

Community Consultation Proceedings

# Community Consultation Workshop on Climate Change Adaptation in Water, Agriculture, and Energy Sector in Sost Valley, Upper Hunza of Hunza River Basin

9 November 2016, Sost, Pakistan



## About HI-AWARE

The Himalayan Adaptation, Water and Resilience (HI-AWARE) Research Consortium conducts research and pilot interventions, capacity building and policy engagement to enhance the climate resilience and adaptive capacity of poor and vulnerable people living in the mountains, hills and flood plains of the Indus, Upper Ganga, Gandaki and Teesta river basins in Pakistan, India, Nepal and Bangladesh.

HI-AWARE aims to influence policy and practice to aid the climate resilience and adaptation of poor and vulnerable populations in the region by generating evidence based knowledge on geophysical, socioeconomic, gender and governance drivers and conditions leading to climate vulnerability, as well as monitoring and assessing adaptation measures. It focuses on identifying 'critical moments' when communities are most vulnerable to climate risks, 'adaptation turning points' when existing adaptation strategies no longer work, and "adaptation pathways", sequences of policy actions that address both short-term responses to climate change and longer term planning. It looks at strengthening the expertise of researchers, students and science-practice-policy networks to conduct as well as use research on climate/social vulnerabilities, resilience, and adaptation.

HI-AWARE comprises of five consortium members: The International Centre for Integrated Mountain Development (ICIMOD), the Bangladesh Centre for Advanced Studies (BCAS), Pakistan Agricultural Research Council (PARC), The Energy and Resources Institute (TERI)-India, and Alterra-Wageningen University and Research Centre (Alterra-WUR).

HI-AWARE is one of the four research consortia under the Collaborative Adaptation Research Initiative in Africa and Asia (CARIAA) supported by the UK's Department for International Development (DFID) and Canada's International Development Research Centre (IDRC).

## Acknowledgement

This work was carried out by the Himalayan Adaptation, Water and Resilience (HI-AWARE) Consortium under the Collaborative Adaptation Research Initiative in Africa and Asia (CARIAA) with financial support from the UK Government's Department for International Development and the International Development Research Centre, Ottawa, Canada

HI-AWARE Internal Report

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# Community Consultation Workshop on Climate Change Adaptation in Water, Agriculture, and Energy Sector in Sost Valley, Upper Hunza of Hunza River Basin

9 November 2016, Sost, Pakistan

Organised by

Climate Change, Alternative Energy and Water Resources Institute,  
Pakistan Agricultural Research Council (PARC), Islamabad

Himalayan Adaptation, Water and Resilience (HI-AWARE) Research  
Kathmandu, Nepal, May 2017

**Published by**

HI-AWARE Consortium Secretariat  
Himalayan Adaptation, Water and Resilience (HI-AWARE) Research  
c/o ICIMOD  
GPO Box 3226, Kathmandu, Nepal

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**Photos:** Members of PARC and GRSO

**Citation:** HI-AWARE (2017) *Conference Proceedings of Community Consultation Workshop on Climate Adaptations and their prioritizations in Water, Agriculture, and Energy Sectors to improve livelihood in Hunza, 9 November 2016, Sost, Upper Hunza, Pakistan.* Kathmandu: HI-AWARE

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# Acronyms

CAEWRI	Climate Change Alternate Energy and Water Resources Institute
NARC	National Agriculture Research Centre
PARC	Pakistan Agriculture Research Council
HI-AWARE	Himalayan Adaptation, Water and Resilience Research on Glacier and Snow pack Dependent Areas
GRSO	Gojal Rural Support Organization
GLOF	Glacial Lake Outburst Floods
VOs	Village Organizations
CBOs	Community Based Organizations



# Executive Statement

The Climate Change Alternate Energy and Water Resource Institute (CAEWRI) of NARC had organized a one-day community consultation workshop on climate change adaptation in Sost, in the Hunza valley of the Upper Indus Basin on 9 November 2016.

The main objective of the workshop was to provide an overview of the HI-AWARE project to the people of the area and to inform them about PARC's plans there. Another objective was to create awareness in the local community about the impacts of climate change and possible adaptation measures in sectors like agriculture, energy, and water. By using collaborative discussions the workshop also aimed at identifying climate-related stresses faced by them.

Many climate experts and scientist from the PARC HI-AWARE team had participated and shared their knowledge and information with community members regarding climate change, climate-smart agriculture practices, and different climate adaptation measures to minimize the impact.

After the inaugural session a technical session was started that focused on climate change impact particularly on the livelihood of mountain people. The type of responses, actions, and adaptation measures to reduce the impact of climate change and to enhance the adaptive capacity of vulnerable persons were elaborated.

The next session was an open forum for community members to share their concerns and problems with respect to agriculture, energy, and the water sector in a climate-change scenario. After the discussion it was realized there was a need for proper research on how to tackle climate change problems in the Upper Indus Basin.

People also demanded training and workshops on climate-smart agriculture practices to enhance their knowledge and skills.

In general the community workshop was very qualitative in terms of content, quality of participation, and gender balance. To take things forward, people asked for more government and international investment in the Upper Indus Basin for adaptation and mitigation interventions in the energy, forest, water, and agriculture sectors to better their livelihoods.

# Introduction

The Climate Change, Alternative Energy and Water Resources Institute (CAEWRI), of the Pakistan Agriculture Research Council (PARC) had organized a one-day community consultation workshop on 9 November 2016 on climate change adaptations in the water, agriculture, and energy sectors in Sost valley of the Upper Hunza under the PSDP funded project titled 'Himalayan Adaptation, Water and Resilience (HI-AWARE) Research on Glacier and Snowpack Dependent Areas. The workshop was aimed at identifying the climate-related problems faced by people in the areas in a discussion with local communities. It also aimed to improve the understanding of local communities living in this arduous terrain - the Upper Indus Basin - of adaptation of climate-smart agricultural practices to cope with climate change.

The workshop was attended by local people, farmers, and other stakeholders. Researchers, practitioners, and prominent scientists from PARC gave the participants valuable information on climate extremes and risks associated with climate change, particularly in the context of the Upper Indus Basin.

There were two sessions. The first contained general presentations revolving primarily around climate extremes and associated risks, which affect people's livelihoods. The second session was a general discussion with locals to identify their main problems related to climate change. Participants particularly focused on some adaptation ways. Community representatives and farmers gave information regarding their problems in the agriculture, water, and energy sectors.



Figure 1: Local community members during workshop



Figure 2: Chairman PARC attending the workshop along with senior management of the PARC's research centers

# 1 Inaugural Session

Mr Raza Muhammad, Chairman Gojal Rural Support Organization (GRSO), inaugurated the workshop. He welcomed the PARC-HI-AWARE team and praised their efforts in the field of agriculture development and climate change. Then the HI-AWARE team was introduced by PARC and they gave a brief overview on climate change impacts on livelihoods of people living in the Upper Indus Basin.



Figure 3: Mr. Raza (Chairman GRSO) addressing the workshop

## Presentations

The Chairman of PARC, **Mr Yusuf Zafar**, said that climate change is no more a myth, and there is an urgent need to start adaptation in each sector, especially in agriculture and water. Communities in mountain areas are more dependent on agro-pastoral activities and climate change is in fact affecting every component of mountain ecosystems and their livelihoods. He mentioned that the Upper Indus Basin is more vulnerable to climate change due to its fragile environment with highest snow peaks, glaciers, GLOF events, and verticality of mountains along with instable terrain. Community-based and ecosystem-based adaptations are imperative in creating climate change resilience and adaptive capacity of vulnerable communities.

A brief introduction of the HI-AWARE project was given by **Mr Bashir Ahmad** (PI HI-AWARE project NARC). He elucidated on the overall scope and objectives of the project. The project has not only adopted a comparative and cross-scalar approach, with research and pilot adaptation intervention sites representing a range of climates, hydrological conditions, and socio-economic contexts, but also actively engages different stakeholders in the research, piloting, and demonstration process.

‘Community-based adaptations are imperative to create climate change resilience and adaptive capacity of vulnerable communities’



Figure 4: Chairman PARC addressing the workshop

**Mr Ahmad** also briefly highlighted the objectives of the current workshop and expressed hope that it would help participants understand the problems local people were facing with respect to climate change.

**Mr Munir Ahmed**, Director CAEWRI-NARC, gave an overview of the scope of HI-AWARE's initiatives in the Upper Indus Basin. These include possible climate-smart interventions and activities, which may be installed and implemented in the near future. PARC has been working all over Pakistan in improving agricultural practices of farmers. The organisation is also involved in research related to agriculture and livestock.

**Mr Nadeem Amjad**, member PARC, observed that climate change has impacted every sector of Pakistan's economy because of its high vulnerability due to its geographical location and greater dependence on climate-sensitive sectors (water resources, energy, and agriculture). He elaborated that the country's water resources are under immense pressure from climate change because of dependence on glaciers and snowmelt in the Upper Indus Basin. Integrated water resource management is a key to successfully adapting to climate change.

**Mr Sultan Ishaq** (climate change adaptation specialist, HI-AWARE) shared his knowledge and experience with the workshop participants.

**Mr Hussain** presented an overview of the Gojal Rural Support Organization (GRSO) objectives and current working areas. GRSO is actively involved in the area and works for the communities through collaboration with different private and public sector organizations. GRSO has helped set up many youth, women, and volunteer organizations in the surrounding villages; it is engaging with people in activities for the development of the area. The focus is on strengthening the community's capacity in different domains. To that effect, they have conducted several trainings and projects to improve the livelihoods of people. In terms of agricultural activities, the results of training in fruit drying can be seen in a clear increase in the quantity and quality of apricot sales.

‘Climate change has impacted every sector of Pakistan's economy because of its high vulnerability due to geographical location and greater dependence on climate-sensitive sectors’



Figure 5: Mr. Hussain presenting the overview of GRSO, a community based organization

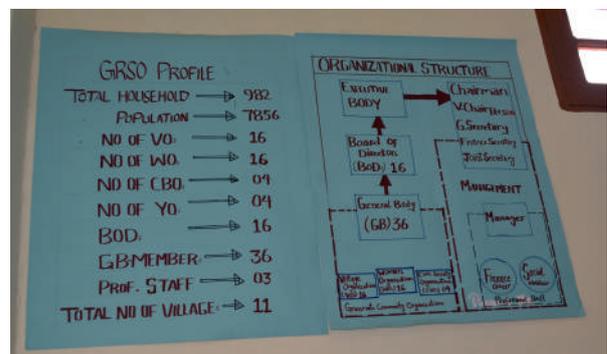


Figure 6: Chart showing GRSO's profile

## 2 Discussion Session

The D.G. of NARC, **Mr Azeem Khan**, facilitated a group discussion held during the workshop. A summary of this discussion is as follows:

Community members including women and men shared the problems they were facing due to climate change with the HI-AWARE team and PARC management. They praised PARC efforts and concerns in improving the livelihoods of climate vulnerable communities. Members from local communities in the high-mountain regions of the Hunza shared that climate change had devastating impacts on local environment and livelihoods.

They reported having seen a clear change in the weather pattern in the past 20-30 years. Previously, the weather in Upper Hunza was very harsh in winter and there was a lot of snowfall. A 50 year old farmer, recollected that in his childhood the snow fall had been about 2 feet.

The amount of snowfall made it difficult for them to walk. But now winters are dry and the snowfall quantity and period has lessened. The temperature of the earth's surface is now so high in winter that the snow does not remain for long periods of time any longer.

People also shared their observations of the variation in summer temperature and related parameters. They mentioned that summers are now clearly hotter compared to temperatures experienced 5-10 years ago. Residents of the Upper Hunza formerly did not require a fan or other cooling system in Summer, as the temperature was pleasant. But now they said they felt the need to use a fan.

**Mr Sultan Dad**, GRISO member, said that rainfall pattern had also changed. Earlier, rainfall had not been much and it did not occur in June or July. But now the area was experiencing more rainfall in these months and that was damaging crops and fruits. Moreover, these heavy rainfalls were causing flash floods and a rise in the water level of the river, which



Figure 7: A farmer highlighting problems related to agriculture



Figure 8: Mr. Sultan Dad, member of GRISO, shared his views on rainfall pattern change

‘Rise in temperature, reduction in snowfall, change in rainfall pattern, increase in frequency and intensity of extreme events of flash floods, GLOFs, and river bank erosion’

was damaging roads, hydro-power stations, and electric supply systems. In addition, road blockages and disturbances in the electric supply were making life and livelihood activities difficult for people.

People reported invariably that there had been a reduction in snowfall, change in the rainfall pattern, and rise in temperature, particularly in Winter. There had been an increase in frequency and intensity of extreme events of flash floods and GLOFs as also river bank erosion. The changing climate had adversely impacted agriculture and fruit production.

The participants discussed long and short-term challenges for them as a result of hydro-meteorological hazards, worsening due to climate change. These hazards would range from primary impacts like threats and damage to life during sudden disasters such as floods

**Mr Haji**, a farmer and member of GRSO, gave an example of the severe impact of erosion due to river flow. More than half of the land of two villages, named Passu and Gircha, had vanished due to river bank erosion. People had lost their valuable lands, trees, and houses due to this slow but, devastating hazard. The flow in the river is at its peak during Summer (July and August), which then takes away the precious land in its wake.

Some participants said that the impact of climate change is also evident in the melting of glaciers, seasonal changes in crop cultivation, sudden temperature shocks, erratic rainfall during harvesting time, and flash floods. The drinking water networks of villages are also affected by such floods in late summer. Likewise, if snowfall does not occur in winter, people do not get sufficient water for drinking and domestic use in the pipelines in early summer.

**Ms Saliqa**, member of a women's organization, talked about the health problems and lack of health care facilities in the area. Changing weather patterns were also causing many health problems in the villages that had not been there previously. Unfortunately, they do not have health care facilities. People have to travel to Central Hunza in case of serious health problems and accidents. Many people lose their lives, when they do not reach the hospital in time due to road blockages. She also said people of

Gojal were facing a harsh life after the Attabad Lake that formed due to landslides.

Residents of Upper Hunza demanded more national and international investments in the Upper Indus Basin for adaptation and mitigation interventions in the energy, water, forest, and agriculture sectors for sustainable livelihood development. They also asked for training sessions for farmers on best agricultural practices and to provide them with good quality seeds and livestock.



Figure 9: Mr. Haji talking about river erosion and its impacts

‘Less snowfall causes unavailability of drinking water in early Summer in some villages. Moreover, drinking water network get damaged due to floods’

# Sector-wise Climate Change Impact

The table shows analyses of climate change impact and suggestions for interventions

Sector	Climate extremes	Impacts	Suitable Interventions (suggested by HI-AWARE team to minimize impact)
Agriculture	Increase in rainfall	Floods, damaging crops, fluctuation in sowing period,	Improve drainages, mix cropping, initiate rain-water harvesting, use flood tolerant varieties, do tree plantation
	Decrease in snowfall	change in sowing time (water not available during sowing period), drought	Drought tolerant varieties, rain water harvesting, livelihood diversification
	Seasonality change and temperature shocks	Uncertainties about when to sow, cultivate, and harvest	Reliable weather condition updates from nearest weather station
			Mix cropping/crop diversification
		Crop damages due to sudden temperature increases, diseases in livestock due to sudden heat stress	Livelihood diversification (reduced the climate stress)
			High temperature tolerant varieties and fast maturing crops
			Crop diversification
			Heat tolerant livestock
		Crops damaged by unusual rainfall	Soil management practices
			Flood tolerant varieties
Damage and hinder to fruit drying in sun	Improving drainage		
	Livelihood diversification		
Water	Flash flooding	River bank erosion, damage to irrigation network, crop damage, infrastructure damage	Plantations along river banks and channels?
			Flood tolerant crop varieties
	Fast maturing crops and plants		
	Improve drainages and irrigation infrastructure		
	Fluctuation in flows	Climate smart agriculture technologies	
GLOF	Glacial melting accelerates GLOF damage to irrigation, infrastructure, and crops, houses and cattle sheds	Early warning systems	
Energy	Extreme rainfall, flash floods and rise in river level	Damage to electricity poles and water channels, which brings water to the micro hydel ; Continuous low shading in winters	Emergency teams at village level
			Solar panels
			Solar geysers
	Unpredictable solid and liquid precipitation	Use energy efficient stoves	
Very low level of water in channels	Water not sufficient to produce electricity, disturbance in electric supply	Micro-hydel setups at village level as water is available in abundance	

# Closing Session

The D.G. of NARC, **Mr Azeem Khan**, concluded the consultation workshop by acknowledging the participation of people from different hamlets in Upper Hunza. He applauded that the workshop turned out to be very qualitative in terms of gender balance, equity and participation. He said there was a joint need of effort and coordination from both government agencies and communities to deal with climate change.

He praised the active participation of representatives from different VOs and CBOs in Upper Hunza who had shared information on the impacts of climate change and had suggested good recommendations to minimize the impacts. He said that people living in these vulnerable areas would know better what problems they were facing now and what were the upcoming challenges for them.

Keeping in mind their fruitful suggestions, PARC would make its best effort to help them in coping with climate change. It was also important to inform and sensitize other relevant organizations and institutes to work in collaboration.

At the end, **Mr Raza** expressed his gratitude to the PARC HI-AWARE team for arranging the workshop. He also appreciated HI-AWARE's initiatives with respect to climate change. Furthermore, he said the communities of Gojal, Upper Hunza were more vulnerable to climate change, and this workshop would not only bring awareness among them but also initiate serious dialogues and actions for climate change adaptation and mitigation in every sector, particularly in agriculture and water. He assured that GRISO would provide support in such adaptation and mitigation activities.

# Annexure 1

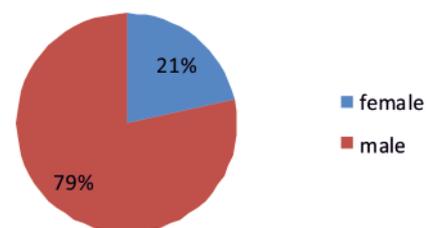
## Purpose of the event:

The main objective of the workshop was to provide an overview of the HI-AWARE project to the people of the area and to inform them about PARC's plans. Another objective was to create awareness in the local community about the impacts of climate change and possible adaptation measures in sectors like agriculture, energy, and water. By using collaborative discussions the workshop also aimed at identifying climate-related stresses faced by them.

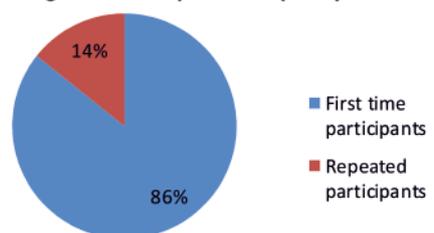
## Contribution to HI-AWARE results:

The workshop was in the context of HI-AWARE research component (RC3) - to identify climate

**Figure 1: Gender Participation**



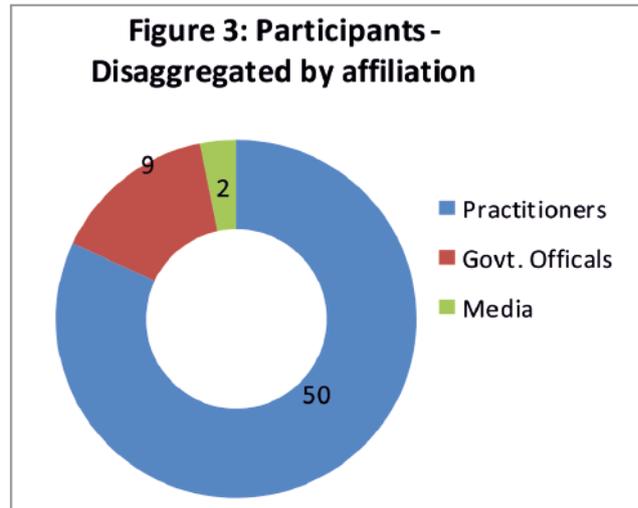
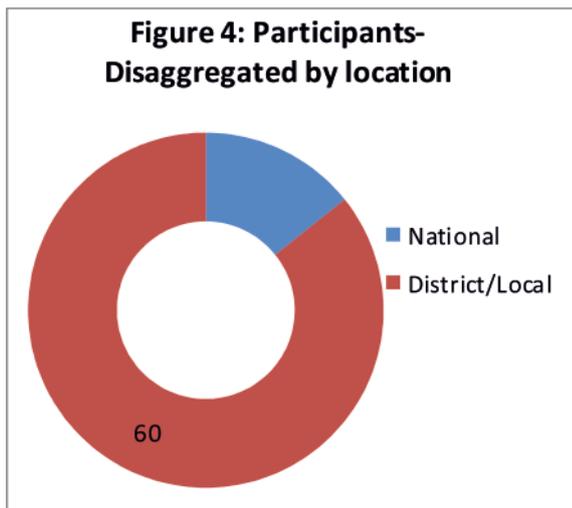
**Figure 2: Participation Frequency**



change impacts. It also helped identify critical moments faced by villages in the Upper Indus Basin. The report’s key findings will be part of activity 3.2.1 under task 3.2 - Identification and prioritization of important adaptation measures.

**Event statistics:**

A total of 70 people had participated in this community consultation of which 15 were women and 55 men. 60 participants were attending a HI-AWARE activity for the first time.



# Annexure 2

## Schedule

10:00 am - 10:30 am: Inaugural Session

Welcome address: Chairman GRISO, Mr Raza Muhammad

10:30 am - 11:30 am: Technical Session

- (i) Remarks by Chairman PARC, Mr Yusuf Zafar
- (ii) Overview of HI-AWARE Projects and Objectives - PSO/PI HI-AWARE: Mr Bashir Ahmad, NARC
- (iii) PARC work plans: Mr Munir Ahmad, Director CAEWRI NARC
- (iv) Climate Change Impact: Mr Nadeem Amjad, Member PARC
- (v) Climate-smart agriculture practices & Climate-smart technologies: Mr Sultan Ishaq, Climate Change Adaptation Specialist, NARC, HI-AWARE

11:30 am - 2:00 pm Open Discussion

Moderated by D.G. NARC, Mr Muhammad Azeem Khan

Discussion by various community members (Sharing of knowledge)

Conclusion and Final Remarks: Mr Muhammad Azeem Khan

# Annexure 3

Name	Gender	Designation	Village/city
Yusuf Zafar	Male	Chairman PARC	Islamabad
Nadeem Amjad	Male	PARC Member	Islamabad
Azeem Khan	Male	DG NARC	Islamabad
Munir Ahmad	Male	Director CAEWRI	Islamabad
Bashir Ahmad	Male	PSO CAEWRI	Islamabad
Zeeshan Tahir Virk	Male	WRS HI-AWARE	Islamabad
Sultan Ishaq	Male	CCAS HI-AWARE	Islamabad
Basharat Saeed	Male	LEAD Pakistan	Islamabad
Sher Ahmad	Male	DG MARC	Islamabad
Raza Muhammad	Male	Chairman GRSO Sost	Gircha
Mirza Hussan	Male	Secretary GRSO	Khyber
Hajji Jan	Male		Nazimabad
Amin Khan	Male		Khudabad
Akram Khan	Male		Sost
Mohd Shuja	Male		Sarteez
Farman Baig	Male		Nazimabad
Karim uddin	Male		Murkhun
Ifra Shahid	Female	WO Sost	Sost
Sadiqa Amir	Female	WO member	Murkhun
Zohra Jabeen	Female	WO member	Jamalabad
Fatima Ikram	Female	WO member	Khyber
Ahmed Faraz	Male		Khyber
Akber Khan	Male		Khudabad
Jamal uddin	Male		Murkhun
Safi Ullah	Male		Sost
Nizam uddin	Male		Jamalabad
Muhammad Jinnah	Male		Sost
Jabeen	Female	WO member	Nazimabad
Arsalan Ali	Male		Nazimabad
Sajjad Ali	Male		Gircha
Mohsin Hassan Khan	Male		Sarteez
Faiz Muhammad	Male		Sost
Dilawar Khan	Male		Sarteez
Aman Ali	Male		Murkhun
Haider Baig	Male		Nazimabad
Zarina Qadir	Female	WO member	Sost
Saliqa Nadeem	Female	WO member	Murkhun
Amir Ali	Male		Nazimabad
Saleem Baig	Male		Sost
Babar Khan	Male		Nazimabad
Safia	Female	WO member	Nazimabad
Tahira Rehman	Female	WO member	Sost
Noor Ali	Male		Murkhun

Shah Muhammad	Male		Jamalabad
Sultan Dad	Male		Murkhun
Haji Baig	Male		Nazimabad
Amin uddin	Male		Murkhun
Kamal Uddin	Male		Sost
Farman Ali	Male		Nazimabad
Zareef Numa	Female	WO member	Sost
Sakeela Bibi	Female	WO member	Nazimabad
Bibi Zahida	Female	WO member	Gircha
Bakht Numa	Female	WO member	Gircha
Saira Nazar	Female	WO member	Gircha
Ulfat Karim	Male		Jamalabad
Firaz Ali Khan	Male		
Islam uddin	Male		Jamalabad
Jamila Karim	Female	WO member	Sost
Tawakal Shah	Male		Khyber
Mufiat Ullah Khan	Male		Khudabad
Mohd Safeer	Male		Sarteez
Ghulam Amin	Male		Sarteez
Imam Panah	Male		Gircha
Muhabat Karim	Male		Gircha
Ashiq Ali	Male		Khudabad
Ahmed Ullah Baig	Male		Sost
Mohd Shifa	Male		Nazimabad
Boi Nazar	Male		Sost
Irshad Karim	Male		Sost
Aslam Baig	Male		Sarteez

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