
	Total	**1**	**0**	**5**	**11**	**27**	**7**	**25**	**40**	**4**	**120**
Sabir Abad	F	0	0	3	0	48	6	55	185	0	297
	DF	0	0	0	0	5	6	15	25	0	51
	Total	**0**	**0**	**3**	**0**	**53**	**12**	**70**	**210**	**0**	**348**
Karak North	F	0	1	0	0	4	1	0	0	0	6
	DF	0	0	0	0	0	3	0	0	0	3
	Total	**0**	**1**	**0**	**0**	**4**	**4**	**0**	**0**	**0**	**9**
Gross Total	F	2	1	21	31	159	70	1658	412	0	2354
	DF	0	1	0	7	17	60	75	33	6	199
	Total	**2**	**2**	**21**	**38**	**176**	**130**	**1733**	**445**	**6**	**2553**

Locals donot pay water tariff. Removal of the intrinsic fault-lines in the governance system shall succeed delivery of basic municipal services judiciously, which will also guarantee recovery/collection of tariff from the citizens.

Table 35: As per WUGs, in Tehsil Karak, out of 2,354 functional WRs (Table 34)water available at 31 WRs springs, streams & rivers goes waste or untapped, consequently, the number of functional and utilised WRs stand at a combined total of 2,323 (24+2,299) - Table 36. These WRs discharge an average 28,847,708 litres (4,389,120+24,458,588) daily which is accessible to 40,864 HHs with a population of 286,463 (59%) persons. Of the 40,864 HHs, 12,387(30%) HHs' have access via tap water and28, 477 (70%) HHs' collect it from distant WRs in their surroundings. 28,847,708 litres of daily discharge divided by the dependent population of 286,463 persons' yields a mean average of 101 litres per capita per day. However, this average contains a major share of dependent HHs agricultural (615/ha') and livestock (134,205) requirements, leaving an insignificant quantity behind for human consumption. Remaining 28,472HHs with a population of 197,841 persons (41%) are solely dependent on vended water. Precise estimates are not available, therefore, these HHs were not factored in while calculating per capita per day litres of water cited above. However, it is assumed that parent sources of some quantities of vended water are of 2,323 functional and utilised WRs.



Note: Of the total 68,762 HHs in Tehsil Karak, 574 HHs have to rely on any two out of three available options, i.e. fetching or vended or tap water, to suffice their minimum domestic needs. Due to this, in the table 35, these HHs have been double counted under their primary and secondary preferred options.

Table 35: Local Population and Their Dependency on Vended Water and 2,323 Functional WRs

UCs	Total Population	Vended Water			2,323 Functional WRs				
		Population	%	HHs	Population	%	HHs		
							Access via Tap Water	Fetch from Distant Sources	Total
Meta Khel	57,868	3,520	6%	440	54,348	94%	1,570	5,436	7,006
Esak Chontra	36,987	2,833	8%	366	34,154	92%	2,218	3,785	6,003
Gundi Mir Khan Khel	29,037	1,715	6%	245	27,322	94%	1,388	3,252	4,640
Jandri	75,002	32,374	43%	4,782	42,628	57%	1,020	6,989	8,009
Karak South	57,157	49,053	86%	7,161	8,104	14%	2,040	1,865	3,905
Latambar	61,656	36,134	59%	5,162	25,522	41%	556	405	961
Palosa Sar	56,203	3,528	6%	504	52,675	94%	1,668	4,579	6,247
Sabir Abad	44,524	5,684	13%	812	38,840	87%	480	485	965
Karak North	65,870	63,000	96%	9,000	2,870	4%	1,447	1,681	3,128
Total	484,304	197,841	41%	28,472	286,463	59%	12,387	28,477	40,864
Livestock					134,205				
Irrigated Land (Ha)					[615 reported by the community] [2,970 reported by Agriculture Department]				

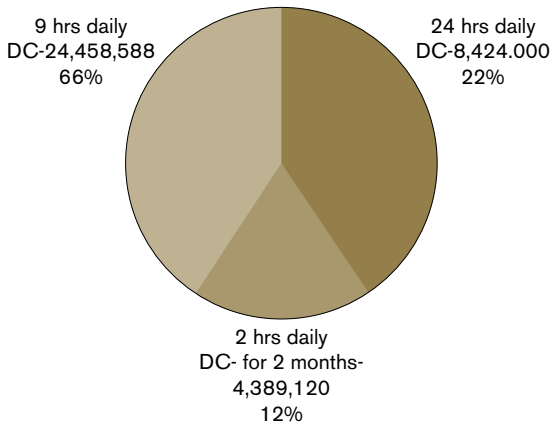


Table 36: In Tehsil Karak, currently, there are 24 WRs (infiltration galleries) with 24 hours discharge capacity of 4,389,120 litres, 2,299 WRs (underground water extraction) with average nine hours daily discharge capacity of 24,458,588 litres and 31 WRs (rain-fed rivers) with average two hours daily discharge capacity of 8,424,000 litres for a maximum period of two months yearly. However, this last precious quantity of water at 31 WRs goes waste in the absence of reservoirs, delayed action dams and flood protection walls. Of the 2,354 functional WRs (Table 34), a combined total of 2,323 functional and utilised WRs (24+2,299) have a daily total discharge capacity of 28,847,708 litres (4,389,120+24,458,588) which yields a mean average of 101 litres per capita per day when divided by the dependent population of 286,463 persons (Table 35). However, this average contains a major share of dependent HH's agricultural land (2,970 ha') and livestock (134,205), leaving an insignificant quantity behind for human consumption. There are more agonizing realities beneath this average as it does not factor in the issue of 'haves' and 'have-nots'. Those not having WRs in their possession or vicinity, neither having capacity to buy nor having judicious access to water available in the public pool suffer the most.

Table 36: 2,553 WRs and Their Current Discharge Capacity (DC)

Union Councils	WRs: 24 Hours Discharge In filtration Galleries	Discharge (Liters)	WRs: Average 9 Hours Daily Discharge tube well/ dug well	Discharge (Liters)	Untapped WRs: Average 2 Hours Daily Discharge for 2 Months Annually rainfed rivers	Discharge (Liters)
Meta Khel	5	190,080	308	3,691,980	13	4,896,000
Esak Chontra	5	388,800	182	2,744,220	3	900,000
Gundi Mir Khan Khel	1	86,400	168	1,503,900	5	1,764,000
Jandri	3	1,857,600	629	3,945,096	0	0
Karak South	0	0	115	931,320	0	0
Latambar	0	0	504	7,655,148	0	0
Palosa Sar	6	1,581,120	94	913,712	10	864,000
Sabir Abad	3	259,200	294	2,918,412	0	0
Karak North	1	25,920	5	154,800	0	0
Total	**24**	**4,389,120**	**2,299**	**24,458,588**	**31**	**8,424,000**
Total DC Per Day (Liters)	**28,847,708**				This precious quantity of WR goes waste – see the analysis above	
Per Capita Litres of Water Available Per Day	**101**					

Table 37: The presented analysis is regarding HHs across Tehsil Karak that do not benefit directly from 2,553 WRs reported on the foregoing pages. These HHs are exclusively dependent on the vended water to meet their daily domestic needs. A total of 28,472 HHs with a population of 197,841 persons buy vended water. Each HH spends around 84 PKR to buy an average 310 litres of vended water daily. About 2,029,193 PKR is the estimated total amount spent by 28,472 HHs to buy 8,674,148 litres of vended water daily. The hard earned money of Karak Tehsil's low income HHs aggregates into such huge daily spending which secures 0% of their future water needs. Same practice is repeated daily to secure a small quantity of water, traps them further into a perpetuating economic crisis. Viable options such as banking upon surplus WRs reported in Table 42 must be explored to lessen the acute water shortage and resultant financial stress on HHs dependent on vended water. Daily surplus water is 49,962,465 liters (Table 45) whereas quantity of vended water bought by HHs on a daily basis is 8,674,148 liters. Even if provided from the surplus water this will still leave 41,288,317 liters short. It is about time that focus from misplaced priorities is shifted to bank on economically and ecologically viable ventures.

Table 37: Economic Costs of Vended Water

Union Councils	HHs Buying Water	Average HH size	Total Beneficiaries	Average Buying Per Day Per HH (in Liters)	Average Amount Spent Per Day Per HH	Total Quantity Bought Per Day by All HHs	Total Amount Spent Per Day by All HHs
Meta Khel	440	8	3,520	360	97.5	158400	42,900
Esak Chontra	366	7.74	2,833	283	88.33	103578	32,329
Gundi Mir Khan Khel	245	7	1,715	298	86	73010	21,070
Jandri	4782	6.77	32,374	305	87	1458510	416,034
Karak South	7161	6.85	49,053	280	62	2005080	443,982
Latambar	5162	7	36,134	315	73	1626030	376,826
Palosa Sar	504	7	3,528	315	103	158760	51,912
Sabir Abad	812	7	5,684	315	95	255780	77,140
Karak North	9000	7	63,000	315	63	2835000	567,000
Total	**28,472**	**7**	**197,841**	**310**	**84**	**8,674,148**	**2,029,193**

Table 38: According to the data collected, out of the total of 2,553 WRs, samples of only 78 (3%) have been tested of which 11 (14%) were found positive and 67 (86%) were found negative. Hence, the ratio between samples found positive and negative is 14% to 86%. In light of these findings, casting doubts on the drinkability of another 2,475 WRs not tested yet will be justified. Keeping in view these and related other evidences cited under the section 'District and Tehsil Karak – Context Analysis', practical measures ought to be taken to not only enable access to water generally, but to ensure access to safe drinking water judiciously.

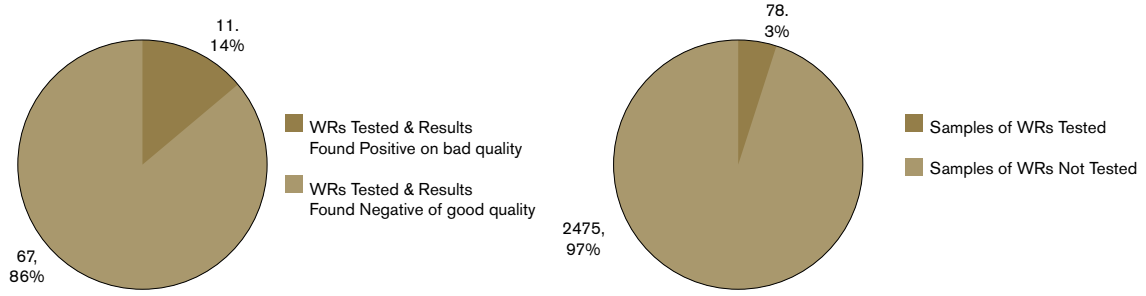


Table 38: Lab Tests on WRs

UCs	Lab Test Conducted?		Results of Lab Tests?	
	Yes	No	Positive	Negative
Meta Khel	16	328	0	16
Esak Chontra	13	201	0	13
Gundi Mir KK	14	195	0	14
Jandri	3	635	0	3
Karak South	2	153	0	2
Latambar	23	493	11	12
Palosa Sar	2	118	0	2
Sabir Abad	1	347	0	1
Karak North	4	5	0	4
Total	**78**	**2475**	**11**	**67**

Table 39: Interestingly, WUGs were found to be little more sceptical about the drinkability of water in their vicinity than the results of lab tests (Table 38). In their opinion, out of the total of 2,553 WRs, water available from 2,067 WRs is good (drinkable) and water available from 486 WRs is bad (undrinkable). This brings the ratio between drinking water perceived to be "bad or good" ranging from19% to 81% as opposed to the ratio of 14% to 86% between the water sample tested to be 'positive or negative'. The situation calls for a more robust and reliable testing of water samples taken from all WRs, not once in a lifetime but as a recurrent activity with an interval of 3-6 months to ensure that safe WRs do not turn saline and/or the radon concentrations do not exceed the acceptable limits.

Table 39: WUGs Perceptions about Water Quality

Community Perception	Meta Khel	Esak Chontra	Gundi Mir Khan Khel	Jandri	Karak South	Latambar	Palosa Sar	Sabir Abad	Karak North	Gross Total
Good	331	197	202	346	153	397	109	323	9	2067
Bad	13	17	7	292	2	119	11	25	0	486
Total	**344**	**214**	**209**	**638**	**155**	**516**	**120**	**348**	**9**	**2553**

Table 40: WUGs maintained that out of 2,553 WRs, conditions in/around 2,320 WRs are safe whereas 233 WRs are unsafe. Usually, local population gets water from nearby dug-wells, rivers or tube-wells. Inadequate safety measures around these WRs trigger water and sanitation related diseases posing serious health hazards. Based on comparison between the results of lab tests (Table 38) and perceptions about water quality (Table 39) and surrounding conditions of WRs (current Table), it is recommended that WR development under this WUMP precedes comprehensive technical and social assessment of the site and source.

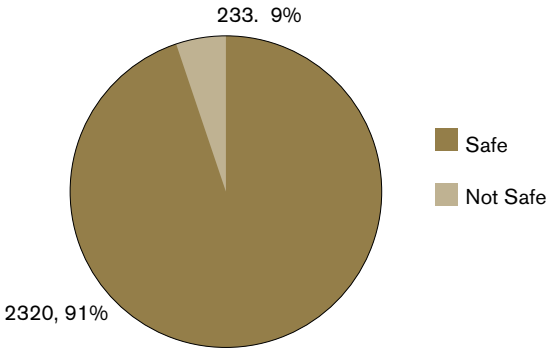


Table 40: WUGs Perceptions about Surrounding Conditions of WRs

Particulars	Meta Khel	Esak Chontra	Gundi Mir Khan Khel	Jandri	Karak South	Latambar	Palosa Sar	Sabir Abad	Karak North	Gross Total
Safe	304	179	178	629	134	489	79	321	7	2320
Not Safe	40	35	31	9	21	27	41	27	2	233
Total	**344**	**214**	**209**	**638**	**155**	**516**	**120**	**348**	**9**	**2553**

Table 41: According to WUGs, only 128 WRs are managed by O&M committee whereas remaining 2,425 are left to the mercy of private-owners and influential elements. More disappointing is the acute gender-imbalance as only one O&M Committee has two women members. Unless these and other allied indicators are improved, such as having in place more efficaciously working O&M committees and ensuring women's useful integration in them, an inclusive WRM will remain a distant dream.

Table 41: Operations and Maintenance Committees of WRs

Particulars	Meta Khel	Esak Chontra	Gundi Mir Khan Khel	Jandri	Karak South	Latambar	Palosa Sar	Sabir Abad	Karak North	Gross Total
O&M Committees Exist	20	23	18	5	0	30	21	7	4	128
Male Members	93	73	25	47	0	123	91	31	20	503
Female Members	0	2	0	0	0	0	0	0	0	2
O&M Committees Don't Exist	324	191	191	633	155	486	99	341	5	2425

Table 42: Consultations with WUGs revealed that water crisis has more adverse bearing on local women and girls than on their men counterparts. As the water issue aggravates, their suffering also mounts exponentially. The job for them to cover extra distances to find and fetch water gets even tougher. It is the women members of HHs' dependent on collection of water from distant WRs, who walk for an average 30 minutes and cover1/3rd of a km in one round trip to fetch water home. Each day they are required to complete minimum of such three rounds by walking for at least one and a half hours and covering a distance of 1.14 km. In traditional societies women have to raise their children, cook food, clean their homes, wash and press clothes for their family members, collect fuel, water and fodder, manage livestock, and, assist their men in on/off farm activities. Therefore, improving WRM will have most positive implications on their (women's) physical and mental health and extension of many other benefits to children and families. The more quality time they will spend with their children, the less malnourished and hygienically vulnerable, the more focused on education and meaningful social change agents they would become.

Table 42: Women and Girls - the Ultimate Victims of Water Crisis

Union Councils	Fetching Time Per Round Trip Per Person (Minutes) [1]	Distance Covered Per Round Trip Per Person (km) [2]	No. of Round Trips Per Person Per Day [3]	Total Time Spent Per Person Per Day [1*3]	Total Distance Covered Per Person Per Day (Km) [2*3]
Meta Khel	32.14	0.32	3.00	96.43	0.95
Sabir Abad	47.86	0.80	3.21	153.83	2.57
Esak Chontra	35.91	0.34	3.45	124.05	1.18
Palosa Sar	50.83	0.74	3.58	182.15	2.66
Gundi Mir KK	26.43	0.25	4.29	113.27	1.07
Karak South	14.62	0.19	1.15	16.86	0.22
Jandri	31.32	0.42	2.32	72.52	0.98
Karak North	3.73	0.05	0.60	2.24	0.03
Latambar	22.86	0.31	1.93	44.08	0.61
Averages	**30**	**0.38**	**3**	**90**	**1.14**

Table 43: The total quantity of water required for an average daily consumption (local human population and livestock as well as irrigation purposes) is 24,047,282 litres. As table 45 indicates, despite availability of an additional water resource, Tehsil Karak is presently experiencing acute water shortage. Therefore, the need is to improve efficiency of existing water resources through better and judicious management instead of creating more or parallel infrastructures such as installation of tube wells, dug wells and pressure pumps. As has been emphasised throughout this report, latter will exacerbate the situation further.

Table 43: Current Daily Demand for Water: 2016 – 2017

UCs	Human Population				45 Ltr Per Capita	Livestock		Irrigation		Total Quantity Required Daily(Litre)
	Vended Water	Access to Tap Water	Fetching Water	Total		Livestock	@ Avg. 10 Ltr Daily	Ha'	@ 0.15ltr/sec/ ha for 2 Hrs for 4 times/365 days	
Meta Khel	3,520	12,179	42,169	57,868	2,604,060	26,370	263,700	59	703	2,868,463
Esak Chontra	2,833	12,619	21,535	36,987	1,664,415	29,272	292,720	89	1,055	1,958,190
Gundi Mir Khan Khel	1,715	8,173	19,149	29,037	1,306,665	22,720	227,200	535	6,327	1,540,192
Jandri	32,374	5,429	37,199	75,002	3,375,084	40,091	400,910	564	6,679	3,782,673
Karak South	49,053	4,234	3,870	57,157	2,572,072	13,366	133,660	238	2,812	2,708,544
Latambar	36,134	14,766	10,756	61,656	2,774,520	16,271	162,710	178	2,109	2,939,339
Palosa Sar	3,528	14,065	38,610	56,203	2,529,135	37,420	374,200	267	3,164	2,906,499
Sabir Abad	5,684	19,319	19,521	44,524	2,003,580	13,344	133,440	475	5,624	2,142,644
Karak North	63,000	1,328	1,542	65,870	2,964,150	22,991	229,910	564	6,679	3,200,739
Total	**197,841**	**92,112**	**194,351**	**484,304**	**21,793,680**	**221,845**	**2,218,450**	**2,970**	**35,152**	**24,047,282**

Table 44: Current daily discharge capacity of the available WRs is 30,251,708 litres which is 6,204,426 litres more than the current daily requirement of 24,047,282 litres. In addition to this, Table 45 provides estimates of an additional discharge capacity i.e. the surplus water available at various locations in Tehsil Karak. Given these realities, emphasis must be placed on making existing infrastructures workable and efficient rather than wasting resources on development of new ground water extraction schemes.

Table 44: Current Daily Water Supply, Demand and Deficit/Surplus

UCs	WRs: 24 Hrs Discharge		WRs: Avg. 9 Hrs Daily Discharge		Untapped WRs: Average 2 Hours Daily Discharge for 2 Months Annually/6		Total Avg. Daily Discharge	Total Quantity Required Daily (ltr)	Deficit/ Surplus
	WRs	Discharge (Ltr)	WRs	Discharge (Ltr)	WRs	Discharge (Ltr)			
Meta Khel	5	190,080	308	3,691,980	13	816,000	4,698,060	2,868,463	1,829,597
Esak Chontra	5	388,800	182	2,744,220	3	150,000	3,283,020	1,958,190	1,324,830
Gundi Mir Khan Khel	1	86,400	168	1,503,900	5	294,000	1,884,300	1,540,192	344,108
Jandri	3	1,857,600	629	3,945,096	0	0	5,802,696	3,782,673	2,020,023
Karak South	0	0	115	931,320	0	0	931,320	2,708,544	(1,777,224)
Latambar	0	0	504	7,655,148	0	0	7,655,148	2,939,339	4,715,809
Palosa Sar	6	1,581,120	94	913,712	10	144,000	2,638,832	2,906,499	(267,667)
Sabir Abad	3	259,200	294	2,918,412	0	0	3,177,612	2,142,644	1,034,968
Karak North	1	25,920	5	154,800	0	0	180,720	3,200,739	(3,020,019)
Total	**24**	**4389120**	**2299**	**24458588**	**31**	**1404000**	**30,251,708**	**24,047,282**	**6,204,426**

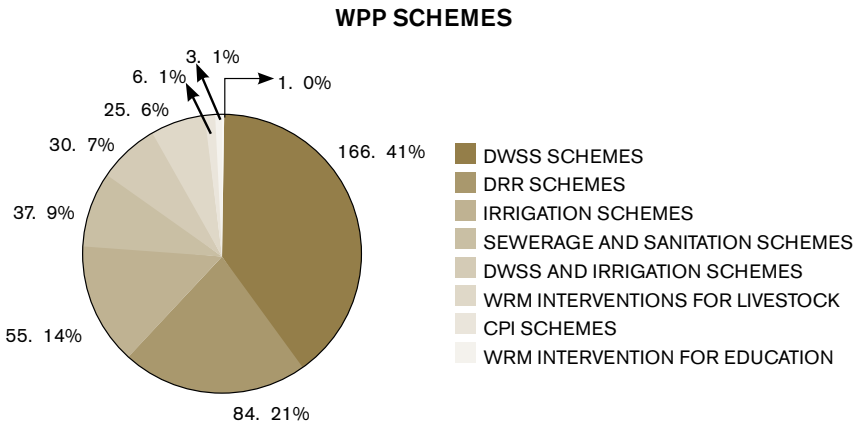
Table 45: In Tehsil Karak, there are 590 locations where there is potential for tapping into presently un-utilised or under-utilised or surplus water resource. The net additional discharge capacity at these locations is 49,962,465 litres. There are numerous reasons for the non/under-utilization of aforementioned net available water including but not limited to unavailability of electricity, communal feuds and non-performance of duties by the line department officials. Many supplementary and up-scaling schemes such as small dams/reservoirs, source treatment or conditioning to improve efficiency, supply lines, electrification and/or Solarisation and formation of community-led bodies (WUAs/WUGs) have been proposed to utilise this surplus resource for public good. In order to better plan and implement schemes benefitting all equally and to ensure their long-term sustenance, the district and Tehsil governments (elected representatives and administration) of Karak should steer the process of scheme identification, development and management with the assistance of Helvetas, AKDWO and respective local communities.

Table 45: Potential Sites for Retention/Reuse of Surplus Water

UCs	Surplus Water at Existing WRs	Surplus Water (Discharge in Litres Per Day)
Meta Khel	97	28,486,020
Esak Chontra	65	5,715,110
Gundi Mir Khan Khel	90	10,760,855
Jandri	73	408,870
Karak South	67	263,568
Latambar	64	83,775
Palosa Sar	25	3,133,024
Sabir Abad	109	711,243
Karak North	-	-
Total	**590**	**49,962,465**

3.8. WUMP Planning Process – Interventions Identified and Prioritised

Table 46: The WPP exercise carried out with the involvement of WUGs has led to identification and prioritization of 407 WRM schemes under nine major categories. These schemes and categories include 166 DWSS Schemes, 30 schemes that serve both



DWSS and Irrigation purposes, 55 Irrigation Schemes, 84 DRR Schemes, 37 Sewerage and Sanitation Schemes, 06CPI Schemes, 25 WRM Interventions for livestock, 03WRM Interventions for Education and 01 WRM Intervention for Health.

Table 46: WPP Schemes Identified and Categorised

WUMP Schemes	Number of Schemes
DWSS Schemes	166
DRR Schemes	84
Irrigation Schemes	55
Sewerage and Sanitation Schemes	37
DWSS and Irrigation Schemes	30
WRM Interventions for livestock	25
CPI Schemes	6
WRM Interventions for Education	3
WRM Interventions for Health	1
Total	**407**

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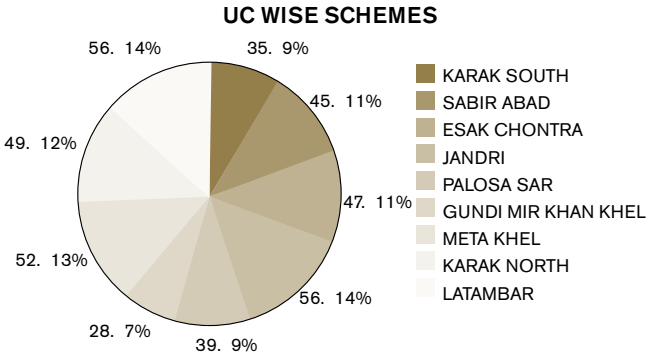


Table 47: A fair and equitable distribution of WRM schemes across 09 Union Councils of Tehsil Karak has been ensured. However, the distribution on the scale of 'most needed' (Category A) to 'least needed' (Category H) has been done in strict consideration of i) community need, ii) resource availability, iii) feasibility for development of resource, iv) value for money (cost and productivity), v) coverage (meeting optimum human, livestock and irrigation needs), vi) building resilience, vii) protecting human settlements, viii) improving health and hygiene conditions, ix) improving and enhancing access to safe drinking water, x) lessening economic, health and environmental costs, xi) reducing mental and physical stress on women, xii) improving agricultural and livestock base of the communities through improved access to drinking and irrigation water, and, xiii) environmental impacts.

Table 47: WPP Schemes (UC Wise Prioritization)

UCs	UC Wise Schemes
Karak South	35
Sabir Abad	45
Esak Chontra	47
Jandri	56
Palosa Sar	39
Gundi Mir Khan Khel	28
Meta Khel	52
Karak North	49
Latambar	56

WUMP Schemes –Union Councils Page 49

3.9. WUMP Planning Process - Key Findings and Recommendations

Water governance is a recent phenomenon in Pakistan. It is believed that water governance reforms are evolutionary rather than a mechanical process. Therefore, there is a need for broader and sustained engagement with local bodies (third tier of governance), academia, researchers and local informal leadership as well as communities. Involving these key stakeholders, with an emphasis placed on raising the performance of drinking and irrigation water supply systems through reforms in the governance culture will be the key to reduce water and food insecurities and improve livelihood conditions of the focused communities.

Unplanned WRM including non-maintenance of existing initiatives and ceaseless installation of new tube-wells without even assessing their feasibility is chiefly responsible for worsening the situation. GLAs may consider carrying out an assessment of existing public and private WRs across the Tehsil to determine an integrated, eco-friendly and cost-efficient road map for the future.

The issue is acute however, it can be reversed by building small dams and reservoirs at feasible sites on hill torrents and natural water courses. Current imbalance between groundwater extraction and recharge is posing a serious threat on its use; therefore, GLAs may consider identifying/working on feasible sites to address the issue around eco-sensitive 3Rs approach.

There is a serious paucity of scientifically established data of geological or environmental nature. Therefore, GLAS may consider employing a robust process of regular scientific monitoring to measure concentrations of radon and other non-soluble content in the drinking water sources including springs, tube-wells, boreholes and open wells to prevent the communities from associated health hazards.

Inadequate water harvesting and inadequate storage facilities exist in Tehsil Karak seasonal flows through natural water courses and hill torrents need to be directed into small dams and sub-surface water reservoirs in order to improve underground water table, and availability of water for drinking and irrigation purposes.

Government needs to improve internal structures for water governance to ensure judicious management and distribution of water to the public using sound ecological practices. Addressing these challenges will require new knowledge, technologies and institutional arrangements where engagement of local bodies, accdemia, researchers, local informal leadership as well as organised communities are involved.

In order to build further on this preliminary assessment an initiative led by the District and Tehsil government duly supported by Helvetas and AKDWO should aim for optimisation of ultimate benefits to the local communities through merit-based development and revitalization of WRs. Viable options must be explored to spread the benefits equitably to a larger population to a feasible extent utilising the forum of Water User Association.

13,161 HHs (19%) are without landholding whose condition is likely to be more acute due to their limited or no access to the PHED water supply schemes, or not residing in areas where drinkable underground water is available, or not having land or other means to extract underground water for domestic consumption. These HHs must get their due share of attention at the planning stage of schemes under this WUMP.

About 79% mud structures represent impoverished conditions of the respective population, their vulnerability to unprecedented hazards, and, their likelihood of being hit hard by the increasingly depleting WRs including drought conditions. Development schemes must take into account measures to reduce their current and future vulnerabilities, such as migration due to lack of or depleting water resources.

Given the current poor health and hygiene conditions of majority of focus communities, this WUMP should view sewage, sanitation and DRR as integral elements to be woven into WRM schemes to make them risk free.

Aiding agricultural productivity through provision of farming inputs and efficient on-farm water management structures will improve livelihood options thereby lessening un-employment and increasing incomes (hence, coping capacities). Despite offering fertile soil and friendly climate to grow staple food still Tehsil Karak is at the risk of becoming a food insecure region. Expanding the agricultural and livestock base of local communities through an environment-conscious IWRM will guarantee reduction in food insecurity.

Livestock are a major source of livelihood and their sustenance is chiefly dependent on water and fodder while supplementary husbandry services are also vital. In the Tehsil, they are almost non-existent.

Using gas as an alternate source of fuel in lieu of wood will decelerate the pace of deforestation. Protecting and expanding forest cover improves frequency of precipitation besides returning other important ecological dividends; therefore, this particular aspect should remain a key consideration while planning various interventions under WUMP.

There is a general misconception in the communities that underground water is safe therefore it needs no treatment before drinking. Attention must be paid to ensure lab testing of the water samples taken from proposed scheme sites, besides sensitising WUGs and their respective village communities regarding waterborne diseases.

Statistics regarding waterborne diseases reveal a dismal state of the effects of contaminated drinking water. Interventions under this WUMP must seek to promote healthy practices around handling, storage and utilisation of drinking water at community and HH levels.

Global studies have proven that poverty, unemployment, poor health and hygiene conditions and some of the communicable diseases are correlated with illiteracy. Sustainability of the schemes under this WUMP may only be ensured by harnessing sense of responsibility and ownership among individuals and families regarding their shared interests, mutual rights and collective role to ensure fair and equitable management and distribution of local natural resources.

While stress caused by the paucity of water is the gravest (Table 15) yet, it is the least responsible factor for migrations. The figures shown in Table 32 clearly emphasise the need to take an integrated approach to development so that the issues not directly affecting water scarcity per se, but affecting lives of the residents appallingly, could also be addressed.

Sporadic and poorly managed water schemes mostly developed, driven and backed by political preferences (not the pressing need or merit) are the major underlying cause of acute water shortage. Malpractices and misplaced priorities must be substituted with actions embodying the felt and prioritised needs of general public.

Two dams Zebi & Changoz in Tehsil Karak offer a great deal of potential to store drinkable water and being accessible to those needing it the most. However, making this happen will require an honest and dedicated endeavour by the local leadership and GLAs to transform the dams into useful reservoirs supplying clean drinking water.

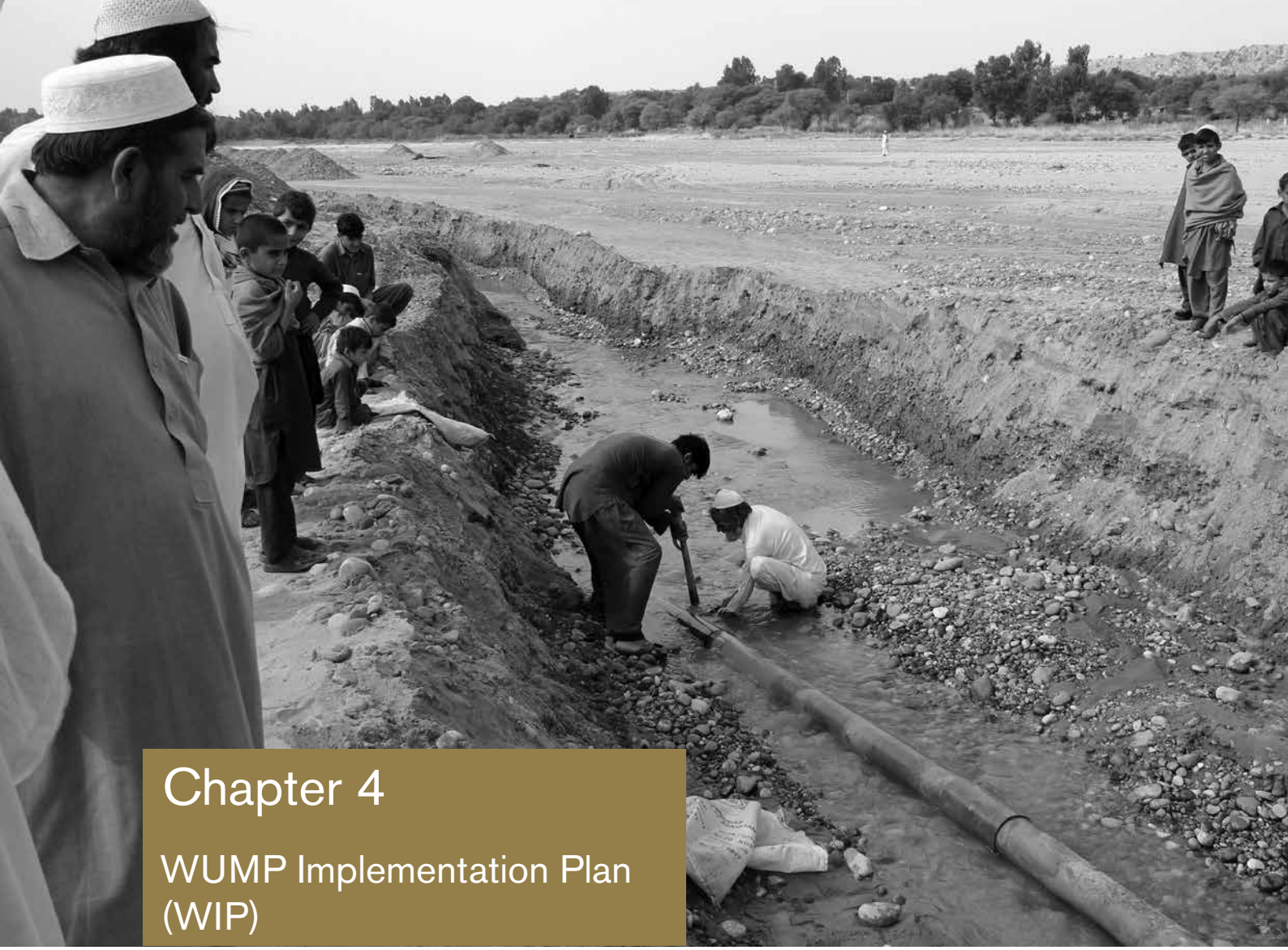
Locals don't pay water tariff. Removal of the intrinsic fault-lines in the governance system shall succeed delivery of basic municipal services judiciously, which will also guarantee recovery/collection of tariff from the citizens.

About 2,029,193 PKR is the estimated total amount spent by 28,472 HHs to buy 8,674,148 litres of vended water, daily. Viable options such as banking upon surplus WRs reported in Table 42 must be explored to lessen the acute water shortage and resultant financial stress on HHs dependent on vended water. Daily surplus water is 23,812,402 litres (Table 42) whereas water bought by HHs daily is 8,674,148 litres; which, even if provided from the surplus water, will still be15, 138,254 litres surplus. It is about time that continual focus from misplaced priorities is shifted, to bank on economically and ecologically viable ventures.

The ground situation calls for more robust and reliable testing of water samples taken from all WRs, not once in a lifetime but as a recurrent activity with an interval of 3-6 months to ensure that safe WRs do not turn saline and/or radon concentrations do not exceed the acceptable limits.

Having more efficaciously working O&M committees under supervision of WUAs/ WUGs which ensure women's useful integration in them as well. This will guarantee an inclusive WRM, which is the weakest link in present circumstances.

Disputes add more miseries to the acute water shortage already encountered by the local communities, particularly the low-income strata. An empowered dispute resolution body, notified and backed by the government and led by the local neutral and unbiased leaders from the community can resolve, mitigate and pre-empt such disputes for public good.



Chapter 4

WUMP Implementation Plan (WIP)

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

WUMP identified and prioritised a total 407 initiatives in Tehsil Karak out of which 38 are at Macro level, 307 are at Meso level, and 62 are at Micro level. The tentative cost of WUMP Physical infrastructures is 674.869 M PKR. Amongst 407 initiatives 60% of the prioritised initiatives are same as recommended by GLAs and also the WUGs/WUAs. While the remaining 40% are pressing needs identified by communities (Annexure D).WUMP can be implemented on the basis of ownership and interest. The availability of funds could be from District, Tehsil, gas royalty and beneficiaries' contributions. This has been anticipated in long-term (10 years), Mid-term (07 years) and short-term (03 years) as per following details:

i: Long-Term Planning (10 years)

Long-term planning includes Macro level schemes which need more completion time and have long-term impacts and benefits. Dams (Surface, Sub Surface, Delay Action etc.), Mega Water Supply Schemes and Irrigation Channels are included in Macro level schemes. These schemes may also need detailed feasibility studies therefore they are considered long-term though they come up as top priority and dire needs of the communities and the area. These initiatives could also be based on other research studies proposed by WUMP. The duration of such implementations will be 10 years.

ii: Mid-Term Planning (07 years)

Mid-term planning includes implementation of Meso level WRs infrastructures i.e. DWSS, DRR, water pond, storage tanks, irrigation channel etc. The duration of implementing such types of initiatives is 07 years.

iii: Short Term Planning (03 years)

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

4.1. Possible Resources for WUMP Implementation

The expected resources of funds allocation for WUMP implementation are as under;

- Annual Development Plan Budget (ADP)
- District Local Government Fund
- Gas Royalty
- Water for Livelihood Project
- Cost sharing of beneficiaries
- Other organizations working in water sector
- Potential Donors

Water for Livelihood Project is investing under certain specific guidelines and financial limitations. Each initiative is taken while working with WUGs/WUAs and implementing with up to20% cost sharing of beneficiaries. This was also a selection criterion content during prioritisation process. ADP and Gas Royalty funds could be the potential resources to implement Macro level initiatives of WUMP.

4.2. Strategy to Functionalise Water Infrastructure and Dispute Resolution

Among 2,553 WRs, 199 potential WRs are Non-functional, 71 water related disputes are currently prevailing in Tehsil, O&M system at community (and beneficiaries) level is very weak or not available. Low practice of water user contribution to water billing and illegal access to water are the most prominent water governance issues. Improving water infrastructure is only possible with simultaneous attention on water governance issues. WUMP has proposed to establish an Arbitration Council at Tehsil level to solve these water governance issues on sustainable basis. The following actors could effectively contribute in this Council:

i: District Government/Government Line Departments

District Government could play an effective role in functionalising water infrastructure and dispute resolutions through Local Bodies' representatives. District Government has already reserved a budget of millions of rupees under PC-1 for year 2015-16 for rehabilitation of WRs. Water related Government Line Departments could also become part of this council and guiding technical issues in a dispute or in other matters.

ii: WUGs/WUAs

Water User Groups and Water User Associations could also play an effective role in rehabilitation, O&M, and dispute resolutions. Sufficient capacities of WUAs are built by W4L regarding dispute resolutions and water resource governance through implementation of 8-10 % of WUMP initiatives and capacity building.

iii: Jirgah (Respected Elders)

Jirgah System or group of respected elders could also be added with WUAs for better resolution of disputes.

Annexure-I

District and Tehsil Government Initiatives – (2005 to 2015)

Macro Level Schemes: Large scale initiative includes Zebi Dam from which two DWSS have been carried out to Karak South & North. Further on an irrigation channel from Changos Dam to Latamber UC are major activities. Other large scale initiatives include Ghole Dam, Sarki Lawaghar Dam & Chambi Dam. Mega Scheme is also planned for DWSS from Sarki Lawaghar Dam for Karak City but still to be implemented.

S.#		A(On-farm water management)		B(Irrigation Department)		C(PHED)		D(TMA)		E (Soil and Water Conservation)	
	Union Council	Type of Schemes	Population Covered	Type of Schemes	Population Covered	Type of Schemes	Population Covered	Type of Schemes	Population Covered	Type of Schemes	Population Covered
1	Karak South					DWSS (Pipe-line from Zebi Dam)	8000				
2	Karak North					DWSS (Pipeline from Zebi dam)	10000				
3	Latamber			Irrigation (water channel(3'*3') from Changos dam to Latamber	7000 people and 7787ha un irrigated land						
Meso Level Schemes											

S.#		A(On-farm water management)		B(Irrigation Department)		C(PHED)		D(TMA)		E (Soil and Water Conservation)	
	Union Council	Type of Schemes	Population Covered	Type of Schemes	Population Covered	Type of Schemes	Population Covered	Type of Schemes	Population Covered	Type of Schemes	Population Covered
1	Karak South	Total 28 (PVC pipe lining)	950			10 TWs/ DWSS	4950			1: 02 Inlet/ Outlet Structure 2: 01 Water Storage tank	1: 90 2: 70
2	Karak North	Total 7 (PVC pipe lining)	200	1: 5 Diversion structure 2: 2 Hydraulic structure 3: 3 small ponds 4: 1 DRR	1340 300 640 730	05 TWs/ WSSs	2450			05 DRR Structure	1320
3	Latamber	Total 33 PVC	1134			14 TWs/ WSSs	6860			1: 05 Inlet/ Outlet Structure 2: 02 Check Dams	1: 55 2: 960
4	Metakhel	Total 35 PVC lining+ Bricks/ cement	3000	1: 3 Flood protection wall 2: 2 DRR	1230 440	07 TWs/ WSSs	3430			1: 06 Inlet/ outlet Structure 2: 7 DRR Structure	1: 430 2: 2250
5	Sabir Abad	Total 26 (PVC lining+Bricks/ cement)	1600	1: 01 Small ponds for irrigation(sher khan kala) 2: 5 Flood protection wall 3: 4 small ponds	340 1730 770	13 TWs/ WSSs	6370	1.DWSS(Mini tube well) 2.DWSS(Supply of HDPE pipe)	1.105 2.300	1: 14 Inlet/ outlet structure 2: 6 DRR Structure 3: 4 Check dams	1: 460 2: 2890 3: 1950

6	Palosa sar	0	0	2 Flood protection wall	500	08 TWs/ WSSs	3920			1: 03 DRR Structure 2: 04 Inlet/ outlet structure	1: 740 2: 165
7	Esak chontra	Total 39 (PVC lining+Bricks/ cement)	3400	1: 03 Flood protection wall 2: 04 small ponds 3: 05 DRR	1100 930 1850	1:06 TWs/ WSSs 2: 06 Infiltration Gallery	1: 3000 2: 3780	DWSS(pipe line)	250	1: 6 DRR Structure 2: 7 Inlet/ outlet structure	1: 3240 2: 245
8	Gundi Mir khan khel	Total 22 PVC lining	1500	1: 14 numbers tank and Earthen cattle ponds 2: 03 Flood protection wall 3: 04 DRR	4000 1130 1740	1:10 TWs/ DWSSs 2: 02 Infiltration Gallery	1: 4900 2: 1260			1: 09 DRR Structure 2: 02 Inlet/ outlet structure	1: 4400 2: 45
9	Jandari	39 PVC pipelining	1840	1: 09 DRR	3890	17 TWs/ DWSSs	8460			1: 6 DRR Structure 2: 4 Inlet/ outlet structure 3: 5 Check dams	1: 2840 2: 115 3: 870
Micro Level Schemes											

S.#		A(On-farm water management)		B(Irrigation Department)		C(PHED)		D(TMA)		E (Soil and Water Conservation)	
	Union Council	Type of Schemes	Population Covered	Type of Schemes	Population Covered	Type of Schemes	Population Covered	Type of Schemes	Population Covered	Type of Schemes	Population Covered
1	Karak South					75 Pressure Pumps/Hand Pumps	2625				
2	Karak North					65 Pressure Pumps/Hand Pumps	2275			3 Small Water ponds	110
3	Latamber	12 PVC pipelining	320					10 DWSS(Installation of Pressure pump and hand pump)	450	15 Small Water Ponds	970
4	Metakhel	9 PVC pipelining	270			18 Pressure Pumps/Hand Pumps	650	DWSS(9 Pressure pumps)	320	7 Small Water Ponds	650
5	Sabir Abad	6 PVC pipelining	180			85 Pressure Pumps/Hand Pumps	3000			9 Small Water Ponds	1030
6	Palosa sar					39 Pressure Pumps/Hand Pumps	1400			6 Small Water ponds	575
7	Esak chontra	5 PVC pipelining	165			31 Pressure Pumps/Hand Pumps	1100			11 Small Water ponds	1565
8	Gundi Mir khan khel	4 PVC pipelining	125			60 Pressure Pumps/Hand Pumps	2100			8 Small Water ponds	780
9	Jandari	11 PVC pipelining	745			43 Pressure Pumps/Hand Pumps	1500			14 Small Water Ponds	1560

4.3. WUMP Schemes (UC Wise Break-up)

S.No	Identified Scheme		UCs & Scheme Numbers									Estimated Cost (PKR in Millions)
	Main Category	Sub-Category	Karak South	Sabir Abad	Esak Chontra	Jandri	Palosa Sar	Gundi Mir Khan Khel	Meta Khel	Karak North	Latambar	
1	DWSS	Pipeline	11	3	9	8	6	3	10	11	5	70.16
		Operationalise Zebi Scheme	2									0
		PHED related social problems		1		2			2		2	0
		Water Pond				2	2				2	4.37
		Water Tank			1	2	2	1	2		3	17.57
		Pipeline + Pressure Pump + Solar System		3		1	1				1	17.21
		Solar System + Tank					4				2	19.83
		Pipeline + Water Tank	2	1	8	4	1		4	5	3	46.65
		Solar System			1		2	2	5	1	1	43
		Rehabilitation of Water Pond								1		1
		Tube-well				3						9
		Rehabilitation of (Dug-well, Pipeline, Tube-well, Water Tank, Pond, Mini Dam)	2	3		2	1	2		2	6	18.13
2	DWSS & Irrigation	Mini Dam		10	3	3		3	3	6	2	134.73
3	Irrigation	Cutting and Filling	1									1
		Mini Dam			2			3	1			12.54
		Diversion Structure			1				1			1.01
		Irrigation Pond							2			4.66
		Inlet/Outlet Structure	1	2					1			8.5
		Irrigation Channel	1		2		2				4	9.04
		Land levelling									1	0.4
		Pipeline	1	1	2	4			2	2	4	14.91
		Solar System									1	6
		Pipeline + Solar System		1								2.25
		Machine for Dug-well		1								0.4
		Pipeline + Tank		2		1						5.02
		Rehabilitation of Dug-well	2	2	1							1.35
		Water Tank	2	1								1.8
4	DRR	DRR Interventions	6	7	10	16	9	7	9	9	11	123.26
5	Sanitation	Drainage Line (Sewerage system)	1	1	4	3		6	5	10	5	79.65
		Collection Chamber			1				1			0.7
6	CPI	Street Pavement	3							1	1	14.17

		Cause Way (Road Protection)					1					0.15
7	Livestock	Rehabilitation of Cattle Pond								1		0.25
		Cattle Pond		6	2	4	6	1	4		1	6.08
8	Education	Primary School				1	1				1	
9	Health	BHU					1					
Gross Total	**35**	**45**	**47**	**56**	**39**	**28**	**52**	**49**	**56**	**674.87**		

4.4. WUMP IMPLEMENTATION PLAN (WIP)

Priority Rank	Scheme	Number	Est. Cost [PKR in Millions]	IMPLEMENTING YEARS 1	2	3	4	5	6	7	8	9	10
A													
	Pipeline	46	46.23										
	Operationalise Zebi Scheme	2	-										
	Water Tank	3	6.45										
	Pipeline + Pressure Pump + Solar System	5	15.71										
	Solar System + Water Tank	5	18.09										
	Pipeline + Water Tank	14	22.28										
	Solar System	3	11										
	Tube-well	2	6										
	Rehab: (Dug-well, Pipeline, Tube-well, Water Tank, Pond, Mini Dam)	7	11.93										
	Mini Dam	13	66.36										
	Irrigation Channel	3	4.37										
	Pipeline + Solar System	1	2.25										
	Machine for Dug-Well	1	0.4										
	Rehabilitation of Dug-well	3	0.53										
	Water Tank	2	1.1										
	DRR Interventions	10	19.35										

B			
	Pipeline	15	20.79
	PHED Social Problems	7	-
	Water Pond	3	2.2
	Water Tank	8	11.12
	Pipeline + Pressure Pump + Solar System	1	1.5
	Solar + Tank	1	1.75
	Pipeline + Water Tank	9	16.85
	Solar System	4	18
	Rehabilitation of Water Pond	1	1
	Rehab: (Dug-well, Pipeline, Tube-well, Water Tank, Pond, Mini Dam)	4	3.34
	Mini Dam	8	35.07
	Diversion Structure	1	0.67
	Inlet/Outlet Structure	1	4.2
	Irrigation Channel	1	0.6
	Pipeline	5	3.64
	Pipeline + Tank	1	1.22
	Water Tank	1	0.7
	DRR Interventions	30	39.25

	Drainage System	8	21.33	
	Collection Chamber	1	0.4	
	Street Pavement	2	7.62	
	Cause Way	1	0.15	
	Rehabilitation of Cattle Pond	1	0.25	
	Cattle Pond	3	1.3	
	BHU	1		
C				
	Pipeline	4	2.75	
	Water Pond	1	0.37	
	Pipeline + Water Tank	3	6.07	
	Solar System	2	6	
	Tube-well	1	3	
	Rehab: (Dug-well, Pipeline, Tube-well, Water Tank, Pond, Mini Dam)	3	1.17	
	Mini Dam	11	27.73	
	Cutting and Filling	1	1	
	Irrigation Pond	2	4.66	
	Inlet/Outlet Structure	2	3.7	
	Irrigation Channel	3	2.64	
	Land levelling	1	0.4	

	Pipeline	2	2.48	
	Solar System	1	6	
	Pipeline + Tank	2	3.8	
	DRR Interventions	36	56.79	
	Drainage System	12	33.3	
	Cattle Pond	12	3.03	
D				
	Pipeline	5	5.75	
	Water Pond	2	1.8	
	Solar System	2	6	
	Rehab: (Dug-well, Pipeline, Tube-well, Water Tank, Pond, Mini Dam)	2	0.6	
	Mini Dam	3	15.8	
	Inlet/Outlet Structure	1	0.6	
	Irrigation Channel	1	0.9	
	Rehabilitation of Dug-well	2	0.83	
	DRR Interventions	7	6.66	
	Drainage System	10	14.93	

	Collection chamber	1	0.3	
	Street Pavement	2	1	
	Cattle Pond	6	1.05	
	Primary School	1		
	BHU	1		
E				
	Pipeline	3	2.32	
	Pipeline + Water Tank	1	0.73	
	Solar System	1	2	
	Rehab: (Dug-well, Pipeline, Tube-well, Water Tank, Pond, Mini Dam)	1	0.5	
	Mini Dam	1	2.33	
	Diversion Structure	1	0.34	
	Drainage System	4	6	
	Street Pavement	1	5.55	
	Primary School	1		
F				
	Pipeline + Water Tank	1	0.73	
	Pipeline	1	0.42	
	DRR	1	1.22	

	Drainage System	1	4.1																													
	Cattle Pond	2	0.65																													
G																																
	Land levelling	1	0.53																													
	Solar System	1	0.7																													
	Cattle Pond	1	0.06																													
H																																
	Mini Dam	1	0.6																													
Gross Total	407	674.87																														

D.WUMP Schemes (Village and Village Council Prioritization)

Village Names	Codes	Schemes (Main)	Scheme (Sub Type)	Specifications/Particulars	Location of the Intervention	Beneficiary HH	Land to be Protected (Ha)	Estimated Cost [PKR/Millions]	Priority Ranking		Scheme adopted from the GLAs Lists
									Village	VC	
Union Council		Karak South			Village Council	Official Colony					
Macro Schemes: All schemes linked to/associated with Zaibi and Charghoz Dams, etc											
Meso Schemes: Ponds, small dams, sub-surface dams, retention/protection walls, major new supply schemes											
Micro Schemes: Community/village level upgrade and rehabilitation schemes											
Lewal Algadi	KS-01	DWSS	Pipeline from Tube-well	PVC6000'PL (4"dia)	Lewai Algada	200		1.1	A	A	Yes
	KS-02	DWSS	Pipeline	PVC4000'PL (3"dia)	Lewal Algada	55	1.5	0.55	B		
	KS-03	Irrigation	Inlet/Outlet structure	3*20'	Lewal Algada		2.5	0.3	C		Yes
Karak Sar	KS-04	DWSS	Pipeline	PVC8000'PL (3"dia)	From Leva Algada to Karak Sar	700		1.1	A	B	Yes
	KS-05	DWSS	Pipeline	PVC3500'Pl (3"dia)	From PHED Tube-well Karak Sar	300		0.5	B		
	KS-06	DRR	Protection Wall	8*30' (Width 4' and height 6')	Karak Sar	180		0.5	C		
Official Colony	KS-07	DWSS	Operate Zebi Scheme		Official colony	750			A	E	Yes
	KS-08	DWSS	Pipeline	PVC3000'PL (2"dia)	Official colony	750		0.37	B		Yes
	KS-09	DRR	DRR	8*30' (Average width 4' and height 6'	Official colony	55		0.5	C		
Tangori	KS-10	DWSS	Rehabilitation of Tube-well + Rehabilitation of Water Tank + Pipeline	PVC4000'PL (3"dia)	Tangori	775		1.1	A	F	Yes
	KS-11	Irrigation	Pipeline	PVC3000'PL (3"dia)	Tangori	140	20	0.45	B		Yes
Mohallah shah Noor Khel	KS-12	DWSS	Pipeline from Zebi Scheme + Overhead Tank	PVC10000'PL (3"dia)+10'*10'*4' tank	Mohallah shah Noor Khel	1711		4.5	A	D	Yes
	KS-13	DRR	DRR	10*100' (Average width 4' and height 6'	Mohallah shah Noor Khel	400		2.1	B		
	KS-14	DWSS	Pipeline	PVC5000'PL (3"dia)	Mohallah shah Noor Khel	800		0.7	C		
Mohallah Gul Bostan Korona	KS-15	DWSS	Pipeline from Zebi Scheme or Sarki Lawager	PVC5000'PL (3"dia)	Mohallah Gul Bostan Korona	330		0.7	A	G	Yes

Village Names	Codes	Schemes (Main)	Scheme (Sub Type)	Specifications/Particulars	Location of the Intervention	Beneficiary HH	Land to be Protected (Ha)	Estimated Cost [PKR/Millions]	Priority Ranking		Scheme adopted from the GLAs Lists
									Village	VC	
Mohallah Masherai Korona	KS-16	DWSS	Pipeline from Zebi Scheme or Sarki Lawager	PVC5000'PL (4"dia)	Mohallah Masherai Korona	300		0.9	A	C	Yes
	KS-17	DRR	DRR	10*100' (Average width 4' and height 6'	Mohallah Masherai Korona	300		2.1	B		
	KS-18	Irrigation	Irrigation Channel	9840'	Mohallah Masherai Korona		7.2	1.3	C		
Union Council		Karak South			Village Council	College Town					
Malak Shamsul	KS-19	DWSS	Rehabilitation of Water Tank + New Pipeline	PVC10000' (3"dia)	From water tank to whole village	640		1.8	A	C	
	KS-20	Street pavement		4000'	Malak Shamsul Wahab	400		4.2	B		
Mohallah College town	KS-21	DWSS	Pipeline + Water Tank	PVC6000'PL (4"dia) and 20'*20'*4.5' tank	Connect this tank with Zebi or Sarki Lawager dam Pipeline	330		1.5	A	D	Yes
	KS-22	Street Pavement		3000'	Mohallah College town	330		3.2	B		
lah Abbas Koron	KS-23	DWSS	Operate Zebi Scheme		Mohallah Abbas Korona	180			A	F	Yes
	KS-24	Sewerage system	Drainage system	2000' (Average width 0.75' and height 1.16')	Mohallah Abbas Korona	180		2.1	B		Yes
Tappi Algadi	KS-25	DWSS	Pipeline from Zebi Scheme	PVC11500'PL (3"dia)	Tappi Algadi	570		1.6	A	B	Yes
	KS-26	DRR	DRR	7*100' (Average width 4' and height 6'	Tappi Algadi		60	1.5	B		
	KS-27	Irrigation	Cutting and Filling	length 2000',width 200' and height 100'	Tappi Algadi		50	1	C		
Toor Dhand	KS-28	DWSS	Pipeline from Zebi Scheme	PVC8000'PL (3"dia) and PVC10000'PL (6"dia)	Toor Dhand	330		4	A	E	Yes
	KS-29	Irrigation	Water Tank	30'*30'*4'	Toor Dhand		15	0.7	B		
	KS-30	DRR	DRR	5*100' (Width 4’ and height 6’)	Toor Dhand		7.5	1.1	C		
	KS-31	Irrigation	Rehabilitation of Dug-well		Toor Dhand		15	0.15	D		
n To or	KS-32	DWSS	Pipeline from Tube-well	PVC6000'PL (3"dia)	Parachgan Toor Dhand	261		0.8	A	A	
	KS-33	DWSS	Rehabilitation of Dug-well		Parachgan Toor Dhand	80		0.15	B		

Village Names	Codes	Schemes (Main)	Scheme (Sub Type)	Specifications/Particulars	Location of the Intervention	Beneficiary HH	Land to be Protected (Ha)	Estimated Cost [PKR/Millions]	Priority Ranking		Scheme adopted from the GLAs Lists
									Village	VC	
	KS-34	DRR	DRR	6*100' (Average width 4' and height 6'	Parachgan Toor Dhand		5	1.22	C		
	KS-35	Street Pavement		700'	Parachgan Toor Dhand	100		1	D		
Union Council		Karak North			Village Council	Tappi Karak					
Mohallah Khattak house	KN-36	DRR	DRR	3*100' (Average width4' and height 6')	Mohallah Khattak house	45		0.62	A	F	
	KN-37	DWSS	Pipeline	PVC19680'PL (4"dia)	Mohallah Khattak house	845		3.3	B		
	KN-38	Sewerage system	Drainage system	3000' (dimension 0.75'*1.16')	Mohallah Khattak house	845		3.14	C		Yes
Mohallah Nimak Mandi	KN-39	DWSS	Pipeline from Zebi Scheme	PVC2000' (4"dia)	Mohallah Nimak Mandi	560		0.59	A	E	Yes
	KN-40	DRR	DRR	2*100' (Width 4' and height 6')	Mohallah Nimak Mandi	200		0.41	B		
	KN-41	Sewerage system	Drainage system	4000' (dimension 0.75'*1.16')	Mohallah Nimak Mandi	560		4.2	C		Yes
Mohallah khadi Khel	KN-42	DWSS	Pipeline from Zebi Scheme	PVC2000' (4"dia)	Mohallah khadi Khel	280		0.59	A	D	Yes
	KN-43	Sewerage system	Drainage system	4500' (dimension 0.75'*1.16')	Mohallah khadi Khel	280		4.7	B		Yes
Mohallah Tana Road	KN-44	DWSS	Pipeline from Zebi Scheme	PVC4000'PL (4"dia)	Mohallah Tana Road	295		0.7	A	C	Yes
	KN-45	DWSS	Mini Dam	width 30',height 40' and 3 Km catchment area	Kotal	295		4	B		Yes
	KN-46	Sewerage system	Drainage system	6000' (dimension 0.75'*1.16')	Mohallah Tana Road	295		6.3	C		Yes
Tappi Tarkhobi	KN-47	DWSS	Pipeline from Shnobai Chashma	PVC19840'PL (4"dia)	Tappi Tarkhobi	500		2.55	A	B	Yes
	KN-48	Sewerage system	Drainage system	2000' (dimension 0.75'*1.16')	Tappi Tarkhobi	500		2.1	B		Yes
	KN-49	DRR	DRR	2*100' (Width 4' and height 6')	Tappi Tarkhobi	30		0.41	C		
Tappi Karak	KN-50	DWSS	Pipeline from Shnobai Chashma	PVC19680'Pl (3"dia)	Tappi Karak	1300		2.51	A	B	Yes
	KN-51	DWSS	Pipeline + Water Tank	PVC13120'PL (4"dia) and 30'*30'*4.5' tank	Tappi Karak	800		3	B		
	KN-52	DRR	DRR	3*100' (Width 4' and height 6')	Tappi Karak	200		0.62	C		
Tan Session	KN-53	DWSS	Pipeline from Shnobai Chashma to Tappi Karak	PVC5000'PL (4"dia)	Mohallah Session Court	250		0.9	A	B	Yes

Village Names	Codes	Schemes (Main)	Scheme (Sub Type)	Specifications/Particulars	Location of the Intervention	Beneficiary HH	Land to be Protected (Ha)	Estimated Cost [PKR/Millions]	Priority Ranking		Scheme adopted from the GLAs Lists
									Village	VC	
	KN-54	Street pavement		2000'	Mohallah Session Court	250		0.22	B		
	KN-55	DRR	DRR	200' (Width 4' and height 6')	Mohallah Session Court	45		0.41	C		
Andi Karak	KN-56	DWSS	Pipeline + Water Tank	PVC3000'PL (4"dia) and circular tank 20' dia 4' height	Andi Garbi	220		1.1	A	A	
	KN-57	DRR	DRR	200' (Width 4' and height 6')	Andi Garbi		30	0.41	B		
Rahmat Abad	KN-58	DWSS	Rehabilitation of Kamager Pipeline	PVC6000'PL (3"dia)	Rahmat Abad	910		0.8	A	A	Yes
	KN-59	DWSS	Solar System for Tube-well	3 number	For Kemut Khel,Dawood Khel and Ghohar Khel PHED Tube-well	1500		6	B		
	KN-60	DWSS+Irrigation	Mini Dam	In 2 place (40' width and 20' height)	In Ameen Khel and Dashum Khel area	1820		6	C		
	KN-61	DRR	Protection Wall	10*30' (Width 4' and height 6')	Walayut Khan Korona, Kemut Khan, Ameen Khan,Ghohar Khel and Haji Meer Waly Khan	250		0.7	D		
Union Council		Karak North			Village Council	Meta Wala					
Molvi Mohammad	KN-61	DWSS	Pipeline from Zebi Scheme	PVC3000'PL (4"dia)	Mohallah Molvi Mohammad Nawab	930		0.72	A		Yes
	KN-62	Sewerage system	Drainage system	5000' (dimension 0.75'*1.16')	Mohallah Molvi Mohammad Nawab	930		5.3	B	E	Yes
Mohallah Faqir Khel	KN-63	DWSS	Pipeline from Zebi Scheme	PVC4000'PL (4"dia)	Mohallah Faqir Abad	470		0.7	A		Yes
	KN-64	DWSS	Mini Dam	width 30',height 40' and 3 Km catchment area	Kotal	400		4	B	A	Yes
	KN-65	Sewerage system	Drainage system	6000' (dimension 0.75'*1.16')	Mohallah Faqir Abad	470		6.3	C		Yes
Mohallah Asat Khel	KN-66	DWSS	Pipeline from Zebi Scheme	PVC3000'PL (3"dia)	PL from TMA Tube-well line to Asat Khel	470		0.42	A	D	Yes
	KN-67	DRR	DRR (Width 4' and height 6')	3*100'	Mohallah Asat Khel	70	5.5	1.22	B		
bi--	KN-68	DWSS+Irrigation	Mini Dam	width 30' and height 40'	Kotal	400		4	A		Yes

Village Names	Codes	Schemes (Main)	Scheme (Sub Type)	Specifications/Particulars	Location of the Intervention	Beneficiary HH	Land to be Protected (Ha)	Estimated Cost [PKR/Millions]	Priority Ranking		Scheme adopted from the GLAs Lists
									Village	VC	
	KN-69	DWSS	Circular Tank + Pipeline	Tank 10' dia and 4.5' height,PVC5500'PL (2"dia)	From Kotal Chasma to Markaz Korona,Jawo Zara and Shobli Banda	400		1.4	B	C	Yes
	KN-70	DWSS + Irrigation	Mini Dam	width 20' and height 20'	Kortangi	210		2	C		
	KN-71	Sewerage system	Drainage system	1300' (dimension 0.75'*1.16')	Markaz Korona	170		1.4	D		Yes
	KN-72	DWSS	Well Machinery + Pipeline	1 machine for Dug-well and PVC2000'PL (2"dia)	Asmeen ullah Dug-well	100		0.5	E		
Mitha Wala	KN-73	DWSS + Irrigation	Mini Dam	width30' and height 40'	Spirkundi Dam	180		4	A	E	
	KN-74	Rehabilitation of Pond		80'*20'	Baari Hwar	380		1	B		
	KN-75	DWSS	Pipeline + Over Head Tank	PVC6000'PL (2"dia) and 10'*10'*4' tank	From Kotal dam to Markaz Korona	380		3.7	C		Yes
	KN-76	DWSS	Pipeline	PVC3000'PL (3"dia)	From Atta Ullah scheme to meta Wala	300		0.45	D		
	KN-77	Sewerage System	Drainage system	1500' (dimension 0.75'*1.16')	meta Wala	150		1.6	E		Yes
	KN-78	Cattle Pond	Rehabilitation of Cattle Pond	60'*80' (Average width 10' and height 5')	meta Wala	400		0.25	F		Yes
Choungi	KN-79	DWSS	Pipeline + Water Tank	PVC4000'PL (1.5"dia) and 10'*10'*4.5' tank	Halid Dug-well	280		0.8	A	B	
	KN-80	Irrigation	Pipeline from Open Well	PVC 2000' PL 2" dia	Open well in Choungi	35	15	0.9	B		
	KN-81	Irrigation	Pipeline from Irrigation Tube-well	PVC 3000' PL 3'' dia	From Irr Tube-well	25	18	1.2	E		
	KN-82	DRR	Protection Wall for Building	8*40' (Width 4’ and height 6’)	Choungi	30		0.7	B		
	KN-83	Sewerage System	Drainage system	1000' (dimension 0.75'*1.16')	Choungi	120		1.1	C		Yes
Union Council		Jandri			Village Council	Jandri					
Muskhi Khel	JA-85	irrigation	Pipeline from Zebi Dam	PVC4000'PL,4"dia	Muskhi Khel		40	0.686	A	C	
	JA-86	DWSS	Pipeline	PVC3000'PL,2"dia	PL from Padal Khel Water Tank (2 lacs gallons capacity) to Muskhi Khel	115		0.339	B		
	JA-87	Cattle Pond	Cattle Pond	3each 20'*20 ' (Average	Muskhi Khel	115		0.192	C		

Village Names	Codes	Schemes (Main)	Scheme (Sub Type)	Specifications/Particulars	Location of the Intervention	Beneficiary HH	Land to be Protected (Ha)	Estimated Cost [PKR/Millions]	Priority Ranking		Scheme adopted from the GLAs Lists
									Village	VC	
				width 10' & height 5')							
Shahidan Qoli Khel	JA-88	DWSS	Rehabilitation of Muhammad Saeed Pond		Shahidan Qoli Khel	40		0.15	A	D	Yes
	JA-89	Water pond	Water Pond	2each 15'*15'	Shahidan Qoli Khel	60		0.37	B		
Sepin Banda /Wardak	JA-90	DWSS	Mini Dam	100'width,20'height	in place of peer Meela	600		2.689	A	A	
	JA-91	DWSS	Pipeline + Water Tank	PVC3000'PL,2"dia and 15'*15'*4.5' tank	From Jawar Ghondy Chashma to Hazar Korona	300		0.6	B		Yes
	JA-92	DRR	Protection Wall for Land and Building	8*15' (Width 4' & Height 6')	Spin Banda	70	5	0.26	C		
Jandari Shahidan	JA-93	DWSS	New Tube-well	one number	Jandari Shahidan	405		3	A	E	
	JA-94	DWSS	Water Pond	4 each 10'*10'	Jandari Shahidan	150		0.6	B		
	JA-95	DRR	Protection Wall for Building and Land	600' (Width 4' & Height 6')	Jandari Shahidan	40	2.5	1.31	C		
Tabbi Khawa	JA-96	DWSS	Pipeline + Pressure Pump + Solar System	One Pressure Pump and PVC 800'PL,3"dia	Handa Chasma	432		1.8	A	B	Yes
	JA-97	Education	Primary School		Tabbi Khawa	480			B		
	JA-98	Sewerage System	Drainage system	1000' (dimension 0.75'*1.16')	Tabbi Khawa	300		1.04	C		
Union Council		Jandri			Village Council	Sarat Khel					
Sarat Khel	JA-99	Irrigation		PVC7500'PL,2"dia	Sarat Khel	350	30	0.82	A	B	
	JA-100	DRR	DRR	6*100' (Width 4' & Height 6')	Sarat Khel	65	2.5	1.31	B		
	JA-101	DWSS	Rehabilitation of Dug-well	15'dia and 80' depth	Muhammad Kalim Korona	15	7.5	0.15	C		Yes
Badshah Koron	JA-102	DWSS	Water Tank + Pipeline	20'*20'*4.5' and 15000' (3"dia)	Raise Badshah Korona	60		2.371	A	A	
	JA-103	DRR	DRR	3*100' (Width 4' & Height 6')	Raise Badshah Korona	20		0.655	B		
Gual Banda	JA-104	DRR	DRR	6each 200' (Width 4' & Height 6')	Gual Banda	85	20	2.62	A	D	
	JA-105	irrigation	Pipeline	PVC5000'PL,4"dia	Gual Banda		50	1	B		
Talab Khel	JA-106	Irrigation	Pipeline + Water Tank	PVC 6500'PL with 2"dia & tank 25'*25'*4.5'	For SRSP Tube-well Scheme	240	40	1.22	A	C	
	JA-107	DWSS	PHED Social Problem		On Tube-well				B	E	

Village Names	Codes	Schemes (Main)	Scheme (Sub Type)	Specifications/Particulars	Location of the Intervention	Beneficiary HH	Land to be Protected (Ha)	Estimated Cost [PKR/Millions]	Priority Ranking		Scheme adopted from the GLAs Lists
									Village	VC	
	JA-108	DRR	DRR	5*20' (Width 4' & Height 6')	Talab Khel	60	8	0.22	C		
	JA-109	Sewerage System	Drainage system	700' (dimension 0.75'*1.16')	Ghebi Wana and Talab Khel	200		0.733	D		
Biland Kalla	JA-110	DWSS	Pipeline from Tube-well	PVC4000'PL,2"dia	PL from Janduri Ahmad Khel Tube-well to pedal Khel	170		0.446	A	D	
	JA-111	Irrigation	Pipeline from Tube-well	PVC4000'PL,2"dia	From Tube-well Muhammad Afzal		20	0.446	B		
	JA-112	DRR + Cause Way	Protection	8*15' (Width 4' & Height 6')	Gheebe Wana		6	0.262	C		
Ghari Khel	JA-113	DWSS	Pipeline	PVC4000'PL,2"dia	Pipeline from Toor Marach Tube-well to Ghari Khel water tank (capacity 10,000 gallons)	120		0.446	A	F	
	JA-114	DRR	DRR	8*15' (Width 4' & Height 6')	Ghari Khel	21	10	0.262	B		
Ahmad Khel	JA-115	irrigation	Pipeline from Open Well	PVC4000'Pl,2"dia	Pipeline from open well Masal khan Korona	40	9	0.446	A	G	
	JA-116	DWSS	PHED Social Problem		In Talab and Biland kala on Pipeline connection				B		
	JA-117	DWSS	Pipeline + Water Tank	6000'PL,2"dia,15'*15' *4.5'tank (Pl from Toor Marach T.W to Ahmad Khel)	in village	200		0.92	C		Yes
Union Council		Jandri			Village Council	Tarkha Koi					
Darab Kala	JA-118	DWSS	Pipeline	PVC2km PL,3"dia	From meta Khel Tube-well to Darab kala	1300		0.85	A	C	Yes
	JA-119	DWSS	Water Tank	3each10'*10'*4.5'	For Bermula, Darab and Kashmari Banda	1300		0.5	B		
	JA-120	DRR	DRR	600' (Width 4' & Height 6')	Sarkai Algada	80	30	1.31	C		
	JA-121	DWSS + Irrigation	Mini Dam	50'width,20'depth,1kmlength	konghar Algada	50	50	1.6	D		
Terka koi-1	JA-122	DWSS	Pipeline	PVC12000'PL,3"dia	Muhabat Khel to Terka Koi	780		1.54	A	B	Yes
	JA-123	DRR	DRR	18*100' (Width 4' & Height 6')	Terka Koi		35	3.93	B		

Village Names	Codes	Schemes (Main)	Scheme (Sub Type)	Specifications/Particulars	Location of the Intervention	Beneficiary HH	Land to be Protected (Ha)	Estimated Cost [PKR/Millions]	Priority Ranking		Scheme adopted from the GLAs Lists
									Village	VC	
	JA-124	Sewerage System	Drainage system	600' (dimension 0.75'*1.16')	Terka Koi	80		0.63	C		
Terka koi-2	JA-125	DWSS	Pipeline	PVC15000'PL,3"dia	Terka Koi	400		1.92	A	A	Yes
	JA-126	DWSS	Pipeline	PVC 6000' PL,3"dia	From Meta Khel to Algadi Meta Khel	120		1.3	A		
	JA-127	DRR	DRR	20*100' (Width 4' & Height 6')	Terka Koi		40	4.4	B		
	JA-128	DWSS + Irrigation	Small Dam	100' width,20'height	Hwazha Howla	600	15	2.689	C		
Union Council		Jandri			Village Council	Dhooda Khel					
Dhooda Khel	JA-129	DWSS	Pipeline + Water Tank	PVC4000'PL,3"dia and 20'*20*4.5' tank	From village Muhabat Khel to Dhooda Khel	260		1	A	B	Yes
	JA-130	DRR	Protection Wall for Building and Land	800' (Width 4' & Height 6')	Dhooda Khel	90		1.74	B		
	JA-131	DWSS	New Tube-well	one number	Dhooda Khel	260		3	C		
kotay Kalla	JA-132	DWSS	Pipeline	PVC 6000' PL,3"dia	From Dab Shehaan or Fazal shah S/O Hassan shah (Private) Tube-well to Kotay Kalla	500		0.779	A	C	
	JA-133	DRR	DRR	500' (Width 4' & Height 6')	For kotay and new kotay Kalla	90	8	1.09	B		
	JA-134	Cattle Pond	Cattle Pond	3each 20'*20' (Average width 10' & height 5')	kotay Kalla	600		0.192	C		
Grah Jawal Khel	JA-135	DWSS	Pipeline + Water Tank	PVC 4500'Pl,3"dia,tank 15'*15'*4.5'	From Aya Khel to Grah Jawal Khel	120		0.83	A	A	Yes
	JA-136	Irrigation	Mini Dam	length 100' and height 15'	Grah Jawal Khel		20	2.33	B		
	JA-137	DRR	DRR	5*100' (Width 4' & Height 6')	Grah Jawal Khel	40		1.09	C		
Khawaja Khel	JA-138	DWSS	New Tube-well	New Tube-well	Dhooda Khel	400		3	A	D	Yes
	JA-139	Cattle Pond	Cattle Pond	six each 30'*30' (Average width 10' & height 5')	Dhooda Khel	480		0.576	B		
	JA-140	DRR	DRR	5*100' (Width 4' & Height 6')	Dhooda Khel		25	1.09	C		
Union Council		Sabir Abad			Village Council	Dhandi Edal Khel					
Lak Ka na	SA-141	DWSS + Irrigation	Mini Dam	Width50' and height30'	Bergai+Ali Khel	380	40	3	A		
	SA-142	DWSS	Pipeline + Overhead Tank	PVC6560'PL (2"dia) and	Lak kana	300		3.75	B	F	Yes

Village Names	Codes	Schemes (Main)	Scheme (Sub Type)	Specifications/Particulars	Location of the Intervention	Beneficiary HH	Land to be Protected (Ha)	Estimated Cost [PKR/Millions]	Priority Ranking		Scheme adopted from the GLAs Lists
									Village	VC	
			(Gravity)	10'*10'*4' tank for Open well							
	SA-143	DWSS	PHED Tube-well Rehabilitation		Lak kana	300		0.3	C		Yes
	SA-144	Protection of Open Well		3 (10' dia)	Lak kana	300		0.6	D		
Naspa Banda	SA-145	DWSS	Solar System + Pipeline + Overhead Tank	PVC820'PL (1.5"dia) and 10'*10'*4' tank	From Naspa Chasma to Naspa village on Gravity system	350		3.1	A	A	
	SA-146	DWSS + Irrigation	Mini Dam	width 100' and height35'	Naspa Chene Khaolai Algada	350	40	7.5	B		
	SA-147	Irrigation	Pipeline + Over Head Tank	PL2296' (1.5"dia) and 10'*10'*4'tank	From Naspa Chashma	130	20	3.3	C		
	SA-148	Cattle Pond	Cattle Pond	2each 50'*20' (Average width 10' and height 5')	Naspa Banda	350		0.23	D		Yes
ai Sh ab az	SA-149	Irrigation	Machinery for Dug-well		Lal Nawb Khan Dug-well	40	10	0.4	A	E	
	SA-150	DRR	DRR	1000' (Width 4’ and height 6’)	Ghundi Shabaz khan	70		2.1	B		Yes
Dhandi Edal Khel	SA-151	DWSS + Irrigation	Mini Dam	100' length and 25' height	Dhandi Edal Khel	250	50	7	A	B	
	SA-152	DRR	DRR	6*100' (Width 4’ and height 6’)	Dhandi Edal Khel	67	5	1.22	B		Yes
	SA-153	Cattle Pond		30'*30' (Average width 10' and height 5')	Dhandi Edal Khel	50		0.1	C		Yes
	SA-154	DWSS	Pipeline	PVC3000'PL (4"dia)	Dhandi Edal Khel	250		0.4	D		
Nari Edal Khel	SA-155	DRR	DRR	10*100' (Width 4’ and height 6’)	Nari Edal Khel		25	2.1	A		Yes
	SA-156	Irrigation	Solar System + Water Tank	6solar and 20'*20'*4' tank	Nari Edal Khel		25	2.4	B		
	SA-157	Cattle Pond		200'*200' (Average width 10' and height 5')	Nari Edal Khel	238		0.7	C		Yes
	SA-158	DWSS + Irrigation	Mini Dam	100'*40'	Matoon	100	10	7.5	D	C	Yes
ri Ed al	SA-159	irrigation	Mini Dam	length150' and 50' width	Ghorori Edal Khel	95	2	3	A	D	
	SA-160	DWSS	Rehabilitation of Dug-well	15'dia and 100' depth	Ghorori Edal Khel	50		0.4	B		

Village Names	Codes	Schemes (Main)	Scheme (Sub Type)	Specifications/Particulars	Location of the Intervention	Beneficiary HH	Land to be Protected (Ha)	Estimated Cost [PKR/Millions]	Priority Ranking		Scheme adopted from the GLAs Lists
									Village	VC	
	SA-161	Cattle Pond		100'*50' (Average width 10' and height 5')	Ghorori Edal Khel	30		0.25	C		
	SA-162	DRR	DRR	2*100' (Width 4’ and height 6’)	Ghorori Edal Khel		2	0.41	D		Yes
Union Council		Sabir Abad			Village Council	Sabir Abad					
Ghorori char Khel	SA-163	Irrigation	Pipeline	PVC4000'PL (2"dia)	Gharori char Khel	200	50	0.5	A	C	
	SA-164	DRR	Protection Wall	10*30' (Width 4’ and height 6’)	Gharori char Khel	65	7.5	0.7	B		Yes
	SA-165	DWSS + Irrigation	Water Tank	5for Dug-well each 10'*10'*4.5'	Gharori char Khel	200	15	1.1	C		
	SA-166	Well Rehabilitation		4 (four)	Gharori char Khel	80	6	0.5	D		
kabir kala	SA-167	DWSS	Rehabilitation of Tube-well		Basmila Jan Tube-well	310		0.3	A	B	
	SA-168	DWSS	PHED Social Problem		kabir Kalla	350			B		
	SA-169	irrigation	irrigation line + Water Tank	PVC2000'PL (2"dia) and 10'*10'*4.5' tank	Maqeem khan Tube-well		15	0.5	C		
Sabir Abad	SA-170	DWSS + Irrigation	Mini Dam	Width100' and height 40'	Sabir Abad	1000	20	7	A	A	
	SA-171	DRR	DRR	1000' (Width 4’ and height 6’)	Sabir Abad	200		2.4	B		Yes
	SA-172	DWSS	Pipeline	PVC8000'PL (3"dia)	Sabir Abad	670		1.1	C		
	SA-173	Sewerage System		2000' (dimension 0.75'*1.16')	Sabir Abad	400		2.1	D		
Union Council		Sabir Abad			Village Council	Deli Mela					
a Ha nd	SA-174	irrigation	Pipeline + Solar System	PVC2000'PL (2"dia) and solar system	Shawa		12.5	2.25	A	E	

Village Names	Codes	Schemes (Main)	Scheme (Sub Type)	Specifications/Particulars	Location of the Intervention	Beneficiary HH	Land to be Protected (Ha)	Estimated Cost [PKR/Millions]	Priority Ranking		Scheme adopted from the GLAs Lists
									Village	VC	
	SA-175	DRR	DRR	3*100' (Width 4' and height 6')	Shawa		12.5	0.62	B		Yes
Deli Mela	SA-176	DWSS + Irrigation	Mini Dam	length 50' and 40' height	Matoon Algada	500	15	6	A	A	Yes
	SA-177	DWSS	Water Pump + Water Tank	5Horse power pump and 20'*20'*4' tank	Harindy Banda	400		1.5	B		
	SA-178	irrigation	Inlet/Outlet structure	10 *20' number	deli Mela		15	3.4	C		
Mah Banda	SA-179	DWSS + Irrigation	Mini Dam	40'width and 60' height	malayan Algada	414	16	6	A	C	
	SA-180	Inlet/Outlet Structure	Irrigation	5*50'	Mah Banda	75	5	4.2	B		
Shanki Banda	SA-181	irrigation	Mini Dam	Length100' and 40' height	Terki Banda	300	20	7.5	A	B	
	SA-182	DWSS	Pipeline	PVC6560'PL (3"dia)	Shanki Banda	45		0.85	B		Yes
	SA-183	Cattle Pond		50'*20' (Average width 10' and height 5')	Shanki Banda	495		0.12	C		
Mator	SA-184	DWSS	Solar System + Pipeline + Overhead Tank	2OHT each (10'*10'*4') and total PVC 15000'PL (2"dia)	From Dug-well to Over Head Tank 4300' PL and Pipeline within village 10700'	300	10	4.6	A	D	
	SA-185	DWSS + Irrigation	Mini Dam	width100' and height 40'	Mator	300	25	7.5	B		
	SA-186	Cattle Pond	Cattle Pond	3each 70'*30'Avg width 10' and height 5')	Mator	300		0.16	C		Yes
Union Council		Palosa Sar			Village Council	Palosa Sar					
Kimanri Banda	PS-187	DWSS	Pipeline (Rehabilitation)	PVC2500'PL,4"dia	Pipeline from Tube-well to 2 water tank	800		0.436	A	A	Yes
	PS-188	DRR	DRR	500' (Width 4' & Height 6')	For Kimanri &Gharochi Sharif	80		1.09	B		Yes
	PS-189	Road Protection	cause Way	12'*30'	In between Walley and Shamshaki Banda			0.15	C		
	PS-190	Cattle Pond	Cattle Pond	4each 10'*10' (Average width 10' & height 5')	Kimanri and Gharochi Sharif etc	800		0.128	D		
Palosa Sar	PS-191	DWSS	Pipeline	PVC4000'PL,3"dia	Pipeline from Rashool Rehman Tube-well to Sperha Banda	200		0.53	A	C	

Village Names	Codes	Schemes (Main)	Scheme (Sub Type)	Specifications/Particulars	Location of the Intervention	Beneficiary HH	Land to be Protected (Ha)	Estimated Cost [PKR/Millions]	Priority Ranking		Scheme adopted from the GLAs Lists
									Village	VC	
	PS-192	DRR	Protection Wall for Building	500' (Width 4' and height 6')	Hanzada Mufti Abdul Aziz Korona	60		1.1	B		Yes
	PS-193	Cattle Pond	Cattle Pond	4each 10'*10' (Average width 10' and height5')	Palosa Sar	800		0.13	C		
	PS-194	DWSS	Well Repair	Chashma Well	Palosa Sar	400		0.1	D		
Walley Banda	PS-195	DWSS	Pressure Pump + Solar System + Water Tank at Open Well	Pressure Pump+one Solar System and 15'*15'*4.5' Tank	Walley Banda	650		1.5	A	B	
	PS-196	DRR	DRR	300' (Width 4' & Height 6')	Walley Banda	70		0.65	B		Yes
	PS-197	Cattle Pond	Cattle Pond	2each 40'*40' (Average width 10' & height 5')	Walley Banda	500		0.256	C		
	PS-198	Rehabilitation of Pond		3 number	Ali Mut Khan, Mufti Bahram and Malak Sahab	100		0.4	D		
Ghonda Banda	PS-199	DRR	DRR	10*100' (Width 4' & Height 6')	Ghonda Banda	179		2.2	A	D	Yes
	PS-200	DWSS	Water Tank	25'*25'*4.5'	Ghonda Banda	200		0.503	B		
	PS-201	DWSS	Solar System	2for Dug-well	Ghonda Banda	200		3	C		
Shamshaki Banda	PS-202	DWSS	Solar System	4for Dug-well	Shamshaki Banda	150		6	A	E	
	PS-203	DWSS	Water Tank	2each 20'*20'*4.5'	Shamshaki Banda	60		0.742	B		
	PS-204	DRR	DRR	15*100' (Width 4' & Height 6')	Shamshaki Banda		11.5	3.3	C		Yes
Union Council		Palosa Sar			Village Council	Chani Khel					
Lawager Chani Khel	PS-205	DWSS	Pipeline from Tube-well	2 OHT (30'*30' *4.5'and 10'*10'*4.5')PVC 8000' PL,3"dia from T.W Zara Khel	in village	1300		1.85	A	A	Yes
	PS-206	DWSS	Pipeline + Water Tank from Open Well	tank 30'*30'*4.5' and PVC4000'PL with 2"dia	in village	700		1.1	B		
	PS-207	DRR	Protection Wall	4*70' (Width 4' & Height 6')	at flood stream	300	48	0.611	C		Yes
Zebi Chani Khel	PS-208	DWSS	Solar System + Overhead Tank at Open Well	OHT (15'*15'*4.5')	at two places in village	500		5.2	A	B	
	PS-209	DWSS	Pipeline from Open Well	PVC3000'PL and 3" dia	from open well	300		0.399	B		
	PS-210	DRR	Protection Wall	3*50' (Width 4' & Height 6')	at different flood stream	400		0.33	C		Yes
	PS-211	BHU	Health	One		1200			D		

Village Names	Codes	Schemes (Main)	Scheme (Sub Type)	Specifications/Particulars	Location of the Intervention	Beneficiary HH	Land to be Protected (Ha)	Estimated Cost [PKR/Millions]	Priority Ranking		Scheme adopted from the GLAs Lists
									Village	VC	
	PS-212	Education	Girls School			1200			E		
Kurd Sharif	PS-213	DWSS	Pipeline	PL from spring 5000' with 2"dia	Kurd Sharif	350		0.553	A	C	
	PS-214	DWSS	Barani Pond	6each 20'*20' in whole village	Kurd Sharif	200		1.2	B		
	PS-215	Cattle Pond	Cattle Pond	5each 20'*20' (Average width 10' & height 5')	Kurd Sharif	600		0.32	C		
	PS-216	DRR	Protection Wall for Building	400' (Width 4' & Height 6')	Kurd Sharif	100		0.873	D		Yes
Bulbuli	PS-217	DWSS	Solar System + Water Tank	one Solar System+Water Tank (20'*20'*4.5')	khara Algada	60		1.371	A	G	
Azar Khel	PS-218	DWSS	Solar System + Storage Tank	10'*10' *4.5'Tank+SolarSystem	For spring in mountain	65		1.166	A	D	
	PS-219	DWSS	Barani Pond	2of ponds 30'*30' each	at village	65		0.4	B		
Sarobi	PS-220	irrigation	Irrigation Channel	PVC4000'PL with 2"dia+storage tank20'*20'*4.5')	Sasalai Algada	300	25	0.82	A	E	
	PS-221	DWSS	Solar System + Storage Tank (15'*15'*4.5')	PVC4000'PL with 2" dia+water tank+solar system	Zara Algada	150		1.746	B		
	PS-222	DRR	DRR	10*50' (Width 4' & Height 6')	Sasalai Algada	700	40	1.09	C		Yes
Wanki	PS-223	irrigation	Irrigation Channel	PVC 5000'PL,3"dia	khara spring	250	15	0.65	A	F	
	PS-224	Road		5km (Asphalt)	Village	250			B		
	PS-225	solar System	Solarisation	3 number	Village	250		6	C		
Union Council		Ghundi Mir Khan Khel			Village Council	Ghundi Mir Khan Khel					
Ghundi Mir Khan Khel 1	GM-226	DWSS	Pipeline	PVC5000'PL,6"dia	Extension from Zareen 8" dia Pipeline to Ghundi Mir khan khel-1	400		1.72	A	B	Yes
	GM-227	irrigation	Mini Dam	50'width,15'height and 1km length	Shakara Algada	70	25	1.5	B		
	GM-228	DRR	DRR	8*15' (Width 4' & Height 6')	Sakinder Khel and Wergha Korona	15	15	0.266	C		Yes
	GM-229	DWSS	Solar System	1 number	Asif Tube-well	250		2	D		
	GM-230	Sewerage System	Drainage system	1000' (dimension 0.75' *1.16')	Ghundi Mir khan khel-1	200		1.04	E		

Village Names	Codes	Schemes (Main)	Scheme (Sub Type)	Specifications/Particulars	Location of the Intervention	Beneficiary HH	Land to be Protected (Ha)	Estimated Cost [PKR/Millions]	Priority Ranking		Scheme adopted from the GLAs Lists
									Village	VC	
Ghundi Mir Khan Khel 2	GM-231	DRR	Protection Wall for Building and Land	8*50' (Width 4' & Height 6')	Derki Algada	180	10	0.873	A	D	Yes
	GM-232	Sewerage System	Drainage system	1000' (dimension 0.75' *1.16')	Ghundi Mir khan Khel	320		1.03	B		
	GM-233	irrigation	Mini Dam	50'width,15'height	Derki Algada	700	25	1.5	C		
Mughal Khel	GM-234	DRR	DRR	10*200' (Width 4' & Height 6')	manger Khel		15	4.36	A	A	Yes
	GM-235	DWSS	Pipeline	PVC15000'PL,3"dia	manger Khel	20		1.91	B		Yes
	GM-236	Irrigation	Mini Dam	100'width,20'height	manger Khel		20	2.689	C		
	GM-237	Sewerage System	Drainage system	600' (dimension 0.75' *1.16')	manger Khel	100		0.628	D		
Kamali Zara Khel	GM-238	DRR	DRR	2500' (Width 4' & Height 6')	Kamali Zara Khel		20	5.46	A	C	Yes
	GM-239	DWSS	Water Tank	25'*25'*4.5'	Kamali Zara Khel	100		0.53	B		
	GM-240	Sewerage Pavement	Drainage system	200' (dimension 0.75' *1.16')	Kamali Zara Khel	50		0.21	C		
Union Council		Ghundi Mir Khan Khel			Village Council	Tarki Khel					
Ali Khel	GM-241	DWSS	Pipeline and Tube-well (Rehabilitation)	PVC2000'PL,3'dia and T.W	Ail Khel	150		0.35	A	C	Yes
	GM-242	DWSS + Irrigation	Mini Dam	100' width,15'height	Ali Khel	60	3	2.33	B		
	GM-243	DRR	DRR	3*100' (Width 4' & Height 6')	Ali Khel		2.5	0.655	C		Yes
	GM-244	Cattle Pond	Cattle Pond	2each 50'*50'	Ali Khel		5	0.32	D		Yes
	GM-245	Sewerage System	Drainage system	600' (dimension 0.75' *1.16')	Ali Khel	80		0.63	E		
Tarki Khel	GM-246	DRR	DRR	3*100'' (Width 4' & Height 6')	Terkhi Khel		20	0.655	A	A	Yes
	GM-247	DWSS	Solar System	5solar system for Pressure pump	Terkhi Khel	250		4	B		
	GM-248	DWSS + Irrigation	Mini Dam	150' width,25height	Terkhi Khel	70	20	5.76	C		
	GM-249	Sewerage System	Drainage system	600' (dimension 0.75' *1.16')	Terkhi Khel	200		0.63	D		
Badin Khel	GM-250	DWSS + Irrigation	Mini Dam	height 30' and width 50'	Badin Khel	450	10	3.5	A	B	
	GM-251	DWSS	Pipeline (Rehabilitation) and Tube-well	PVC5000'PL,3"dia	Sardar Tube-well Neka Badin Khel	450		0.653	B		Yes
	GM-252	DWSS	Pipeline	PVC3000'PL,3'dia	For Muhammad Inayat,Salamat Khel from Tube-well	300		0.399	C		
	GM-253	DRR	DRR	8*50' (Width 4' & Height 6')	Flood stream		12.5	0.873	D		Yes

Village Names	Codes	Schemes (Main)	Scheme (Sub Type)	Specifications/Particulars	Location of the Intervention	Beneficiary HH	Land to be Protected (Ha)	Estimated Cost [PKR/Millions]	Priority Ranking		Scheme adopted from the GLAs Lists
									Village	VC	
Union Council		Essak Chontra			Village Council	Essak Chontra					
Dab Dawar Khel	EC-254	DWSS	Pipeline + Water Tank	PVC10000'Pl,2"dia 20'*20'*4.5' Tank	Pipeline from Zareen Chashma	200		1.652	A		Yes
	EC-255	Irrigation	Diversion Structure	50'*8 (width 3' and height 5)	Gadara Algada		12.5	0.673	B		
	EC-256	DRR	DRR	2000' (Average width 3' and height 5')	Gadara and Doon Sha Algada		7.5	3.36	C		Yes
	EC-257	Sewerage System	Drainage system	1500' (dimension 0.75'*1.16')	Dab Dawer Khel	150		1.57	C		
	EC-258	DWSS + Irrigation	Mini Dam	120'*40'	chanter khola	100	10	6.27	D	A	
Dab Sangini	EC-259	DWSS	PL 5000'	Pipeline + Over Head Tank	Zareen Chashma	340		1.6	A		Yes
	EC-260	DRR	Protection Wall for Building	500' (Average width 3' and height 5')	Dab Sangini	75		0.84	B		Yes
	EC-261	Cattle Pond	Cattle Pond	2each 20'*20' (height 5& Average width10')	Dab Sangini	350		0.128	C		Yes
Dab	EC-262	DWSS	Pipeline from Zareen Chasma	PVC5km PL,2"dia	Dab Sangini	120		1.76	A		Yes
	EC-263	Irrigation	Pipeline for Dug-well	PVC1500'PL,2"dia	Dab		12	0.18	B		
	EC-264	DRR	DRR	15' (4number),100' (1number	Chandi Chowk & Dab Bego Khel	4	20	0.268	C		Yes
	EC-265	Irrigation	Dug-well (Rehabilitation)	12'dia,80'depth	Muhammad Rahman Well		15	0.1	D		
Ghundi kala	EC-266	DWSS	Pipeline + Water Tank	PVC6000'Pl,2"Dia of PL, (15'Dia and 5'depth tank)	Zareen Chashma to Ghundi kala	120		1.02	A		Yes
	EC-267	DWSS	Solar System	3for T.W	Ghundi kala	330		6	B		
	EC-268	DRR	DRR	10*100' (Average width 3' and height 5')	Zoon Sha Algada	30	6	1.683	C		Yes
	EC-269	Sewerage System	Drainage system	1000' (dimension 0.75'*1.16')	Ghundi kala	100		1	D		
Essak Chontra	EC-270	DWSS	Pipeline (Rehabilitation) + Water Tank	PVC15000'PL,3"dia,25'*25'*4.5 'Tank	From Zareen Chashma Essak Chontra	400		3	A		Yes
	EC-271	DWSS	Pipeline	PVC15000',2"dia	From water tank to Essak Chontra	1000		5	B		Yes
	EC-272	DRR	DRR	20*150' (Average width 3' and height 5')	Essak Chontra	150		5	C		Yes

Village Names	Codes	Schemes (Main)	Scheme (Sub Type)	Specifications/Particulars	Location of the Intervention	Beneficiary HH	Land to be Protected (Ha)	Estimated Cost [PKR/Millions]	Priority Ranking		Scheme adopted from the GLAs Lists
									Village	VC	
	EC-273	Sewerage System	Drainage system	5000' (dimension 0.75'*1.16')	Essak Chontra	100		1.62	D		
	EC-274	Irrigation	Mini Dam	100' length,15'height	Monaka Banda		20	2.33	E		
	EC-275	Cattle Pond		3each 100'*100'	Monaka Banda	100		0.4	F		Yes
	EC-276	Irrigation Channel	Pipeline	PVC4000' (4"dia)	Monaka Banda		20	0.7	G		
Union Council		Essak Chontra			Village Council	Kando Khel					
Kanda Wasti	EC-277	DWSS	Water Tank	20'*20'*4.5',PVC 1500'PL,2"dia	Serwer Khel	62		0.55	A	B	
	EC-278	DRR	DRR	2*100' (Average width 3' and height 5')	Opal Khel	80	3	0.336	B		Yes
	EC-279	Irrigation	Mini Dam	100'length,15'height	Toor Samey		6.4	2.33	C		
	EC-280	Sewerage System	Drainage system	1600' (dimension 0.75'*1.16')	Serwer Khel	40		1.67	D		
Kanda Khel 2 Sharki	EC-281	DWSS	Pipeline	PVC6000'Pl,2"dia	From Tube-well to Kanda Khel Sharki	70		0.659	A	A	
	EC-282	DWSS + Irrigation	Mini Dam	50'height,2km length,width80'	Khushali Algada	40	35	4.72	B		
	EC-283	DRR	DRR	3*100' (Average width 3' and height 5')	Lawager stream	30	20	0.54	C		Yes
Kanda Khel Gharbi	EC-284	DWSS	Pipeline + Water Tank	PVC1000'Pl,10'*10'*4.5' tank	From Raza P Pump to Rahim Abad	15		0.31	A	C	
	EC-285	DRR	DRR	5*100' (Average width 3' and height 5')	Lawager flood stream	100	25	0.9	B		Yes
	EC-286	DWSS	Pipeline + Water Tank	PVC600'PL,20'*20'*4.5' tank	From Meer Dad Tube-well to Mohallah Noor Abad	80		0.454	C		
	EC-287	DWSS	Pipeline	PVC7000'PL,3'dia	From Chasma Meer Kohi to Lal Muhammad Korona &Altaf Khel	70		0.9	D		
	EC-288	DWSS	Pipeline + Water Tank	PVC5000'PL,2'dai,10'*10'*4.5'tank	From Starry Chashma to Haji Ameer Sha Jan Korona	80		0.73	E		
	EC-289	DWSS	Pipeline + Water Tank	PVC5000'PL,2'dia,10'*10'*4.5'tank	From Kama Chashma to Wali Muhammad khan Korona	70		0.73	F		

Village Names	Codes	Schemes (Main)	Scheme (Sub Type)	Specifications/Particulars	Location of the Intervention	Beneficiary HH	Land to be Protected (Ha)	Estimated Cost [PKR/Millions]	Priority Ranking		Scheme adopted from the GLAs Lists
									Village	VC	
	EC-290	irrigation	Irrigation Channel	PVC4000',3'dia	Opel Khel		16	0.53	G		
	EC-291	DWSS + Irrigation	Mini Dam (cleaning)	120'*70'*15'	at Stara Chashma		40	0.6	H		
Mamoni Banda	EC-292	DWSS	Pipeline	PVC5000'PL,2"dia	From Algada Chashma to village Mamoni	50		0.55	A	E	
	EC-293	DRR	DRR	1000' (Average width 3' and height 5')	Center of Mamoni Algada	40	7.5	1.8	B		Yes
Saiph Ali Banda	EC-294	DWSS	Pipeline	PVC5000'PL,2"dia	From Dharga Chashma	300		0.55	A	D	
	EC-295	DWSS	Pipeline	PVC4000'PL,2'dia	From Sedaye Chashma	150		0.446	B		
	EC-296	Irrigation	Irrigation Channel	PVC1500',3'dia	From Dharga and Sedaye Chashma		15	0.21	C		
fakir Abad	EC-297	DWSS	Pipeline	PVC Pipeline 40000' 2" dia	From Gaja Chashma to Kamar and Pashi Khel	90		0.446	A	F	
	EC-298	DWSS	Pipeline + Water Tank	PVC Pipeline 40000' 2" dia,20'*20'*4.5'	From Chshmai to center Faqir Abad	70		0.82	B		
	EC-299	DRR	DRR	500' (Average width 3' and height 5')	Poya Algada		12	0.9	C		Yes
	EC-300	Collection Chamber	Collection Chamber	10'*10',3number	Faqir Abad	150		0.3	D		Yes
Union Council		Meta Khel			Village Council	Meta Khel					
Teran Koi	MK-301	DWSS	Water Tank	20000gallons (25'*25'*4.5')	Ghar kala & Muhabat Khel	350		0.503	A	A	
	MK-302	DWSS + Irrigation	Teran Koi Dam	100'width,1.5km,20'height	Teran Koi Dam	150	10	3.3	B		Yes
	MK-303	Cattle Pond	Water Pond	25'*25' (Average width10' &height5')	Teran Koi	60		0.1	C		
	MK-304	DRR	DRR	7*100' Width 3’ & height 5’)	Teran Koi Algada	30	10	1.191	D		
Takki Meta Khel	MK-305	Irrigation	Mini Dam	30'length,20'Height	Ghar kala	40	6	2.2	A	F	
	MK-306	DWSS	PHED Social Problem		Takhi Meta Khel	60			B		
	MK-307	Protection Wall	DRR	4*100' Width 3’ & height 5’)	Takhi meta Khel	10	10	0.681	C		
ta kh el-	MK-308	DWSS	Pipeline (Rehabilitation)	PVC7000'PL, 3"dia	meta khel#1	520	8	0.91	A	B	Yes
	MK-309	Irrigation	DRR	2*100' Width 3’ & height 5’)	Teran Koi Algada	40	8	0.34	B		

Village Names	Codes	Schemes (Main)	Scheme (Sub Type)	Specifications/Particulars	Location of the Intervention	Beneficiary HH	Land to be Protected (Ha)	Estimated Cost [PKR/Millions]	Priority Ranking		Scheme adopted from the GLAs Lists
									Village	VC	
	MK-310	DWSS	Solar System	1 number	Dhodi Khel	50		2	C		
	MK-311	Sewerage System	Drainage system	2000' (dimension 0.75'*1.16')	meta khel#1	50		2	D		
	MK-312	DWSS	Pipeline	PVC2000'PL,3'dia	Sagrati meta Khel	60		0.273	E		
meta khel-2	MK-313	DWSS	Solar System	1 number	Dhok	70		2	A	E	
	MK-314	Sewerage System	Drainage system	2500' (dimension 0.75'*1.16')	meta khel#2	100		2.62	B		
	MK-315	DWSS	Pipeline (Rehabilitation)	PVC5000'PL &2" dia	meta khel#2	280		0.552	C		Yes
meta khel-3	MK-316	DWSS + Irrigation	Mini Dam	1.5 km-Length, 50'.Width,20'-Height	Zeeri	50	12	4.6	A	D	Yes
	MK-317	DWSS	Pipeline (Rehabilitation)	PVC5000'PL,3"dia	From Doog kala to Nawab shah Korona	50		0.652	B		
	MK-318	Irrigation	Pipeline	PVC 5000'PL,3"dia	From Sabir Sadiq TW	60	20	1.2	C		
	MK-319	Sewerage System	Drainage system	4000' (dimension 0.75'*1.16')	meta khel-3	100		4.1	C		
	MK-320	Irrigation	Inlet/Outlet structure	3 Structures	Lands	20	3	0.6	D		
	MK-321	Cattle Pond	Cattle Pond	20'*20' (2number) Average width10' &height5'	meta khel-4	20		0.16	D		
Kamangar	MK-322	DWSS	Pipeline	PVC5000'PL,3"dia	From Ghar Kala to Roshnai Kamangar	100		0.652	A	C	Yes
	MK-323	Cattle Pond	Cattle Pond	3each 20'*20' (Average width10' &height5')	Anda and Sha Tori Korona	135		0.24	B		
Union Council		Meta Khel			Village Council	Lakhi Ghundaki					
Lakhi Ghundaki-1	MK-324	Protection Wall	DRR	(4*250')Average width 3' & height 5'	Mezakhel	15	10	1.7	A	C	
	MK-325	DWSS	Solar System	1 number	Sarfaraz Korona	200		2	B		
Lakhi Ghundaki-2	MK-326	DWSS	Pipeline	PVC6000'PL,3"dia	Lakhi gundaki#2	300		0.779	A		
	MK-327	DWSS	Pipeline + Water Tank	3"dia,PVC2000'PL,20'*20' *4.5'tank	Lawager Korona PL from Water tank	100		0.6	B		
	MK-328	DRR	DRR	4*250' Width 3' & height 5')	Teran Koi Algada	20	3.8	1.7	C	B	
	MK-329	Cattle Pond	Cattle Pond	2each 20'*20' (Average width10' &height5')	Lakhi gundaki#2			0.13	D		
	MK-330	DWSS	Solar System	1 number	Sarfaraz T.W	150		2	E		
	MK-331	Sewerage System	Drainage system	4000' (dimension 0.75'*1.16')	Lakhi gundaki#2	200		4.1	F		

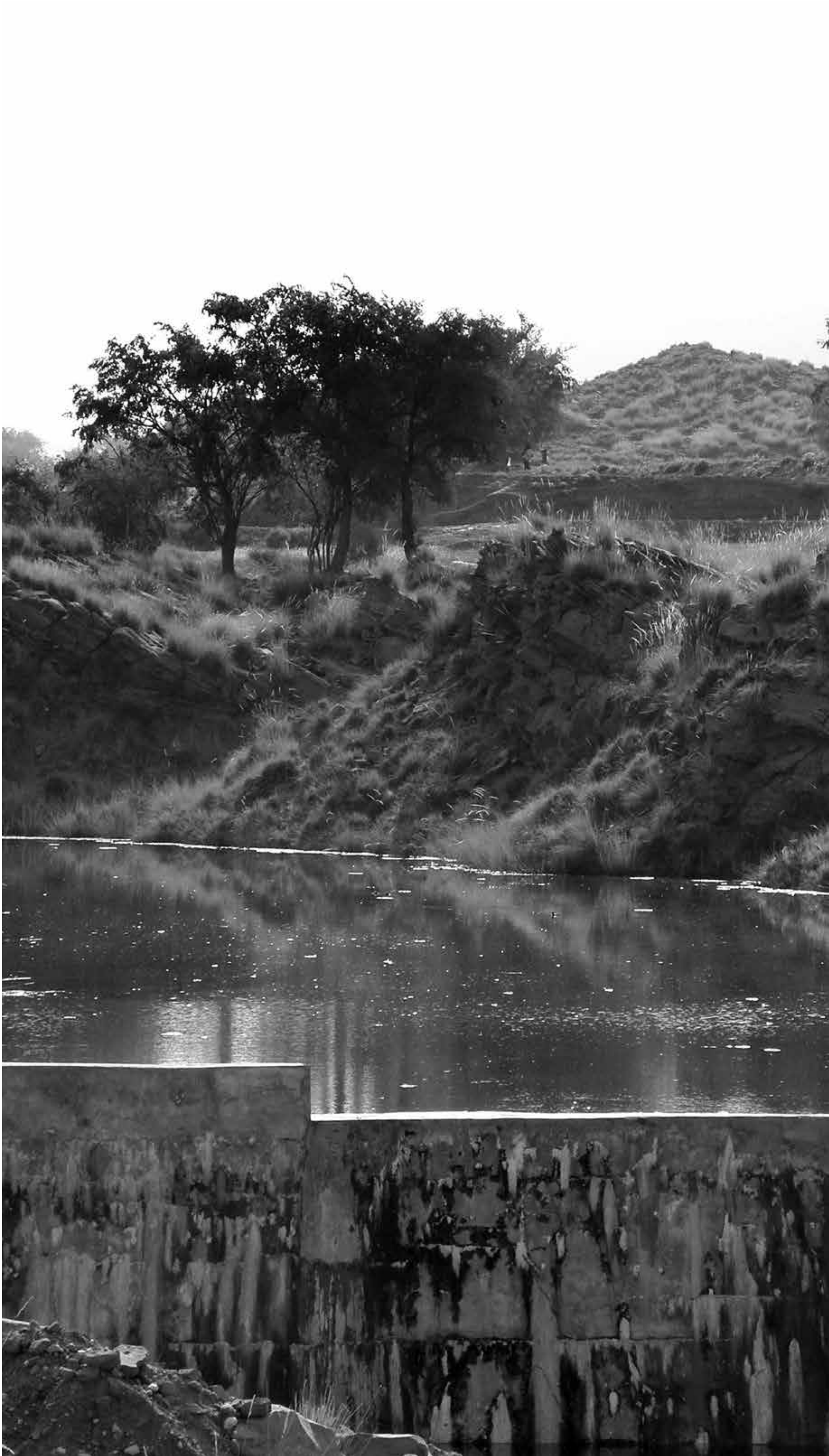
Village Names	Codes	Schemes (Main)	Scheme (Sub Type)	Specifications/Particulars	Location of the Intervention	Beneficiary HH	Land to be Protected (Ha)	Estimated Cost [PKR/Millions]	Priority Ranking		Scheme adopted from the GLAs Lists
									Village	VC	
aro ri Ch am	MK-332	DWSS	Pipeline	PVC4500'PL,3"dia	Gharori	450	-	0.589	A	A	Yes
	MK-333	DWSS	Collection Chamber	40'*40'	band Algada Chashma	10		0.4	B		
Union Council		Meta Khel			Village Council	Kanda Karak					
Dabli Lawager	MK-334	DWSS	Pipeline (Rehabilitation)	6" dia,PVC1000'Pl	Dabli Lawager	200		0.304	A	D	Yes
	MK-335	DWSS	Water Tank + Pipeline	PVC9000'PL,25'*25'*4.5' tank	Dabli Lawager	770		1.478	B		
	MK-336	Irrigation	Irrigation Pond	100'*15'	Dabli Lawager	120	20	2.33	C		
	MK-337	DRR	DRR	3*100' Width 3’ & height 5’)	Dabli Lawager		40	0.51	D		
	MK-338	Irrigation	Diversion Structure	200' Width 3’ & height 5’)	Dabli Lawager	70	15	0.341	E		
Tappi Kanda	MK-339	DWSS	Pipeline	PVC7000'PL&2" dia	Tappi Kanda	180		0.765	A	B	
	MK-340	Sewerage System	Drainage system	400m (dimension 0.75'*1.16')	Tappi Kanda	200		1.375	B		
	MK-341	DRR	DRR	100'*5 Width 3’ & height 5’)	Tappi Kanda	180	35	0.851	C		
Kanda Sharqi	MK-342	DWSS	Pipeline + Water Tank	3280'PVC PL,2"dia,25'*25'*4.5'	From Kamangar Pipeline to Village Kanda Sharki	150		0.9	A	A	Yes
	MK-343	DWSS	PHED Social Problem	1 Tube-well	Eid Badshah Korona				B		
	MK-344	DRR	DRR	1000' Width 3’ & height 5’)	Kanda Sharki	40	2.5	1.7	C		Yes
	MK-345	Cattle Pond	Cattle Pond	20'*20' (Average width10' &height5')	Kanda Sharki	100		0.08	D		
Kanda Baji	MK-346	DWSS	Pipeline from Chambi Dam	PVC10000'PL,2'dia	Kanda Baji Khel	300		1.08	A	C	
	MK-347	DRR	DRR	1000'' Width 3’ & height 5’)	Mehrab Korona(Kanda Baji Khel)		10	1.7	B		Yes
	MK-348	DWSS + Irrigation	Mini Dam	150'width,20'height	Tanga Korona	100	8	3.68	C		
Shagi Lawager	MK-349	DWSS	Pipeline + Water Tank	25'*25',PVC2000'Pl,3"dia	From Ghar kala to Roshnai Kamangar	400		0.773	A	E	Yes
	MK-350	DWSS	Water Tank	20'*20'*4.5'	Shagi	130		0.371	B		
	MK-351	Irrigation	irrigation Pond	100'*15'	Shagi	50	10	2.33	C		
	MK-352	DWSS	Solar System for Pressure Pump	5 number	Shagi	50		4	D		
Union Council		Latambar			Village Council	Mandawa Sharqi					
Ma nd aw a-1	LA-353	Irrigation	Water Channel	6560'	mandawa-1		35	0.9	A	C	
	LA-354	DRR	DRR	2*100' (Width 4’ and height 6’)	mandawa-1		5	0.41	B		

Village Names	Codes	Schemes (Main)	Scheme (Sub Type)	Specifications/Particulars	Location of the Intervention	Beneficiary HH	Land to be Protected (Ha)	Estimated Cost [PKR/Millions]	Priority Ranking Village	Priority Ranking VC	Scheme adopted from the GLAs Lists
	LA-355	Sewerage System	Drainage system	3000' (dimension 0.75'*1.16')	mandawa-1	175		3.144	C		
Mandawa-2	LA-356	DWSS	Solar System + Overhead Tank	PVC10,000'PL (4"dia) and 20' dia tank with height 4'	mandawa-2	380		7.1	A	B	
Mandawa-2	LA-357	Irrigation	Pipeline	PVC3000'PL (4"dia)	mandawa-2		15	0.52	B		
Mandawa-2	LA-358	DRR	DRR	4*100' (Average width 4' and height 6')	mandawa-2		40	0.816	C		
Mandawa-2	LA-359	Sewerage System	Drainage system	3000' (dimension 0.75'*1.16')	mandawa-2	290		3.144	D		
Mandawa-2	LA-360	Street Pavement		Length4000' and width8'	mandawa-2	250		5.55	E		
Sher Daraz Korona	LA-361	DWSS	Overhead Tank	20'dia and 4.5'depth	Sher Daraz Korona	350		5.4	A	A	
Sher Daraz Korona	LA-362	DWSS	Pipeline	PVC4000'PL,4"dia	Sher Daraz Korona	350		0.686	B		
Sher Daraz Korona	LA-363	DRR	DRR	7*100' (Average width 4' and height 6')	Sher Daraz Korona	100		1.43	C		
Toor Adam Banda	LA-364	DRR	DRR	4*100' (Average width 4' and height 6')	Toor Adam Banda		75	0.816	A	D	
Toor Adam Banda	LA-365	DWSS	Rehabilitation of Pipeline	6560' (3"dia)	Toor Adam Banda	349		0.85	B		
Toor Adam Banda	LA-366	irrigation	Solar System	3 number	Toor Adam Banda		60	6	C		
Toor Adam Banda	LA-367	irrigation	Open Channel	6560'	Toor Adam Banda		100	0.9	D		
LatambarWasti	LA-368	DWSS	Pipeline + Water Tank	Circular tank 10'dia,4.5'depth and PVC 13000'PL with 6"dia	PL from Changos Dam to Gharbi, Sharqi and Wasti Latambar on Gravity System	1500		4	A	E	
LatambarWasti	LA-369	DWSS	Pipeline	PVC13000'PL (6"dia) and PVC 3000'PL (4"dia)	Pipeline from Tube-well to water tank and then distribution in whole village	1500		4.23	B		
LatambarWasti	LA-370	Irrigation	Open Channel	4*1000'	From Changos Dam		50	0.6	C		
LatambarWasti	LA-371	Water Pond	Water Pond	50'*50'	Changos Dam Chasma Side	200		1	D		
LatambarWasti	LA-372	Sewerage System	Drainage system	2600' (dimension 0.75'*1.16')	Latambar Wasti	320		2.73	E		
LatambarWasti	LA-373	DRR	Protection Wall for Land and Building	6*100' (Average width 4' and height 6')	Latambar Wasti	75	5	1.22	F		

Village Names	Codes	Schemes (Main)	Scheme (Sub Type)	Specifications/Particulars	Location of the Intervention	Beneficiary HH	Land to be Protected (Ha)	Estimated Cost [PKR/Millions]	Priority Ranking		Scheme adopted from the GLAs Lists
									Village	VC	
	LA-374	Cattle Pond	Cattle Pond	20'*20' (height 5& Average width10')	Latambar Wasti	300		0.064	G		
Union Council		Latambar			Village Council	Latambar					
Latambar Sharqi	LA-375	DWSS	Rehabilitation of Tube-well + Water Tank + Pipeline	PVC17000'PL (3"dia)	Latambar Sharqi	1365		2.4	A	A	
	LA-376	DRR	DRR	6*100' (Average width 4' and height 6')	Latambar Sharqi		15	1.22	B		
	LA-377	Irrigation	Land Leveling				35	0.4	C		
Latamber-1	LA-378	DWSS	Solar System + Pipeline + Water Tank	Solar system for T.W Hassan Abad+PVC5000' (4"dia)PL+20'*20'*4.5' tank	latamber-1	880		3.25	A	A	
	LA-379	Sewerage System	Drainage system	2000' (dimension 0.75'*1.16')	latamber-1	230		2.1	B		
	LA-380	DRR	DRR	400' (Width 4’ and height 6’)	latamber-1	45		0.82	C		
Union Council		Latambar			Village Council	Latambar Garbi					
Minga Khel Latambar	LA-381	DWSS	Rehabilitation of Tube-well + New Pipeline + Solar System	PVC12000'PL (6"dia)	Manga Khel Tube-well Malak Hasham	375		5.5	A	A	
	LA-382	DWSS	Overhead Tank	40'*40'	Manga Khel	375		7	B		
	LA-383	DWSS + Irrigation	Mini Dam	20'*45'	Karopi Algada	375		3	C		
Eidgah Colony Latambar	LA-384	DWSS	Solar System	1 solar for PHED T.W	NearChangos Dam	230		2	A		
	LA-385	DWSS	Pipeline (Rehabilitation)	PVC6000'PL (2"dia)	Rehabilitation of Pipeline from Over Head Tank to village	230		0.66	B	A	
	LA-386	DWSS	Rehabilitation of Overhead Tank	15000 gallon capacity	Eidgah Colony	230		0.3	C		
Aral Banda	LA-387	DWSS	Pipeline + Water Tank	PVC9840'PL (3"dia)+15'*15*4.5'	From Changos Tube-well to Aral Adam Khel	540		1.52	A	A	
	LA-388	Irrigation	Cemented Channel	13120'	From Changosto Aral Adam Khel		15	2.6	B		
	LA-389	DRR	DRR	500' (Width 4’ and height 6’)	Chasoor Algada		5	1.02	C		

Village Names	Codes	Schemes (Main)	Scheme (Sub Type)	Specifications/Particulars	Location of the Intervention	Beneficiary HH	Land to be Protected (Ha)	Estimated Cost [PKR/Millions]	Priority Ranking		Scheme adopted from the GLAs Lists
									Village	VC	
Union Council		Latambar			Village Council	Sordag					
Nawaz Abad	LA-390	DWSS + Irrigation	Mini Dam	40'width and 20'height	Gholki Algada	200	20	3	A	B	
	LA-391	DWSS	Pipeline + Cleaning of Infiltration Gallery	PVC3500'PL (2"dia)	Gholki	150		0.5	B		
	LA-392	DRR	Protection Wall	5*200'	Nawaz Abad	50	3.75	2.04	C		
	LA-393	Water Pond	Water Pond	1number 30'*30'	Nawaz Abad	50		0.8	D		
Sordag	LA-394	DWSS	Pipeline + Solar System + Rehabilitation of Tube-well	PVC6000'PL (3"dia)	Pipeline from Tube-well to Water tank	900		3.5	A	A	
	LA-395	DWSS	Rehabilitation of Mini Dam Near Sordag Chowk		Sordag	700	20	1	B		
	LA-396	Sewerage System	Drainage system	1500'	Sordag	450		1.57	C		
	LA-397	Irrigation	Pipeline	PVC7000'PL (3"dia)	Pipeline for Malak Ayaz, Muhammad Ismail and Aqal Jan Tube-well		15	1	D		
	LA-398	Irrigation	Pipeline	PVC6000'PL (3"dia)	Pipeline for Hawaja Gul,HoshjahanTube-well		12	0.85	E		
	LA-399	Irrigation	Pipeline	PVC3000'PL (3"dia)	Pipeline for Abdul Zareen Tube-well		8	0.42	F		
Union Council		Latambar			Village Council	Warana Latambar					
Kamali Banda	LA-400	DWSS	Pipeline	PVC20000'PL (3"dia)	Kamali Banda	400		2.55	A	A	
	LA-401	DWSS	Water Tank	25'*25'*4'	Kamali Banda	400		0.52	B		
	LA-402	DRR	DRR	30*200' (Width 4’ and height 6’)	Kamali Banda	80	40	12.22	C		
	LA-403	irrigation	Water Course Pipe	PVC18000'PL (4"dia)	Kamali Banda	200		3	D		
Warana Latambar	LA-404	DWSS	Rehabilitation of Tube-well	Rehabilitation of T.W	Warana Latambar	80		0.3	A	A	
	LA-405	DWSS	Water Tank + Pipeline	PVC2000'PL (3"dia) and 30'*30'*4' tank	Warana Latambar	520		1.1	B		
	LA-406	Irrigation	Pipe Water Course from Afsar Ghani Tube-well	PVC6000'PL (4"dia)	Warana Latambar		5	1.02	C		

Village Names	Codes	Schemes (Main)	Scheme (Sub Type)	Specifications/Particulars	Location of the Intervention	Beneficiary HH	Land to be Protected (Ha)	Estimated Cost [PKR/Millions]	Priority Ranking		Scheme adopted from the GLAs Lists
									Village	VC	
	LA-407	DRR	DRR	10*100' (Width 4' and height 6')	Warana Latambar		24	2.1	D		



4.5. WUMP Schemes (Tehsil Karak)

S.No	Identified Scheme			Estimated Cost (PKR in Millions)
	Main Category	Sub-Category	Number	
1	Drinking Water Supply Scheme (DWSS)	Pipeline	66	70.16
		Operationalise Zebi Scheme	2	-
		PHED related social problems	7	-
		Water Pond	6	4.37
		Water Tank	11	17.57
		Pipeline + Pressure Pump + Solar System	6	17.21
		Solar System + Tank	6	19.83
		Pipeline + Water Tank	28	46.66
		Solar System	12	43.00
		Rehabilitation of Water Pond	1	1.00
		Tube-well	3	9.00
		Rehabilitation of (Dug-well, Pipeline, Tube-well, Water Tank, Pond, Mini Dam)	18	18.14
Sub Total			166	246.95
2	DWSS & Irrigation	Mini Dam	30	134.738
Sub Total			30	134.738
3	Irrigation	Cutting and Filling	1	1
		Mini Dam	6	12.549
		Diversion Structure	2	1.014
		Irrigation Pond	2	4.66
		Inlet/Outlet Structure	4	8.5
		Irrigation Channel	9	9.04
		Land Leveling	1	0.4
		Pipeline	16	14.918
		Solar System	1	6
		Pipeline + Solar System	1	2.25
		Machine for Dug-well	1	0.4
		Pipeline + Tank	3	5.02
		Rehabilitation of Dug-well	5	1.35
		Water Tank	3	1.8
Sub Total			55	68.901
4	Disaster Risk Reduction (DRR)	DRR Interventions	84	123.267
Sub Total			84	123.267
5	Sanitation	Drainage Line (Sewerage system)	35	79.654
		Collection Chamber	2	0.7
Sub Total			37	80.354
6	CPI	Street Pavement	5	14.17
		Cause Way (Road Protection)	1	0.15
Sub Total			6	14.32
7	Livestock	Rehabilitation of Cattle pond	1	0.25
		Cattle pond	24	6.088
Sub Total			25	6.338
8	Education	Primary School	3	
Sub Total			3	0
9	Health	BHU	1	
Sub Total			1	0
Gross Total	**407**			**674.869**

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